PRCNC20240216

NEW MILLENNIUM
A Steel Dynamics Company

KINGWORKS STRUCTURAL ENGINEERS

[X] REVIEWED [ ] REJECTED

[X] NO EXCEPTIONS TAKEN
[ ] NOTE MARKINGS & REVISE
[ ] NOTE MARKINGS, REVISE & RESUBMIT

Delegated Design / Deferred Submittal review by KW is limited to the component's conformance with design criteria, concept, and loads imposed on the primary structure. Structural performance of the supplier-designed components is the responsibility of the component's structural engineer. Corrections or comments made on the attached submittal do not relieve the Contractor from compliance with the Contract Documents unless specifically noted otherwise. Contractor is responsible for: confirming and correlating all quantities, dimensions, and elevations; selecting fabrication processes and techniques of construction; coordinating work with that of all other trades; and performing work in a safe and satisfactory manner. Where required to RESUBMIT, Contractor need only resubmit sheets that are affected by the marks or otherwise revised.

Date 10/17/24 By DL

October 15, 2024

Attention: Cathy McKee
Steel Encounters, Inc.

Project: PSE TRAINING CENTER PUYALLUP
Puyallup, WA
New Millennium # 5823-0052

Reference: **Joist Calculations – FOR RECORD**

To Whom It May Concern:

This letter certifies that the Open Web Steel Joists and bridging supplied by New Millennium for the above-mentioned project have been designed and manufactured in accordance with:

1. The Steel Joist Institute Codes, Standards, and Specifications of latest adoption.
2. The specified Open Web Steel Joist and bridging design and loading information, supplied by the New Millennium client, on the fabrication bill of material.

New Millennium is a fully approved member company, in good standing, of the Steel Joist Institute.

Attachments (462 pages):
Calculations Definitions
Joist Calculations

Sincerely,

Emmanuel Castro

Emmanuel Castro
Design Engineer
Phone (775) 428-0667
Emmanuel.Castro@newmill.com

DENNIS MONTGOMERY
STATE OF WASHINGTON
51368
REGISTERED PROFESSIONAL ENGINEER

EXPIRES 8/30/26
10-16-24

Note: The Professional Engineer's seal affixed hereto is intended to certify that the Open Web Steel Joists and Joist Girders have been designed to resist the loads and/or capacities specified by the specifying professional or as provided on the fabrication bill of material supplied by the New Millennium client, and in accordance with Steel Joist Institute Codes, Standards, and Specifications. Such seal shall not be construed as approval of, nor responsibility for the design of the building, nor any other components (beam sizes, column sizes, walls, deck, connections, etc.), nor the selection of Open Web Steel Joist or Joist Girder loads, design criteria, size, and designation. The seal does not certify or imply that the building does or does not conform to national or local building codes. New Millennium design responsibilities are strictly limited to the design of Open Web Steel Joists and Joist Girders in accordance with the specifications within the structural drawings or fabrication bill of material supplied to New Millennium.

NEW MILLENNIUM
A Steel Dynamics Company

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

PRCNC20240216 - Revision 2 (Brace Frame)

City of Puyallup
Building
REVIEWED FOR COMPLIANCE
BSnowden
11/13/2024
2:50:53 PM

JOIST CALCULATION DEFINITION SHEET

Calculations required to be provided by the Permittee on site for all Inspections

Load Types: (Figure 1)

Uniform	Uniform line load applied to TC or BC
Net Uplift	Uniform line load applied to TC (not concurrent w/ uniform dead or live loading)
Gross Uplift	Uniform line load applied to TC (concurrently w/ factored dead loads per Code requirements)
Axial	Compressive / Tensile (+/-) forces applied to TC or BC
Concentrated Load	Vertical load applied at given location
Conc @ any pp	Vertical load applied at any panel point (local panel bending not applied to chords)
Conc anywhere	Vertical load applied at any location along chord (local panel bending applied to chords)
Conc w/bending	Vertical load applied at given location (local panel bending applied to chords)

Category: (Figure 1)

DL	Dead Load	LL	Live Load
TL	Total Load (DL + LL)	IP	Inward Pressure
WL	Wind Load	SM	Seismic Load
CL	Collateral Load	SL	Snow Load

(1), (2), (3), etc. Individual Separate Design Load Cases

Position: (Figure 1)

TC	Top Chord	BC	Bottom Chord

Load Combinations: (Figure 2)

All shown load combinations are ran for each Load Case (1, 2, 3, etc.)

Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End
Uniform (plf)	DL (1)	96.47	96.47	TC	+	0-0	30-5 5/8
Uniform (plf)	LL (1)	234.22	234.22	TC	+	0-0	30-5 5/8
Net Uplift (plf)	WL (1)	67.00	67.00	TC	-	0-0	30-5 5/8
Uniform (plf)	TL (2)	319.00	319.00	TC	+	0-0	30-5 5/8
Axial (lbs)	SM (2)	300.00	0.00	TC	+	0-0	0-0
Conc Load (lbs)	DL (2)	1,700.00	0.00	TC	+	13-0 1/4	13-0 1/4
Conc Load (lbs)	DL (2)	1,700.00	0.00	TC	+	26-6 1/4	26-6 1/4

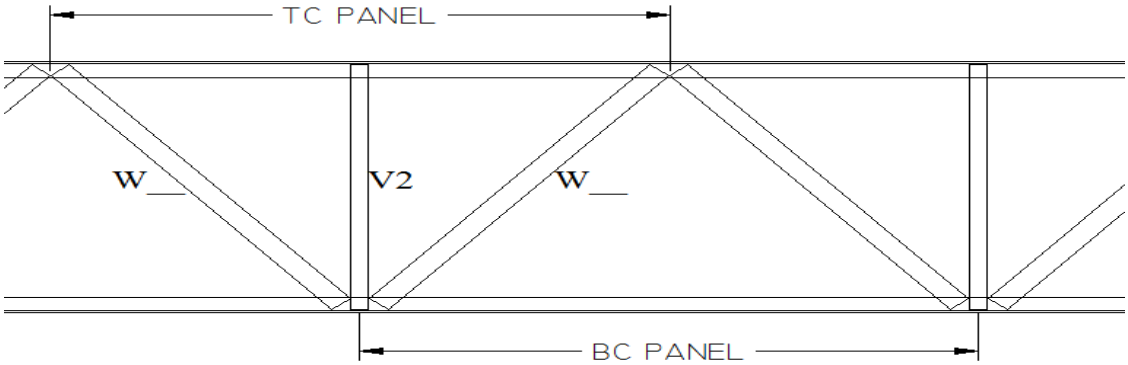
Figure 1
(Example only)

