STEEL JOIST REPORT

For Open Web Steel Joist

18K3SP x 22'-0"

Project: Demo

Location:

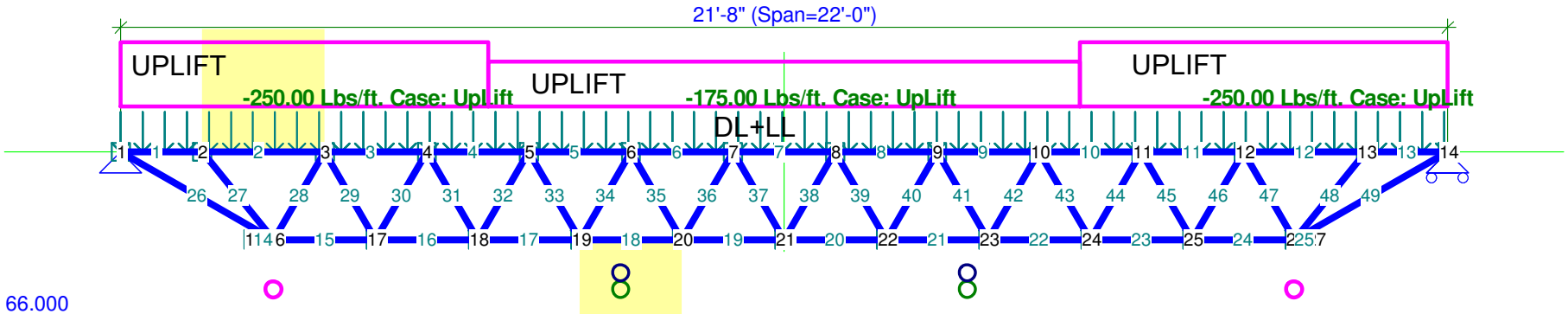
Job num.: T001

Mark: J-1

Submitted by:

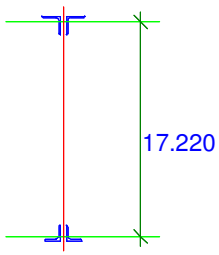
Wednesday, August 03, 2022

Design View Frame



W(DL) = 66.000
W(LL) = 316.000
W(DL+LL) = 382.000

LEGEND:
- Top Bridging
- Bottom Bridging
- Bottom UpLift Bridging (Both End First V)



Joist name: 18K3SP
Quantity top chord members=13
Quantity bottom chord Members=12
Quantity end members=2
Quantity aux. web members=2
Quantity interior web members=20
Quantity vertical web members=0
Quantity reinforcement web members=0
Total members=49
Total nodes=27
Quantity top chord node=14
Quantity Bottom chord node=13
Modulus of elasticity of steel=29,000 ksi(200,000 MPa)

Control effective depth = 17.220 in (437.388 mm)

18K3SP x 21'-8" (OVL 22'-0")
MARK ~ J-1
MAKE ~ ONE

Project: Demo
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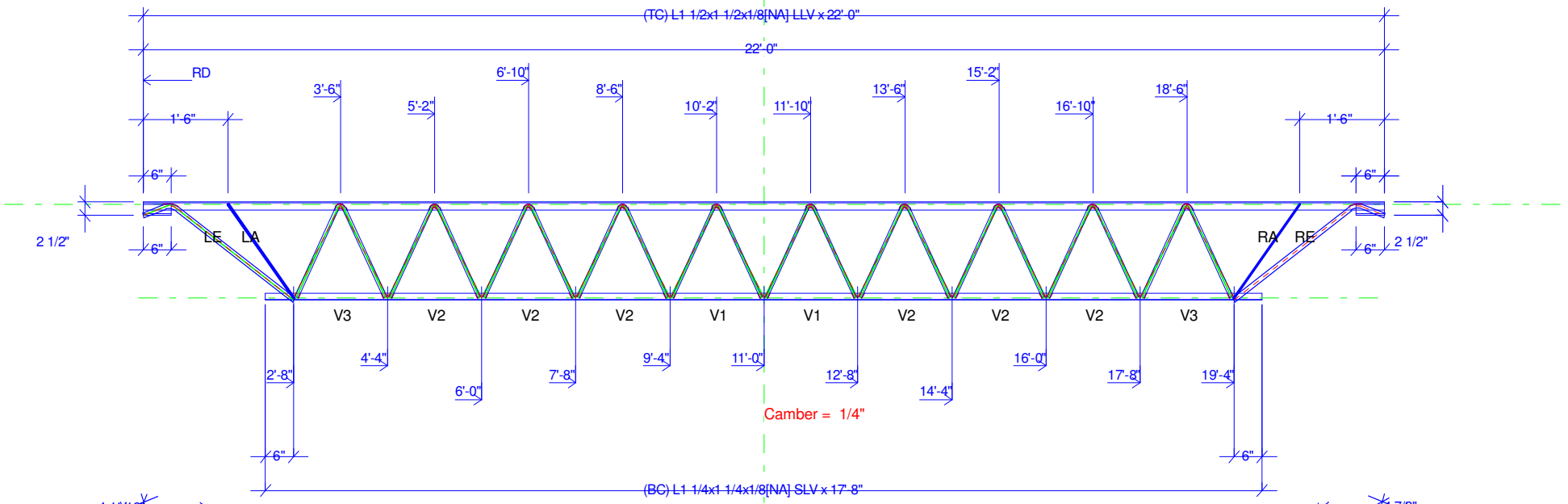
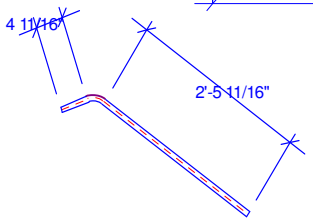
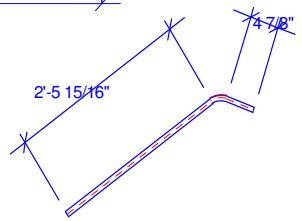
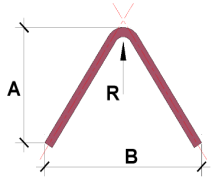






R7/8"diam. x Cut Total Lenght=3'-0 11/16"
Outside Arc=2 5/16" Long; Inside Radius=2 1/2" diam.
Interior Angle=IA=126.826 Deg.
Make =ONE



R7/8"diam. x Cut Total Lenght=3'-1 1/8"
Outside Arco=2 5/16" Long; Inside Radius=2 1/2" diam.
Interior Angle=IA=126.826 Deg.
Make =ONE

2 - V1 - R1/2 x 3'-3 3/8" (A=1'-4 15/16"; B=1'-7 5/16"; R=1 3/16")
6 - V2 - R5/8 x 3'-3 7/16" (A=1'-4 15/16"; B=1'-7 3/8"; R=1 1/16")
2 - V3 - R3/4 x 3'-3 1/2" (A=1'-4 15/16"; B=1'-7 7/16"; R= 15/16")

Bill of Material

Project Name: Demo Job Number: T001

Joist Name: 18K3SP x 22'-0" Joist Mark: J-1 Quantity: 1

Mark	Qty	Designation	Type	Lenght	Reinforcement	Type	Lenght	Weight	Fy	Remark
CHORDS										
TC	2	L1 1/2x1 1/2x1/8	2 Anges	22'-0"	N/A	N/A	N/A	54.120Lbs	50ksi	Top Chord
BC	2	L1 1/4x1 1/4x1/8	2 Anges	17'-8"	N/A	N/A	N/A	35.687Lbs	50ksi	Bottom Chord
WEB MEMBERS										
LE	1	R7/8	Rod	3'-0 11/16"	N/A	N/A	N/A	6.242Lbs	50ksi	Left end member
RE	1	R7/8	Rod	2'-10 9/16"	N/A	N/A	N/A	41.051Lbs	50ksi	Right end member
LA	1	R1/2	Rod	1'-9 15/16"	N/A	N/A	N/A	1.219Lbs	50ksi	Left aux. member
RA	1	R1/2	Rod	1'-9 15/16"	N/A	N/A	N/A	1.219Lbs	50ksi	Right aux. member
V WEB MEMBERS										
V1	2	R1/2	Rod/\Rod	3'-3 3/8"	none/\none	N/A	N/A	4.375Lbs	50ksi	A=1'-4 15/16";B=1'-7 5/16";R=1 3/16"
V2	6	R5/8	Rod/\Rod	3'-3 7/16"	none/\none	N/A	N/A	20.540Lbs	50ksi	A=1'-4 15/16";B=1'-7 3/8";R=1 1/16"
V3	2	R3/4	Rod/\Rod	3'-3 1/2"	none/\none	N/A	N/A	9.875Lbs	50ksi	A=1'-4 15/16";B=1'-7 7/16";R= 15/16"
BEARING										
LB	2	L2x2x5/16	Angles	6"	N/A	N/A	N/A	3.920Lbs	50ksi	Left seat bearing
RB	2	L2x2x5/16	Angles	6"	N/A	N/A	N/A	3.920Lbs	50ksi	Right seat bearing
TOTAL	22							182.17 Lbs		
ADDITIONAL INFO.										
Surface area		43.35 sf								
Primer	1 gal(s)									Std. Red Oxide Primer
Design Weight		6.261Lbs/ft.								Not seat bering included
Real Weight		8.280Lbs/ft.								With seat bering
Real Weight		7.924Lbs/ft.								Not seat bering included
SJI Weight		6.400Lbs/ft.								Not seat bering included

18K3SP x 21'-8" (OVL 22'-0")
MARK ~ J-1

Project: Demo
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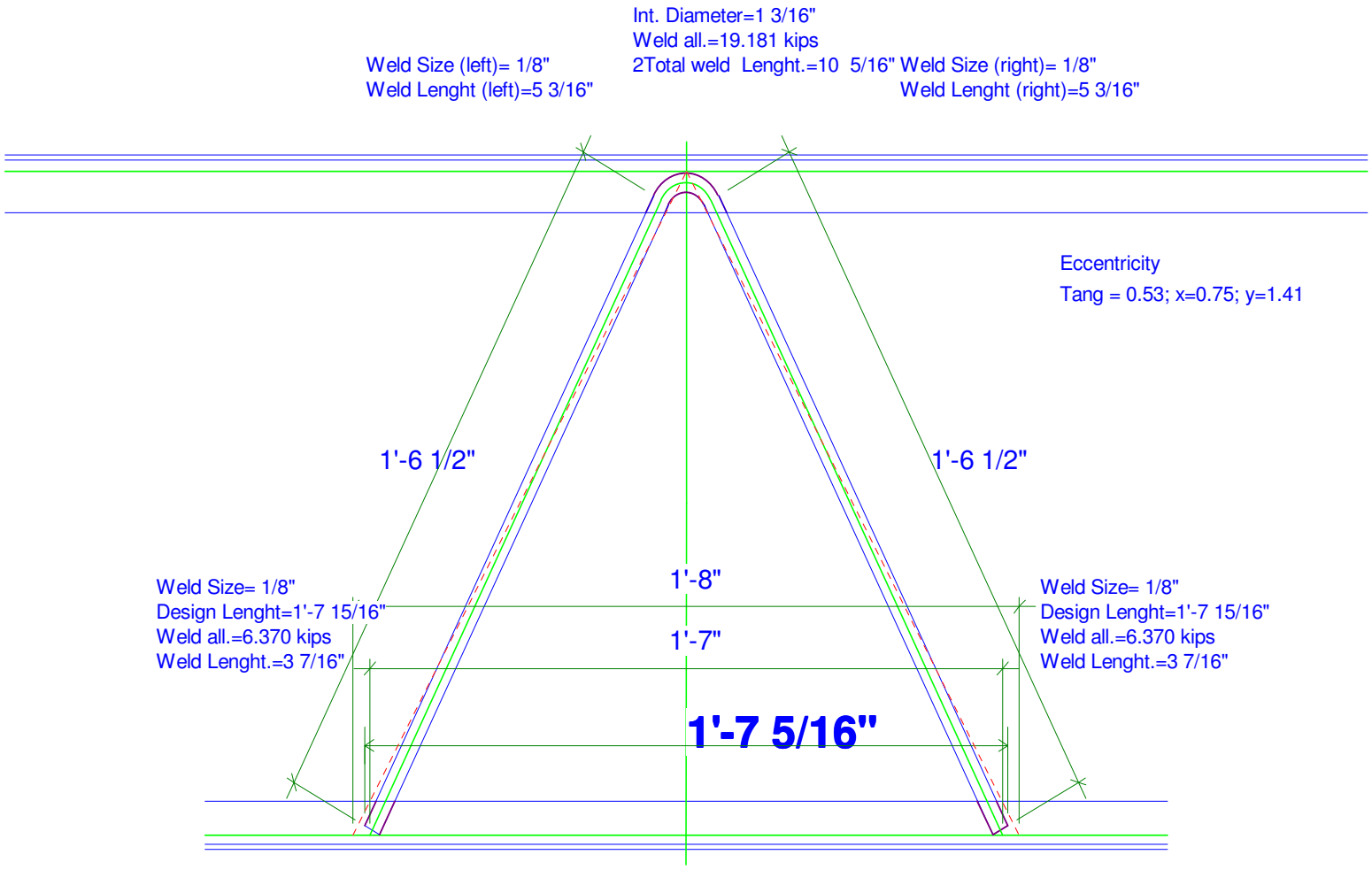
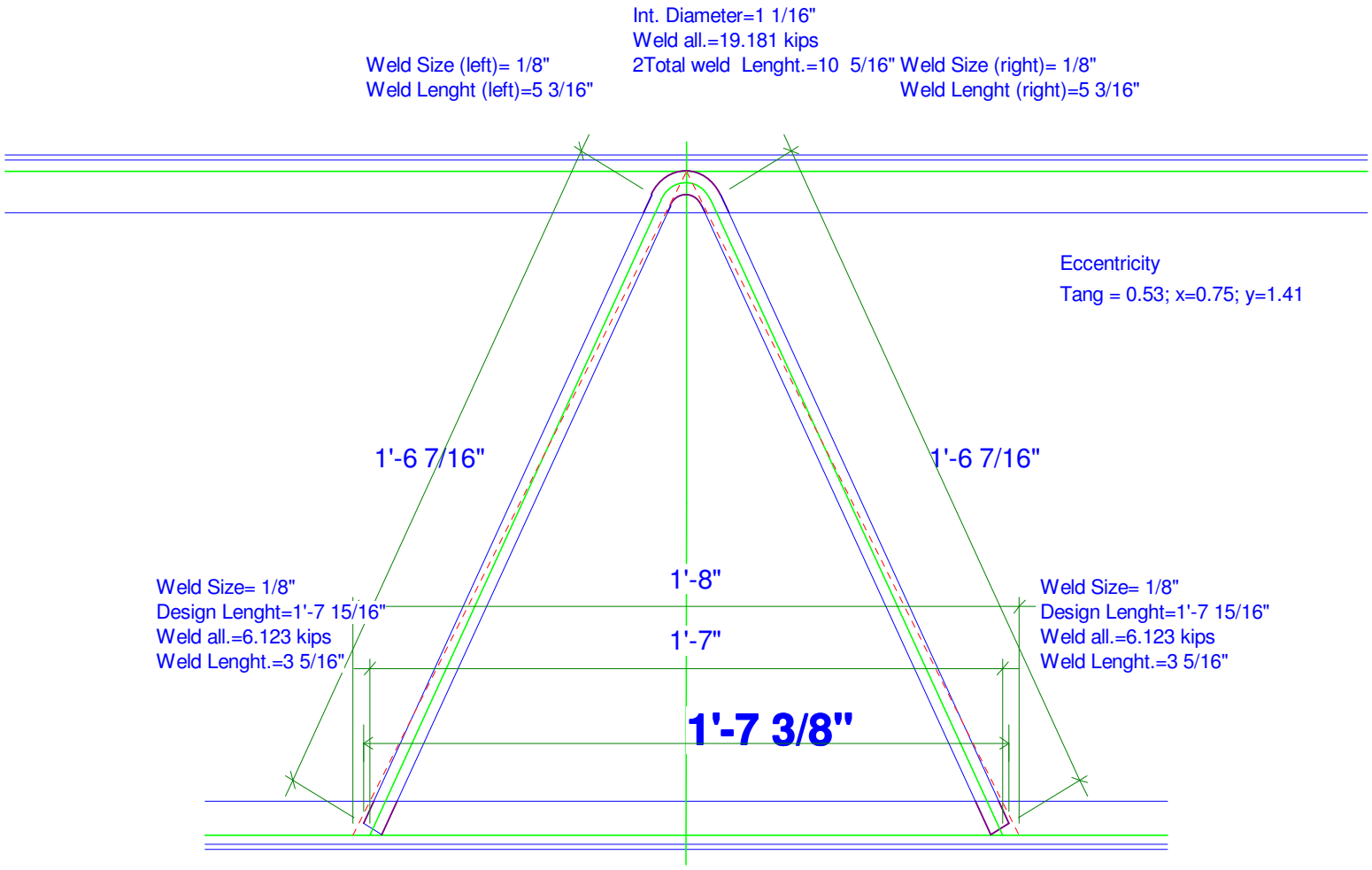


