CFS Version 8.0.2
Section: METSCODECK -0.8 .sct
METSCODECK-0.8

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Full Section Properties

Area	1000.8 mm^2	Wt.	0.076969 kN/m	Width	1251.0 mm
Ix	568852 mm^4	rx	23.84 mm	Ixy	-114393 mm^4
Sx(t)	15509 mm^3	y(t)	36.68 mm	α	89.916 deg
Sx(b)	19069 mm^3	y(b)	29.83 mm		
		Height	66.51 mm		
Iy	78995784 mm^4	ry	280.95 mm	Xo	-2.18 mm
Sy(l)	164036 mm^3	x(l)	481.58 mm	Yo	6.65 mm
Sy(r)	165231 mm^3	x(r)	478.09 mm	jx	1.94 mm
		Width	959.67 mm	jy	-208.47 mm
I1	78995944 mm^4	r1	280.95 mm		
I2	568685 mm^4	r2	23.84 mm		
Ic	79564632 mm^4	rc	281.96 mm	Cw	5.0341e10 mm^6
Io	79613600 mm^4	ro	282.05 mm	J	213.5 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A36, Fy=248.21 MPa

Compression		Positive Moment		Positive Moment	
Pao	96.50 kN	Maxo	1.869 kN-m	Mayo	20.144 kN-m
Ae	699.79 mm^2	Ixe	495469 mm^4	Iye	68650672 mm^4
		Sxe(t)	12572 mm^3	Sye(l)	151496 mm^3
Tension		Sxe(b)	18283 mm^3	Sye(r)	135535 mm^3
Ta	148.74 kN				
		Negative Moment		Negative Moment	
		Maxo	2.147 kN-m	Mayo	19.847 kN-m
Shear		Ixe	481069 mm^4	Iye	68133184 mm^4
Vay	24.98 kN	Sxe(t)	14442 mm^3	Sye(l)	133531 mm^3
Vax	7.70 kN	Sxe(b)	14490 mm^3	Sye(r)	151600 mm^3

MSDECK element 2 w/t exceeds 60.
R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
Ag=1000.8 mm^2, Fy=248.21 MPa
Tn=248.4 kN — NAS Eq. C2.1-1
Ωt=1.67, ϕt=0.9

Shear Strength
MSDECK element 1
Aw=11.5 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=1.7127 kN at -76 deg

Ωv=1.6, ϕv=0.95	
MSDECK element 3	
Aw=45.487 mm^2, Fv=138.61 MPa	NAS Eq. C3.2.1-3
Vn=6.305 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 8	
Aw=45.487 mm^2, Fv=138.61 MPa	NAS Eq. C3.2.1-3
Vn=6.305 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 13	
Aw=45.487 mm^2, Fv=138.61 MPa	NAS Eq. C3.2.1-3
Vn=6.305 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 18	
Aw=45.487 mm^2, Fv=138.61 MPa	NAS Eq. C3.2.1-3
Vn=6.305 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 23	
Aw=45.487 mm^2, Fv=138.61 MPa	NAS Eq. C3.2.1-3
Vn=6.305 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 28	
Aw=45.487 mm^2, Fv=138.61 MPa	NAS Eq. C3.2.1-3
Vn=6.305 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 30	
Aw=8.8258 mm^2, Fv=148.93 MPa	NAS Eq. C3.2.1-2
Vn=1.3144 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 32	
Aw=11.744 mm^2, Fv=148.93 MPa	NAS Eq. C3.2.1-2
Vn=1.749 kN at -67 deg	
Ωv=1.6, ϕv=0.95	

Axial Compression Strength

Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.375 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=1.007	NAS Eq. B2.1-4
ρ=0.77608	NAS Eq. B2.1-3
b=11.156 mm (ineffective width=3.2188 mm)	NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction	
S=36.641	NAS Eq. B4-7
Ia=104.58 mm^4	NAS Eq. B4-8
Is=186.48 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1
Element 2: Stiffened, w=63.804 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4655	NAS Eq. B2.1-4
ρ=0.57992	NAS Eq. B2.1-3
be=37.002 mm	NAS Eq. B2.1-2

b1=18.501 mm	NAS Eq. B2.3-9
b2=18.501 mm	NAS Eq. B2.3-10
Ineffective width=26.803 mm	
Element 3: Stiffened, w=56.859 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.306	NAS Eq. B2.1-4
ρ=0.63672	NAS Eq. B2.1-3
be=36.203 mm	NAS Eq. B2.1-2
b1=18.102 mm	NAS Eq. B2.3-9
b2=18.102 mm	NAS Eq. B2.3-10
Ineffective width=20.655 mm	
Element 4: Stiffened, w=53.982 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2399	NAS Eq. B2.1-4
ρ=0.66342	NAS Eq. B2.1-3
be=35.812 mm	NAS Eq. B2.1-2
b1=17.906 mm	NAS Eq. B2.3-9
b2=17.906 mm	NAS Eq. B2.3-10
Ineffective width=18.169 mm	
Element 5: Stiffened, w=3.0894e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=8.9511e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.0894e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=8.9511e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.982 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2399	NAS Eq. B2.1-4
ρ=0.66342	NAS Eq. B2.1-3
be=35.812 mm	NAS Eq. B2.1-2
b1=17.906 mm	NAS Eq. B2.3-9
b2=17.906 mm	NAS Eq. B2.3-10
Ineffective width=18.169 mm	
Element 8: Stiffened, w=56.859 mm	
f1=248.21 MPa, f2=248.21 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.306	NAS Eq. B2.1-4
ρ=0.63672	NAS Eq. B2.1-3
be=36.203 mm	NAS Eq. B2.1-2
b1=18.102 mm	NAS Eq. B2.3-9
b2=18.102 mm	NAS Eq. B2.3-10
Ineffective width=20.655 mm	

Element 9: Stiffened, w=53.982 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2399	NAS Eq. B2.1-4
ρ=0.66342	NAS Eq. B2.1-3
be=35.812 mm	NAS Eq. B2.1-2
b1=17.906 mm	NAS Eq. B2.3-9
b2=17.906 mm	NAS Eq. B2.3-10
Ineffective width=18.169 mm	

Element 10: Stiffened, w=3.0894e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=8.9512e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 11: Stiffened, w=3.0894e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=8.9512e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 12: Stiffened, w=53.982 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2399	NAS Eq. B2.1-4
ρ=0.66342	NAS Eq. B2.1-3
be=35.812 mm	NAS Eq. B2.1-2
b1=17.906 mm	NAS Eq. B2.3-9
b2=17.906 mm	NAS Eq. B2.3-10
Ineffective width=18.169 mm	

Element 13: Stiffened, w=56.859 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.306	NAS Eq. B2.1-4
ρ=0.63672	NAS Eq. B2.1-3
be=36.203 mm	NAS Eq. B2.1-2

b1=18.102 mm	NAS Eq. B2.3-9
b2=18.102 mm	NAS Eq. B2.3-10
Ineffective width=20.655 mm	
Element 14: Stiffened, w=53.982 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2399	NAS Eq. B2.1-4
ρ=0.66342	NAS Eq. B2.1-3
be=35.812 mm	NAS Eq. B2.1-2
b1=17.906 mm	NAS Eq. B2.3-9
b2=17.906 mm	NAS Eq. B2.3-10
Ineffective width=18.169 mm	
Element 15: Stiffened, w=3.0894e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=8.9512e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.0894e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=8.9512e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.982 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2399	NAS Eq. B2.1-4
ρ=0.66342	NAS Eq. B2.1-3
be=35.812 mm	NAS Eq. B2.1-2
b1=17.906 mm	NAS Eq. B2.3-9
b2=17.906 mm	NAS Eq. B2.3-10
Ineffective width=18.169 mm	
Element 18: Stiffened, w=56.859 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.306	NAS Eq. B2.1-4
ρ=0.63672	NAS Eq. B2.1-3
be=36.203 mm	NAS Eq. B2.1-2
b1=18.102 mm	NAS Eq. B2.3-9
b2=18.102 mm	NAS Eq. B2.3-10
Ineffective width=20.655 mm	
Element 19: Stiffened, w=53.982 mm	
f1=248.21 MPa, f2=248.21 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2399	NAS Eq. B2.1-4
ρ=0.66342	NAS Eq. B2.1-3
be=35.812 mm	NAS Eq. B2.1-2
b1=17.906 mm	NAS Eq. B2.3-9
b2=17.906 mm	NAS Eq. B2.3-10
Ineffective width=18.169 mm	

Element 20: Stiffened, w=3.0894e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=8.9512e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 21: Stiffened, w=3.0894e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=8.9512e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 22: Stiffened, w=53.982 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2399	NAS Eq. B2.1-4
ρ=0.66342	NAS Eq. B2.1-3
be=35.812 mm	NAS Eq. B2.1-2
b1=17.906 mm	NAS Eq. B2.3-9
b2=17.906 mm	NAS Eq. B2.3-10
Ineffective width=18.169 mm	

Element 23: Stiffened, w=56.859 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.306	NAS Eq. B2.1-4
ρ=0.63672	NAS Eq. B2.1-3
be=36.203 mm	NAS Eq. B2.1-2
b1=18.102 mm	NAS Eq. B2.3-9
b2=18.102 mm	NAS Eq. B2.3-10
Ineffective width=20.655 mm	

Elements 24 to 27:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=140.12 mm, bp=53.982 mm

kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6

k=26.95	NAS Eq. B5.1-5
f1=248.21 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.2397	NAS Eq. B5.1-3
ρ=0.66348	NAS Eq. B5.1-2
be=97.175 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.859 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.306	NAS Eq. B2.1-4
ρ=0.63672	NAS Eq. B2.1-3
be=36.203 mm	NAS Eq. B2.1-2
b1=18.102 mm	NAS Eq. B2.3-9
b2=18.102 mm	NAS Eq. B2.3-10
Ineffective width=20.655 mm	
Element 29: Stiffened, w=60.859 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.3978	NAS Eq. B2.1-4
ρ=0.6028	NAS Eq. B2.1-3
be=36.685 mm	NAS Eq. B2.1-2
b1=18.343 mm	NAS Eq. B2.3-9
b2=18.343 mm	NAS Eq. B2.3-10
Ineffective width=24.173 mm	
Element 30: Stiffened, w=11.032 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.2534	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=11.032 mm	NAS Eq. B2.1-2
b1=5.5161 mm	NAS Eq. B2.3-9
b2=5.5161 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=1.0284	NAS Eq. B2.1-4
ρ=0.76437	NAS Eq. B2.1-3
b=11.221 mm (ineffective width=3.459 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=36.641	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.7387e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Ae=699.79 mm^2, Fy=248.21 MPa
Pn=173.7 kN NAS Eq. C4.1-1
Ωc=1.8, ϕc=0.85

Positive Flexural Strength about X-axis
Effective width calculations for part 1: MSDECK
Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: Stiffened, w=56.859 mm
f1=187.32 MPa, f2=-151.29 MPa
ψ=0.80764 NAS Eq. B2.3-1
k=19.428 NAS Eq. B2.3-2
λ=0.51478 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.859 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.933 mm NAS Eq. B2.3-3
b2=28.429 mm NAS Eq. B2.3-4
Compression width=31.455 mm
b1+b2 > compression width (fully effective)
Elements 4 to 7:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=140.12 mm, bp=53.982 mm
kloc=26.95 NAS Eq. B5.1.2-1
β=4.4501 NAS Eq. B5.1.2-3
kd=26.852 NAS Eq. B5.1.2-2
R=1.7071 NAS Eq. B5.1-6
k=26.95 NAS Eq. B5.1-5
f1=189.02 MPa
Fcr=161.5 MPa NAS Eq. B5.1-4
λ=1.0819 NAS Eq. B5.1-3
ρ=0.73637 NAS Eq. B5.1-2
be=107.85 mm NAS Eq. B5.1-1
Element 8: Stiffened, w=56.859 mm
f1=187.32 MPa, f2=-151.29 MPa
ψ=0.80764 NAS Eq. B2.3-1
k=19.428 NAS Eq. B2.3-2
λ=0.51478 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.859 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.933 mm NAS Eq. B2.3-3
b2=28.429 mm NAS Eq. B2.3-4
Compression width=31.455 mm
b1+b2 > compression width (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: Stiffened, w=56.859 mm
f1=187.32 MPa, f2=-151.29 MPa
ψ=0.80764 NAS Eq. B2.3-1
k=19.428 NAS Eq. B2.3-2

λ=0.51478	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.933 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4
Compression width=31.455 mm	
b1+b2 > compression width (fully effective)	

Elements 14 to 17:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=140.12 mm, bp=53.982 mm	
kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=189.02 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.0818	NAS Eq. B5.1-3
ρ=0.73637	NAS Eq. B5.1-2
be=107.85 mm	NAS Eq. B5.1-1

Element 18: Stiffened, w=56.859 mm

f1=187.32 MPa, f2=-151.29 MPa	
ψ=0.80764	NAS Eq. B2.3-1
k=19.428	NAS Eq. B2.3-2
λ=0.51478	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.933 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4
Compression width=31.455 mm	
b1+b2 > compression width (fully effective)	

Element 19: No compressive stress (fully effective)

Element 20: No compressive stress (fully effective)

Element 21: No compressive stress (fully effective)

Element 22: No compressive stress (fully effective)

Element 23: Stiffened, w=56.859 mm

f1=187.32 MPa, f2=-151.29 MPa	
ψ=0.80764	NAS Eq. B2.3-1
k=19.428	NAS Eq. B2.3-2
λ=0.51478	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.933 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4
Compression width=31.455 mm	
b1+b2 > compression width (fully effective)	

Elements 24 to 27:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=140.12 mm, bp=53.982 mm	
kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2

R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=189.02 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.0818	NAS Eq. B5.1-3
ρ=0.73637	NAS Eq. B5.1-2
be=107.85 mm	NAS Eq. B5.1-1

Element 28: Stiffened, w=56.859 mm

f1=187.32 MPa, f2=-151.29 MPa	
ψ=0.80764	NAS Eq. B2.3-1
k=19.428	NAS Eq. B2.3-2
λ=0.51478	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.933 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4

Compression width=31.455 mm

b1+b2 > compression width (fully effective)

Element 29: No compressive stress (fully effective)

Element 30: No compressive stress (fully effective)

Element 32: No compressive stress (fully effective)

Element 31: No compressive stress (fully effective)

Center of gravity shift: y=-2.7317 mm

Sxe=12572 mm^3, Fy=248.21 MPa

Mnx=3.1205 kN-m — NAS Eq. C3.1.1-1

Ωb=1.67, ϕb=0.9

Negative Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK

Element 1: Unstiffened, w=14.375 mm

f1=223.91 MPa, f2=120.03 MPa	
ψ=0.53609	NAS Eq. B3.2-1
k=0.65975	NAS Eq. B3.2-2
λ=0.77216	NAS Eq. B2.1-4
ρ=0.92609	NAS Eq. B2.1-3
b=13.312 mm (ineffective width=1.0625 mm)	NAS Eq. B2.1-2

Element 2: Check for lip stiffener reduction

S=38.386	NAS Eq. B4-7
Ia=99.918 mm^4	NAS Eq. B4-8
Is=186.48 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1

Element 2: Stiffened, w=63.804 mm

f1=226.16 MPa, f2=226.16 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.3989	NAS Eq. B2.1-4
ρ=0.60243	NAS Eq. B2.1-3
be=38.437 mm	NAS Eq. B2.1-2
b1=19.219 mm	NAS Eq. B2.3-9
b2=19.219 mm	NAS Eq. B2.3-10

Ineffective width=25.367 mm

Element 3: Stiffened, w=56.859 mm

f1=224.15 MPa, f2=-176.21 MPa

ψ=0.78611	NAS Eq. B2.3-1
k=18.968	NAS Eq. B2.3-2
λ=0.56992	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	
b1=15.018 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4
Compression width=31.834 mm	
b1+b2 > compression width (fully effective)	

Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: Stiffened, w=56.859 mm
f1=224.15 MPa, f2=-176.21 MPa

ψ=0.78611	NAS Eq. B2.3-1
k=18.968	NAS Eq. B2.3-2
λ=0.56992	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=15.018 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4
Compression width=31.834 mm	
b1+b2 > compression width (fully effective)	

Elements 9 to 12:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=140.12 mm, bp=53.982 mm

kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=226.16 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.1834	NAS Eq. B5.1-3
ρ=0.68793	NAS Eq. B5.1-2
be=100.76 mm	NAS Eq. B5.1-1

Element 13: Stiffened, w=56.859 mm
f1=224.15 MPa, f2=-176.21 MPa

ψ=0.78611	NAS Eq. B2.3-1
k=18.968	NAS Eq. B2.3-2
λ=0.56992	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=15.018 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4
Compression width=31.834 mm	
b1+b2 > compression width (fully effective)	

Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: No compressive stress (fully effective)
Element 17: No compressive stress (fully effective)

Element 18: Stiffened, w=56.859 mm
f1=224.15 MPa, f2=-176.21 MPa

ψ=0.78611	NAS Eq. B2.3-1
k=18.968	NAS Eq. B2.3-2
λ=0.56992	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=15.018 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4

Compression width=31.834 mm
b1+b2 > compression width (fully effective)
Elements 19 to 22:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=140.12 mm, bp=53.982 mm

kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5

f1=226.16 MPa

Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.1834	NAS Eq. B5.1-3
ρ=0.68793	NAS Eq. B5.1-2
be=100.76 mm	NAS Eq. B5.1-1

Element 23: Stiffened, w=56.859 mm
f1=224.15 MPa, f2=-176.21 MPa

ψ=0.78611	NAS Eq. B2.3-1
k=18.968	NAS Eq. B2.3-2
λ=0.56992	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=15.018 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4

Compression width=31.834 mm
b1+b2 > compression width (fully effective)
Element 24: No compressive stress (fully effective)
Element 25: No compressive stress (fully effective)
Element 26: No compressive stress (fully effective)
Element 27: No compressive stress (fully effective)
Element 28: Stiffened, w=56.859 mm
f1=224.15 MPa, f2=-176.21 MPa

ψ=0.78611	NAS Eq. B2.3-1
k=18.968	NAS Eq. B2.3-2
λ=0.56992	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2

ho=58 mm, bo=62 mm, ho/bo=0.93548

b1=15.018 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4

Compression width=31.834 mm
b1+b2 > compression width (fully effective)
Element 29: Stiffened, w=60.859 mm
f1=226.16 MPa, f2=226.16 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.3343	NAS Eq. B2.1-4
ρ=0.62588	NAS Eq. B2.1-3
be=38.09 mm	NAS Eq. B2.1-2
b1=19.045 mm	NAS Eq. B2.3-9
b2=19.045 mm	NAS Eq. B2.3-10
Ineffective width=22.769 mm	
Element 30: Stiffened, w=11.032 mm	
f1=224.15 MPa, f2=146.47 MPa	
ψ=0.65344	NAS Eq. B2.3-1
k=4.7764	NAS Eq. B2.3-8
λ=0.22037	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=11.032 mm	NAS Eq. B2.1-2
b1=4.7014 mm	NAS Eq. B2.3-9
b2=6.3308 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=245.94 MPa, f2=145.31 MPa	
ψ=0.59082	NAS Eq. B3.2-1
k=0.47036	NAS Eq. B3.2-3
λ=0.97877	NAS Eq. B2.1-4
ρ=0.79204	NAS Eq. B2.1-3
b=11.627 mm (ineffective width=3.0528 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=47.889	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=145.31 MPa, f2=145.31 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.3303e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: y=3.3693 mm	
Sxe=14442 mm^3, Fy=248.21 MPa	
Mnx=3.5847 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Positive Flexural Strength about Y-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: No compressive stress (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: No compressive stress (fully effective)
Element 9: No compressive stress (fully effective)

Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: No compressive stress (fully effective)
Element 14: Stiffened, w=53.982 mm
f1=3.38 MPa, f2=-23.074 MPa

ψ=6.8268	NAS Eq. B2.3-1
k=978.56	NAS Eq. B2.3-2
λ=0.0092505	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.982 mm	NAS Eq. B2.1-2

ho=55 mm, bo=31.192 mm, ho/bo=1.7632

b1=5.4933 mm	NAS Eq. B2.3-3
b2=26.991 mm	NAS Eq. B2.3-4

Compression width=6.8971 mm
b1+b2 > compression width (fully effective)
Element 15: Stiffened, w=3.0894e-5 mm
f1=3.5471 MPa, f2=3.5471 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.0701e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 16: Stiffened, w=3.0894e-5 mm
f1=18.971 MPa, f2=18.971 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=2.4747e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 17: Stiffened, w=53.982 mm
f1=45.593 MPa, f2=19.138 MPa

ψ=0.41977	NAS Eq. B2.3-1
k=5.5512	NAS Eq. B2.3-8
λ=0.45108	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.982 mm	NAS Eq. B2.1-2
b1=20.921 mm	NAS Eq. B2.3-9
b2=33.06 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 18: Stiffened, w=56.859 mm
f1=54.85 MPa, f2=45.778 MPa

ψ=0.83461	NAS Eq. B2.3-1
k=4.3398	NAS Eq. B2.3-8
λ=0.58939	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
b1=26.258 mm	NAS Eq. B2.3-9
b2=30.601 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 19: Stiffened, w=53.982 mm
f1=81.49 MPa, f2=55.035 MPa

ψ=0.67536	NAS Eq. B2.3-1
k=4.7177	NAS Eq. B2.3-8
λ=0.65417	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.982 mm	NAS Eq. B2.1-2
b1=23.222 mm	NAS Eq. B2.3-9
b2=30.76 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 20: Stiffened, w=3.0894e-5 mm
f1=81.657 MPa, f2=81.657 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=5.1341e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 21: Stiffened, w=3.0894e-5 mm
f1=97.081 MPa, f2=97.081 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=5.5981e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 22: Stiffened, w=53.982 mm
f1=123.7 MPa, f2=97.248 MPa

ψ=0.78614	NAS Eq. B2.3-1
k=4.4473	NAS Eq. B2.3-8
λ=0.83013	NAS Eq. B2.1-4
ρ=0.88538	NAS Eq. B2.1-3
be=47.794 mm	NAS Eq. B2.1-2
b1=21.589 mm	NAS Eq. B2.3-9
b2=26.206 mm	NAS Eq. B2.3-10

Ineffective width=6.1872 mm
Element 23: Stiffened, w=56.859 mm
f1=132.96 MPa, f2=123.89 MPa

ψ=0.93177	NAS Eq. B2.3-1
k=4.1371	NAS Eq. B2.3-8
λ=0.93986	NAS Eq. B2.1-4
ρ=0.81493	NAS Eq. B2.1-3
be=46.336 mm	NAS Eq. B2.1-2
b1=22.404 mm	NAS Eq. B2.3-9
b2=23.932 mm	NAS Eq. B2.3-10

Ineffective width=10.523 mm
Elements 24 to 27:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=140.12 mm, bp=53.982 mm

kloc=26.95	NAS Eq. B5.1.2-1

β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=167.48 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.0183	NAS Eq. B5.1-3
ρ=0.76984	NAS Eq. B5.1-2
be=112.75 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.859 mm	
f1=211.07 MPa, f2=202 MPa	
ψ=0.95702	NAS Eq. B2.3-1
k=4.0861	NAS Eq. B2.3-8
λ=1.1915	NAS Eq. B2.1-4
ρ=0.68429	NAS Eq. B2.1-3
be=38.908 mm	NAS Eq. B2.1-2
b1=19.045 mm	NAS Eq. B2.3-9
b2=19.863 mm	NAS Eq. B2.3-10
Ineffective width=17.951 mm	
Element 29: Stiffened, w=60.859 mm	
f1=241.08 MPa, f2=211.25 MPa	
ψ=0.87629	NAS Eq. B2.3-1
k=4.2512	NAS Eq. B2.3-8
λ=1.3363	NAS Eq. B2.1-4
ρ=0.62514	NAS Eq. B2.1-3
be=38.045 mm	NAS Eq. B2.1-2
b1=17.914 mm	NAS Eq. B2.3-9
b2=20.131 mm	NAS Eq. B2.3-10
Ineffective width=22.814 mm	
Element 30: Stiffened, w=11.032 mm	
f1=243.03 MPa, f2=241.26 MPa	
ψ=0.99276	NAS Eq. B2.3-1
k=4.0145	NAS Eq. B2.3-8
λ=0.25028	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=11.032 mm	NAS Eq. B2.1-2
b1=5.4962 mm	NAS Eq. B2.3-9
b2=5.536 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=248.03 MPa, f2=245.22 MPa	
ψ=0.98867	NAS Eq. B3.2-1
k=0.4308	NAS Eq. B3.2-3
λ=1.0271	NAS Eq. B2.1-4
ρ=0.76509	NAS Eq. B2.1-3
b=11.232 mm (ineffective width=3.4484 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=36.864	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=245.22 MPa, f2=245.22 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.7282e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3

be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Center of gravity shift: x=-28.424 mm
Sye=135530 mm^3, Fy=248.21 MPa

Mny=33.641 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Negative Flexural Strength about Y-axis

Effective width calculations for part 1: MSDECK

Element 1: Unstiffened, w=14.375 mm
f1=248.02 MPa, f2=246.33 MPa

ψ=0.99318	NAS Eq. B3.2-1
k=0.43048	NAS Eq. B3.2-3
λ=1.0061	NAS Eq. B2.1-4
ρ=0.77661	NAS Eq. B2.1-3
b=11.164 mm (ineffective width=3.2112 mm)	NAS Eq. B2.1-2

Element 2: Check for lip stiffener reduction

S=36.795	NAS Eq. B4-7
Ia=104.15 mm^4	NAS Eq. B4-8
Is=186.48 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1

Element 2: Stiffened, w=63.804 mm
f1=246.14 MPa, f2=215.1 MPa

ψ=0.87389	NAS Eq. B2.3-1
k=4.2562	NAS Eq. B2.3-8
λ=1.4148	NAS Eq. B2.1-4
ρ=0.59692	NAS Eq. B2.1-3
be=38.086 mm	NAS Eq. B2.1-2
b1=17.913 mm	NAS Eq. B2.3-9
b2=20.172 mm	NAS Eq. B2.3-10
Ineffective width=25.719 mm	

Element 3: Stiffened, w=56.859 mm
f1=214.92 MPa, f2=205.91 MPa

ψ=0.9581	NAS Eq. B2.3-1
k=4.084	NAS Eq. B2.3-8
λ=1.2027	NAS Eq. B2.1-4
ρ=0.67938	NAS Eq. B2.1-3
be=38.629 mm	NAS Eq. B2.1-2
b1=18.918 mm	NAS Eq. B2.3-9
b2=19.711 mm	NAS Eq. B2.3-10
Ineffective width=18.23 mm	

Element 4: Stiffened, w=53.982 mm
f1=205.73 MPa, f2=179.46 MPa

ψ=0.87234	NAS Eq. B2.3-1
k=4.2595	NAS Eq. B2.3-8
λ=1.0939	NAS Eq. B2.1-4
ρ=0.73032	NAS Eq. B2.1-3
be=39.424 mm	NAS Eq. B2.1-2
b1=18.529 mm	NAS Eq. B2.3-9
b2=20.895 mm	NAS Eq. B2.3-10
Ineffective width=14.558 mm	

Element 5: Stiffened, w=3.0894e-5 mm

f1=179.3 MPa, f2=179.3 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=7.6077e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.0894e-5 mm	
f1=163.99 MPa, f2=163.99 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=7.2757e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.982 mm	
f1=163.82 MPa, f2=137.56 MPa	
ψ=0.83969	NAS Eq. B2.3-1
k=4.3289	NAS Eq. B2.3-8
λ=0.96828	NAS Eq. B2.1-4
ρ=0.79811	NAS Eq. B2.1-3
be=43.083 mm	NAS Eq. B2.1-2
b1=19.943 mm	NAS Eq. B2.3-9
b2=23.14 mm	NAS Eq. B2.3-10
Ineffective width=10.898 mm	
Element 8: Stiffened, w=56.859 mm	
f1=137.38 MPa, f2=128.37 MPa	
ψ=0.93444	NAS Eq. B2.3-1
k=4.1317	NAS Eq. B2.3-8
λ=0.95597	NAS Eq. B2.1-4
ρ=0.80533	NAS Eq. B2.1-3
be=45.79 mm	NAS Eq. B2.1-2
b1=22.168 mm	NAS Eq. B2.3-9
b2=23.622 mm	NAS Eq. B2.3-10
Ineffective width=11.069 mm	
Elements 9 to 12:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=140.12 mm, bp=53.982 mm	
kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=94.101 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=0.76333	NAS Eq. B5.1-3
ρ=0.93248	NAS Eq. B5.1-2
be=136.57 mm	NAS Eq. B5.1-1
Element 13: Stiffened, w=56.859 mm	
f1=59.833 MPa, f2=50.828 MPa	
ψ=0.84949	NAS Eq. B2.3-1

k=4.3078	NAS Eq. B2.3-8
λ=0.61787	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
b1=26.44 mm	NAS Eq. B2.3-9
b2=30.419 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 14: Stiffened, w=53.982 mm	
f1=50.644 MPa, f2=24.381 MPa	
ψ=0.48143	NAS Eq. B2.3-1
k=5.316	NAS Eq. B2.3-8
λ=0.48581	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.982 mm	NAS Eq. B2.1-2
b1=21.433 mm	NAS Eq. B2.3-9
b2=32.548 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 15: Stiffened, w=3.0894e-5 mm	
f1=24.216 MPa, f2=24.216 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=2.7959e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.0894e-5 mm	
f1=8.9036 MPa, f2=8.9036 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.6953e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.982 mm	
f1=8.7377 MPa, f2=-17.524 MPa	
ψ=2.0056	NAS Eq. B2.3-1
k=64.315	NAS Eq. B2.3-2
λ=0.058015	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.982 mm	NAS Eq. B2.1-2
ho=55 mm, bo=31.192 mm, ho/bo=1.7632	
b1=10.784 mm	NAS Eq. B2.3-3
b2=26.991 mm	NAS Eq. B2.3-4
Compression width=17.96 mm	
b1+b2 > compression width (fully effective)	
Element 18: No compressive stress (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: No compressive stress (fully effective)	

Element 24: No compressive stress (fully effective)
Element 25: No compressive stress (fully effective)
Element 26: No compressive stress (fully effective)
Element 27: No compressive stress (fully effective)
Element 28: No compressive stress (fully effective)
Element 29: No compressive stress (fully effective)
Element 30: No compressive stress (fully effective)
Element 32: No compressive stress (fully effective)
Element 31: No compressive stress (fully effective)

Center of gravity shift: x=28.666 mm
Sye=133530 mm^3, Fy=248.21 MPa
Mny=33.144 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

CFS Version 8.0.2
Section: METSCODECK -1.0.sct
METSCODECK-1.0

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Full Section Properties

Area	1249.3 mm^2	Wt.	0.096086 kN/m	Width	1249.3 mm
Ix	706943 mm^4	rx	23.79 mm	Ixy	-145565 mm^4
Sx(t)	19212 mm^3	y(t)	36.80 mm	α	89.915 deg
Sx(b)	23280 mm^3	y(b)	30.37 mm		
		Height	67.16 mm		
Iy	98410992 mm^4	ry	280.66 mm	Xo	-1.85 mm
Sy(l)	204509 mm^3	x(l)	481.21 mm	Yo	6.65 mm
Sy(r)	205911 mm^3	x(r)	477.93 mm	jx	1.63 mm
		Width	959.13 mm	jy	-209.04 mm
I1	98411208 mm^4	r1	280.66 mm		
I2	706728 mm^4	r2	23.78 mm		
Ic	99117936 mm^4	rc	281.67 mm	Cw	6.2465e10 mm^6
Io	99177400 mm^4	ro	281.75 mm	J	416.4 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A36, Fy=248.21 MPa

Compression		Positive Moment		Positive Moment	
Pao	138.66 kN	Maxo	2.592 kN-m	Mayo	27.717 kN-m
Ae	1005.6 mm^2	Ixe	664047 mm^4	Iye	91717336 mm^4
		Sxe(t)	17438 mm^3	Sye(l)	196267 mm^3
Tension		Sxe(b)	22832 mm^3	Sye(r)	186484 mm^3
Ta	185.69 kN				
		Negative Moment		Negative Moment	
		Maxo	2.761 kN-m	Mayo	27.254 kN-m
Shear		Ixe	652654 mm^4	Iye	90941240 mm^4
Vay	32.48 kN	Sxe(t)	18577 mm^3	Sye(l)	183370 mm^3
Vax	9.56 kN	Sxe(b)	20375 mm^3	Sye(r)	196337 mm^3

MSDECK element 2 w/t exceeds 60.
R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
  Ag=1249.3 mm^2, Fy=248.21 MPa
  Tn=310.1 kN — NAS Eq. C2.1-1
  Ωt=1.67, ϕt=0.9

Shear Strength
  MSDECK element 1
    Aw=14.219 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
    Vn=2.1175 kN at -76 deg

Ωv=1.6, ϕv=0.95	
MSDECK element 3	
Aw=56.573 mm^2, Fv=148.93 MPa	NAS Eq. C3.2.1-2
Vn=8.4253 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 8	
Aw=56.573 mm^2, Fv=148.93 MPa	NAS Eq. C3.2.1-2
Vn=8.4253 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 13	
Aw=56.573 mm^2, Fv=148.93 MPa	NAS Eq. C3.2.1-2
Vn=8.4253 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 18	
Aw=56.573 mm^2, Fv=148.93 MPa	NAS Eq. C3.2.1-2
Vn=8.4253 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 23	
Aw=56.573 mm^2, Fv=148.93 MPa	NAS Eq. C3.2.1-2
Vn=8.4253 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 28	
Aw=56.573 mm^2, Fv=148.93 MPa	NAS Eq. C3.2.1-2
Vn=8.4253 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 30	
Aw=10.369 mm^2, Fv=148.93 MPa	NAS Eq. C3.2.1-2
Vn=1.5442 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 32	
Aw=14.68 mm^2, Fv=148.93 MPa	NAS Eq. C3.2.1-2
Vn=2.1862 kN at -67 deg	
Ωv=1.6, ϕv=0.95	

Axial Compression Strength

Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.219 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=0.79686	NAS Eq. B2.1-4
ρ=0.90846	NAS Eq. B2.1-3
b=12.917 mm (ineffective width=1.3016 mm)	NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction	
S=36.641	NAS Eq. B4-7
Ia=204.31 mm^4	NAS Eq. B4-8
Is=225.6 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1
Element 2: Stiffened, w=63.505 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.1669	NAS Eq. B2.1-4
ρ=0.6954	NAS Eq. B2.1-3
be=44.162 mm	NAS Eq. B2.1-2

b1=22.081 mm	NAS Eq. B2.3-9
b2=22.081 mm	NAS Eq. B2.3-10
Ineffective width=19.344 mm	
Element 3: Stiffened, w=56.573 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0395	NAS Eq. B2.1-4
ρ=0.75839	NAS Eq. B2.1-3
be=42.904 mm	NAS Eq. B2.1-2
b1=21.452 mm	NAS Eq. B2.3-9
b2=21.452 mm	NAS Eq. B2.3-10
Ineffective width=13.669 mm	
Element 4: Stiffened, w=53.727 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.98723	NAS Eq. B2.1-4
ρ=0.78721	NAS Eq. B2.1-3
be=42.294 mm	NAS Eq. B2.1-2
b1=21.147 mm	NAS Eq. B2.3-9
b2=21.147 mm	NAS Eq. B2.3-10
Ineffective width=11.433 mm	
Element 5: Stiffened, w=3.0279e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.5626e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.0279e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.5626e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.727 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.98723	NAS Eq. B2.1-4
ρ=0.78721	NAS Eq. B2.1-3
be=42.294 mm	NAS Eq. B2.1-2
b1=21.147 mm	NAS Eq. B2.3-9
b2=21.147 mm	NAS Eq. B2.3-10
Ineffective width=11.433 mm	
Element 8: Stiffened, w=56.573 mm	
f1=248.21 MPa, f2=248.21 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0395	NAS Eq. B2.1-4
ρ=0.75839	NAS Eq. B2.1-3
be=42.904 mm	NAS Eq. B2.1-2
b1=21.452 mm	NAS Eq. B2.3-9
b2=21.452 mm	NAS Eq. B2.3-10
Ineffective width=13.669 mm	

Element 9: Stiffened, w=53.727 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.98723	NAS Eq. B2.1-4
ρ=0.78721	NAS Eq. B2.1-3
be=42.294 mm	NAS Eq. B2.1-2
b1=21.147 mm	NAS Eq. B2.3-9
b2=21.147 mm	NAS Eq. B2.3-10
Ineffective width=11.433 mm	

Element 10: Stiffened, w=3.0279e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.5627e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 11: Stiffened, w=3.0279e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.5627e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 12: Stiffened, w=53.727 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.98723	NAS Eq. B2.1-4
ρ=0.78721	NAS Eq. B2.1-3
be=42.294 mm	NAS Eq. B2.1-2
b1=21.147 mm	NAS Eq. B2.3-9
b2=21.147 mm	NAS Eq. B2.3-10
Ineffective width=11.433 mm	

Element 13: Stiffened, w=56.573 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0395	NAS Eq. B2.1-4
ρ=0.75839	NAS Eq. B2.1-3
be=42.904 mm	NAS Eq. B2.1-2

b1=21.452 mm	NAS Eq. B2.3-9
b2=21.452 mm	NAS Eq. B2.3-10
Ineffective width=13.669 mm	
Element 14: Stiffened, w=53.727 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.98723	NAS Eq. B2.1-4
ρ=0.78721	NAS Eq. B2.1-3
be=42.294 mm	NAS Eq. B2.1-2
b1=21.147 mm	NAS Eq. B2.3-9
b2=21.147 mm	NAS Eq. B2.3-10
Ineffective width=11.433 mm	
Element 15: Stiffened, w=3.0279e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.5627e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.0279e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.5627e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.727 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.98723	NAS Eq. B2.1-4
ρ=0.78721	NAS Eq. B2.1-3
be=42.294 mm	NAS Eq. B2.1-2
b1=21.147 mm	NAS Eq. B2.3-9
b2=21.147 mm	NAS Eq. B2.3-10
Ineffective width=11.433 mm	
Element 18: Stiffened, w=56.573 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0395	NAS Eq. B2.1-4
ρ=0.75839	NAS Eq. B2.1-3
be=42.904 mm	NAS Eq. B2.1-2
b1=21.452 mm	NAS Eq. B2.3-9
b2=21.452 mm	NAS Eq. B2.3-10
Ineffective width=13.669 mm	
Element 19: Stiffened, w=53.727 mm	
f1=248.21 MPa, f2=248.21 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.98723	NAS Eq. B2.1-4
ρ=0.78721	NAS Eq. B2.1-3
be=42.294 mm	NAS Eq. B2.1-2
b1=21.147 mm	NAS Eq. B2.3-9
b2=21.147 mm	NAS Eq. B2.3-10
Ineffective width=11.433 mm	

Element 20: Stiffened, w=3.0279e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.5627e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 21: Stiffened, w=3.0279e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.5627e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 22: Stiffened, w=53.727 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.98723	NAS Eq. B2.1-4
ρ=0.78721	NAS Eq. B2.1-3
be=42.294 mm	NAS Eq. B2.1-2
b1=21.147 mm	NAS Eq. B2.3-9
b2=21.147 mm	NAS Eq. B2.3-10
Ineffective width=11.433 mm	

Element 23: Stiffened, w=56.573 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0395	NAS Eq. B2.1-4
ρ=0.75839	NAS Eq. B2.1-3
be=42.904 mm	NAS Eq. B2.1-2
b1=21.452 mm	NAS Eq. B2.3-9
b2=21.452 mm	NAS Eq. B2.3-10
Ineffective width=13.669 mm	

Elements 24 to 27:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.95 mm, bp=53.727 mm

kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6

k=27.141	NAS Eq. B5.1-5
f1=248.21 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=0.98711	NAS Eq. B5.1-3
ρ=0.78728	NAS Eq. B5.1-2
be=115.23 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.573 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0395	NAS Eq. B2.1-4
ρ=0.75839	NAS Eq. B2.1-3
be=42.904 mm	NAS Eq. B2.1-2
b1=21.452 mm	NAS Eq. B2.3-9
b2=21.452 mm	NAS Eq. B2.3-10
Ineffective width=13.669 mm	
Element 29: Stiffened, w=60.573 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.113	NAS Eq. B2.1-4
ρ=0.72086	NAS Eq. B2.1-3
be=43.665 mm	NAS Eq. B2.1-2
b1=21.833 mm	NAS Eq. B2.3-9
b2=21.833 mm	NAS Eq. B2.3-10
Ineffective width=16.908 mm	
Element 30: Stiffened, w=10.369 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.19052	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=10.369 mm	NAS Eq. B2.1-2
b1=5.1843 mm	NAS Eq. B2.3-9
b2=5.1843 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=0.82271	NAS Eq. B2.1-4
ρ=0.89046	NAS Eq. B2.1-3
b=13.072 mm (ineffective width=1.6081 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=36.641	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.3909e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Ae=1005.6 mm^2, Fy=248.21 MPa
Pn=249.59 kN NAS Eq. C4.1-1
Ωc=1.8, ϕc=0.85

Positive Flexural Strength about X-axis
Effective width calculations for part 1: MSDECK
Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: Stiffened, w=56.573 mm
f1=183.48 MPa, f2=-165.19 MPa
ψ=0.90031 NAS Eq. B2.3-1
k=21.525 NAS Eq. B2.3-2
λ=0.38528 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.573 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.505 mm NAS Eq. B2.3-3
b2=28.287 mm NAS Eq. B2.3-4
Compression width=29.771 mm
b1+b2 > compression width (fully effective)
Elements 4 to 7:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.95 mm, bp=53.727 mm
kloc=27.141 NAS Eq. B5.1.2-1
β=4.0128 NAS Eq. B5.1.2-3
kd=21.983 NAS Eq. B5.1.2-2
R=1.7052 NAS Eq. B5.1-6
k=27.141 NAS Eq. B5.1-5
f1=185.68 MPa
Fcr=254.74 MPa NAS Eq. B5.1-4
λ=0.85375 NAS Eq. B5.1-3
ρ=0.86947 NAS Eq. B5.1-2
be=127.26 mm NAS Eq. B5.1-1
Element 8: Stiffened, w=56.573 mm
f1=183.48 MPa, f2=-165.19 MPa
ψ=0.90031 NAS Eq. B2.3-1
k=21.525 NAS Eq. B2.3-2
λ=0.38528 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.573 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.505 mm NAS Eq. B2.3-3
b2=28.287 mm NAS Eq. B2.3-4
Compression width=29.771 mm
b1+b2 > compression width (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: Stiffened, w=56.573 mm
f1=183.48 MPa, f2=-165.19 MPa
ψ=0.90031 NAS Eq. B2.3-1
k=21.525 NAS Eq. B2.3-2

λ=0.38528	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.505 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=29.771 mm	
b1+b2 > compression width (fully effective)	

Elements 14 to 17:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=185.68 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=0.85375	NAS Eq. B5.1-3
ρ=0.86947	NAS Eq. B5.1-2
be=127.26 mm	NAS Eq. B5.1-1

Element 18: Stiffened, w=56.573 mm

f1=183.48 MPa, f2=-165.19 MPa	
ψ=0.90031	NAS Eq. B2.3-1
k=21.525	NAS Eq. B2.3-2
λ=0.38528	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.505 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=29.771 mm	
b1+b2 > compression width (fully effective)	

Element 19: No compressive stress (fully effective)

Element 20: No compressive stress (fully effective)

Element 21: No compressive stress (fully effective)

Element 22: No compressive stress (fully effective)

Element 23: Stiffened, w=56.573 mm

f1=183.48 MPa, f2=-165.19 MPa	
ψ=0.90031	NAS Eq. B2.3-1
k=21.525	NAS Eq. B2.3-2
λ=0.38528	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.505 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=29.771 mm	
b1+b2 > compression width (fully effective)	

Elements 24 to 27:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2

R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=185.68 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=0.85375	NAS Eq. B5.1-3
ρ=0.86947	NAS Eq. B5.1-2
be=127.26 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.573 mm	
f1=183.48 MPa, f2=-165.19 MPa	
ψ=0.90031	NAS Eq. B2.3-1
k=21.525	NAS Eq. B2.3-2
λ=0.38528	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.505 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=29.771 mm	
b1+b2 > compression width (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	
Center of gravity shift: y=-1.2829 mm	
Sxe=17438 mm^3, Fy=248.21 MPa	
Mnx=4.3283 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Negative Flexural Strength about X-axis	
Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.219 mm	
f1=199.01 MPa, f2=101.66 MPa	
ψ=0.51083	NAS Eq. B3.2-1
k=0.67934	NAS Eq. B3.2-2
λ=0.56767	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 2: Check for lip stiffener reduction	
S=40.649	NAS Eq. B4-7
Ia=184.66 mm^4	NAS Eq. B4-8
Is=225.6 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1
Element 2: Stiffened, w=63.505 mm	
f1=201.68 MPa, f2=201.68 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0519	NAS Eq. B2.1-4
ρ=0.75185	NAS Eq. B2.1-3
be=47.747 mm	NAS Eq. B2.1-2
b1=23.873 mm	NAS Eq. B2.3-9
b2=23.873 mm	NAS Eq. B2.3-10
Ineffective width=15.759 mm	
Element 3: Stiffened, w=56.573 mm	
f1=199.3 MPa, f2=-178.14 MPa	
ψ=0.8938	NAS Eq. B2.3-1

k=21.372	NAS Eq. B2.3-2
λ=0.40299	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	
b1=14.529 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=29.873 mm	
b1+b2 > compression width (fully effective)	

Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: Stiffened, w=56.573 mm

f1=199.3 MPa, f2=-178.14 MPa	
ψ=0.8938	NAS Eq. B2.3-1
k=21.372	NAS Eq. B2.3-2
λ=0.40299	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.529 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=29.873 mm	
b1+b2 > compression width (fully effective)	

Elements 9 to 12:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=201.68 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=0.88979	NAS Eq. B5.1-3
ρ=0.84599	NAS Eq. B5.1-2
be=123.82 mm	NAS Eq. B5.1-1

Element 13: Stiffened, w=56.573 mm

f1=199.3 MPa, f2=-178.14 MPa	
ψ=0.8938	NAS Eq. B2.3-1
k=21.372	NAS Eq. B2.3-2
λ=0.40299	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.529 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=29.873 mm	
b1+b2 > compression width (fully effective)	

Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: No compressive stress (fully effective)
Element 17: No compressive stress (fully effective)
Element 18: Stiffened, w=56.573 mm

f1=199.3 MPa, f2=-178.14 MPa
ψ=0.8938 NAS Eq. B2.3-1
k=21.372 NAS Eq. B2.3-2
λ=0.40299 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.573 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.529 mm NAS Eq. B2.3-3
b2=28.287 mm NAS Eq. B2.3-4
Compression width=29.873 mm
b1+b2 > compression width (fully effective)

Elements 19 to 22:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.95 mm, bp=53.727 mm
kloc=27.141 NAS Eq. B5.1.2-1
β=4.0129 NAS Eq. B5.1.2-3
kd=21.983 NAS Eq. B5.1.2-2
R=1.7052 NAS Eq. B5.1-6
k=27.141 NAS Eq. B5.1-5
f1=201.68 MPa
Fcr=254.74 MPa NAS Eq. B5.1-4
λ=0.88979 NAS Eq. B5.1-3
ρ=0.84599 NAS Eq. B5.1-2
be=123.82 mm NAS Eq. B5.1-1

Element 23: Stiffened, w=56.573 mm
f1=199.3 MPa, f2=-178.14 MPa
ψ=0.8938 NAS Eq. B2.3-1
k=21.372 NAS Eq. B2.3-2
λ=0.40299 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.573 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.529 mm NAS Eq. B2.3-3
b2=28.287 mm NAS Eq. B2.3-4
Compression width=29.873 mm
b1+b2 > compression width (fully effective)

Element 24: No compressive stress (fully effective)

Element 25: No compressive stress (fully effective)

Element 26: No compressive stress (fully effective)

Element 27: No compressive stress (fully effective)

Element 28: Stiffened, w=56.573 mm
f1=199.3 MPa, f2=-178.14 MPa
ψ=0.8938 NAS Eq. B2.3-1
k=21.372 NAS Eq. B2.3-2
λ=0.40299 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.573 mm NAS Eq. B2.1-2
ho=58 mm, bo=62 mm, ho/bo=0.93548
b1=14.529 mm NAS Eq. B2.3-3
b2=28.287 mm NAS Eq. B2.3-4
Compression width=29.873 mm
b1+b2 > compression width (fully effective)

Element 29: Stiffened, w=60.573 mm
f1=201.68 MPa, f2=201.68 MPa
ψ=1 NAS Eq. B2.3-1

k=4	NAS Eq. B2.3-8
λ=1.0033	NAS Eq. B2.1-4
ρ=0.77816	NAS Eq. B2.1-3
be=47.136 mm	NAS Eq. B2.1-2
b1=23.568 mm	NAS Eq. B2.3-9
b2=23.568 mm	NAS Eq. B2.3-10
Ineffective width=13.438 mm	
Element 30: Stiffened, w=10.369 mm	
f1=199.3 MPa, f2=130.13 MPa	
ψ=0.65291	NAS Eq. B2.3-1
k=4.7778	NAS Eq. B2.3-8
λ=0.15621	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=10.369 mm	NAS Eq. B2.1-2
b1=4.4176 mm	NAS Eq. B2.3-9
b2=5.9509 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=224.33 MPa, f2=128.98 MPa	
ψ=0.57495	NAS Eq. B3.2-1
k=0.4724	NAS Eq. B3.2-3
λ=0.7462	NAS Eq. B2.1-4
ρ=0.94502	NAS Eq. B2.1-3
b=13.873 mm (ineffective width=0.80715 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=50.83	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=128.98 MPa, f2=128.98 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0027e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: y=1.666 mm	
Sxe=18577 mm^3, Fy=248.21 MPa	
Mnx=4.6111 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Positive Flexural Strength about Y-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: No compressive stress (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: No compressive stress (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)

Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: No compressive stress (fully effective)
Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: Stiffened, w=3.0279e-5 mm
f1=12.307 MPa, f2=12.307 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=1.4613e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 17: Stiffened, w=53.727 mm
f1=39.637 MPa, f2=12.522 MPa

ψ=0.31592	NAS Eq. B2.3-1
k=6.0084	NAS Eq. B2.3-8
λ=0.32189	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
b1=20.017 mm	NAS Eq. B2.3-9
b2=33.71 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 18: Stiffened, w=56.573 mm
f1=49.171 MPa, f2=39.876 MPa

ψ=0.81096	NAS Eq. B2.3-1
k=4.3916	NAS Eq. B2.3-8
λ=0.44157	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
b1=25.844 mm	NAS Eq. B2.3-9
b2=30.73 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 19: Stiffened, w=53.727 mm
f1=76.525 MPa, f2=49.41 MPa

ψ=0.64567	NAS Eq. B2.3-1
k=4.7976	NAS Eq. B2.3-8
λ=0.50053	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
b1=22.821 mm	NAS Eq. B2.3-9
b2=30.907 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 20: Stiffened, w=3.0279e-5 mm
f1=76.74 MPa, f2=76.74 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=3.6491e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 21: Stiffened, w=3.0279e-5 mm
f1=92.71 MPa, f2=92.71 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=4.0108e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 22: Stiffened, w=53.727 mm
f1=120.04 MPa, f2=92.926 MPa

ψ=0.77412	NAS Eq. B2.3-1
k=4.4748	NAS Eq. B2.3-8
λ=0.6491	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
b1=24.137 mm	NAS Eq. B2.3-9
b2=29.59 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 23: Stiffened, w=56.573 mm
f1=129.57 MPa, f2=120.28 MPa

ψ=0.92826	NAS Eq. B2.3-1
k=4.1442	NAS Eq. B2.3-8
λ=0.7379	NAS Eq. B2.1-4
ρ=0.95115	NAS Eq. B2.1-3
be=53.81 mm	NAS Eq. B2.1-2
b1=25.973 mm	NAS Eq. B2.3-9
b2=27.837 mm	NAS Eq. B2.3-10

Ineffective width=2.7633 mm

Elements 24 to 27:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.95 mm, bp=53.727 mm

kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5

f1=165.13 MPa

Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=0.80513	NAS Eq. B5.1-3
ρ=0.90265	NAS Eq. B5.1-2
be=132.11 mm	NAS Eq. B5.1-1

Element 28: Stiffened, w=56.573 mm
f1=209.98 MPa, f2=200.68 MPa

ψ=0.95573	NAS Eq. B2.3-1
k=4.0887	NAS Eq. B2.3-8
λ=0.9457	NAS Eq. B2.1-4
ρ=0.81143	NAS Eq. B2.1-3
be=45.905 mm	NAS Eq. B2.1-2
b1=22.456 mm	NAS Eq. B2.3-9
b2=23.45 mm	NAS Eq. B2.3-10

Ineffective width=10.668 mm

Element 29: Stiffened, w=60.573 mm
f1=240.79 MPa, f2=210.22 MPa

ψ=0.87304	NAS Eq. B2.3-1
k=4.258	NAS Eq. B2.3-8
λ=1.0625	NAS Eq. B2.1-4
ρ=0.74628	NAS Eq. B2.1-3
be=45.205 mm	NAS Eq. B2.1-2
b1=21.253 mm	NAS Eq. B2.3-9
b2=23.952 mm	NAS Eq. B2.3-10
Ineffective width=15.369 mm	
Element 30: Stiffened, w=10.369 mm	
f1=242.73 MPa, f2=241.03 MPa	
ψ=0.99298	NAS Eq. B2.3-1
k=4.014	NAS Eq. B2.3-8
λ=0.18808	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=10.369 mm	NAS Eq. B2.1-2
b1=5.1661 mm	NAS Eq. B2.3-9
b2=5.2024 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=247.98 MPa, f2=245.08 MPa	
ψ=0.98833	NAS Eq. B3.2-1
k=0.43083	NAS Eq. B3.2-3
λ=0.82154	NAS Eq. B2.1-4
ρ=0.89127	NAS Eq. B2.1-3
b=13.084 mm (ineffective width=1.5962 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=36.874	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=245.08 MPa, f2=245.08 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.3822e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: x=-13.896 mm	
Sye=186480 mm^3, Fy=248.21 MPa	
Mny=46.287 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Negative Flexural Strength about Y-axis	
Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.219 mm	
f1=247.97 MPa, f2=246.25 MPa	
ψ=0.99306	NAS Eq. B3.2-1
k=0.43049	NAS Eq. B3.2-3
λ=0.79602	NAS Eq. B2.1-4
ρ=0.90906	NAS Eq. B2.1-3
b=12.926 mm (ineffective width=1.2931 mm)	NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction	
S=36.805	NAS Eq. B4-7

Ia=203.43 mm^4	NAS Eq. B4-8
Is=225.6 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1
Element 2: Stiffened, w=63.505 mm	
f1=246 MPa, f2=214.22 MPa	
ψ=0.8708	NAS Eq. B2.3-1
k=4.2627	NAS Eq. B2.3-8
λ=1.1253	NAS Eq. B2.1-4
ρ=0.7149	NAS Eq. B2.1-3
be=45.4 mm	NAS Eq. B2.1-2
b1=21.323 mm	NAS Eq. B2.3-9
b2=24.077 mm	NAS Eq. B2.3-10
Ineffective width=18.106 mm	
Element 3: Stiffened, w=56.573 mm	
f1=213.98 MPa, f2=204.77 MPa	
ψ=0.95692	NAS Eq. B2.3-1
k=4.0863	NAS Eq. B2.3-8
λ=0.95495	NAS Eq. B2.1-4
ρ=0.80593	NAS Eq. B2.1-3
be=45.594 mm	NAS Eq. B2.1-2
b1=22.316 mm	NAS Eq. B2.3-9
b2=23.278 mm	NAS Eq. B2.3-10
Ineffective width=10.979 mm	
Element 4: Stiffened, w=53.727 mm	
f1=204.53 MPa, f2=177.64 MPa	
ψ=0.86853	NAS Eq. B2.3-1
k=4.2675	NAS Eq. B2.3-8
λ=0.86762	NAS Eq. B2.1-4
ρ=0.86032	NAS Eq. B2.1-3
be=46.223 mm	NAS Eq. B2.1-2
b1=21.686 mm	NAS Eq. B2.3-9
b2=24.537 mm	NAS Eq. B2.3-10
Ineffective width=7.5045 mm	
Element 5: Stiffened, w=3.0279e-5 mm	
f1=177.43 MPa, f2=177.43 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=5.5485e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.0279e-5 mm	
f1=161.59 MPa, f2=161.59 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=5.2951e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.727 mm	
f1=161.38 MPa, f2=134.49 MPa	

ψ=0.83337	NAS Eq. B2.3-1
k=4.3425	NAS Eq. B2.3-8
λ=0.76399	NAS Eq. B2.1-4
ρ=0.932	NAS Eq. B2.1-3
be=50.074 mm	NAS Eq. B2.1-2
b1=23.111 mm	NAS Eq. B2.3-9
b2=26.962 mm	NAS Eq. B2.3-10
Ineffective width=3.6534 mm	

Element 8: Stiffened, w=56.573 mm

f1=134.25 MPa, f2=125.03 MPa

ψ=0.93134	NAS Eq. B2.3-1
k=4.138	NAS Eq. B2.3-8
λ=0.75166	NAS Eq. B2.1-4
ρ=0.94101	NAS Eq. B2.1-3
be=53.236 mm	NAS Eq. B2.1-2
b1=25.734 mm	NAS Eq. B2.3-9
b2=27.501 mm	NAS Eq. B2.3-10
Ineffective width=3.3375 mm	

Elements 9 to 12:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=139.95 mm, bp=53.727 mm

kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=89.773 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=0.59364	NAS Eq. B5.1-3
ρ=1 (fully effective)	

Element 13: Stiffened, w=56.573 mm

f1=54.515 MPa, f2=45.296 MPa

ψ=0.8309	NAS Eq. B2.3-1
k=4.3479	NAS Eq. B2.3-8
λ=0.46728	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
b1=26.082 mm	NAS Eq. B2.3-9
b2=30.492 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 14: Stiffened, w=53.727 mm

f1=45.06 MPa, f2=18.17 MPa

ψ=0.40324	NAS Eq. B2.3-1
k=5.6185	NAS Eq. B2.3-8
λ=0.35491	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
b1=20.69 mm	NAS Eq. B2.3-9
b2=33.037 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 15: Stiffened, w=3.0279e-5 mm

f1=17.957 MPa, f2=17.957 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=1.7652e-7	NAS Eq. B2.1-4

ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.0279e-5 mm	
f1=2.1193 MPa, f2=2.1193 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.0641e-8	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.727 mm	
f1=1.906 MPa, f2=-24.984 MPa	
ψ=13.108	NAS Eq. B2.3-1
k=5648.1	NAS Eq. B2.3-2
λ=0.0023022	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
ho=55 mm, bo=31.63 mm, ho/bo=1.7388	
b1=3.3354 mm	NAS Eq. B2.3-3
b2=26.864 mm	NAS Eq. B2.3-4
Compression width=3.8083 mm	
b1+b2 > compression width (fully effective)	
Element 18: No compressive stress (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: No compressive stress (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: No compressive stress (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	

Center of gravity shift: x=14.739 mm
Sye=183370 mm^3, Fy=248.21 MPa
Mny=45.515 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

CFS Version 8.0.2
Section: METSCODECK -1.2.sct
METSCODECK-1.2

Rev. Date: 14-07-2015 19:30:13

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Full Section Properties

Area	1497.2 mm^2	Wt.	0.11515 kN/m	Width	1247.7 mm
Ix	843426 mm^4	rx	23.73 mm	Ixy	-177722 mm^4
Sx(t)	22847 mm^3	y(t)	36.92 mm	α	89.913 deg
Sx(b)	27294 mm^3	y(b)	30.90 mm		
		Height	67.82 mm		
Iy	117694144 mm^4	ry	280.37 mm	Xo	-1.52 mm
Sy(l)	244770 mm^3	x(l)	480.83 mm	Yo	6.64 mm
Sy(r)	246343 mm^3	x(r)	477.77 mm	jx	1.31 mm
		Width	958.60 mm	jy	-209.62 mm
I1	117694408 mm^4	r1	280.37 mm		
I2	843158 mm^4	r2	23.73 mm		
Ic	118537568 mm^4	rc	281.37 mm	Cw	7.4408e10 mm^6
Io	118607128 mm^4	ro	281.46 mm	J	718.7 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A36, Fy=248.21 MPa

Compression		Positive Moment		Positive Moment	
Pao	183.98 kN	Maxo	3.343 kN-m	Mayo	35.357 kN-m
Ae	1334.2 mm^2	Ixe	835027 mm^4	Iye	114758344 mm^4
		Sxe(t)	22491 mm^3	Sye(l)	240995 mm^3
Tension		Sxe(b)	27208 mm^3	Sye(r)	237884 mm^3
Ta	222.53 kN				
		Negative Moment		Negative Moment	
		Maxo	3.363 kN-m	Mayo	33.964 kN-m
Shear		Ixe	823954 mm^4	Iye	111884752 mm^4
Vay	38.71 kN	Sxe(t)	22629 mm^3	Sye(l)	228513 mm^3
Vax	11.40 kN	Sxe(b)	26235 mm^3	Sye(r)	238571 mm^3

R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
Ag=1497.2 mm^2, Fy=248.21 MPa
Tn=371.63 kN — NAS Eq. C2.1-1
Ωt=1.67, ϕt=0.9

Shear Strength
MSDECK element 1
Aw=16.875 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=2.5131 kN at -76 deg
Ωv=1.6, ϕv=0.95

MSDECK element 3
Aw=67.546 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=10.059 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 8
Aw=67.546 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=10.059 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 13
Aw=67.546 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=10.059 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 18
Aw=67.546 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=10.059 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 23
Aw=67.546 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=10.059 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 28
Aw=67.546 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=10.059 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 30
Aw=11.646 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=1.7344 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 32
Aw=17.616 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=2.6235 kN at -67 deg
Ωv=1.6, ϕv=0.95

Axial Compression Strength
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=14.062 mm
f1=248.21 MPa, f2=248.21 MPa
ψ=1 — NAS Eq. B3.2-1
k=0.43 — NAS Eq. B3.2-3
λ=0.65675 — NAS Eq. B2.1-4
λ<0.673 (fully effective) — NAS Eq. B2.1-1
Element 2: Check for lip stiffener reduction
S=36.641 — NAS Eq. B4-7
Ia=353.16 mm^4 — NAS Eq. B4-8
Is=261.93 mm^4
ds=10.43 mm (lip ineffective width=3.6327 mm) — NAS Eq. B4-6
k=3.6615 — NAS Table B4-1
Element 2: Partially stiffened, w=63.207 mm
f=248.21 MPa, k=3.6615
λ=1.0116 — NAS Eq. B2.1-4
ρ=0.77355 — NAS Eq. B2.1-3
b=48.894 mm (ineffective width=14.313 mm) — NAS Eq. B2.1-2
b1=18.132 mm, b2=30.762 mm
Element 3: Stiffened, w=56.288 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.86191	NAS Eq. B2.1-4
ρ=0.86407	NAS Eq. B2.1-3
be=48.637 mm	NAS Eq. B2.1-2
b1=24.319 mm	NAS Eq. B2.3-9
b2=24.319 mm	NAS Eq. B2.3-10
Ineffective width=7.651 mm	

Element 4: Stiffened, w=53.472 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.81879	NAS Eq. B2.1-4
ρ=0.89316	NAS Eq. B2.1-3
be=47.759 mm	NAS Eq. B2.1-2
b1=23.88 mm	NAS Eq. B2.3-9
b2=23.88 mm	NAS Eq. B2.3-10
Ineffective width=5.7131 mm	

Element 5: Stiffened, w=3.2692e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=5.6719e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 6: Stiffened, w=3.2692e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=5.6719e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 7: Stiffened, w=53.472 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.81879	NAS Eq. B2.1-4
ρ=0.89316	NAS Eq. B2.1-3
be=47.759 mm	NAS Eq. B2.1-2
b1=23.88 mm	NAS Eq. B2.3-9
b2=23.88 mm	NAS Eq. B2.3-10
Ineffective width=5.7131 mm	

Element 8: Stiffened, w=56.288 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.86191	NAS Eq. B2.1-4
ρ=0.86407	NAS Eq. B2.1-3
be=48.637 mm	NAS Eq. B2.1-2

b1=24.319 mm	NAS Eq. B2.3-9
b2=24.319 mm	NAS Eq. B2.3-10
Ineffective width=7.651 mm	
Element 9: Stiffened, w=53.472 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.81879	NAS Eq. B2.1-4
ρ=0.89316	NAS Eq. B2.1-3
be=47.759 mm	NAS Eq. B2.1-2
b1=23.88 mm	NAS Eq. B2.3-9
b2=23.88 mm	NAS Eq. B2.3-10
Ineffective width=5.7131 mm	
Element 10: Stiffened, w=3.2692e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=5.6719e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 11: Stiffened, w=3.2692e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=5.6719e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 12: Stiffened, w=53.472 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.81879	NAS Eq. B2.1-4
ρ=0.89316	NAS Eq. B2.1-3
be=47.759 mm	NAS Eq. B2.1-2
b1=23.88 mm	NAS Eq. B2.3-9
b2=23.88 mm	NAS Eq. B2.3-10
Ineffective width=5.7131 mm	
Element 13: Stiffened, w=56.288 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.86191	NAS Eq. B2.1-4
ρ=0.86407	NAS Eq. B2.1-3
be=48.637 mm	NAS Eq. B2.1-2
b1=24.319 mm	NAS Eq. B2.3-9
b2=24.319 mm	NAS Eq. B2.3-10
Ineffective width=7.651 mm	
Element 14: Stiffened, w=53.472 mm	
f1=248.21 MPa, f2=248.21 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.81879	NAS Eq. B2.1-4
ρ=0.89316	NAS Eq. B2.1-3
be=47.759 mm	NAS Eq. B2.1-2
b1=23.88 mm	NAS Eq. B2.3-9
b2=23.88 mm	NAS Eq. B2.3-10
Ineffective width=5.7131 mm	

Element 15: Stiffened, w=3.2692e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=5.6719e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 16: Stiffened, w=3.2692e-5 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=5.6719e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 17: Stiffened, w=53.472 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.81879	NAS Eq. B2.1-4
ρ=0.89316	NAS Eq. B2.1-3
be=47.759 mm	NAS Eq. B2.1-2
b1=23.88 mm	NAS Eq. B2.3-9
b2=23.88 mm	NAS Eq. B2.3-10
Ineffective width=5.7131 mm	

Element 18: Stiffened, w=56.288 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.86191	NAS Eq. B2.1-4
ρ=0.86407	NAS Eq. B2.1-3
be=48.637 mm	NAS Eq. B2.1-2
b1=24.319 mm	NAS Eq. B2.3-9
b2=24.319 mm	NAS Eq. B2.3-10
Ineffective width=7.651 mm	

Element 19: Stiffened, w=53.472 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.81879	NAS Eq. B2.1-4
ρ=0.89316	NAS Eq. B2.1-3
be=47.759 mm	NAS Eq. B2.1-2

b1=23.88 mm	NAS Eq. B2.3-9
b2=23.88 mm	NAS Eq. B2.3-10
Ineffective width=5.7131 mm	
Element 20: Stiffened, w=3.2692e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=5.6719e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.2692e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=5.6719e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.472 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.81879	NAS Eq. B2.1-4
ρ=0.89316	NAS Eq. B2.1-3
be=47.759 mm	NAS Eq. B2.1-2
b1=23.88 mm	NAS Eq. B2.3-9
b2=23.88 mm	NAS Eq. B2.3-10
Ineffective width=5.7131 mm	
Element 23: Stiffened, w=56.288 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.86191	NAS Eq. B2.1-4
ρ=0.86407	NAS Eq. B2.1-3
be=48.637 mm	NAS Eq. B2.1-2
b1=24.319 mm	NAS Eq. B2.3-9
b2=24.319 mm	NAS Eq. B2.3-10
Ineffective width=7.651 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=248.21 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.81869	NAS Eq. B5.1-3
ρ=0.89323	NAS Eq. B5.1-2

be=130.64 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.288 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.86191	NAS Eq. B2.1-4
ρ=0.86407	NAS Eq. B2.1-3
be=48.637 mm	NAS Eq. B2.1-2
b1=24.319 mm	NAS Eq. B2.3-9
b2=24.319 mm	NAS Eq. B2.3-10
Ineffective width=7.651 mm	
Element 29: Stiffened, w=60.288 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.92316	NAS Eq. B2.1-4
ρ=0.82509	NAS Eq. B2.1-3
be=49.743 mm	NAS Eq. B2.1-2
b1=24.872 mm	NAS Eq. B2.3-9
b2=24.872 mm	NAS Eq. B2.3-10
Ineffective width=10.545 mm	
Element 30: Stiffened, w=9.7049 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.14861	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.7049 mm	NAS Eq. B2.1-2
b1=4.8524 mm	NAS Eq. B2.3-9
b2=4.8524 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=0.68559	NAS Eq. B2.1-4
ρ=0.99054	NAS Eq. B2.1-3
b=14.541 mm (ineffective width=0.13882 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=36.641	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=8.3268e-6 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.275e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.3268e-6 mm	NAS Eq. B2.1-2
b1=4.1634e-6 mm	NAS Eq. B2.3-9
b2=4.1634e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Ae=1334.2 mm^2, Fy=248.21 MPa	
Pn=331.16 kN	NAS Eq. C4.1-1
Ωc=1.8, ϕc=0.85	

Positive Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)

Element 2: No compressive stress (fully effective)

Element 3: Stiffened, w=56.288 mm

f1=180.05 MPa, f2=-175.81 MPa

ψ=0.97648	NAS Eq. B2.3-1
k=23.395	NAS Eq. B2.3-2
λ=0.30354	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.155 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4

Compression width=28.479 mm

b1+b2 > compression width (fully effective)

Elements 4 to 7:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=139.78 mm, bp=53.472 mm

kloc=27.334	NAS Eq. B5.1.2-1
β=3.6932	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5

f1=182.76 MPa

Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.7025	NAS Eq. B5.1-3
ρ=0.9777	NAS Eq. B5.1-2
be=143 mm	NAS Eq. B5.1-1

Element 8: Stiffened, w=56.288 mm

f1=180.05 MPa, f2=-175.81 MPa

ψ=0.97648	NAS Eq. B2.3-1
k=23.395	NAS Eq. B2.3-2
λ=0.30354	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.155 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4

Compression width=28.479 mm

b1+b2 > compression width (fully effective)

Element 9: No compressive stress (fully effective)

Element 10: No compressive stress (fully effective)

Element 11: No compressive stress (fully effective)

Element 12: No compressive stress (fully effective)

Element 13: Stiffened, w=56.288 mm

f1=180.05 MPa, f2=-175.81 MPa

ψ=0.97648	NAS Eq. B2.3-1
k=23.395	NAS Eq. B2.3-2
λ=0.30354	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.155 mm	NAS Eq. B2.3-3

b2=28.144 mm	NAS Eq. B2.3-4
Compression width=28.479 mm	
b1+b2 > compression width (fully effective)	
Elements 14 to 17:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=182.76 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.7025	NAS Eq. B5.1-3
ρ=0.9777	NAS Eq. B5.1-2
be=143 mm	NAS Eq. B5.1-1
Element 18: Stiffened, w=56.288 mm	
f1=180.05 MPa, f2=-175.81 MPa	
ψ=0.97648	NAS Eq. B2.3-1
k=23.395	NAS Eq. B2.3-2
λ=0.30354	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.155 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=28.479 mm	
b1+b2 > compression width (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: Stiffened, w=56.288 mm	
f1=180.05 MPa, f2=-175.81 MPa	
ψ=0.97648	NAS Eq. B2.3-1
k=23.395	NAS Eq. B2.3-2
λ=0.30354	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.155 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=28.479 mm	
b1+b2 > compression width (fully effective)	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=182.76 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.7025	NAS Eq. B5.1-3

ρ=0.9777	NAS Eq. B5.1-2
be=143 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.288 mm	
f1=180.05 MPa, f2=-175.81 MPa	
ψ=0.97648	NAS Eq. B2.3-1
k=23.395	NAS Eq. B2.3-2
λ=0.30354	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.155 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=28.479 mm	
b1+b2 > compression width (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	
Center of gravity shift: y=-0.21022 mm	
Sxe=22491 mm^3, Fy=248.21 MPa	
Mnx=5.5826 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Negative Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.062 mm	
f1=183.61 MPa, f2=90.622 MPa	
ψ=0.49356	NAS Eq. B3.2-1
k=0.69341	NAS Eq. B3.2-2
λ=0.44481	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 2: Check for lip stiffener reduction	
S=42.247	NAS Eq. B4-7
Ia=307.67 mm^4	NAS Eq. B4-8
Is=261.93 mm^4	
ds=11.972 mm (lip ineffective width=2.0907 mm)	NAS Eq. B4-6
k=3.8135	NAS Table B4-1
Element 2: Partially stiffened, w=63.207 mm	
f=186.71 MPa, k=3.8135	
λ=0.8597	NAS Eq. B2.1-4
ρ=0.86553	NAS Eq. B2.1-3
b=54.707 mm (ineffective width=8.4991 mm)	NAS Eq. B2.1-2
b1=23.287 mm, b2=31.42 mm	
Element 3: Stiffened, w=56.288 mm	
f1=183.95 MPa, f2=-178.74 MPa	
ψ=0.97169	NAS Eq. B2.3-1
k=23.273	NAS Eq. B2.3-2
λ=0.30761	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	
b1=14.172 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=28.548 mm	

b1+b2 > compression width (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: Stiffened, w=56.288 mm
f1=183.95 MPa, f2=-178.74 MPa
ψ=0.97169 NAS Eq. B2.3-1
k=23.273 NAS Eq. B2.3-2
λ=0.30761 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.288 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.172 mm NAS Eq. B2.3-3
b2=28.144 mm NAS Eq. B2.3-4
Compression width=28.548 mm
b1+b2 > compression width (fully effective)
Elements 9 to 12:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.78 mm, bp=53.472 mm
kloc=27.334 NAS Eq. B5.1.2-1
β=3.6933 NAS Eq. B5.1.2-3
kd=18.739 NAS Eq. B5.1.2-2
R=1.7033 NAS Eq. B5.1-6
k=27.334 NAS Eq. B5.1-5
f1=186.71 MPa
Fcr=370.32 MPa NAS Eq. B5.1-4
λ=0.71005 NAS Eq. B5.1-3
ρ=0.97199 NAS Eq. B5.1-2
be=142.16 mm NAS Eq. B5.1-1
Element 13: Stiffened, w=56.288 mm
f1=183.95 MPa, f2=-178.74 MPa
ψ=0.97169 NAS Eq. B2.3-1
k=23.273 NAS Eq. B2.3-2
λ=0.30761 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.288 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.172 mm NAS Eq. B2.3-3
b2=28.144 mm NAS Eq. B2.3-4
Compression width=28.548 mm
b1+b2 > compression width (fully effective)
Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: No compressive stress (fully effective)
Element 17: No compressive stress (fully effective)
Element 18: Stiffened, w=56.288 mm
f1=183.95 MPa, f2=-178.74 MPa
ψ=0.97169 NAS Eq. B2.3-1
k=23.273 NAS Eq. B2.3-2
λ=0.30761 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.288 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.172 mm NAS Eq. B2.3-3

b2=28.144 mm	NAS Eq. B2.3-4
Compression width=28.548 mm	
b1+b2 > compression width (fully effective)	
Elements 19 to 22:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=186.71 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.71005	NAS Eq. B5.1-3
ρ=0.97199	NAS Eq. B5.1-2
be=142.16 mm	NAS Eq. B5.1-1
Element 23: Stiffened, w=56.288 mm	
f1=183.95 MPa, f2=-178.74 MPa	
ψ=0.97169	NAS Eq. B2.3-1
k=23.273	NAS Eq. B2.3-2
λ=0.30761	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.172 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=28.548 mm	
b1+b2 > compression width (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: Stiffened, w=56.288 mm	
f1=183.95 MPa, f2=-178.74 MPa	
ψ=0.97169	NAS Eq. B2.3-1
k=23.273	NAS Eq. B2.3-2
λ=0.30761	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=62 mm, ho/bo=0.93548	
b1=14.172 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=28.548 mm	
b1+b2 > compression width (fully effective)	
Element 29: Stiffened, w=60.288 mm	
f1=186.71 MPa, f2=186.71 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.80066	NAS Eq. B2.1-4
ρ=0.90579	NAS Eq. B2.1-3
be=54.608 mm	NAS Eq. B2.1-2
b1=27.304 mm	NAS Eq. B2.3-9
b2=27.304 mm	NAS Eq. B2.3-10
Ineffective width=5.6799 mm	
Element 30: Stiffened, w=9.7049 mm	

f1=183.95 MPa, f2=121.42 MPa
ψ=0.66005 NAS Eq. B2.3-1
k=4.7585 NAS Eq. B2.3-8
λ=0.11729 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=9.7049 mm NAS Eq. B2.1-2
b1=4.1475 mm NAS Eq. B2.3-9
b2=5.5574 mm NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)
Element 32: Unstiffened, w=14.68 mm
f1=212.35 MPa, f2=120.26 MPa
ψ=0.56634 NAS Eq. B3.2-1
k=0.47352 NAS Eq. B3.2-3
λ=0.60429 NAS Eq. B2.1-4
λ<0.673 (fully effective) NAS Eq. B2.1-1
Element 31: Check for lip stiffener reduction
S=52.64 NAS Eq. B4-7
w/t < 0.328S (no lip reduction)
Element 31: Stiffened, w=8.3268e-6 mm
f1=120.26 MPa, f2=120.26 MPa
ψ=1 NAS Eq. B2.3-1
k=4 NAS Eq. B2.3-8
λ=8.8751e-8 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=8.3268e-6 mm NAS Eq. B2.1-2
b1=4.1634e-6 mm NAS Eq. B2.3-9
b2=4.1634e-6 mm NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)

Center of gravity shift: y=0.50501 mm
Sxe=22629 mm^3, Fy=248.21 MPa
Mnx=5.6168 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

Positive Flexural Strength about Y-axis
Effective width calculations for part 1: MSDECK
Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: No compressive stress (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: No compressive stress (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: No compressive stress (fully effective)
Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: Stiffened, w=3.2692e-5 mm
f1=7.839 MPa, f2=7.839 MPa
ψ=1 NAS Eq. B2.3-1
k=3.1158 NAS Eq. B2.3-8

λ=1.008e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.472 mm	
f1=35.62 MPa, f2=8.1022 MPa	
ψ=0.22746	NAS Eq. B2.3-1
k=6.4672	NAS Eq. B2.3-8
λ=0.24394	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
b1=19.286 mm	NAS Eq. B2.3-9
b2=34.186 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 18: Stiffened, w=56.288 mm	
f1=45.343 MPa, f2=35.912 MPa	
ψ=0.79201	NAS Eq. B2.3-1
k=4.434	NAS Eq. B2.3-8
λ=0.3499	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
b1=25.493 mm	NAS Eq. B2.3-9
b2=30.795 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 19: Stiffened, w=53.472 mm	
f1=73.153 MPa, f2=45.635 MPa	
ψ=0.62383	NAS Eq. B2.3-1
k=4.8588	NAS Eq. B2.3-8
λ=0.40332	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
b1=22.504 mm	NAS Eq. B2.3-9
b2=30.969 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 20: Stiffened, w=3.2692e-5 mm	
f1=73.416 MPa, f2=73.416 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=3.0847e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.2692e-5 mm	
f1=89.789 MPa, f2=89.789 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=3.4114e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 22: Stiffened, w=53.472 mm
f1=117.57 MPa, f2=90.052 MPa

ψ=0.76594	NAS Eq. B2.3-1
k=4.4938	NAS Eq. B2.3-8
λ=0.53166	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
b1=23.935 mm	NAS Eq. B2.3-9
b2=29.537 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 23: Stiffened, w=56.288 mm
f1=127.29 MPa, f2=117.86 MPa

ψ=0.92591	NAS Eq. B2.3-1
k=4.149	NAS Eq. B2.3-8
λ=0.60605	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
b1=27.139 mm	NAS Eq. B2.3-9
b2=29.149 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Elements 24 to 27:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.78 mm, bp=53.472 mm

kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5

f1=163.55 MPa

Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.66457	NAS Eq. B5.1-3

ρ=1 (fully effective)
Element 28: Stiffened, w=56.288 mm
f1=209.24 MPa, f2=199.81 MPa

ψ=0.95493	NAS Eq. B2.3-1
k=4.0903	NAS Eq. B2.3-8
λ=0.78258	NAS Eq. B2.1-4
ρ=0.9186	NAS Eq. B2.1-3
be=51.706 mm	NAS Eq. B2.1-2
b1=25.283 mm	NAS Eq. B2.3-9
b2=26.423 mm	NAS Eq. B2.3-10

Ineffective width=4.5817 mm
Element 29: Stiffened, w=60.288 mm
f1=240.56 MPa, f2=209.53 MPa

ψ=0.87103	NAS Eq. B2.3-1
k=4.2622	NAS Eq. B2.3-8
λ=0.88042	NAS Eq. B2.1-4
ρ=0.852	NAS Eq. B2.1-3
be=51.366 mm	NAS Eq. B2.1-2
b1=24.127 mm	NAS Eq. B2.3-9
b2=27.239 mm	NAS Eq. B2.3-10

Ineffective width=8.9225 mm
Element 30: Stiffened, w=9.7049 mm
f1=242.48 MPa, f2=240.85 MPa

ψ=0.99329	NAS Eq. B2.3-1
k=4.0134	NAS Eq. B2.3-8
λ=0.14663	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.7049 mm	NAS Eq. B2.1-2
b1=4.8362 mm	NAS Eq. B2.3-9
b2=4.8686 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=247.93 MPa, f2=244.98 MPa	
ψ=0.98809	NAS Eq. B3.2-1
k=0.43084	NAS Eq. B3.2-3
λ=0.68453	NAS Eq. B2.1-4
ρ=0.99135	NAS Eq. B2.1-3
b=14.553 mm (ineffective width=0.12692 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=36.882	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=8.3268e-6 mm	
f1=244.98 MPa, f2=244.98 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2667e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.3268e-6 mm	NAS Eq. B2.1-2
b1=4.1634e-6 mm	NAS Eq. B2.3-9
b2=4.1634e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: x=-4.6485 mm	
Sye=237880 mm^3, Fy=248.21 MPa	
Mny=59.045 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Negative Flexural Strength about Y-axis	
Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.062 mm	
f1=247.92 MPa, f2=246.19 MPa	
ψ=0.99304	NAS Eq. B3.2-1
k=0.43049	NAS Eq. B3.2-3
λ=0.65599	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 2: Check for lip stiffener reduction	
S=36.813	NAS Eq. B4-7
Ia=351.56 mm^4	NAS Eq. B4-8
Is=261.93 mm^4	
ds=10.477 mm (lip ineffective width=3.5851 mm)	NAS Eq. B4-6
k=3.6664	NAS Table B4-1
Element 2: Partially stiffened, w=63.207 mm	
f=245.9 MPa, k=3.6664	
λ=1.0062	NAS Eq. B2.1-4
ρ=0.77655	NAS Eq. B2.1-3
b=49.083 mm (ineffective width=14.124 mm)	NAS Eq. B2.1-2
b1=18.285 mm, b2=30.798 mm	
Element 3: Stiffened, w=56.288 mm	

f1=213.56 MPa, f2=204.27 MPa

ψ=0.9565	NAS Eq. B2.3-1
k=4.0872	NAS Eq. B2.3-8
λ=0.79092	NAS Eq. B2.1-4
ρ=0.91266	NAS Eq. B2.1-3
be=51.372 mm	NAS Eq. B2.1-2
b1=25.139 mm	NAS Eq. B2.3-9
b2=26.233 mm	NAS Eq. B2.3-10

Ineffective width=4.9161 mm

Element 4: Stiffened, w=53.472 mm

f1=203.98 MPa, f2=176.87 MPa

ψ=0.8671	NAS Eq. B2.3-1
k=4.2705	NAS Eq. B2.3-8
λ=0.71838	NAS Eq. B2.1-4
ρ=0.96572	NAS Eq. B2.1-3
be=51.64 mm	NAS Eq. B2.1-2
b1=24.211 mm	NAS Eq. B2.3-9
b2=27.429 mm	NAS Eq. B2.3-10

Ineffective width=1.8329 mm

Element 5: Stiffened, w=3.2692e-5 mm

f1=176.62 MPa, f2=176.62 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=4.7844e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 6: Stiffened, w=3.2692e-5 mm

f1=160.49 MPa, f2=160.49 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=4.5607e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 7: Stiffened, w=53.472 mm

f1=160.23 MPa, f2=133.12 MPa

ψ=0.8308	NAS Eq. B2.3-1
k=4.3481	NAS Eq. B2.3-8
λ=0.63098	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
b1=24.651 mm	NAS Eq. B2.3-9
b2=28.822 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 8: Stiffened, w=56.288 mm

f1=132.83 MPa, f2=123.54 MPa

ψ=0.93005	NAS Eq. B2.3-1
k=4.1406	NAS Eq. B2.3-8
λ=0.61972	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3

be=56.288 mm	NAS Eq. B2.1-2
b1=27.193 mm	NAS Eq. B2.3-9
b2=29.095 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Elements 9 to 12:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=87.817 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.48697	NAS Eq. B5.1-3
ρ=1 (fully effective)	
Element 13: Stiffened, w=56.288 mm	
f1=52.095 MPa, f2=42.804 MPa	
ψ=0.82165	NAS Eq. B2.3-1
k=4.368	NAS Eq. B2.3-8
λ=0.37786	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
b1=25.84 mm	NAS Eq. B2.3-9
b2=30.448 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 14: Stiffened, w=53.472 mm	
f1=42.516 MPa, f2=15.406 MPa	
ψ=0.36236	NAS Eq. B2.3-1
k=5.7938	NAS Eq. B2.3-8
λ=0.28157	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
b1=20.273 mm	NAS Eq. B2.3-9
b2=33.2 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 15: Stiffened, w=3.2692e-5 mm	
f1=15.147 MPa, f2=15.147 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=1.4011e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: No compressive stress (fully effective)	
Element 17: No compressive stress (fully effective)	
Element 18: No compressive stress (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: No compressive stress (fully effective)	
Element 24: No compressive stress (fully effective)	

Element 25: No compressive stress (fully effective)
Element 26: No compressive stress (fully effective)
Element 27: No compressive stress (fully effective)
Element 28: No compressive stress (fully effective)
Element 29: No compressive stress (fully effective)
Element 30: No compressive stress (fully effective)
Element 32: No compressive stress (fully effective)
Element 31: No compressive stress (fully effective)

Center of gravity shift: x=8.7865 mm
Sye=228510 mm^3, Fy=248.21 MPa
Mny=56.719 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

CFS Version 8.0.2
Section: METSCODECK -1.5.sct
METSCODECK-1.5

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Full Section Properties

Area	1867.9 mm^2	Wt.	0.14366 kN/m	Width	1245.2 mm
Ix	1045175 mm^4	rx	23.66 mm	Ixy	-227780 mm^4
Sx(t)	28177 mm^3	y(t)	37.09 mm	α	89.910 deg
Sx(b)	32967 mm^3	y(b)	31.70 mm		
		Height	68.80 mm		
Iy	146370592 mm^4	ry	279.93 mm	Xo	-1.01 mm
Sy(l)	304761 mm^3	x(l)	480.28 mm	Yo	6.64 mm
Sy(r)	306524 mm^3	x(r)	477.52 mm	jx	0.82 mm
		Width	957.80 mm	jy	-210.51 mm
I1	146370944 mm^4	r1	279.93 mm		
I2	1044821 mm^4	r2	23.65 mm		
Ic	147415776 mm^4	rc	280.93 mm	Cw	9.1989e10 mm^6
Io	147500080 mm^4	ro	281.01 mm	J	1401 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A36, Fy=248.21 MPa

Compression		Positive Moment		Positive Moment	
Pao	253.07 kN	Maxo	4.188 kN-m	Mayo	45.236 kN-m
Ae	1835.2 mm^2	Ixe	1045175 mm^4	Iye	146056480 mm^4
		Sxe(t)	28177 mm^3	Sye(l)	304353 mm^3
Tension		Sxe(b)	32967 mm^3	Sye(r)	305618 mm^3
Ta	277.62 kN				
		Negative Moment		Negative Moment	
		Maxo	4.184 kN-m	Mayo	43.104 kN-m
Shear		Ixe	1041143 mm^4	Iye	141048336 mm^4
Vay	47.90 kN	Sxe(t)	28152 mm^3	Sye(l)	290007 mm^3
Vax	14.11 kN	Sxe(b)	32726 mm^3	Sye(r)	299189 mm^3

R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
Ag=1867.9 mm^2, Fy=248.21 MPa
Tn=463.62 kN — NAS Eq. C2.1-1
Ωt=1.67, ϕt=0.9

Shear Strength
MSDECK element 1
Aw=20.742 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=3.0891 kN at -76 deg
Ωv=1.6, ϕv=0.95

MSDECK element 3
Aw=83.79 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=12.479 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 8
Aw=83.79 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=12.479 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 13
Aw=83.79 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=12.479 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 18
Aw=83.79 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=12.479 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 23
Aw=83.79 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=12.479 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 28
Aw=83.79 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=12.479 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 30
Aw=13.064 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=1.9456 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 32
Aw=22.02 mm^2, Fv=148.93 MPa — NAS Eq. C3.2.1-2
Vn=3.2794 kN at -67 deg
Ωv=1.6, ϕv=0.95

Axial Compression Strength
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=13.828 mm
f1=248.21 MPa, f2=248.21 MPa
ψ=1 — NAS Eq. B3.2-1
k=0.43 — NAS Eq. B3.2-3
λ=0.51664 — NAS Eq. B2.1-4
λ<0.673 (fully effective) — NAS Eq. B2.1-1
Element 2: Check for lip stiffener reduction
S=36.641 — NAS Eq. B4-7
Ia=690.08 mm^4 — NAS Eq. B4-8
Is=311.4 mm^4
ds=6.2399 mm (lip ineffective width=7.5881 mm) — NAS Eq. B4-6
k=3.1683 — NAS Table B4-1
Element 2: Partially stiffened, w=62.758 mm
f=248.21 MPa, k=3.1683
λ=0.86382 — NAS Eq. B2.1-4
ρ=0.86281 — NAS Eq. B2.1-3
b=54.149 mm (ineffective width=8.6095 mm) — NAS Eq. B2.1-2
b1=12.217 mm, b2=41.931 mm
Element 3: Stiffened, w=55.86 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.68428	NAS Eq. B2.1-4
ρ=0.99154	NAS Eq. B2.1-3
be=55.388 mm	NAS Eq. B2.1-2
b1=27.694 mm	NAS Eq. B2.3-9
b2=27.694 mm	NAS Eq. B2.3-10
Ineffective width=0.4725 mm	