Load Combinations

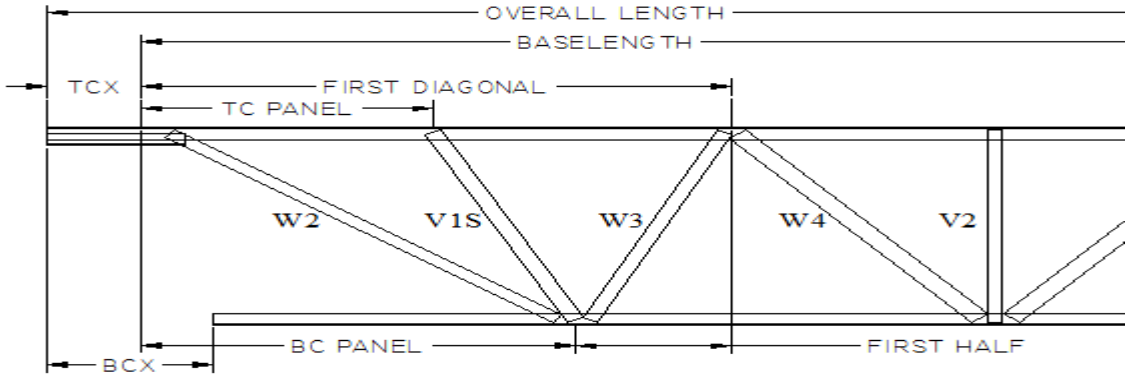
Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX
Case 4b: DL+WL-AX
Case 4c: DL+WL+AX+IP
Case 4d: DL+WL-AX+IP
Case 4e: DL+SM+AX
Case 4f: DL+SM-AX
Case 5a: 0.6(DL)+WL+AX
Case 5b: 0.6(DL)+WL-AX
Case 5c: 0.6(DL)+WL+AX+IP
Case 5d: 0.6(DL)+WL-AX+IP
Case 5e: 0.6(DL)+WL+AX+SM
Case 5f: 0.6(DL)+WL-AX+SM
Case 6a: DL+CL+0.85(TL)+WL+AX
Case 6b: DL+CL+0.85(TL)+WL-AX
Case 6c: DL+CL+0.85(TL)+WL+AX+IP
Case 6d: DL+CL+0.85(TL)+WL-AX+IP
Case 6e: DL+CL+0.85(TL)+SM+AX
Case 6f: DL+CL+0.85(TL)+SM-AX
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL)
Case 7c: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP)
Case 7d: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP)
Case 7e: DL+CL+0.85(TL)+0.75(SM+AX+LL)
Case 7f: DL+CL+0.85(TL)+0.75(SM-AX+LL)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL)
Case 8c: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP)
Case 8d: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+SM)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+SM)
Case 9a: 1.2(DL)+0.5(LL)+0.8(TL)+SM+AX+FEM
Case 9b: 1.2(DL)+0.5(LL)+0.8(TL)+SM-AX+FEM

Figure 2

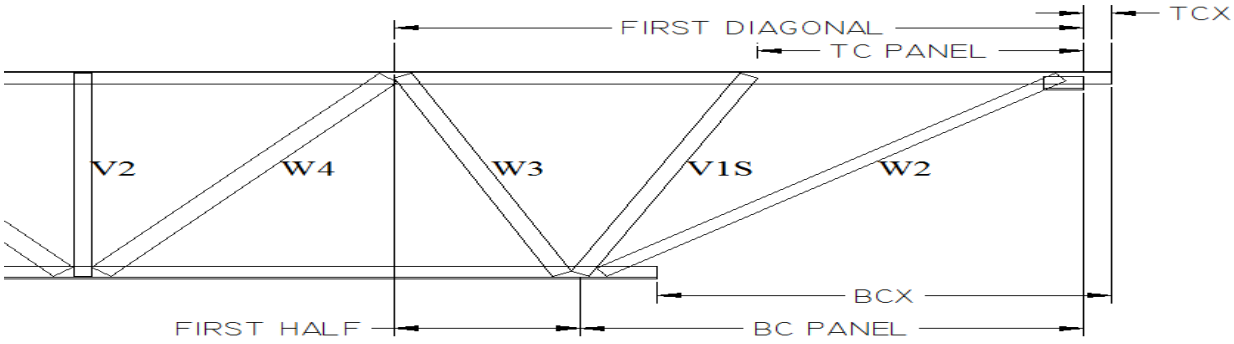
Interior Dimensions:



Left End Dimensions:



Right End Dimensions:



Notes & Abbreviations:

TCX-Top Chord Extension BCX-Bottom Chord Extension BPL-Base Plate Length
V1S-First Vertical Web Member V2-Standard Vertical Web Member
W2-First Diagonal Web Member
All vertical and diagonal web members are ordered numerically progressive toward interior

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

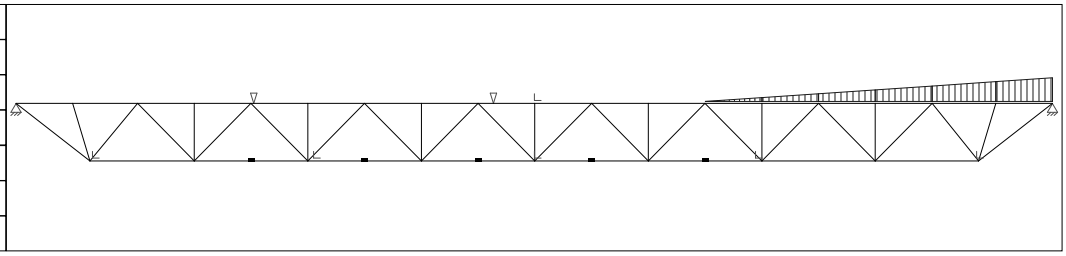
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:24:25 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J1**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-11	**39-7**	**28.00**	**26.46**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	1-9 1/4
First Diag.	4-9 3/4	4-9 1/4
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-11	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-11	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	9-3	9-3	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	18-4 3/4	18-4 3/4	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	27-11	39-11	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	9-3	9-3	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	18-4 3/4	18-4 3/4	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**11,501.54**	**12,000.16**	**3,000.04**	**48,554.17**	**48,389.77**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,591.05	12,732.03	0.00	0.00	17,976.88	12,153.94	43.09	0-2
V1S	9,384.60	12,447.64	0.00	0.00	1,276.12	2,044.97	27.65	2-4
W3	9,384.60	12,447.64	19,819.20	14,958.77	8,779.01	11,665.74	34.26	3-0
W4	20,951.18	27,706.89	19,819.20	14,958.77	11,315.45	8,550.52	37.10	4-9 3/4
W5	20,951.18	27,706.89	34,732.47	26,317.76	7,657.53	10,085.31	37.10	6-11 3/4
W6	29,655.67	39,493.10	34,732.47	26,317.76	6,853.47	5,477.97	37.10	9-1 3/4
W7	29,655.67	39,493.10	43,320.77	32,296.90	4,584.98	5,595.60	37.10	11-3 3/4
W8	34,312.30	46,286.32	43,320.77	32,296.90	4,649.52	3,691.99	37.10	13-5 3/4
W9	34,312.30	46,286.32	48,389.77	35,701.86	2,799.00	4,205.66	37.10	15-7 3/4
W10	35,388.68	48,554.17	48,389.77	35,701.86	4,205.66	3,791.93	37.10	17-9 3/4
W10	35,388.68	48,554.17	47,459.69	34,052.89	4,205.66	3,791.93	37.10	19-11 3/4
W9	32,091.29	45,503.11	47,459.69	34,052.89	2,799.00	4,205.66	37.10	22-1 3/4
W8	32,091.29	45,503.11	42,684.41	29,503.85	4,649.52	3,691.99	37.10	24-3 3/4
W7	26,290.58	38,981.88	42,684.41	29,503.85	4,584.98	5,595.60	37.10	26-5 3/4
W6	26,290.58	38,981.88	34,243.47	22,451.48	6,853.47	5,477.97	37.10	28-7 3/4
W5	17,986.56	28,295.41	34,243.47	22,451.48	7,657.53	10,085.31	37.10	30-9 3/4
W4	17,986.56	28,295.41	20,963.94	12,895.80	11,315.45	8,550.52	37.10	32-11 3/4
W3	8,191.63	13,614.90	20,963.94	12,895.80	7,513.36	11,737.64	33.94	35-1 3/4
V1S	8,191.63	13,614.90	0.00	0.00	1,276.12	2,044.97	27.65	37-7
W2	8,396.22	14,186.12	0.00	0.00	17,976.88	12,153.94	43.09	36-11