R1/2 x Total Lenght of Rod --> Cut=3'-3 3/8"(2,2)

V1

18K3SP x 21'-8" (OVL 22'-0")
MARK ~ J-1

Project: Demo
Job Number: T001

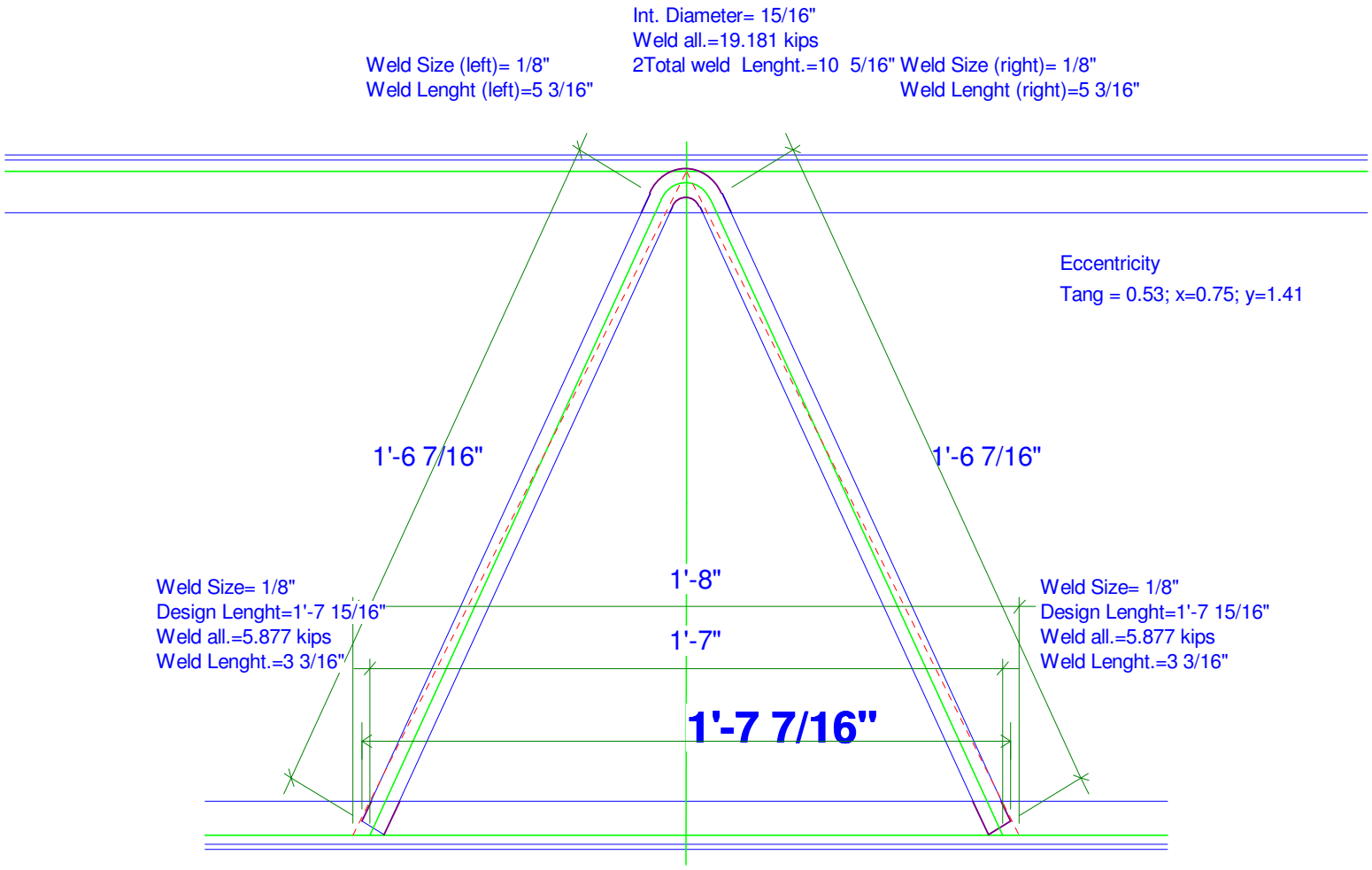


R5/8 x Total Lenght of Rod --> Cut=3'-3 7/16"(2,2)

V2

18K3SP x 21'-8" (OVL 22'-0")
MARK ~ J-1

Project: Demo
Job Number: T001



R3/4 x Total Lenght of Rod --> Cut=3'-3 1/2"(2,2)

V3

**********MEMBERS WELDING**********

****

B.E = Both end

Member Name	Mem	I-J	Designation[Reinf.]		Lenght	Weld Information
Top chord left first end panel (Lep1)	1	1-2	L1 1/2x1 1/2x1/8[NA]	⌐⌐	1'-4"	N/A
Top chord left second end panel (Lep2)	2	2-3	L1 1/2x1 1/2x1/8[NA]	⌐⌐	2'-0"	N/A
Top chord interior panel	3	3-4	L1 1/2x1 1/2x1/8[NA]	⌐⌐	1'-8"	N/A
Top chord interior panel	4	4-5	L1 1/2x1 1/2x1/8[NA]	⌐⌐	1'-8"	N/A
Top chord interior panel	5	5-6	L1 1/2x1 1/2x1/8[NA]	⌐⌐	1'-8"	N/A
Top chord interior panel	6	6-7	L1 1/2x1 1/2x1/8[NA]	⌐⌐	1'-8"	N/A
Top chord interior panel	7	7-8	L1 1/2x1 1/2x1/8[NA]	⌐⌐	1'-8"	N/A
Top chord interior panel	8	8-9	L1 1/2x1 1/2x1/8[NA]	⌐⌐	1'-8"	N/A
Top chord interior panel	9	9-10	L1 1/2x1 1/2x1/8[NA]	⌐⌐	1'-8"	N/A
Top chord interior panel	10	10-11	L1 1/2x1 1/2x1/8[NA]	⌐⌐	1'-8"	N/A
Top chord interior panel	11	11-12	L1 1/2x1 1/2x1/8[NA]	⌐⌐	1'-8"	N/A
Top chord Right second end panel (Lep2)	12	12-13	L1 1/2x1 1/2x1/8[NA]	⌐⌐	2'-0"	N/A
Top chord right first end panel (Lep1)	13	13-14	L1 1/2x1 1/2x1/8[NA]	⌐⌐	1'-4"	N/A
Bottom chord left ext.	14	15-16	L1 1/4x1 1/4x1/8[NA]	⌐⌐	4"	N/A
Bottom chord interior panel	15	16-17	L1 1/4x1 1/4x1/8[NA]	⌐⌐	1'-8"	N/A
Bottom chord interior panel	16	17-18	L1 1/4x1 1/4x1/8[NA]	⌐⌐	1'-8"	N/A
Bottom chord interior panel	17	18-19	L1 1/4x1 1/4x1/8[NA]	⌐⌐	1'-8"	N/A
Bottom chord interior panel	18	19-20	L1 1/4x1 1/4x1/8[NA]	⌐⌐	1'-8"	N/A
Bottom chord interior panel	19	20-21	L1 1/4x1 1/4x1/8[NA]	⌐⌐	1'-8"	N/A
Bottom chord interior panel	20	21-22	L1 1/4x1 1/4x1/8[NA]	⌐⌐	1'-8"	N/A
Bottom chord interior panel	21	22-23	L1 1/4x1 1/4x1/8[NA]	⌐⌐	1'-8"	N/A
Bottom chord interior panel	22	23-24	L1 1/4x1 1/4x1/8[NA]	⌐⌐	1'-8"	N/A
Bottom chord interior panel	23	24-25	L1 1/4x1 1/4x1/8[NA]	⌐⌐	1'-8"	N/A
Bottom chord interior panel	24	25-26	L1 1/4x1 1/4x1/8[NA]	⌐⌐	1'-8"	N/A
Bottom chord right ext.	25	26-27	L1 1/4x1 1/4x1/8[NA]	⌐⌐	4"	N/A
Left end web member	26	1-16	R7/8[NA]	○	2'-10 9/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Aux. left or SV web member	27	2-16	R1/2[NA]	○	1'-10 3/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior First web member	28	16-3	R3/4[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	29	3-17	R3/4[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	30	17-4	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	31	4-18	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	32	18-5	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	33	5-19	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	34	19-6	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	35	6-20	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	36	20-7	R1/2[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	37	7-21	R1/2[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	38	21-8	R1/2[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	39	8-22	R1/2[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	40	22-9	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)

**********MEMBERS WELDING**********

****

B.E = Both end

Member Name	Mem	I-J	Designation[Reinf.]		Lenght	Weld Information
Interior web member	41	9-23	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	42	23-10	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	43	10-24	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	44	24-11	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	45	11-25	R5/8[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior web member	46	25-12	R3/4[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Interior First web member	47	12-26	R3/4[NA]	○	1'-7 15/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Aux. right or SV web member	48	26-13	R1/2[NA]	○	1'-10 3/16"	Use: 1/8" ; 2 inches Both end (total lenght)
Right end web member	49	26-14	R7/8[NA]	○	2'-10 9/16"	Use: 1/8" ; 2 inches Both end (total lenght)

GENERAL JOIST INFORMATION
INPUT FORM (ASD) Revision SJI 100-2020
Rev. 1 - Approved April 27, 2020

General Data
**** Parallel Chord and rod web members ****
Designation = 18K3SP
Depth = 18 inches; de = Effective Depth 17.220 inches
Clear Depth = 15.250 inches
Span = 22'-0"
Span design = 22.000 - 0.333 = 21.667 ft. = 21'-8" = L=260.00 in
Total Joist Weight = 137.749 Lbs./joist
Joist Weight = 6.261309 Lbs./ft. (SJI 6.400 Lbs/ft.)
Assumed Chord Spacing (s) = 1/2"
EXTC Left Lenght end = 0"; EXBC Left =6"
EXTC Right Lenght end = 0"; EXBC Right =6"
Camber = 1/4"
Seat Type=Outside Seat
Left Seat Angle = L2x2x5/16 x 6"; Hight = 2 1/2"
Right Seat Angle = L2x2x5/16 x 6"; Hight = 2 1/2"

Check Span Depth Ratio (SJI Spec 5.2)
SJI - Spec 5.2
Span*12/d = 22.00*12.0/18=14.667 ft.
Ratio=14.67/24=0.61
(Check Ratio) 0.61 <= 1.0 <<--- OK

Seat Extender
Left seat not extender to end panel
Right seat not extender to end panel

LOAD (SJI) (I=Interpolation)
Uniform Total SJI (TL) = (I=382.000 #/ft) 382.000 #/ft full lenght
Uniform Live (LL) = (I=316.000 #/ft) 316.000 #/ft full lenght
Uniform Dead (DL) = (I=66.000 #/ft) 66.000 #/ft full lenght

Not Additional load present
UPLIFT ACTIVE - PATTERM #2 (THREE LOAD)
250.000 Lbs/ft From 0 to 6'-0"
175.000 Lbs/ft From 6'-0" to 15'-8" (9'-8")
250.000 Lbs/ft From 15'-8" to 21'-8" (6'-0")

Combination [SW=Self Weight]
COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

(R)Reaction
Reation (Comb. #1): Left = 4.207 Kips; Right = 4.207 Kips
Reation (Comb. #2): Left = 0.000 Kips; Right = 0.000 Kips
Reation (Comb. #3): Left = 3.492 Kips; Right = 3.492 Kips
Reation (Comb. #4): Left = -1.894 Kips; Right = -1.894 Kips

Maximun Actual Deflection (Check in Red)
1.00xDL+1.00xLL = -0.772 in.(Member #7)
1.00xDL+1.00xLL = 0.000 in.(Member #25)
1.00xLL = -0.641 in.(Member #7)
0.60xDL+1.00xUP = 0.317 in.(Member #7)

Maximun Allowed Deflection (Live Load)
Floors
Floors = 1/360 of span
= (Span*12.0)/360
= (22.000*12.0)/360 = 0.733 in.
Roof where plaster ceiling is attached or suspended(Rc)
Rc = 1/360 of span
= (Span*12.0)/360
= (22.000*12.0)/360 = 0.733 in.
Roof for all other cases(Ro)
Ro = 1/240 of span
= (Span*12.0)/240
= (22.000*12.0)/240 = 1.100 in.
Deflection Verify
Floor:|0.000| < 0.733 OK
Roof:|0.000| < 1.100 OK
L / 1 Live Defl.(This joist)

Maximun Axial Force
Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = -6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = -15.790 Kips in Member #20; Comb1

Calculate an equivalent uniform load (W) based on the maximum moment(m) or shear(v).
Wm = (8*Jm)/ L^2
= 8*(22.658)/((21.667^2)) = 386.129 plf
Wv = (2*R)/ L
= 2*(4.207)/(21.667) = 388.357 plf
Use: W= 388.357 #/ft. = 0.388 k/ft.(Joist Weight Included)
W= 382.000 #/ft. = 0.382 k/ft.(Not Joist Weight Included)

Calculate Moment
Joist moment (Jm) = max Axia force * effective depth=
= 15.790 * 17.220 = 271.900 k-in = 22.658 k-ft
Joist moment(SJI Manual) = (w*L^2)/8 =
= (0.388 *(22.000^2))/8.0 = 281.935 k-in = 23.495 k-ft

Calculate Inertia Moment (Joist)
Required Moment of Inertia = (1.15*5*360*WLL*(L*12)^3)/(384*E) in^4
= (1.15*5*360*(0.316/12)*(21.67*12)^3)/(384*29000)=86.03 in^4
Moment Inertia of Joist = 86.0334 in^4
Use Top & Bottom chord to calculate inertia moment
Top Chord = L1 1/2x1 1/2x1/8; A1=0.718; y1=0.421; Ix1=0.156
Bottom Chord = L1 1/4x1 1/4x1/8; A2=0.594; y2=0.359; Ix2=0.088
Total Area(TA) = A1+A2=0.718+0.594=1.312
Center Gravity(Cg) = ((y1*A1)+(y2*A1))/At
= ((0.359*0.718)+(17.579*0.594))/1.312= 8.155 in from bottom
Y1 = 9.424; Y2 = 7.796 (from bottom)
Ijoist = Ixt+Ixb+[(At*Ab*de^2/(TA)]
Ijoist = 0.16+0.09+[(0.72*0.59*17.22^2)/(1.31)] = 96.64 in^4

CHECK Moment Of Inertia (Required vs This Joist)
86.03 < 96.64 OK

Modulus Section Bottom (Sb) & Modulus Section Top (St)
Sx = Sb = Ix / Y2; St=Ix / Y1
Sx = Sb = 96.637 / 7.796 = 12.395 in^3
St = 96.637 / 9.424 = 10.255 in^3

Calculation of Radius of Gyration (r)
r = Sqr(Ix / Total Area)
r = Sqr(96.637 / 1.312) = 8.582 in

AREA OF SURFACE
Area = 43.346 sq.ft. one Joist

PRIMER
Primer = Std. Red Oxide Primer; Gal. req'd = 43.346 / 200.000 = 0.216732 gals.
Gal. req'd = 1 gal.