Element 4: Stiffened, w=53.091 mm

f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.65036	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=26.545 mm	NAS Eq. B2.3-9
b2=26.545 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 5: Stiffened, w=3.1793e-5 mm

f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=4.2515e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 6: Stiffened, w=3.1793e-5 mm

f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=4.2515e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 7: Stiffened, w=53.091 mm

f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.65036	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=26.545 mm	NAS Eq. B2.3-9
b2=26.545 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 8: Stiffened, w=55.86 mm

f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.68428	NAS Eq. B2.1-4
ρ=0.99154	NAS Eq. B2.1-3
be=55.388 mm	NAS Eq. B2.1-2

b1=27.694 mm	NAS Eq. B2.3-9
b2=27.694 mm	NAS Eq. B2.3-10
Ineffective width=0.4725 mm	
Element 9: Stiffened, w=53.091 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.65036	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=26.545 mm	NAS Eq. B2.3-9
b2=26.545 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 10: Stiffened, w=3.1793e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=4.2515e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 11: Stiffened, w=3.1793e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=4.2515e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 12: Stiffened, w=53.091 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.65036	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=26.545 mm	NAS Eq. B2.3-9
b2=26.545 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 13: Stiffened, w=55.86 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.68428	NAS Eq. B2.1-4
ρ=0.99154	NAS Eq. B2.1-3
be=55.388 mm	NAS Eq. B2.1-2
b1=27.694 mm	NAS Eq. B2.3-9
b2=27.694 mm	NAS Eq. B2.3-10
Ineffective width=0.4725 mm	
Element 14: Stiffened, w=53.091 mm	
f1=248.21 MPa, f2=248.21 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.65036	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=26.545 mm	NAS Eq. B2.3-9
b2=26.545 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 15: Stiffened, w=3.1793e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=4.2515e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.1793e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=4.2515e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.091 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.65036	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=26.545 mm	NAS Eq. B2.3-9
b2=26.545 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 18: Stiffened, w=55.86 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.68428	NAS Eq. B2.1-4
ρ=0.99154	NAS Eq. B2.1-3
be=55.388 mm	NAS Eq. B2.1-2
b1=27.694 mm	NAS Eq. B2.3-9
b2=27.694 mm	NAS Eq. B2.3-10
Ineffective width=0.4725 mm	
Element 19: Stiffened, w=53.091 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.65036	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2

b1=26.545 mm	NAS Eq. B2.3-9
b2=26.545 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 20: Stiffened, w=3.1793e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=4.2515e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.1793e-5 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=4.2515e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.091 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.65036	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=26.545 mm	NAS Eq. B2.3-9
b2=26.545 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 23: Stiffened, w=55.86 mm	
f1=248.21 MPa, f2=248.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.68428	NAS Eq. B2.1-4
ρ=0.99154	NAS Eq. B2.1-3
be=55.388 mm	NAS Eq. B2.1-2
b1=27.694 mm	NAS Eq. B2.3-9
b2=27.694 mm	NAS Eq. B2.3-10
Ineffective width=0.4725 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.53 mm, bp=53.091 mm	
kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=248.21 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.66584	NAS Eq. B5.1-3
ρ=1 (fully effective)	

Element 28: Stiffened, w=55.86 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.68428	NAS Eq. B2.1-4
ρ=0.99154	NAS Eq. B2.1-3
be=55.388 mm	NAS Eq. B2.1-2
b1=27.694 mm	NAS Eq. B2.3-9
b2=27.694 mm	NAS Eq. B2.3-10

Ineffective width=0.4725 mm

Element 29: Stiffened, w=59.86 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.73328	NAS Eq. B2.1-4
ρ=0.95458	NAS Eq. B2.1-3
be=57.141 mm	NAS Eq. B2.1-2
b1=28.571 mm	NAS Eq. B2.3-9
b2=28.571 mm	NAS Eq. B2.3-10

Ineffective width=2.7187 mm

Element 30: Stiffened, w=8.7093 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.10669	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.7093 mm	NAS Eq. B2.1-2
b1=4.3547 mm	NAS Eq. B2.3-9
b2=4.3547 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 32: Unstiffened, w=14.68 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=0.54847	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1

Element 31: Check for lip stiffener reduction

S=36.641	NAS Eq. B4-7

w/t < 0.328S (no lip reduction)

Element 31: Stiffened, w=9.0837e-6 mm
f1=248.21 MPa, f2=248.21 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.1128e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.0837e-6 mm	NAS Eq. B2.1-2
b1=4.5419e-6 mm	NAS Eq. B2.3-9
b2=4.5419e-6 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Ae=1835.2 mm^2, Fy=248.21 MPa

Pn=455.52 kN	NAS Eq. C4.1-1

Ωc=1.8, ϕc=0.85

Positive Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)	
Element 2: No compressive stress (fully effective)	
Element 3: Stiffened, w=55.86 mm	
f1=177.36 MPa, f2=-176.06 MPa	
ψ=0.99267	NAS Eq. B2.3-1
k=23.81	NAS Eq. B2.3-2
λ=0.23708	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=28.033 mm	
b1+b2 > compression width (fully effective)	
Elements 4 to 7:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.53 mm, bp=53.091 mm	
kloc=27.628	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.351	NAS Eq. B5.1-5
f1=180.75 MPa	
Fcr=559.85 MPa	NAS Eq. B5.1-4
λ=0.56819	NAS Eq. B5.1-3
ρ=1 (fully effective)	
Element 8: Stiffened, w=55.86 mm	
f1=177.36 MPa, f2=-176.06 MPa	
ψ=0.99267	NAS Eq. B2.3-1
k=23.81	NAS Eq. B2.3-2
λ=0.23708	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=28.033 mm	
b1+b2 > compression width (fully effective)	
Element 9: No compressive stress (fully effective)	
Element 10: No compressive stress (fully effective)	
Element 11: No compressive stress (fully effective)	
Element 12: No compressive stress (fully effective)	
Element 13: Stiffened, w=55.86 mm	
f1=177.36 MPa, f2=-176.06 MPa	
ψ=0.99267	NAS Eq. B2.3-1
k=23.81	NAS Eq. B2.3-2
λ=0.23708	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=28.033 mm	
b1+b2 > compression width (fully effective)	

Elements 14 to 17:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.53 mm, bp=53.091 mm

kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5

f1=180.75 MPa

Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.56819	NAS Eq. B5.1-3

ρ=1 (fully effective)

Element 18: Stiffened, w=55.86 mm
f1=177.36 MPa, f2=-176.06 MPa

ψ=0.99267	NAS Eq. B2.3-1
k=23.81	NAS Eq. B2.3-2
λ=0.23708	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=28.033 mm
b1+b2 > compression width (fully effective)

Element 19: No compressive stress (fully effective)
Element 20: No compressive stress (fully effective)
Element 21: No compressive stress (fully effective)
Element 22: No compressive stress (fully effective)
Element 23: Stiffened, w=55.86 mm
f1=177.36 MPa, f2=-176.06 MPa

ψ=0.99267	NAS Eq. B2.3-1
k=23.81	NAS Eq. B2.3-2
λ=0.23708	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=28.033 mm
b1+b2 > compression width (fully effective)

Elements 24 to 27:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.53 mm, bp=53.091 mm

kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5

f1=180.75 MPa

Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.56819	NAS Eq. B5.1-3

ρ=1 (fully effective)

Element 28: Stiffened, w=55.86 mm
f1=177.36 MPa, f2=-176.06 MPa

ψ=0.99267	NAS Eq. B2.3-1

k=23.81	NAS Eq. B2.3-2
λ=0.23708	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=28.033 mm	
b1+b2 > compression width (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	
Center of gravity shift: y=0 mm	
Sxe=28177 mm^3, Fy=248.21 MPa	
Mnx=6.9937 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Negative Flexural Strength about X-axis	
Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=13.828 mm	
f1=175.64 MPa, f2=85.859 MPa	
ψ=0.48884	NAS Eq. B3.2-1
k=0.69736	NAS Eq. B3.2-2
λ=0.34127	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 2: Check for lip stiffener reduction	
S=43.094	NAS Eq. B4-7
Ia=536.69 mm^4	NAS Eq. B4-8
Is=311.4 mm^4	
ds=8.0234 mm (lip ineffective width=5.8046 mm)	NAS Eq. B4-6
k=3.398	NAS Table B4-1
Element 2: Partially stiffened, w=62.758 mm	
f=179.45 MPa, k=3.398	
λ=0.70922	NAS Eq. B2.1-4
ρ=0.97262	NAS Eq. B2.1-3
b=61.04 mm (ineffective width=1.7183 mm)	NAS Eq. B2.1-2
b1=17.708 mm, b2=43.331 mm	
Element 3: Stiffened, w=55.86 mm	
f1=176.06 MPa, f2=-177.36 MPa	
ψ=1.0074	NAS Eq. B2.3-1
k=24.193	NAS Eq. B2.3-2
λ=0.23434	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	
b1=13.939 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=27.827 mm	
b1+b2 > compression width (fully effective)	
Element 4: No compressive stress (fully effective)	
Element 5: No compressive stress (fully effective)	
Element 6: No compressive stress (fully effective)	
Element 7: No compressive stress (fully effective)	

Element 8: Stiffened, w=55.86 mm
f1=176.06 MPa, f2=-177.36 MPa

ψ=1.0074	NAS Eq. B2.3-1
k=24.193	NAS Eq. B2.3-2
λ=0.23434	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.939 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=27.827 mm
b1+b2 > compression width (fully effective)
Elements 9 to 12:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.53 mm, bp=53.091 mm

kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5

f1=179.45 MPa

Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.56614	NAS Eq. B5.1-3

ρ=1 (fully effective)
Element 13: Stiffened, w=55.86 mm
f1=176.06 MPa, f2=-177.36 MPa

ψ=1.0074	NAS Eq. B2.3-1
k=24.193	NAS Eq. B2.3-2
λ=0.23434	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.939 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=27.827 mm
b1+b2 > compression width (fully effective)
Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: No compressive stress (fully effective)
Element 17: No compressive stress (fully effective)
Element 18: Stiffened, w=55.86 mm
f1=176.06 MPa, f2=-177.36 MPa

ψ=1.0074	NAS Eq. B2.3-1
k=24.193	NAS Eq. B2.3-2
λ=0.23434	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.939 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=27.827 mm
b1+b2 > compression width (fully effective)
Elements 19 to 22:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.53 mm, bp=53.091 mm

kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=179.45 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.56614	NAS Eq. B5.1-3
ρ=1 (fully effective)	
Element 23: Stiffened, w=55.86 mm	
f1=176.06 MPa, f2=-177.36 MPa	
ψ=1.0074	NAS Eq. B2.3-1
k=24.193	NAS Eq. B2.3-2
λ=0.23434	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=13.939 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=27.827 mm	
b1+b2 > compression width (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: Stiffened, w=55.86 mm	
f1=176.06 MPa, f2=-177.36 MPa	
ψ=1.0074	NAS Eq. B2.3-1
k=24.193	NAS Eq. B2.3-2
λ=0.23434	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=62 mm, ho/bo=0.93548	
b1=13.939 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=27.827 mm	
b1+b2 > compression width (fully effective)	
Element 29: Stiffened, w=59.86 mm	
f1=179.45 MPa, f2=179.45 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.62349	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=59.86 mm	NAS Eq. B2.1-2
b1=29.93 mm	NAS Eq. B2.3-9
b2=29.93 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 30: Stiffened, w=8.7093 mm	
f1=176.06 MPa, f2=120.96 MPa	
ψ=0.68702	NAS Eq. B2.3-1
k=4.6873	NAS Eq. B2.3-8
λ=0.083006	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.7093 mm	NAS Eq. B2.1-2
b1=3.7654 mm	NAS Eq. B2.3-9

b2=4.9439 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=210.18 MPa, f2=119.76 MPa	
ψ=0.56979	NAS Eq. B3.2-1
k=0.47307	NAS Eq. B3.2-3
λ=0.48119	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 31: Check for lip stiffener reduction	
S=52.751	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=9.0837e-6 mm	
f1=119.76 MPa, f2=119.76 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=7.7293e-8	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.0837e-6 mm	NAS Eq. B2.1-2
b1=4.5419e-6 mm	NAS Eq. B2.3-9
b2=4.5419e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: y=0.11061 mm	
Sxe=28152 mm^3, Fy=248.21 MPa	
Mnx=6.9876 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Positive Flexural Strength about Y-axis	
Effective width calculations for part 1: MSDECK	
Element 1: No compressive stress (fully effective)	
Element 2: No compressive stress (fully effective)	
Element 3: No compressive stress (fully effective)	
Element 4: No compressive stress (fully effective)	
Element 5: No compressive stress (fully effective)	
Element 6: No compressive stress (fully effective)	
Element 7: No compressive stress (fully effective)	
Element 8: No compressive stress (fully effective)	
Element 9: No compressive stress (fully effective)	
Element 10: No compressive stress (fully effective)	
Element 11: No compressive stress (fully effective)	
Element 12: No compressive stress (fully effective)	
Element 13: No compressive stress (fully effective)	
Element 14: No compressive stress (fully effective)	
Element 15: No compressive stress (fully effective)	
Element 16: Stiffened, w=3.1793e-5 mm	
f1=5.8602 MPa, f2=5.8602 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=6.5327e-8	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.091 mm	

f1=33.65 MPa, f2=6.1909 MPa

ψ=0.18398	NAS Eq. B2.3-1
k=6.7188	NAS Eq. B2.3-8
λ=0.18476	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=18.853 mm	NAS Eq. B2.3-9
b2=34.238 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 18: Stiffened, w=55.86 mm

f1=43.423 MPa, f2=34.017 MPa

ψ=0.78338	NAS Eq. B2.3-1
k=4.4536	NAS Eq. B2.3-8
λ=0.27124	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
b1=25.201 mm	NAS Eq. B2.3-9
b2=30.66 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 19: Stiffened, w=53.091 mm

f1=71.249 MPa, f2=43.79 MPa

ψ=0.6146	NAS Eq. B2.3-1
k=4.8853	NAS Eq. B2.3-8
λ=0.31529	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=22.256 mm	NAS Eq. B2.3-9
b2=30.834 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 20: Stiffened, w=3.1793e-5 mm

f1=71.579 MPa, f2=71.579 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=2.2831e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 21: Stiffened, w=3.1793e-5 mm

f1=88.167 MPa, f2=88.167 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=2.5339e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 22: Stiffened, w=53.091 mm

f1=115.96 MPa, f2=88.497 MPa

ψ=0.76319	NAS Eq. B2.3-1
k=4.5002	NAS Eq. B2.3-8
λ=0.41909	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3

be=53.091 mm	NAS Eq. B2.1-2
b1=23.735 mm	NAS Eq. B2.3-9
b2=29.356 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 23: Stiffened, w=55.86 mm	
f1=125.73 MPa, f2=116.32 MPa	
ψ=0.92519	NAS Eq. B2.3-1
k=4.1505	NAS Eq. B2.3-8
λ=0.47811	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
b1=26.923 mm	NAS Eq. B2.3-9
b2=28.937 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.53 mm, bp=53.091 mm	
kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=162.18 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.53822	NAS Eq. B5.1-3
ρ=1 (fully effective)	
Element 28: Stiffened, w=55.86 mm	
f1=208.04 MPa, f2=198.63 MPa	
ψ=0.95479	NAS Eq. B2.3-1
k=4.0906	NAS Eq. B2.3-8
λ=0.61948	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
b1=27.313 mm	NAS Eq. B2.3-9
b2=28.548 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 29: Stiffened, w=59.86 mm	
f1=239.36 MPa, f2=208.4 MPa	
ψ=0.87065	NAS Eq. B2.3-1
k=4.263	NAS Eq. B2.3-8
λ=0.69753	NAS Eq. B2.1-4
ρ=0.98147	NAS Eq. B2.1-3
be=58.751 mm	NAS Eq. B2.1-2
b1=27.591 mm	NAS Eq. B2.3-9
b2=31.16 mm	NAS Eq. B2.3-10
Ineffective width=1.1094 mm	
Element 30: Stiffened, w=8.7093 mm	
f1=241.2 MPa, f2=239.73 MPa	
ψ=0.99392	NAS Eq. B2.3-1
k=4.0122	NAS Eq. B2.3-8
λ=0.10501	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.7093 mm	NAS Eq. B2.1-2
b1=4.3415 mm	NAS Eq. B2.3-9
b2=4.3679 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=246.82 MPa, f2=243.85 MPa	
ψ=0.98798	NAS Eq. B3.2-1
k=0.43085	NAS Eq. B3.2-3
λ=0.54639	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 31: Check for lip stiffener reduction	
S=36.967	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=9.0837e-6 mm	
f1=243.85 MPa, f2=243.85 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.1029e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.0837e-6 mm	NAS Eq. B2.1-2
b1=4.5419e-6 mm	NAS Eq. B2.3-9
b2=4.5419e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: x=-0.38724 mm	
Sye=304350 mm^3, Fy=248.21 MPa	
Mny=75.544 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Negative Flexural Strength about Y-axis	
Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=13.828 mm	
f1=247.84 MPa, f2=246.13 MPa	
ψ=0.99311	NAS Eq. B3.2-1
k=0.43049	NAS Eq. B3.2-3
λ=0.51597	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 2: Check for lip stiffener reduction	
S=36.823	NAS Eq. B4-7
Ia=686.79 mm^4	NAS Eq. B4-8
Is=311.4 mm^4	
ds=6.2698 mm (lip ineffective width=7.5582 mm)	NAS Eq. B4-6
k=3.1726	NAS Table B4-1
Element 2: Partially stiffened, w=62.758 mm	
f=245.76 MPa, k=3.1726	
λ=0.85896	NAS Eq. B2.1-4
ρ=0.86602	NAS Eq. B2.1-3
b=54.35 mm (ineffective width=8.4082 mm)	NAS Eq. B2.1-2
b1=12.321 mm, b2=42.028 mm	
Element 3: Stiffened, w=55.86 mm	
f1=213.37 MPa, f2=204.09 MPa	
ψ=0.9565	NAS Eq. B2.3-1
k=4.0872	NAS Eq. B2.3-8
λ=0.62764	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
b1=27.336 mm	NAS Eq. B2.3-9
b2=28.525 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 4: Stiffened, w=53.091 mm
f1=203.73 MPa, f2=176.63 MPa

ψ=0.86701	NAS Eq. B2.3-1
k=4.2707	NAS Eq. B2.3-8
λ=0.57023	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=24.89 mm	NAS Eq. B2.3-9
b2=28.2 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 5: Stiffened, w=3.1793e-5 mm
f1=176.31 MPa, f2=176.31 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=3.5832e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 6: Stiffened, w=3.1793e-5 mm
f1=159.94 MPa, f2=159.94 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=3.4128e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 7: Stiffened, w=53.091 mm
f1=159.61 MPa, f2=132.52 MPa

ψ=0.83025	NAS Eq. B2.3-1
k=4.3493	NAS Eq. B2.3-8
λ=0.50015	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=24.469 mm	NAS Eq. B2.3-9
b2=28.622 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 8: Stiffened, w=55.86 mm
f1=132.16 MPa, f2=122.88 MPa

ψ=0.92977	NAS Eq. B2.3-1
k=4.1411	NAS Eq. B2.3-8
λ=0.49073	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
b1=26.983 mm	NAS Eq. B2.3-9
b2=28.878 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Elements 9 to 12:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.53 mm, bp=53.091 mm

kloc=27.629	NAS Eq. B5.1.2-1

β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=86.911 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.394	NAS Eq. B5.1-3
ρ=1 (fully effective)	

Element 13: Stiffened, w=55.86 mm

f1=50.945 MPa, f2=41.663 MPa	
ψ=0.81782	NAS Eq. B2.3-1
k=4.3765	NAS Eq. B2.3-8
λ=0.29638	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
b1=25.598 mm	NAS Eq. B2.3-9
b2=30.262 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 14: Stiffened, w=53.091 mm

f1=41.302 MPa, f2=14.207 MPa	
ψ=0.34399	NAS Eq. B2.3-1
k=5.8767	NAS Eq. B2.3-8
λ=0.21887	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=19.989 mm	NAS Eq. B2.3-9
b2=33.102 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 15: Stiffened, w=3.1793e-5 mm

f1=13.881 MPa, f2=13.881 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=1.0054e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 16: No compressive stress (fully effective)
Element 17: No compressive stress (fully effective)
Element 18: No compressive stress (fully effective)
Element 19: No compressive stress (fully effective)
Element 20: No compressive stress (fully effective)
Element 21: No compressive stress (fully effective)
Element 22: No compressive stress (fully effective)
Element 23: No compressive stress (fully effective)
Element 24: No compressive stress (fully effective)
Element 25: No compressive stress (fully effective)
Element 26: No compressive stress (fully effective)
Element 27: No compressive stress (fully effective)
Element 28: No compressive stress (fully effective)
Element 29: No compressive stress (fully effective)
Element 30: No compressive stress (fully effective)
Element 32: No compressive stress (fully effective)
Element 31: No compressive stress (fully effective)

Center of gravity shift: x=6.0822 mm
Sye=290010 mm^3, Fy=248.21 MPa
Mny=71.983 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

CFS Version 8.0.2
Section: METSCODECK -0.8 .sct
METSCODECK-0.8

Rev. Date: 14-07-2015 19:58:37

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Full Section Properties

Area	1000.8 mm^2	Wt.	0.076969 kN/m	Width	1251.0 mm
Ix	568852 mm^4	rx	23.84 mm	Ixy	-114393 mm^4
Sx(t)	15509 mm^3	y(t)	36.68 mm	α	89.916 deg
Sx(b)	19069 mm^3	y(b)	29.83 mm		
		Height	66.51 mm		
Iy	78995784 mm^4	ry	280.95 mm	Xo	-2.18 mm
Sy(l)	164036 mm^3	x(l)	481.58 mm	Yo	6.65 mm
Sy(r)	165231 mm^3	x(r)	478.09 mm	jx	1.94 mm
		Width	959.67 mm	jy	-208.47 mm
I1	78995944 mm^4	r1	280.95 mm		
I2	568685 mm^4	r2	23.84 mm		
Ic	79564632 mm^4	rc	281.96 mm	Cw	5.0341e10 mm^6
Io	79613600 mm^4	ro	282.05 mm	J	213.5 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A572 Grade 50, Fy=344.74 MPa

Compression		Positive Moment		Positive Moment	
Pao	120.73 kN	Maxo	2.382 kN-m	Mayo	25.832 kN-m
Ae	630.38 mm^2	Ixe	467047 mm^4	Iye	64859212 mm^4
		Sxe(t)	11541 mm^3	Sye(l)	146953 mm^3
Tension		Sxe(b)	17935 mm^3	Sye(r)	125136 mm^3
Ta	206.59 kN				
		Negative Moment		Negative Moment	
		Maxo	2.743 kN-m	Mayo	25.426 kN-m
Shear		Ixe	454795 mm^4	Iye	64324972 mm^4
Vay	29.44 kN	Sxe(t)	14085 mm^3	Sye(l)	123169 mm^3
Vax	10.14 kN	Sxe(b)	13289 mm^3	Sye(r)	147056 mm^3

MSDECK element 2 w/t exceeds 60.
R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
Ag=1000.8 mm^2, Fy=344.74 MPa
Tn=345 kN — NAS Eq. C2.1-1
Ωt=1.67, ϕt=0.9

Shear Strength
MSDECK element 1
Aw=11.5 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=2.3787 kN at -76 deg

Ωv=1.6, ϕv=0.95	
MSDECK element 3	
Aw=45.487 mm^2, Fv=163.35 MPa	NAS Eq. C3.2.1-3
Vn=7.4305 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 8	
Aw=45.487 mm^2, Fv=163.35 MPa	NAS Eq. C3.2.1-3
Vn=7.4305 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 13	
Aw=45.487 mm^2, Fv=163.35 MPa	NAS Eq. C3.2.1-3
Vn=7.4305 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 18	
Aw=45.487 mm^2, Fv=163.35 MPa	NAS Eq. C3.2.1-3
Vn=7.4305 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 23	
Aw=45.487 mm^2, Fv=163.35 MPa	NAS Eq. C3.2.1-3
Vn=7.4305 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 28	
Aw=45.487 mm^2, Fv=163.35 MPa	NAS Eq. C3.2.1-3
Vn=7.4305 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 30	
Aw=8.8258 mm^2, Fv=206.84 MPa	NAS Eq. C3.2.1-2
Vn=1.8255 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 32	
Aw=11.744 mm^2, Fv=206.84 MPa	NAS Eq. C3.2.1-2
Vn=2.4292 kN at -67 deg	
Ωv=1.6, ϕv=0.95	

Axial Compression Strength

Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.375 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=1.1868	NAS Eq. B2.1-4
ρ=0.68641	NAS Eq. B2.1-3
b=9.8672 mm (ineffective width=4.5078 mm)	NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction	
S=31.091	NAS Eq. B4-7
Ia=122.88 mm^4	NAS Eq. B4-8
Is=186.48 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1
Element 2: Stiffened, w=63.804 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.7271	NAS Eq. B2.1-4
ρ=0.50525	NAS Eq. B2.1-3
be=32.237 mm	NAS Eq. B2.1-2

b1=16.119 mm	NAS Eq. B2.3-9
b2=16.119 mm	NAS Eq. B2.3-10
Ineffective width=31.567 mm	
Element 3: Stiffened, w=56.859 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5391	NAS Eq. B2.1-4
ρ=0.55686	NAS Eq. B2.1-3
be=31.662 mm	NAS Eq. B2.1-2
b1=15.831 mm	NAS Eq. B2.3-9
b2=15.831 mm	NAS Eq. B2.3-10
Ineffective width=25.197 mm	
Element 4: Stiffened, w=53.982 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4612	NAS Eq. B2.1-4
ρ=0.58132	NAS Eq. B2.1-3
be=31.381 mm	NAS Eq. B2.1-2
b1=15.69 mm	NAS Eq. B2.3-9
b2=15.69 mm	NAS Eq. B2.3-10
Ineffective width=22.601 mm	
Element 5: Stiffened, w=3.0894e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.0549e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.0894e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.0549e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.982 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4612	NAS Eq. B2.1-4
ρ=0.58132	NAS Eq. B2.1-3
be=31.381 mm	NAS Eq. B2.1-2
b1=15.69 mm	NAS Eq. B2.3-9
b2=15.69 mm	NAS Eq. B2.3-10
Ineffective width=22.601 mm	
Element 8: Stiffened, w=56.859 mm	
f1=344.74 MPa, f2=344.74 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5391	NAS Eq. B2.1-4
ρ=0.55686	NAS Eq. B2.1-3
be=31.662 mm	NAS Eq. B2.1-2
b1=15.831 mm	NAS Eq. B2.3-9
b2=15.831 mm	NAS Eq. B2.3-10
Ineffective width=25.197 mm	

Element 9: Stiffened, w=53.982 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4612	NAS Eq. B2.1-4
ρ=0.58132	NAS Eq. B2.1-3
be=31.381 mm	NAS Eq. B2.1-2
b1=15.69 mm	NAS Eq. B2.3-9
b2=15.69 mm	NAS Eq. B2.3-10
Ineffective width=22.601 mm	

Element 10: Stiffened, w=3.0894e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.0549e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 11: Stiffened, w=3.0894e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.0549e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 12: Stiffened, w=53.982 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4612	NAS Eq. B2.1-4
ρ=0.58132	NAS Eq. B2.1-3
be=31.381 mm	NAS Eq. B2.1-2
b1=15.69 mm	NAS Eq. B2.3-9
b2=15.69 mm	NAS Eq. B2.3-10
Ineffective width=22.601 mm	

Element 13: Stiffened, w=56.859 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5391	NAS Eq. B2.1-4
ρ=0.55686	NAS Eq. B2.1-3
be=31.662 mm	NAS Eq. B2.1-2

b1=15.831 mm	NAS Eq. B2.3-9
b2=15.831 mm	NAS Eq. B2.3-10
Ineffective width=25.197 mm	
Element 14: Stiffened, w=53.982 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4612	NAS Eq. B2.1-4
ρ=0.58132	NAS Eq. B2.1-3
be=31.381 mm	NAS Eq. B2.1-2
b1=15.69 mm	NAS Eq. B2.3-9
b2=15.69 mm	NAS Eq. B2.3-10
Ineffective width=22.601 mm	
Element 15: Stiffened, w=3.0894e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.0549e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.0894e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.0549e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.982 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4612	NAS Eq. B2.1-4
ρ=0.58132	NAS Eq. B2.1-3
be=31.381 mm	NAS Eq. B2.1-2
b1=15.69 mm	NAS Eq. B2.3-9
b2=15.69 mm	NAS Eq. B2.3-10
Ineffective width=22.601 mm	
Element 18: Stiffened, w=56.859 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5391	NAS Eq. B2.1-4
ρ=0.55686	NAS Eq. B2.1-3
be=31.662 mm	NAS Eq. B2.1-2
b1=15.831 mm	NAS Eq. B2.3-9
b2=15.831 mm	NAS Eq. B2.3-10
Ineffective width=25.197 mm	
Element 19: Stiffened, w=53.982 mm	
f1=344.74 MPa, f2=344.74 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4612	NAS Eq. B2.1-4
ρ=0.58132	NAS Eq. B2.1-3
be=31.381 mm	NAS Eq. B2.1-2
b1=15.69 mm	NAS Eq. B2.3-9
b2=15.69 mm	NAS Eq. B2.3-10
Ineffective width=22.601 mm	

Element 20: Stiffened, w=3.0894e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.0549e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 21: Stiffened, w=3.0894e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.0549e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 22: Stiffened, w=53.982 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4612	NAS Eq. B2.1-4
ρ=0.58132	NAS Eq. B2.1-3
be=31.381 mm	NAS Eq. B2.1-2
b1=15.69 mm	NAS Eq. B2.3-9
b2=15.69 mm	NAS Eq. B2.3-10
Ineffective width=22.601 mm	

Element 23: Stiffened, w=56.859 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5391	NAS Eq. B2.1-4
ρ=0.55686	NAS Eq. B2.1-3
be=31.662 mm	NAS Eq. B2.1-2
b1=15.831 mm	NAS Eq. B2.3-9
b2=15.831 mm	NAS Eq. B2.3-10
Ineffective width=25.197 mm	

Elements 24 to 27:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=140.12 mm, bp=53.982 mm

kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6

k=26.95	NAS Eq. B5.1-5
f1=344.74 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.461	NAS Eq. B5.1-3
ρ=0.58138	NAS Eq. B5.1-2
be=85.15 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.859 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5391	NAS Eq. B2.1-4
ρ=0.55686	NAS Eq. B2.1-3
be=31.662 mm	NAS Eq. B2.1-2
b1=15.831 mm	NAS Eq. B2.3-9
b2=15.831 mm	NAS Eq. B2.3-10
Ineffective width=25.197 mm	
Element 29: Stiffened, w=60.859 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.6474	NAS Eq. B2.1-4
ρ=0.52596	NAS Eq. B2.1-3
be=32.009 mm	NAS Eq. B2.1-2
b1=16.005 mm	NAS Eq. B2.3-9
b2=16.005 mm	NAS Eq. B2.3-10
Ineffective width=28.849 mm	
Element 30: Stiffened, w=11.032 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.29863	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=11.032 mm	NAS Eq. B2.1-2
b1=5.5161 mm	NAS Eq. B2.3-9
b2=5.5161 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=1.212	NAS Eq. B2.1-4
ρ=0.67533	NAS Eq. B2.1-3
b=9.9138 mm (ineffective width=4.7662 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=31.091	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=2.0491e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Ae=630.38 mm^2, Fy=344.74 MPa
Pn=217.32 kN NAS Eq. C4.1-1
Ωc=1.8, ϕc=0.85

Positive Flexural Strength about X-axis
Effective width calculations for part 1: MSDECK
Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: Stiffened, w=56.859 mm
f1=262.37 MPa, f2=-195.61 MPa
ψ=0.74555 NAS Eq. B2.3-1
k=18.128 NAS Eq. B2.3-2
λ=0.63072 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.859 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=15.18 mm NAS Eq. B2.3-3
b2=28.429 mm NAS Eq. B2.3-4
Compression width=32.574 mm
b1+b2 > compression width (fully effective)
Elements 4 to 7:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=140.12 mm, bp=53.982 mm
kloc=26.95 NAS Eq. B5.1.2-1
β=4.4501 NAS Eq. B5.1.2-3
kd=26.852 NAS Eq. B5.1.2-2
R=1.7071 NAS Eq. B5.1-6
k=26.95 NAS Eq. B5.1-5
f1=264.67 MPa
Fcr=161.5 MPa NAS Eq. B5.1-4
λ=1.2802 NAS Eq. B5.1-3
ρ=0.6469 NAS Eq. B5.1-2
be=94.745 mm NAS Eq. B5.1-1
Element 8: Stiffened, w=56.859 mm
f1=262.37 MPa, f2=-195.61 MPa
ψ=0.74555 NAS Eq. B2.3-1
k=18.128 NAS Eq. B2.3-2
λ=0.63072 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.859 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=15.18 mm NAS Eq. B2.3-3
b2=28.429 mm NAS Eq. B2.3-4
Compression width=32.574 mm
b1+b2 > compression width (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: Stiffened, w=56.859 mm
f1=262.37 MPa, f2=-195.61 MPa
ψ=0.74555 NAS Eq. B2.3-1
k=18.128 NAS Eq. B2.3-2

λ=0.63072	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=15.18 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4
Compression width=32.574 mm	
b1+b2 > compression width (fully effective)	

Elements 14 to 17:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=140.12 mm, bp=53.982 mm	
kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=264.67 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.2802	NAS Eq. B5.1-3
ρ=0.6469	NAS Eq. B5.1-2
be=94.746 mm	NAS Eq. B5.1-1

Element 18: Stiffened, w=56.859 mm

f1=262.37 MPa, f2=-195.61 MPa	
ψ=0.74555	NAS Eq. B2.3-1
k=18.128	NAS Eq. B2.3-2
λ=0.63072	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=15.18 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4
Compression width=32.574 mm	
b1+b2 > compression width (fully effective)	

Element 19: No compressive stress (fully effective)

Element 20: No compressive stress (fully effective)

Element 21: No compressive stress (fully effective)

Element 22: No compressive stress (fully effective)

Element 23: Stiffened, w=56.859 mm

f1=262.37 MPa, f2=-195.61 MPa	
ψ=0.74555	NAS Eq. B2.3-1
k=18.128	NAS Eq. B2.3-2
λ=0.63072	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=15.18 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4
Compression width=32.574 mm	
b1+b2 > compression width (fully effective)	

Elements 24 to 27:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=140.12 mm, bp=53.982 mm	
kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2

R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=264.67 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.2802	NAS Eq. B5.1-3
ρ=0.6469	NAS Eq. B5.1-2
be=94.746 mm	NAS Eq. B5.1-1

Element 28: Stiffened, w=56.859 mm

f1=262.37 MPa, f2=-195.61 MPa	
ψ=0.74555	NAS Eq. B2.3-1
k=18.128	NAS Eq. B2.3-2
λ=0.63072	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.859 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=15.18 mm	NAS Eq. B2.3-3
b2=28.429 mm	NAS Eq. B2.3-4

Compression width=32.574 mm

b1+b2 > compression width (fully effective)

Element 29: No compressive stress (fully effective)

Element 30: No compressive stress (fully effective)

Element 32: No compressive stress (fully effective)

Element 31: No compressive stress (fully effective)

Center of gravity shift: y=-3.7901 mm

Sxe=11541 mm^3, Fy=344.74 MPa

Mnx=3.9785 kN-m — NAS Eq. C3.1.1-1

Ωb=1.67, ϕb=0.9

Negative Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK

Element 1: Unstiffened, w=14.375 mm

f1=313.35 MPa, f2=172.82 MPa	
ψ=0.55152	NAS Eq. B3.2-1
k=0.64833	NAS Eq. B3.2-2
λ=0.92147	NAS Eq. B2.1-4
ρ=0.82613	NAS Eq. B2.1-3
b=11.876 mm (ineffective width=2.4994 mm)	NAS Eq. B2.1-2

Element 2: Check for lip stiffener reduction

S=32.453	NAS Eq. B4-7
Ia=117.81 mm^4	NAS Eq. B4-8
Is=186.48 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1

Element 2: Stiffened, w=63.804 mm

f1=316.41 MPa, f2=316.41 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.6546	NAS Eq. B2.1-4
ρ=0.52401	NAS Eq. B2.1-3
be=33.434 mm	NAS Eq. B2.1-2
b1=16.717 mm	NAS Eq. B2.3-9
b2=16.717 mm	NAS Eq. B2.3-10

Ineffective width=30.37 mm

Element 3: Stiffened, w=56.859 mm

f1=313.69 MPa, f2=-227.97 MPa

ψ=0.72675	NAS Eq. B2.3-1
k=17.751	NAS Eq. B2.3-2
λ=0.69694	NAS Eq. B2.1-4
ρ=0.98192	NAS Eq. B2.1-3
be=55.83 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	
b1=14.981 mm	NAS Eq. B2.3-3
b2=27.915 mm	NAS Eq. B2.3-4
Compression width=32.928 mm	
b1+b2 > compression width (fully effective)	

Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: Stiffened, w=56.859 mm

f1=313.69 MPa, f2=-227.97 MPa	
ψ=0.72675	NAS Eq. B2.3-1
k=17.751	NAS Eq. B2.3-2
λ=0.69694	NAS Eq. B2.1-4
ρ=0.98192	NAS Eq. B2.1-3
be=55.83 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.981 mm	NAS Eq. B2.3-3
b2=27.915 mm	NAS Eq. B2.3-4
Compression width=32.928 mm	
b1+b2 > compression width (fully effective)	

Elements 9 to 12:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=140.12 mm, bp=53.982 mm	
kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=316.41 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.3997	NAS Eq. B5.1-3
ρ=0.60214	NAS Eq. B5.1-2
be=88.19 mm	NAS Eq. B5.1-1

Element 13: Stiffened, w=56.859 mm

f1=313.69 MPa, f2=-227.97 MPa	
ψ=0.72675	NAS Eq. B2.3-1
k=17.751	NAS Eq. B2.3-2
λ=0.69694	NAS Eq. B2.1-4
ρ=0.98192	NAS Eq. B2.1-3
be=55.83 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.981 mm	NAS Eq. B2.3-3
b2=27.915 mm	NAS Eq. B2.3-4
Compression width=32.928 mm	
b1+b2 > compression width (fully effective)	

Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: No compressive stress (fully effective)
Element 17: No compressive stress (fully effective)

Element 18: Stiffened, w=56.859 mm
f1=313.69 MPa, f2=-227.97 MPa

ψ=0.72675	NAS Eq. B2.3-1
k=17.751	NAS Eq. B2.3-2
λ=0.69694	NAS Eq. B2.1-4
ρ=0.98192	NAS Eq. B2.1-3
be=55.83 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.981 mm	NAS Eq. B2.3-3
b2=27.915 mm	NAS Eq. B2.3-4

Compression width=32.928 mm
b1+b2 > compression width (fully effective)
Elements 19 to 22:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=140.12 mm, bp=53.982 mm

kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5

f1=316.41 MPa

Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.3997	NAS Eq. B5.1-3
ρ=0.60214	NAS Eq. B5.1-2
be=88.19 mm	NAS Eq. B5.1-1

Element 23: Stiffened, w=56.859 mm
f1=313.69 MPa, f2=-227.97 MPa

ψ=0.72675	NAS Eq. B2.3-1
k=17.751	NAS Eq. B2.3-2
λ=0.69694	NAS Eq. B2.1-4
ρ=0.98192	NAS Eq. B2.1-3
be=55.83 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.981 mm	NAS Eq. B2.3-3
b2=27.915 mm	NAS Eq. B2.3-4

Compression width=32.928 mm
b1+b2 > compression width (fully effective)
Element 24: No compressive stress (fully effective)
Element 25: No compressive stress (fully effective)
Element 26: No compressive stress (fully effective)
Element 27: No compressive stress (fully effective)
Element 28: Stiffened, w=56.859 mm
f1=313.69 MPa, f2=-227.97 MPa

ψ=0.72675	NAS Eq. B2.3-1
k=17.751	NAS Eq. B2.3-2
λ=0.69694	NAS Eq. B2.1-4
ρ=0.98192	NAS Eq. B2.1-3
be=55.83 mm	NAS Eq. B2.1-2

ho=58 mm, bo=62 mm, ho/bo=0.93548

b1=14.981 mm	NAS Eq. B2.3-3
b2=27.915 mm	NAS Eq. B2.3-4

Compression width=32.928 mm
b1+b2 > compression width (fully effective)
Element 29: Stiffened, w=60.859 mm
f1=316.41 MPa, f2=316.41 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5782	NAS Eq. B2.1-4
ρ=0.5453	NAS Eq. B2.1-3
be=33.186 mm	NAS Eq. B2.1-2
b1=16.593 mm	NAS Eq. B2.3-9
b2=16.593 mm	NAS Eq. B2.3-10
Ineffective width=27.673 mm	
Element 30: Stiffened, w=11.032 mm	
f1=313.69 MPa, f2=208.59 MPa	
ψ=0.66496	NAS Eq. B2.3-1
k=4.7453	NAS Eq. B2.3-8
λ=0.26154	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=11.032 mm	NAS Eq. B2.1-2
b1=4.7246 mm	NAS Eq. B2.3-9
b2=6.3076 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=343.16 MPa, f2=207.01 MPa	
ψ=0.60325	NAS Eq. B3.2-1
k=0.46879	NAS Eq. B3.2-3
λ=1.1581	NAS Eq. B2.1-4
ρ=0.69946	NAS Eq. B2.1-3
b=10.268 mm (ineffective width=4.412 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=40.122	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=207.01 MPa, f2=207.01 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5879e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: y=4.3905 mm	
Sxe=13289 mm^3, Fy=344.74 MPa	
Mnx=4.5814 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Positive Flexural Strength about Y-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: No compressive stress (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: No compressive stress (fully effective)
Element 9: No compressive stress (fully effective)

Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: No compressive stress (fully effective)
Element 14: Stiffened, w=53.982 mm
f1=12.386 MPa, f2=-23.525 MPa

ψ=1.8993	NAS Eq. B2.3-1
k=58.543	NAS Eq. B2.3-2
λ=0.072398	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.982 mm	NAS Eq. B2.1-2

ho=55 mm, bo=31.192 mm, ho/bo=1.7632

b1=11.018 mm	NAS Eq. B2.3-3
b2=26.991 mm	NAS Eq. B2.3-4

Compression width=18.619 mm
b1+b2 > compression width (fully effective)
Element 15: Stiffened, w=3.0894e-5 mm
f1=12.613 MPa, f2=12.613 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=2.0178e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 16: Stiffened, w=3.0894e-5 mm
f1=33.551 MPa, f2=33.551 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=3.291e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 17: Stiffened, w=53.982 mm
f1=69.689 MPa, f2=33.778 MPa

ψ=0.48469	NAS Eq. B2.3-1
k=5.3043	NAS Eq. B2.3-8
λ=0.57052	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.982 mm	NAS Eq. B2.1-2
b1=21.461 mm	NAS Eq. B2.3-9
b2=32.52 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 18: Stiffened, w=56.859 mm
f1=82.255 MPa, f2=69.94 MPa

ψ=0.85029	NAS Eq. B2.3-1
k=4.3061	NAS Eq. B2.3-8
λ=0.72459	NAS Eq. B2.1-4
ρ=0.96107	NAS Eq. B2.1-3
be=54.645 mm	NAS Eq. B2.1-2
b1=25.42 mm	NAS Eq. B2.3-9
b2=29.225 mm	NAS Eq. B2.3-10

Ineffective width=2.2135 mm

Element 19: Stiffened, w=53.982 mm

f1=118.42 MPa, f2=82.507 MPa

ψ=0.69674	NAS Eq. B2.3-1
k=4.6623	NAS Eq. B2.3-8
λ=0.79325	NAS Eq. B2.1-4
ρ=0.91101	NAS Eq. B2.1-3
be=49.178 mm	NAS Eq. B2.1-2
b1=21.351 mm	NAS Eq. B2.3-9
b2=27.826 mm	NAS Eq. B2.3-10

Ineffective width=4.8037 mm

Element 20: Stiffened, w=3.0894e-5 mm

f1=118.64 MPa, f2=118.64 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=6.1886e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 21: Stiffened, w=3.0894e-5 mm

f1=139.58 MPa, f2=139.58 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=6.7125e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 22: Stiffened, w=53.982 mm

f1=175.72 MPa, f2=139.81 MPa

ψ=0.79563	NAS Eq. B2.3-1
k=4.4258	NAS Eq. B2.3-8
λ=0.99178	NAS Eq. B2.1-4
ρ=0.78462	NAS Eq. B2.1-3
be=42.355 mm	NAS Eq. B2.1-2
b1=19.214 mm	NAS Eq. B2.3-9
b2=23.141 mm	NAS Eq. B2.3-10

Ineffective width=11.626 mm

Element 23: Stiffened, w=56.859 mm

f1=188.29 MPa, f2=175.97 MPa

ψ=0.9346	NAS Eq. B2.3-1
k=4.1314	NAS Eq. B2.3-8
λ=1.1192	NAS Eq. B2.1-4
ρ=0.71785	NAS Eq. B2.1-3
be=40.816 mm	NAS Eq. B2.1-2
b1=19.762 mm	NAS Eq. B2.3-9
b2=21.054 mm	NAS Eq. B2.3-10