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,217.79	1,549.59	26.46

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
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Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 8:24:25 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J1

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	774.04	466.26	699.39	22-8 3/4	10-5

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	29.25	26.00
Bending Load	405.00	405.00	405.00	777.45	864.18
Axial Load	12,732.03	12,447.64	48,554.17	13,614.90	14,186.12
fa	4,857.70	4,749.19	18,525.05	5,194.55	5,412.48
Maximum K L/r	43.79	50.11	32.84	49.27	43.79
Fcr	40,545.05	38,954.27	42,907.04	39,174.89	40,545.05
Fa	24,327.03	23,372.56	25,744.22	23,504.94	24,327.03
F'e	369,039.41	281,867.81	656,070.13	291,586.69	369,039.41
Cm	0.9934	0.9916	0.9811	0.9911	0.9927
Panel Point Moment	20,524.48	3,645.38	8,310.78	5,523.66	5,523.65
Mid Panel Moment	15,113.34	3,727.92	4,401.91	2,262.59	3,567.94
Panel Point fb	19,459.00	3,456.14	7,879.35	5,236.91	5,236.91
Mid Panel fb	14,328.77	1,360.89	1,606.93	825.96	1,302.49
Fillers	0	0	0	0	0
Panel Point Stress	24,316.70	8,205.33	26,404.40	10,431.45	10,649.39
Mid Panel Stress	0.6255	0.2478	0.7727	0.2481	0.2650

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5232
Max Load Fillers TC:	66,415.45
Max Load no Fillers TC:	63,786.80
TC OAL/Ryy:	282.76
BC OAL/Ryy:	324.66
BC Stress:	0.85
BC L/Rz:	118.1013
TC Shear Stress:	9,647.00
BC Shear Stress:	14,230.21

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	17,976.88	28,618.35	12,153.94	14,730.39	6.46 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	8,779.01	28,621.37	11,665.74	13,460.73	4.19 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	11,315.45	18,714.09	8,550.52	8,655.12	4.33 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	7,657.53	24,373.24	10,085.31	10,774.80	3.62 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	6,853.47	14,381.54	5,477.97	6,742.42	3.08 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	4,584.98	14,381.54	5,595.60	6,742.42	2.51 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,649.52	10,742.43	3,691.99	5,189.84	2.43 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,799.00	10,742.43	4,205.66	5,189.84	2.20 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,205.66	10,742.43	3,791.93	5,189.84	2.20 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,205.66	10,742.43	3,791.93	5,189.84	2.20 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,799.00	10,742.43	4,205.66	5,189.84	2.20 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,649.52	10,742.43	3,691.99	5,189.84	2.43 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,584.98	14,381.54	5,595.60	6,742.42	2.51 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,853.47	14,381.54	5,477.97	6,742.42	3.08 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	7,657.53	24,373.24	10,085.31	10,774.80	3.62 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	11,315.45	18,714.09	8,550.52	8,655.12	4.33 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	7,513.36	28,621.37	11,737.64	13,568.36	4.22 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W2	17,976.88	28,618.35	12,153.94	14,730.39	6.46 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	1,276.12	5,758.64	2,044.97	3,152.70	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,217.79	5,758.64	1,549.59	3,299.93	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
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Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:24:25 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J1**

TCX Design

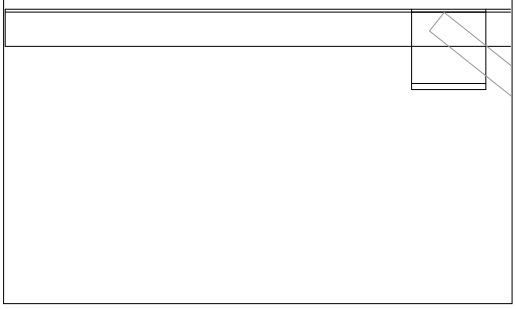
TCX Left	
TCX Length	2-8 7/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-1 7/8
Clear Bearing	0-7 3/8
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

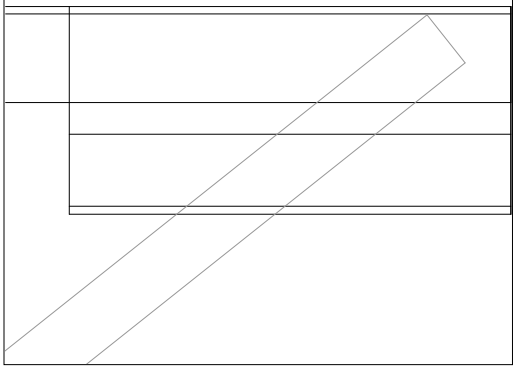
Total Load	405.00
Reqd TL Def L/80	0.41
Live Load	200.00
Reqd LL Def L/120	0.27
Section Modulus	1.0548
Reqd SM	0.6841
Mom of Inertia	2.2846
Reqd MI	0.4936

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 8:24:25 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J1

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

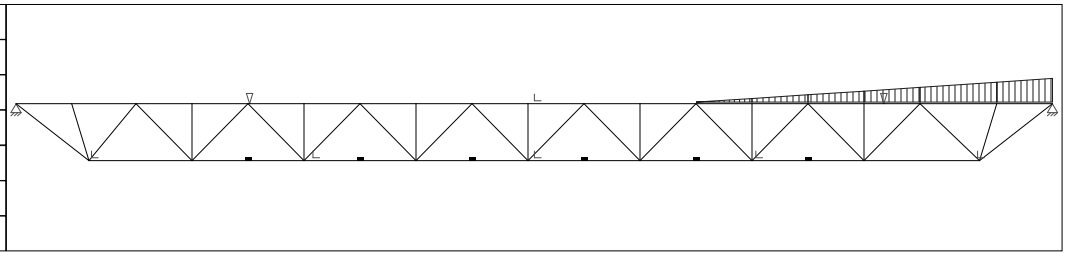
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:53:15 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J10**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
40-5 3/8	**40-1 3/8**	**28.00**	**26.46**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	2-3 5/8
First Diag.	4-9 3/4	5-3 5/8
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	40-5 3/8	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	40-5 3/8	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	9-2 1/2	9-2 1/2	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	28-5 3/8	40-5 3/8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	33-9	33-9	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	9-2 1/2	9-2 1/2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	33-9	33-9	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**53.63**	**12,254.11**	**13,133.95**	**3,278.21**	**48,882.39**	**48,510.30**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	10,466.14	13,676.68	0.00	0.00	19,787.05	13,262.86	43.09	0-2
V1S	10,259.69	13,392.29	0.00	0.00	1,299.76	2,275.67	27.65	2-4
W3	10,259.69	13,392.29	21,368.14	16,393.65	9,660.66	12,618.02	34.26	3-0
W4	23,055.25	29,978.22	21,368.14	16,393.65	12,346.79	9,505.37	37.10	4-9 3/4
W5	23,055.25	29,978.22	37,726.18	29,091.01	8,612.38	11,116.66	37.10	6-11 3/4
W6	31,638.58	41,749.66	37,726.18	29,091.01	6,717.60	4,876.48	37.10	9-1 3/4
W7	31,638.58	41,749.66	44,826.01	33,475.30	4,151.49	5,718.89	37.10	11-3 3/4
W8	34,686.19	47,040.25	44,826.01	33,475.30	4,770.01	3,462.67	37.10	13-5 3/4
W9	34,686.19	47,040.25	48,392.37	35,271.24	2,966.66	4,595.62	37.10	15-7 3/4
W10	35,230.47	48,882.39	48,392.37	35,271.24	4,595.62	2,966.66	37.10	17-9 3/4
W10	35,230.47	48,882.39	48,510.30	34,563.88	4,595.62	2,966.66	37.10	19-11 3/4
W9	33,271.45	47,276.09	48,510.30	34,563.88	2,966.66	4,595.62	37.10	22-1 3/4
W8	33,271.45	47,276.09	45,179.77	31,353.19	4,770.01	3,462.67	37.10	24-3 3/4
W7	28,809.11	42,200.46	45,179.77	31,353.19	4,151.49	5,718.89	37.10	26-5 3/4
W6	28,809.11	42,200.46	38,191.96	25,639.19	6,717.60	4,876.48	37.10	28-7 3/4
W5	21,843.45	32,987.18	38,191.96	25,639.19	8,612.38	11,116.66	37.10	30-9 3/4
W4	21,843.45	32,987.18	25,469.65	16,472.48	12,346.79	9,505.37	37.10	32-11 3/4
W3	9,420.74	14,978.67	25,469.65	16,472.48	9,765.38	14,528.09	38.26	35-1 3/4
V1S	9,420.74	14,978.67	0.00	0.00	1,299.76	2,275.67	27.65	38-1 3/8
W2	9,648.94	15,614.57	0.00	0.00	19,787.05	13,262.86	43.09	37-5 3/8