BRIDGING NOTES
Use normal bridging
Max. spaces of Bridging in top: 8.167 Ft. = 8'-2"
Max. spaces of Bridging in Bottom: 5.667 Ft. = 5'-8"

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 1
Serial = K
Member name = Top chord left first end panel (Lep1)
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-4" = 1.333 ft.= 16.00 in.
End Panel Lenghtg (Lip) = 16 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 120

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	6.879	0.129	0.528	1.141
COMB2	0.000	0.000	0.000	0.528	0.000
COMB3	0.000	5.710	0.107	0.528	1.141
COMB4	3.070	0.000	0.075	0.528	1.141

Max. Local Shear (V) = 0.128767 Kips; Location in COMB1
Max. Moment (Me) = 0.095092 K-ft; Location in COMB1
Max. Moment (Mi) = 0.044000 K-ft; Location in COMB1
Max. Tension = 3.070 Kips; Location in COMB4
Max. Compresion = 6.879 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=1.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (1.333*12)/0.466 = 34.326
S.R. y = (Ly*12)/ry = (3.000*12)/0.817 = 44.063
S.R. z = (Lz*12)/rz = (1.333*12)/0.296 = 54.054
SLRtc = Control = 54.054
Comp. Ratio = Control / 120 = 54.1 / 120 = 0.450
Comp. Status: 0.45 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 54.05 / 240 = 0.23
Tens. Status: 0.23 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (1.00*1.33*12)/0.30 = 54.05
SLRgov=54.05
Fy=50.00 ksi;
Area=0.72 in^2;Comp=6.88 kips; fa=Comp/Area=9.58 ksi
Fcr=39.14 ksi; Fa=0.6Fcr= 23.49 ksi
IRc=fa/Fa=9.581/23.485=0.410
Comp. Status: 0.41 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (3.070 x 1.000)/ 0.718 = 4.276 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 4.28 / 30.00 = 0.14
Status: 0.14 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES End Panel

Mpp=1.141 in-K; Mpnl=0.528 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp=7.893;Cm_ep=0.988; fa=fau=fc=9.58; Atc=0.72 in^2
Cm=1-0.5*fa/F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Kx=1.00
Fex=242.90 ksi; Fe_tc=97.96 ksi
fa/(Fa_rc)=0.408; Cm=1-0.5(fau/Fex)=0.989
IRtc_pnl=0.467
Status: 0.467 < 0.9 <<-- OK
AT THE PANEL POINT (SJI Eq. 4.4)
IRtc_pp=0.582
Status: 0.582 < 0.9 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=5.847,
b=1.500 in; t=0.125 in; ft=P/A=8.144
Evaluation Node #1; Shear(V) = 3.949; fv=V/(bt*2*t)=10.530; fvmod=11.289
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.289 <= fn/OmegaW OK
Evaluation Node #2; Shear(V) = 0.617; fv=V/(bt*2)=1.646; fvmod=4.392
fvmod=(1/2)*(ft^2+4fv^2)^1/2=4.392 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 2
Serial = K
Member name = Top chord left second end panel (Lep2)
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 2'-0" = 2.000 ft.= 24.00 in.
End Panel Lenghtg (Lip) = 24 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 120

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	6.399	0.244	1.242	1.681
COMB2	0.000	0.000	0.000	1.242	0.000
COMB3	0.000	5.312	0.202	0.000	0.000
COMB4	2.802	0.000	0.128	0.000	0.000

Max. Local Shear (V) = 0.243579 Kips; Location in COMB1
Max. Moment (Me) = 0.140047 K-ft; Location in COMB1
Max. Moment (Mi) = 0.103532 K-ft; Location in COMB1
Max. Tension = 2.802 Kips; Location in COMB4
Max. Compresion = 6.399 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=1.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (2.000*12)/0.466 = 51.489
S.R. y = (Ly*12)/ry = (3.000*12)/0.817 = 44.063
S.R. z = (Lz*12)/rz = (2.000*12)/0.296 = 81.081
SLRtc = Control = 81.081
Comp. Ratio = Control / 120 = 81.1 / 120 = 0.676
Comp. Status: 0.68 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 81.08 / 240 = 0.34
Tens. Status: 0.34 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (1.00*2.00*12)/0.30 = 81.08
SLRgov=81.08
Fy=50.00 ksi;
Area=0.72 in^2;Comp=6.40 kips; fa=Comp/Area=8.91 ksi
Fcr=30.28 ksi; Fa=0.6Fcr= 18.17 ksi
IRc=fa/Fa=8.912/18.168=0.490
Comp. Status: 0.49 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (2.802 x 1.000)/ 0.718 = 3.903 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 3.90 / 30.00 = 0.13
Status: 0.13 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES End Panel

Mpp=1.681 in-K; Mpnl=1.242 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp=11.624;Cm_ep=0.974; fa=fau=fc=8.91; Atc=0.72 in^2
Cm=1-0.5*fa/F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Kx=1.00
Fex=107.96 ksi; Fe_tc=43.54 ksi
fa/(Fa_rc)=0.491; Cm=1-0.5(fau/Fex)=0.977
IRtc_pnl=0.580
Status: 0.580 < 0.9 <<-- OK
AT THE PANEL POINT (SJI Eq. 4.4)
IRtc_pp=0.685
Status: 0.685 < 0.9 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=5.439,
b=1.500 in; t=0.125 in; ft=P/A=7.575
Evaluation Node #2; Shear(V) = 0.617; fv=V/(bt*2*t)=1.646; fvmod=4.130
fvmod=(1/2)*(ft^2+4fv^2)^1/2=4.130 <= fn/OmegaW OK
Evaluation Node #3; Shear(V) = 3.343; fv=V/(bt*2)=8.914; fvmod=9.685
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.685 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 3
Serial = K
Member name = Top chord interior panel
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Interior Panel Lenghtg (Lip) = 20 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 90

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	9.813	0.207	0.531	1.061
COMB2	0.000	0.000	0.000	0.531	0.000
COMB3	0.000	8.146	0.172	0.531	1.061
COMB4	4.219	0.000	0.109	0.531	1.061

Max. Local Shear (V) = 0.207352 Kips; Location in COMB1
Max. Moment (Me) = 0.088426 K-ft; Location in COMB1
Max. Moment (Mi) = 0.044213 K-ft; Location in COMB1
Max. Tension = 4.219 Kips; Location in COMB4
Max. Compresion = 9.813 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.75

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (1.67*12)/0.47=42.91
S.R. y = (Ly*12)/ry = (3.00*12)/0.82=44.06
S.R. z = (Lz*12)/rz = (1.67*12)/0.30 = 67.57
SLRtc = Control = 67.568
Comp. Ratio = Control / 90 = 67.6 / 90 = 0.751
Comp. Status: 0.75 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 67.57 / 240 = 0.28
Tens. Status: 0.28 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.75*1.67*12)/0.30 = 50.68
SLRgov=50.68
Fy=50.00 ksi;
Area=0.72 in^2;Comp=9.81 kips; fa=Comp/Area=13.67 ksi
Fcr=40.13 ksi; Fa=0.6Fcr= 24.08 ksi
IRc=fa/Fa=13.668/24.077=0.570
Comp. Status: 0.57 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (4.219 x 1.000)/ 0.718 = 5.875 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 5.88 / 30.00 = 0.20
Status: 0.20 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=1.061 in-K; Mpnl=0.531 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp = 7.34 ksi.; fbu_pnl = 1.43 ksi. fa=fau=fc=13.67; Atc=0.72 in^2
Cm=1-0.67*fau/Phi*F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Fex=276.39 ksi; Fe_tc=111.45 ksi
fa/(Fa_rc)=0.568; Cm=1-0.67(fau/Fex)=0.967
IRtc_pnl=0.59
Status: 0.59 < 1.0 <<-- OK
AT THE PANEL POINT
IRtc_pnl=0.700
Status: 0.70 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=8.341,
b=1.500 in; t=0.125 in; ft=P/A=11.617
Evaluation Node #3; Shear(V) = 3.343; fv=V/(bt*2*t)=8.914; fvmod=10.640
fvmod=(1/2)*(ft^2+4fv^2)^1/2=10.640 <= fn/OmegaW OK
Evaluation Node #4; Shear(V) = 2.536; fv=V/(bt*2)=6.764; fvmod=8.916
fvmod=(1/2)*(ft^2+4fv^2)^1/2=8.916 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 4
Serial = K
Member name = Top chord interior panel
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Interior Panel Lenghtg (Lip) = 20 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 90

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	0.000	12.417	0.166	0.531	1.061
COMB2	0.000	0.000	0.000	0.531	0.000
COMB3	0.000	10.307	0.137	0.531	1.061
COMB4	5.205	0.000	0.088	0.531	1.061

Max. Local Shear (V) = 0.165717 Kips; Location in COMB1
Max. Moment (Me) = 0.088426 K-ft; Location in COMB1
Max. Moment (Mi) = 0.044213 K-ft; Location in COMB1
Max. Tension = 5.205 Kips; Location in COMB4
Max. Compresion = 12.417 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.75

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (1.67*12)/0.47=42.91
S.R. y = (Ly*12)/ry = (3.00*12)/0.82=44.06
S.R. z = (Lz*12)/rz = (1.67*12)/0.30 = 67.57
SLRtc = Control = 67.568
Comp. Ratio = Control / 90 = 67.6 / 90 = 0.751
Comp. Status: 0.75 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 67.57 / 240 = 0.28
Tens. Status: 0.28 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.75*1.67*12)/0.30 = 50.68
SLRgov=50.68
Fy=50.00 ksi;
Area=0.72 in^2;Comp=12.42 kips; fa=Comp/Area=17.29 ksi
Fcr=40.13 ksi; Fa=0.6Fcr= 24.08 ksi
IRc=fa/Fa=17.293/24.077=0.720
Comp. Status: 0.72 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (5.205 x 1.000)/ 0.718 = 7.249 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 7.25 / 30.00 = 0.24
Status: 0.24 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=1.061 in-K; Mpnl=0.531 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp = 7.34 ksi.; fbu_pnl = 1.43 ksi. fa=fau=fc=17.29; Atc=0.72 in^2
Cm=1-0.67*fau/Phi*F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Fex=276.39 ksi; Fe_tc=111.45 ksi
fa/(Fa_rc)=0.718; Cm=1-0.67(fau/Fex)=0.958
IRtc_pnl=0.75
Status: 0.75 < 1.0 <<-- OK
AT THE PANEL POINT
IRtc_pnl=0.821
Status: 0.82 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=10.554,
b=1.500 in; t=0.125 in; ft=P/A=14.699
Evaluation Node #4; Shear(V) = 2.536; fv=V/(bt*2*t)=6.764; fvmod=9.988
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.988 <= fn/OmegaW OK
Evaluation Node #5; Shear(V) = 1.943; fv=V/(bt*2)=5.181; fvmod=8.992
fvmod=(1/2)*(ft^2+4fv^2)^1/2=8.992 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 5
Serial = K
Member name = Top chord interior panel
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Interior Panel Lenghtg (Lip) = 20 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 90

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	14.295	0.163	0.531	1.061
COMB2	0.000	0.000	0.000	0.531	0.000
COMB3	0.000	11.866	0.135	0.531	1.061
COMB4	5.855	0.000	0.062	0.531	1.061

Max. Local Shear (V) = 0.163100 Kips; Location in COMB1
Max. Moment (Me) = 0.088426 K-ft; Location in COMB1
Max. Moment (Mi) = 0.044213 K-ft; Location in COMB1
Max. Tension = 5.855 Kips; Location in COMB4
Max. Compresion = 14.295 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.75

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (1.67*12)/0.47=42.91
S.R. y = (Ly*12)/ry = (3.00*12)/0.82=44.06
S.R. z = (Lz*12)/rz = (1.67*12)/0.30 = 67.57
SLRtc = Control = 67.568
Comp. Ratio = Control / 90 = 67.6 / 90 = 0.751
Comp. Status: 0.75 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 67.57 / 240 = 0.28
Tens. Status: 0.28 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.75*1.67*12)/0.30 = 50.68
SLRgov=50.68
Fy=50.00 ksi;
Area=0.72 in^2;Comp=14.30 kips; fa=Comp/Area=19.91 ksi
Fcr=40.13 ksi; Fa=0.6Fcr= 24.08 ksi
IRc=fa/Fa=19.910/24.077=0.830
Comp. Status: 0.83 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (5.855 x 1.000)/ 0.718 = 8.155 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 8.15 / 30.00 = 0.27
Status: 0.27 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=1.061 in-K; Mpnl=0.531 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp = 7.34 ksi.; fbu_pnl = 1.43 ksi. fa=fau=fc=19.91; Atc=0.72 in^2
Cm=1-0.67*fau/Phi*F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Fex=276.39 ksi; Fe_tc=111.45 ksi
fa/(Fa_rc)=0.827; Cm=1-0.67(fau/Fex)=0.952
IRtc_pnl=0.85
Status: 0.85 < 1.0 <<-- OK
AT THE PANEL POINT
IRtc_pnl=0.908
Status: 0.91 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=12.151,
b=1.500 in; t=0.125 in; ft=P/A=16.923
Evaluation Node #5; Shear(V) = 1.943; fv=V/(bt*2*t)=5.181; fvmod=9.922
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.922 <= fn/OmegaW OK
Evaluation Node #6; Shear(V) = 1.289; fv=V/(bt*2)=3.437; fvmod=9.133
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.133 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 6
Serial = K
Member name = Top chord interior panel
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Interior Panel Lenghtg (Lip) = 20 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 90

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	15.419	0.163	0.531	1.061
COMB2	0.000	0.000	0.000	0.531	0.000
COMB3	0.000	12.799	0.135	0.531	1.061
COMB4	6.235	0.000	0.056	0.531	1.061

Max. Local Shear (V) = 0.162818 Kips; Location in COMB1
Max. Moment (Me) = 0.088426 K-ft; Location in COMB1
Max. Moment (Mi) = 0.044213 K-ft; Location in COMB1
Max. Tension = 6.235 Kips; Location in COMB4
Max. Compresion = 15.419 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.75

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (1.67*12)/0.47=42.91
S.R. y = (Ly*12)/ry = (3.00*12)/0.82=44.06
S.R. z = (Lz*12)/rz = (1.67*12)/0.30 = 67.57
SLRtc = Control = 67.568
Comp. Ratio = Control / 90 = 67.6 / 90 = 0.751
Comp. Status: 0.75 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 67.57 / 240 = 0.28
Tens. Status: 0.28 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.75*1.67*12)/0.30 = 50.68
SLRgov=50.68
Fy=50.00 ksi;
Area=0.72 in^2;Comp=15.42 kips; fa=Comp/Area=21.48 ksi
Fcr=40.13 ksi; Fa=0.6Fcr= 24.08 ksi
IRc=fa/Fa=21.475/24.077=0.890
Comp. Status: 0.89 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (6.235 x 1.000)/ 0.718 = 8.683 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 8.68 / 30.00 = 0.29
Status: 0.29 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=1.061 in-K; Mpnl=0.531 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp = 7.34 ksi.; fbu_pnl = 1.43 ksi. fa=fau=fc=21.48; Atc=0.72 in^2
Cm=1-0.67*fau/Phi*F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Fex=276.39 ksi; Fe_tc=111.45 ksi
fa/(Fa_rc)=0.892; Cm=1-0.67(fau/Fex)=0.948
IRtc_pnl=0.92
Status: 0.92 < 1.0 <<-- OK
AT THE PANEL POINT
IRtc_pnl=0.960
Status: 0.96 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=13.106,
b=1.500 in; t=0.125 in; ft=P/A=18.254
Evaluation Node #6; Shear(V) = 1.289; fv=V/(bt*2*t)=3.437; fvmod=9.752
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.752 <= fn/OmegaW OK
Evaluation Node #7; Shear(V) = 0.910; fv=V/(bt*2)=2.425; fvmod=9.444
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.444 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 7
Serial = K
Member name = Top chord interior panel
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Interior Panel Lenghtg (Lip) = 20 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 90

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	15.790	0.160	0.531	1.061
COMB2	0.000	0.000	0.000	0.531	0.000
COMB3	0.000	13.107	0.133	0.531	1.061
COMB4	6.361	0.000	0.056	0.531	1.061

Max. Local Shear (V) = 0.160187 Kips; Location in COMB1
Max. Moment (Me) = 0.088426 K-ft; Location in COMB1
Max. Moment (Mi) = 0.044213 K-ft; Location in COMB1
Max. Tension = 6.361 Kips; Location in COMB4
Max. Compresion = 15.790 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.75

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (1.67*12)/0.47=42.91
S.R. y = (Ly*12)/ry = (3.00*12)/0.82=44.06
S.R. z = (Lz*12)/rz = (1.67*12)/0.30 = 67.57
SLRtc = Control = 67.568
Comp. Ratio = Control / 90 = 67.6 / 90 = 0.751
Comp. Status: 0.75 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 67.57 / 240 = 0.28
Tens. Status: 0.28 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.75*1.67*12)/0.30 = 50.68
SLRgov=50.68
Fy=50.00 ksi;
Area=0.72 in^2;Comp=15.79 kips; fa=Comp/Area=21.99 ksi
Fcr=40.13 ksi; Fa=0.6Fcr= 24.08 ksi
IRc=fa/Fa=21.991/24.077=0.910
Comp. Status: 0.91 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (6.361 x 1.000)/ 0.718 = 8.860 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 8.86 / 30.00 = 0.29
Status: 0.29 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=1.061 in-K; Mpnl=0.531 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp = 7.34 ksi.; fbu_pnl = 1.43 ksi. fa=fau=fc=21.99; Atc=0.72 in^2
Cm=1-0.67*fau/Phi*F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Fex=276.39 ksi; Fe_tc=111.45 ksi
fa/(Fa_rc)=0.913; Cm=1-0.67(fau/Fex)=0.947
IRtc_pnl=0.94
Status: 0.94 < 1.0 <<-- OK
AT THE PANEL POINT
IRtc_pnl=0.978
Status: 0.98 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=13.421,
b=1.500 in; t=0.125 in; ft=P/A=18.693
Evaluation Node #7; Shear(V) = 0.910; fv=V/(bt*2*t)=2.425; fvmod=9.656
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.656 <= fn/OmegaW OK
Evaluation Node #8; Shear(V) = 0.910; fv=V/(bt*2)=2.425; fvmod=9.656
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.656 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 8
Serial = K
Member name = Top chord interior panel
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Interior Panel Lenghtg (Lip) = 20 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 90

