

NEGATIVE LOAD SPAN CHART FOR : PETERSEN BOX RIB SERIES
BOX RIB 2 @ 12" X 0.032" ALUMINUM (w/ CLIP)

Span, ft.	TWO EQUAL SPANS			THREE EQUAL SPANS		
	W (psf)	Re	Ri	W (psf)	Re	Ri
1.00	97.76	36.7	122.2	111.09	44.4	122.2
1.25	78.21	36.7	122.2	88.87	44.4	122.2
1.50	65.17	36.7	122.2	74.06	44.4	122.2
1.75	55.86	36.7	122.2	63.48	44.4	122.2
2.00	48.88	36.7	122.2	55.55	44.4	122.2
2.25	43.45	36.7	122.2	49.37	44.4	122.2
2.50	39.10	36.7	122.2	44.44	44.4	122.2
2.75	35.55	36.7	122.2	40.40	44.4	122.2
3.00	32.59	36.7	122.2	37.03	44.4	122.2
3.25	30.08	36.7	122.2	34.18	44.4	122.2
3.50	27.93	36.7	122.2	31.74	44.4	122.2
3.75	26.07	36.7	122.2	29.62	44.4	122.2
4.00	24.44	36.7	122.2	27.77	44.4	122.2

W = Allowable Uniform Wind Load, psf

Re = End Support Reaction, 122.2 #/ft. of panel

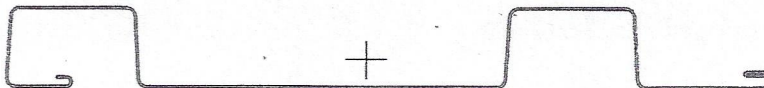
Ri = Intermediate Support Reaction, 122.2 #/ft. of panel

Deflection Limit = L/180

$F_y = 5.28$ ksi

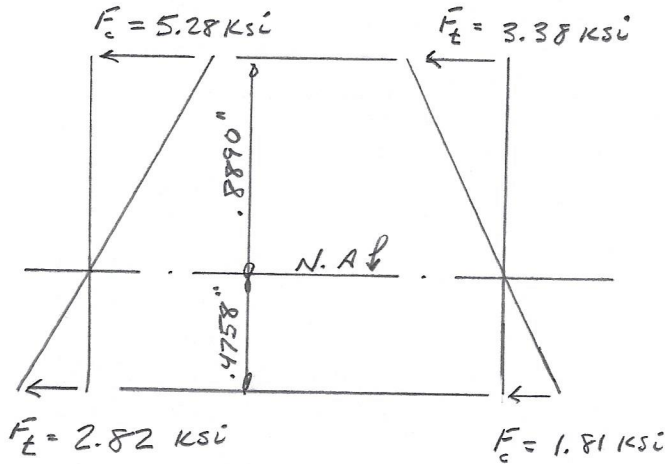
$I_{xx} = 0.1852$ in⁴

$S_{xx} = 0.2083$ in³



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 By: Thomas M. Shingler, PE
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$$\frac{b}{t}_{(Top)} = \frac{2}{0.032}$$

$$\frac{b}{t}_{(Top)} = 62.5$$

$$F_{c(Top)} = \frac{330}{62.5}$$

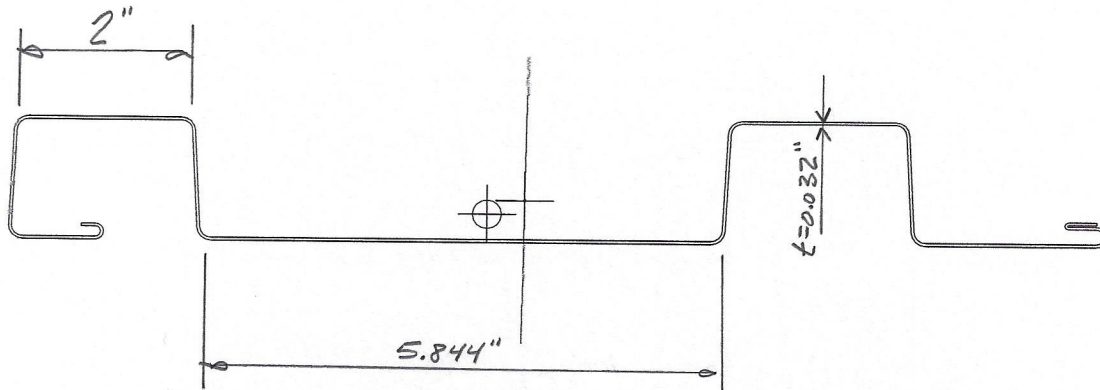
$$F_{c(Top)} = 5.28 \text{ KSI}$$

$$\frac{b}{t}_{(Bot)} = \frac{5.844}{0.032}$$

$$\frac{b}{t}_{(Bot)} = 182.6$$

$$F_{c(Bot)} = \frac{330}{182.6}$$

$$F_{c(Bot)} = 1.81 \text{ KSI}$$



$$F_{c(Top)} = 5.28 \text{ KSI} \quad F_{t(Top)} = 2.82 \text{ KSI}$$

$$F_{c(Bot)} = 1.81 \text{ KSI} \quad F_{t(Bot)} = 3.38 \text{ KSI}$$

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Section Inputs

Material: A653 SS Grade 40
 Apply cold work of forming strength increase.
 No inelastic reserve strength increase.
 Modulus of Elasticity, E 29500 ksi
 Yield Strength, Fy 40 ksi
 Tensile Strength, Fu 55 ksi
 Torsion Constant Override, J 0 in⁴
 Warping Constant Override, Cw 0 in⁶