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,712.56	2,518.97	26.46

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 2:53:15 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J10

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	774.04	447.98	671.97	22-8 3/8	10-6 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	35.63	26.00
Bending Load	405.00	405.00	405.00	772.74	865.75
Axial Load	13,676.68	13,392.29	48,882.39	14,978.67	15,614.57
fa	5,218.12	5,109.61	18,650.28	5,714.87	5,957.49
Maximum K L/r	43.79	50.11	32.84	60.01	43.79
Fcr	40,545.05	38,954.27	42,907.04	36,192.63	40,545.05
Fa	24,327.03	23,372.56	25,744.22	21,715.58	24,327.03
F'e	369,039.41	281,867.81	656,070.13	196,566.58	369,039.41
Cm	0.9929	0.9909	0.9810	0.9855	0.9919
Panel Point Moment	21,117.21	3,688.15	1,901.25	7,661.04	6,238.81
Mid Panel Moment	15,582.35	3,813.42	950.63	3,265.81	3,261.85
Panel Point fb	20,020.96	3,496.69	1,802.55	7,263.33	5,914.94
Mid Panel fb	14,773.43	1,392.10	347.03	1,192.19	1,190.75
Fillers	0	0	0	0	0
Panel Point Stress	25,239.08	8,606.30	20,452.83	12,978.20	11,872.42
Mid Panel Stress	0.6968	0.2643	0.7359	0.3028	0.2839

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5267**
Max Load Fillers TC: **69,704.45**
Max Load no Fillers TC: **66,942.45**
TC OAL/Ryy: **286.56**
BC OAL/Ryy: **329.01**
BC Stress: **0.85**
BC L/Rz: **121.7920**
TC Shear Stress: **9,929.26**
BC Shear Stress: **15,663.11**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,787.05	28,618.35	13,262.86	14,730.39	7.11 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	9,660.66	28,621.37	12,618.02	13,460.73	4.53 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	12,346.79	24,373.24	9,505.37	10,774.80	4.43 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,612.38	28,621.37	11,116.66	12,501.37	3.99 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	6,717.60	10,742.43	4,876.48	5,189.84	3.51 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,151.49	14,381.54	5,718.89	6,742.42	2.57 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,770.01	7,826.93	3,462.67	3,463.74	3.15 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,966.66	10,742.43	4,595.62	5,189.84	2.40 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,595.62	7,826.93	2,966.66	3,463.74	3.03 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,595.62	7,826.93	2,966.66	3,463.74	3.03 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,966.66	10,742.43	4,595.62	5,189.84	2.40 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,770.01	7,826.93	3,462.67	3,463.74	3.15 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,151.49	14,381.54	5,718.89	6,742.42	2.57 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,717.60	10,742.43	4,876.48	5,189.84	3.51 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	8,612.38	28,621.37	11,116.66	12,501.37	3.99 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	12,346.79	24,373.24	9,505.37	10,774.80	4.43 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	9,765.38	28,618.35	14,528.09	14,920.93	5.22 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	19,787.05	28,618.35	13,262.86	14,730.39	7.11 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	1,299.76	5,758.64	2,275.67	3,152.70	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,712.56	5,758.64	2,518.97	3,299.93	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:53:15 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J10**

TCX Design

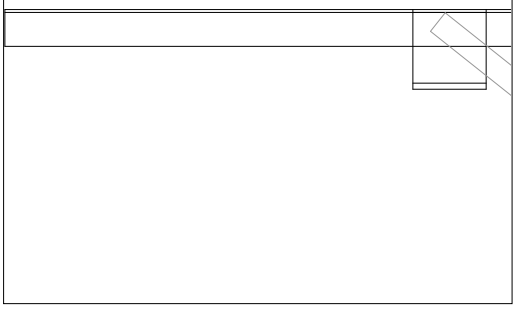
TCX Left	
TCX Length	2-9 3/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-2 1/2
Clear Bearing	0-8
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

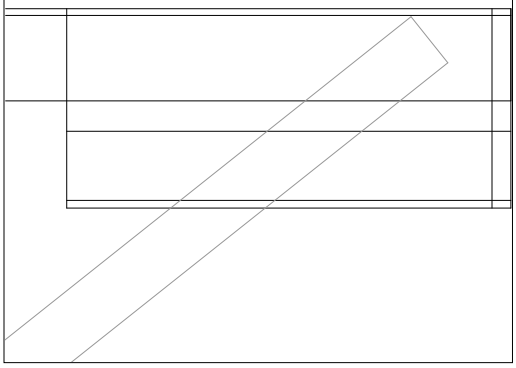
Total Load	405.00
Reqd TL Def L/80	0.42
Live Load	200.00
Reqd LL Def L/120	0.28
Section Modulus	1.0548
Reqd SM	0.7039
Mom of Inertia	2.2846
Reqd MI	0.5152

Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	1.0548
Reqd SM	0.0039
Mom of Inertia	2.2846
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 2:53:15 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J10