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	15.419	0.163	0.531	1.061
COMB2	0.000	0.000	0.000	0.531	0.000
COMB3	0.000	12.799	0.135	0.531	1.061
COMB4	6.235	0.000	0.056	0.531	1.061

Max. Local Shear (V) = 0.162818 Kips; Location in COMB1
Max. Moment (Me) = 0.088426 K-ft; Location in COMB1
Max. Moment (Mi) = 0.044213 K-ft; Location in COMB1
Max. Tension = 6.235 Kips; Location in COMB4
Max. Compresion = 15.419 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.75

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (1.67*12)/0.47=42.91
S.R. y = (Ly*12)/ry = (3.00*12)/0.82=44.06
S.R. z = (Lz*12)/rz = (1.67*12)/0.30 = 67.57
SLRtc = Control = 67.568
Comp. Ratio = Control / 90 = 67.6 / 90 = 0.751
Comp. Status: 0.75 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 67.57 / 240 = 0.28
Tens. Status: 0.28 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.75*1.67*12)/0.30 = 50.68
SLRgov=50.68
Fy=50.00 ksi;
Area=0.72 in^2;Comp=15.42 kips; fa=Comp/Area=21.48 ksi
Fcr=40.13 ksi; Fa=0.6Fcr= 24.08 ksi
IRc=fa/Fa=21.475/24.077=0.890
Comp. Status: 0.89 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (6.235 x 1.000)/ 0.718 = 8.683 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 8.68 / 30.00 = 0.29
Status: 0.29 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=1.061 in-K; Mpnl=0.531 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp = 7.34 ksi.; fbu_pnl = 1.43 ksi. fa=fau=fc=21.48; Atc=0.72 in^2
Cm=1-0.67*fau/Phi*F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Fex=276.39 ksi; Fe_tc=111.45 ksi
fa/(Fa_rc)=0.892; Cm=1-0.67(fau/Fex)=0.948
IRtc_pnl=0.92
Status: 0.92 < 1.0 <<-- OK
AT THE PANEL POINT
IRtc_pnl=0.960
Status: 0.96 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=13.106,
b=1.500 in; t=0.125 in; ft=P/A=18.254
Evaluation Node #8; Shear(V) = 0.910; fv=V/(bt*2*t)=2.425; fvmod=9.444
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.444 <= fn/OmegaW OK
Evaluation Node #9; Shear(V) = 1.289; fv=V/(bt*2)=3.437; fvmod=9.752
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.752 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 9
Serial = K
Member name = Top chord interior panel
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Interior Panel Lenghtg (Lip) = 20 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 90

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	14.295	0.163	0.531	1.061
COMB2	0.000	0.000	0.000	0.531	0.000
COMB3	0.000	11.866	0.135	0.531	1.061
COMB4	5.855	0.000	0.062	0.531	1.061

Max. Local Shear (V) = 0.163100 Kips; Location in COMB1
Max. Moment (Me) = 0.088426 K-ft; Location in COMB1
Max. Moment (Mi) = 0.044213 K-ft; Location in COMB1
Max. Tension = 5.855 Kips; Location in COMB4
Max. Compresion = 14.295 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.75

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (1.67*12)/0.47=42.91
S.R. y = (Ly*12)/ry = (3.00*12)/0.82=44.06
S.R. z = (Lz*12)/rz = (1.67*12)/0.30 = 67.57
SLRtc = Control = 67.568
Comp. Ratio = Control / 90 = 67.6 / 90 = 0.751
Comp. Status: 0.75 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 67.57 / 240 = 0.28
Tens. Status: 0.28 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.75*1.67*12)/0.30 = 50.68
SLRgov=50.68
Fy=50.00 ksi;
Area=0.72 in^2;Comp=14.30 kips; fa=Comp/Area=19.91 ksi
Fcr=40.13 ksi; Fa=0.6Fcr= 24.08 ksi
IRc=fa/Fa=19.910/24.077=0.830
Comp. Status: 0.83 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (5.855 x 1.000)/ 0.718 = 8.155 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 8.15 / 30.00 = 0.27
Status: 0.27 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=1.061 in-K; Mpnl=0.531 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp = 7.34 ksi.; fbu_pnl = 1.43 ksi. fa=fau=fc=19.91; Atc=0.72 in^2
Cm=1-0.67*fau/Phi*F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Fex=276.39 ksi; Fe_tc=111.45 ksi
fa/(Fa_rc)=0.827; Cm=1-0.67(fau/Fex)=0.952
IRtc_pnl=0.85
Status: 0.85 < 1.0 <<-- OK
AT THE PANEL POINT
IRtc_pnl=0.908
Status: 0.91 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=12.151,
b=1.500 in; t=0.125 in; ft=P/A=16.923
Evaluation Node #9; Shear(V) = 1.289; fv=V/(bt*2*t)=3.437; fvmod=9.133
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.133 <= fn/OmegaW OK
Evaluation Node #10; Shear(V) = 1.943; fv=V/(bt*2)=5.181; fvmod=9.922
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.922 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 10
Serial = K
Member name = Top chord interior panel
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Interior Panel Lenghtg (Lip) = 20 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 90

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	0.000	12.417	0.166	0.531	1.061
COMB2	0.000	0.000	0.000	0.531	0.000
COMB3	0.000	10.307	0.137	0.531	1.061
COMB4	5.205	0.000	0.088	0.531	1.061

Max. Local Shear (V) = 0.165717 Kips; Location in COMB1
Max. Moment (Me) = 0.088426 K-ft; Location in COMB1
Max. Moment (Mi) = 0.044213 K-ft; Location in COMB1
Max. Tension = 5.205 Kips; Location in COMB4
Max. Compresion = 12.417 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.75

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (1.67*12)/0.47=42.91
S.R. y = (Ly*12)/ry = (3.00*12)/0.82=44.06
S.R. z = (Lz*12)/rz = (1.67*12)/0.30 = 67.57
SLRtc = Control = 67.568
Comp. Ratio = Control / 90 = 67.6 / 90 = 0.751
Comp. Status: 0.75 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 67.57 / 240 = 0.28
Tens. Status: 0.28 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.75*1.67*12)/0.30 = 50.68
SLRgov=50.68
Fy=50.00 ksi;
Area=0.72 in^2;Comp=12.42 kips; fa=Comp/Area=17.29 ksi
Fcr=40.13 ksi; Fa=0.6Fcr= 24.08 ksi
IRc=fa/Fa=17.293/24.077=0.720
Comp. Status: 0.72 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (5.205 x 1.000)/ 0.718 = 7.249 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 7.25 / 30.00 = 0.24
Status: 0.24 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=1.061 in-K; Mpnl=0.531 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp = 7.34 ksi.; fbu_pnl = 1.43 ksi. fa=fau=fc=17.29; Atc=0.72 in^2
Cm=1-0.67*fau/Phi*F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Fex=276.39 ksi; Fe_tc=111.45 ksi
fa/(Fa_rc)=0.718; Cm=1-0.67(fau/Fex)=0.958
IRtc_pnl=0.75
Status: 0.75 < 1.0 <<-- OK
AT THE PANEL POINT
IRtc_pnl=0.821
Status: 0.82 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=10.554,
b=1.500 in; t=0.125 in; ft=P/A=14.699
Evaluation Node #10; Shear(V) = 1.943; fv=V/(bt*2*t)=5.181; fvmod=8.992
fvmod=(1/2)*(ft^2+4fv^2)^1/2=8.992 <= fn/OmegaW OK
Evaluation Node #11; Shear(V) = 2.536; fv=V/(bt*2)=6.764; fvmod=9.988
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.988 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 11
Serial = K
Member name = Top chord interior panel
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Interior Panel Lenghtg (Lip) = 20 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 90

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	9.813	0.207	0.531	1.061
COMB2	0.000	0.000	0.000	0.531	0.000
COMB3	0.000	8.146	0.172	0.531	1.061
COMB4	4.219	0.000	0.109	0.531	1.061

Max. Local Shear (V) = 0.207352 Kips; Location in COMB1
Max. Moment (Me) = 0.088426 K-ft; Location in COMB1
Max. Moment (Mi) = 0.044213 K-ft; Location in COMB1
Max. Tension = 4.219 Kips; Location in COMB4
Max. Compresion = 9.813 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.75

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (1.67*12)/0.47=42.91
S.R. y = (Ly*12)/ry = (3.00*12)/0.82=44.06
S.R. z = (Lz*12)/rz = (1.67*12)/0.30 = 67.57
SLRtc = Control = 67.568
Comp. Ratio = Control / 90 = 67.6 / 90 = 0.751
Comp. Status: 0.75 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 67.57 / 240 = 0.28
Tens. Status: 0.28 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.75*1.67*12)/0.30 = 50.68
SLRgov=50.68
Fy=50.00 ksi;
Area=0.72 in^2;Comp=9.81 kips; fa=Comp/Area=13.67 ksi
Fcr=40.13 ksi; Fa=0.6Fcr= 24.08 ksi
IRc=fa/Fa=13.668/24.077=0.570
Comp. Status: 0.57 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (4.219 x 1.000)/ 0.718 = 5.875 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 5.88 / 30.00 = 0.20
Status: 0.20 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=1.061 in-K; Mpnl=0.531 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp = 7.34 ksi.; fbu_pnl = 1.43 ksi. fa=fau=fc=13.67; Atc=0.72 in^2
Cm=1-0.67*fau/Phi*F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Fex=276.39 ksi; Fe_tc=111.45 ksi
fa/(Fa_rc)=0.568; Cm=1-0.67(fau/Fex)=0.967
IRtc_pnl=0.59
Status: 0.59 < 1.0 <<-- OK
AT THE PANEL POINT
IRtc_pnl=0.700
Status: 0.70 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=8.341,
b=1.500 in; t=0.125 in; ft=P/A=11.617
Evaluation Node #11; Shear(V) = 2.536; fv=V/(bt*2*t)=6.764; fvmod=8.916
fvmod=(1/2)*(ft^2+4fv^2)^1/2=8.916 <= fn/OmegaW OK
Evaluation Node #12; Shear(V) = 3.343; fv=V/(bt*2)=8.914; fvmod=10.640
fvmod=(1/2)*(ft^2+4fv^2)^1/2=10.640 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 12
Serial = K
Member name = Top chord Right second end panel (Lep2)
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 2'-0" = 2.000 ft.= 24.00 in.
End Panel Lenghtg (Lip) = 24 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 120

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	0.000	6.399	0.244	1.242	1.681
COMB2	0.000	0.000	0.000	1.242	0.000
COMB3	0.000	5.312	0.202	0.000	0.000
COMB4	2.802	0.000	0.128	0.000	0.000

Max. Local Shear (V) = 0.243579 Kips; Location in COMB1
Max. Moment (Me) = 0.140047 K-ft; Location in COMB1
Max. Moment (Mi) = 0.103532 K-ft; Location in COMB1
Max. Tension = 2.802 Kips; Location in COMB4
Max. Compresion = 6.399 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=1.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (2.000*12)/0.466 = 51.489
S.R. y = (Ly*12)/ry = (3.000*12)/0.817 = 44.063
S.R. z = (Lz*12)/rz = (2.000*12)/0.296 = 81.081
SLRtc = Control = 81.081
Comp. Ratio = Control / 120 = 81.1 / 120 = 0.676
Comp. Status: 0.68 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 81.08 / 240 = 0.34
Tens. Status: 0.34 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (1.00*2.00*12)/0.30 = 81.08
SLRgov=81.08
Fy=50.00 ksi;
Area=0.72 in^2;Comp=6.40 kips; fa=Comp/Area=8.91 ksi
Fcr=30.28 ksi; Fa=0.6Fcr= 18.17 ksi
IRc=fa/Fa=8.912/18.168=0.490
Comp. Status: 0.49 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (2.802 x 1.000)/ 0.718 = 3.903 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 3.90 / 30.00 = 0.13
Status: 0.13 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES End Panel

Mpp=1.681 in-K; Mpnl=1.242 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp=11.624;Cm_ep=0.974; fa=fau=fc=8.91; Atc=0.72 in^2
Cm=1-0.5*fa/F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Kx=1.00
Fex=107.96 ksi; Fe_tc=43.54 ksi
fa/(Fa_rc)=0.491; Cm=1-0.5(fau/Fex)=0.977
IRtc_pnl=0.580
Status: 0.580 < 0.9 <<-- OK
AT THE PANEL POINT (SJI Eq. 4.4)
IRtc_pp=0.685
Status: 0.685 < 0.9 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=5.439,
b=1.500 in; t=0.125 in; ft=P/A=7.575
Evaluation Node #12; Shear(V) = 3.343; fv=V/(bt*2*t)=8.914; fvmod=9.685
fvmod=(1/2)*(ft^2+4fv^2)^1/2=9.685 <= fn/OmegaW OK
Evaluation Node #13; Shear(V) = 0.617; fv=V/(bt*2)=1.646; fvmod=4.130
fvmod=(1/2)*(ft^2+4fv^2)^1/2=4.130 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 13
Serial = K
Member name = Top chord right first end panel (Lep1)
Type = 2Angles(#2)(1)
Section = ⌐⌐
Designation = L1 1/2x1 1/2x1/8 (LLV); A = 0.718^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-4" = 1.333 ft.= 16.00 in.
End Panel Lenghtg (Lip) = 16 in
Braced Top Chord (Metal Panel) Ly = 36 in
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced 120

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.718 in^2; k = 0.318 inches
Inertia x = 0.156 in^4, Iy=0.479 in^4
rx = 0.47 in; ry = 0.82 in; y = 0.421 in
Sx = 0.145 in^3
rz = 0.296 in; Qs = 0.961
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	6.879	0.129	0.528	1.141
COMB2	0.000	0.000	0.000	0.528	0.000
COMB3	0.000	5.710	0.107	0.528	1.141
COMB4	3.070	0.000	0.075	0.528	1.141

Max. Local Shear (V) = 0.128767 Kips; Location in COMB1
Max. Moment (Me) = 0.095092 K-ft; Location in COMB1
Max. Moment (Mi) = 0.044000 K-ft; Location in COMB1
Max. Tension = 3.070 Kips; Location in COMB4
Max. Compresion = 6.879 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=1.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

Assume there are no fillers at the midpanel of
top chorrd center panel.
S.R. x = (Lx*12)/rx = (1.333*12)/0.466 = 34.326
S.R. y = (Ly*12)/ry = (3.000*12)/0.817 = 44.063
S.R. z = (Lz*12)/rz = (1.333*12)/0.296 = 54.054
SLRtc = Control = 54.054
Comp. Ratio = Control / 120 = 54.1 / 120 = 0.450
Comp. Status: 0.45 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 54.05 / 240 = 0.23
Tens. Status: 0.23 < 1.00 <<-- OK

CHECK LATERAL STABILITY DURING ERECTION

Eq 5.5-2a; Eq 5.5-2b (Lenght bridging=Lbry=8.17)
L=22.00; dj=18.00; ry=0.817
Lbridging1{EQ104.5-1a} = 112.723; Lbridging2{EQ104.5-2} = 138.893
Lbrdg_gov = 112.72 in; Lbrdg_spcg = 98.00 in
Control Ratio = (Lbrdg_spacg/Lbrdg_gov)=98.00/112.72=0.87
Status: 0.87 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (1.00*1.33*12)/0.30 = 54.05
SLRgov=54.05
Fy=50.00 ksi;
Area=0.72 in^2;Comp=6.88 kips; fa=Comp/Area=9.58 ksi
Fcr=39.14 ksi; Fa=0.6Fcr= 23.49 ksi
IRc=fa/Fa=9.581/23.485=0.410
Comp. Status: 0.41 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (3.070 x 1.000)/ 0.718 = 4.276 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 4.28 / 30.00 = 0.14
Status: 0.14 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES End Panel

Mpp=1.141 in-K; Mpnl=0.528 in-K; btc=1.50 in.; Ytc=0.42 in. Ixtc=0.16 in^4
fbu_pp=7.893;Cm_ep=0.988; fa=fau=fc=9.58; Atc=0.72 in^2
Cm=1-0.5*fa/F'e
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
Kx=1.00
Fex=242.90 ksi; Fe_tc=97.96 ksi
fa/(Fa_rc)=0.408; Cm=1-0.5(fau/Fex)=0.989
IRtc_pnl=0.467
Status: 0.467 < 0.9 <<-- OK
AT THE PANEL POINT (SJI Eq. 4.4)
IRtc_pp=0.582
Status: 0.582 < 0.9 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.50 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=45.000,Force(P)=5.847,
b=1.500 in; t=0.125 in; ft=P/A=8.144
Evaluation Node #13; Shear(V) = 0.617; fv=V/(bt*2*t)=1.646; fvmod=4.392
fvmod=(1/2)*(ft^2+4fv^2)^1/2=4.392 <= fn/OmegaW OK
Evaluation Node #14; Shear(V) = 3.949; fv=V/(bt*2)=10.530; fvmod=11.289
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.289 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 14
Serial = K
Member name = Bottom chord left ext.
Type = 2Angle(1)
Section = ⌋L
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 4" = 0.333 ft.= 4.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	0.000	0.001	0.001	0.000
COMB2	0.000	0.000	0.000	0.001	0.000
COMB3	0.000	0.000	0.001	0.001	0.000
COMB4	0.000	0.000	0.000	0.001	0.000