Ineffective width=16.043 mm

Elements 24 to 27:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=140.12 mm, bp=53.982 mm

kloc=26.95	NAS Eq. B5.1.2-1

β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=235.15 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.2067	NAS Eq. B5.1-3
ρ=0.67764	NAS Eq. B5.1-2
be=99.248 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.859 mm	
f1=294.32 MPa, f2=282 MPa	
ψ=0.95816	NAS Eq. B2.3-1
k=4.0838	NAS Eq. B2.3-8
λ=1.4074	NAS Eq. B2.1-4
ρ=0.59945	NAS Eq. B2.1-3
be=34.084 mm	NAS Eq. B2.1-2
b1=16.693 mm	NAS Eq. B2.3-9
b2=17.391 mm	NAS Eq. B2.3-10
Ineffective width=22.775 mm	
Element 29: Stiffened, w=60.859 mm	
f1=335.06 MPa, f2=294.57 MPa	
ψ=0.87917	NAS Eq. B2.3-1
k=4.2452	NAS Eq. B2.3-8
λ=1.5765	NAS Eq. B2.1-4
ρ=0.5458	NAS Eq. B2.1-3
be=33.217 mm	NAS Eq. B2.1-2
b1=15.662 mm	NAS Eq. B2.3-9
b2=17.555 mm	NAS Eq. B2.3-10
Ineffective width=27.642 mm	
Element 30: Stiffened, w=11.032 mm	
f1=337.7 MPa, f2=335.31 MPa	
ψ=0.99292	NAS Eq. B2.3-1
k=4.0142	NAS Eq. B2.3-8
λ=0.29504	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=11.032 mm	NAS Eq. B2.1-2
b1=5.4967 mm	NAS Eq. B2.3-9
b2=5.5356 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=344.49 MPa, f2=340.68 MPa	
ψ=0.98892	NAS Eq. B3.2-1
k=0.43078	NAS Eq. B3.2-3
λ=1.2104	NAS Eq. B2.1-4
ρ=0.67599	NAS Eq. B2.1-3
b=9.9236 mm (ineffective width=4.7564 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=31.276	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=340.68 MPa, f2=340.68 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=2.037e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3

be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Center of gravity shift: x=-40.214 mm
Sye=125140 mm^3, Fy=344.74 MPa
Mny=43.139 kN-m — NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

Negative Flexural Strength about Y-axis
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=14.375 mm
f1=344.48 MPa, f2=342.19 MPa

ψ=0.99333	NAS Eq. B3.2-1
k=0.43047	NAS Eq. B3.2-3
λ=1.1857	NAS Eq. B2.1-4
ρ=0.6869	NAS Eq. B2.1-3
b=9.8742 mm (ineffective width=4.5008 mm)	NAS Eq. B2.1-2

Element 2: Check for lip stiffener reduction

S=31.219	NAS Eq. B4-7
Ia=122.39 mm^4	NAS Eq. B4-8
Is=186.48 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1

Element 2: Stiffened, w=63.804 mm
f1=341.93 MPa, f2=299.8 MPa

ψ=0.8768	NAS Eq. B2.3-1
k=4.2501	NAS Eq. B2.3-8
λ=1.6687	NAS Eq. B2.1-4
ρ=0.52027	NAS Eq. B2.1-3
be=33.195 mm	NAS Eq. B2.1-2
b1=15.635 mm	NAS Eq. B2.3-9
b2=17.561 mm	NAS Eq. B2.3-10
Ineffective width=30.609 mm	

Element 3: Stiffened, w=56.859 mm
f1=299.55 MPa, f2=287.33 MPa

ψ=0.9592	NAS Eq. B2.3-1
k=4.0817	NAS Eq. B2.3-8
λ=1.4203	NAS Eq. B2.1-4
ρ=0.59503	NAS Eq. B2.1-3
be=33.833 mm	NAS Eq. B2.1-2
b1=16.578 mm	NAS Eq. B2.3-9
b2=17.255 mm	NAS Eq. B2.3-10
Ineffective width=23.026 mm	

Element 4: Stiffened, w=53.982 mm
f1=287.08 MPa, f2=251.44 MPa

ψ=0.87585	NAS Eq. B2.3-1
k=4.2521	NAS Eq. B2.3-8
λ=1.2933	NAS Eq. B2.1-4
ρ=0.64168	NAS Eq. B2.1-3
be=34.639 mm	NAS Eq. B2.1-2
b1=16.307 mm	NAS Eq. B2.3-9
b2=18.332 mm	NAS Eq. B2.3-10
Ineffective width=19.343 mm	

Element 5: Stiffened, w=3.0894e-5 mm

f1=251.22 MPa, f2=251.22 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=9.0052e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.0894e-5 mm	
f1=230.44 MPa, f2=230.44 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=8.6247e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.982 mm	
f1=230.21 MPa, f2=194.57 MPa	
ψ=0.84518	NAS Eq. B2.3-1
k=4.3171	NAS Eq. B2.3-8
λ=1.1494	NAS Eq. B2.1-4
ρ=0.70349	NAS Eq. B2.1-3
be=37.976 mm	NAS Eq. B2.1-2
b1=17.624 mm	NAS Eq. B2.3-9
b2=20.352 mm	NAS Eq. B2.3-10
Ineffective width=16.006 mm	
Element 8: Stiffened, w=56.859 mm	
f1=194.32 MPa, f2=182.1 MPa	
ψ=0.93711	NAS Eq. B2.3-1
k=4.1263	NAS Eq. B2.3-8
λ=1.1377	NAS Eq. B2.1-4
ρ=0.70899	NAS Eq. B2.1-3
be=40.312 mm	NAS Eq. B2.1-2
b1=19.542 mm	NAS Eq. B2.3-9
b2=20.771 mm	NAS Eq. B2.3-10
Ineffective width=16.546 mm	
Elements 9 to 12:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=140.12 mm, bp=53.982 mm	
kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=135.6 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=0.9163	NAS Eq. B5.1-3
ρ=0.82932	NAS Eq. B5.1-2
be=121.46 mm	NAS Eq. B5.1-1
Element 13: Stiffened, w=56.859 mm	
f1=89.09 MPa, f2=76.869 MPa	
ψ=0.86282	NAS Eq. B2.3-1

k=4.2795	NAS Eq. B2.3-8
λ=0.75643	NAS Eq. B2.1-4
ρ=0.93751	NAS Eq. B2.1-3
be=53.306 mm	NAS Eq. B2.1-2
b1=24.942 mm	NAS Eq. B2.3-9
b2=28.364 mm	NAS Eq. B2.3-10
Ineffective width=3.5532 mm	
Element 14: Stiffened, w=53.982 mm	
f1=76.619 MPa, f2=40.979 MPa	
ψ=0.53484	NAS Eq. B2.3-1
k=5.1316	NAS Eq. B2.3-8
λ=0.60819	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.982 mm	NAS Eq. B2.1-2
b1=21.898 mm	NAS Eq. B2.3-9
b2=32.084 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 15: Stiffened, w=3.0894e-5 mm	
f1=40.753 MPa, f2=40.753 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=3.627e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.0894e-5 mm	
f1=19.974 MPa, f2=19.974 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=2.5392e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.982 mm	
f1=19.748 MPa, f2=-15.892 MPa	
ψ=0.80472	NAS Eq. B2.3-1
k=19.366	NAS Eq. B2.3-2
λ=0.15895	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.982 mm	NAS Eq. B2.1-2
ho=55 mm, bo=31.192 mm, ho/bo=1.7632	
b1=14.188 mm	NAS Eq. B2.3-3
b2=26.991 mm	NAS Eq. B2.3-4
Compression width=29.911 mm	
b1+b2 > compression width (fully effective)	
Element 18: No compressive stress (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: No compressive stress (fully effective)	

Element 24: No compressive stress (fully effective)
Element 25: No compressive stress (fully effective)
Element 26: No compressive stress (fully effective)
Element 27: No compressive stress (fully effective)
Element 28: No compressive stress (fully effective)
Element 29: No compressive stress (fully effective)
Element 30: No compressive stress (fully effective)
Element 32: No compressive stress (fully effective)
Element 31: No compressive stress (fully effective)

Center of gravity shift: x=40.676 mm
Sye=123170 mm^3, Fy=344.74 MPa
Mny=42.461 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

CFS Version 8.0.2
Section: METSCODECK -1.0.sct
METSCODECK-1.0

Rev. Date: 14-07-2015 19:59:17

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Full Section Properties

Area	1249.3 mm^2	Wt.	0.096086 kN/m	Width	1249.3 mm
Ix	706943 mm^4	rx	23.79 mm	Ixy	-145565 mm^4
Sx(t)	19212 mm^3	y(t)	36.80 mm	α	89.915 deg
Sx(b)	23280 mm^3	y(b)	30.37 mm		
		Height	67.16 mm		
Iy	98410992 mm^4	ry	280.66 mm	Xo	-1.85 mm
Sy(l)	204509 mm^3	x(l)	481.21 mm	Yo	6.65 mm
Sy(r)	205911 mm^3	x(r)	477.93 mm	jx	1.63 mm
		Width	959.13 mm	jy	-209.04 mm
I1	98411208 mm^4	r1	280.66 mm		
I2	706728 mm^4	r2	23.78 mm		
Ic	99117936 mm^4	rc	281.67 mm	Cw	6.2465e10 mm^6
Io	99177400 mm^4	ro	281.75 mm	J	416.4 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A572 Grade 50, Fy=344.74 MPa

Compression		Positive Moment		Positive Moment	
Pao	174.13 kN	Maxo	3.326 kN-m	Mayo	35.887 kN-m
Ae	909.19 mm^2	Ixe	630019 mm^4	Iye	87292688 mm^4
		Sxe(t)	16114 mm^3	Sye(l)	191007 mm^3
Tension		Sxe(b)	22448 mm^3	Sye(r)	173847 mm^3
Ta	257.90 kN				
		Negative Moment		Negative Moment	
		Maxo	3.734 kN-m	Mayo	35.192 kN-m
Shear		Ixe	613946 mm^4	Iye	86288176 mm^4
Vay	45.11 kN	Sxe(t)	18091 mm^3	Sye(l)	170482 mm^3
Vax	13.28 kN	Sxe(b)	18477 mm^3	Sye(r)	190486 mm^3

MSDECK element 2 w/t exceeds 60.
R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
Ag=1249.3 mm^2, Fy=344.74 MPa
Tn=430.69 kN — NAS Eq. C2.1-1
Ωt=1.67, ϕt=0.9

Shear Strength
MSDECK element 1
Aw=14.219 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=2.941 kN at -76 deg

Ωv=1.6, ϕv=0.95
MSDECK element 3
Aw=56.573 mm^2, Fv=205.22 MPa — NAS Eq. C3.2.1-3
Vn=11.61 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 8
Aw=56.573 mm^2, Fv=205.22 MPa — NAS Eq. C3.2.1-3
Vn=11.61 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 13
Aw=56.573 mm^2, Fv=205.22 MPa — NAS Eq. C3.2.1-3
Vn=11.61 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 18
Aw=56.573 mm^2, Fv=205.22 MPa — NAS Eq. C3.2.1-3
Vn=11.61 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 23
Aw=56.573 mm^2, Fv=205.22 MPa — NAS Eq. C3.2.1-3
Vn=11.61 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 28
Aw=56.573 mm^2, Fv=205.22 MPa — NAS Eq. C3.2.1-3
Vn=11.61 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 30
Aw=10.369 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=2.1447 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 32
Aw=14.68 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=3.0365 kN at -67 deg
Ωv=1.6, ϕv=0.95

Axial Compression Strength
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=14.219 mm
f1=344.74 MPa, f2=344.74 MPa
ψ=1 — NAS Eq. B3.2-1
k=0.43 — NAS Eq. B3.2-3
λ=0.93911 — NAS Eq. B2.1-4
ρ=0.81539 — NAS Eq. B2.1-3
b=11.594 mm (ineffective width=2.625 mm) — NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction
S=31.091 — NAS Eq. B4-7
Ia=239.89 mm^4 — NAS Eq. B4-8
Is=225.6 mm^4
ds=10.903 mm (lip ineffective width=0.69077 mm) — NAS Eq. B4-6
k=3.9276 — NAS Table B4-1
Element 2: Partially stiffened, w=63.505 mm
f=344.74 MPa, k=3.9276
λ=1.3878 — NAS Eq. B2.1-4
ρ=0.60633 — NAS Eq. B2.1-3
b=38.505 mm (ineffective width=25 mm) — NAS Eq. B2.1-2
b1=18.106 mm, b2=20.4 mm

Element 3: Stiffened, w=56.573 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2251	NAS Eq. B2.1-4
ρ=0.66968	NAS Eq. B2.1-3
be=37.886 mm	NAS Eq. B2.1-2
b1=18.943 mm	NAS Eq. B2.3-9
b2=18.943 mm	NAS Eq. B2.3-10

Ineffective width=18.687 mm

Element 4: Stiffened, w=53.727 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.1635	NAS Eq. B2.1-4
ρ=0.69698	NAS Eq. B2.1-3
be=37.447 mm	NAS Eq. B2.1-2
b1=18.723 mm	NAS Eq. B2.3-9
b2=18.723 mm	NAS Eq. B2.3-10

Ineffective width=16.28 mm

Element 5: Stiffened, w=3.0279e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=7.7341e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 6: Stiffened, w=3.0279e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=7.7341e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 7: Stiffened, w=53.727 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.1635	NAS Eq. B2.1-4
ρ=0.69698	NAS Eq. B2.1-3
be=37.447 mm	NAS Eq. B2.1-2
b1=18.723 mm	NAS Eq. B2.3-9
b2=18.723 mm	NAS Eq. B2.3-10

Ineffective width=16.28 mm

Element 8: Stiffened, w=56.573 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2251	NAS Eq. B2.1-4

ρ=0.66968	NAS Eq. B2.1-3
be=37.886 mm	NAS Eq. B2.1-2
b1=18.943 mm	NAS Eq. B2.3-9
b2=18.943 mm	NAS Eq. B2.3-10
Ineffective width=18.687 mm	
Element 9: Stiffened, w=53.727 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.1635	NAS Eq. B2.1-4
ρ=0.69698	NAS Eq. B2.1-3
be=37.447 mm	NAS Eq. B2.1-2
b1=18.723 mm	NAS Eq. B2.3-9
b2=18.723 mm	NAS Eq. B2.3-10
Ineffective width=16.28 mm	
Element 10: Stiffened, w=3.0279e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=7.7342e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 11: Stiffened, w=3.0279e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=7.7342e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 12: Stiffened, w=53.727 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.1635	NAS Eq. B2.1-4
ρ=0.69698	NAS Eq. B2.1-3
be=37.447 mm	NAS Eq. B2.1-2
b1=18.723 mm	NAS Eq. B2.3-9
b2=18.723 mm	NAS Eq. B2.3-10
Ineffective width=16.28 mm	
Element 13: Stiffened, w=56.573 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2251	NAS Eq. B2.1-4
ρ=0.66968	NAS Eq. B2.1-3
be=37.886 mm	NAS Eq. B2.1-2
b1=18.943 mm	NAS Eq. B2.3-9
b2=18.943 mm	NAS Eq. B2.3-10
Ineffective width=18.687 mm	

Element 14: Stiffened, w=53.727 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.1635	NAS Eq. B2.1-4
ρ=0.69698	NAS Eq. B2.1-3
be=37.447 mm	NAS Eq. B2.1-2
b1=18.723 mm	NAS Eq. B2.3-9
b2=18.723 mm	NAS Eq. B2.3-10

Ineffective width=16.28 mm

Element 15: Stiffened, w=3.0279e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=7.7342e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 16: Stiffened, w=3.0279e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=7.7342e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 17: Stiffened, w=53.727 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.1635	NAS Eq. B2.1-4
ρ=0.69698	NAS Eq. B2.1-3
be=37.447 mm	NAS Eq. B2.1-2
b1=18.723 mm	NAS Eq. B2.3-9
b2=18.723 mm	NAS Eq. B2.3-10

Ineffective width=16.28 mm

Element 18: Stiffened, w=56.573 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2251	NAS Eq. B2.1-4
ρ=0.66968	NAS Eq. B2.1-3
be=37.886 mm	NAS Eq. B2.1-2
b1=18.943 mm	NAS Eq. B2.3-9
b2=18.943 mm	NAS Eq. B2.3-10

Ineffective width=18.687 mm

Element 19: Stiffened, w=53.727 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.1635	NAS Eq. B2.1-4

ρ=0.69698	NAS Eq. B2.1-3
be=37.447 mm	NAS Eq. B2.1-2
b1=18.723 mm	NAS Eq. B2.3-9
b2=18.723 mm	NAS Eq. B2.3-10
Ineffective width=16.28 mm	
Element 20: Stiffened, w=3.0279e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=7.7342e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.0279e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=7.7342e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.727 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.1635	NAS Eq. B2.1-4
ρ=0.69698	NAS Eq. B2.1-3
be=37.447 mm	NAS Eq. B2.1-2
b1=18.723 mm	NAS Eq. B2.3-9
b2=18.723 mm	NAS Eq. B2.3-10
Ineffective width=16.28 mm	
Element 23: Stiffened, w=56.573 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2251	NAS Eq. B2.1-4
ρ=0.66968	NAS Eq. B2.1-3
be=37.886 mm	NAS Eq. B2.1-2
b1=18.943 mm	NAS Eq. B2.3-9
b2=18.943 mm	NAS Eq. B2.3-10
Ineffective width=18.687 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=344.74 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4

λ=1.1633	NAS Eq. B5.1-3
ρ=0.69705	NAS Eq. B5.1-2
be=102.02 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.573 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2251	NAS Eq. B2.1-4
ρ=0.66968	NAS Eq. B2.1-3
be=37.886 mm	NAS Eq. B2.1-2
b1=18.943 mm	NAS Eq. B2.3-9
b2=18.943 mm	NAS Eq. B2.3-10
Ineffective width=18.687 mm	
Element 29: Stiffened, w=60.573 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.3117	NAS Eq. B2.1-4
ρ=0.6345	NAS Eq. B2.1-3
be=38.434 mm	NAS Eq. B2.1-2
b1=19.217 mm	NAS Eq. B2.3-9
b2=19.217 mm	NAS Eq. B2.3-10
Ineffective width=22.14 mm	
Element 30: Stiffened, w=10.369 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.22453	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=10.369 mm	NAS Eq. B2.1-2
b1=5.1843 mm	NAS Eq. B2.3-9
b2=5.1843 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=0.96958	NAS Eq. B2.1-4
ρ=0.79736	NAS Eq. B2.1-3
b=11.705 mm (ineffective width=2.9748 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=31.091	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.6392e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Ae=909.19 mm^2, Fy=344.74 MPa

Pn=313.43 kN — NAS Eq. C4.1-1
Ωc=1.8, ϕc=0.85

Positive Flexural Strength about X-axis
Effective width calculations for part 1: MSDECK
Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: Stiffened, w=56.573 mm
f1=257.17 MPa, f2=-214.49 MPa
ψ=0.83403 — NAS Eq. B2.3-1
k=20.006 — NAS Eq. B2.3-2
λ=0.47314 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=56.573 mm — NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.756 mm — NAS Eq. B2.3-3
b2=28.287 mm — NAS Eq. B2.3-4
Compression width=30.846 mm
b1+b2 > compression width (fully effective)
Elements 4 to 7:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.95 mm, bp=53.727 mm
kloc=27.141 — NAS Eq. B5.1.2-1
β=4.0128 — NAS Eq. B5.1.2-3
kd=21.983 — NAS Eq. B5.1.2-2
R=1.7052 — NAS Eq. B5.1-6
k=27.141 — NAS Eq. B5.1-5
f1=260.14 MPa
Fcr=254.74 MPa — NAS Eq. B5.1-4
λ=1.0106 — NAS Eq. B5.1-3
ρ=0.77413 — NAS Eq. B5.1-2
be=113.3 mm — NAS Eq. B5.1-1
Element 8: Stiffened, w=56.573 mm
f1=257.17 MPa, f2=-214.49 MPa
ψ=0.83403 — NAS Eq. B2.3-1
k=20.006 — NAS Eq. B2.3-2
λ=0.47314 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=56.573 mm — NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.756 mm — NAS Eq. B2.3-3
b2=28.287 mm — NAS Eq. B2.3-4
Compression width=30.846 mm
b1+b2 > compression width (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: Stiffened, w=56.573 mm
f1=257.17 MPa, f2=-214.49 MPa
ψ=0.83403 — NAS Eq. B2.3-1
k=20.006 — NAS Eq. B2.3-2
λ=0.47314 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=56.573 mm — NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.756 mm — NAS Eq. B2.3-3
b2=28.287 mm — NAS Eq. B2.3-4
Compression width=30.846 mm
b1+b2 > compression width (fully effective)

Elements 14 to 17:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.95 mm, bp=53.727 mm
kloc=27.141 — NAS Eq. B5.1.2-1
β=4.0129 — NAS Eq. B5.1.2-3
kd=21.983 — NAS Eq. B5.1.2-2
R=1.7052 — NAS Eq. B5.1-6
k=27.141 — NAS Eq. B5.1-5
f1=260.14 MPa
Fcr=254.74 MPa — NAS Eq. B5.1-4
λ=1.0106 — NAS Eq. B5.1-3
ρ=0.77413 — NAS Eq. B5.1-2
be=113.3 mm — NAS Eq. B5.1-1

Element 18: Stiffened, w=56.573 mm
f1=257.17 MPa, f2=-214.49 MPa
ψ=0.83403 — NAS Eq. B2.3-1
k=20.006 — NAS Eq. B2.3-2
λ=0.47314 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=56.573 mm — NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.756 mm — NAS Eq. B2.3-3
b2=28.287 mm — NAS Eq. B2.3-4
Compression width=30.846 mm
b1+b2 > compression width (fully effective)

Element 19: No compressive stress (fully effective)
Element 20: No compressive stress (fully effective)
Element 21: No compressive stress (fully effective)
Element 22: No compressive stress (fully effective)

Element 23: Stiffened, w=56.573 mm
f1=257.17 MPa, f2=-214.49 MPa
ψ=0.83403 — NAS Eq. B2.3-1
k=20.006 — NAS Eq. B2.3-2
λ=0.47314 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=56.573 mm — NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.756 mm — NAS Eq. B2.3-3
b2=28.287 mm — NAS Eq. B2.3-4
Compression width=30.846 mm
b1+b2 > compression width (fully effective)

Elements 24 to 27:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.95 mm, bp=53.727 mm
kloc=27.141 — NAS Eq. B5.1.2-1
β=4.0129 — NAS Eq. B5.1.2-3
kd=21.983 — NAS Eq. B5.1.2-2
R=1.7052 — NAS Eq. B5.1-6
k=27.141 — NAS Eq. B5.1-5
f1=260.14 MPa

Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=1.0106	NAS Eq. B5.1-3
ρ=0.77413	NAS Eq. B5.1-2
be=113.3 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.573 mm	
f1=257.17 MPa, f2=-214.49 MPa	
ψ=0.83403	NAS Eq. B2.3-1
k=20.006	NAS Eq. B2.3-2
λ=0.47314	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.756 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=30.846 mm	
b1+b2 > compression width (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	
Center of gravity shift: y=-2.3009 mm	
Sxe=16114 mm^3, Fy=344.74 MPa	
Mnx=5.555 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Negative Flexural Strength about X-axis	
Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.219 mm	
f1=298.78 MPa, f2=158.7 MPa	
ψ=0.53117	NAS Eq. B3.2-1
k=0.66348	NAS Eq. B3.2-2
λ=0.70383	NAS Eq. B2.1-4
ρ=0.97669	NAS Eq. B2.1-3
b=13.887 mm (ineffective width=0.33147 mm)	NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction	
S=33.184	NAS Eq. B4-7
Ia=225.08 mm^4	NAS Eq. B4-8
Is=225.6 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1
Element 2: Stiffened, w=63.505 mm	
f1=302.63 MPa, f2=302.63 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2885	NAS Eq. B2.1-4
ρ=0.64359	NAS Eq. B2.1-3
be=40.871 mm	NAS Eq. B2.1-2
b1=20.436 mm	NAS Eq. B2.3-9
b2=20.436 mm	NAS Eq. B2.3-10
Ineffective width=22.634 mm	
Element 3: Stiffened, w=56.573 mm	
f1=299.21 MPa, f2=-243.9 MPa	
ψ=0.81517	NAS Eq. B2.3-1
k=19.592	NAS Eq. B2.3-2
λ=0.51571	NAS Eq. B2.1-4

ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	
b1=14.829 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=31.167 mm	
b1+b2 > compression width (fully effective)	
Element 4: No compressive stress (fully effective)	
Element 5: No compressive stress (fully effective)	
Element 6: No compressive stress (fully effective)	
Element 7: No compressive stress (fully effective)	
Element 8: Stiffened, w=56.573 mm	
f1=299.21 MPa, f2=-243.9 MPa	
ψ=0.81517	NAS Eq. B2.3-1
k=19.592	NAS Eq. B2.3-2
λ=0.51571	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.829 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=31.167 mm	
b1+b2 > compression width (fully effective)	
Elements 9 to 12:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=302.63 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=1.09	NAS Eq. B5.1-3
ρ=0.73228	NAS Eq. B5.1-2
be=107.18 mm	NAS Eq. B5.1-1
Element 13: Stiffened, w=56.573 mm	
f1=299.21 MPa, f2=-243.9 MPa	
ψ=0.81517	NAS Eq. B2.3-1
k=19.592	NAS Eq. B2.3-2
λ=0.51571	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.829 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=31.167 mm	
b1+b2 > compression width (fully effective)	
Element 14: No compressive stress (fully effective)	
Element 15: No compressive stress (fully effective)	
Element 16: No compressive stress (fully effective)	
Element 17: No compressive stress (fully effective)	
Element 18: Stiffened, w=56.573 mm	
f1=299.21 MPa, f2=-243.9 MPa	
ψ=0.81517	NAS Eq. B2.3-1

k=19.592	NAS Eq. B2.3-2
λ=0.51571	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.829 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=31.167 mm	
b1+b2 > compression width (fully effective)	

Elements 19 to 22:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=302.63 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=1.09	NAS Eq. B5.1-3
ρ=0.73228	NAS Eq. B5.1-2
be=107.18 mm	NAS Eq. B5.1-1

Element 23: Stiffened, w=56.573 mm

f1=299.21 MPa, f2=-243.9 MPa	
ψ=0.81517	NAS Eq. B2.3-1
k=19.592	NAS Eq. B2.3-2
λ=0.51571	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.829 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=31.167 mm	
b1+b2 > compression width (fully effective)	

Element 24: No compressive stress (fully effective)

Element 25: No compressive stress (fully effective)

Element 26: No compressive stress (fully effective)

Element 27: No compressive stress (fully effective)

Element 28: Stiffened, w=56.573 mm

f1=299.21 MPa, f2=-243.9 MPa	
ψ=0.81517	NAS Eq. B2.3-1
k=19.592	NAS Eq. B2.3-2
λ=0.51571	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=62 mm, ho/bo=0.93548	
b1=14.829 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=31.167 mm	
b1+b2 > compression width (fully effective)	

Element 29: Stiffened, w=60.573 mm

f1=302.63 MPa, f2=302.63 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.229	NAS Eq. B2.1-4

ρ=0.66801	NAS Eq. B2.1-3
be=40.464 mm	NAS Eq. B2.1-2
b1=20.232 mm	NAS Eq. B2.3-9
b2=20.232 mm	NAS Eq. B2.3-10
Ineffective width=20.109 mm	
Element 30: Stiffened, w=10.369 mm	
f1=299.21 MPa, f2=199.67 MPa	
ψ=0.66732	NAS Eq. B2.3-1
k=4.739	NAS Eq. B2.3-8
λ=0.19218	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=10.369 mm	NAS Eq. B2.1-2
b1=4.4449 mm	NAS Eq. B2.3-9
b2=5.9236 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=335.22 MPa, f2=198.01 MPa	
ψ=0.59071	NAS Eq. B3.2-1
k=0.47038	NAS Eq. B3.2-3
λ=0.91413	NAS Eq. B2.1-4
ρ=0.83066	NAS Eq. B2.1-3
b=12.194 mm (ineffective width=2.4859 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=41.024	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=198.01 MPa, f2=198.01 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2424e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: y=2.8606 mm	
Sxe=18091 mm^3, Fy=344.74 MPa	
Mnx=6.2365 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Positive Flexural Strength about Y-axis
- Effective width calculations for part 1: MSDECK
  - Element 1: No compressive stress (fully effective)
  - Element 2: No compressive stress (fully effective)
  - Element 3: No compressive stress (fully effective)
  - Element 4: No compressive stress (fully effective)
  - Element 5: No compressive stress (fully effective)
  - Element 6: No compressive stress (fully effective)
  - Element 7: No compressive stress (fully effective)
  - Element 8: No compressive stress (fully effective)
  - Element 9: No compressive stress (fully effective)
  - Element 10: No compressive stress (fully effective)
  - Element 11: No compressive stress (fully effective)
  - Element 12: No compressive stress (fully effective)

Element 13: No compressive stress (fully effective)
Element 14: Stiffened, w=53.727 mm
f1=1.7826 MPa, f2=-35.106 MPa

ψ=19.694	NAS Eq. B2.3-1
k=17770	NAS Eq. B2.3-2
λ=0.0012552	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2

ho=55 mm, bo=31.63 mm, ho/bo=1.7388

b1=2.3675 mm	NAS Eq. B2.3-3
b2=26.864 mm	NAS Eq. B2.3-4

Compression width=2.5963 mm
b1+b2 > compression width (fully effective)
Element 15: Stiffened, w=3.0279e-5 mm
f1=2.0752 MPa, f2=2.0752 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.0007e-8	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 16: Stiffened, w=3.0279e-5 mm
f1=23.802 MPa, f2=23.802 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=2.0322e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 17: Stiffened, w=53.727 mm
f1=60.983 MPa, f2=24.095 MPa

ψ=0.3951	NAS Eq. B2.3-1
k=5.6525	NAS Eq. B2.3-8
λ=0.41165	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
b1=20.625 mm	NAS Eq. B2.3-9
b2=33.102 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 18: Stiffened, w=56.573 mm
f1=73.954 MPa, f2=61.308 MPa

ψ=0.829	NAS Eq. B2.3-1
k=4.352	NAS Eq. B2.3-8
λ=0.54399	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
b1=26.059 mm	NAS Eq. B2.3-9
b2=30.515 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 19: Stiffened, w=53.727 mm
f1=111.17 MPa, f2=74.279 MPa

ψ=0.66817	NAS Eq. B2.3-1
k=4.7367	NAS Eq. B2.3-8
λ=0.60714	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
b1=23.041 mm	NAS Eq. B2.3-9
b2=30.686 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 20: Stiffened, w=3.0279e-5 mm	
f1=111.46 MPa, f2=111.46 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=4.3977e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.0279e-5 mm	
f1=133.19 MPa, f2=133.19 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=4.8073e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.727 mm	
f1=170.37 MPa, f2=133.48 MPa	
ψ=0.78348	NAS Eq. B2.3-1
k=4.4534	NAS Eq. B2.3-8
λ=0.77516	NAS Eq. B2.1-4
ρ=0.92393	NAS Eq. B2.1-3
be=49.64 mm	NAS Eq. B2.1-2
b1=22.395 mm	NAS Eq. B2.3-9
b2=27.244 mm	NAS Eq. B2.3-10
Ineffective width=4.0873 mm	
Element 23: Stiffened, w=56.573 mm	
f1=183.34 MPa, f2=170.69 MPa	
ψ=0.93102	NAS Eq. B2.3-1
k=4.1386	NAS Eq. B2.3-8
λ=0.87833	NAS Eq. B2.1-4
ρ=0.85335	NAS Eq. B2.1-3
be=48.277 mm	NAS Eq. B2.1-2
b1=23.334 mm	NAS Eq. B2.3-9
b2=24.943 mm	NAS Eq. B2.3-10
Ineffective width=8.2964 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6

k=27.141	NAS Eq. B5.1-5
f1=231.71 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=0.95373	NAS Eq. B5.1-3
ρ=0.80665	NAS Eq. B5.1-2
be=118.06 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.573 mm	
f1=292.72 MPa, f2=280.08 MPa	
ψ=0.9568	NAS Eq. B2.3-1
k=4.0866	NAS Eq. B2.3-8
λ=1.1169	NAS Eq. B2.1-4
ρ=0.71899	NAS Eq. B2.1-3
be=40.675 mm	NAS Eq. B2.1-2
b1=19.908 mm	NAS Eq. B2.3-9
b2=20.768 mm	NAS Eq. B2.3-10
Ineffective width=15.898 mm	
Element 29: Stiffened, w=60.573 mm	
f1=334.64 MPa, f2=293.05 MPa	
ψ=0.87572	NAS Eq. B2.3-1
k=4.2524	NAS Eq. B2.3-8
λ=1.2534	NAS Eq. B2.1-4
ρ=0.65778	NAS Eq. B2.1-3
be=39.844 mm	NAS Eq. B2.1-2
b1=18.757 mm	NAS Eq. B2.3-9
b2=21.088 mm	NAS Eq. B2.3-10
Ineffective width=20.729 mm	
Element 30: Stiffened, w=10.369 mm	
f1=337.28 MPa, f2=334.96 MPa	
ψ=0.99313	NAS Eq. B2.3-1
k=4.0137	NAS Eq. B2.3-8
λ=0.22171	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=10.369 mm	NAS Eq. B2.1-2
b1=5.1665 mm	NAS Eq. B2.3-9
b2=5.202 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=344.42 MPa, f2=340.48 MPa	
ψ=0.98857	NAS Eq. B3.2-1
k=0.43081	NAS Eq. B3.2-3
λ=0.96822	NAS Eq. B2.1-4
ρ=0.79814	NAS Eq. B2.1-3
b=11.717 mm (ineffective width=2.9632 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=31.285	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=340.48 MPa, f2=340.48 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.6291e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Center of gravity shift: x=-24.194 mm
Sye=173850 mm^3, Fy=344.74 MPa
Mny=59.932 kN-m — NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

Negative Flexural Strength about Y-axis
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=14.219 mm
f1=344.41 MPa, f2=342.06 MPa
ψ=0.9932 — NAS Eq. B3.2-1
k=0.43048 — NAS Eq. B3.2-3
λ=0.93814 — NAS Eq. B2.1-4
ρ=0.81597 — NAS Eq. B2.1-3
b=11.602 mm (ineffective width=2.6166 mm) — NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction
S=31.227 — NAS Eq. B4-7
Ia=238.87 mm^4 — NAS Eq. B4-8
Is=225.6 mm^4
ds=10.958 mm (lip ineffective width=0.64442 mm) — NAS Eq. B4-6
k=3.9326 — NAS Table B4-1
Element 2: Partially stiffened, w=63.505 mm
f=341.73 MPa, k=3.9326
λ=1.3809 — NAS Eq. B2.1-4
ρ=0.6088 — NAS Eq. B2.1-3
b=38.662 mm (ineffective width=24.843 mm) — NAS Eq. B2.1-2
b1=18.257 mm, b2=20.405 mm
Element 3: Stiffened, w=56.573 mm
f1=298.15 MPa, f2=285.61 MPa
ψ=0.95792 — NAS Eq. B2.3-1
k=4.0843 — NAS Eq. B2.3-8
λ=1.1275 — NAS Eq. B2.1-4
ρ=0.71386 — NAS Eq. B2.1-3
be=40.385 mm — NAS Eq. B2.1-2
b1=19.777 mm — NAS Eq. B2.3-9
b2=20.609 mm — NAS Eq. B2.3-10
Ineffective width=16.188 mm
Element 4: Stiffened, w=53.727 mm
f1=285.29 MPa, f2=248.69 MPa
ψ=0.87172 — NAS Eq. B2.3-1
k=4.2608 — NAS Eq. B2.3-8
λ=1.0255 — NAS Eq. B2.1-4
ρ=0.76594 — NAS Eq. B2.1-3
be=41.152 mm — NAS Eq. B2.1-2
b1=19.336 mm — NAS Eq. B2.3-9
b2=21.816 mm — NAS Eq. B2.3-10
Ineffective width=12.575 mm
Element 5: Stiffened, w=3.0279e-5 mm
f1=248.4 MPa, f2=248.4 MPa
ψ=1 — NAS Eq. B2.3-1
k=2.875 — NAS Eq. B2.3-8
λ=6.5651e-7 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=3.0279e-5 mm — NAS Eq. B2.1-2

b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.0279e-5 mm	
f1=226.85 MPa, f2=226.85 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.2738e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.727 mm	
f1=226.56 MPa, f2=189.96 MPa	
ψ=0.83847	NAS Eq. B2.3-1
k=4.3315	NAS Eq. B2.3-8
λ=0.90637	NAS Eq. B2.1-4
ρ=0.8355	NAS Eq. B2.1-3
be=44.889 mm	NAS Eq. B2.1-2
b1=20.767 mm	NAS Eq. B2.3-9
b2=24.122 mm	NAS Eq. B2.3-10
Ineffective width=8.8381 mm	
Element 8: Stiffened, w=56.573 mm	
f1=189.64 MPa, f2=177.09 MPa	
ψ=0.93384	NAS Eq. B2.3-1
k=4.1329	NAS Eq. B2.3-8
λ=0.89391	NAS Eq. B2.1-4
ρ=0.84336	NAS Eq. B2.1-3
be=47.712 mm	NAS Eq. B2.1-2
b1=23.092 mm	NAS Eq. B2.3-9
b2=24.62 mm	NAS Eq. B2.3-10
Ineffective width=8.8614 mm	
Elements 9 to 12:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=129.11 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=0.71191	NAS Eq. B5.1-3
ρ=0.97059	NAS Eq. B5.1-2
be=142.06 mm	NAS Eq. B5.1-1
Element 13: Stiffened, w=56.573 mm	
f1=81.12 MPa, f2=68.574 MPa	
ψ=0.84534	NAS Eq. B2.3-1
k=4.3167	NAS Eq. B2.3-8
λ=0.57206	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
b1=26.256 mm	NAS Eq. B2.3-9
b2=30.317 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 14: Stiffened, w=53.727 mm
f1=68.252 MPa, f2=31.655 MPa

ψ=0.4638	NAS Eq. B2.3-1
k=5.3807	NAS Eq. B2.3-8
λ=0.44635	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
b1=21.184 mm	NAS Eq. B2.3-9
b2=32.543 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 15: Stiffened, w=3.0279e-5 mm
f1=31.365 MPa, f2=31.365 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=2.3329e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 16: Stiffened, w=3.0279e-5 mm
f1=9.8105 MPa, f2=9.8105 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=1.3047e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 17: Stiffened, w=53.727 mm
f1=9.5202 MPa, f2=-27.076 MPa

ψ=2.8441	NAS Eq. B2.3-1
k=125.3	NAS Eq. B2.3-2
λ=0.034545	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
ho=55 mm, bo=31.63 mm, ho/bo=1.7388	
b1=9.1934 mm	NAS Eq. B2.3-3
b2=26.864 mm	NAS Eq. B2.3-4

Compression width=13.977 mm
b1+b2 > compression width (fully effective)
Element 18: No compressive stress (fully effective)
Element 19: No compressive stress (fully effective)
Element 20: No compressive stress (fully effective)
Element 21: No compressive stress (fully effective)
Element 22: No compressive stress (fully effective)
Element 23: No compressive stress (fully effective)
Element 24: No compressive stress (fully effective)
Element 25: No compressive stress (fully effective)
Element 26: No compressive stress (fully effective)
Element 27: No compressive stress (fully effective)
Element 28: No compressive stress (fully effective)
Element 29: No compressive stress (fully effective)

Element 30: No compressive stress (fully effective)
Element 32: No compressive stress (fully effective)
Element 31: No compressive stress (fully effective)

Center of gravity shift: x=24.939 mm
Sye=170480 mm^3, Fy=344.74 MPa
Mny=58.771 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

CFS Version 8.0.2
Section: METSCODECK -1.2.sct
METSCODECK-1.2

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Full Section Properties

Area	1497.2 mm^2	Wt.	0.11515 kN/m	Width	1247.7 mm
Ix	843426 mm^4	rx	23.73 mm	Ixy	-177722 mm^4
Sx(t)	22847 mm^3	y(t)	36.92 mm	α	89.913 deg
Sx(b)	27294 mm^3	y(b)	30.90 mm		
		Height	67.82 mm		
Iy	117694144 mm^4	ry	280.37 mm	Xo	-1.52 mm
Sy(l)	244770 mm^3	x(l)	480.83 mm	Yo	6.64 mm
Sy(r)	246343 mm^3	x(r)	477.77 mm	jx	1.31 mm
		Width	958.60 mm	jy	-209.62 mm
I1	117694408 mm^4	r1	280.37 mm		
I2	843158 mm^4	r2	23.73 mm		
Ic	118537568 mm^4	rc	281.37 mm	Cw	7.4408e10 mm^6
Io	118607128 mm^4	ro	281.46 mm	J	718.7 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A572 Grade 50, Fy=344.74 MPa

Compression		Positive Moment		Positive Moment	
Pao	232.48 kN	Maxo	4.332 kN-m	Mayo	46.464 kN-m
Ae	1213.8 mm^2	Ixe	798428 mm^4	Iye	110371512 mm^4
		Sxe(t)	20988 mm^3	Sye(l)	235714 mm^3
Tension		Sxe(b)	26816 mm^3	Sye(r)	225084 mm^3
Ta	309.07 kN				
		Negative Moment		Negative Moment	
		Maxo	4.570 kN-m	Mayo	44.402 kN-m
Shear		Ixe	781548 mm^4	Iye	107051304 mm^4
Vay	53.77 kN	Sxe(t)	22136 mm^3	Sye(l)	215094 mm^3
Vax	15.84 kN	Sxe(b)	24040 mm^3	Sye(r)	232264 mm^3

R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
Ag=1497.2 mm^2, Fy=344.74 MPa
Tn=516.15 kN — NAS Eq. C2.1-1
Ωt=1.67, ϕt=0.9

Shear Strength
MSDECK element 1
Aw=16.875 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=3.4905 kN at -76 deg
Ωv=1.6, ϕv=0.95

MSDECK element 3
Aw=67.546 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=13.971 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 8
Aw=67.546 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=13.971 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 13
Aw=67.546 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=13.971 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 18
Aw=67.546 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=13.971 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 23
Aw=67.546 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=13.971 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 28
Aw=67.546 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=13.971 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 30
Aw=11.646 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=2.4089 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 32
Aw=17.616 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=3.6437 kN at -67 deg
Ωv=1.6, ϕv=0.95

Axial Compression Strength
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=14.062 mm
f1=344.74 MPa, f2=344.74 MPa
ψ=1 — NAS Eq. B3.2-1
k=0.43 — NAS Eq. B3.2-3
λ=0.77399 — NAS Eq. B2.1-4
ρ=0.92476 — NAS Eq. B2.1-3
b=13.004 mm (ineffective width=1.058 mm) — NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction
S=31.091 — NAS Eq. B4-7
Ia=414.35 mm^4 — NAS Eq. B4-8
Is=261.93 mm^4
ds=8.2207 mm (lip ineffective width=4.7838 mm) — NAS Eq. B4-6
k=3.4939 — NAS Table B4-1
Element 2: Partially stiffened, w=63.207 mm
f=344.74 MPa, k=3.4939
λ=1.2204 — NAS Eq. B2.1-4
ρ=0.67167 — NAS Eq. B2.1-3
b=42.454 mm (ineffective width=20.752 mm) — NAS Eq. B2.1-2
b1=13.419 mm, b2=29.036 mm
Element 3: Stiffened, w=56.288 mm

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0158	NAS Eq. B2.1-4
ρ=0.77125	NAS Eq. B2.1-3
be=43.412 mm	NAS Eq. B2.1-2
b1=21.706 mm	NAS Eq. B2.3-9
b2=21.706 mm	NAS Eq. B2.3-10

Ineffective width=12.876 mm

Element 4: Stiffened, w=53.472 mm

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96496	NAS Eq. B2.1-4
ρ=0.80005	NAS Eq. B2.1-3
be=42.78 mm	NAS Eq. B2.1-2
b1=21.39 mm	NAS Eq. B2.3-9
b2=21.39 mm	NAS Eq. B2.3-10

Ineffective width=10.692 mm

Element 5: Stiffened, w=3.2692e-5 mm

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=6.6844e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 6: Stiffened, w=3.2692e-5 mm

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=6.6844e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 7: Stiffened, w=53.472 mm

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96496	NAS Eq. B2.1-4
ρ=0.80005	NAS Eq. B2.1-3
be=42.78 mm	NAS Eq. B2.1-2
b1=21.39 mm	NAS Eq. B2.3-9
b2=21.39 mm	NAS Eq. B2.3-10

Ineffective width=10.692 mm

Element 8: Stiffened, w=56.288 mm

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0158	NAS Eq. B2.1-4
ρ=0.77125	NAS Eq. B2.1-3

be=43.412 mm	NAS Eq. B2.1-2
b1=21.706 mm	NAS Eq. B2.3-9
b2=21.706 mm	NAS Eq. B2.3-10
Ineffective width=12.876 mm	
Element 9: Stiffened, w=53.472 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96496	NAS Eq. B2.1-4
ρ=0.80005	NAS Eq. B2.1-3
be=42.78 mm	NAS Eq. B2.1-2
b1=21.39 mm	NAS Eq. B2.3-9
b2=21.39 mm	NAS Eq. B2.3-10
Ineffective width=10.692 mm	
Element 10: Stiffened, w=3.2692e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=6.6844e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 11: Stiffened, w=3.2692e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=6.6844e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 12: Stiffened, w=53.472 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96496	NAS Eq. B2.1-4
ρ=0.80005	NAS Eq. B2.1-3
be=42.78 mm	NAS Eq. B2.1-2
b1=21.39 mm	NAS Eq. B2.3-9
b2=21.39 mm	NAS Eq. B2.3-10
Ineffective width=10.692 mm	
Element 13: Stiffened, w=56.288 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0158	NAS Eq. B2.1-4
ρ=0.77125	NAS Eq. B2.1-3
be=43.412 mm	NAS Eq. B2.1-2
b1=21.706 mm	NAS Eq. B2.3-9
b2=21.706 mm	NAS Eq. B2.3-10
Ineffective width=12.876 mm	
Element 14: Stiffened, w=53.472 mm	