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

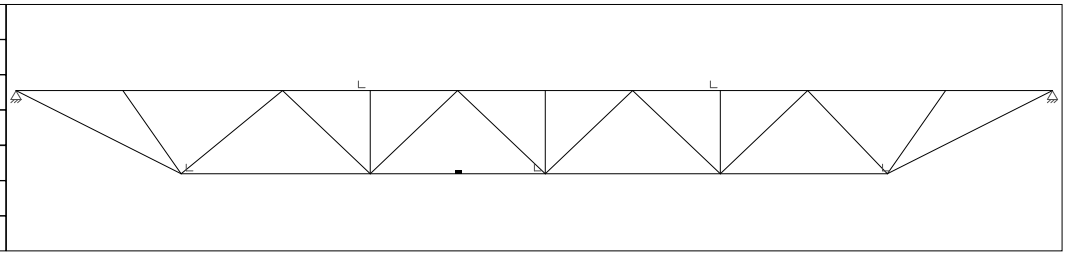
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:09:47 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Short Span Crimp 18K3**	**J11**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
18-1 1/4	**17-9 1/4**	**18.00**	**17.15**	**4 @ 3-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-0	2-0
First Half	1-8 7/8	1-4 3/8
First Diag.	4-8 7/8	4-4 3/8
Depth	18.00	18.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	2.08	2.08	TC	+	0-0	18-1 1/4	L-BL
Uniform (plf)	LL (1)	544.17	544.17	TC	+	0-0	18-1 1/4	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
18.00	**38.88**	**6,745.96**	**4,933.32**	**1,255.47**	**15,079.17**	**14,756.72**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	5,971.16	8,628.46	0.00	0.00	9,664.28	6,687.98	38.08	0-2
V1S	4,640.24	7,754.66	0.00	0.00	2,351.59	1,567.43	20.93	2-0
W3	4,640.24	7,754.66	11,532.25	6,206.83	2,881.16	5,353.18	27.02	3-0
W4	7,305.96	13,574.42	11,532.25	6,206.83	4,006.16	2,156.17	24.86	4-8 7/8
W5	7,305.96	13,574.42	14,756.72	7,942.29	1,650.40	3,066.44	24.86	6-2 7/8
W6	8,115.84	15,079.17	14,756.72	7,942.29	2,201.91	1,412.58	24.86	7-8 7/8
W6	8,115.84	15,079.17	14,541.76	7,826.59	2,201.91	1,412.58	24.86	9-2 7/8
W5	7,074.56	13,144.49	14,541.76	7,826.59	1,650.40	3,066.44	24.86	10-8 7/8
W4	7,074.56	13,144.49	10,887.35	5,859.74	4,006.16	2,156.17	24.86	12-2 7/8
W3	4,212.24	7,826.32	10,887.35	5,859.74	2,528.81	4,698.52	23.71	13-8 7/8
V1S	4,212.24	7,826.32	0.00	0.00	2,351.59	1,567.43	20.93	16-1 1/4
W2	4,643.97	8,628.46	0.00	0.00	9,664.28	6,687.98	38.08	15-1 1/4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	481.58	894.77	17.15

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:09:47 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Short Span Crimp 18K3	J11

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.4410	0.4610	0.2946	1.0962	0.4321	0.0937	1.0000	1515 = 1 1/2 x 1 1/2 x 0.155
BC	0.3151	0.4675	0.2972	1.0840	0.4154	0.0689	0.9057	1510 = 1 1/2 x 1 1/2 x 0.109

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	108.47	722.06	1,083.09	14-11 5/8	10-4 5/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	32.88	18.00	28.38	22.00
Bending Load	546.25	546.25	546.25	546.25	546.25
Axial Load	8,628.46	7,754.66	15,079.17	7,826.32	8,628.46
fa	3,441.75	8,792.14	17,096.56	8,873.38	9,782.83
Maximum K L/r	74.68	111.59	45.82	96.32	74.68
Fcr	33,257.07	20,115.90	42,883.32	25,373.78	33,257.07
Fa	19,954.24	12,069.54	25,729.99	15,224.27	19,954.24
F'e	375,488.63	56,281.81	333,758.28	75,548.85	125,676.54
Cm	0.9954	0.9219	0.9657	0.9413	0.9611
Panel Point Moment	36,189.39	3,584.74	1,229.06	3,032.27	3,032.27
Mid Panel Moment	29,114.28	2,897.91	614.53	1,855.96	1,223.87
Panel Point fb	22,332.51	20,427.64	7,003.82	17,279.43	17,279.43
Mid Panel fb	17,966.45	6,681.90	1,416.96	4,279.41	2,821.96
Fillers	0	0	0	0	0
Panel Point Stress	25,774.25	29,219.78	24,100.38	26,152.81	27,062.26
Mid Panel Stress	0.6916	0.9754	0.7088	0.7313	0.5826

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **23,570.18**
Max Load no Fillers TC: **21,678.96**
TC OAL/Ryy: **194.53**
BC OAL/Ryy: **196.73**
BC Stress: **0.78**
BC L/Rz: **130.8042**
TC Shear Stress: **9,361.14**
BC Shear Stress: **14,968.86**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	9,664.28	12,943.38	6,687.98	7,212.17	4.93 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	2,881.16	10,742.43	5,353.18	6,504.50	2.79 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W4	4,006.16	7,826.93	2,156.17	4,673.16	2.64 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	1,650.40	5,758.64	3,066.44	3,499.02	2.29 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	2,201.91	5,758.64	1,412.58	3,499.02	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	2,201.91	5,758.64	1,412.58	3,499.02	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	1,650.40	5,758.64	3,066.44	3,499.02	2.29 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	4,006.16	5,758.64	2,156.17	3,499.02	3.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	2,528.81	7,826.93	4,698.52	4,798.58	3.10 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W2	9,664.28	12,943.38	6,687.98	7,212.17	4.93 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V1	2,351.59	5,758.64	1,567.43	3,855.23	2.15 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	481.58	5,758.64	894.77	4,172.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:09:47 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Short Span Crimp 18K3**	**J11**

TCX Design

TCX Left	
TCX Length	3-1 7/8
TCX Type	R, Rnfd.
TCX Depth	3 1/2
BPL Length	5-6 1/2
Clear Bearing	0-5 5/8
BPL Material: 1725 = 1 3/4 x 1 3/4 x 0.250	

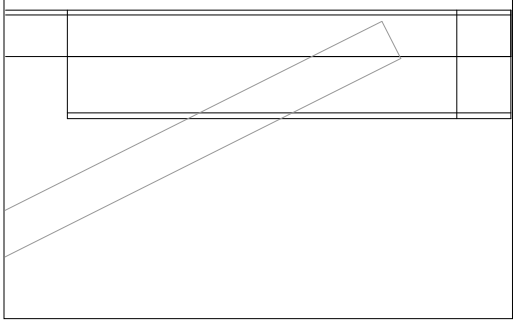
TCX Right	
TCX Length	0-1 3/4
TCX Type	R
TCX Depth	3 1/2
BPL Length	1-2 3/8
Clear Bearing	0-7 3/8
BPL Material: 2018 = 2 x 2 x 0.188	

Total Load	546.25
Reqd TL Def L/80	0.47
Live Load	544.17
Reqd LL Def L/120	0.32
Section Modulus	1.2557
Reqd SM	1.2063
Mom of Inertia	1.5918
Reqd MI	1.4871

Total Load	546.25
Reqd TL Def L/80	0.02
Live Load	544.17
Reqd LL Def L/120	0.01
Section Modulus	0.1755
Reqd SM	0.0107
Mom of Inertia	0.1874
Reqd MI	0.0012

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.25)

Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:09:47 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Short Span Crimp 18K3	J11