Max. Local Shear (V) = 0.000507 Kips; Location in COMB3
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000113 K-ft; Location in COMB3
Max. Tension = 0.000 Kips; Location in COMB4
Max. Compresion = 0.000 Kips; Location in COMB4
Original COMPRESION = NOT (Use for internal information only)

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (0.333*12)/0.385 = 10.392
S.R. z = (Lz*12)/rz = (0.333*12)/0.246 = 16.260
SLRbc = Control = 94.387

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=0.000 kips
b=1.250 in; t=0.125 in; ft=P/A=0.000 ksi
Evaluation Node #16; Shear(V) = 3.949; fv=V/(bt*2)=12.635; fvmod=12.635
fvmod=(1/2)*(ft^2+4fv^2)^1/2=12.635 <= fn/OmegaW OK

CHECK MODULAR SECTION (S) Verification

Using Max. Moment
S = (M)/Fb = (0.001) / 30.000 = 0.000 in^3
S = 0.000 in^3; Sx = 0.099 in^3
Ratio = S / Sx = 0.000 / 0.099 = 0.000
Status: 0.00 < 1.00 <<-- OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 15
Serial = K
Member name = Bottom chord interior panel
Type = 2Angle(1)
Section = ⌋⌊
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio not excced = 200
For Tension member Slenderness Ratio not excced 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	8.340	0.000	0.009	0.001	0.000
COMB2	0.000	0.000	0.000	0.001	0.000
COMB3	6.923	0.000	0.007	0.001	0.131
COMB4	0.000	3.634	0.004	0.079	0.000

Max. Local Shear (V) = 0.008865 Kips; Location in COMB1
Max. Moment (Me) = 0.010934 K-ft; Location in COMB1
Max. Moment (Mi) = 0.006558 K-ft; Location in COMB4
Max. Tension = 8.340 Kips; Location in COMB1
Max. Compresion = 3.634 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.90

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.667*12)/0.385 = 51.962
S.R. y = (L*12)/ry = (5.667*12)/0.720 = 94.387
S.R. z = (Lz*12)/rz = (1.667*12)/0.246 = 81.301
SLRbc = Control = 94.387
Comp. Ratio = Control / 200 = 94.4 / 200 = 0.472
Comp. Status: 0.47 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 94.39 / 240 = 0.39
Tens. Status: 0.39 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.900*1.67*12)/0.246 = 73.171
SLRgov=73.17
Fy=50.00 ksi;
Area=0.59 in^2;Comp=3.63 kips; fa=Comp/Area=6.12 ksi
Fe_bc=53.46 ksi; Fcr_bc=33.80 ksi
Fcr=33.80 ksi; Fa=0.6Fcr= 20.28 ksi
IRc=fa/Fa=6.118/20.282=0.300
Comp. Status: 0.30 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (8.340 x 1.000)/ 0.594 = 14.040 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 14.04 / 30.00 = 0.47
Status: 0.47 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=0.131 in-K; Mpnl=0.079 in-K; bbc=1.25 in.; Ybc=0.36 in. Ixtc=0.09 in^4
fbu_pp = 1.33 ksi.; fbu_pnl = 0.32 ksi. fa=fau=fc=6.12; Abc=0.59 in^2
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
fa/(Fa_rc)=0.302; Cm=1-0.67(fa/Fex)=0.978
IRbc_pnl=0.31
Status: 0.31 < 1.0 <<-- OK
AT THE PANEL POINT
IRbc_pnl=0.248
Status: 0.25 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=7.089 kips
b=1.250 in; t=0.125 in; ft=P/A=11.934 ksi
Evaluation Node #16; Shear(V) = 3.949; fv=V/(bt*2*t)=12.635; fvmod=13.974
fvmod=(1/2)*(ft^2+4fv^2)^1/2=13.974 <= fn/OmegaW OK
Evaluation Node #17; Shear(V) = 2.537; fv=V/(bt*2)=8.118; fvmod=10.075
fvmod=(1/2)*(ft^2+4fv^2)^1/2=10.075 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 16
Serial = K
Member name = Bottom chord interior panel
Type = 2Angle(1)
Section = ⌋L
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio not excced = 200
For Tension member Slenderness Ratio not excced 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	11.286	0.000	0.004	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	9.369	0.000	0.003	0.000	0.182
COMB4	0.000	4.806	0.001	0.097	0.000

Max. Local Shear (V) = 0.003868 Kips; Location in COMB1
Max. Moment (Me) = 0.015131 K-ft; Location in COMB1
Max. Moment (Mi) = 0.008093 K-ft; Location in COMB4
Max. Tension = 11.286 Kips; Location in COMB1
Max. Compresion = 4.806 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.90

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.667*12)/0.385 = 51.962
S.R. y = (L*12)/ry = (5.667*12)/0.720 = 94.387
S.R. z = (Lz*12)/rz = (1.667*12)/0.246 = 81.301
SLRbc = Control = 94.387
Comp. Ratio = Control / 200 = 94.4 / 200 = 0.472
Comp. Status: 0.47 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 94.39 / 240 = 0.39
Tens. Status: 0.39 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.900*1.67*12)/0.246 = 73.171
SLRgov=73.17
Fy=50.00 ksi;
Area=0.59 in^2;Comp=4.81 kips; fa=Comp/Area=8.09 ksi
Fe_bc=53.46 ksi; Fcr_bc=33.80 ksi
Fcr=33.80 ksi; Fa=0.6Fcr= 20.28 ksi
IRc=fa/Fa=8.092/20.282=0.400
Comp. Status: 0.40 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (11.286 x 1.000)/ 0.594 = 19.000 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 19.00 / 30.00 = 0.63
Status: 0.63 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=0.182 in-K; Mpnl=0.097 in-K; bbc=1.25 in.; Ybc=0.36 in. Ixtc=0.09 in^4
fbu_pp = 1.84 ksi.; fbu_pnl = 0.40 ksi. fa=fau=fc=8.09; Abc=0.59 in^2
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
fa/(Fa_rc)=0.399; Cm=1-0.67(fa/Fex)=0.971
IRbc_pnl=0.41
Status: 0.41 < 1.0 <<-- OK
AT THE PANEL POINT
IRbc_pnl=0.331
Status: 0.33 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=9.593 kips
b=1.250 in; t=0.125 in; ft=P/A=16.150 ksi
Evaluation Node #17; Shear(V) = 2.537; fv=V/(bt*2*t)=8.118; fvmod=11.450
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.450 <= fn/OmegaW OK
Evaluation Node #18; Shear(V) = 1.947; fv=V/(bt*2)=6.229; fvmod=10.199
fvmod=(1/2)*(ft^2+4fv^2)^1/2=10.199 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 17
Serial = K
Member name = Bottom chord interior panel
Type = 2Angle(1)
Section = ⌋L
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio not excced = 200
For Tension member Slenderness Ratio not excced 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	13.545	0.000	0.002	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	11.244	0.000	0.002	0.000	0.208
COMB4	0.000	5.605	0.001	0.105	0.000

Max. Local Shear (V) = 0.002444 Kips; Location in COMB1
Max. Moment (Me) = 0.017340 K-ft; Location in COMB1
Max. Moment (Mi) = 0.008770 K-ft; Location in COMB4
Max. Tension = 13.545 Kips; Location in COMB1
Max. Compresion = 5.605 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.90

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.667*12)/0.385 = 51.962
S.R. y = (L*12)/ry = (5.667*12)/0.720 = 94.387
S.R. z = (Lz*12)/rz = (1.667*12)/0.246 = 81.301
SLRbc = Control = 94.387
Comp. Ratio = Control / 200 = 94.4 / 200 = 0.472
Comp. Status: 0.47 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 94.39 / 240 = 0.39
Tens. Status: 0.39 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.900*1.67*12)/0.246 = 73.171
SLRgov=73.17
Fy=50.00 ksi;
Area=0.59 in^2;Comp=5.61 kips; fa=Comp/Area=9.44 ksi
Fe_bc=53.46 ksi; Fcr_bc=33.80 ksi
Fcr=33.80 ksi; Fa=0.6Fcr= 20.28 ksi
IRc=fa/Fa=9.436/20.282=0.470
Comp. Status: 0.47 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (13.545 x 1.000)/ 0.594 = 22.803 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 22.80 / 30.00 = 0.76
Status: 0.76 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=0.208 in-K; Mpnl=0.105 in-K; bbc=1.25 in.; Ybc=0.36 in. Ixtc=0.09 in^4
fbu_pp = 2.11 ksi.; fbu_pnl = 0.43 ksi. fa=fau=fc=9.44; Abc=0.59 in^2
Check Top Chord Center Panel for Combined Axial and Bending ASD
SJI Eqs 4.4-9 & 4.4-10
fa/(Fa_rc)=0.465; Cm=1-0.67(fa/Fex)=0.966
IRbc_pnl=0.47
Status: 0.47 < 1.0 <<-- OK
AT THE PANEL POINT
IRbc_pnl=0.385
Status: 0.38 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=11.513 kips
b=1.250 in; t=0.125 in; ft=P/A=19.382 ksi
Evaluation Node #18; Shear(V) = 1.947; fv=V/(bt*2*t)=6.229; fvmod=11.521
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.521 <= fn/OmegaW OK
Evaluation Node #19; Shear(V) = 1.292; fv=V/(bt*2)=4.134; fvmod=10.536
fvmod=(1/2)*(ft^2+4fv^2)^1/2=10.536 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 18
Serial = K
Member name = Bottom chord interior panel
Type = 2Angle(1)
Section = ⌋L
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio not excced = 200
For Tension member Slenderness Ratio not excced 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	15.044	0.000	0.001	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	12.487	0.000	0.001	0.000	0.214
COMB4	0.000	6.107	0.001	0.105	0.000

Max. Local Shear (V) = 0.001111 Kips; Location in COMB1
Max. Moment (Me) = 0.017859 K-ft; Location in COMB1
Max. Moment (Mi) = 0.008770 K-ft; Location in COMB4
Max. Tension = 15.044 Kips; Location in COMB1
Max. Compresion = 6.107 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.90

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.667*12)/0.385 = 51.962
S.R. y = (L*12)/ry = (5.667*12)/0.720 = 94.387
S.R. z = (Lz*12)/rz = (1.667*12)/0.246 = 81.301
SLRbc = Control = 94.387
Comp. Ratio = Control / 200 = 94.4 / 200 = 0.472
Comp. Status: 0.47 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 94.39 / 240 = 0.39
Tens. Status: 0.39 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.900*1.67*12)/0.246 = 73.171
SLRgov=73.17
Fy=50.00 ksi;
Area=0.59 in^2;Comp=6.11 kips; fa=Comp/Area=10.28 ksi
Fe_bc=53.46 ksi; Fcr_bc=33.80 ksi
Fcr=33.80 ksi; Fa=0.6Fcr= 20.28 ksi
IRc=fa/Fa=10.282/20.282=0.510
Comp. Status: 0.51 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (15.044 x 1.000)/ 0.594 = 25.326 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 25.33 / 30.00 = 0.84
Status: 0.84 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=0.214 in-K; Mpnl=0.105 in-K; bbc=1.25 in.; Ybc=0.36 in. Ixtc=0.09 in^4
fbu_pp = 2.17 ksi.; fbu_pnl = 0.43 ksi. fa=fau=fc=10.28; Abc=0.59 in^2
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
fa/(Fa_rc)=0.507; Cm=1-0.67(fa/Fex)=0.963
IRbc_pnl=0.51
Status: 0.51 < 1.0 <<-- OK
AT THE PANEL POINT
IRbc_pnl=0.415
Status: 0.42 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=12.787 kips
b=1.250 in; t=0.125 in; ft=P/A=21.527 ksi
Evaluation Node #19; Shear(V) = 1.292; fv=V/(bt*2*t)=4.134; fvmod=11.530
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.530 <= fn/OmegaW OK
Evaluation Node #20; Shear(V) = 0.910; fv=V/(bt*2)=2.911; fvmod=11.150
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.150 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 19
Serial = K
Member name = Bottom chord interior panel
Type = 2Angle(1)
Section = ⌋L
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio not excced = 200
For Tension member Slenderness Ratio not excced 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	15.790	0.000	0.004	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	13.107	0.000	0.003	0.000	0.248
COMB4	0.000	6.363	0.001	0.122	0.000

Max. Local Shear (V) = 0.003536 Kips; Location in COMB1
Max. Moment (Me) = 0.020694 K-ft; Location in COMB1
Max. Moment (Mi) = 0.010156 K-ft; Location in COMB4
Max. Tension = 15.790 Kips; Location in COMB1
Max. Compresion = 6.363 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.90

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.667*12)/0.385 = 51.962
S.R. y = (L*12)/ry = (5.667*12)/0.720 = 94.387
S.R. z = (Lz*12)/rz = (1.667*12)/0.246 = 81.301
SLRbc = Control = 94.387
Comp. Ratio = Control / 200 = 94.4 / 200 = 0.472
Comp. Status: 0.47 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 94.39 / 240 = 0.39
Tens. Status: 0.39 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.900*1.67*12)/0.246 = 73.171
SLRgov=73.17
Fy=50.00 ksi;
Area=0.59 in^2;Comp=6.36 kips; fa=Comp/Area=10.71 ksi
Fe_bc=53.46 ksi; Fcr_bc=33.80 ksi
Fcr=33.80 ksi; Fa=0.6Fcr= 20.28 ksi
IRc=fa/Fa=10.712/20.282=0.530
Comp. Status: 0.53 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (15.790 x 1.000)/ 0.594 = 26.583 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 26.58 / 30.00 = 0.89
Status: 0.89 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=0.248 in-K; Mpnl=0.122 in-K; bbc=1.25 in.; Ybc=0.36 in. Ixtc=0.09 in^4
fbu_pp = 2.51 ksi.; fbu_pnl = 0.50 ksi. fa=fau=fc=10.71; Abc=0.59 in^2
Check Top Chord Center Panel for Combined Axial and Bending ASD
SJI Eqs 4.4-9 & 4.4-10
fa/(Fa_rc)=0.528; Cm=1-0.67(fa/Fex)=0.962
IRbc_pnl=0.54
Status: 0.54 < 1.0 <<-- OK
AT THE PANEL POINT
IRbc_pnl=0.441
Status: 0.44 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=13.422 kips
b=1.250 in; t=0.125 in; ft=P/A=22.595 ksi
Evaluation Node #20; Shear(V) = 0.910; fv=V/(bt*2*t)=2.911; fvmod=11.666
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.666 <= fn/OmegaW OK
Evaluation Node #21; Shear(V) = 0.910; fv=V/(bt*2)=2.911; fvmod=11.666
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.666 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 20
Serial = K
Member name = Bottom chord interior panel
Type = 2Angle(1)
Section = ⌋⌊
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio not excced = 200
For Tension member Slenderness Ratio not excced 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	15.790	0.000	0.004	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	13.107	0.000	0.003	0.000	0.248
COMB4	0.000	6.363	0.001	0.122	0.000

Max. Local Shear (V) = 0.003536 Kips; Location in COMB1
Max. Moment (Me) = 0.020694 K-ft; Location in COMB1
Max. Moment (Mi) = 0.010156 K-ft; Location in COMB4
Max. Tension = 15.790 Kips; Location in COMB1
Max. Compresion = 6.363 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.90

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.667*12)/0.385 = 51.962
S.R. y = (L*12)/ry = (5.667*12)/0.720 = 94.387
S.R. z = (Lz*12)/rz = (1.667*12)/0.246 = 81.301
SLRbc = Control = 94.387
Comp. Ratio = Control / 200 = 94.4 / 200 = 0.472
Comp. Status: 0.47 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 94.39 / 240 = 0.39
Tens. Status: 0.39 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.900*1.67*12)/0.246 = 73.171
SLRgov=73.17
Fy=50.00 ksi;
Area=0.59 in^2;Comp=6.36 kips; fa=Comp/Area=10.71 ksi
Fe_bc=53.46 ksi; Fcr_bc=33.80 ksi
Fcr=33.80 ksi; Fa=0.6Fcr= 20.28 ksi
IRc=fa/Fa=10.712/20.282=0.530
Comp. Status: 0.53 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (15.790 x 1.000)/ 0.594 = 26.583 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 26.58 / 30.00 = 0.89
Status: 0.89 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=0.248 in-K; Mpnl=0.122 in-K; bbc=1.25 in.; Ybc=0.36 in. Ixtc=0.09 in^4
fbu_pp = 2.51 ksi.; fbu_pnl = 0.50 ksi. fa=fau=fc=10.71; Abc=0.59 in^2
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
fa/(Fa_rc)=0.528; Cm=1-0.67(fa/Fex)=0.962
IRbc_pnl=0.54
Status: 0.54 < 1.0 <<-- OK
AT THE PANEL POINT
IRbc_pnl=0.441
Status: 0.44 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=13.422 kips
b=1.250 in; t=0.125 in; ft=P/A=22.595 ksi
Evaluation Node #21; Shear(V) = 0.910; fv=V/(bt*2*t)=2.911; fvmod=11.666
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.666 <= fn/OmegaW OK
Evaluation Node #22; Shear(V) = 0.910; fv=V/(bt*2)=2.911; fvmod=11.666
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.666 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 21
Serial = K
Member name = Bottom chord interior panel
Type = 2Angle(1)
Section = ⌋L
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio not excced = 200
For Tension member Slenderness Ratio not excced 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	15.044	0.000	0.001	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	12.487	0.000	0.001	0.000	0.214
COMB4	0.000	6.107	0.001	0.105	0.000