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96496	NAS Eq. B2.1-4
ρ=0.80005	NAS Eq. B2.1-3
be=42.78 mm	NAS Eq. B2.1-2
b1=21.39 mm	NAS Eq. B2.3-9
b2=21.39 mm	NAS Eq. B2.3-10

Ineffective width=10.692 mm

Element 15: Stiffened, w=3.2692e-5 mm

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=6.6844e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 16: Stiffened, w=3.2692e-5 mm

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=6.6844e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 17: Stiffened, w=53.472 mm

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96496	NAS Eq. B2.1-4
ρ=0.80005	NAS Eq. B2.1-3
be=42.78 mm	NAS Eq. B2.1-2
b1=21.39 mm	NAS Eq. B2.3-9
b2=21.39 mm	NAS Eq. B2.3-10

Ineffective width=10.692 mm

Element 18: Stiffened, w=56.288 mm

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0158	NAS Eq. B2.1-4
ρ=0.77125	NAS Eq. B2.1-3
be=43.412 mm	NAS Eq. B2.1-2
b1=21.706 mm	NAS Eq. B2.3-9
b2=21.706 mm	NAS Eq. B2.3-10

Ineffective width=12.876 mm

Element 19: Stiffened, w=53.472 mm

f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96496	NAS Eq. B2.1-4
ρ=0.80005	NAS Eq. B2.1-3

be=42.78 mm	NAS Eq. B2.1-2
b1=21.39 mm	NAS Eq. B2.3-9
b2=21.39 mm	NAS Eq. B2.3-10
Ineffective width=10.692 mm	
Element 20: Stiffened, w=3.2692e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=6.6844e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.2692e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=6.6844e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.472 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96496	NAS Eq. B2.1-4
ρ=0.80005	NAS Eq. B2.1-3
be=42.78 mm	NAS Eq. B2.1-2
b1=21.39 mm	NAS Eq. B2.3-9
b2=21.39 mm	NAS Eq. B2.3-10
Ineffective width=10.692 mm	
Element 23: Stiffened, w=56.288 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0158	NAS Eq. B2.1-4
ρ=0.77125	NAS Eq. B2.1-3
be=43.412 mm	NAS Eq. B2.1-2
b1=21.706 mm	NAS Eq. B2.3-9
b2=21.706 mm	NAS Eq. B2.3-10
Ineffective width=12.876 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=344.74 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.96484	NAS Eq. B5.1-3

ρ=0.80012	NAS Eq. B5.1-2
be=117.02 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.288 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0158	NAS Eq. B2.1-4
ρ=0.77125	NAS Eq. B2.1-3
be=43.412 mm	NAS Eq. B2.1-2
b1=21.706 mm	NAS Eq. B2.3-9
b2=21.706 mm	NAS Eq. B2.3-10
Ineffective width=12.876 mm	
Element 29: Stiffened, w=60.288 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.088	NAS Eq. B2.1-4
ρ=0.73329	NAS Eq. B2.1-3
be=44.209 mm	NAS Eq. B2.1-2
b1=22.104 mm	NAS Eq. B2.3-9
b2=22.104 mm	NAS Eq. B2.3-10
Ineffective width=16.079 mm	
Element 30: Stiffened, w=9.7049 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.17513	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.7049 mm	NAS Eq. B2.1-2
b1=4.8524 mm	NAS Eq. B2.3-9
b2=4.8524 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=0.80798	NAS Eq. B2.1-4
ρ=0.90066	NAS Eq. B2.1-3
b=13.222 mm (ineffective width=1.4583 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=31.091	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=8.3268e-6 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5026e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.3268e-6 mm	NAS Eq. B2.1-2
b1=4.1634e-6 mm	NAS Eq. B2.3-9
b2=4.1634e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Ae=1213.8 mm^2, Fy=344.74 MPa

Pn=418.46 kN	NAS Eq. C4.1-1

$\Omega c=1.8$, $\phi c=0.85$

Positive Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)

Element 2: No compressive stress (fully effective)

Element 3: Stiffened, w=56.288 mm

f1=252.36 MPa, f2=-229.94 MPa

ψ=0.91115	NAS Eq. B2.3-1
k=21.783	NAS Eq. B2.3-2
λ=0.37242	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.392 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4

Compression width=29.452 mm

b1+b2 > compression width (fully effective)

Elements 4 to 7:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=139.78 mm, bp=53.472 mm

kloc=27.334	NAS Eq. B5.1.2-1
β=3.6932	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5

f1=256.03 MPa

Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.83148	NAS Eq. B5.1-3
ρ=0.88446	NAS Eq. B5.1-2
be=129.36 mm	NAS Eq. B5.1-1

Element 8: Stiffened, w=56.288 mm

f1=252.36 MPa, f2=-229.94 MPa

ψ=0.91115	NAS Eq. B2.3-1
k=21.783	NAS Eq. B2.3-2
λ=0.37242	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.392 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4

Compression width=29.452 mm

b1+b2 > compression width (fully effective)

Element 9: No compressive stress (fully effective)

Element 10: No compressive stress (fully effective)

Element 11: No compressive stress (fully effective)

Element 12: No compressive stress (fully effective)

Element 13: Stiffened, w=56.288 mm

f1=252.36 MPa, f2=-229.94 MPa

ψ=0.91115	NAS Eq. B2.3-1
k=21.783	NAS Eq. B2.3-2
λ=0.37242	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.392 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=29.452 mm	
b1+b2 > compression width (fully effective)	
Elements 14 to 17:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=256.03 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.83148	NAS Eq. B5.1-3
ρ=0.88446	NAS Eq. B5.1-2
be=129.36 mm	NAS Eq. B5.1-1
Element 18: Stiffened, w=56.288 mm	
f1=252.36 MPa, f2=-229.94 MPa	
ψ=0.91115	NAS Eq. B2.3-1
k=21.783	NAS Eq. B2.3-2
λ=0.37242	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.392 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=29.452 mm	
b1+b2 > compression width (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: Stiffened, w=56.288 mm	
f1=252.36 MPa, f2=-229.94 MPa	
ψ=0.91115	NAS Eq. B2.3-1
k=21.783	NAS Eq. B2.3-2
λ=0.37242	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.392 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=29.452 mm	
b1+b2 > compression width (fully effective)	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=256.03 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4

λ=0.83148	NAS Eq. B5.1-3
ρ=0.88446	NAS Eq. B5.1-2
be=129.36 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.288 mm	
f1=252.36 MPa, f2=-229.94 MPa	
ψ=0.91115	NAS Eq. B2.3-1
k=21.783	NAS Eq. B2.3-2
λ=0.37242	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.392 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=29.452 mm	
b1+b2 > compression width (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	
Center of gravity shift: y=-1.1264 mm	
Sxe=20988 mm^3, Fy=344.74 MPa	
Mnx=7.2353 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Negative Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.062 mm	
f1=273.15 MPa, f2=140.1 MPa	
ψ=0.5129	NAS Eq. B3.2-1
k=0.67769	NAS Eq. B3.2-2
λ=0.5488	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 2: Check for lip stiffener reduction	
S=34.648	NAS Eq. B4-7
Ia=372.88 mm^4	NAS Eq. B4-8
Is=261.93 mm^4	
ds=9.8782 mm (lip ineffective width=4.1842 mm)	NAS Eq. B4-6
k=3.6035	NAS Table B4-1
Element 2: Partially stiffened, w=63.207 mm	
f=277.59 MPa, k=3.6035	
λ=1.0784	NAS Eq. B2.1-4
ρ=0.73815	NAS Eq. B2.1-3
b=46.656 mm (ineffective width=16.551 mm)	NAS Eq. B2.1-2
b1=16.387 mm, b2=30.269 mm	
Element 3: Stiffened, w=56.288 mm	
f1=273.64 MPa, f2=-245.33 MPa	
ψ=0.89655	NAS Eq. B2.3-1
k=21.436	NAS Eq. B2.3-2
λ=0.39093	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	
b1=14.446 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4

Compression width=29.679 mm
b1+b2 > compression width (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: Stiffened, w=56.288 mm
f1=273.64 MPa, f2=-245.33 MPa
ψ=0.89655 NAS Eq. B2.3-1
k=21.436 NAS Eq. B2.3-2
λ=0.39093 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.288 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.446 mm NAS Eq. B2.3-3
b2=28.144 mm NAS Eq. B2.3-4
Compression width=29.679 mm
b1+b2 > compression width (fully effective)
Elements 9 to 12:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.78 mm, bp=53.472 mm
kloc=27.334 NAS Eq. B5.1.2-1
β=3.6933 NAS Eq. B5.1.2-3
kd=18.739 NAS Eq. B5.1.2-2
R=1.7033 NAS Eq. B5.1-6
k=27.334 NAS Eq. B5.1-5
f1=277.59 MPa
Fcr=370.32 MPa NAS Eq. B5.1-4
λ=0.86579 NAS Eq. B5.1-3
ρ=0.86152 NAS Eq. B5.1-2
be=126.01 mm NAS Eq. B5.1-1
Element 13: Stiffened, w=56.288 mm
f1=273.64 MPa, f2=-245.33 MPa
ψ=0.89655 NAS Eq. B2.3-1
k=21.436 NAS Eq. B2.3-2
λ=0.39093 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.288 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=14.446 mm NAS Eq. B2.3-3
b2=28.144 mm NAS Eq. B2.3-4
Compression width=29.679 mm
b1+b2 > compression width (fully effective)
Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: No compressive stress (fully effective)
Element 17: No compressive stress (fully effective)
Element 18: Stiffened, w=56.288 mm
f1=273.64 MPa, f2=-245.33 MPa
ψ=0.89655 NAS Eq. B2.3-1
k=21.436 NAS Eq. B2.3-2
λ=0.39093 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=56.288 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.446 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=29.679 mm	
b1+b2 > compression width (fully effective)	
Elements 19 to 22:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=277.59 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.86579	NAS Eq. B5.1-3
ρ=0.86152	NAS Eq. B5.1-2
be=126.01 mm	NAS Eq. B5.1-1
Element 23: Stiffened, w=56.288 mm	
f1=273.64 MPa, f2=-245.33 MPa	
ψ=0.89655	NAS Eq. B2.3-1
k=21.436	NAS Eq. B2.3-2
λ=0.39093	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.446 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=29.679 mm	
b1+b2 > compression width (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: Stiffened, w=56.288 mm	
f1=273.64 MPa, f2=-245.33 MPa	
ψ=0.89655	NAS Eq. B2.3-1
k=21.436	NAS Eq. B2.3-2
λ=0.39093	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=62 mm, ho/bo=0.93548	
b1=14.446 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=29.679 mm	
b1+b2 > compression width (fully effective)	
Element 29: Stiffened, w=60.288 mm	
f1=277.59 MPa, f2=277.59 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.97626	NAS Eq. B2.1-4
ρ=0.79349	NAS Eq. B2.1-3
be=47.838 mm	NAS Eq. B2.1-2
b1=23.919 mm	NAS Eq. B2.3-9
b2=23.919 mm	NAS Eq. B2.3-10
Ineffective width=12.45 mm	

Element 30: Stiffened, w=9.7049 mm
f1=273.64 MPa, f2=184.16 MPa
ψ=0.67301 NAS Eq. B2.3-1
k=4.7239 NAS Eq. B2.3-8
λ=0.14358 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=9.7049 mm NAS Eq. B2.1-2
b1=4.1706 mm NAS Eq. B2.3-9
b2=5.5343 mm NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)
Element 32: Unstiffened, w=14.68 mm
f1=314.28 MPa, f2=182.51 MPa
ψ=0.58073 NAS Eq. B3.2-1
k=0.47165 NAS Eq. B3.2-3
λ=0.73661 NAS Eq. B2.1-4
ρ=0.95211 NAS Eq. B2.1-3
b=13.977 mm (ineffective width=0.703 mm) NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction
S=42.73 NAS Eq. B4-7
w/t < 0.328S (no lip reduction)
Element 31: Stiffened, w=8.3268e-6 mm
f1=182.51 MPa, f2=182.51 MPa
ψ=1 NAS Eq. B2.3-1
k=4 NAS Eq. B2.3-8
λ=1.0933e-7 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=8.3268e-6 mm NAS Eq. B2.1-2
b1=4.1634e-6 mm NAS Eq. B2.3-9
b2=4.1634e-6 mm NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)

Center of gravity shift: y=1.6099 mm
Sxe=22136 mm^3, Fy=344.74 MPa
Mnx=7.6312 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

Positive Flexural Strength about Y-axis
Effective width calculations for part 1: MSDECK
Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: No compressive stress (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: No compressive stress (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: No compressive stress (fully effective)
Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: Stiffened, w=3.2692e-5 mm
f1=16.355 MPa, f2=16.355 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=1.4559e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.472 mm	
f1=54.308 MPa, f2=16.714 MPa	
ψ=0.30777	NAS Eq. B2.3-1
k=6.0479	NAS Eq. B2.3-8
λ=0.31148	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
b1=19.862 mm	NAS Eq. B2.3-9
b2=33.611 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 18: Stiffened, w=56.288 mm	
f1=67.591 MPa, f2=54.707 MPa	
ψ=0.80939	NAS Eq. B2.3-1
k=4.3951	NAS Eq. B2.3-8
λ=0.42908	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
b1=25.695 mm	NAS Eq. B2.3-9
b2=30.593 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 19: Stiffened, w=53.472 mm	
f1=105.58 MPa, f2=67.99 MPa	
ψ=0.64394	NAS Eq. B2.3-1
k=4.8024	NAS Eq. B2.3-8
λ=0.48737	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
b1=22.696 mm	NAS Eq. B2.3-9
b2=30.777 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 20: Stiffened, w=3.2692e-5 mm	
f1=105.94 MPa, f2=105.94 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=3.7056e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.2692e-5 mm	
f1=128.31 MPa, f2=128.31 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=4.078e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2

b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.472 mm	
f1=166.26 MPa, f2=128.67 MPa	
ψ=0.77389	NAS Eq. B2.3-1
k=4.4753	NAS Eq. B2.3-8
λ=0.63355	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
b1=24.021 mm	NAS Eq. B2.3-9
b2=29.452 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 23: Stiffened, w=56.288 mm	
f1=179.55 MPa, f2=166.66 MPa	
ψ=0.92824	NAS Eq. B2.3-1
k=4.1443	NAS Eq. B2.3-8
λ=0.72019	NAS Eq. B2.1-4
ρ=0.96437	NAS Eq. B2.1-3
be=54.282 mm	NAS Eq. B2.1-2
b1=26.201 mm	NAS Eq. B2.3-9
b2=28.081 mm	NAS Eq. B2.3-10
Ineffective width=2.0058 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=229.08 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.78651	NAS Eq. B5.1-3
ρ=0.9158	NAS Eq. B5.1-2
be=133.94 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.288 mm	
f1=291.5 MPa, f2=278.62 MPa	
ψ=0.9558	NAS Eq. B2.3-1
k=4.0886	NAS Eq. B2.3-8
λ=0.92388	NAS Eq. B2.1-4
ρ=0.82465	NAS Eq. B2.1-3
be=46.418 mm	NAS Eq. B2.1-2
b1=22.707 mm	NAS Eq. B2.3-9
b2=23.711 mm	NAS Eq. B2.3-10
Ineffective width=9.8703 mm	
Element 29: Stiffened, w=60.288 mm	
f1=334.29 MPa, f2=291.9 MPa	
ψ=0.87321	NAS Eq. B2.3-1
k=4.2577	NAS Eq. B2.3-8
λ=1.0384	NAS Eq. B2.1-4
ρ=0.75899	NAS Eq. B2.1-3
be=45.758 mm	NAS Eq. B2.1-2
b1=21.515 mm	NAS Eq. B2.3-9
b2=24.243 mm	NAS Eq. B2.3-10

Ineffective width=14.53 mm	
Element 30: Stiffened, w=9.7049 mm	
f1=336.91 MPa, f2=334.68 MPa	
ψ=0.99341	NAS Eq. B2.3-1
k=4.0132	NAS Eq. B2.3-8
λ=0.17285	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.7049 mm	NAS Eq. B2.1-2
b1=4.8365 mm	NAS Eq. B2.3-9
b2=4.8684 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=344.35 MPa, f2=340.32 MPa	
ψ=0.98829	NAS Eq. B3.2-1
k=0.43083	NAS Eq. B3.2-3
λ=0.80675	NAS Eq. B2.1-4
ρ=0.90152	NAS Eq. B2.1-3
b=13.234 mm (ineffective width=1.4457 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=31.292	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=8.3268e-6 mm	
f1=340.32 MPa, f2=340.32 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.493e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.3268e-6 mm	NAS Eq. B2.1-2
b1=4.1634e-6 mm	NAS Eq. B2.3-9
b2=4.1634e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: x=-12.591 mm	
Sye=225080 mm^3, Fy=344.74 MPa	
Mny=77.595 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Negative Flexural Strength about Y-axis	
Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.062 mm	
f1=344.33 MPa, f2=341.98 MPa	
ψ=0.99316	NAS Eq. B3.2-1
k=0.43048	NAS Eq. B3.2-3
λ=0.7731	NAS Eq. B2.1-4
ρ=0.9254	NAS Eq. B2.1-3
b=13.013 mm (ineffective width=1.049 mm)	NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction	
S=31.235	NAS Eq. B4-7
Ia=412.5 mm^4	NAS Eq. B4-8
Is=261.93 mm^4	
ds=8.2634 mm (lip ineffective width=4.75 mm)	NAS Eq. B4-6
k=3.4985	NAS Table B4-1
Element 2: Partially stiffened, w=63.207 mm	
f=341.57 MPa, k=3.4985	
λ=1.214	NAS Eq. B2.1-4

ρ=0.67444	NAS Eq. B2.1-3
b=42.629 mm (ineffective width=20.578 mm)	NAS Eq. B2.1-2
b1=13.534 mm, b2=29.094 mm	
Element 3: Stiffened, w=56.288 mm	
f1=297.4 MPa, f2=284.71 MPa	
ψ=0.95732	NAS Eq. B2.3-1
k=4.0855	NAS Eq. B2.3-8
λ=0.93353	NAS Eq. B2.1-4
ρ=0.81876	NAS Eq. B2.1-3
be=46.086 mm	NAS Eq. B2.1-2
b1=22.562 mm	NAS Eq. B2.3-9
b2=23.525 mm	NAS Eq. B2.3-10
Ineffective width=10.202 mm	
Element 4: Stiffened, w=53.472 mm	
f1=284.31 MPa, f2=247.27 MPa	
ψ=0.86972	NAS Eq. B2.3-1
k=4.265	NAS Eq. B2.3-8
λ=0.84866	NAS Eq. B2.1-4
ρ=0.87287	NAS Eq. B2.1-3
be=46.674 mm	NAS Eq. B2.1-2
b1=21.91 mm	NAS Eq. B2.3-9
b2=24.764 mm	NAS Eq. B2.3-10
Ineffective width=6.7981 mm	
Element 5: Stiffened, w=3.2692e-5 mm	
f1=246.92 MPa, f2=246.92 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=5.6571e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.2692e-5 mm	
f1=224.88 MPa, f2=224.88 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=5.3988e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.472 mm	
f1=224.53 MPa, f2=187.49 MPa	
ψ=0.83504	NAS Eq. B2.3-1
k=4.3389	NAS Eq. B2.3-8
λ=0.74772	NAS Eq. B2.1-4
ρ=0.9439	NAS Eq. B2.1-3
be=50.472 mm	NAS Eq. B2.1-2
b1=23.313 mm	NAS Eq. B2.3-9
b2=27.159 mm	NAS Eq. B2.3-10
Ineffective width=3 mm	
Element 8: Stiffened, w=56.288 mm	
f1=187.1 MPa, f2=174.4 MPa	

ψ=0.93215	NAS Eq. B2.3-1
k=4.1363	NAS Eq. B2.3-8
λ=0.73588	NAS Eq. B2.1-4
ρ=0.95265	NAS Eq. B2.1-3
be=53.623 mm	NAS Eq. B2.1-2
b1=25.932 mm	NAS Eq. B2.3-9
b2=27.691 mm	NAS Eq. B2.3-10
Ineffective width=2.6652 mm	

Elements 9 to 12:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=139.78 mm, bp=53.472 mm

kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=125.6 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.58238	NAS Eq. B5.1-3
ρ=1 (fully effective)	

Element 13: Stiffened, w=56.288 mm

f1=76.795 MPa, f2=64.101 MPa

ψ=0.83471	NAS Eq. B2.3-1
k=4.3396	NAS Eq. B2.3-8
λ=0.46028	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
b1=25.996 mm	NAS Eq. B2.3-9
b2=30.293 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 14: Stiffened, w=53.472 mm

f1=63.708 MPa, f2=26.669 MPa

ψ=0.41861	NAS Eq. B2.3-1
k=5.5558	NAS Eq. B2.3-8
λ=0.35198	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
b1=20.715 mm	NAS Eq. B2.3-9
b2=32.758 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 15: Stiffened, w=3.2692e-5 mm

f1=26.315 MPa, f2=26.315 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=1.8468e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 16: Stiffened, w=3.2692e-5 mm

f1=4.2775 MPa, f2=4.2775 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=7.4458e-8	NAS Eq. B2.1-4

ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.472 mm	
f1=3.9232 MPa, f2=-33.116 MPa	
ψ=8.441	NAS Eq. B2.3-1
k=1705.9	NAS Eq. B2.3-2
λ=0.0049847	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
ho=55 mm, bo=32.068 mm, ho/bo=1.7151	
b1=4.6738 mm	NAS Eq. B2.3-3
b2=26.736 mm	NAS Eq. B2.3-4
Compression width=5.6638 mm	
b1+b2 > compression width (fully effective)	
Element 18: No compressive stress (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: No compressive stress (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: No compressive stress (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	

Center of gravity shift: x=16.861 mm
Sye=215090 mm^3, Fy=344.74 MPa
Mny=74.151 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

CFS Version 8.0.2
Section: METSCODECK -1.5.sct
METSCODECK-1.5

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Full Section Properties

Area	1867.9 mm^2	Wt.	0.14366 kN/m	Width	1245.2 mm
Ix	1045175 mm^4	rx	23.66 mm	Ixy	-227780 mm^4
Sx(t)	28177 mm^3	y(t)	37.09 mm	α	89.910 deg
Sx(b)	32967 mm^3	y(b)	31.70 mm		
		Height	68.80 mm		
Iy	146370592 mm^4	ry	279.93 mm	Xo	-1.01 mm
Sy(l)	304761 mm^3	x(l)	480.28 mm	Yo	6.64 mm
Sy(r)	306524 mm^3	x(r)	477.52 mm	jx	0.82 mm
		Width	957.80 mm	jy	-210.51 mm
I1	146370944 mm^4	r1	279.93 mm		
I2	1044821 mm^4	r2	23.65 mm		
Ic	147415776 mm^4	rc	280.93 mm	Cw	9.1989e10 mm^6
Io	147500080 mm^4	ro	281.01 mm	J	1401 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A572 Grade 50, Fy=344.74 MPa

Compression		Positive Moment		Positive Moment	
Pao	327.10 kN	Maxo	5.816 kN-m	Mayo	61.809 kN-m
Ae	1707.9 mm^2	Ixe	1045175 mm^4	Iye	143908752 mm^4
		Sxe(t)	28177 mm^3	Sye(l)	301589 mm^3
Tension		Sxe(b)	32967 mm^3	Sye(r)	299417 mm^3
Ta	385.58 kN				
		Negative Moment		Negative Moment	
		Maxo	5.781 kN-m	Mayo	58.048 kN-m
Shear		Ixe	1028081 mm^4	Iye	137844384 mm^4
Vay	66.53 kN	Sxe(t)	28003 mm^3	Sye(l)	281200 mm^3
Vax	19.60 kN	Sxe(b)	32044 mm^3	Sye(r)	294793 mm^3

R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
Ag=1867.9 mm^2, Fy=344.74 MPa
Tn=643.92 kN — NAS Eq. C2.1-1
Ωt=1.67, ϕt=0.9

Shear Strength
MSDECK element 1
Aw=20.742 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=4.2904 kN at -76 deg
Ωv=1.6, ϕv=0.95

MSDECK element 3
Aw=83.79 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=17.331 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 8
Aw=83.79 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=17.331 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 13
Aw=83.79 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=17.331 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 18
Aw=83.79 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=17.331 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 23
Aw=83.79 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=17.331 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 28
Aw=83.79 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=17.331 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 30
Aw=13.064 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=2.7022 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 32
Aw=22.02 mm^2, Fv=206.84 MPa — NAS Eq. C3.2.1-2
Vn=4.5547 kN at -67 deg
Ωv=1.6, ϕv=0.95

Axial Compression Strength
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=13.828 mm
f1=344.74 MPa, f2=344.74 MPa
ψ=1 — NAS Eq. B3.2-1
k=0.43 — NAS Eq. B3.2-3
λ=0.60887 — NAS Eq. B2.1-4
λ<0.673 (fully effective) — NAS Eq. B2.1-1
Element 2: Check for lip stiffener reduction
S=31.091 — NAS Eq. B4-7
Ia=808.75 mm^4 — NAS Eq. B4-8
Is=311.4 mm^4
ds=5.3244 mm (lip ineffective width=8.5037 mm) — NAS Eq. B4-6
k=3.0272 — NAS Table B4-1
Element 2: Partially stiffened, w=62.758 mm
f=344.74 MPa, k=3.0272
λ=1.0415 — NAS Eq. B2.1-4
ρ=0.75735 — NAS Eq. B2.1-3
b=47.53 mm (ineffective width=15.228 mm) — NAS Eq. B2.1-2
b1=9.1504 mm, b2=38.379 mm
Element 3: Stiffened, w=55.86 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.80644	NAS Eq. B2.1-4
ρ=0.90174	NAS Eq. B2.1-3
be=50.371 mm	NAS Eq. B2.1-2
b1=25.186 mm	NAS Eq. B2.3-9
b2=25.186 mm	NAS Eq. B2.3-10
Ineffective width=5.4889 mm	

Element 4: Stiffened, w=53.091 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.76645	NAS Eq. B2.1-4
ρ=0.93021	NAS Eq. B2.1-3
be=49.385 mm	NAS Eq. B2.1-2
b1=24.693 mm	NAS Eq. B2.3-9
b2=24.693 mm	NAS Eq. B2.3-10
Ineffective width=3.7051 mm	

Element 5: Stiffened, w=3.1793e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=5.0104e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 6: Stiffened, w=3.1793e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=5.0104e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 7: Stiffened, w=53.091 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.76645	NAS Eq. B2.1-4
ρ=0.93021	NAS Eq. B2.1-3
be=49.385 mm	NAS Eq. B2.1-2
b1=24.693 mm	NAS Eq. B2.3-9
b2=24.693 mm	NAS Eq. B2.3-10
Ineffective width=3.7051 mm	

Element 8: Stiffened, w=55.86 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.80644	NAS Eq. B2.1-4
ρ=0.90174	NAS Eq. B2.1-3
be=50.371 mm	NAS Eq. B2.1-2

b1=25.186 mm	NAS Eq. B2.3-9
b2=25.186 mm	NAS Eq. B2.3-10
Ineffective width=5.4889 mm	
Element 9: Stiffened, w=53.091 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.76645	NAS Eq. B2.1-4
ρ=0.93021	NAS Eq. B2.1-3
be=49.385 mm	NAS Eq. B2.1-2
b1=24.693 mm	NAS Eq. B2.3-9
b2=24.693 mm	NAS Eq. B2.3-10
Ineffective width=3.7051 mm	
Element 10: Stiffened, w=3.1793e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=5.0105e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 11: Stiffened, w=3.1793e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=5.0105e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 12: Stiffened, w=53.091 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.76645	NAS Eq. B2.1-4
ρ=0.93021	NAS Eq. B2.1-3
be=49.385 mm	NAS Eq. B2.1-2
b1=24.693 mm	NAS Eq. B2.3-9
b2=24.693 mm	NAS Eq. B2.3-10
Ineffective width=3.7051 mm	
Element 13: Stiffened, w=55.86 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.80644	NAS Eq. B2.1-4
ρ=0.90174	NAS Eq. B2.1-3
be=50.371 mm	NAS Eq. B2.1-2
b1=25.186 mm	NAS Eq. B2.3-9
b2=25.186 mm	NAS Eq. B2.3-10
Ineffective width=5.4889 mm	
Element 14: Stiffened, w=53.091 mm	
f1=344.74 MPa, f2=344.74 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.76645	NAS Eq. B2.1-4
ρ=0.93021	NAS Eq. B2.1-3
be=49.385 mm	NAS Eq. B2.1-2
b1=24.693 mm	NAS Eq. B2.3-9
b2=24.693 mm	NAS Eq. B2.3-10
Ineffective width=3.7051 mm	

Element 15: Stiffened, w=3.1793e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=5.0105e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 16: Stiffened, w=3.1793e-5 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=5.0105e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 17: Stiffened, w=53.091 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.76645	NAS Eq. B2.1-4
ρ=0.93021	NAS Eq. B2.1-3
be=49.385 mm	NAS Eq. B2.1-2
b1=24.693 mm	NAS Eq. B2.3-9
b2=24.693 mm	NAS Eq. B2.3-10
Ineffective width=3.7051 mm	

Element 18: Stiffened, w=55.86 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.80644	NAS Eq. B2.1-4
ρ=0.90174	NAS Eq. B2.1-3
be=50.371 mm	NAS Eq. B2.1-2
b1=25.186 mm	NAS Eq. B2.3-9
b2=25.186 mm	NAS Eq. B2.3-10
Ineffective width=5.4889 mm	

Element 19: Stiffened, w=53.091 mm
f1=344.74 MPa, f2=344.74 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.76645	NAS Eq. B2.1-4
ρ=0.93021	NAS Eq. B2.1-3
be=49.385 mm	NAS Eq. B2.1-2

b1=24.693 mm	NAS Eq. B2.3-9
b2=24.693 mm	NAS Eq. B2.3-10
Ineffective width=3.7051 mm	
Element 20: Stiffened, w=3.1793e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=5.0105e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.1793e-5 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=5.0105e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.091 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.76645	NAS Eq. B2.1-4
ρ=0.93021	NAS Eq. B2.1-3
be=49.385 mm	NAS Eq. B2.1-2
b1=24.693 mm	NAS Eq. B2.3-9
b2=24.693 mm	NAS Eq. B2.3-10
Ineffective width=3.7051 mm	
Element 23: Stiffened, w=55.86 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.80644	NAS Eq. B2.1-4
ρ=0.90174	NAS Eq. B2.1-3
be=50.371 mm	NAS Eq. B2.1-2
b1=25.186 mm	NAS Eq. B2.3-9
b2=25.186 mm	NAS Eq. B2.3-10
Ineffective width=5.4889 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.53 mm, bp=53.091 mm	
kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=344.74 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.7847	NAS Eq. B5.1-3
ρ=0.91708	NAS Eq. B5.1-2

be=133.99 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=55.86 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.80644	NAS Eq. B2.1-4
ρ=0.90174	NAS Eq. B2.1-3
be=50.371 mm	NAS Eq. B2.1-2
b1=25.186 mm	NAS Eq. B2.3-9
b2=25.186 mm	NAS Eq. B2.3-10
Ineffective width=5.4889 mm	
Element 29: Stiffened, w=59.86 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.86418	NAS Eq. B2.1-4
ρ=0.86258	NAS Eq. B2.1-3
be=51.634 mm	NAS Eq. B2.1-2
b1=25.817 mm	NAS Eq. B2.3-9
b2=25.817 mm	NAS Eq. B2.3-10
Ineffective width=8.2262 mm	
Element 30: Stiffened, w=8.7093 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.12573	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.7093 mm	NAS Eq. B2.1-2
b1=4.3547 mm	NAS Eq. B2.3-9
b2=4.3547 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=0.64638	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 31: Check for lip stiffener reduction	
S=31.091	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=9.0837e-6 mm	
f1=344.74 MPa, f2=344.74 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.3114e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.0837e-6 mm	NAS Eq. B2.1-2
b1=4.5419e-6 mm	NAS Eq. B2.3-9
b2=4.5419e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Ae=1707.9 mm^2, Fy=344.74 MPa	
Pn=588.77 kN	NAS Eq. C4.1-1
Ωc=1.8, ϕc=0.85	

Positive Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)

Element 2: No compressive stress (fully effective)

Element 3: Stiffened, w=55.86 mm

f1=246.33 MPa, f2=-244.53 MPa

ψ=0.99267	NAS Eq. B2.3-1
k=23.81	NAS Eq. B2.3-2
λ=0.27941	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=28.033 mm

b1+b2 > compression width (fully effective)

Elements 4 to 7:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=139.53 mm, bp=53.091 mm

kloc=27.628	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.351	NAS Eq. B5.1-5

f1=251.04 MPa

Fcr=559.85 MPa	NAS Eq. B5.1-4
λ=0.66962	NAS Eq. B5.1-3

ρ=1 (fully effective)

Element 8: Stiffened, w=55.86 mm

f1=246.33 MPa, f2=-244.53 MPa

ψ=0.99267	NAS Eq. B2.3-1
k=23.81	NAS Eq. B2.3-2
λ=0.27941	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=28.033 mm

b1+b2 > compression width (fully effective)

Element 9: No compressive stress (fully effective)

Element 10: No compressive stress (fully effective)

Element 11: No compressive stress (fully effective)

Element 12: No compressive stress (fully effective)

Element 13: Stiffened, w=55.86 mm

f1=246.33 MPa, f2=-244.53 MPa

ψ=0.99267	NAS Eq. B2.3-1
k=23.81	NAS Eq. B2.3-2
λ=0.27941	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=28.033 mm

b1+b2 > compression width (fully effective)

Elements 14 to 17:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=139.53 mm, bp=53.091 mm

kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5

f1=251.04 MPa

Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.66962	NAS Eq. B5.1-3

ρ=1 (fully effective)

Element 18: Stiffened, w=55.86 mm

f1=246.33 MPa, f2=-244.53 MPa

ψ=0.99267	NAS Eq. B2.3-1
k=23.81	NAS Eq. B2.3-2
λ=0.27941	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=28.033 mm

b1+b2 > compression width (fully effective)

Element 19: No compressive stress (fully effective)

Element 20: No compressive stress (fully effective)

Element 21: No compressive stress (fully effective)

Element 22: No compressive stress (fully effective)

Element 23: Stiffened, w=55.86 mm

f1=246.33 MPa, f2=-244.53 MPa

ψ=0.99267	NAS Eq. B2.3-1
k=23.81	NAS Eq. B2.3-2
λ=0.27941	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=28.033 mm

b1+b2 > compression width (fully effective)

Elements 24 to 27:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=139.53 mm, bp=53.091 mm

kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5

f1=251.04 MPa

Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.66962	NAS Eq. B5.1-3

ρ=1 (fully effective)

Element 28: Stiffened, w=55.86 mm

f1=246.33 MPa, f2=-244.53 MPa

ψ=0.99267	NAS Eq. B2.3-1
k=23.81	NAS Eq. B2.3-2
λ=0.27941	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=13.991 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=28.033 mm	
b1+b2 > compression width (fully effective)	

Element 29: No compressive stress (fully effective)
Element 30: No compressive stress (fully effective)
Element 32: No compressive stress (fully effective)
Element 31: No compressive stress (fully effective)

Center of gravity shift: y=0 mm
Sxe=28177 mm^3, Fy=344.74 MPa

Mnx=9.7135 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Negative Flexural Strength about X-axis
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=13.828 mm
f1=249.61 MPa, f2=123.71 MPa

ψ=0.49563	NAS Eq. B3.2-1
k=0.6917	NAS Eq. B3.2-2
λ=0.4085	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1

Element 2: Check for lip stiffener reduction

S=36.154	NAS Eq. B4-7
Ia=699.04 mm^4	NAS Eq. B4-8
Is=311.4 mm^4	
ds=6.16 mm (lip ineffective width=7.6681 mm)	NAS Eq. B4-6
k=3.1565	NAS Table B4-1

Element 2: Partially stiffened, w=62.758 mm
f=254.94 MPa, k=3.1565

λ=0.87709	NAS Eq. B2.1-4
ρ=0.85416	NAS Eq. B2.1-3
b=53.605 mm (ineffective width=9.1528 mm)	NAS Eq. B2.1-2
b1=11.94 mm, b2=41.666 mm	

Element 3: Stiffened, w=55.86 mm
f1=250.2 MPa, f2=-245.39 MPa

ψ=0.98078	NAS Eq. B2.3-1
k=23.505	NAS Eq. B2.3-2
λ=0.28341	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	
b1=14.032 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=28.201 mm	
b1+b2 > compression width (fully effective)	

Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)

Element 7: No compressive stress (fully effective)
Element 8: Stiffened, w=55.86 mm
f1=250.2 MPa, f2=-245.39 MPa

ψ=0.98078	NAS Eq. B2.3-1
k=23.505	NAS Eq. B2.3-2
λ=0.28341	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.032 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=28.201 mm
b1+b2 > compression width (fully effective)
Elements 9 to 12:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.53 mm, bp=53.091 mm

kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5

f1=254.94 MPa

Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.67481	NAS Eq. B5.1-3
ρ=0.99877	NAS Eq. B5.1-2
be=145.93 mm	NAS Eq. B5.1-1

Element 13: Stiffened, w=55.86 mm
f1=250.2 MPa, f2=-245.39 MPa

ψ=0.98078	NAS Eq. B2.3-1
k=23.505	NAS Eq. B2.3-2
λ=0.28341	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.032 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=28.201 mm
b1+b2 > compression width (fully effective)
Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: No compressive stress (fully effective)
Element 17: No compressive stress (fully effective)
Element 18: Stiffened, w=55.86 mm
f1=250.2 MPa, f2=-245.39 MPa

ψ=0.98078	NAS Eq. B2.3-1
k=23.505	NAS Eq. B2.3-2
λ=0.28341	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.032 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=28.201 mm
b1+b2 > compression width (fully effective)
Elements 19 to 22:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.53 mm, bp=53.091 mm	
kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=254.94 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.67481	NAS Eq. B5.1-3
ρ=0.99877	NAS Eq. B5.1-2
be=145.93 mm	NAS Eq. B5.1-1
Element 23: Stiffened, w=55.86 mm	
f1=250.2 MPa, f2=-245.39 MPa	
ψ=0.98078	NAS Eq. B2.3-1
k=23.505	NAS Eq. B2.3-2
λ=0.28341	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.032 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=28.201 mm	
b1+b2 > compression width (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: Stiffened, w=55.86 mm	
f1=250.2 MPa, f2=-245.39 MPa	
ψ=0.98078	NAS Eq. B2.3-1
k=23.505	NAS Eq. B2.3-2
λ=0.28341	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=62 mm, ho/bo=0.93548	
b1=14.032 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=28.201 mm	
b1+b2 > compression width (fully effective)	
Element 29: Stiffened, w=59.86 mm	
f1=254.94 MPa, f2=254.94 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.74316	NAS Eq. B2.1-4
ρ=0.94726	NAS Eq. B2.1-3
be=56.703 mm	NAS Eq. B2.1-2
b1=28.352 mm	NAS Eq. B2.3-9
b2=28.352 mm	NAS Eq. B2.3-10
Ineffective width=3.157 mm	
Element 30: Stiffened, w=8.7093 mm	
f1=250.2 MPa, f2=172.93 MPa	
ψ=0.69117	NAS Eq. B2.3-1
k=4.6766	NAS Eq. B2.3-8
λ=0.099064	NAS Eq. B2.1-4

ρ=1	NAS Eq. B2.1-3
be=8.7093 mm	NAS Eq. B2.1-2
b1=3.7722 mm	NAS Eq. B2.3-9
b2=4.9372 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 32: Unstiffened, w=14.68 mm

f1=298.04 MPa, f2=171.25 MPa	
ψ=0.57458	NAS Eq. B3.2-1
k=0.47245	NAS Eq. B3.2-3
λ=0.57338	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1

Element 31: Check for lip stiffener reduction

S=44.113	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	

Element 31: Stiffened, w=9.0837e-6 mm

f1=171.25 MPa, f2=171.25 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=9.2428e-8	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.0837e-6 mm	NAS Eq. B2.1-2
b1=4.5419e-6 mm	NAS Eq. B2.3-9
b2=4.5419e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Center of gravity shift: y=0.38049 mm

Sxe=28003 mm^3, Fy=344.74 MPa

Mnx=9.6537 kN-m NAS Eq. C3.1.1-1

Ωb=1.67, ϕb=0.9

Positive Flexural Strength about Y-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: No compressive stress (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: No compressive stress (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: No compressive stress (fully effective)
Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)

Element 16: Stiffened, w=3.1793e-5 mm

f1=10.036 MPa, f2=10.036 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=8.5492e-8	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9

b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.091 mm	
f1=48.581 MPa, f2=10.495 MPa	
ψ=0.21603	NAS Eq. B2.3-1
k=6.5316	NAS Eq. B2.3-8
λ=0.22516	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=19.07 mm	NAS Eq. B2.3-9
b2=34.02 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 18: Stiffened, w=55.86 mm	
f1=62.136 MPa, f2=49.089 MPa	
ψ=0.79003	NAS Eq. B2.3-1
k=4.4384	NAS Eq. B2.3-8
λ=0.32502	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
b1=25.276 mm	NAS Eq. B2.3-9
b2=30.584 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 19: Stiffened, w=53.091 mm	
f1=100.73 MPa, f2=62.644 MPa	
ψ=0.6219	NAS Eq. B2.3-1
k=4.8643	NAS Eq. B2.3-8
λ=0.3757	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=22.325 mm	NAS Eq. B2.3-9
b2=30.766 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 20: Stiffened, w=3.1793e-5 mm	
f1=101.19 MPa, f2=101.19 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=2.7146e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.1793e-5 mm	
f1=124.2 MPa, f2=124.2 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=3.0074e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.091 mm	
f1=162.74 MPa, f2=124.65 MPa	
ψ=0.76597	NAS Eq. B2.3-1

k=4.4937	NAS Eq. B2.3-8
λ=0.49684	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=23.764 mm	NAS Eq. B2.3-9
b2=29.326 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 23: Stiffened, w=55.86 mm	
f1=176.29 MPa, f2=163.25 MPa	
ψ=0.926	NAS Eq. B2.3-1
k=4.1488	NAS Eq. B2.3-8
λ=0.56626	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
b1=26.933 mm	NAS Eq. B2.3-9
b2=28.927 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.53 mm, bp=53.091 mm	
kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=226.85 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.63655	NAS Eq. B5.1-3
ρ=1 (fully effective)	
Element 28: Stiffened, w=55.86 mm	
f1=290.45 MPa, f2=277.41 MPa	
ψ=0.95508	NAS Eq. B2.3-1
k=4.09	NAS Eq. B2.3-8
λ=0.73203	NAS Eq. B2.1-4
ρ=0.95551	NAS Eq. B2.1-3
be=53.375 mm	NAS Eq. B2.1-2
b1=26.101 mm	NAS Eq. B2.3-9
b2=27.274 mm	NAS Eq. B2.3-10
Ineffective width=2.4851 mm	
Element 29: Stiffened, w=59.86 mm	
f1=333.9 MPa, f2=290.96 MPa	
ψ=0.87139	NAS Eq. B2.3-1
k=4.2615	NAS Eq. B2.3-8
λ=0.82399	NAS Eq. B2.1-4
ρ=0.88958	NAS Eq. B2.1-3
be=53.25 mm	NAS Eq. B2.1-2
b1=25.017 mm	NAS Eq. B2.3-9
b2=28.234 mm	NAS Eq. B2.3-10
Ineffective width=6.6097 mm	
Element 30: Stiffened, w=8.7093 mm	
f1=336.45 MPa, f2=334.41 MPa	
ψ=0.99395	NAS Eq. B2.3-1
k=4.0121	NAS Eq. B2.3-8
λ=0.12403	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3

be=8.7093 mm	NAS Eq. B2.1-2
b1=4.3416 mm	NAS Eq. B2.3-9
b2=4.3678 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=344.24 MPa, f2=340.13 MPa	
ψ=0.98805	NAS Eq. B3.2-1
k=0.43085	NAS Eq. B3.2-3
λ=0.64528	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 31: Check for lip stiffener reduction	
S=31.301	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=9.0837e-6 mm	
f1=340.13 MPa, f2=340.13 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.3026e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.0837e-6 mm	NAS Eq. B2.1-2
b1=4.5419e-6 mm	NAS Eq. B2.3-9
b2=4.5419e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: x=-3.1111 mm	
Sye=299420 mm^3, Fy=344.74 MPa	
Mny=103.22 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Negative Flexural Strength about Y-axis	
Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=13.828 mm	
f1=344.23 MPa, f2=341.87 MPa	
ψ=0.99317	NAS Eq. B3.2-1
k=0.43048	NAS Eq. B3.2-3
λ=0.60808	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 2: Check for lip stiffener reduction	
S=31.244	NAS Eq. B4-7
Ia=804.91 mm^4	NAS Eq. B4-8
Is=311.4 mm^4	
ds=5.3498 mm (lip ineffective width=8.4783 mm)	NAS Eq. B4-6
k=3.0313	NAS Table B4-1
Element 2: Partially stiffened, w=62.758 mm	
f=341.36 MPa, k=3.0313	
λ=1.0357	NAS Eq. B2.1-4
ρ=0.76046	NAS Eq. B2.1-3
b=47.725 mm (ineffective width=15.033 mm)	NAS Eq. B2.1-2
b1=9.2319 mm, b2=38.493 mm	
Element 3: Stiffened, w=55.86 mm	
f1=296.73 MPa, f2=283.94 MPa	
ψ=0.9569	NAS Eq. B2.3-1
k=4.0864	NAS Eq. B2.3-8
λ=0.74023	NAS Eq. B2.1-4
ρ=0.94943	NAS Eq. B2.1-3

be=53.035 mm	NAS Eq. B2.1-2
b1=25.958 mm	NAS Eq. B2.3-9
b2=27.077 mm	NAS Eq. B2.3-10
Ineffective width=2.8248 mm	
Element 4: Stiffened, w=53.091 mm	
f1=283.44 MPa, f2=246.1 MPa	
ψ=0.86827	NAS Eq. B2.3-1
k=4.268	NAS Eq. B2.3-8
λ=0.6728	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=24.905 mm	NAS Eq. B2.3-9
b2=28.186 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 5: Stiffened, w=3.1793e-5 mm	
f1=245.65 MPa, f2=245.65 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=4.2295e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.1793e-5 mm	
f1=223.09 MPa, f2=223.09 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=4.0307e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.091 mm	
f1=222.65 MPa, f2=185.31 MPa	
ψ=0.8323	NAS Eq. B2.3-1
k=4.3448	NAS Eq. B2.3-8
λ=0.591	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=24.492 mm	NAS Eq. B2.3-9
b2=28.599 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 8: Stiffened, w=55.86 mm	
f1=184.81 MPa, f2=172.02 MPa	
ψ=0.93079	NAS Eq. B2.3-1
k=4.1391	NAS Eq. B2.3-8
λ=0.58045	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
b1=26.996 mm	NAS Eq. B2.3-9
b2=28.864 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Elements 9 to 12:	

NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.53 mm, bp=53.091 mm
kloc=27.629 — NAS Eq. B5.1.2-1
β=3.3441 — NAS Eq. B5.1.2-3
kd=15.497 — NAS Eq. B5.1.2-2
R=1.7004 — NAS Eq. B5.1-6
k=26.352 — NAS Eq. B5.1-5
f1=122.45 MPa
Fcr=559.86 MPa — NAS Eq. B5.1-4
λ=0.46768 — NAS Eq. B5.1-3
ρ=1 (fully effective)

Element 13: Stiffened, w=55.86 mm
f1=72.89 MPa, f2=60.1 MPa
ψ=0.82453 — NAS Eq. B2.3-1
k=4.3618 — NAS Eq. B2.3-8
λ=0.35511 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=55.86 mm — NAS Eq. B2.1-2
b1=25.677 mm — NAS Eq. B2.3-9
b2=30.183 mm — NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)

Element 14: Stiffened, w=53.091 mm
f1=59.601 MPa, f2=22.263 MPa
ψ=0.37354 — NAS Eq. B2.3-1
k=5.7446 — NAS Eq. B2.3-8
λ=0.26593 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=53.091 mm — NAS Eq. B2.1-2
b1=20.214 mm — NAS Eq. B2.3-9
b2=32.877 mm — NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)

Element 15: Stiffened, w=3.1793e-5 mm
f1=21.814 MPa, f2=21.814 MPa
ψ=1 — NAS Eq. B2.3-1
k=3.3567 — NAS Eq. B2.3-8
λ=1.2604e-7 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=3.1793e-5 mm — NAS Eq. B2.1-2
b1=1.5897e-5 mm — NAS Eq. B2.3-9
b2=1.5897e-5 mm — NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)

Element 16: No compressive stress (fully effective)
Element 17: No compressive stress (fully effective)
Element 18: No compressive stress (fully effective)
Element 19: No compressive stress (fully effective)
Element 20: No compressive stress (fully effective)
Element 21: No compressive stress (fully effective)
Element 22: No compressive stress (fully effective)
Element 23: No compressive stress (fully effective)
Element 24: No compressive stress (fully effective)
Element 25: No compressive stress (fully effective)
Element 26: No compressive stress (fully effective)
Element 27: No compressive stress (fully effective)
Element 28: No compressive stress (fully effective)
Element 29: No compressive stress (fully effective)

Element 30: No compressive stress (fully effective)
Element 32: No compressive stress (fully effective)
Element 31: No compressive stress (fully effective)

Center of gravity shift: x=9.9204 mm
Sye=281200 mm^3, Fy=344.74 MPa
Mny=96.94 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

CFS Version 8.0.2
Section: METSCODECK-0.8 .sct
METSCODECK-0.8

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Full Section Properties

Area	1000.8 mm^2	Wt.	0.076969 kN/m	Width	1251.0 mm
Ix	568852 mm^4	rx	23.84 mm	Ixy	-114393 mm^4
Sx(t)	15509 mm^3	y(t)	36.68 mm	α	89.916 deg
Sx(b)	19069 mm^3	y(b)	29.83 mm		
		Height	66.51 mm		
Iy	78995784 mm^4	ry	280.95 mm	Xo	-2.18 mm
Sy(l)	164036 mm^3	x(l)	481.58 mm	Yo	6.65 mm
Sy(r)	165231 mm^3	x(r)	478.09 mm	jx	1.94 mm
		Width	959.67 mm	jy	-208.47 mm
I1	78995944 mm^4	r1	280.95 mm		
I2	568685 mm^4	r2	23.84 mm		
Ic	79564632 mm^4	rc	281.96 mm	Cw	5.0341e10 mm^6
Io	79613600 mm^4	ro	282.05 mm	J	213.5 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A653 HSLAS Grade 80, Fy=551.58 MPa

Compression		Positive Moment		Positive Moment	
Pao	164.10 kN	Maxo	3.363 kN-m	Mayo	36.531 kN-m
Ae	535.52 mm^2	Ixe	427150 mm^4	Iye	59357612 mm^4
		Sxe(t)	10181 mm^3	Sye(l)	140326 mm^3
Tension		Sxe(b)	17395 mm^3	Sye(r)	110603 mm^3
Ta	310.50 kN				
		Negative Moment		Negative Moment	
		Maxo	3.875 kN-m	Mayo	35.905 kN-m
Shear		Ixe	418225 mm^4	Iye	58801144 mm^4
Vay	35.03 kN	Sxe(t)	13553 mm^3	Sye(l)	108709 mm^3
Vax	12.06 kN	Sxe(b)	11731 mm^3	Sye(r)	140415 mm^3

MSDECK element 2 w/t exceeds 60.
R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
Ag=1000.8 mm^2, Fy=551.58 MPa
Tn=552.01 kN — NAS Eq. C2.1-1
Ωt=1.67, ϕt=0.9

Shear Strength
MSDECK element 1
Aw=11.5 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=3.8059 kN at -76 deg

Ωv=1.6, ϕv=0.95	
MSDECK element 3	
Aw=45.487 mm^2, Fv=194.33 MPa	NAS Eq. C3.2.1-4a
Vn=8.8396 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 8	
Aw=45.487 mm^2, Fv=194.33 MPa	NAS Eq. C3.2.1-4a
Vn=8.8396 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 13	
Aw=45.487 mm^2, Fv=194.33 MPa	NAS Eq. C3.2.1-4a
Vn=8.8396 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 18	
Aw=45.487 mm^2, Fv=194.33 MPa	NAS Eq. C3.2.1-4a
Vn=8.8396 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 23	
Aw=45.487 mm^2, Fv=194.33 MPa	NAS Eq. C3.2.1-4a
Vn=8.8396 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 28	
Aw=45.487 mm^2, Fv=194.33 MPa	NAS Eq. C3.2.1-4a
Vn=8.8396 kN at -71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 30	
Aw=8.8258 mm^2, Fv=330.95 MPa	NAS Eq. C3.2.1-2
Vn=2.9209 kN at 71 deg	
Ωv=1.6, ϕv=0.95	
MSDECK element 32	
Aw=11.744 mm^2, Fv=330.95 MPa	NAS Eq. C3.2.1-2
Vn=3.8867 kN at -67 deg	
Ωv=1.6, ϕv=0.95	

Axial Compression Strength

Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.375 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=1.5012	NAS Eq. B2.1-4
ρ=0.56852	NAS Eq. B2.1-3
b=8.1724 mm (ineffective width=6.2025 mm)	NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction	
S=24.58	NAS Eq. B4-7
Ia=154.89 mm^4	NAS Eq. B4-8
Is=186.48 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1
Element 2: Stiffened, w=63.804 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=2.1846	NAS Eq. B2.1-4
ρ=0.41165	NAS Eq. B2.1-3
be=26.265 mm	NAS Eq. B2.1-2

b1=13.132 mm	NAS Eq. B2.3-9
b2=13.132 mm	NAS Eq. B2.3-10
Ineffective width=37.54 mm	
Element 3: Stiffened, w=56.859 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.9468	NAS Eq. B2.1-4
ρ=0.45561	NAS Eq. B2.1-3
be=25.905 mm	NAS Eq. B2.1-2
b1=12.953 mm	NAS Eq. B2.3-9
b2=12.953 mm	NAS Eq. B2.3-10
Ineffective width=30.953 mm	
Element 4: Stiffened, w=53.982 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.8483	NAS Eq. B2.1-4
ρ=0.47664	NAS Eq. B2.1-3
be=25.73 mm	NAS Eq. B2.1-2
b1=12.865 mm	NAS Eq. B2.3-9
b2=12.865 mm	NAS Eq. B2.3-10
Ineffective width=28.252 mm	
Element 5: Stiffened, w=3.0894e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.3344e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.0894e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.3344e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.982 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.8483	NAS Eq. B2.1-4
ρ=0.47664	NAS Eq. B2.1-3
be=25.73 mm	NAS Eq. B2.1-2
b1=12.865 mm	NAS Eq. B2.3-9
b2=12.865 mm	NAS Eq. B2.3-10
Ineffective width=28.252 mm	
Element 8: Stiffened, w=56.859 mm	
f1=551.58 MPa, f2=551.58 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.9468	NAS Eq. B2.1-4
ρ=0.45561	NAS Eq. B2.1-3
be=25.905 mm	NAS Eq. B2.1-2
b1=12.953 mm	NAS Eq. B2.3-9
b2=12.953 mm	NAS Eq. B2.3-10
Ineffective width=30.953 mm	

Element 9: Stiffened, w=53.982 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.8483	NAS Eq. B2.1-4
ρ=0.47664	NAS Eq. B2.1-3
be=25.73 mm	NAS Eq. B2.1-2
b1=12.865 mm	NAS Eq. B2.3-9
b2=12.865 mm	NAS Eq. B2.3-10
Ineffective width=28.252 mm	

Element 10: Stiffened, w=3.0894e-5 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.3344e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 11: Stiffened, w=3.0894e-5 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.3344e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 12: Stiffened, w=53.982 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.8483	NAS Eq. B2.1-4
ρ=0.47664	NAS Eq. B2.1-3
be=25.73 mm	NAS Eq. B2.1-2
b1=12.865 mm	NAS Eq. B2.3-9
b2=12.865 mm	NAS Eq. B2.3-10
Ineffective width=28.252 mm	

Element 13: Stiffened, w=56.859 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.9468	NAS Eq. B2.1-4
ρ=0.45561	NAS Eq. B2.1-3
be=25.905 mm	NAS Eq. B2.1-2

b1=12.953 mm	NAS Eq. B2.3-9
b2=12.953 mm	NAS Eq. B2.3-10
Ineffective width=30.953 mm	
Element 14: Stiffened, w=53.982 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.8483	NAS Eq. B2.1-4
ρ=0.47664	NAS Eq. B2.1-3
be=25.73 mm	NAS Eq. B2.1-2
b1=12.865 mm	NAS Eq. B2.3-9
b2=12.865 mm	NAS Eq. B2.3-10
Ineffective width=28.252 mm	
Element 15: Stiffened, w=3.0894e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.3344e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.0894e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.3344e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.982 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.8483	NAS Eq. B2.1-4
ρ=0.47664	NAS Eq. B2.1-3
be=25.73 mm	NAS Eq. B2.1-2
b1=12.865 mm	NAS Eq. B2.3-9
b2=12.865 mm	NAS Eq. B2.3-10
Ineffective width=28.252 mm	
Element 18: Stiffened, w=56.859 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.9468	NAS Eq. B2.1-4
ρ=0.45561	NAS Eq. B2.1-3
be=25.905 mm	NAS Eq. B2.1-2
b1=12.953 mm	NAS Eq. B2.3-9
b2=12.953 mm	NAS Eq. B2.3-10
Ineffective width=30.953 mm	
Element 19: Stiffened, w=53.982 mm	
f1=551.58 MPa, f2=551.58 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.8483	NAS Eq. B2.1-4
ρ=0.47664	NAS Eq. B2.1-3
be=25.73 mm	NAS Eq. B2.1-2
b1=12.865 mm	NAS Eq. B2.3-9
b2=12.865 mm	NAS Eq. B2.3-10
Ineffective width=28.252 mm	

Element 20: Stiffened, w=3.0894e-5 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.3344e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 21: Stiffened, w=3.0894e-5 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.3344e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 22: Stiffened, w=53.982 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.8483	NAS Eq. B2.1-4
ρ=0.47664	NAS Eq. B2.1-3
be=25.73 mm	NAS Eq. B2.1-2
b1=12.865 mm	NAS Eq. B2.3-9
b2=12.865 mm	NAS Eq. B2.3-10
Ineffective width=28.252 mm	

Element 23: Stiffened, w=56.859 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.9468	NAS Eq. B2.1-4
ρ=0.45561	NAS Eq. B2.1-3
be=25.905 mm	NAS Eq. B2.1-2
b1=12.953 mm	NAS Eq. B2.3-9
b2=12.953 mm	NAS Eq. B2.3-10
Ineffective width=30.953 mm	

Elements 24 to 27:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=140.12 mm, bp=53.982 mm

kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6

k=26.95	NAS Eq. B5.1-5
f1=551.58 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.8481	NAS Eq. B5.1-3
ρ=0.47669	NAS Eq. B5.1-2
be=69.816 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.859 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.9468	NAS Eq. B2.1-4
ρ=0.45561	NAS Eq. B2.1-3
be=25.905 mm	NAS Eq. B2.1-2
b1=12.953 mm	NAS Eq. B2.3-9
b2=12.953 mm	NAS Eq. B2.3-10
Ineffective width=30.953 mm	
Element 29: Stiffened, w=60.859 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=2.0838	NAS Eq. B2.1-4
ρ=0.42923	NAS Eq. B2.1-3
be=26.122 mm	NAS Eq. B2.1-2
b1=13.061 mm	NAS Eq. B2.3-9
b2=13.061 mm	NAS Eq. B2.3-10
Ineffective width=34.736 mm	
Element 30: Stiffened, w=11.032 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.37774	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=11.032 mm	NAS Eq. B2.1-2
b1=5.5161 mm	NAS Eq. B2.3-9
b2=5.5161 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=1.533	NAS Eq. B2.1-4
ρ=0.55869	NAS Eq. B2.1-3
b=8.2016 mm (ineffective width=6.4784 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=24.58	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=2.5919e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Arc element 6: D/t=47.155
f=551.58 MPa, reduce thickness by 4.3662%
Arc element 11: D/t=47.156
f=551.58 MPa, reduce thickness by 4.3669%
Arc element 16: D/t=47.156
f=551.58 MPa, reduce thickness by 4.3669%
Arc element 21: D/t=47.156
f=551.58 MPa, reduce thickness by 4.3669%
Arc element 26: D/t=47.156
f=551.58 MPa, reduce thickness by 4.3669%

Ae=535.52 mm^2, Fy=551.58 MPa
Pn=295.38 kN NAS Eq. C4.1-1
Ωc=1.8, ϕc=0.85

Positive Flexural Strength about X-axis
Effective width calculations for part 1: MSDECK
Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: Stiffened, w=56.859 mm
f1=424.47 MPa, f2=-282.37 MPa
ψ=0.66523 NAS Eq. B2.3-1
k=16.566 NAS Eq. B2.3-2
λ=0.83921 NAS Eq. B2.1-4
ρ=0.87922 NAS Eq. B2.1-3
be=49.991 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=13.639 mm NAS Eq. B2.3-3
b2=24.996 mm NAS Eq. B2.3-4
Compression width=34.145 mm
b1+b2 > compression width (fully effective)
Elements 4 to 7:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=140.12 mm, bp=53.982 mm
kloc=26.95 NAS Eq. B5.1.2-1
β=4.4501 NAS Eq. B5.1.2-3
kd=26.852 NAS Eq. B5.1.2-2
R=1.7071 NAS Eq. B5.1-6
k=26.95 NAS Eq. B5.1-5
f1=428.01 MPa
Fcr=161.5 MPa NAS Eq. B5.1-4
λ=1.628 NAS Eq. B5.1-3
ρ=0.53125 NAS Eq. B5.1-2
be=77.808 mm NAS Eq. B5.1-1
Element 8: Stiffened, w=56.859 mm
f1=424.47 MPa, f2=-282.37 MPa
ψ=0.66523 NAS Eq. B2.3-1
k=16.566 NAS Eq. B2.3-2
λ=0.83921 NAS Eq. B2.1-4
ρ=0.87922 NAS Eq. B2.1-3
be=49.991 mm NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=13.639 mm NAS Eq. B2.3-3
b2=24.996 mm NAS Eq. B2.3-4

Compression width=34.145 mm
b1+b2 > compression width (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: Stiffened, w=56.859 mm
f1=424.47 MPa, f2=-282.37 MPa

ψ=0.66523	NAS Eq. B2.3-1
k=16.566	NAS Eq. B2.3-2
λ=0.83921	NAS Eq. B2.1-4
ρ=0.87922	NAS Eq. B2.1-3
be=49.991 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.639 mm	NAS Eq. B2.3-3
b2=24.996 mm	NAS Eq. B2.3-4

Compression width=34.145 mm
b1+b2 > compression width (fully effective)
Elements 14 to 17:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=140.12 mm, bp=53.982 mm

kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5

f1=428.01 MPa

Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.628	NAS Eq. B5.1-3
ρ=0.53125	NAS Eq. B5.1-2
be=77.808 mm	NAS Eq. B5.1-1

Element 18: Stiffened, w=56.859 mm
f1=424.47 MPa, f2=-282.37 MPa

ψ=0.66523	NAS Eq. B2.3-1
k=16.566	NAS Eq. B2.3-2
λ=0.83921	NAS Eq. B2.1-4
ρ=0.87922	NAS Eq. B2.1-3
be=49.991 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.639 mm	NAS Eq. B2.3-3
b2=24.996 mm	NAS Eq. B2.3-4

Compression width=34.145 mm
b1+b2 > compression width (fully effective)
Element 19: No compressive stress (fully effective)
Element 20: No compressive stress (fully effective)
Element 21: No compressive stress (fully effective)
Element 22: No compressive stress (fully effective)
Element 23: Stiffened, w=56.859 mm
f1=424.47 MPa, f2=-282.37 MPa

ψ=0.66523	NAS Eq. B2.3-1
k=16.566	NAS Eq. B2.3-2
λ=0.83921	NAS Eq. B2.1-4
ρ=0.87922	NAS Eq. B2.1-3
be=49.991 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=13.639 mm	NAS Eq. B2.3-3
b2=24.996 mm	NAS Eq. B2.3-4
Compression width=34.145 mm	
b1+b2 > compression width (fully effective)	

Elements 24 to 27:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=140.12 mm, bp=53.982 mm	
kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=428.01 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.628	NAS Eq. B5.1-3
ρ=0.53125	NAS Eq. B5.1-2
be=77.808 mm	NAS Eq. B5.1-1

Element 28: Stiffened, w=56.859 mm

f1=424.47 MPa, f2=-282.37 MPa	
ψ=0.66523	NAS Eq. B2.3-1
k=16.566	NAS Eq. B2.3-2
λ=0.83921	NAS Eq. B2.1-4
ρ=0.87922	NAS Eq. B2.1-3
be=49.991 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=13.639 mm	NAS Eq. B2.3-3
b2=24.996 mm	NAS Eq. B2.3-4
Compression width=34.145 mm	
b1+b2 > compression width (fully effective)	

Element 29: No compressive stress (fully effective)
Element 30: No compressive stress (fully effective)
Element 32: No compressive stress (fully effective)
Element 31: No compressive stress (fully effective)

Center of gravity shift: y=-5.2761 mm	
Sxe=10181 mm^3, Fy=551.58 MPa	
Mnx=5.6157 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Negative Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK

Element 1: Unstiffened, w=14.375 mm

f1=503.37 MPa, f2=287.54 MPa	
ψ=0.57122	NAS Eq. B3.2-1
k=0.63431	NAS Eq. B3.2-2
λ=1.1807	NAS Eq. B2.1-4
ρ=0.68912	NAS Eq. B2.1-3
b=9.9061 mm (ineffective width=4.4689 mm)	NAS Eq. B2.1-2

Element 2: Check for lip stiffener reduction

S=25.611	NAS Eq. B4-7
Ia=148.74 mm^4	NAS Eq. B4-8
Is=186.48 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1

Element 2: Stiffened, w=63.804 mm

f1=508.07 MPa, f2=508.07 MPa	

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=2.0967	NAS Eq. B2.1-4
ρ=0.4269	NAS Eq. B2.1-3
be=27.238 mm	NAS Eq. B2.1-2
b1=13.619 mm	NAS Eq. B2.3-9
b2=13.619 mm	NAS Eq. B2.3-10
Ineffective width=36.566 mm	

Element 3: Stiffened, w=56.859 mm

f1=503.89 MPa, f2=-328.03 MPa	
ψ=0.65098	NAS Eq. B2.3-1
k=16.302	NAS Eq. B2.3-2
λ=0.92172	NAS Eq. B2.1-4
ρ=0.82598	NAS Eq. B2.1-3
be=46.964 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	
b1=12.863 mm	NAS Eq. B2.3-3
b2=23.482 mm	NAS Eq. B2.3-4
Compression width=34.439 mm	
b1+b2 > compression width (fully effective)	

Element 4: No compressive stress (fully effective)

Element 5: No compressive stress (fully effective)

Element 6: No compressive stress (fully effective)

Element 7: No compressive stress (fully effective)

Element 8: Stiffened, w=56.859 mm

f1=503.89 MPa, f2=-328.03 MPa	
ψ=0.65098	NAS Eq. B2.3-1
k=16.302	NAS Eq. B2.3-2
λ=0.92172	NAS Eq. B2.1-4
ρ=0.82598	NAS Eq. B2.1-3
be=46.964 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=12.863 mm	NAS Eq. B2.3-3
b2=23.482 mm	NAS Eq. B2.3-4
Compression width=34.439 mm	
b1+b2 > compression width (fully effective)	

Elements 9 to 12:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=140.12 mm, bp=53.982 mm	
kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=508.07 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.7737	NAS Eq. B5.1-3
ρ=0.49387	NAS Eq. B5.1-2
be=72.332 mm	NAS Eq. B5.1-1

Element 13: Stiffened, w=56.859 mm

f1=503.89 MPa, f2=-328.03 MPa	
ψ=0.65098	NAS Eq. B2.3-1
k=16.302	NAS Eq. B2.3-2
λ=0.92172	NAS Eq. B2.1-4
ρ=0.82598	NAS Eq. B2.1-3

be=46.964 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=12.863 mm	NAS Eq. B2.3-3
b2=23.482 mm	NAS Eq. B2.3-4
Compression width=34.439 mm	
b1+b2 > compression width (fully effective)	
Element 14: No compressive stress (fully effective)	
Element 15: No compressive stress (fully effective)	
Element 16: No compressive stress (fully effective)	
Element 17: No compressive stress (fully effective)	
Element 18: Stiffened, w=56.859 mm	
f1=503.89 MPa, f2=-328.03 MPa	
ψ=0.65098	NAS Eq. B2.3-1
k=16.302	NAS Eq. B2.3-2
λ=0.92172	NAS Eq. B2.1-4
ρ=0.82598	NAS Eq. B2.1-3
be=46.964 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=12.863 mm	NAS Eq. B2.3-3
b2=23.482 mm	NAS Eq. B2.3-4
Compression width=34.439 mm	
b1+b2 > compression width (fully effective)	
Elements 19 to 22:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=140.12 mm, bp=53.982 mm	
kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=508.07 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.7737	NAS Eq. B5.1-3
ρ=0.49387	NAS Eq. B5.1-2
be=72.332 mm	NAS Eq. B5.1-1
Element 23: Stiffened, w=56.859 mm	
f1=503.89 MPa, f2=-328.03 MPa	
ψ=0.65098	NAS Eq. B2.3-1
k=16.302	NAS Eq. B2.3-2
λ=0.92172	NAS Eq. B2.1-4
ρ=0.82598	NAS Eq. B2.1-3
be=46.964 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=12.863 mm	NAS Eq. B2.3-3
b2=23.482 mm	NAS Eq. B2.3-4
Compression width=34.439 mm	
b1+b2 > compression width (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: Stiffened, w=56.859 mm	
f1=503.89 MPa, f2=-328.03 MPa	
ψ=0.65098	NAS Eq. B2.3-1
k=16.302	NAS Eq. B2.3-2

λ=0.92172	NAS Eq. B2.1-4
ρ=0.82598	NAS Eq. B2.1-3
be=46.964 mm	NAS Eq. B2.1-2
ho=58 mm, bo=62 mm, ho/bo=0.93548	
b1=12.863 mm	NAS Eq. B2.3-3
b2=23.482 mm	NAS Eq. B2.3-4
Compression width=34.439 mm	
b1+b2 > compression width (fully effective)	
Element 29: Stiffened, w=60.859 mm	
f1=508.07 MPa, f2=508.07 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.9999	NAS Eq. B2.1-4
ρ=0.44502	NAS Eq. B2.1-3
be=27.083 mm	NAS Eq. B2.1-2
b1=13.542 mm	NAS Eq. B2.3-9
b2=13.542 mm	NAS Eq. B2.3-10
Ineffective width=33.775 mm	
Element 30: Stiffened, w=11.032 mm	
f1=503.89 MPa, f2=342.48 MPa	
ψ=0.67966	NAS Eq. B2.3-1
k=4.7064	NAS Eq. B2.3-8
λ=0.33284	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=11.032 mm	NAS Eq. B2.1-2
b1=4.7546 mm	NAS Eq. B2.3-9
b2=6.2776 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=549.16 MPa, f2=340.06 MPa	
ψ=0.61923	NAS Eq. B3.2-1
k=0.4668	NAS Eq. B3.2-3
λ=1.4681	NAS Eq. B2.1-4
ρ=0.57907	NAS Eq. B2.1-3
b=8.5007 mm (ineffective width=6.1793 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=31.304	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=340.06 MPa, f2=340.06 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=2.0351e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Arc element 11: D/t=47.156	
f=505.11 MPa, reduce thickness by 1.7053%	
Arc element 21: D/t=47.156	
f=505.11 MPa, reduce thickness by 1.7053%	

Center of gravity shift: y=5.82 mm
Sxe=11731 mm^3, Fy=551.58 MPa

Mnx=6.4705 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Positive Flexural Strength about Y-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: No compressive stress (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: No compressive stress (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: No compressive stress (fully effective)

Element 14: Stiffened, w=53.982 mm

f1=38.099 MPa, f2=-17.384 MPa	
ψ=0.45629	NAS Eq. B2.3-1
k=13.09	NAS Eq. B2.3-2
λ=0.26853	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.982 mm	NAS Eq. B2.1-2
ho=55 mm, bo=31.192 mm, ho/bo=1.7632	
b1=15.618 mm	NAS Eq. B2.3-3
b2=26.991 mm	NAS Eq. B2.3-4
Compression width=37.068 mm	
b1+b2 > compression width (fully effective)	

Element 15: Stiffened, w=3.0894e-5 mm

f1=38.449 MPa, f2=38.449 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=3.523e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 16: Stiffened, w=3.0894e-5 mm

f1=70.798 MPa, f2=70.798 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=4.7806e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 17: Stiffened, w=53.982 mm

f1=126.63 MPa, f2=71.148 MPa	
ψ=0.56186	NAS Eq. B2.3-1
k=5.0445	NAS Eq. B2.3-8
λ=0.78861	NAS Eq. B2.1-4

ρ=0.9143	NAS Eq. B2.1-3
be=49.356 mm	NAS Eq. B2.1-2
b1=20.243 mm	NAS Eq. B2.3-9
b2=29.112 mm	NAS Eq. B2.3-10
Ineffective width=4.6261 mm	
Element 18: Stiffened, w=56.859 mm	
f1=146.05 MPa, f2=127.02 MPa	
ψ=0.86972	NAS Eq. B2.3-1
k=4.265	NAS Eq. B2.3-8
λ=0.97015	NAS Eq. B2.1-4
ρ=0.79702	NAS Eq. B2.1-3
be=45.318 mm	NAS Eq. B2.1-2
b1=21.273 mm	NAS Eq. B2.3-9
b2=24.045 mm	NAS Eq. B2.3-10
Ineffective width=11.541 mm	
Element 19: Stiffened, w=53.982 mm	
f1=201.92 MPa, f2=146.43 MPa	
ψ=0.72522	NAS Eq. B2.3-1
k=4.5911	NAS Eq. B2.3-8
λ=1.0438	NAS Eq. B2.1-4
ρ=0.7561	NAS Eq. B2.1-3
be=40.815 mm	NAS Eq. B2.1-2
b1=17.943 mm	NAS Eq. B2.3-9
b2=22.873 mm	NAS Eq. B2.3-10
Ineffective width=13.166 mm	
Element 20: Stiffened, w=3.0894e-5 mm	
f1=202.27 MPa, f2=202.27 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=8.0804e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.0894e-5 mm	
f1=234.62 MPa, f2=234.62 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=8.7026e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.982 mm	
f1=290.45 MPa, f2=234.97 MPa	
ψ=0.80898	NAS Eq. B2.3-1
k=4.396	NAS Eq. B2.3-8
λ=1.2794	NAS Eq. B2.1-4
ρ=0.64721	NAS Eq. B2.1-3
be=34.937 mm	NAS Eq. B2.1-2
b1=15.946 mm	NAS Eq. B2.3-9
b2=18.992 mm	NAS Eq. B2.3-10
Ineffective width=19.044 mm	

Element 23: Stiffened, w=56.859 mm
f1=309.86 MPa, f2=290.84 MPa

ψ=0.9386	NAS Eq. B2.3-1
k=4.1233	NAS Eq. B2.3-8
λ=1.4372	NAS Eq. B2.1-4
ρ=0.58929	NAS Eq. B2.1-3
be=33.506 mm	NAS Eq. B2.1-2
b1=16.254 mm	NAS Eq. B2.3-9
b2=17.252 mm	NAS Eq. B2.3-10

Ineffective width=23.353 mm

Elements 24 to 27:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=140.12 mm, bp=53.982 mm

kloc=26.95	NAS Eq. B5.1.2-1
β=4.4502	NAS Eq. B5.1.2-3
kd=26.852	NAS Eq. B5.1.2-2
R=1.7071	NAS Eq. B5.1-6
k=26.95	NAS Eq. B5.1-5
f1=382.26 MPa	
Fcr=161.5 MPa	NAS Eq. B5.1-4
λ=1.5385	NAS Eq. B5.1-3
ρ=0.55704	NAS Eq. B5.1-2
be=81.585 mm	NAS Eq. B5.1-1

Element 28: Stiffened, w=56.859 mm
f1=473.68 MPa, f2=454.66 MPa

ψ=0.95983	NAS Eq. B2.3-1
k=4.0805	NAS Eq. B2.3-8
λ=1.7862	NAS Eq. B2.1-4
ρ=0.49088	NAS Eq. B2.1-3
be=27.911 mm	NAS Eq. B2.1-2
b1=13.681 mm	NAS Eq. B2.3-9
b2=14.23 mm	NAS Eq. B2.3-10

Ineffective width=28.948 mm

Element 29: Stiffened, w=60.859 mm
f1=536.62 MPa, f2=474.07 MPa

ψ=0.88344	NAS Eq. B2.3-1
k=4.2363	NAS Eq. B2.3-8
λ=1.9972	NAS Eq. B2.1-4
ρ=0.44555	NAS Eq. B2.1-3
be=27.115 mm	NAS Eq. B2.1-2
b1=12.811 mm	NAS Eq. B2.3-9
b2=14.304 mm	NAS Eq. B2.3-10

Ineffective width=33.743 mm

Element 30: Stiffened, w=11.032 mm
f1=540.7 MPa, f2=537.01 MPa

ψ=0.99317	NAS Eq. B2.3-1
k=4.0137	NAS Eq. B2.3-8
λ=0.37336	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=11.032 mm	NAS Eq. B2.1-2
b1=5.4973 mm	NAS Eq. B2.3-9
b2=5.5349 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 32: Unstiffened, w=14.68 mm
f1=551.2 MPa, f2=545.31 MPa

ψ=0.9893	NAS Eq. B3.2-1
k=0.43076	NAS Eq. B3.2-3
λ=1.5312	NAS Eq. B2.1-4
ρ=0.55926	NAS Eq. B2.1-3
b=8.2099 mm (ineffective width=6.4701 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=24.721	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=545.31 MPa, f2=545.31 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=2.5771e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: x=-58.577 mm	
Sye=110600 mm^3, Fy=551.58 MPa	
Mny=61.007 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Negative Flexural Strength about Y-axis	
Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.375 mm	
f1=551.18 MPa, f2=547.64 MPa	
ψ=0.99357	NAS Eq. B3.2-1
k=0.43045	NAS Eq. B3.2-3
λ=1.4999	NAS Eq. B2.1-4
ρ=0.56894	NAS Eq. B2.1-3
b=8.1784 mm (ineffective width=6.1965 mm)	NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction	
S=24.677	NAS Eq. B4-7
Ia=154.29 mm^4	NAS Eq. B4-8
Is=186.48 mm^4 > Ia (no lip reduction)	
k=4	NAS Table B4-1
Element 2: Stiffened, w=63.804 mm	
f1=547.24 MPa, f2=482.18 MPa	
ψ=0.8811	NAS Eq. B2.3-1
k=4.2412	NAS Eq. B2.3-8
λ=2.1133	NAS Eq. B2.1-4
ρ=0.42394	NAS Eq. B2.1-3
be=27.049 mm	NAS Eq. B2.1-2
b1=12.766 mm	NAS Eq. B2.3-9
b2=14.283 mm	NAS Eq. B2.3-10
Ineffective width=36.755 mm	
Element 3: Stiffened, w=56.859 mm	
f1=481.79 MPa, f2=462.91 MPa	
ψ=0.96082	NAS Eq. B2.3-1
k=4.0785	NAS Eq. B2.3-8
λ=1.8019	NAS Eq. B2.1-4
ρ=0.48721	NAS Eq. B2.1-3
be=27.702 mm	NAS Eq. B2.1-2

b1=13.585 mm	NAS Eq. B2.3-9
b2=14.117 mm	NAS Eq. B2.3-10
Ineffective width=29.157 mm	
Element 4: Stiffened, w=53.982 mm	
f1=462.53 MPa, f2=407.48 MPa	
ψ=0.88098	NAS Eq. B2.3-1
k=4.2414	NAS Eq. B2.3-8
λ=1.6437	NAS Eq. B2.1-4
ρ=0.52696	NAS Eq. B2.1-3
be=28.446 mm	NAS Eq. B2.1-2
b1=13.424 mm	NAS Eq. B2.3-9
b2=15.022 mm	NAS Eq. B2.3-10
Ineffective width=25.535 mm	
Element 5: Stiffened, w=3.0894e-5 mm	
f1=407.13 MPa, f2=407.13 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.1464e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.0894e-5 mm	
f1=375.04 MPa, f2=375.04 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.5138	NAS Eq. B2.3-8
λ=1.1003e-6	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0894e-5 mm	NAS Eq. B2.1-2
b1=1.5447e-5 mm	NAS Eq. B2.3-9
b2=1.5447e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.982 mm	
f1=374.69 MPa, f2=319.64 MPa	
ψ=0.85308	NAS Eq. B2.3-1
k=4.3002	NAS Eq. B2.3-8
λ=1.4692	NAS Eq. B2.1-4
ρ=0.57871	NAS Eq. B2.1-3
be=31.24 mm	NAS Eq. B2.1-2
b1=14.551 mm	NAS Eq. B2.3-9
b2=16.689 mm	NAS Eq. B2.3-10
Ineffective width=22.742 mm	
Element 8: Stiffened, w=56.859 mm	
f1=319.26 MPa, f2=300.38 MPa	
ψ=0.94087	NAS Eq. B2.3-1
k=4.1187	NAS Eq. B2.3-8
λ=1.4596	NAS Eq. B2.1-4
ρ=0.58184	NAS Eq. B2.1-3
be=33.083 mm	NAS Eq. B2.1-2
b1=16.066 mm	NAS Eq. B2.3-9
b2=17.016 mm	NAS Eq. B2.3-10
Ineffective width=23.776 mm	
Elements 9 to 12:	
NAS Section B5 - Elements with Intermediate Stiffeners	

bo=140.12 mm, bp=53.982 mm
kloc=26.95 NAS Eq. B5.1.2-1
β=4.4502 NAS Eq. B5.1.2-3
kd=26.852 NAS Eq. B5.1.2-2
R=1.7071 NAS Eq. B5.1-6
k=26.95 NAS Eq. B5.1-5
f1=228.55 MPa
Fcr=161.5 MPa NAS Eq. B5.1-4
λ=1.1896 NAS Eq. B5.1-3
ρ=0.68515 NAS Eq. B5.1-2
be=100.35 mm NAS Eq. B5.1-1

Element 13: Stiffened, w=56.859 mm
f1=156.72 MPa, f2=137.84 MPa
ψ=0.87955 NAS Eq. B2.3-1
k=4.2444 NAS Eq. B2.3-8
λ=1.0074 NAS Eq. B2.1-4
ρ=0.77587 NAS Eq. B2.1-3
be=44.115 mm NAS Eq. B2.1-2
b1=20.805 mm NAS Eq. B2.3-9
b2=23.311 mm NAS Eq. B2.3-10
Ineffective width=12.744 mm

Element 14: Stiffened, w=53.982 mm
f1=137.46 MPa, f2=82.407 MPa
ψ=0.59952 NAS Eq. B2.3-1
k=4.9294 NAS Eq. B2.3-8
λ=0.83116 NAS Eq. B2.1-4
ρ=0.88468 NAS Eq. B2.1-3
be=47.756 mm NAS Eq. B2.1-2
b1=19.895 mm NAS Eq. B2.3-9
b2=27.862 mm NAS Eq. B2.3-10
Ineffective width=6.2252 mm

Element 15: Stiffened, w=3.0894e-5 mm
f1=82.06 MPa, f2=82.06 MPa
ψ=1 NAS Eq. B2.3-1
k=2.5138 NAS Eq. B2.3-8
λ=5.1468e-7 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=3.0894e-5 mm NAS Eq. B2.1-2
b1=1.5447e-5 mm NAS Eq. B2.3-9
b2=1.5447e-5 mm NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)

Element 16: Stiffened, w=3.0894e-5 mm
f1=49.964 MPa, f2=49.964 MPa
ψ=1 NAS Eq. B2.3-1
k=2.5138 NAS Eq. B2.3-8
λ=4.0161e-7 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=3.0894e-5 mm NAS Eq. B2.1-2
b1=1.5447e-5 mm NAS Eq. B2.3-9
b2=1.5447e-5 mm NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)

Element 17: Stiffened, w=53.982 mm
f1=49.616 MPa, f2=-5.4324 MPa
ψ=0.10949 NAS Eq. B2.3-1
k=8.9505 NAS Eq. B2.3-2

λ=0.37059 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=53.982 mm NAS Eq. B2.1-2
ho=55 mm, bo=31.192 mm, ho/bo=1.7632
b1=17.36 mm NAS Eq. B2.3-3
b2=36.621 mm NAS Eq. B2.3-5
Compression width=48.654 mm
b1+b2 > compression width (fully effective)
Element 18: No compressive stress (fully effective)
Element 19: No compressive stress (fully effective)
Element 20: No compressive stress (fully effective)
Element 21: No compressive stress (fully effective)
Element 22: No compressive stress (fully effective)
Element 23: No compressive stress (fully effective)
Element 24: No compressive stress (fully effective)
Element 25: No compressive stress (fully effective)
Element 26: No compressive stress (fully effective)
Element 27: No compressive stress (fully effective)
Element 28: No compressive stress (fully effective)
Element 29: No compressive stress (fully effective)
Element 30: No compressive stress (fully effective)
Element 32: No compressive stress (fully effective)
Element 31: No compressive stress (fully effective)

Center of gravity shift: x=59.329 mm
Sye=108710 mm^3, Fy=551.58 MPa
Mny=59.962 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

CFS Version 8.0.2
Section: METSCODECK-1.0.sct
METSCODECK-1.0

Rev. Date: 14-07-2015 20:03:22

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Full Section Properties

Area	1249.3 mm^2	Wt.	0.096086 kN/m	Width	1249.3 mm
Ix	706943 mm^4	rx	23.79 mm	Ixy	-145565 mm^4
Sx(t)	19212 mm^3	y(t)	36.80 mm	α	89.915 deg
Sx(b)	23280 mm^3	y(b)	30.37 mm		
		Height	67.16 mm		
Iy	98410992 mm^4	ry	280.66 mm	Xo	-1.85 mm
Sy(l)	204509 mm^3	x(l)	481.21 mm	Yo	6.65 mm
Sy(r)	205911 mm^3	x(r)	477.93 mm	jx	1.63 mm
		Width	959.13 mm	jy	-209.04 mm
I1	98411208 mm^4	r1	280.66 mm		
I2	706728 mm^4	r2	23.78 mm		
Ic	99117936 mm^4	rc	281.67 mm	Cw	6.2465e10 mm^6
Io	99177400 mm^4	ro	281.75 mm	J	416.4 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A653 HSLAS Grade 80, Fy=551.58 MPa

Compression		Positive Moment		Positive Moment	
Pao	239.38 kN	Maxo	4.715 kN-m	Mayo	51.330 kN-m
Ae	781.17 mm^2	Ixe	579627 mm^4	Iye	80595152 mm^4
		Sxe(t)	14274 mm^3	Sye(l)	182948 mm^3
Tension		Sxe(b)	21825 mm^3	Sye(r)	155409 mm^3
Ta	387.62 kN				
		Negative Moment		Negative Moment	
		Maxo	5.346 kN-m	Mayo	49.601 kN-m
Shear		Ixe	563486 mm^4	Iye	78753408 mm^4
Vay	58.09 kN	Sxe(t)	17419 mm^3	Sye(l)	150175 mm^3
Vax	20.01 kN	Sxe(b)	16185 mm^3	Sye(r)	181157 mm^3

MSDECK element 2 w/t exceeds 60.
R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
Ag=1249.3 mm^2, Fy=551.58 MPa
Tn=689.1 kN — NAS Eq. C2.1-1
Ωt=1.67, ϕt=0.9

Shear Strength
MSDECK element 1
Aw=14.219 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=4.7057 kN at -76 deg

Ωv=1.6, ϕv=0.95
MSDECK element 3
Aw=56.573 mm^2, Fv=259.59 MPa — NAS Eq. C3.2.1-3
Vn=14.686 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 8
Aw=56.573 mm^2, Fv=259.59 MPa — NAS Eq. C3.2.1-3
Vn=14.686 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 13
Aw=56.573 mm^2, Fv=259.59 MPa — NAS Eq. C3.2.1-3
Vn=14.686 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 18
Aw=56.573 mm^2, Fv=259.59 MPa — NAS Eq. C3.2.1-3
Vn=14.686 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 23
Aw=56.573 mm^2, Fv=259.59 MPa — NAS Eq. C3.2.1-3
Vn=14.686 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 28
Aw=56.573 mm^2, Fv=259.59 MPa — NAS Eq. C3.2.1-3
Vn=14.686 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 30
Aw=10.369 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=3.4315 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 32
Aw=14.68 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=4.8583 kN at -67 deg
Ωv=1.6, ϕv=0.95

Axial Compression Strength
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=14.219 mm
f1=551.58 MPa, f2=551.58 MPa
ψ=1 — NAS Eq. B3.2-1
k=0.43 — NAS Eq. B3.2-3
λ=1.1879 — NAS Eq. B2.1-4
ρ=0.68592 — NAS Eq. B2.1-3
b=9.7529 mm (ineffective width=4.4658 mm) — NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction
S=24.58 — NAS Eq. B4-7
Ia=302.12 mm^4 — NAS Eq. B4-8
Is=225.6 mm^4
ds=7.2828 mm (lip ineffective width=2.4702 mm) — NAS Eq. B4-6
k=3.6688 — NAS Table B4-1
Element 2: Partially stiffened, w=63.505 mm
f=551.58 MPa, k=3.6688
λ=1.8163 — NAS Eq. B2.1-4
ρ=0.48387 — NAS Eq. B2.1-3
b=30.729 mm (ineffective width=32.777 mm) — NAS Eq. B2.1-2
b1=11.473 mm, b2=19.256 mm

Element 3: Stiffened, w=56.573 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5496	NAS Eq. B2.1-4
ρ=0.5537	NAS Eq. B2.1-3
be=31.324 mm	NAS Eq. B2.1-2
b1=15.662 mm	NAS Eq. B2.3-9
b2=15.662 mm	NAS Eq. B2.3-10

Ineffective width=25.249 mm

Element 4: Stiffened, w=53.727 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4717	NAS Eq. B2.1-4
ρ=0.57792	NAS Eq. B2.1-3
be=31.05 mm	NAS Eq. B2.1-2
b1=15.525 mm	NAS Eq. B2.3-9
b2=15.525 mm	NAS Eq. B2.3-10

Ineffective width=22.677 mm

Element 5: Stiffened, w=3.0279e-5 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=9.783e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 6: Stiffened, w=3.0279e-5 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=9.783e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 7: Stiffened, w=53.727 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4717	NAS Eq. B2.1-4
ρ=0.57792	NAS Eq. B2.1-3
be=31.05 mm	NAS Eq. B2.1-2
b1=15.525 mm	NAS Eq. B2.3-9
b2=15.525 mm	NAS Eq. B2.3-10