Part 1, Thickness 0.032 in
 Placement of Part from Origin:
 X to center of gravity 0 in
 Y to center of gravity 0 in

Outside dimensions, Open shape

	Length (in)	Angle (deg)	Radius (in)	Web	k Coef.	Hole Size (in)	Distance (in)
1	0.2500	0.000	0.12500	None	0.000	0.0000	0.1250
2	0.1840	-90.000	0.06000	None	0.000	0.0000	0.0840
3	0.1000	-180.000	0.06000	None	0.000	0.0000	0.0500
4	0.9670	-180.000	0.12500	None	0.000	0.0000	0.4835
5	1.3650	87.000	0.12500	None	0.000	0.0000	0.6825
6	2.0000	0.000	0.12500	None	0.000	0.0000	1.0000
7	1.3650	-87.000	0.12500	Single	0.000	0.0000	0.6825
8	5.8440	0.000	0.12500	None	0.000	0.0000	2.9220
9	1.3650	87.000	0.12500	Single	0.000	0.0000	0.6825
10	2.0000	0.000	0.12500	None	0.000	0.0000	1.0000
11	1.3650	-87.000	0.12500	Single	0.000	0.0000	0.6825
12	2.1540	0.000	0.12500	None	0.000	0.0000	1.0770
13	0.2280	90.000	0.07550	None	0.000	0.0000	0.1140
14	0.4600	180.000	0.07550	None	0.000	0.0000	0.2300
15	0.0880	90.000	0.01200	None	0.000	0.0000	0.0360
16	0.0440	0.000	0.01200	None	0.000	0.0000	0.0180
17	0.3100	0.000	0.01875	None	0.000	0.0000	0.1550

Full Section Properties

Area	0.60928 in ²	Wt.	0.0020716 k/ft	Width	19.040 in
Ix	0.1852 in ⁴	rx	0.5513 in	Ixy	-0.1610 in ⁴
Sx(t)	0.2083 in ³	y(t)	0.8890 in	α	89.025 deg
Sx(b)	0.3892 in ³	y(b)	0.4758 in		
Zx	0.2758 in ³	Height	1.3648 in		
Iy	9.6415 in ⁴	ry	3.9780 in	xo	-0.4155 in
Sy(l)	1.6836 in ³	x(l)	5.7267 in	yo	-0.1527 in
Sy(r)	1.4942 in ³	x(r)	6.4528 in	jx	0.5005 in
Zy	2.1728 in ³	Width	12.1794 in	jy	1.5073 in

Section: PETERSEN BOX RIB-2 PANEL_WITH CLIP - 12 X 0.032 ALUM..cfss
PETERSEN BOX RIB 2 - 12" X 0.032" ALUM.

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I ₁	9.6443 in ⁴	r ₁	3.9786 in	Cw	4.4528 in ⁶
I ₂	0.1824 in ⁴	r ₂	0.5472 in	J	0.0002080 in ⁴
I _c	9.8267 in ⁴	r _c	4.0160 in		
I _o	9.9461 in ⁴	r _o	4.0403 in		

DESIGN INPUT DATA FOR BOX RIB 2 X 0.032" ALUM. W/ CLIP

PRODUCT PROPERTIES :

E = 10100. KSI

I = .1852 IN4/FT

S = .2083 IN3/FT

DESIGN PARAMETERS :

DEFLECTION = L/ 180.

ALLOW. BENDING STRESS (PSI) = 5280.0

ALLOW. END SUPPORT REACTION (#/FT) = 122.2

ALLOW. INTERMEDIATE SUPPORT REACTION (#/FT) = 122.2

LOAD-SPAN TABLE FOR BOX RIB 2 X 0.032" ALUM. W/ CLIP

DEFLECIION = L/ 180.

SPAN (FT)	SIMPLE SPAN		TWO EQUAL SPAN			THREE EQUAL SPAN		
	W(PSF)	RE	W(PSF)	RE	RI	W(PSF)	RE	RI
1.00	244.40	122.2	97.76	36.7	122.2	111.09	44.4	122.2
1.25	195.52	122.2	78.21	36.7	122.2	88.87	44.4	122.2
1.50	162.93	122.2	65.17	36.7	122.2	74.06	44.4	122.2
1.75	139.66	122.2	55.86	36.7	122.2	63.48	44.4	122.2
2.00	122.20	122.2	48.88	36.7	122.2	55.55	44.4	122.2
2.25	108.62	122.2	43.45	36.7	122.2	49.37	44.4	122.2
2.50	97.76	122.2	39.10	36.7	122.2	44.44	44.4	122.2
2.75	88.87	122.2	35.55	36.7	122.2	40.40	44.4	122.2
3.00	81.47	122.2	32.59	36.7	122.2	37.03	44.4	122.2
3.25	69.42	112.8	30.08	36.7	122.2	34.18	44.4	122.2
3.50	59.85	104.7	27.93	36.7	122.2	31.74	44.4	122.2
3.75	52.14	97.8	26.07	36.7	122.2	29.62	44.4	122.2
4.00	45.83	91.7	24.44	36.7	122.2	27.77	44.4	122.2

W = ALLOWABLE UNIFORM LOAD

RE = END SOPPORT REACTION AT ALLOW. LOAD (#/FT)

RI = INTERMEDIATE SUPPORT REACTION AT ALLOW. LOAD (#/FT)