Max. Local Shear (V) = 0.001111 Kips; Location in COMB1
Max. Moment (Me) = 0.017859 K-ft; Location in COMB1
Max. Moment (Mi) = 0.008770 K-ft; Location in COMB4
Max. Tension = 15.044 Kips; Location in COMB1
Max. Compresion = 6.107 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.90

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.667*12)/0.385 = 51.962
S.R. y = (L*12)/ry = (5.667*12)/0.720 = 94.387
S.R. z = (Lz*12)/rz = (1.667*12)/0.246 = 81.301
SLRbc = Control = 94.387
Comp. Ratio = Control / 200 = 94.4 / 200 = 0.472
Comp. Status: 0.47 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 94.39 / 240 = 0.39
Tens. Status: 0.39 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.900*1.67*12)/0.246 = 73.171
SLRgov=73.17
Fy=50.00 ksi;
Area=0.59 in^2;Comp=6.11 kips; fa=Comp/Area=10.28 ksi
Fe_bc=53.46 ksi; Fcr_bc=33.80 ksi
Fcr=33.80 ksi; Fa=0.6Fcr= 20.28 ksi
IRc=fa/Fa=10.282/20.282=0.510
Comp. Status: 0.51 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (15.044 x 1.000)/ 0.594 = 25.326 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 25.33 / 30.00 = 0.84
Status: 0.84 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=0.214 in-K; Mpnl=0.105 in-K; bbc=1.25 in.; Ybc=0.36 in. Ixtc=0.09 in^4
fbu_pp = 2.17 ksi.; fbu_pnl = 0.43 ksi. fa=fau=fc=10.28; Abc=0.59 in^2
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
fa/(Fa_rc)=0.507; Cm=1-0.67(fa/Fex)=0.963
IRbc_pnl=0.51
Status: 0.51 < 1.0 <<-- OK
AT THE PANEL POINT
IRbc_pnl=0.415
Status: 0.42 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=12.787 kips
b=1.250 in; t=0.125 in; ft=P/A=21.527 ksi
Evaluation Node #22; Shear(V) = 0.910; fv=V/(bt*2*t)=2.911; fvmod=11.150
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.150 <= fn/OmegaW OK
Evaluation Node #23; Shear(V) = 1.292; fv=V/(bt*2)=4.134; fvmod=11.530
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.530 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 22
Serial = K
Member name = Bottom chord interior panel
Type = 2Angle(1)
Section = ⌋L
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio not excced = 200
For Tension member Slenderness Ratio not excced 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	13.545	0.000	0.002	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	11.244	0.000	0.002	0.000	0.208
COMB4	0.000	5.605	0.001	0.105	0.000

Max. Local Shear (V) = 0.002444 Kips; Location in COMB1
Max. Moment (Me) = 0.017340 K-ft; Location in COMB1
Max. Moment (Mi) = 0.008770 K-ft; Location in COMB4
Max. Tension = 13.545 Kips; Location in COMB1
Max. Compresion = 5.605 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.90

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.667*12)/0.385 = 51.962
S.R. y = (L*12)/ry = (5.667*12)/0.720 = 94.387
S.R. z = (Lz*12)/rz = (1.667*12)/0.246 = 81.301
SLRbc = Control = 94.387
Comp. Ratio = Control / 200 = 94.4 / 200 = 0.472
Comp. Status: 0.47 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 94.39 / 240 = 0.39
Tens. Status: 0.39 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.900*1.67*12)/0.246 = 73.171
SLRgov=73.17
Fy=50.00 ksi;
Area=0.59 in^2;Comp=5.61 kips; fa=Comp/Area=9.44 ksi
Fe_bc=53.46 ksi; Fcr_bc=33.80 ksi
Fcr=33.80 ksi; Fa=0.6Fcr= 20.28 ksi
IRc=fa/Fa=9.436/20.282=0.470
Comp. Status: 0.47 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (13.545 x 1.000)/ 0.594 = 22.803 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 22.80 / 30.00 = 0.76
Status: 0.76 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=0.208 in-K; Mpnl=0.105 in-K; bbc=1.25 in.; Ybc=0.36 in. Ixtc=0.09 in^4
fbu_pp = 2.11 ksi.; fbu_pnl = 0.43 ksi. fa=fau=fc=9.44; Abc=0.59 in^2
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
fa/(Fa_rc)=0.465; Cm=1-0.67(fa/Fex)=0.966
IRbc_pnl=0.47
Status: 0.47 < 1.0 <<-- OK
AT THE PANEL POINT
IRbc_pnl=0.385
Status: 0.38 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=11.513 kips
b=1.250 in; t=0.125 in; ft=P/A=19.382 ksi
Evaluation Node #23; Shear(V) = 1.292; fv=V/(bt*2*t)=4.134; fvmod=10.536
fvmod=(1/2)*(ft^2+4fv^2)^1/2=10.536 <= fn/OmegaW OK
Evaluation Node #24; Shear(V) = 1.947; fv=V/(bt*2)=6.229; fvmod=11.521
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.521 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 23
Serial = K
Member name = Bottom chord interior panel
Type = 2Angle(1)
Section = ⌋L
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio not excced = 200
For Tension member Slenderness Ratio not excced 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	11.286	0.000	0.004	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	9.369	0.000	0.003	0.000	0.182
COMB4	0.000	4.806	0.001	0.097	0.000

Max. Local Shear (V) = 0.003868 Kips; Location in COMB1
Max. Moment (Me) = 0.015131 K-ft; Location in COMB1
Max. Moment (Mi) = 0.008093 K-ft; Location in COMB4
Max. Tension = 11.286 Kips; Location in COMB1
Max. Compresion = 4.806 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.90

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.667*12)/0.385 = 51.962
S.R. y = (L*12)/ry = (5.667*12)/0.720 = 94.387
S.R. z = (Lz*12)/rz = (1.667*12)/0.246 = 81.301
SLRbc = Control = 94.387
Comp. Ratio = Control / 200 = 94.4 / 200 = 0.472
Comp. Status: 0.47 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 94.39 / 240 = 0.39
Tens. Status: 0.39 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.900*1.67*12)/0.246 = 73.171
SLRgov=73.17
Fy=50.00 ksi;
Area=0.59 in^2;Comp=4.81 kips; fa=Comp/Area=8.09 ksi
Fe_bc=53.46 ksi; Fcr_bc=33.80 ksi
Fcr=33.80 ksi; Fa=0.6Fcr= 20.28 ksi
IRc=fa/Fa=8.092/20.282=0.400
Comp. Status: 0.40 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (11.286 x 1.000)/ 0.594 = 19.000 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 19.00 / 30.00 = 0.63
Status: 0.63 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=0.182 in-K; Mpnl=0.097 in-K; bbc=1.25 in.; Ybc=0.36 in. Ixtc=0.09 in^4
fbu_pp = 1.84 ksi.; fbu_pnl = 0.40 ksi. fa=fau=fc=8.09; Abc=0.59 in^2
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
fa/(Fa_rc)=0.399; Cm=1-0.67(fa/Fex)=0.971
IRbc_pnl=0.41
Status: 0.41 < 1.0 <<-- OK
AT THE PANEL POINT
IRbc_pnl=0.331
Status: 0.33 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=9.593 kips
b=1.250 in; t=0.125 in; ft=P/A=16.150 ksi
Evaluation Node #24; Shear(V) = 1.947; fv=V/(bt*2*t)=6.229; fvmod=10.199
fvmod=(1/2)*(ft^2+4fv^2)^1/2=10.199 <= fn/OmegaW OK
Evaluation Node #25; Shear(V) = 2.537; fv=V/(bt*2)=8.118; fvmod=11.450
fvmod=(1/2)*(ft^2+4fv^2)^1/2=11.450 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 24
Serial = K
Member name = Bottom chord interior panel
Type = 2Angle(1)
Section = ⌋L
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-8" = 1.667 ft.= 20.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio not excced = 200
For Tension member Slenderness Ratio not excced 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	8.340	0.000	0.009	0.001	0.000
COMB2	0.000	0.000	0.000	0.001	0.000
COMB3	6.923	0.000	0.007	0.001	0.131
COMB4	0.000	3.634	0.004	0.079	0.000

Max. Local Shear (V) = 0.008865 Kips; Location in COMB1
Max. Moment (Me) = 0.010934 K-ft; Location in COMB1
Max. Moment (Mi) = 0.006558 K-ft; Location in COMB4
Max. Tension = 8.340 Kips; Location in COMB1
Max. Compresion = 3.634 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.00; Ky=0.00; Kz=0.90

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.667*12)/0.385 = 51.962
S.R. y = (L*12)/ry = (5.667*12)/0.720 = 94.387
S.R. z = (Lz*12)/rz = (1.667*12)/0.246 = 81.301
SLRbc = Control = 94.387
Comp. Ratio = Control / 200 = 94.4 / 200 = 0.472
Comp. Status: 0.47 < 1.00 <<-- OK
Tens. Ratio = Control / 240 = 94.39 / 240 = 0.39
Tens. Status: 0.39 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. z = (kz*L*12)/rz = (0.900*1.67*12)/0.246 = 73.171
SLRgov=73.17
Fy=50.00 ksi;
Area=0.59 in^2;Comp=3.63 kips; fa=Comp/Area=6.12 ksi
Fe_bc=53.46 ksi; Fcr_bc=33.80 ksi
Fcr=33.80 ksi; Fa=0.6Fcr= 20.28 ksi
IRc=fa/Fa=6.118/20.282=0.300
Comp. Status: 0.30 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (8.340 x 1.000)/ 0.594 = 14.040 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 14.04 / 30.00 = 0.47
Status: 0.47 < 1.00 <<-- OK

CHECK COMBINED AXIAL AND BENDING STRESSES

AT THE CENTER PANEL
Mpp=0.131 in-K; Mpnl=0.079 in-K; bbc=1.25 in.; Ybc=0.36 in. Ixtc=0.09 in^4
fbu_pp = 1.33 ksi.; fbu_pnl = 0.32 ksi. fa=fau=fc=6.12; Abc=0.59 in^2
Check Top Chord Center Panel for Combined Axial and Bending ASD SJI Eqs 4.4-9 & 4.4-10
fa/(Fa_rc)=0.302; Cm=1-0.67(fa/Fex)=0.978
IRbc_pnl=0.31
Status: 0.31 < 1.0 <<-- OK
AT THE PANEL POINT
IRbc_pnl=0.248
Status: 0.25 < 1.0 <<-- OK

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=7.089 kips
b=1.250 in; t=0.125 in; ft=P/A=11.934 ksi
Evaluation Node #25; Shear(V) = 2.537; fv=V/(bt*2*t)=8.118; fvmod=10.075
fvmod=(1/2)*(ft^2+4fv^2)^1/2=10.075 <= fn/OmegaW OK
Evaluation Node #26; Shear(V) = 3.949; fv=V/(bt*2)=12.635; fvmod=13.974
fvmod=(1/2)*(ft^2+4fv^2)^1/2=13.974 <= fn/OmegaW OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 25
Serial = K
Member name = Bottom chord right ext.
Type = 2Angle(1)
Section = ⌋L
Designation = L1 1/4x1 1/4x1/8 (SLV); A = 0.594^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 4" = 0.333 ft.= 4.00 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.125 in. = 2.000
Spc's of Bridging Lbry = 5.667 ft. (Bottom Bridging)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
Slenderness Ratio not excced = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.594 in^2; k = 0.318 inches
Inertia x = 0.088 in^4, Iy=0.308 in^4
rx = 0.38 in; ry = 0.72 in; y = 0.359 in
Sx = 0.099 in^3
rz = 0.246 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	0.000	0.000	0.001	0.001	0.000
COMB2	0.000	0.000	0.000	0.001	0.000
COMB3	0.000	0.000	0.001	0.001	0.000
COMB4	0.000	0.000	0.000	0.001	0.000

Max. Local Shear (V) = 0.000507 Kips; Location in COMB3
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000113 K-ft; Location in COMB3
Max. Tension = 0.000 Kips; Location in COMB4
Max. Compresion = 0.000 Kips; Location in COMB4
Original COMPRESION = NOT (Use for internal information only)

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (0.333*12)/0.385 = 10.392
S.R. z = (Lz*12)/rz = (0.333*12)/0.246 = 16.260
SLRbc = Control = 94.387

CHECK SHEAR CAPACITY OF CHORD (Ref. SJI Spec. 4.4) (Panel Point=Node=Joint).

Angle b=1.25 in, Angle t=0.13 in
OmegaW=1.500;fn=30.000 ;fn x OmegaW=20.000,Force(P)=0.000 kips
b=1.250 in; t=0.125 in; ft=P/A=0.000 ksi
Evaluation Node #26; Shear(V) = 3.949; fv=V/(bt*2*t)=12.635; fvmod=12.635
fvmod=(1/2)*(ft^2+4fv^2)^1/2=12.635 <= fn/OmegaW OK

CHECK MODULAR SECTION (S) Verification

Using Max. Moment
S = (M)/Fb = (0.001) / 30.000 = 0.000 in^3
S = 0.000 in^3; Sx = 0.099 in^3
Ratio = S / Sx = 0.000 / 0.099 = 0.000
Status: 0.00 < 1.00 <<-- OK

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 26
Serial = K
Member name = Left end web member
Type = Single(2)
Section = ○
Designation = R7/8; A = 0.601^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 2'-10 9/16" = 2.880 ft.= 34.56 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.215 in. = 3.440 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.601 in^2; k = 0.318 inches
Inertia x = 0.029 in^4, Iy=0.313 in^4
rx = 0.22 in; ry = 0.22 in; y = 0.438 in
rz = 0.219 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	7.932	0.000	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	6.583	0.000	0.000	0.000	0.000
COMB4	0.000	3.540	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 7.932 Kips; Location in COMB1
Max. Compresion = 3.540 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=3.540; Tens=7.932; seno = 0.498; Max. 25% Reaction
Vertical Shear(Tens)=3.949; Vertical Shear(Comp)=1.762
Max. Tension = 7.932 Kips;(Not Change)
Max. Compresion = 3.540 Kips;(Not Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.80; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (2.880*12)/0.219 = 158.000
S.R. y = (L*12)/ry = (2.880*12)/0.219 = 158.000
S.R. z = (L*12)/rz = (2.880*12)/0.219 = 158.000
Control = 158.000
Comp. Ratio = Control/200 = 158.00 / 200 = 0.79
Comp. Status: 0.79 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 158.00 / 240 = 0.66
Tens. Status: 0.66 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*2.88*12)/0.219 = 118.500
S.R. y = (ky*L*12)/ry = (0.800*2.88*12)/0.219 = 126.400
SLRgov=126.40
Fy=50.00 ksi;
Area=0.60 in^2;Comp=3.54 kips; fa=Comp/Area=5.89 ksi
Fe=17.91 ksi; Fcr=15.71 ksi
Fcr=15.71 ksi; Fa=0.6Fcr= 9.43 ksi
IRc=fa/Fa=5.887/9.427=0.620
Comp. Status: 0.62 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (7.932 x 1.000)/ 0.601 = 13.191 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 13.19 / 30.00 = 0.44
Status: 0.44 <= 0.90*** <<-- OK
***Refer to Section 1.2B for applicationb of and the requirement for the use of the 0.90 Stress Interaction Ratio for design check of first end web.