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

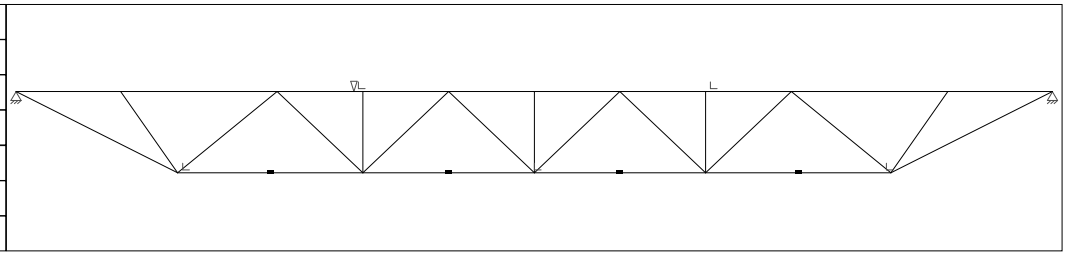
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/3/2024 3:52:44 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Short Span Crimp 18K3**	**J12**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
18-5 3/4	**18-1 3/4**	**18.00**	**17.09**	**4 @ 3-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-0	2-0
First Half	1-8 7/8	1-8 7/8
First Diag.	4-8 7/8	4-8 7/8
Depth	18.00	18.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	9.58	9.58	TC	+	0-0	18-5 3/4	L-BL
Uniform (plf)	LL (1)	523.17	523.17	TC	+	0-0	18-5 3/4	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	6-1	6-1	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	6-1	6-1	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
18.00	**38.88**	**7,529.36**	**5,433.68**	**1,495.26**	**18,512.63**	**18,606.93**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	7,175.58	10,655.95	0.00	0.00	11,926.34	8,031.04	38.05	0-2
V1S	6,309.81	9,800.63	0.00	0.00	2,076.90	1,541.69	20.88	2-0
W3	6,309.81	9,800.63	14,855.17	9,652.55	4,320.07	6,747.92	26.98	3-0
W4	11,713.93	17,859.54	14,855.17	9,652.55	4,341.13	2,842.49	24.82	4-8 7/8
W5	11,713.93	17,859.54	18,606.93	11,895.52	1,671.07	2,910.95	24.82	6-2 7/8
W6	11,612.63	18,512.63	18,606.93	11,895.52	2,171.66	2,122.08	24.82	7-8 7/8
W6	11,612.63	18,512.63	17,576.64	10,865.25	2,171.66	2,122.08	24.82	9-2 7/8
W5	9,653.38	15,798.99	17,576.64	10,865.25	1,671.07	2,910.95	24.82	10-8 7/8
W4	9,653.38	15,798.99	13,179.64	7,977.03	4,341.13	2,842.49	24.82	12-2 7/8
W3	5,271.68	8,762.49	13,179.64	7,977.03	4,320.07	6,747.92	26.98	13-8 7/8
V1S	5,271.68	8,762.49	0.00	0.00	2,076.90	1,541.69	20.88	16-5 3/4
W2	5,743.69	9,617.81	0.00	0.00	11,926.34	8,031.04	38.05	15-5 3/4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,843.32	2,232.17	17.09

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/3/2024 3:52:44 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Short Span Crimp 18K3	J12

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.5185	0.5414	0.3450	1.1878	0.4947	0.1520	0.9837	1715 = 1 3/4 x 1 3/4 x 0.155
BC	0.3151	0.4675	0.2972	1.0840	0.4154	0.0689	0.9057	1510 = 1 1/2 x 1 1/2 x 0.109

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	114.93	718.61	1,077.91	16-2	7-2 1/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	32.88	18.00	32.88	22.00
Bending Load	532.75	532.75	532.75	532.75	532.75
Axial Load	10,655.95	9,800.63	18,512.63	8,762.49	9,617.81
fa	4,313.45	9,450.94	17,852.10	8,449.85	9,274.65
Maximum K L/r	63.77	95.29	39.13	95.29	63.77
Fcr	36,712.55	25,597.56	44,056.13	25,597.56	36,712.55
Fa	22,027.53	15,358.54	26,433.68	15,358.54	22,027.53
F'e	406,068.88	77,625.20	460,327.28	77,625.20	173,336.06
Cm	0.9947	0.9391	0.9740	0.9456	0.9732
Panel Point Moment	30,183.96	3,648.86	1,198.69	3,610.48	3,610.48
Mid Panel Moment	24,060.75	2,974.32	599.34	2,574.34	884.35
Panel Point fb	18,988.30	15,067.15	4,949.71	14,908.66	14,908.66
Mid Panel fb	15,136.27	4,840.12	975.31	4,189.23	1,439.10
Fillers	0	0	0	0	0
Panel Point Stress	23,301.75	24,518.09	22,801.81	23,358.50	24,183.30
Mid Panel Stress	0.6173	0.7872	0.7059	0.6960	0.4674

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5000**

Max Load Fillers TC: **28,017.47**

Max Load no Fillers TC: **26,606.22**

TC OAL/Ryy: **183.32**

BC OAL/Ryy: **200.89**

BC Stress: **0.98**

BC L/Rz: **130.8042**

TC Shear Stress: **10,463.49**

BC Shear Stress: **18,432.87**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	11,926.34	26,972.16	8,031.04	12,720.47	3.04 x 0.245	1	R112 = round 1 1/8
W3	4,320.07	14,381.54	6,747.92	8,501.57	3.44 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W4	4,341.13	5,758.64	2,842.49	3,504.37	3.25 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	1,671.07	5,758.64	2,910.95	3,504.37	2.18 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	2,171.66	5,758.64	2,122.08	3,504.37	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	2,171.66	5,758.64	2,122.08	3,504.37	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	1,671.07	5,758.64	2,910.95	3,504.37	2.18 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	4,341.13	5,758.64	2,842.49	3,504.37	3.25 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	4,320.07	14,381.54	6,747.92	8,501.57	3.44 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W2	11,926.34	26,972.16	8,031.04	12,720.47	3.04 x 0.245	1	R112 = round 1 1/8
V1	2,076.90	5,758.64	1,541.69	3,859.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,843.32	5,758.64	2,232.17	4,178.24	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/3/2024 3:52:44 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Short Span Crimp 18K3**	**J12**

TCX Design

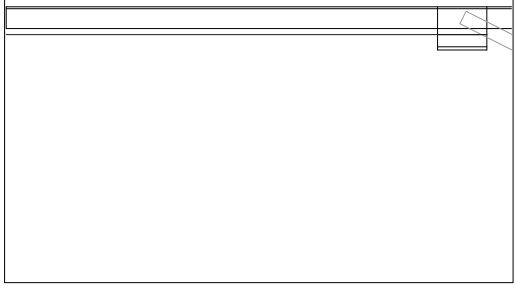
TCX Left	
TCX Length	2-10 7/8
TCX Type	R, Rnfd.
TCX Depth	3 1/2
BPL Length	5-3 5/8
Clear Bearing	0-6
BPL Material: 2018 = 2 x 2 x 0.188	

TCX Right	
TCX Length	0-2 1/2
TCX Type	R
TCX Depth	3 1/2
BPL Length	1-3 5/8
Clear Bearing	0-8 1/2
BPL Material: 1725 = 1 3/4 x 1 3/4 x 0.250	

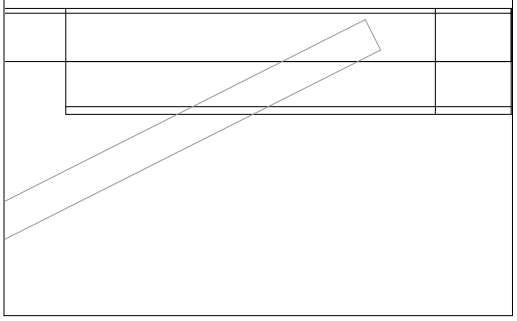
Total Load	532.75
Reqd TL Def L/80	0.44
Live Load	523.17
Reqd LL Def L/120	0.29
Section Modulus	1.4341
Reqd SM	1.0061
Mom of Inertia	1.6963
Reqd MI	1.1307