Ineffective width=22.677 mm

Element 8: Stiffened, w=56.573 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5496	NAS Eq. B2.1-4

ρ=0.5537	NAS Eq. B2.1-3
be=31.324 mm	NAS Eq. B2.1-2
b1=15.662 mm	NAS Eq. B2.3-9
b2=15.662 mm	NAS Eq. B2.3-10
Ineffective width=25.249 mm	
Element 9: Stiffened, w=53.727 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4717	NAS Eq. B2.1-4
ρ=0.57792	NAS Eq. B2.1-3
be=31.05 mm	NAS Eq. B2.1-2
b1=15.525 mm	NAS Eq. B2.3-9
b2=15.525 mm	NAS Eq. B2.3-10
Ineffective width=22.677 mm	
Element 10: Stiffened, w=3.0279e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=9.7831e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 11: Stiffened, w=3.0279e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=9.7831e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 12: Stiffened, w=53.727 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4717	NAS Eq. B2.1-4
ρ=0.57792	NAS Eq. B2.1-3
be=31.05 mm	NAS Eq. B2.1-2
b1=15.525 mm	NAS Eq. B2.3-9
b2=15.525 mm	NAS Eq. B2.3-10
Ineffective width=22.677 mm	
Element 13: Stiffened, w=56.573 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5496	NAS Eq. B2.1-4
ρ=0.5537	NAS Eq. B2.1-3
be=31.324 mm	NAS Eq. B2.1-2
b1=15.662 mm	NAS Eq. B2.3-9
b2=15.662 mm	NAS Eq. B2.3-10
Ineffective width=25.249 mm	

Element 14: Stiffened, w=53.727 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4717	NAS Eq. B2.1-4
ρ=0.57792	NAS Eq. B2.1-3
be=31.05 mm	NAS Eq. B2.1-2
b1=15.525 mm	NAS Eq. B2.3-9
b2=15.525 mm	NAS Eq. B2.3-10

Ineffective width=22.677 mm

Element 15: Stiffened, w=3.0279e-5 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=9.7831e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 16: Stiffened, w=3.0279e-5 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=9.7831e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 17: Stiffened, w=53.727 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4717	NAS Eq. B2.1-4
ρ=0.57792	NAS Eq. B2.1-3
be=31.05 mm	NAS Eq. B2.1-2
b1=15.525 mm	NAS Eq. B2.3-9
b2=15.525 mm	NAS Eq. B2.3-10

Ineffective width=22.677 mm

Element 18: Stiffened, w=56.573 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5496	NAS Eq. B2.1-4
ρ=0.5537	NAS Eq. B2.1-3
be=31.324 mm	NAS Eq. B2.1-2
b1=15.662 mm	NAS Eq. B2.3-9
b2=15.662 mm	NAS Eq. B2.3-10

Ineffective width=25.249 mm

Element 19: Stiffened, w=53.727 mm
f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4717	NAS Eq. B2.1-4

ρ=0.57792	NAS Eq. B2.1-3
be=31.05 mm	NAS Eq. B2.1-2
b1=15.525 mm	NAS Eq. B2.3-9
b2=15.525 mm	NAS Eq. B2.3-10
Ineffective width=22.677 mm	
Element 20: Stiffened, w=3.0279e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=9.7831e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.0279e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=9.7831e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.727 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.4717	NAS Eq. B2.1-4
ρ=0.57792	NAS Eq. B2.1-3
be=31.05 mm	NAS Eq. B2.1-2
b1=15.525 mm	NAS Eq. B2.3-9
b2=15.525 mm	NAS Eq. B2.3-10
Ineffective width=22.677 mm	
Element 23: Stiffened, w=56.573 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5496	NAS Eq. B2.1-4
ρ=0.5537	NAS Eq. B2.1-3
be=31.324 mm	NAS Eq. B2.1-2
b1=15.662 mm	NAS Eq. B2.3-9
b2=15.662 mm	NAS Eq. B2.3-10
Ineffective width=25.249 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=551.58 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4

λ=1.4715	NAS Eq. B5.1-3
ρ=0.57798	NAS Eq. B5.1-2
be=84.593 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.573 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.5496	NAS Eq. B2.1-4
ρ=0.5537	NAS Eq. B2.1-3
be=31.324 mm	NAS Eq. B2.1-2
b1=15.662 mm	NAS Eq. B2.3-9
b2=15.662 mm	NAS Eq. B2.3-10
Ineffective width=25.249 mm	
Element 29: Stiffened, w=60.573 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.6592	NAS Eq. B2.1-4
ρ=0.52278	NAS Eq. B2.1-3
be=31.667 mm	NAS Eq. B2.1-2
b1=15.833 mm	NAS Eq. B2.3-9
b2=15.833 mm	NAS Eq. B2.3-10
Ineffective width=28.907 mm	
Element 30: Stiffened, w=10.369 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.28401	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=10.369 mm	NAS Eq. B2.1-2
b1=5.1843 mm	NAS Eq. B2.3-9
b2=5.1843 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=1.2264	NAS Eq. B2.1-4
ρ=0.66911	NAS Eq. B2.1-3
b=9.8226 mm (ineffective width=4.8574 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=24.58	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=2.0735e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Ae=781.17 mm^2, Fy=551.58 MPa

Pn=430.88 kN — NAS Eq. C4.1-1
Ωc=1.8, ϕc=0.85

Positive Flexural Strength about X-axis
Effective width calculations for part 1: MSDECK
Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: Stiffened, w=56.573 mm
f1=416.67 MPa, f2=-309.97 MPa
ψ=0.74392 — NAS Eq. B2.3-1
k=18.095 — NAS Eq. B2.3-2
λ=0.63325 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=56.573 mm — NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=15.111 mm — NAS Eq. B2.3-3
b2=28.287 mm — NAS Eq. B2.3-4
Compression width=32.44 mm
b1+b2 > compression width (fully effective)
Elements 4 to 7:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.95 mm, bp=53.727 mm
kloc=27.141 — NAS Eq. B5.1.2-1
β=4.0128 — NAS Eq. B5.1.2-3
kd=21.983 — NAS Eq. B5.1.2-2
R=1.7052 — NAS Eq. B5.1-6
k=27.141 — NAS Eq. B5.1-5
f1=421.25 MPa
Fcr=254.74 MPa — NAS Eq. B5.1-4
λ=1.286 — NAS Eq. B5.1-3
ρ=0.6446 — NAS Eq. B5.1-2
be=94.343 mm — NAS Eq. B5.1-1
Element 8: Stiffened, w=56.573 mm
f1=416.67 MPa, f2=-309.97 MPa
ψ=0.74392 — NAS Eq. B2.3-1
k=18.095 — NAS Eq. B2.3-2
λ=0.63325 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=56.573 mm — NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=15.111 mm — NAS Eq. B2.3-3
b2=28.287 mm — NAS Eq. B2.3-4
Compression width=32.44 mm
b1+b2 > compression width (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: Stiffened, w=56.573 mm
f1=416.67 MPa, f2=-309.97 MPa
ψ=0.74392 — NAS Eq. B2.3-1
k=18.095 — NAS Eq. B2.3-2
λ=0.63325 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=56.573 mm — NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=15.111 mm — NAS Eq. B2.3-3
b2=28.287 mm — NAS Eq. B2.3-4
Compression width=32.44 mm
b1+b2 > compression width (fully effective)

Elements 14 to 17:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.95 mm, bp=53.727 mm
kloc=27.141 — NAS Eq. B5.1.2-1
β=4.0129 — NAS Eq. B5.1.2-3
kd=21.983 — NAS Eq. B5.1.2-2
R=1.7052 — NAS Eq. B5.1-6
k=27.141 — NAS Eq. B5.1-5
f1=421.25 MPa
Fcr=254.74 MPa — NAS Eq. B5.1-4
λ=1.286 — NAS Eq. B5.1-3
ρ=0.6446 — NAS Eq. B5.1-2
be=94.343 mm — NAS Eq. B5.1-1

Element 18: Stiffened, w=56.573 mm
f1=416.67 MPa, f2=-309.97 MPa
ψ=0.74392 — NAS Eq. B2.3-1
k=18.095 — NAS Eq. B2.3-2
λ=0.63325 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=56.573 mm — NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=15.111 mm — NAS Eq. B2.3-3
b2=28.287 mm — NAS Eq. B2.3-4
Compression width=32.44 mm
b1+b2 > compression width (fully effective)

Element 19: No compressive stress (fully effective)
Element 20: No compressive stress (fully effective)
Element 21: No compressive stress (fully effective)
Element 22: No compressive stress (fully effective)

Element 23: Stiffened, w=56.573 mm
f1=416.67 MPa, f2=-309.97 MPa
ψ=0.74392 — NAS Eq. B2.3-1
k=18.095 — NAS Eq. B2.3-2
λ=0.63325 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=56.573 mm — NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545
b1=15.111 mm — NAS Eq. B2.3-3
b2=28.287 mm — NAS Eq. B2.3-4
Compression width=32.44 mm
b1+b2 > compression width (fully effective)

Elements 24 to 27:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.95 mm, bp=53.727 mm
kloc=27.141 — NAS Eq. B5.1.2-1
β=4.0129 — NAS Eq. B5.1.2-3
kd=21.983 — NAS Eq. B5.1.2-2
R=1.7052 — NAS Eq. B5.1-6
k=27.141 — NAS Eq. B5.1-5
f1=421.25 MPa

Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=1.286	NAS Eq. B5.1-3
ρ=0.6446	NAS Eq. B5.1-2
be=94.343 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.573 mm	
f1=416.67 MPa, f2=-309.97 MPa	
ψ=0.74392	NAS Eq. B2.3-1
k=18.095	NAS Eq. B2.3-2
λ=0.63325	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.573 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=15.111 mm	NAS Eq. B2.3-3
b2=28.287 mm	NAS Eq. B2.3-4
Compression width=32.44 mm	
b1+b2 > compression width (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	
Center of gravity shift: y=-3.8086 mm	
Sxe=14274 mm^3, Fy=551.58 MPa	
Mnx=7.8734 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Negative Flexural Strength about X-axis	
Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.219 mm	
f1=491.62 MPa, f2=272.99 MPa	
ψ=0.55529	NAS Eq. B3.2-1
k=0.6456	NAS Eq. B3.2-2
λ=0.91525	NAS Eq. B2.1-4
ρ=0.82997	NAS Eq. B2.1-3
b=11.801 mm (ineffective width=2.4176 mm)	NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction	
S=25.878	NAS Eq. B4-7
Ia=287.22 mm^4	NAS Eq. B4-8
Is=225.6 mm^4	
ds=9.2695 mm (lip ineffective width=2.5316 mm)	NAS Eq. B4-6
k=3.7239	NAS Table B4-1
Element 2: Partially stiffened, w=63.505 mm	
f=497.63 MPa, k=3.7239	
λ=1.7124	NAS Eq. B2.1-4
ρ=0.50895	NAS Eq. B2.1-3
b=32.321 mm (ineffective width=31.185 mm)	NAS Eq. B2.1-2
b1=12.694 mm, b2=19.627 mm	
Element 3: Stiffened, w=56.573 mm	
f1=492.28 MPa, f2=-355.38 MPa	
ψ=0.7219	NAS Eq. B2.3-1
k=17.654	NAS Eq. B2.3-2
λ=0.69685	NAS Eq. B2.1-4
ρ=0.98198	NAS Eq. B2.1-3
be=55.554 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	

b1=14.926 mm	NAS Eq. B2.3-3
b2=27.777 mm	NAS Eq. B2.3-4
Compression width=32.855 mm	
b1+b2 > compression width (fully effective)	
Element 4: No compressive stress (fully effective)	
Element 5: No compressive stress (fully effective)	
Element 6: No compressive stress (fully effective)	
Element 7: No compressive stress (fully effective)	
Element 8: Stiffened, w=56.573 mm	
f1=492.28 MPa, f2=-355.38 MPa	
ψ=0.7219	NAS Eq. B2.3-1
k=17.654	NAS Eq. B2.3-2
λ=0.69685	NAS Eq. B2.1-4
ρ=0.98198	NAS Eq. B2.1-3
be=55.554 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.926 mm	NAS Eq. B2.3-3
b2=27.777 mm	NAS Eq. B2.3-4
Compression width=32.855 mm	
b1+b2 > compression width (fully effective)	
Elements 9 to 12:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=497.63 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=1.3977	NAS Eq. B5.1-3
ρ=0.60286	NAS Eq. B5.1-2
be=88.234 mm	NAS Eq. B5.1-1
Element 13: Stiffened, w=56.573 mm	
f1=492.28 MPa, f2=-355.38 MPa	
ψ=0.7219	NAS Eq. B2.3-1
k=17.654	NAS Eq. B2.3-2
λ=0.69685	NAS Eq. B2.1-4
ρ=0.98198	NAS Eq. B2.1-3
be=55.554 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.926 mm	NAS Eq. B2.3-3
b2=27.777 mm	NAS Eq. B2.3-4
Compression width=32.855 mm	
b1+b2 > compression width (fully effective)	
Element 14: No compressive stress (fully effective)	
Element 15: No compressive stress (fully effective)	
Element 16: No compressive stress (fully effective)	
Element 17: No compressive stress (fully effective)	
Element 18: Stiffened, w=56.573 mm	
f1=492.28 MPa, f2=-355.38 MPa	
ψ=0.7219	NAS Eq. B2.3-1
k=17.654	NAS Eq. B2.3-2
λ=0.69685	NAS Eq. B2.1-4
ρ=0.98198	NAS Eq. B2.1-3

be=55.554 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.926 mm	NAS Eq. B2.3-3
b2=27.777 mm	NAS Eq. B2.3-4
Compression width=32.855 mm	
b1+b2 > compression width (fully effective)	

Elements 19 to 22:

NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=497.63 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=1.3977	NAS Eq. B5.1-3
ρ=0.60286	NAS Eq. B5.1-2
be=88.234 mm	NAS Eq. B5.1-1

Element 23: Stiffened, w=56.573 mm

f1=492.28 MPa, f2=-355.38 MPa	
ψ=0.7219	NAS Eq. B2.3-1
k=17.654	NAS Eq. B2.3-2
λ=0.69685	NAS Eq. B2.1-4
ρ=0.98198	NAS Eq. B2.1-3
be=55.554 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.926 mm	NAS Eq. B2.3-3
b2=27.777 mm	NAS Eq. B2.3-4
Compression width=32.855 mm	
b1+b2 > compression width (fully effective)	

Element 24: No compressive stress (fully effective)

Element 25: No compressive stress (fully effective)

Element 26: No compressive stress (fully effective)

Element 27: No compressive stress (fully effective)

Element 28: Stiffened, w=56.573 mm

f1=492.28 MPa, f2=-355.38 MPa	
ψ=0.7219	NAS Eq. B2.3-1
k=17.654	NAS Eq. B2.3-2
λ=0.69685	NAS Eq. B2.1-4
ρ=0.98198	NAS Eq. B2.1-3
be=55.554 mm	NAS Eq. B2.1-2
ho=58 mm, bo=62 mm, ho/bo=0.93548	
b1=14.926 mm	NAS Eq. B2.3-3
b2=27.777 mm	NAS Eq. B2.3-4
Compression width=32.855 mm	
b1+b2 > compression width (fully effective)	

Element 29: Stiffened, w=60.573 mm

f1=497.63 MPa, f2=497.63 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.576	NAS Eq. B2.1-4
ρ=0.54595	NAS Eq. B2.1-3
be=33.07 mm	NAS Eq. B2.1-2
b1=16.535 mm	NAS Eq. B2.3-9

b2=16.535 mm	NAS Eq. B2.3-10
Ineffective width=27.503 mm	
Element 30: Stiffened, w=10.369 mm	
f1=492.28 MPa, f2=336.93 MPa	
ψ=0.68442	NAS Eq. B2.3-1
k=4.694	NAS Eq. B2.3-8
λ=0.24768	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=10.369 mm	NAS Eq. B2.1-2
b1=4.4777 mm	NAS Eq. B2.3-9
b2=5.8908 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=548.48 MPa, f2=334.35 MPa	
ψ=0.60958	NAS Eq. B3.2-1
k=0.468	NAS Eq. B3.2-3
λ=1.1723	NAS Eq. B2.1-4
ρ=0.69295	NAS Eq. B2.1-3
b=10.173 mm (ineffective width=4.5075 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=31.571	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=334.35 MPa, f2=334.35 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.6143e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: y=4.448 mm	
Sxe=16185 mm^3, Fy=551.58 MPa	
Mnx=8.9276 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Positive Flexural Strength about Y-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: No compressive stress (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: No compressive stress (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: No compressive stress (fully effective)
Element 14: Stiffened, w=53.727 mm
f1=20.211 MPa, f2=-36.944 MPa

ψ=1.828	NAS Eq. B2.3-1
k=54.889	NAS Eq. B2.3-2
λ=0.076047	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
ho=55 mm, bo=31.63 mm, ho/bo=1.7388	
b1=11.128 mm	NAS Eq. B2.3-3
b2=26.864 mm	NAS Eq. B2.3-4
Compression width=18.998 mm	
b1+b2 > compression width (fully effective)	

Element 15: Stiffened, w=3.0279e-5 mm

f1=20.664 MPa, f2=20.664 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=1.8936e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 16: Stiffened, w=3.0279e-5 mm

f1=54.327 MPa, f2=54.327 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=3.0703e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 17: Stiffened, w=53.727 mm

f1=111.94 MPa, f2=54.78 MPa	
ψ=0.48939	NAS Eq. B2.3-1
k=5.2875	NAS Eq. B2.3-8
λ=0.57663	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
b1=21.4 mm	NAS Eq. B2.3-9
b2=32.327 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 18: Stiffened, w=56.573 mm

f1=132.03 MPa, f2=112.44 MPa	
ψ=0.8516	NAS Eq. B2.3-1
k=4.3033	NAS Eq. B2.3-8
λ=0.73096	NAS Eq. B2.1-4
ρ=0.95631	NAS Eq. B2.1-3
be=54.102 mm	NAS Eq. B2.1-2
b1=25.182 mm	NAS Eq. B2.3-9
b2=28.919 mm	NAS Eq. B2.3-10
Ineffective width=2.4716 mm	

Element 19: Stiffened, w=53.727 mm

f1=189.69 MPa, f2=132.54 MPa	
ψ=0.69869	NAS Eq. B2.3-1
k=4.6573	NAS Eq. B2.3-8
λ=0.79982	NAS Eq. B2.1-4

ρ=0.90638	NAS Eq. B2.1-3
be=48.697 mm	NAS Eq. B2.1-2
b1=21.161 mm	NAS Eq. B2.3-9
b2=27.536 mm	NAS Eq. B2.3-10
Ineffective width=5.0301 mm	
Element 20: Stiffened, w=3.0279e-5 mm	
f1=190.14 MPa, f2=190.14 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=5.744e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.0279e-5 mm	
f1=223.81 MPa, f2=223.81 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=6.2317e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.727 mm	
f1=281.42 MPa, f2=224.26 MPa	
ψ=0.7969	NAS Eq. B2.3-1
k=4.423	NAS Eq. B2.3-8
λ=0.99967	NAS Eq. B2.1-4
ρ=0.78019	NAS Eq. B2.1-3
be=41.917 mm	NAS Eq. B2.1-2
b1=19.026 mm	NAS Eq. B2.3-9
b2=22.891 mm	NAS Eq. B2.3-10
Ineffective width=11.81 mm	
Element 23: Stiffened, w=56.573 mm	
f1=301.51 MPa, f2=281.92 MPa	
ψ=0.93502	NAS Eq. B2.3-1
k=4.1305	NAS Eq. B2.3-8
λ=1.1275	NAS Eq. B2.1-4
ρ=0.71387	NAS Eq. B2.1-3
be=40.386 mm	NAS Eq. B2.1-2
b1=19.558 mm	NAS Eq. B2.3-9
b2=20.829 mm	NAS Eq. B2.3-10
Ineffective width=16.187 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.95 mm, bp=53.727 mm	
kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5
f1=376.45 MPa	
Fcr=254.74 MPa	NAS Eq. B5.1-4

λ=1.2157	NAS Eq. B5.1-3
ρ=0.67373	NAS Eq. B5.1-2
be=98.608 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.573 mm	
f1=470.99 MPa, f2=451.4 MPa	
ψ=0.9584	NAS Eq. B2.3-1
k=4.0833	NAS Eq. B2.3-8
λ=1.4173	NAS Eq. B2.1-4
ρ=0.59605	NAS Eq. B2.1-3
be=33.721 mm	NAS Eq. B2.1-2
b1=16.517 mm	NAS Eq. B2.3-9
b2=17.204 mm	NAS Eq. B2.3-10
Ineffective width=22.853 mm	
Element 29: Stiffened, w=60.573 mm	
f1=535.93 MPa, f2=471.49 MPa	
ψ=0.87976	NAS Eq. B2.3-1
k=4.2439	NAS Eq. B2.3-8
λ=1.5878	NAS Eq. B2.1-4
ρ=0.54254	NAS Eq. B2.1-3
be=32.863 mm	NAS Eq. B2.1-2
b1=15.5 mm	NAS Eq. B2.3-9
b2=17.363 mm	NAS Eq. B2.3-10
Ineffective width=27.71 mm	
Element 30: Stiffened, w=10.369 mm	
f1=540.03 MPa, f2=536.44 MPa	
ψ=0.99335	NAS Eq. B2.3-1
k=4.0133	NAS Eq. B2.3-8
λ=0.28056	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=10.369 mm	NAS Eq. B2.1-2
b1=5.1671 mm	NAS Eq. B2.3-9
b2=5.2015 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=551.09 MPa, f2=544.99 MPa	
ψ=0.98893	NAS Eq. B3.2-1
k=0.43078	NAS Eq. B3.2-3
λ=1.2248	NAS Eq. B2.1-4
ρ=0.66982	NAS Eq. B2.1-3
b=9.833 mm (ineffective width=4.847 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=24.728	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=7.5698e-6 mm	
f1=544.99 MPa, f2=544.99 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=2.0611e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=7.5698e-6 mm	NAS Eq. B2.1-2
b1=3.7849e-6 mm	NAS Eq. B2.3-9
b2=3.7849e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Center of gravity shift: x=-40.67 mm

Sye=155410 mm^3, Fy=551.58 MPa
Mny=85.721 kN-m — NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

Negative Flexural Strength about Y-axis
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=14.219 mm
f1=551.07 MPa, f2=547.45 MPa
ψ=0.99343 — NAS Eq. B3.2-1
k=0.43046 — NAS Eq. B3.2-3
λ=1.1867 — NAS Eq. B2.1-4
ρ=0.68645 — NAS Eq. B2.1-3
b=9.7605 mm (ineffective width=4.4583 mm) — NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction
S=24.684 — NAS Eq. B4-7
Ia=300.87 mm^4 — NAS Eq. B4-8
Is=225.6 mm^4
ds=7.3187 mm (lip ineffective width=2.4417 mm) — NAS Eq. B4-6
k=3.6733 — NAS Table B4-1
Element 2: Partially stiffened, w=63.505 mm
f=546.94 MPa, k=3.6733
λ=1.8076 — NAS Eq. B2.1-4
ρ=0.48589 — NAS Eq. B2.1-3
b=30.857 mm (ineffective width=32.649 mm) — NAS Eq. B2.1-2
b1=11.569 mm, b2=19.288 mm
Element 3: Stiffened, w=56.573 mm
f1=479.63 MPa, f2=460.26 MPa
ψ=0.9596 — NAS Eq. B2.3-1
k=4.0809 — NAS Eq. B2.3-8
λ=1.4306 — NAS Eq. B2.1-4
ρ=0.5915 — NAS Eq. B2.1-3
be=33.463 mm — NAS Eq. B2.1-2
b1=16.4 mm — NAS Eq. B2.3-9
b2=17.063 mm — NAS Eq. B2.3-10
Ineffective width=23.11 mm
Element 4: Stiffened, w=53.727 mm
f1=459.76 MPa, f2=403.24 MPa
ψ=0.87706 — NAS Eq. B2.3-1
k=4.2496 — NAS Eq. B2.3-8
λ=1.3036 — NAS Eq. B2.1-4
ρ=0.63766 — NAS Eq. B2.1-3
be=34.26 mm — NAS Eq. B2.1-2
b1=16.138 mm — NAS Eq. B2.3-9
b2=18.122 mm — NAS Eq. B2.3-10
Ineffective width=19.467 mm
Element 5: Stiffened, w=3.0279e-5 mm
f1=402.79 MPa, f2=402.79 MPa
ψ=1 — NAS Eq. B2.3-1
k=2.875 — NAS Eq. B2.3-8
λ=8.36e-7 — NAS Eq. B2.1-4
ρ=1 — NAS Eq. B2.1-3
be=3.0279e-5 mm — NAS Eq. B2.1-2
b1=1.514e-5 mm — NAS Eq. B2.3-9
b2=1.514e-5 mm — NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)

Element 6: Stiffened, w=3.0279e-5 mm
f1=369.5 MPa, f2=369.5 MPa

ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=8.0071e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 7: Stiffened, w=53.727 mm
f1=369.05 MPa, f2=312.53 MPa

ψ=0.84684	NAS Eq. B2.3-1
k=4.3135	NAS Eq. B2.3-8
λ=1.1592	NAS Eq. B2.1-4
ρ=0.69893	NAS Eq. B2.1-3
be=37.552 mm	NAS Eq. B2.1-2
b1=17.44 mm	NAS Eq. B2.3-9
b2=20.111 mm	NAS Eq. B2.3-10

Ineffective width=16.175 mm

Element 8: Stiffened, w=56.573 mm
f1=312.03 MPa, f2=292.65 MPa

ψ=0.9379	NAS Eq. B2.3-1
k=4.1247	NAS Eq. B2.3-8
λ=1.1478	NAS Eq. B2.1-4
ρ=0.70425	NAS Eq. B2.1-3
be=39.842 mm	NAS Eq. B2.1-2
b1=19.321 mm	NAS Eq. B2.3-9
b2=20.521 mm	NAS Eq. B2.3-10

Ineffective width=16.732 mm

Elements 9 to 12:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.95 mm, bp=53.727 mm

kloc=27.141	NAS Eq. B5.1.2-1
β=4.0129	NAS Eq. B5.1.2-3
kd=21.983	NAS Eq. B5.1.2-2
R=1.7052	NAS Eq. B5.1-6
k=27.141	NAS Eq. B5.1-5

f1=218.54 MPa

Fcr=254.74 MPa	NAS Eq. B5.1-4
λ=0.92623	NAS Eq. B5.1-3
ρ=0.8232	NAS Eq. B5.1-2
be=120.48 mm	NAS Eq. B5.1-1

Element 13: Stiffened, w=56.573 mm
f1=144.43 MPa, f2=125.05 MPa

ψ=0.86584	NAS Eq. B2.3-1
k=4.2732	NAS Eq. B2.3-8
λ=0.7672	NAS Eq. B2.1-4
ρ=0.92967	NAS Eq. B2.1-3
be=52.595 mm	NAS Eq. B2.1-2
b1=24.644 mm	NAS Eq. B2.3-9
b2=27.951 mm	NAS Eq. B2.3-10

Ineffective width=3.9787 mm

Element 14: Stiffened, w=53.727 mm
f1=124.55 MPa, f2=68.03 MPa

ψ=0.5462	NAS Eq. B2.3-1
k=5.0945	NAS Eq. B2.3-8
λ=0.61967	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
b1=21.895 mm	NAS Eq. B2.3-9
b2=31.832 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 15: Stiffened, w=3.0279e-5 mm	
f1=67.582 MPa, f2=67.582 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=3.4244e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.0279e-5 mm	
f1=34.292 MPa, f2=34.292 MPa	
ψ=1	NAS Eq. B2.3-1
k=2.875	NAS Eq. B2.3-8
λ=2.4393e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.0279e-5 mm	NAS Eq. B2.1-2
b1=1.514e-5 mm	NAS Eq. B2.3-9
b2=1.514e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.727 mm	
f1=33.843 MPa, f2=-22.679 MPa	
ψ=0.67013	NAS Eq. B2.3-1
k=16.657	NAS Eq. B2.3-2
λ=0.17864	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.727 mm	NAS Eq. B2.1-2
ho=55 mm, bo=31.63 mm, ho/bo=1.7388	
b1=14.639 mm	NAS Eq. B2.3-3
b2=26.864 mm	NAS Eq. B2.3-4
Compression width=32.169 mm	
b1+b2 > compression width (fully effective)	
Element 18: No compressive stress (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: No compressive stress (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: No compressive stress (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	

Center of gravity shift: x=43.205 mm
Sye=150180 mm^3, Fy=551.58 MPa
Mny=82.834 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

CFS Version 8.0.2
Section: METSCODECK-1.2.sct
METSCODECK-1.2

Rev. Date: 14-07-2015 20:03:55

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Full Section Properties

Area	1497.2 mm^2	Wt.	0.11515 kN/m	Width	1247.7 mm
Ix	843426 mm^4	rx	23.73 mm	Ixy	-177722 mm^4
Sx(t)	22847 mm^3	y(t)	36.92 mm	α	89.913 deg
Sx(b)	27294 mm^3	y(b)	30.90 mm		
		Height	67.82 mm		
Iy	117694144 mm^4	ry	280.37 mm	Xo	-1.52 mm
Sy(l)	244770 mm^3	x(l)	480.83 mm	Yo	6.64 mm
Sy(r)	246343 mm^3	x(r)	477.77 mm	jx	1.31 mm
		Width	958.60 mm	jy	-209.62 mm
I1	117694408 mm^4	r1	280.37 mm		
I2	843158 mm^4	r2	23.73 mm		
Ic	118537568 mm^4	rc	281.37 mm	Cw	7.4408e10 mm^6
Io	118607128 mm^4	ro	281.46 mm	J	718.7 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A653 HSLAS Grade 80, Fy=551.58 MPa

Compression		Positive Moment		Positive Moment	
Pao	321.71 kN	Maxo	6.191 kN-m	Mayo	67.231 kN-m
Ae	1049.9 mm^2	Ixe	740315 mm^4	Iye	102804392 mm^4
		Sxe(t)	18743 mm^3	Sye(l)	226668 mm^3
Tension		Sxe(b)	26141 mm^3	Sye(r)	203552 mm^3
Ta	464.54 kN				
		Negative Moment		Negative Moment	
		Maxo	6.891 kN-m	Mayo	63.877 kN-m
Shear		Ixe	714599 mm^4	Iye	99114336 mm^4
Vay	83.51 kN	Sxe(t)	21290 mm^3	Sye(l)	193399 mm^3
Vax	25.34 kN	Sxe(b)	20863 mm^3	Sye(r)	222173 mm^3

R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
Ag=1497.2 mm^2, Fy=551.58 MPa
Tn=825.84 kN — NAS Eq. C2.1-1
Ωt=1.67, ϕt=0.9

Shear Strength
MSDECK element 1
Aw=16.875 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=5.5847 kN at -76 deg
Ωv=1.6, ϕv=0.95

MSDECK element 3
Aw=67.546 mm^2, Fv=313.08 MPa — NAS Eq. C3.2.1-3
Vn=21.148 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 8
Aw=67.546 mm^2, Fv=313.08 MPa — NAS Eq. C3.2.1-3
Vn=21.148 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 13
Aw=67.546 mm^2, Fv=313.08 MPa — NAS Eq. C3.2.1-3
Vn=21.148 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 18
Aw=67.546 mm^2, Fv=313.08 MPa — NAS Eq. C3.2.1-3
Vn=21.148 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 23
Aw=67.546 mm^2, Fv=313.08 MPa — NAS Eq. C3.2.1-3
Vn=21.148 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 28
Aw=67.546 mm^2, Fv=313.08 MPa — NAS Eq. C3.2.1-3
Vn=21.148 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 30
Aw=11.646 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=3.8542 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 32
Aw=17.616 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=5.83 kN at -67 deg
Ωv=1.6, ϕv=0.95

Axial Compression Strength
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=14.062 mm
f1=551.58 MPa, f2=551.58 MPa
ψ=1 — NAS Eq. B3.2-1
k=0.43 — NAS Eq. B3.2-3
λ=0.97903 — NAS Eq. B2.1-4
ρ=0.79189 — NAS Eq. B2.1-3
b=11.136 mm (ineffective width=2.9265 mm) — NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction
S=24.58 — NAS Eq. B4-7
Ia=521.38 mm^4 — NAS Eq. B4-8
Is=261.93 mm^4
ds=5.5946 mm (lip ineffective width=5.5414 mm) — NAS Eq. B4-6
k=3.268 — NAS Table B4-1
Element 2: Partially stiffened, w=63.207 mm
f=551.58 MPa, k=3.268
λ=1.5962 — NAS Eq. B2.1-4
ρ=0.54014 — NAS Eq. B2.1-3
b=34.14 mm (ineffective width=29.066 mm) — NAS Eq. B2.1-2
b1=8.5758 mm, b2=25.565 mm
Element 3: Stiffened, w=56.288 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2849	NAS Eq. B2.1-4
ρ=0.64503	NAS Eq. B2.1-3
be=36.308 mm	NAS Eq. B2.1-2
b1=18.154 mm	NAS Eq. B2.3-9
b2=18.154 mm	NAS Eq. B2.3-10

Ineffective width=19.98 mm

Element 4: Stiffened, w=53.472 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2206	NAS Eq. B2.1-4
ρ=0.67161	NAS Eq. B2.1-3
be=35.913 mm	NAS Eq. B2.1-2
b1=17.956 mm	NAS Eq. B2.3-9
b2=17.956 mm	NAS Eq. B2.3-10

Ineffective width=17.56 mm

Element 5: Stiffened, w=3.2692e-5 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=8.4551e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 6: Stiffened, w=3.2692e-5 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=8.4551e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 7: Stiffened, w=53.472 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2206	NAS Eq. B2.1-4
ρ=0.67161	NAS Eq. B2.1-3
be=35.913 mm	NAS Eq. B2.1-2
b1=17.956 mm	NAS Eq. B2.3-9
b2=17.956 mm	NAS Eq. B2.3-10

Ineffective width=17.56 mm

Element 8: Stiffened, w=56.288 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2849	NAS Eq. B2.1-4
ρ=0.64503	NAS Eq. B2.1-3

be=36.308 mm	NAS Eq. B2.1-2
b1=18.154 mm	NAS Eq. B2.3-9
b2=18.154 mm	NAS Eq. B2.3-10
Ineffective width=19.98 mm	
Element 9: Stiffened, w=53.472 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2206	NAS Eq. B2.1-4
ρ=0.67161	NAS Eq. B2.1-3
be=35.913 mm	NAS Eq. B2.1-2
b1=17.956 mm	NAS Eq. B2.3-9
b2=17.956 mm	NAS Eq. B2.3-10
Ineffective width=17.56 mm	
Element 10: Stiffened, w=3.2692e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=8.4552e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 11: Stiffened, w=3.2692e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=8.4552e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 12: Stiffened, w=53.472 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2206	NAS Eq. B2.1-4
ρ=0.67161	NAS Eq. B2.1-3
be=35.913 mm	NAS Eq. B2.1-2
b1=17.956 mm	NAS Eq. B2.3-9
b2=17.956 mm	NAS Eq. B2.3-10
Ineffective width=17.56 mm	
Element 13: Stiffened, w=56.288 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2849	NAS Eq. B2.1-4
ρ=0.64503	NAS Eq. B2.1-3
be=36.308 mm	NAS Eq. B2.1-2
b1=18.154 mm	NAS Eq. B2.3-9
b2=18.154 mm	NAS Eq. B2.3-10
Ineffective width=19.98 mm	
Element 14: Stiffened, w=53.472 mm	

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2206	NAS Eq. B2.1-4
ρ=0.67161	NAS Eq. B2.1-3
be=35.913 mm	NAS Eq. B2.1-2
b1=17.956 mm	NAS Eq. B2.3-9
b2=17.956 mm	NAS Eq. B2.3-10

Ineffective width=17.56 mm

Element 15: Stiffened, w=3.2692e-5 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=8.4552e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 16: Stiffened, w=3.2692e-5 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=8.4552e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 17: Stiffened, w=53.472 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2206	NAS Eq. B2.1-4
ρ=0.67161	NAS Eq. B2.1-3
be=35.913 mm	NAS Eq. B2.1-2
b1=17.956 mm	NAS Eq. B2.3-9
b2=17.956 mm	NAS Eq. B2.3-10

Ineffective width=17.56 mm

Element 18: Stiffened, w=56.288 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2849	NAS Eq. B2.1-4
ρ=0.64503	NAS Eq. B2.1-3
be=36.308 mm	NAS Eq. B2.1-2
b1=18.154 mm	NAS Eq. B2.3-9
b2=18.154 mm	NAS Eq. B2.3-10

Ineffective width=19.98 mm

Element 19: Stiffened, w=53.472 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2206	NAS Eq. B2.1-4
ρ=0.67161	NAS Eq. B2.1-3

be=35.913 mm	NAS Eq. B2.1-2
b1=17.956 mm	NAS Eq. B2.3-9
b2=17.956 mm	NAS Eq. B2.3-10
Ineffective width=17.56 mm	
Element 20: Stiffened, w=3.2692e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=8.4552e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.2692e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=8.4552e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.472 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2206	NAS Eq. B2.1-4
ρ=0.67161	NAS Eq. B2.1-3
be=35.913 mm	NAS Eq. B2.1-2
b1=17.956 mm	NAS Eq. B2.3-9
b2=17.956 mm	NAS Eq. B2.3-10
Ineffective width=17.56 mm	
Element 23: Stiffened, w=56.288 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2849	NAS Eq. B2.1-4
ρ=0.64503	NAS Eq. B2.1-3
be=36.308 mm	NAS Eq. B2.1-2
b1=18.154 mm	NAS Eq. B2.3-9
b2=18.154 mm	NAS Eq. B2.3-10
Ineffective width=19.98 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=551.58 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=1.2204	NAS Eq. B5.1-3

ρ=0.67168	NAS Eq. B5.1-2
be=98.239 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.288 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2849	NAS Eq. B2.1-4
ρ=0.64503	NAS Eq. B2.1-3
be=36.308 mm	NAS Eq. B2.1-2
b1=18.154 mm	NAS Eq. B2.3-9
b2=18.154 mm	NAS Eq. B2.3-10
Ineffective width=19.98 mm	
Element 29: Stiffened, w=60.288 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.3762	NAS Eq. B2.1-4
ρ=0.61049	NAS Eq. B2.1-3
be=36.805 mm	NAS Eq. B2.1-2
b1=18.403 mm	NAS Eq. B2.3-9
b2=18.403 mm	NAS Eq. B2.3-10
Ineffective width=23.483 mm	
Element 30: Stiffened, w=9.7049 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.22153	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.7049 mm	NAS Eq. B2.1-2
b1=4.8524 mm	NAS Eq. B2.3-9
b2=4.8524 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=1.022	NAS Eq. B2.1-4
ρ=0.76783	NAS Eq. B2.1-3
b=11.272 mm (ineffective width=3.4082 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=24.58	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=8.3268e-6 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.9007e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.3268e-6 mm	NAS Eq. B2.1-2
b1=4.1634e-6 mm	NAS Eq. B2.3-9
b2=4.1634e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Ae=1049.9 mm^2, Fy=551.58 MPa

Pn=579.08 kN	NAS Eq. C4.1-1

$\Omega c=1.8$, $\phi c=0.85$

Positive Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)

Element 2: No compressive stress (fully effective)

Element 3: Stiffened, w=56.288 mm

f1=409.22 MPa, f2=-334.05 MPa

ψ=0.81631	NAS Eq. B2.3-1
k=19.617	NAS Eq. B2.3-2
λ=0.49974	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.749 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4

Compression width=30.99 mm

b1+b2 > compression width (fully effective)

Elements 4 to 7:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=139.78 mm, bp=53.472 mm

kloc=27.334	NAS Eq. B5.1.2-1
β=3.6932	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5

f1=414.87 MPa

Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=1.0584	NAS Eq. B5.1-3
ρ=0.74841	NAS Eq. B5.1-2
be=109.46 mm	NAS Eq. B5.1-1

Element 8: Stiffened, w=56.288 mm

f1=409.22 MPa, f2=-334.05 MPa

ψ=0.81631	NAS Eq. B2.3-1
k=19.617	NAS Eq. B2.3-2
λ=0.49974	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.749 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4

Compression width=30.99 mm

b1+b2 > compression width (fully effective)

Element 9: No compressive stress (fully effective)

Element 10: No compressive stress (fully effective)

Element 11: No compressive stress (fully effective)

Element 12: No compressive stress (fully effective)

Element 13: Stiffened, w=56.288 mm

f1=409.22 MPa, f2=-334.05 MPa

ψ=0.81631	NAS Eq. B2.3-1
k=19.617	NAS Eq. B2.3-2
λ=0.49974	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.749 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=30.99 mm	
b1+b2 > compression width (fully effective)	
Elements 14 to 17:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=414.87 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=1.0584	NAS Eq. B5.1-3
ρ=0.74841	NAS Eq. B5.1-2
be=109.46 mm	NAS Eq. B5.1-1
Element 18: Stiffened, w=56.288 mm	
f1=409.22 MPa, f2=-334.05 MPa	
ψ=0.81631	NAS Eq. B2.3-1
k=19.617	NAS Eq. B2.3-2
λ=0.49974	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.749 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=30.99 mm	
b1+b2 > compression width (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: Stiffened, w=56.288 mm	
f1=409.22 MPa, f2=-334.05 MPa	
ψ=0.81631	NAS Eq. B2.3-1
k=19.617	NAS Eq. B2.3-2
λ=0.49974	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.749 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=30.99 mm	
b1+b2 > compression width (fully effective)	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=414.87 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4

λ=1.0584	NAS Eq. B5.1-3
ρ=0.74841	NAS Eq. B5.1-2
be=109.46 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.288 mm	
f1=409.22 MPa, f2=-334.05 MPa	
ψ=0.81631	NAS Eq. B2.3-1
k=19.617	NAS Eq. B2.3-2
λ=0.49974	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.749 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=30.99 mm	
b1+b2 > compression width (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	
Center of gravity shift: y=-2.5815 mm	
Sxe=18743 mm^3, Fy=551.58 MPa	
Mnx=10.338 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Negative Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=14.062 mm	
f1=479.88 MPa, f2=260.15 MPa	
ψ=0.54211	NAS Eq. B3.2-1
k=0.65525	NAS Eq. B3.2-2
λ=0.73976	NAS Eq. B2.1-4
ρ=0.94978	NAS Eq. B2.1-3
b=13.356 mm (ineffective width=0.70626 mm)	NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction	
S=26.153	NAS Eq. B4-7
Ia=490.63 mm^4	NAS Eq. B4-8
Is=261.93 mm^4	
ds=7.1304 mm (lip ineffective width=6.2258 mm)	NAS Eq. B4-6
k=3.3261	NAS Table B4-1
Element 2: Partially stiffened, w=63.207 mm	
f=487.21 MPa, k=3.3261	
λ=1.487	NAS Eq. B2.1-4
ρ=0.57299	NAS Eq. B2.1-3
b=36.217 mm (ineffective width=26.99 mm)	NAS Eq. B2.1-2
b1=9.6675 mm, b2=26.549 mm	
Element 3: Stiffened, w=56.288 mm	
f1=480.69 MPa, f2=-376.39 MPa	
ψ=0.78301	NAS Eq. B2.3-1
k=18.903	NAS Eq. B2.3-2
λ=0.55176	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	
b1=14.879 mm	NAS Eq. B2.3-3

b2=28.144 mm	NAS Eq. B2.3-4
Compression width=31.569 mm	
b1+b2 > compression width (fully effective)	
Element 4: No compressive stress (fully effective)	
Element 5: No compressive stress (fully effective)	
Element 6: No compressive stress (fully effective)	
Element 7: No compressive stress (fully effective)	
Element 8: Stiffened, w=56.288 mm	
f1=480.69 MPa, f2=-376.39 MPa	
ψ=0.78301	NAS Eq. B2.3-1
k=18.903	NAS Eq. B2.3-2
λ=0.55176	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.879 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=31.569 mm	
b1+b2 > compression width (fully effective)	
Elements 9 to 12:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=487.21 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=1.147	NAS Eq. B5.1-3
ρ=0.70461	NAS Eq. B5.1-2
be=103.06 mm	NAS Eq. B5.1-1
Element 13: Stiffened, w=56.288 mm	
f1=480.69 MPa, f2=-376.39 MPa	
ψ=0.78301	NAS Eq. B2.3-1
k=18.903	NAS Eq. B2.3-2
λ=0.55176	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.879 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=31.569 mm	
b1+b2 > compression width (fully effective)	
Element 14: No compressive stress (fully effective)	
Element 15: No compressive stress (fully effective)	
Element 16: No compressive stress (fully effective)	
Element 17: No compressive stress (fully effective)	
Element 18: Stiffened, w=56.288 mm	
f1=480.69 MPa, f2=-376.39 MPa	
ψ=0.78301	NAS Eq. B2.3-1
k=18.903	NAS Eq. B2.3-2
λ=0.55176	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.879 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=31.569 mm	
b1+b2 > compression width (fully effective)	
Elements 19 to 22:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=487.21 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=1.147	NAS Eq. B5.1-3
ρ=0.70461	NAS Eq. B5.1-2
be=103.06 mm	NAS Eq. B5.1-1
Element 23: Stiffened, w=56.288 mm	
f1=480.69 MPa, f2=-376.39 MPa	
ψ=0.78301	NAS Eq. B2.3-1
k=18.903	NAS Eq. B2.3-2
λ=0.55176	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.879 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=31.569 mm	
b1+b2 > compression width (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: Stiffened, w=56.288 mm	
f1=480.69 MPa, f2=-376.39 MPa	
ψ=0.78301	NAS Eq. B2.3-1
k=18.903	NAS Eq. B2.3-2
λ=0.55176	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
ho=58 mm, bo=62 mm, ho/bo=0.93548	
b1=14.879 mm	NAS Eq. B2.3-3
b2=28.144 mm	NAS Eq. B2.3-4
Compression width=31.569 mm	
b1+b2 > compression width (fully effective)	
Element 29: Stiffened, w=60.288 mm	
f1=487.21 MPa, f2=487.21 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2934	NAS Eq. B2.1-4
ρ=0.64166	NAS Eq. B2.1-3
be=38.684 mm	NAS Eq. B2.1-2
b1=19.342 mm	NAS Eq. B2.3-9
b2=19.342 mm	NAS Eq. B2.3-10