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=7.932; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 7.932 x 2.0/(2 x 42.00 0.215)=0.878 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 27
Serial = K
Member name = Aux. left or SV web member
Type = Single(2)
Section = o
Designation = R1/2; A = 0.196^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-10 3/16" = 1.849 ft.= 22.19 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.170 in. = 2.720 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.196 in^2; k = 0.318 inches
Inertia x = 0.003 in^4, Iy=0.052 in^4
rx = 0.13 in; ry = 0.13 in; y = 0.250 in
rz = 0.125 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	0.000	0.761	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	0.630	0.000	0.000	0.000
COMB4	0.425	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.425 Kips; Location in COMB4
Max. Compresion = 0.761 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

For Interior Vertical Member.
gravity load + 1/2 of 1.0% of Max. Top Chord Axial Force

Tension = g + 1/2(1%*Pep)=
Tension = 0.425 Kips + 0.5(0.01*3.070100 Kips)=0.440 Kips
Max. Tension = 0.440 Kips;(Change)
Compresion = g + 1/2(1%*Pep)=
Compresion = 0.761 Kips + 0.5(0.01*15.789752 Kips)=0.796 Kips
Max. Compresion = 0.840 Kips;(Change)

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.849*12)/0.125 = 177.500
S.R. y = (L*12)/ry = (1.849*12)/0.125 = 177.500
S.R. z = (L*12)/rz = (1.849*12)/0.125 = 177.500
Control = 177.500
Comp. Ratio = Control/200 = 177.50 / 200 = 0.89
Comp. Status: 0.89 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 177.50 / 240 = 0.74
Tens. Status: 0.74 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.85*12)/0.125 = 133.125
S.R. y = (ky*L*12)/ry = (0.900*1.85*12)/0.125 = 159.750
SLRgov=159.75
Fy=50.00 ksi;
Area=0.20 in^2;Comp=0.84 kips; fa=Comp/Area=4.28 ksi
Fe=11.22 ksi; Fcr=9.84 ksi
Fcr=9.84 ksi; Fa=0.6Fcr= 5.90 ksi
IRc=fa/Fa=4.279/5.902=0.730
Comp. Status: 0.73 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.440 x 1.000)/ 0.196 = 2.242 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 2.24 / 30.00 = 0.07
Status: 0.07 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=0.840; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 0.840 x 2.0/(2 x 42.00 0.170)=0.118 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 28
Serial = K
Member name = Interior First web member
Type = Single(2)
Section = ○
Designation = R3/4; A = 0.442^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.200 in. = 3.200 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.442 in^2; k = 0.318 inches
Inertia x = 0.016 in^4, Iy=0.188 in^4
rx = 0.19 in; ry = 0.19 in; y = 0.375 in
rz = 0.188 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	3.865	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	3.208	0.000	0.000	0.000
COMB4	1.657	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 1.657 Kips; Location in COMB4
Max. Compresion = 3.865 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=3.865; Tens=1.657; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=1.433; Vertical Shear(Comp)=3.343
Max. Tension = 1.657 Kips;(Not Change)
Max. Compresion = 3.865 Kips;(Not Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.188 = 106.333
S.R. y = (L*12)/ry = (1.661*12)/0.188 = 106.333
S.R. z = (L*12)/rz = (1.661*12)/0.188 = 106.333
Control = 106.333
Comp. Ratio = Control/200 = 106.33 / 200 = 0.53
Comp. Status: 0.53 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 106.33 / 240 = 0.44
Tens. Status: 0.44 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.188 = 79.750
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.188 = 95.700
SLRgov=95.70
Fy=50.00 ksi;
Area=0.44 in^2;Comp=3.87 kips; fa=Comp/Area=8.75 ksi
Fe=31.25 ksi; Fcr=25.59 ksi
Fcr=25.59 ksi; Fa=0.6Fcr= 15.36 ksi
IRc=fa/Fa=8.750/15.357=0.570
Comp. Status: 0.57 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (1.657 x 1.000)/ 0.442 = 3.751 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 3.75 / 30.00 = 0.13
Status: 0.13 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=3.865; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 3.865 x 2.0/(2 x 42.00 0.200)=0.460 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 29
Serial = K
Member name = Interior web member
Type = Single(2)
Section = o
Designation = R3/4; A = 0.442^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.200 in. = 3.200 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.442 in^2; k = 0.318 inches
Inertia x = 0.016 in^4, Iy=0.188 in^4
rx = 0.19 in; ry = 0.19 in; y = 0.375 in
rz = 0.188 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	2.934	0.000	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	2.436	0.000	0.000	0.000	0.000
COMB4	0.000	1.163	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 2.934 Kips; Location in COMB1
Max. Compresion = 1.163 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=1.163; Tens=2.934; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=2.537; Vertical Shear(Comp)=1.006
Max. Tension = 2.934 Kips;(Not Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.188 = 106.333
S.R. y = (L*12)/ry = (1.661*12)/0.188 = 106.333
S.R. z = (L*12)/rz = (1.661*12)/0.188 = 106.333
Control = 106.333
Comp. Ratio = Control/200 = 106.33 / 200 = 0.53
Comp. Status: 0.53 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 106.33 / 240 = 0.44
Tens. Status: 0.44 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.188 = 79.750
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.188 = 95.700
SLRgov=95.70
Fy=50.00 ksi;
Area=0.44 in^2;Comp=1.05 kips; fa=Comp/Area=2.38 ksi
Fe=31.25 ksi; Fcr=25.59 ksi
Fcr=25.59 ksi; Fa=0.6Fcr= 15.36 ksi
IRc=fa/Fa=2.381/15.357=0.160
Comp. Status: 0.16 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (2.934 x 1.000)/ 0.442 = 6.640 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 6.64 / 30.00 = 0.22
Status: 0.22 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=2.934; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 2.934 x 2.0/(2 x 42.00 0.200)=0.349 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 30
Serial = K
Member name = Interior web member
Type = Single(2)
Section = ○
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	2.933	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	2.434	0.000	0.000	0.000
COMB4	1.171	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 1.171 Kips; Location in COMB4
Max. Compresion = 2.933 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=2.933; Tens=1.171; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=1.012; Vertical Shear(Comp)=2.536
Max. Tension = 1.171 Kips;(Not Change)
Max. Compresion = 2.933 Kips;(Not Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=2.93 kips; fa=Comp/Area=9.56 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=9.560/11.420=0.840
Comp. Status: 0.84 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (1.171 x 1.000)/ 0.307 = 3.815 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 3.82 / 30.00 = 0.13
Status: 0.13 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=2.933; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 2.933 x 2.0/(2 x 42.00 0.185)=0.377 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 31
Serial = K
Member name = Interior web member
Type = Single(2)
Section = ○
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	2.251	0.000	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	1.869	0.000	0.000	0.000	0.000
COMB4	0.000	0.793	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 2.251 Kips; Location in COMB1
Max. Compresion = 0.793 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=0.793; Tens=2.251; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=1.947; Vertical Shear(Comp)=0.686
Max. Tension = 2.251 Kips;(Not Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=1.05 kips; fa=Comp/Area=3.43 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=3.428/11.420=0.300
Comp. Status: 0.30 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (2.251 x 1.000)/ 0.307 = 7.337 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 7.34 / 30.00 = 0.25
Status: 0.25 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=2.251; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 2.251 x 2.0/(2 x 42.00 0.185)=0.290 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 32
Serial = K
Member name = Interior web member
Type = Single(2)
Section = ○
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	2.247	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	1.864	0.000	0.000	0.000
COMB4	0.797	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.797 Kips; Location in COMB4
Max. Compresion = 2.247 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=2.247; Tens=0.797; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=0.689; Vertical Shear(Comp)=1.943
Max. Tension = 0.797 Kips;(Not Change)
Max. Compresion = 2.247 Kips;(Not Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=2.25 kips; fa=Comp/Area=7.32 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=7.323/11.420=0.640
Comp. Status: 0.64 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.797 x 1.000)/ 0.307 = 2.599 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 2.60 / 30.00 = 0.09
Status: 0.09 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=2.247; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 2.247 x 2.0/(2 x 42.00 0.185)=0.289 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 33
Serial = K
Member name = Interior web member
Type = Single(2)
Section = ○
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	1.494	0.000	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	1.241	0.000	0.000	0.000	0.000
COMB4	0.000	0.498	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 1.494 Kips; Location in COMB1
Max. Compresion = 0.498 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=0.498; Tens=1.494; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=1.292; Vertical Shear(Comp)=0.431
Max. Tension = 1.494 Kips;(Not Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=1.05 kips; fa=Comp/Area=3.43 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=3.428/11.420=0.300
Comp. Status: 0.30 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (1.494 x 1.000)/ 0.307 = 4.870 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 4.87 / 30.00 = 0.16
Status: 0.16 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=1.494; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 1.494 x 2.0/(2 x 42.00 0.185)=0.192 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 34
Serial = K
Member name = Interior web member
Type = Single(2)
Section = ○
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	1.490	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	1.236	0.000	0.000	0.000
COMB4	0.502	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.502 Kips; Location in COMB4
Max. Compresion = 1.490 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=1.490; Tens=0.502; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=0.434; Vertical Shear(Comp)=1.289
Max. Tension = 0.548 Kips (Change)
Max. Compresion = 1.490 Kips;(Not Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=1.49 kips; fa=Comp/Area=4.86 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=4.858/11.420=0.430
Comp. Status: 0.43 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.548 x 1.000)/ 0.307 = 1.785 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 1.78 / 30.00 = 0.06
Status: 0.06 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=1.490; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 1.490 x 2.0/(2 x 42.00 0.185)=0.192 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 35
Serial = K
Member name = Interior web member
Type = Single(2)
Section = ○
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.748	0.000	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.621	0.000	0.000	0.000	0.000
COMB4	0.000	0.253	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.748 Kips; Location in COMB1
Max. Compresion = 0.253 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=0.253; Tens=0.748; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=0.647; Vertical Shear(Comp)=0.219
Max. Tension = 0.748 Kips;(Not Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=1.05 kips; fa=Comp/Area=3.43 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=3.428/11.420=0.300
Comp. Status: 0.30 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.748 x 1.000)/ 0.307 = 2.437 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 2.44 / 30.00 = 0.08
Status: 0.08 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=1.052; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 1.052 x 2.0/(2 x 42.00 0.185)=0.135 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 36
Serial = K
Member name = Interior web member
Type = Single(2)
Section = o
Designation = R1/2; A = 0.196^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.170 in. = 2.720 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.196 in^2; k = 0.318 inches
Inertia x = 0.003 in^4, Iy=0.052 in^4
rx = 0.13 in; ry = 0.13 in; y = 0.250 in
rz = 0.125 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	0.739	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	0.613	0.000	0.000	0.000
COMB4	0.255	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.255 Kips; Location in COMB4
Max. Compresion = 0.739 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=0.739; Tens=0.255; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=0.221; Vertical Shear(Comp)=0.639
Max. Tension = 0.548 Kips (Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.125 = 159.500
S.R. y = (L*12)/ry = (1.661*12)/0.125 = 159.500
S.R. z = (L*12)/rz = (1.661*12)/0.125 = 159.500
Control = 159.500
Comp. Ratio = Control/200 = 159.50 / 200 = 0.80
Comp. Status: 0.80 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 159.50 / 240 = 0.66
Tens. Status: 0.66 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.125 = 119.625
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.125 = 143.550
SLRgov=143.55
Fy=50.00 ksi;
Area=0.20 in^2;Comp=1.05 kips; fa=Comp/Area=5.36 ksi
Fe=13.89 ksi; Fcr=12.18 ksi
Fcr=12.18 ksi; Fa=0.6Fcr= 7.31 ksi
IRc=fa/Fa=5.357/7.309=0.730
Comp. Status: 0.73 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.548 x 1.000)/ 0.196 = 2.789 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 2.79 / 30.00 = 0.09
Status: 0.09 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=1.052; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 1.052 x 2.0/(2 x 42.00 0.170)=0.147 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 37
Serial = K
Member name = Interior web member
Type = Single(2)
Section = o
Designation = R1/2; A = 0.196^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.170 in. = 2.720 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.196 in^2; k = 0.318 inches
Inertia x = 0.003 in^4, Iy=0.052 in^4
rx = 0.13 in; ry = 0.13 in; y = 0.250 in
rz = 0.125 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	0.000	0.001	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	0.000	0.000	0.000	0.000
COMB4	0.003	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.003 Kips; Location in COMB4
Max. Compresion = 0.001 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=0.001; Tens=0.003; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=0.002; Vertical Shear(Comp)=0.000
Max. Tension = 0.548 Kips (Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.125 = 159.500
S.R. y = (L*12)/ry = (1.661*12)/0.125 = 159.500
S.R. z = (L*12)/rz = (1.661*12)/0.125 = 159.500
Control = 159.500
Comp. Ratio = Control/200 = 159.50 / 200 = 0.80
Comp. Status: 0.80 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 159.50 / 240 = 0.66
Tens. Status: 0.66 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.125 = 119.625
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.125 = 143.550
SLRgov=143.55
Fy=50.00 ksi;
Area=0.20 in^2;Comp=1.05 kips; fa=Comp/Area=5.36 ksi
Fe=13.89 ksi; Fcr=12.18 ksi
Fcr=12.18 ksi; Fa=0.6Fcr= 7.31 ksi
IRc=fa/Fa=5.357/7.309=0.730
Comp. Status: 0.73 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.548 x 1.000)/ 0.196 = 2.789 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 2.79 / 30.00 = 0.09
Status: 0.09 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=1.052; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 1.052 x 2.0/(2 x 42.00 0.170)=0.147 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 38
Serial = K
Member name = Interior web member
Type = Single(2)
Section = o
Designation = R1/2; A = 0.196^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.170 in. = 2.720 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.196 in^2; k = 0.318 inches
Inertia x = 0.003 in^4, Iy=0.052 in^4
rx = 0.13 in; ry = 0.13 in; y = 0.250 in
rz = 0.125 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	0.000	0.001	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	0.000	0.000	0.000	0.000
COMB4	0.003	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.003 Kips; Location in COMB4
Max. Compresion = 0.001 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=0.001; Tens=0.003; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=0.002; Vertical Shear(Comp)=0.000
Max. Tension = 0.548 Kips (Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.125 = 159.500
S.R. y = (L*12)/ry = (1.661*12)/0.125 = 159.500
S.R. z = (L*12)/rz = (1.661*12)/0.125 = 159.500
Control = 159.500
Comp. Ratio = Control/200 = 159.50 / 200 = 0.80
Comp. Status: 0.80 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 159.50 / 240 = 0.66
Tens. Status: 0.66 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.125 = 119.625
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.125 = 143.550
SLRgov=143.55
Fy=50.00 ksi;
Area=0.20 in^2;Comp=1.05 kips; fa=Comp/Area=5.36 ksi
Fe=13.89 ksi; Fcr=12.18 ksi
Fcr=12.18 ksi; Fa=0.6Fcr= 7.31 ksi
IRc=fa/Fa=5.357/7.309=0.730
Comp. Status: 0.73 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.548 x 1.000)/ 0.196 = 2.789 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 2.79 / 30.00 = 0.09
Status: 0.09 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=1.052; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 1.052 x 2.0/(2 x 42.00 0.170)=0.147 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 39
Serial = K
Member name = Interior web member
Type = Single(2)
Section = o
Designation = R1/2; A = 0.196^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.170 in. = 2.720 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.196 in^2; k = 0.318 inches
Inertia x = 0.003 in^4, Iy=0.052 in^4
rx = 0.13 in; ry = 0.13 in; y = 0.250 in
rz = 0.125 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	0.739	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	0.613	0.000	0.000	0.000
COMB4	0.255	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.255 Kips; Location in COMB4
Max. Compresion = 0.739 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=0.739; Tens=0.255; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=0.221; Vertical Shear(Comp)=0.639
Max. Tension = 0.548 Kips (Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.125 = 159.500
S.R. y = (L*12)/ry = (1.661*12)/0.125 = 159.500
S.R. z = (L*12)/rz = (1.661*12)/0.125 = 159.500
Control = 159.500
Comp. Ratio = Control/200 = 159.50 / 200 = 0.80
Comp. Status: 0.80 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 159.50 / 240 = 0.66
Tens. Status: 0.66 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.125 = 119.625
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.125 = 143.550
SLRgov=143.55
Fy=50.00 ksi;
Area=0.20 in^2;Comp=1.05 kips; fa=Comp/Area=5.36 ksi
Fe=13.89 ksi; Fcr=12.18 ksi
Fcr=12.18 ksi; Fa=0.6Fcr= 7.31 ksi
IRc=fa/Fa=5.357/7.309=0.730
Comp. Status: 0.73 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.548 x 1.000)/ 0.196 = 2.789 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 2.79 / 30.00 = 0.09
Status: 0.09 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=1.052; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 1.052 x 2.0/(2 x 42.00 0.170)=0.147 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 40
Serial = K
Member name = Interior web member
Type = Single(2)
Section = o
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.748	0.000	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.621	0.000	0.000	0.000	0.000
COMB4	0.000	0.253	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.748 Kips; Location in COMB1
Max. Compresion = 0.253 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=0.253; Tens=0.748; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=0.647; Vertical Shear(Comp)=0.219
Max. Tension = 0.748 Kips;(Not Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=1.05 kips; fa=Comp/Area=3.43 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=3.428/11.420=0.300
Comp. Status: 0.30 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.748 x 1.000)/ 0.307 = 2.437 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 2.44 / 30.00 = 0.08
Status: 0.08 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=1.052; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 1.052 x 2.0/(2 x 42.00 0.185)=0.135 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 41
Serial = K
Member name = Interior web member
Type = Single(2)
Section = ○
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	1.490	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	1.236	0.000	0.000	0.000
COMB4	0.502	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.502 Kips; Location in COMB4
Max. Compresion = 1.490 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=1.490; Tens=0.502; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=0.434; Vertical Shear(Comp)=1.289
Max. Tension = 0.548 Kips (Change)
Max. Compresion = 1.490 Kips;(Not Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=1.49 kips; fa=Comp/Area=4.86 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=4.858/11.420=0.430
Comp. Status: 0.43 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.548 x 1.000)/ 0.307 = 1.785 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 1.78 / 30.00 = 0.06
Status: 0.06 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=1.490; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 1.490 x 2.0/(2 x 42.00 0.185)=0.192 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 42
Serial = K
Member name = Interior web member
Type = Single(2)
Section = ○
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	1.494	0.000	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	1.241	0.000	0.000	0.000	0.000
COMB4	0.000	0.498	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 1.494 Kips; Location in COMB1
Max. Compresion = 0.498 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=0.498; Tens=1.494; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=1.292; Vertical Shear(Comp)=0.431
Max. Tension = 1.494 Kips;(Not Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=1.05 kips; fa=Comp/Area=3.43 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=3.428/11.420=0.300
Comp. Status: 0.30 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (1.494 x 1.000)/ 0.307 = 4.870 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 4.87 / 30.00 = 0.16
Status: 0.16 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=1.494; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 1.494 x 2.0/(2 x 42.00 0.185)=0.192 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 43
Serial = K
Member name = Interior web member
Type = Single(2)
Section = ○
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	2.247	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	1.864	0.000	0.000	0.000
COMB4	0.797	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.797 Kips; Location in COMB4
Max. Compresion = 2.247 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=2.247; Tens=0.797; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=0.689; Vertical Shear(Comp)=1.943
Max. Tension = 0.797 Kips;(Not Change)
Max. Compresion = 2.247 Kips;(Not Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=2.25 kips; fa=Comp/Area=7.32 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=7.323/11.420=0.640
Comp. Status: 0.64 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.797 x 1.000)/ 0.307 = 2.599 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 2.60 / 30.00 = 0.09
Status: 0.09 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=2.247; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 2.247 x 2.0/(2 x 42.00 0.185)=0.289 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 44
Serial = K
Member name = Interior web member
Type = Single(2)
Section = o
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	2.251	0.000	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	1.869	0.000	0.000	0.000	0.000
COMB4	0.000	0.793	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 2.251 Kips; Location in COMB1
Max. Compresion = 0.793 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=0.793; Tens=2.251; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=1.947; Vertical Shear(Comp)=0.686
Max. Tension = 2.251 Kips;(Not Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=1.05 kips; fa=Comp/Area=3.43 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=3.428/11.420=0.300
Comp. Status: 0.30 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (2.251 x 1.000)/ 0.307 = 7.337 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 7.34 / 30.00 = 0.25
Status: 0.25 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=2.251; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 2.251 x 2.0/(2 x 42.00 0.185)=0.290 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 45
Serial = K
Member name = Interior web member
Type = Single(2)
Section = ○
Designation = R5/8; A = 0.307^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.185 in. = 2.960 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.307 in^2; k = 0.318 inches
Inertia x = 0.007 in^4, Iy=0.105 in^4
rx = 0.16 in; ry = 0.16 in; y = 0.313 in
rz = 0.156 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	2.933	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	2.434	0.000	0.000	0.000
COMB4	1.171	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 1.171 Kips; Location in COMB4
Max. Compresion = 2.933 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=2.933; Tens=1.171; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=1.012; Vertical Shear(Comp)=2.536
Max. Tension = 1.171 Kips;(Not Change)
Max. Compresion = 2.933 Kips;(Not Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.156 = 127.600
S.R. y = (L*12)/ry = (1.661*12)/0.156 = 127.600
S.R. z = (L*12)/rz = (1.661*12)/0.156 = 127.600
Control = 127.600
Comp. Ratio = Control/200 = 127.60 / 200 = 0.64
Comp. Status: 0.64 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 127.60 / 240 = 0.53
Tens. Status: 0.53 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.156 = 95.700
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.156 = 114.840
SLRgov=114.84
Fy=50.00 ksi;
Area=0.31 in^2;Comp=2.93 kips; fa=Comp/Area=9.56 ksi
Fe=21.70 ksi; Fcr=19.03 ksi
Fcr=19.03 ksi; Fa=0.6Fcr= 11.42 ksi
IRc=fa/Fa=9.560/11.420=0.840
Comp. Status: 0.84 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (1.171 x 1.000)/ 0.307 = 3.815 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 3.82 / 30.00 = 0.13
Status: 0.13 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=2.933; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 2.933 x 2.0/(2 x 42.00 0.185)=0.377 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 46
Serial = K
Member name = Interior web member
Type = Single(2)
Section = ○
Designation = R3/4; A = 0.442^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.200 in. = 3.200 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.442 in^2; k = 0.318 inches
Inertia x = 0.016 in^4, Iy=0.188 in^4
rx = 0.19 in; ry = 0.19 in; y = 0.375 in
rz = 0.188 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	2.934	0.000	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	2.436	0.000	0.000	0.000	0.000
COMB4	0.000	1.163	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 2.934 Kips; Location in COMB1
Max. Compresion = 1.163 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=1.163; Tens=2.934; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=2.537; Vertical Shear(Comp)=1.006
Max. Tension = 2.934 Kips;(Not Change)
Max. Comp = 1.052 Kips (Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.188 = 106.333
S.R. y = (L*12)/ry = (1.661*12)/0.188 = 106.333
S.R. z = (L*12)/rz = (1.661*12)/0.188 = 106.333
Control = 106.333
Comp. Ratio = Control/200 = 106.33 / 200 = 0.53
Comp. Status: 0.53 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 106.33 / 240 = 0.44
Tens. Status: 0.44 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.188 = 79.750
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.188 = 95.700
SLRgov=95.70
Fy=50.00 ksi;
Area=0.44 in^2;Comp=1.05 kips; fa=Comp/Area=2.38 ksi
Fe=31.25 ksi; Fcr=25.59 ksi
Fcr=25.59 ksi; Fa=0.6Fcr= 15.36 ksi
IRc=fa/Fa=2.381/15.357=0.160
Comp. Status: 0.16 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (2.934 x 1.000)/ 0.442 = 6.640 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 6.64 / 30.00 = 0.22
Status: 0.22 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=2.934; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 2.934 x 2.0/(2 x 42.00 0.200)=0.349 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 47
Serial = K
Member name = Interior First web member
Type = Single(2)
Section = ○
Designation = R3/4; A = 0.442^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-7 15/16" = 1.661 ft.= 19.94 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.200 in. = 3.200 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.442 in^2; k = 0.318 inches
Inertia x = 0.016 in^4, Iy=0.188 in^4
rx = 0.19 in; ry = 0.19 in; y = 0.375 in
rz = 0.188 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	3.865	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	3.208	0.000	0.000	0.000
COMB4	1.657	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 1.657 Kips; Location in COMB4
Max. Compresion = 3.865 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=3.865; Tens=1.657; seno = 0.865; Max. 25% Reaction
Vertical Shear(Tens)=1.433; Vertical Shear(Comp)=3.343
Max. Tension = 1.657 Kips;(Not Change)
Max. Compresion = 3.865 Kips;(Not Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.661*12)/0.188 = 106.333
S.R. y = (L*12)/ry = (1.661*12)/0.188 = 106.333
S.R. z = (L*12)/rz = (1.661*12)/0.188 = 106.333
Control = 106.333
Comp. Ratio = Control/200 = 106.33 / 200 = 0.53
Comp. Status: 0.53 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 106.33 / 240 = 0.44
Tens. Status: 0.44 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.66*12)/0.188 = 79.750
S.R. y = (ky*L*12)/ry = (0.900*1.66*12)/0.188 = 95.700
SLRgov=95.70
Fy=50.00 ksi;
Area=0.44 in^2;Comp=3.87 kips; fa=Comp/Area=8.75 ksi
Fe=31.25 ksi; Fcr=25.59 ksi
Fcr=25.59 ksi; Fa=0.6Fcr= 15.36 ksi
IRc=fa/Fa=8.750/15.357=0.570
Comp. Status: 0.57 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (1.657 x 1.000)/ 0.442 = 3.751 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 3.75 / 30.00 = 0.13
Status: 0.13 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=3.865; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 3.865 x 2.0/(2 x 42.00 0.200)=0.460 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 48
Serial = K
Member name = Aux. right or SV web member
Type = Single(2)
Section = o
Designation = R1/2; A = 0.196^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 1'-10 3/16" = 1.849 ft.= 22.19 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.170 in. = 2.720 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.196 in^2; k = 0.318 inches
Inertia x = 0.003 in^4, Iy=0.052 in^4
rx = 0.13 in; ry = 0.13 in; y = 0.250 in
rz = 0.125 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE	C. FORCE	SHEAR	MOM(Mi)	MOM(Me)
	Kips	Kips	Kips	K-in	K-in
COMB1	0.000	0.761	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	0.000	0.630	0.000	0.000	0.000
COMB4	0.425	0.000	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 0.425 Kips; Location in COMB4
Max. Compresion = 0.761 Kips; Location in COMB1
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.90; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