Total Load	532.75
Reqd TL Def L/80	0.03
Live Load	523.17
Reqd LL Def L/120	0.02
Section Modulus	0.2422
Reqd SM	0.0150
Mom of Inertia	0.3040
Reqd MI	0.0021

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.25)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/3/2024 3:52:44 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Short Span Crimp 18K3	J12

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

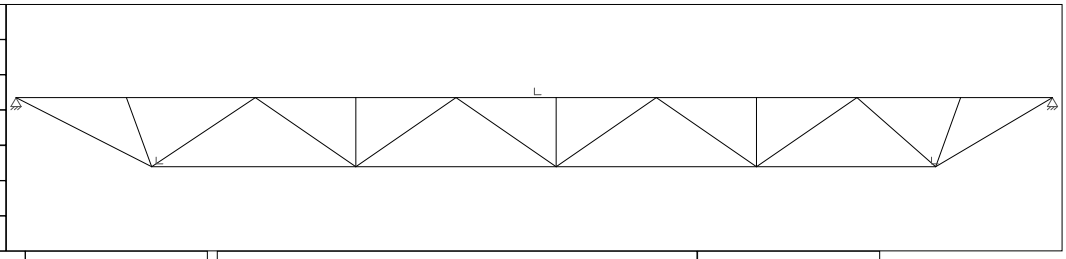
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:44:29 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**KCS Crimp 18KCS4**	**J13**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
21-0 1/4	**20-8 1/4**	**18.00**	**16.59**	**4 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-10 1/2	2-6
TC Panel	2-4 1/2	2-0
First Half	2-0 7/8	1-6 7/8
First Diag.	4-11 3/8	4-0 7/8
Depth	18.00	18.00
Trib Width	0-0	0-0



Moment Capacity (inch-kips)	817.00	Gross Moment of Inertia (in^4)	247.00

Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Net Uplift (plf)	WL	294.00	294.00	TC	-	0-0	200-0	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.88**	**80.38**	**68.75**	**5,700.00**	**49,232.29**	**49,232.29**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	5,319.99	10,960.78	0.00	0.00	12,534.18	5,973.39	36.49	0-2
V1S	5,065.87	10,690.98	0.00	0.00	6,061.13	6,061.13	17.65	2-4 1/2
W3	5,065.87	10,690.98	49,232.29	8,084.18	10,270.91	10,270.91	29.90	2-10 1/2
W4	10,024.12	49,232.29	49,232.29	8,084.18	10,022.28	10,022.28	29.18	4-11 3/8
W5	10,024.12	49,232.29	49,232.29	11,113.68	10,022.28	10,022.28	29.18	6-11 3/8
W6	11,352.85	49,232.29	49,232.29	11,113.68	10,022.28	10,022.28	29.18	8-11 3/8
W6	11,352.85	49,232.29	49,232.29	10,741.64	10,022.28	10,022.28	29.18	10-11 3/8
W5	9,280.03	49,232.29	49,232.29	10,741.64	10,022.28	10,022.28	29.18	12-11 3/8
W4	9,280.03	49,232.29	49,232.29	6,968.05	10,022.28	10,022.28	29.18	14-11 3/8
W3	4,468.78	10,024.25	49,232.29	6,968.05	8,632.61	8,632.61	25.13	16-11 3/8
V1S	4,468.78	10,024.25	0.00	0.00	6,061.13	6,061.13	17.65	19-0 1/4
W2	4,676.39	10,024.25	0.00	0.00	11,179.70	5,436.01	32.55	18-6 1/4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	5,700.00	5,700.00	16.59

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:44:29 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**KCS Crimp 18KCS4**	**J13**

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	**50,000.00**	**30,000.00**	**272.31**	**1,149.06**	**1,723.58**	**19-9 1/2**	**20-10 1/8**

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.50	30.88	24.00	24.88	22.00
Bending Load	550.00	550.00	550.00	550.00	550.00
Axial Load	10,960.78	10,690.98	49,232.29	10,024.25	10,024.25
fa	5,398.87	5,265.98	24,249.97	4,937.57	4,937.57
Maximum K L/r	53.71	62.58	36.48	50.42	44.59
Fcr	39,457.26	36,680.65	44,043.28	40,426.54	42,041.70
Fa	23,674.36	22,008.39	26,425.97	24,255.92	25,225.02
F'e	244,672.53	180,244.92	530,312.63	277,683.97	355,002.66
Cm	0.9890	0.9854	0.9694	0.9911	0.9930
Panel Point Moment	3,920.74	3,920.75	2,200.00	2,520.73	2,520.74
Mid Panel Moment	2,054.52	2,010.64	1,100.00	1,161.48	1,437.41
Panel Point fb	5,780.73	5,780.74	3,243.67	3,716.56	3,716.56
Mid Panel fb	1,185.74	1,160.42	634.85	670.33	829.58
Fillers	0	0	0	0	0
Panel Point Stress	11,179.60	11,046.71	27,493.65	8,654.13	8,654.13
Mid Panel Stress	0.2653	0.2761	0.9381	0.2245	0.1269

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **55,532.04**
Max Load no Fillers TC: **52,703.09**
TC OAL/Ryy: **167.28**
BC OAL/Ryy: **169.68**
BC Stress: **0.87**
BC L/Rz: **111.0039**
TC Shear Stress: **2,831.88**
BC Shear Stress: **3,660.13**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	12,534.18	12,943.38	5,973.39	7,448.06	5.63 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	10,270.91	18,714.09	10,270.91	10,280.39	3.93 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W4	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W4	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	8,632.61	14,381.54	8,632.61	8,834.92	3.88 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W2	11,179.70	12,943.38	5,436.01	8,037.66	5.02 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V1	6,061.13	10,742.43	6,061.13	7,797.95	3.16 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V2	5,700.00	10,742.43	5,700.00	7,954.76	2.98 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:44:29 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**KCS Crimp 18KCS4**	**J13**

TCX Design

TCX Left	
TCX Length	0-1 3/4
TCX Type	R
TCX Depth	3 1/2
BPL Length	0-5 3/4
Clear Bearing	0-7 1/2
BPL Material: 2018 = 2 x 2 x 0.188	

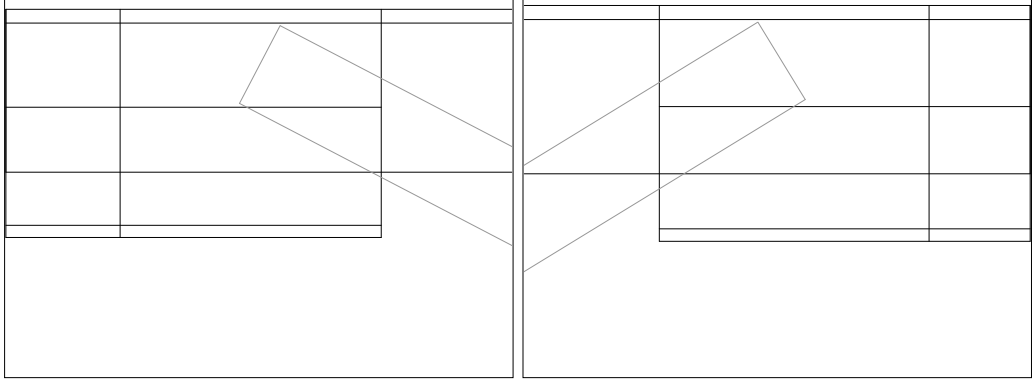
TCX Right	
TCX Length	0-1 1/2
TCX Type	R
TCX Depth	3 1/2
BPL Length	0-5 1/2
Clear Bearing	0-6 3/4
BPL Material: 2018 = 2 x 2 x 0.188	