Ineffective width=21.604 mm
Element 30: Stiffened, w=9.7049 mm
f1=480.69 MPa, f2=332.92 MPa
ψ=0.69258 NAS Eq. B2.3-1
k=4.6729 NAS Eq. B2.3-8
λ=0.19133 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=9.7049 mm NAS Eq. B2.1-2
b1=4.2059 mm NAS Eq. B2.3-9
b2=5.4989 mm NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)
Element 32: Unstiffened, w=14.68 mm
f1=547.81 MPa, f2=330.19 MPa
ψ=0.60275 NAS Eq. B3.2-1
k=0.46885 NAS Eq. B3.2-3
λ=0.9754 NAS Eq. B2.1-4
ρ=0.79398 NAS Eq. B2.1-3
b=11.656 mm (ineffective width=3.0244 mm) NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction
S=31.769 NAS Eq. B4-7
w/t < 0.328S (no lip reduction)
Element 31: Stiffened, w=8.3268e-6 mm
f1=330.19 MPa, f2=330.19 MPa
ψ=1 NAS Eq. B2.3-1
k=4 NAS Eq. B2.3-8
λ=1.4706e-7 NAS Eq. B2.1-4
ρ=1 NAS Eq. B2.1-3
be=8.3268e-6 mm NAS Eq. B2.1-2
b1=4.1634e-6 mm NAS Eq. B2.3-9
b2=4.1634e-6 mm NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)

Center of gravity shift: y=3.3507 mm
Sxe=20863 mm^3, Fy=551.58 MPa
Mnx=11.508 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

Positive Flexural Strength about Y-axis
Effective width calculations for part 1: MSDECK
Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: No compressive stress (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: No compressive stress (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: No compressive stress (fully effective)
Element 14: Stiffened, w=53.472 mm
f1=6.1311 MPa, f2=-52.271 MPa
ψ=8.5255 NAS Eq. B2.3-1

k=1751.6	NAS Eq. B2.3-2
λ=0.0061495	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
ho=55 mm, bo=32.068 mm, ho/bo=1.7151	
b1=4.6395 mm	NAS Eq. B2.3-3
b2=26.736 mm	NAS Eq. B2.3-4
Compression width=5.6136 mm	
b1+b2 > compression width (fully effective)	
Element 15: Stiffened, w=3.2692e-5 mm	
f1=6.6897 MPa, f2=6.6897 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=9.3116e-8	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.2692e-5 mm	
f1=41.437 MPa, f2=41.437 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=2.3175e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.472 mm	
f1=100.4 MPa, f2=41.996 MPa	
ψ=0.41829	NAS Eq. B2.3-1
k=5.5571	NAS Eq. B2.3-8
λ=0.44181	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
b1=20.712 mm	NAS Eq. B2.3-9
b2=32.76 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 18: Stiffened, w=56.288 mm	
f1=121.03 MPa, f2=101.02 MPa	
ψ=0.83463	NAS Eq. B2.3-1
k=4.3398	NAS Eq. B2.3-8
λ=0.57783	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
b1=25.995 mm	NAS Eq. B2.3-9
b2=30.293 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 19: Stiffened, w=53.472 mm	
f1=180.05 MPa, f2=121.65 MPa	
ψ=0.67564	NAS Eq. B2.3-1
k=4.717	NAS Eq. B2.3-8
λ=0.64219	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3

be=53.472 mm	NAS Eq. B2.1-2
b1=23.005 mm	NAS Eq. B2.3-9
b2=30.467 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 20: Stiffened, w=3.2692e-5 mm	
f1=180.61 MPa, f2=180.61 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=4.8383e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.2692e-5 mm	
f1=215.36 MPa, f2=215.36 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=5.2833e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.472 mm	
f1=274.32 MPa, f2=215.92 MPa	
ψ=0.7871	NAS Eq. B2.3-1
k=4.4451	NAS Eq. B2.3-8
λ=0.81655	NAS Eq. B2.1-4
ρ=0.89471	NAS Eq. B2.1-3
be=47.842 mm	NAS Eq. B2.1-2
b1=21.62 mm	NAS Eq. B2.3-9
b2=26.222 mm	NAS Eq. B2.3-10
Ineffective width=5.6302 mm	
Element 23: Stiffened, w=56.288 mm	
f1=294.96 MPa, f2=274.94 MPa	
ψ=0.93214	NAS Eq. B2.3-1
k=4.1363	NAS Eq. B2.3-8
λ=0.92395	NAS Eq. B2.1-4
ρ=0.8246	NAS Eq. B2.1-3
be=46.415 mm	NAS Eq. B2.1-2
b1=22.446 mm	NAS Eq. B2.3-9
b2=23.969 mm	NAS Eq. B2.3-10
Ineffective width=9.8729 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=371.91 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=1.0021	NAS Eq. B5.1-3

ρ=0.7788	NAS Eq. B5.1-2
be=113.91 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=56.288 mm	
f1=468.88 MPa, f2=448.86 MPa	
ψ=0.95731	NAS Eq. B2.3-1
k=4.0855	NAS Eq. B2.3-8
λ=1.1722	NAS Eq. B2.1-4
ρ=0.69301	NAS Eq. B2.1-3
be=39.008 mm	NAS Eq. B2.1-2
b1=19.096 mm	NAS Eq. B2.3-9
b2=19.912 mm	NAS Eq. B2.3-10
Ineffective width=17.28 mm	
Element 29: Stiffened, w=60.288 mm	
f1=535.34 MPa, f2=469.5 MPa	
ψ=0.877	NAS Eq. B2.3-1
k=4.2497	NAS Eq. B2.3-8
λ=1.3153	NAS Eq. B2.1-4
ρ=0.63311	NAS Eq. B2.1-3
be=38.169 mm	NAS Eq. B2.1-2
b1=17.979 mm	NAS Eq. B2.3-9
b2=20.19 mm	NAS Eq. B2.3-10
Ineffective width=22.119 mm	
Element 30: Stiffened, w=9.7049 mm	
f1=539.41 MPa, f2=535.96 MPa	
ψ=0.9936	NAS Eq. B2.3-1
k=4.0128	NAS Eq. B2.3-8
λ=0.21872	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.7049 mm	NAS Eq. B2.1-2
b1=4.837 mm	NAS Eq. B2.3-9
b2=4.8679 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=550.98 MPa, f2=544.71 MPa	
ψ=0.98863	NAS Eq. B3.2-1
k=0.4308	NAS Eq. B3.2-3
λ=1.0205	NAS Eq. B2.1-4
ρ=0.76866	NAS Eq. B2.1-3
b=11.284 mm (ineffective width=3.3961 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=24.734	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=8.3268e-6 mm	
f1=544.71 MPa, f2=544.71 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.8888e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.3268e-6 mm	NAS Eq. B2.1-2
b1=4.1634e-6 mm	NAS Eq. B2.3-9
b2=4.1634e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Center of gravity shift: x=-27.288 mm
Sye=203550 mm^3, Fy=551.58 MPa

Mny=112.28 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Negative Flexural Strength about Y-axis

Effective width calculations for part 1: MSDECK

Element 1: Unstiffened, w=14.062 mm

f1=550.95 MPa, f2=547.29 MPa	
ψ=0.99335	NAS Eq. B3.2-1
k=0.43047	NAS Eq. B3.2-3
λ=0.97794	NAS Eq. B2.1-4
ρ=0.79252	NAS Eq. B2.1-3
b=11.145 mm (ineffective width=2.9177 mm)	NAS Eq. B2.1-2

Element 2: Check for lip stiffener reduction

S=24.69	NAS Eq. B4-7
Ia=519.09 mm^4	NAS Eq. B4-8
Is=261.93 mm^4	
ds=5.6236 mm (lip ineffective width=5.5212 mm)	NAS Eq. B4-6
k=3.2722	NAS Table B4-1

Element 2: Partially stiffened, w=63.207 mm

f=546.67 MPa, k=3.2722	
λ=1.5881	NAS Eq. B2.1-4
ρ=0.54246	NAS Eq. B2.1-3
b=34.287 mm (ineffective width=28.919 mm)	NAS Eq. B2.1-2
b1=8.6506 mm, b2=25.637 mm	

Element 3: Stiffened, w=56.288 mm

f1=478.02 MPa, f2=458.29 MPa	
ψ=0.95874	NAS Eq. B2.3-1
k=4.0827	NAS Eq. B2.3-8
λ=1.1839	NAS Eq. B2.1-4
ρ=0.68768	NAS Eq. B2.1-3
be=38.708 mm	NAS Eq. B2.1-2
b1=18.963 mm	NAS Eq. B2.3-9
b2=19.745 mm	NAS Eq. B2.3-10
Ineffective width=17.58 mm	

Element 4: Stiffened, w=53.472 mm

f1=457.68 MPa, f2=400.13 MPa	
ψ=0.87424	NAS Eq. B2.3-1
k=4.2555	NAS Eq. B2.3-8
λ=1.078	NAS Eq. B2.1-4
ρ=0.73835	NAS Eq. B2.1-3
be=39.481 mm	NAS Eq. B2.1-2
b1=18.573 mm	NAS Eq. B2.3-9
b2=20.909 mm	NAS Eq. B2.3-10
Ineffective width=13.991 mm	

Element 5: Stiffened, w=3.2692e-5 mm

f1=399.58 MPa, f2=399.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=7.1964e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Element 6: Stiffened, w=3.2692e-5 mm

f1=365.33 MPa, f2=365.33 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1159	NAS Eq. B2.3-8
λ=6.8811e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.472 mm	
f1=364.78 MPa, f2=307.23 MPa	
ψ=0.84222	NAS Eq. B2.3-1
k=4.3234	NAS Eq. B2.3-8
λ=0.95477	NAS Eq. B2.1-4
ρ=0.80604	NAS Eq. B2.1-3
be=43.101 mm	NAS Eq. B2.1-2
b1=19.975 mm	NAS Eq. B2.3-9
b2=23.126 mm	NAS Eq. B2.3-10
Ineffective width=10.372 mm	
Element 8: Stiffened, w=56.288 mm	
f1=306.61 MPa, f2=286.89 MPa	
ψ=0.93567	NAS Eq. B2.3-1
k=4.1292	NAS Eq. B2.3-8
λ=0.94285	NAS Eq. B2.1-4
ρ=0.81313	NAS Eq. B2.1-3
be=45.77 mm	NAS Eq. B2.1-2
b1=22.172 mm	NAS Eq. B2.3-9
b2=23.598 mm	NAS Eq. B2.3-10
Ineffective width=10.518 mm	
Elements 9 to 12:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.78 mm, bp=53.472 mm	
kloc=27.334	NAS Eq. B5.1.2-1
β=3.6933	NAS Eq. B5.1.2-3
kd=18.739	NAS Eq. B5.1.2-2
R=1.7033	NAS Eq. B5.1-6
k=27.334	NAS Eq. B5.1-5
f1=211.05 MPa	
Fcr=370.32 MPa	NAS Eq. B5.1-4
λ=0.75492	NAS Eq. B5.1-3
ρ=0.93861	NAS Eq. B5.1-2
be=137.28 mm	NAS Eq. B5.1-1
Element 13: Stiffened, w=56.288 mm	
f1=135.21 MPa, f2=115.48 MPa	
ψ=0.85411	NAS Eq. B2.3-1
k=4.298	NAS Eq. B2.3-8
λ=0.61369	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=56.288 mm	NAS Eq. B2.1-2
b1=26.231 mm	NAS Eq. B2.3-9
b2=30.057 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 14: Stiffened, w=53.472 mm	
f1=114.87 MPa, f2=57.315 MPa	
ψ=0.49895	NAS Eq. B2.3-1

k=5.2537	NAS Eq. B2.3-8
λ=0.48604	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
b1=21.38 mm	NAS Eq. B2.3-9
b2=32.092 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 15: Stiffened, w=3.2692e-5 mm	
f1=56.765 MPa, f2=56.765 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=2.7124e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.2692e-5 mm	
f1=22.52 MPa, f2=22.52 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.1158	NAS Eq. B2.3-8
λ=1.7085e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.2692e-5 mm	NAS Eq. B2.1-2
b1=1.6346e-5 mm	NAS Eq. B2.3-9
b2=1.6346e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.472 mm	
f1=21.97 MPa, f2=-35.587 MPa	
ψ=1.6199	NAS Eq. B2.3-1
k=45.203	NAS Eq. B2.3-2
λ=0.072464	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.472 mm	NAS Eq. B2.1-2
ho=55 mm, bo=32.068 mm, ho/bo=1.7151	
b1=11.574 mm	NAS Eq. B2.3-3
b2=26.736 mm	NAS Eq. B2.3-4
Compression width=20.41 mm	
b1+b2 > compression width (fully effective)	
Element 18: No compressive stress (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: No compressive stress (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: No compressive stress (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	

Center of gravity shift: x=31.651 mm
Sye=193400 mm^3, Fy=551.58 MPa
Mny=106.68 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9

CFS Version 8.0.2
Section: METSCODECK-1.5.sct
METSCODECK-1.5

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Full Section Properties

Area	1867.9 mm^2	Wt.	0.14366 kN/m	Width	1245.2 mm
Ix	1045175 mm^4	rx	23.66 mm	Ixy	-227780 mm^4
Sx(t)	28177 mm^3	y(t)	37.09 mm	α	89.910 deg
Sx(b)	32967 mm^3	y(b)	31.70 mm		
		Height	68.80 mm		
Iy	146370592 mm^4	ry	279.93 mm	Xo	-1.01 mm
Sy(l)	304761 mm^3	x(l)	480.28 mm	Yo	6.64 mm
Sy(r)	306524 mm^3	x(r)	477.52 mm	jx	0.82 mm
		Width	957.80 mm	jy	-210.51 mm
I1	146370944 mm^4	r1	279.93 mm		
I2	1044821 mm^4	r2	23.65 mm		
Ic	147415776 mm^4	rc	280.93 mm	Cw	9.1989e10 mm^6
Io	147500080 mm^4	ro	281.01 mm	J	1401 mm^4

Fully Braced Strength - 2012 North American Specification - US (ASD)

Material Type: A653 HSLAS Grade 80, Fy=551.58 MPa

Compression		Positive Moment		Positive Moment	
Pao	458.97 kN	Maxo	8.460 kN-m	Mayo	92.024 kN-m
Ae	1497.8 mm^2	Ixe	982476 mm^4	Iye	136768400 mm^4
		Sxe(t)	25614 mm^3	Sye(l)	292918 mm^3
Tension		Sxe(b)	32277 mm^3	Sye(r)	278619 mm^3
Ta	579.53 kN				
		Negative Moment		Negative Moment	
		Maxo	8.956 kN-m	Mayo	85.928 kN-m
Shear		Ixe	953007 mm^4	Iye	130195424 mm^4
Vay	106.44 kN	Sxe(t)	27114 mm^3	Sye(l)	260161 mm^3
Vax	31.36 kN	Sxe(b)	28322 mm^3	Sye(r)	284670 mm^3

R/t exceeds 10.

Calculation Details - 2012 North American Specification - US (ASD)

Axial Tension Strength
Ag=1867.9 mm^2, Fy=551.58 MPa
Tn=1030.3 kN — NAS Eq. C2.1-1
Ωt=1.67, ϕt=0.9

Shear Strength
MSDECK element 1
Aw=20.742 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=6.8646 kN at -76 deg
Ωv=1.6, ϕv=0.95

MSDECK element 3
Aw=83.79 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=27.73 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 8
Aw=83.79 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=27.73 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 13
Aw=83.79 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=27.73 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 18
Aw=83.79 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=27.73 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 23
Aw=83.79 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=27.73 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 28
Aw=83.79 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=27.73 kN at -71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 30
Aw=13.064 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=4.3235 kN at 71 deg
Ωv=1.6, ϕv=0.95
MSDECK element 32
Aw=22.02 mm^2, Fv=330.95 MPa — NAS Eq. C3.2.1-2
Vn=7.2875 kN at -67 deg
Ωv=1.6, ϕv=0.95

Axial Compression Strength
Effective width calculations for part 1: MSDECK
Element 1: Unstiffened, w=13.828 mm
f1=551.58 MPa, f2=551.58 MPa
ψ=1 — NAS Eq. B3.2-1
k=0.43 — NAS Eq. B3.2-3
λ=0.77017 — NAS Eq. B2.1-4
ρ=0.92752 — NAS Eq. B2.1-3
b=12.826 mm (ineffective width=1.0022 mm) — NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction
S=24.58 — NAS Eq. B4-7
Ia=1016.3 mm^4 — NAS Eq. B4-8
Is=311.4 mm^4
ds=3.9299 mm (lip ineffective width=8.8959 mm) — NAS Eq. B4-6
k=2.8368 — NAS Table B4-1
Element 2: Partially stiffened, w=62.758 mm
f=551.58 MPa, k=2.8368
λ=1.3609 — NAS Eq. B2.1-4
ρ=0.61603 — NAS Eq. B2.1-3
b=38.661 mm (ineffective width=24.097 mm) — NAS Eq. B2.1-2
b1=5.923 mm, b2=32.738 mm
Element 3: Stiffened, w=55.86 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0201	NAS Eq. B2.1-4
ρ=0.7689	NAS Eq. B2.1-3
be=42.951 mm	NAS Eq. B2.1-2
b1=21.475 mm	NAS Eq. B2.3-9
b2=21.475 mm	NAS Eq. B2.3-10

Ineffective width=12.909 mm

Element 4: Stiffened, w=53.091 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96949	NAS Eq. B2.1-4
ρ=0.7974	NAS Eq. B2.1-3
be=42.335 mm	NAS Eq. B2.1-2
b1=21.167 mm	NAS Eq. B2.3-9
b2=21.167 mm	NAS Eq. B2.3-10

Ineffective width=10.756 mm

Element 5: Stiffened, w=3.1793e-5 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=6.3378e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 6: Stiffened, w=3.1793e-5 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=6.3378e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 7: Stiffened, w=53.091 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96949	NAS Eq. B2.1-4
ρ=0.7974	NAS Eq. B2.1-3
be=42.335 mm	NAS Eq. B2.1-2
b1=21.167 mm	NAS Eq. B2.3-9
b2=21.167 mm	NAS Eq. B2.3-10

Ineffective width=10.756 mm

Element 8: Stiffened, w=55.86 mm

f1=551.58 MPa, f2=551.58 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0201	NAS Eq. B2.1-4
ρ=0.7689	NAS Eq. B2.1-3

be=42.951 mm	NAS Eq. B2.1-2
b1=21.475 mm	NAS Eq. B2.3-9
b2=21.475 mm	NAS Eq. B2.3-10
Ineffective width=12.909 mm	
Element 9: Stiffened, w=53.091 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96949	NAS Eq. B2.1-4
ρ=0.7974	NAS Eq. B2.1-3
be=42.335 mm	NAS Eq. B2.1-2
b1=21.167 mm	NAS Eq. B2.3-9
b2=21.167 mm	NAS Eq. B2.3-10
Ineffective width=10.756 mm	
Element 10: Stiffened, w=3.1793e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=6.3378e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 11: Stiffened, w=3.1793e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=6.3378e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 12: Stiffened, w=53.091 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96949	NAS Eq. B2.1-4
ρ=0.7974	NAS Eq. B2.1-3
be=42.335 mm	NAS Eq. B2.1-2
b1=21.167 mm	NAS Eq. B2.3-9
b2=21.167 mm	NAS Eq. B2.3-10
Ineffective width=10.756 mm	
Element 13: Stiffened, w=55.86 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0201	NAS Eq. B2.1-4
ρ=0.7689	NAS Eq. B2.1-3
be=42.951 mm	NAS Eq. B2.1-2
b1=21.475 mm	NAS Eq. B2.3-9
b2=21.475 mm	NAS Eq. B2.3-10
Ineffective width=12.909 mm	
Element 14: Stiffened, w=53.091 mm	

f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96949	NAS Eq. B2.1-4
ρ=0.7974	NAS Eq. B2.1-3
be=42.335 mm	NAS Eq. B2.1-2
b1=21.167 mm	NAS Eq. B2.3-9
b2=21.167 mm	NAS Eq. B2.3-10
Ineffective width=10.756 mm	
Element 15: Stiffened, w=3.1793e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=6.3378e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 16: Stiffened, w=3.1793e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=6.3378e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.091 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96949	NAS Eq. B2.1-4
ρ=0.7974	NAS Eq. B2.1-3
be=42.335 mm	NAS Eq. B2.1-2
b1=21.167 mm	NAS Eq. B2.3-9
b2=21.167 mm	NAS Eq. B2.3-10
Ineffective width=10.756 mm	
Element 18: Stiffened, w=55.86 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0201	NAS Eq. B2.1-4
ρ=0.7689	NAS Eq. B2.1-3
be=42.951 mm	NAS Eq. B2.1-2
b1=21.475 mm	NAS Eq. B2.3-9
b2=21.475 mm	NAS Eq. B2.3-10
Ineffective width=12.909 mm	
Element 19: Stiffened, w=53.091 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96949	NAS Eq. B2.1-4
ρ=0.7974	NAS Eq. B2.1-3

be=42.335 mm	NAS Eq. B2.1-2
b1=21.167 mm	NAS Eq. B2.3-9
b2=21.167 mm	NAS Eq. B2.3-10
Ineffective width=10.756 mm	
Element 20: Stiffened, w=3.1793e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=6.3378e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.1793e-5 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=6.3378e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.091 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.96949	NAS Eq. B2.1-4
ρ=0.7974	NAS Eq. B2.1-3
be=42.335 mm	NAS Eq. B2.1-2
b1=21.167 mm	NAS Eq. B2.3-9
b2=21.167 mm	NAS Eq. B2.3-10
Ineffective width=10.756 mm	
Element 23: Stiffened, w=55.86 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0201	NAS Eq. B2.1-4
ρ=0.7689	NAS Eq. B2.1-3
be=42.951 mm	NAS Eq. B2.1-2
b1=21.475 mm	NAS Eq. B2.3-9
b2=21.475 mm	NAS Eq. B2.3-10
Ineffective width=12.909 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.53 mm, bp=53.091 mm	
kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=551.58 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.99258	NAS Eq. B5.1-3

ρ=0.78417	NAS Eq. B5.1-2
be=114.57 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=55.86 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0201	NAS Eq. B2.1-4
ρ=0.7689	NAS Eq. B2.1-3
be=42.951 mm	NAS Eq. B2.1-2
b1=21.475 mm	NAS Eq. B2.3-9
b2=21.475 mm	NAS Eq. B2.3-10
Ineffective width=12.909 mm	
Element 29: Stiffened, w=59.86 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.0931	NAS Eq. B2.1-4
ρ=0.7307	NAS Eq. B2.1-3
be=43.74 mm	NAS Eq. B2.1-2
b1=21.87 mm	NAS Eq. B2.3-9
b2=21.87 mm	NAS Eq. B2.3-10
Ineffective width=16.12 mm	
Element 30: Stiffened, w=8.7093 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.15904	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.7093 mm	NAS Eq. B2.1-2
b1=4.3547 mm	NAS Eq. B2.3-9
b2=4.3547 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B3.2-1
k=0.43	NAS Eq. B3.2-3
λ=0.81762	NAS Eq. B2.1-4
ρ=0.89397	NAS Eq. B2.1-3
b=13.123 mm (ineffective width=1.5565 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=24.58	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=9.0837e-6 mm	
f1=551.58 MPa, f2=551.58 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.6588e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.0837e-6 mm	NAS Eq. B2.1-2
b1=4.5419e-6 mm	NAS Eq. B2.3-9
b2=4.5419e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	

Ae=1497.8 mm^2, Fy=551.58 MPa

Pn=826.15 kN	NAS Eq. C4.1-1

$\Omega c=1.8$, $\phi c=0.85$

Positive Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK

Element 1: No compressive stress (fully effective)

Element 2: No compressive stress (fully effective)

Element 3: Stiffened, w=55.86 mm

f1=399.32 MPa, f2=-360.2 MPa

ψ=0.90204	NAS Eq. B2.3-1
k=21.566	NAS Eq. B2.3-2
λ=0.37379	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.316 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=29.369 mm

b1+b2 > compression width (fully effective)

Elements 4 to 7:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=139.53 mm, bp=53.091 mm

kloc=27.628	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.351	NAS Eq. B5.1-5

f1=406.59 MPa

Fcr=559.85 MPa	NAS Eq. B5.1-4
λ=0.8522	NAS Eq. B5.1-3
ρ=0.8705	NAS Eq. B5.1-2
be=127.19 mm	NAS Eq. B5.1-1

Element 8: Stiffened, w=55.86 mm

f1=399.32 MPa, f2=-360.2 MPa

ψ=0.90204	NAS Eq. B2.3-1
k=21.566	NAS Eq. B2.3-2
λ=0.37379	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.316 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=29.369 mm

b1+b2 > compression width (fully effective)

Element 9: No compressive stress (fully effective)

Element 10: No compressive stress (fully effective)

Element 11: No compressive stress (fully effective)

Element 12: No compressive stress (fully effective)

Element 13: Stiffened, w=55.86 mm

f1=399.32 MPa, f2=-360.2 MPa

ψ=0.90204	NAS Eq. B2.3-1
k=21.566	NAS Eq. B2.3-2
λ=0.37379	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.316 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=29.369 mm	
b1+b2 > compression width (fully effective)	
Elements 14 to 17:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.53 mm, bp=53.091 mm	
kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=406.59 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.8522	NAS Eq. B5.1-3
ρ=0.87051	NAS Eq. B5.1-2
be=127.19 mm	NAS Eq. B5.1-1
Element 18: Stiffened, w=55.86 mm	
f1=399.32 MPa, f2=-360.2 MPa	
ψ=0.90204	NAS Eq. B2.3-1
k=21.566	NAS Eq. B2.3-2
λ=0.37379	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.316 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=29.369 mm	
b1+b2 > compression width (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: Stiffened, w=55.86 mm	
f1=399.32 MPa, f2=-360.2 MPa	
ψ=0.90204	NAS Eq. B2.3-1
k=21.566	NAS Eq. B2.3-2
λ=0.37379	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.316 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=29.369 mm	
b1+b2 > compression width (fully effective)	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.53 mm, bp=53.091 mm	
kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=406.59 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4

λ=0.8522	NAS Eq. B5.1-3
ρ=0.87051	NAS Eq. B5.1-2
be=127.19 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=55.86 mm	
f1=399.32 MPa, f2=-360.2 MPa	
ψ=0.90204	NAS Eq. B2.3-1
k=21.566	NAS Eq. B2.3-2
λ=0.37379	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.316 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=29.369 mm	
b1+b2 > compression width (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	
Center of gravity shift: y=-1.2639 mm	
Sxe=25614 mm^3, Fy=551.58 MPa	
Mnx=14.128 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	

Negative Flexural Strength about X-axis

Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=13.828 mm	
f1=442.16 MPa, f2=231.66 MPa	
ψ=0.52394	NAS Eq. B3.2-1
k=0.66903	NAS Eq. B3.2-2
λ=0.55282	NAS Eq. B2.1-4
λ<0.673 (fully effective)	NAS Eq. B2.1-1
Element 2: Check for lip stiffener reduction	
S=27.18	NAS Eq. B4-7
Ia=921.48 mm^4	NAS Eq. B4-8
Is=311.4 mm^4	
ds=4.673 mm (lip ineffective width=9.1551 mm)	NAS Eq. B4-6
k=2.9166	NAS Table B4-1
Element 2: Partially stiffened, w=62.758 mm	
f=451.08 MPa, k=2.9166	
λ=1.2137	NAS Eq. B2.1-4
ρ=0.67458	NAS Eq. B2.1-3
b=42.335 mm (ineffective width=20.423 mm)	NAS Eq. B2.1-2
b1=7.1534 mm, b2=35.182 mm	
Element 3: Stiffened, w=55.86 mm	
f1=443.14 MPa, f2=-385.47 MPa	
ψ=0.86985	NAS Eq. B2.3-1
k=20.815	NAS Eq. B2.3-2
λ=0.40081	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=65 mm, ho/bo=0.89231	
b1=14.435 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=29.874 mm
b1+b2 > compression width (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: Stiffened, w=55.86 mm
f1=443.14 MPa, f2=-385.47 MPa

ψ=0.86985	NAS Eq. B2.3-1
k=20.815	NAS Eq. B2.3-2
λ=0.40081	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.435 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=29.874 mm
b1+b2 > compression width (fully effective)
Elements 9 to 12:
NAS Section B5 - Elements with Intermediate Stiffeners
bo=139.53 mm, bp=53.091 mm

kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5

f1=451.08 MPa

Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.89761	NAS Eq. B5.1-3
ρ=0.84102	NAS Eq. B5.1-2
be=122.88 mm	NAS Eq. B5.1-1

Element 13: Stiffened, w=55.86 mm
f1=443.14 MPa, f2=-385.47 MPa

ψ=0.86985	NAS Eq. B2.3-1
k=20.815	NAS Eq. B2.3-2
λ=0.40081	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.435 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4

Compression width=29.874 mm
b1+b2 > compression width (fully effective)
Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: No compressive stress (fully effective)
Element 17: No compressive stress (fully effective)
Element 18: Stiffened, w=55.86 mm
f1=443.14 MPa, f2=-385.47 MPa

ψ=0.86985	NAS Eq. B2.3-1
k=20.815	NAS Eq. B2.3-2
λ=0.40081	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2

ho=58 mm, bo=55 mm, ho/bo=1.0545

b1=14.435 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=29.874 mm	
b1+b2 > compression width (fully effective)	
Elements 19 to 22:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.53 mm, bp=53.091 mm	
kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=451.08 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.89761	NAS Eq. B5.1-3
ρ=0.84102	NAS Eq. B5.1-2
be=122.88 mm	NAS Eq. B5.1-1
Element 23: Stiffened, w=55.86 mm	
f1=443.14 MPa, f2=-385.47 MPa	
ψ=0.86985	NAS Eq. B2.3-1
k=20.815	NAS Eq. B2.3-2
λ=0.40081	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=55 mm, ho/bo=1.0545	
b1=14.435 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=29.874 mm	
b1+b2 > compression width (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: Stiffened, w=55.86 mm	
f1=443.14 MPa, f2=-385.47 MPa	
ψ=0.86985	NAS Eq. B2.3-1
k=20.815	NAS Eq. B2.3-2
λ=0.40081	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
ho=58 mm, bo=62 mm, ho/bo=0.93548	
b1=14.435 mm	NAS Eq. B2.3-3
b2=27.93 mm	NAS Eq. B2.3-4
Compression width=29.874 mm	
b1+b2 > compression width (fully effective)	
Element 29: Stiffened, w=59.86 mm	
f1=451.08 MPa, f2=451.08 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=0.98853	NAS Eq. B2.1-4
ρ=0.78647	NAS Eq. B2.1-3
be=47.078 mm	NAS Eq. B2.1-2
b1=23.539 mm	NAS Eq. B2.3-9
b2=23.539 mm	NAS Eq. B2.3-10
Ineffective width=12.782 mm	

Element 30: Stiffened, w=8.7093 mm
f1=443.14 MPa, f2=313.95 MPa

ψ=0.70847	NAS Eq. B2.3-1
k=4.6326	NAS Eq. B2.3-8
λ=0.13246	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.7093 mm	NAS Eq. B2.1-2
b1=3.8007 mm	NAS Eq. B2.3-9
b2=4.9087 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)
Element 32: Unstiffened, w=14.68 mm
f1=523.14 MPa, f2=311.14 MPa

ψ=0.59476	NAS Eq. B3.2-1
k=0.46986	NAS Eq. B3.2-3
λ=0.76173	NAS Eq. B2.1-4
ρ=0.93364	NAS Eq. B2.1-3
b=13.706 mm (ineffective width=0.97416 mm)	NAS Eq. B2.1-2

Element 31: Check for lip stiffener reduction

S=32.727	NAS Eq. B4-7

w/t < 0.328S (no lip reduction)
Element 31: Stiffened, w=9.0837e-6 mm
f1=311.14 MPa, f2=311.14 MPa

ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.2459e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.0837e-6 mm	NAS Eq. B2.1-2
b1=4.5419e-6 mm	NAS Eq. B2.3-9
b2=4.5419e-6 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Center of gravity shift: y=1.946 mm
Sxe=27114 mm^3, Fy=551.58 MPa

Mnx=14.956 kN-m	NAS Eq. C3.1.1-1

Ωb=1.67, ϕb=0.9

Positive Flexural Strength about Y-axis
Effective width calculations for part 1: MSDECK
Element 1: No compressive stress (fully effective)
Element 2: No compressive stress (fully effective)
Element 3: No compressive stress (fully effective)
Element 4: No compressive stress (fully effective)
Element 5: No compressive stress (fully effective)
Element 6: No compressive stress (fully effective)
Element 7: No compressive stress (fully effective)
Element 8: No compressive stress (fully effective)
Element 9: No compressive stress (fully effective)
Element 10: No compressive stress (fully effective)
Element 11: No compressive stress (fully effective)
Element 12: No compressive stress (fully effective)
Element 13: No compressive stress (fully effective)
Element 14: No compressive stress (fully effective)
Element 15: No compressive stress (fully effective)
Element 16: Stiffened, w=3.1793e-5 mm
f1=27.311 MPa, f2=27.311 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=1.4103e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.091 mm	
f1=87.686 MPa, f2=28.029 MPa	
ψ=0.31965	NAS Eq. B2.3-1
k=5.9905	NAS Eq. B2.3-8
λ=0.31587	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=19.807 mm	NAS Eq. B2.3-9
b2=33.283 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 18: Stiffened, w=55.86 mm	
f1=108.92 MPa, f2=88.482 MPa	
ψ=0.81238	NAS Eq. B2.3-1
k=4.3885	NAS Eq. B2.3-8
λ=0.43276	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
b1=25.535 mm	NAS Eq. B2.3-9
b2=30.326 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 19: Stiffened, w=53.091 mm	
f1=169.37 MPa, f2=109.71 MPa	
ψ=0.64778	NAS Eq. B2.3-1
k=4.7918	NAS Eq. B2.3-8
λ=0.49084	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=22.57 mm	NAS Eq. B2.3-9
b2=30.52 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 20: Stiffened, w=3.1793e-5 mm	
f1=170.09 MPa, f2=170.09 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=3.5194e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 21: Stiffened, w=3.1793e-5 mm	
f1=206.13 MPa, f2=206.13 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=3.8744e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2

b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 22: Stiffened, w=53.091 mm	
f1=266.5 MPa, f2=206.84 MPa	
ψ=0.77615	NAS Eq. B2.3-1
k=4.4701	NAS Eq. B2.3-8
λ=0.63747	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=23.873 mm	NAS Eq. B2.3-9
b2=29.217 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 23: Stiffened, w=55.86 mm	
f1=287.73 MPa, f2=267.3 MPa	
ψ=0.92898	NAS Eq. B2.3-1
k=4.1428	NAS Eq. B2.3-8
λ=0.72395	NAS Eq. B2.1-4
ρ=0.96155	NAS Eq. B2.1-3
be=53.712 mm	NAS Eq. B2.1-2
b1=25.935 mm	NAS Eq. B2.3-9
b2=27.777 mm	NAS Eq. B2.3-10
Ineffective width=2.1479 mm	
Elements 24 to 27:	
NAS Section B5 - Elements with Intermediate Stiffeners	
bo=139.53 mm, bp=53.091 mm	
kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=366.92 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.80956	NAS Eq. B5.1-3
ρ=0.89956	NAS Eq. B5.1-2
be=131.43 mm	NAS Eq. B5.1-1
Element 28: Stiffened, w=55.86 mm	
f1=466.55 MPa, f2=446.11 MPa	
ψ=0.9562	NAS Eq. B2.3-1
k=4.0878	NAS Eq. B2.3-8
λ=0.92803	NAS Eq. B2.1-4
ρ=0.82211	NAS Eq. B2.1-3
be=45.923 mm	NAS Eq. B2.1-2
b1=22.469 mm	NAS Eq. B2.3-9
b2=23.454 mm	NAS Eq. B2.3-10
Ineffective width=9.9372 mm	
Element 29: Stiffened, w=59.86 mm	
f1=534.61 MPa, f2=467.35 MPa	
ψ=0.87418	NAS Eq. B2.3-1
k=4.2556	NAS Eq. B2.3-8
λ=1.0433	NAS Eq. B2.1-4
ρ=0.75635	NAS Eq. B2.1-3
be=45.275 mm	NAS Eq. B2.1-2
b1=21.298 mm	NAS Eq. B2.3-9
b2=23.978 mm	NAS Eq. B2.3-10

Ineffective width=14.585 mm	
Element 30: Stiffened, w=8.7093 mm	
f1=538.59 MPa, f2=535.41 MPa	
ψ=0.99408	NAS Eq. B2.3-1
k=4.0118	NAS Eq. B2.3-8
λ=0.15693	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=8.7093 mm	NAS Eq. B2.1-2
b1=4.3418 mm	NAS Eq. B2.3-9
b2=4.3675 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 32: Unstiffened, w=14.68 mm	
f1=550.8 MPa, f2=544.36 MPa	
ψ=0.9883	NAS Eq. B3.2-1
k=0.43083	NAS Eq. B3.2-3
λ=0.81626	NAS Eq. B2.1-4
ρ=0.89491	NAS Eq. B2.1-3
b=13.137 mm (ineffective width=1.5427 mm)	NAS Eq. B2.1-2
Element 31: Check for lip stiffener reduction	
S=24.742	NAS Eq. B4-7
w/t < 0.328S (no lip reduction)	
Element 31: Stiffened, w=9.0837e-6 mm	
f1=544.36 MPa, f2=544.36 MPa	
ψ=1	NAS Eq. B2.3-1
k=4	NAS Eq. B2.3-8
λ=1.6479e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=9.0837e-6 mm	NAS Eq. B2.1-2
b1=4.5419e-6 mm	NAS Eq. B2.3-9
b2=4.5419e-6 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Center of gravity shift: x=-13.362 mm	
Sye=278620 mm^3, Fy=551.58 MPa	
Mny=153.68 kN-m	NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9	
Negative Flexural Strength about Y-axis	
Effective width calculations for part 1: MSDECK	
Element 1: Unstiffened, w=13.828 mm	
f1=550.78 MPa, f2=547.09 MPa	
ψ=0.99331	NAS Eq. B3.2-1
k=0.43047	NAS Eq. B3.2-3
λ=0.76919	NAS Eq. B2.1-4
ρ=0.92823	NAS Eq. B2.1-3
b=12.836 mm (ineffective width=0.99241 mm)	NAS Eq. B2.1-2
Element 2: Check for lip stiffener reduction	
S=24.698	NAS Eq. B4-7
Ia=1011.5 mm^4	NAS Eq. B4-8
Is=311.4 mm^4	
ds=3.9515 mm (lip ineffective width=8.8842 mm)	NAS Eq. B4-6
k=2.8405	NAS Table B4-1
Element 2: Partially stiffened, w=62.758 mm	
f=546.29 MPa, k=2.8405	
λ=1.3534	NAS Eq. B2.1-4

ρ=0.61876	NAS Eq. B2.1-3
b=38.832 mm (ineffective width=23.926 mm)	NAS Eq. B2.1-2
b1=5.9773 mm, b2=32.855 mm	
Element 3: Stiffened, w=55.86 mm	
f1=476.34 MPa, f2=456.29 MPa	
ψ=0.95792	NAS Eq. B2.3-1
k=4.0843	NAS Eq. B2.3-8
λ=0.93811	NAS Eq. B2.1-4
ρ=0.81599	NAS Eq. B2.1-3
be=45.581 mm	NAS Eq. B2.1-2
b1=22.321 mm	NAS Eq. B2.3-9
b2=23.26 mm	NAS Eq. B2.3-10
Ineffective width=10.279 mm	
Element 4: Stiffened, w=53.091 mm	
f1=455.51 MPa, f2=396.99 MPa	
ψ=0.87154	NAS Eq. B2.3-1
k=4.2612	NAS Eq. B2.3-8
λ=0.8536	NAS Eq. B2.1-4
ρ=0.86957	NAS Eq. B2.1-3
be=46.166 mm	NAS Eq. B2.1-2
b1=21.69 mm	NAS Eq. B2.3-9
b2=24.476 mm	NAS Eq. B2.3-10
Ineffective width=6.9245 mm	
Element 5: Stiffened, w=3.1793e-5 mm	
f1=396.29 MPa, f2=396.29 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=5.372e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 6: Stiffened, w=3.1793e-5 mm	
f1=360.94 MPa, f2=360.94 MPa	
ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=5.1268e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 7: Stiffened, w=53.091 mm	
f1=360.24 MPa, f2=301.72 MPa	
ψ=0.83756	NAS Eq. B2.3-1
k=4.3334	NAS Eq. B2.3-8
λ=0.75275	NAS Eq. B2.1-4
ρ=0.94021	NAS Eq. B2.1-3
be=49.916 mm	NAS Eq. B2.1-2
b1=23.083 mm	NAS Eq. B2.3-9
b2=26.833 mm	NAS Eq. B2.3-10
Ineffective width=3.1744 mm	
Element 8: Stiffened, w=55.86 mm	
f1=300.94 MPa, f2=280.89 MPa	

ψ=0.93339	NAS Eq. B2.3-1
k=4.1338	NAS Eq. B2.3-8
λ=0.74117	NAS Eq. B2.1-4
ρ=0.94873	NAS Eq. B2.1-3
be=52.996 mm	NAS Eq. B2.1-2
b1=25.644 mm	NAS Eq. B2.3-9
b2=27.352 mm	NAS Eq. B2.3-10
Ineffective width=2.8639 mm	

Elements 9 to 12:

NAS Section B5 - Elements with Intermediate Stiffeners

bo=139.53 mm, bp=53.091 mm

kloc=27.629	NAS Eq. B5.1.2-1
β=3.3441	NAS Eq. B5.1.2-3
kd=15.497	NAS Eq. B5.1.2-2
R=1.7004	NAS Eq. B5.1-6
k=26.352	NAS Eq. B5.1-5
f1=203.22 MPa	
Fcr=559.86 MPa	NAS Eq. B5.1-4
λ=0.60248	NAS Eq. B5.1-3
ρ=1 (fully effective)	

Element 13: Stiffened, w=55.86 mm

f1=125.54 MPa, f2=105.5 MPa

ψ=0.84033	NAS Eq. B2.3-1
k=4.3275	NAS Eq. B2.3-8
λ=0.46788	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=55.86 mm	NAS Eq. B2.1-2
b1=25.865 mm	NAS Eq. B2.3-9
b2=29.995 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 14: Stiffened, w=53.091 mm

f1=104.71 MPa, f2=46.198 MPa

ψ=0.44118	NAS Eq. B2.3-1
k=5.4667	NAS Eq. B2.3-8
λ=0.36134	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
b1=20.748 mm	NAS Eq. B2.3-9
b2=32.342 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 15: Stiffened, w=3.1793e-5 mm

f1=45.493 MPa, f2=45.493 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=1.8201e-7	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10

b1+b2 > compression width (fully effective)

Element 16: Stiffened, w=3.1793e-5 mm

f1=10.145 MPa, f2=10.145 MPa

ψ=1	NAS Eq. B2.3-1
k=3.3567	NAS Eq. B2.3-8
λ=8.5954e-8	NAS Eq. B2.1-4

ρ=1	NAS Eq. B2.1-3
be=3.1793e-5 mm	NAS Eq. B2.1-2
b1=1.5897e-5 mm	NAS Eq. B2.3-9
b2=1.5897e-5 mm	NAS Eq. B2.3-10
b1+b2 > compression width (fully effective)	
Element 17: Stiffened, w=53.091 mm	
f1=9.4408 MPa, f2=-49.075 MPa	
ψ=5.1982	NAS Eq. B2.3-1
k=492.64	NAS Eq. B2.3-2
λ=0.011429	NAS Eq. B2.1-4
ρ=1	NAS Eq. B2.1-3
be=53.091 mm	NAS Eq. B2.1-2
ho=55 mm, bo=32.725 mm, ho/bo=1.6807	
b1=6.4759 mm	NAS Eq. B2.3-3
b2=26.545 mm	NAS Eq. B2.3-4
Compression width=8.5655 mm	
b1+b2 > compression width (fully effective)	
Element 18: No compressive stress (fully effective)	
Element 19: No compressive stress (fully effective)	
Element 20: No compressive stress (fully effective)	
Element 21: No compressive stress (fully effective)	
Element 22: No compressive stress (fully effective)	
Element 23: No compressive stress (fully effective)	
Element 24: No compressive stress (fully effective)	
Element 25: No compressive stress (fully effective)	
Element 26: No compressive stress (fully effective)	
Element 27: No compressive stress (fully effective)	
Element 28: No compressive stress (fully effective)	
Element 29: No compressive stress (fully effective)	
Element 30: No compressive stress (fully effective)	
Element 32: No compressive stress (fully effective)	
Element 31: No compressive stress (fully effective)	

Center of gravity shift: x=20.162 mm
Sye=260160 mm^3, Fy=551.58 MPa
Mny=143.5 kN-m NAS Eq. C3.1.1-1
Ωb=1.67, ϕb=0.9