For Interior Vertical Member.
gravity load + 1/2 of 1.0% of Max. Top Chord Axial Force

Tension = g + 1/2(1%*Pep)=
Tension = 0.425 Kips + 0.5(0.01*3.070100 Kips)=0.440 Kips
Max. Tension = 0.440 Kips;(Change)
Compresion = g + 1/2(1%*Pep)=
Compresion = 0.761 Kips + 0.5(0.01*15.789752 Kips)=0.796 Kips
Max. Compresion = 0.840 Kips;(Change)

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (1.849*12)/0.125 = 177.500
S.R. y = (L*12)/ry = (1.849*12)/0.125 = 177.500
S.R. z = (L*12)/rz = (1.849*12)/0.125 = 177.500
Control = 177.500
Comp. Ratio = Control/200 = 177.50 / 200 = 0.89
Comp. Status: 0.89 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 177.50 / 240 = 0.74
Tens. Status: 0.74 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*1.85*12)/0.125 = 133.125
S.R. y = (ky*L*12)/ry = (0.900*1.85*12)/0.125 = 159.750
SLRgov=159.75
Fy=50.00 ksi;
Area=0.20 in^2;Comp=0.84 kips; fa=Comp/Area=4.28 ksi
Fe=11.22 ksi; Fcr=9.84 ksi
Fcr=9.84 ksi; Fa=0.6Fcr= 5.90 ksi
IRc=fa/Fa=4.279/5.902=0.730
Comp. Status: 0.73 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (0.440 x 1.000)/ 0.196 = 2.242 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 2.24 / 30.00 = 0.07
Status: 0.07 < 1.00 <<-- OK

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=0.840; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 0.840 x 2.0/(2 x 42.00 0.170)=0.118 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.

DESIGN MEMBER
INPUT FORM (ASD) Revision SJI 100-2020

Member Number = 49
Serial = K
Member name = Right end web member
Type = Single(2)
Section = ○
Designation = R7/8; A = 0.601^2; Fy=50 ksi
Reinforcement = NA;
Span design = 260.00 in
Lenght Member = 2'-10 9/16" = 2.880 ft.= 34.56 in.
Tension & Compression Factor Design = 1.000
Max. Code Check Ratio = 1.00
Ω (Omega) =1.67 = 1/1.67 = 0.6; Spec. Section 4.2.3 Eq. 4.2
Omega Welding = 2.00 Ref. SJI Spec 4.2.3.4
Min. Thicknees Material = 1/8" = 0.125 in.
Weld Size(tw) = 1/8" = 0.215 in. = 3.440 (Weld Throat for Rod)

EFFECTIVE SLENDERNESS RATIOS TABLE 4.3-1

Maximun Slenderness Ratio (all = allowable)
For Compression member Slenderness Ratio(L/r)all = 200
For Tension member Slenderness Ratio(L/r)all = 240

Data Member

Yield Stress: Fy=50 ksi
Modulus of Elasticity: E=29000 ksi
Area = 0.601 in^2; k = 0.318 inches
Inertia x = 0.029 in^4, Iy=0.313 in^4
rx = 0.22 in; ry = 0.22 in; y = 0.438 in
rz = 0.219 in; Qs = 1.000
Spacing between chord angles = 0.500 in = 1/2"

Combination; [SW=Self Weight; F=Factor]

COMB1 = 1.00xDL+1.00xLL + [SW F=1.00]
COMB2 = Not Active or Null this Combination
COMB3 = 1.00xLL + [SW F=1.00]
COMB4 = 0.60xDL+1.00xUP + [SW F=0.60]

Summary Combination Maximun Results

COMB	T. FORCE Kips	C. FORCE Kips	SHEAR Kips	MOM(Mi) K-in	MOM(Me) K-in
COMB1	7.932	0.000	0.000	0.000	0.000
COMB2	0.000	0.000	0.000	0.000	0.000
COMB3	6.583	0.000	0.000	0.000	0.000
COMB4	0.000	3.540	0.000	0.000	0.000

Max. Local Shear (V) = 0.000000 Kips; Location in COMB4
Max. Moment (Me) = 0.000000 K-ft; Location in COMB4
Max. Moment (Mi) = 0.000000 K-ft; Location in COMB4
Max. Tension = 7.932 Kips; Location in COMB1
Max. Compresion = 3.540 Kips; Location in COMB4
Original COMPRESION = YES (Use for internal information only)

Location of Reaction of Force

Max. Reation (Comb. #4)= -1.894 Kips-Use in web member w/Tension
Max. Reation (Comb. #1) = 4.207 Kips-Use in web member w/Compr.

For Web Member Check 25% of Reaction.

Comp=3.540; Tens=7.932; seno = 0.498; Max. 25% Reaction
Vertical Shear(Tens)=3.949; Vertical Shear(Comp)=1.762
Max. Tension = 7.932 Kips;(Not Change)
Max. Compresion = 3.540 Kips;(Not Change)

Slenderness Ratio

k For Calculation Fcr per Table 4.3-1
(Comp.) Kx=0.75; Ky=0.80; Kz=0.00

Max. Axial Force Top & Bottom Chord Local

Max. Compr (top chord) force = 15.790 Kips in Member #7; Comb1
Max. Tension (top chord) force = 6.361 Kips in Member #7; Comb4
Max. Compr (Bottom chord) force = 6.363 Kips in Member #20; Comb4
Max. Tension (Bottom chord) force = 15.790 Kips in Member #20; Comb1

CHECK SLENDERNESS RATIOS

S.R. x = (L*12)/rx = (2.880*12)/0.219 = 158.000
S.R. y = (L*12)/ry = (2.880*12)/0.219 = 158.000
S.R. z = (L*12)/rz = (2.880*12)/0.219 = 158.000
Control = 158.000
Comp. Ratio = Control/200 = 158.00 / 200 = 0.79
Comp. Status: 0.79 < 1.00 <<-- OK
Tens. Ratio = Control/240 = 158.00 / 240 = 0.66
Tens. Status: 0.66 < 1.00 <<-- OK

CHECK COMPRESSION (4.2-4)

Shim, fillers or ties: NOT
S.R. x = (Kx*L*12)/rx = (0.750*2.88*12)/0.219 = 118.500
S.R. y = (ky*L*12)/ry = (0.800*2.88*12)/0.219 = 126.400
SLRgov=126.40
Fy=50.00 ksi;
Area=0.60 in^2;Comp=3.54 kips; fa=Comp/Area=5.89 ksi
Fe=17.91 ksi; Fcr=15.71 ksi
Fcr=15.71 ksi; Fa=0.6Fcr= 9.43 ksi
IRc=fa/Fa=5.887/9.427=0.620
Comp. Status: 0.62 <= 1.00 <<-- OK

CHECK TENSION (Eq. 4.2-2)

ft = Tens x factor/Area = (7.932 x 1.000)/ 0.601 = 13.191 ksi
Ft = 0.6(Fy) = 0.6*50.000 = 30.000 ksi
Ratio = ft/Ft = 13.19 / 30.00 = 0.44
Status: 0.44 <= 0.90*** <<-- OK
***Refer to Section 1.2B for applicationb of and the requirement for the use of the 0.90 Stress Interaction Ratio for design check of first end web.

WELDING WEB MEMBER

Strength of E70XX electrodes: Fexx=70 ksi
Force=7.932; weld size = 1/8"
Lenght weld = Force x OMEGAw/(2 * Fnw x tef)
Lenght weld = 7.932 x 2.0/(2 x 42.00 0.215)=0.878 in.
Use: 1/8" ; 2 inches Both end (total lenght) [But use 1 in. Min. each leg of each end]

CHECK ECCENTRICITY (4.5.4)

Woking point in both end: 0.0in. OK
This is important to fabrication.