Total Load	550.00
Reqd TL Def L/80	0.02
Live Load	367.00
Reqd LL Def L/120	0.01
Section Modulus	0.6782
Reqd SM	0.0107
Mom of Inertia	1.2186
Reqd MI	0.0008

Seat Type: Lapped

Total Load	550.00
Reqd TL Def L/80	0.02
Live Load	367.00
Reqd LL Def L/120	0.01
Section Modulus	0.6782
Reqd SM	0.0094
Mom of Inertia	1.2186
Reqd MI	0.0007

Seat Type: Lapped



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:44:29 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	KCS Crimp 18KCS4	J13

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

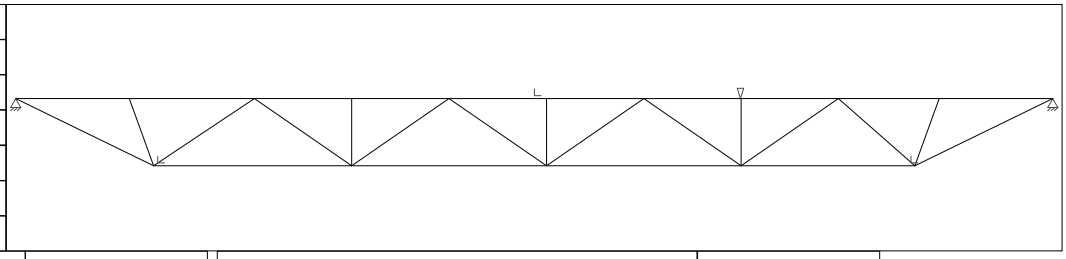
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:35:35 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**KCS Crimp 18KCS4**	**J14**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
21-7 3/4	**21-3 3/4**	**18.00**	**16.59**	**4 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-0 7/8	1-6 7/8
First Diag.	5-0 7/8	4-6 7/8
Depth	18.00	18.00
Trib Width	0-0	0-0



Moment Capacity (inch-kips)	817.00	Gross Moment of Inertia (in^4)	247.00

Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	15-0 3/4	15-0 3/4	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	15-0 3/4	15-0 3/4	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.88**	**631.16**	**1,290.06**	**5,700.00**	**49,232.29**	**49,232.30**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,641.40	11,678.36	0.00	0.00	12,995.15	8,750.81	37.83	0-2
V1S	6,380.64	11,404.38	0.00	0.00	6,061.13	6,061.13	17.65	2-6
W3	6,380.64	11,404.38	49,232.30	10,158.52	10,270.91	10,270.91	29.90	3-0
W4	12,831.33	49,232.29	49,232.30	10,158.52	10,022.28	10,022.28	29.18	5-0 7/8
W5	12,831.33	49,232.29	49,232.30	14,653.75	10,022.28	10,022.28	29.18	7-0 7/8
W6	15,625.79	49,232.29	49,232.30	14,653.75	10,022.28	10,022.28	29.18	9-0 7/8
W6	15,625.79	49,232.29	49,232.30	15,747.43	10,022.28	10,022.28	29.18	11-0 7/8
W5	15,007.40	49,232.29	49,232.30	15,747.43	10,022.28	10,022.28	29.18	13-0 7/8
W4	15,007.40	49,232.29	49,232.29	11,258.91	10,022.28	10,022.28	29.18	15-0 7/8
W3	7,629.90	11,952.34	49,232.29	11,258.91	8,632.61	8,632.61	25.13	17-0 7/8
V1S	7,629.90	11,952.34	0.00	0.00	6,061.13	6,061.13	17.65	19-1 3/4
W2	7,864.09	11,952.34	0.00	0.00	12,995.15	8,750.81	37.83	18-7 3/4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	5,700.00	5,700.00	16.59

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
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Location:	Joist Description:	Mark:
PUYALLUP, WA	**KCS Crimp 18KCS4**	**J14**

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	**50,000.00**	**30,000.00**	**272.31**	**1,050.90**	**1,576.35**	**19-8 1/2**	**17-6 1/8**

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	30.88	24.00	24.88	28.00
Bending Load	550.00	550.00	534.90	550.00	550.00
Axial Load	11,678.36	11,404.38	49,232.29	11,952.34	11,952.34
fa	5,752.32	5,617.37	24,249.97	5,887.27	5,887.27
Maximum K L/r	56.75	62.58	36.48	50.42	56.75
Fcr	38,530.64	36,680.65	44,043.28	40,426.54	38,530.64
Fa	23,118.38	22,008.39	26,425.97	24,255.92	23,118.38
F'e	219,159.81	180,244.92	530,312.63	277,683.97	219,159.81
Cm	0.9869	0.9844	0.9694	0.9894	0.9866
Panel Point Moment	4,131.17	4,131.17	2,351.69	3,495.68	3,495.68
Mid Panel Moment	2,306.17	1,949.08	1,072.00	833.09	2,582.92
Panel Point fb	6,090.98	6,090.99	3,467.32	5,154.01	5,154.01
Mid Panel fb	1,330.98	1,124.89	618.69	480.81	1,490.70
Fillers	0	0	0	0	0
Panel Point Stress	11,843.30	11,708.35	27,717.30	11,041.28	11,041.29
Mid Panel Stress	0.2909	0.2910	0.9375	0.2578	0.3018

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5000**

Max Load Fillers TC: **55,564.65**

Max Load no Fillers TC: **52,734.00**

TC OAL/Ryy: **172.33**

BC OAL/Ryy: **174.80**

BC Stress: **0.87**

BC L/Rz: **111.0039**

TC Shear Stress: **4,334.34**

BC Shear Stress: **5,203.49**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	12,995.15	16,842.68	8,750.81	9,328.02	4.97 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	10,270.91	18,714.09	10,270.91	10,280.39	3.93 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W4	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W4	10,022.28	18,714.09	10,022.28	10,447.07	3.83 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	8,632.61	14,381.54	8,632.61	8,834.92	3.88 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W2	12,995.15	16,842.68	8,750.81	9,328.02	4.97 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V1	6,061.13	10,742.43	6,061.13	7,797.95	3.16 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V2	5,700.00	10,742.43	5,700.00	7,954.76	2.98 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
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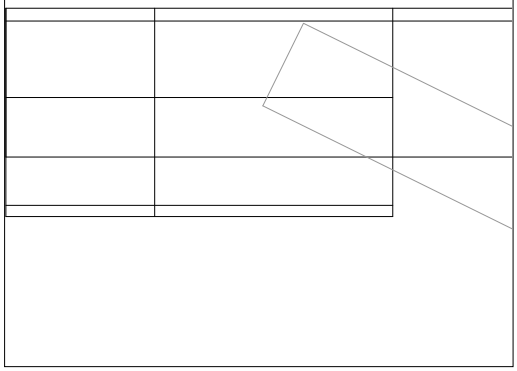
PUYALLUP, WA	**KCS Crimp 18KCS4**	**J14**

TCX Design

TCX Left	
TCX Length	0-2 1/2
TCX Type	R
TCX Depth	3 1/2
BPL Length	0-6 1/2
Clear Bearing	0-8 1/8
BPL Material: 2018 = 2 x 2 x 0.188	

Total Load	550.00
Reqd TL Def L/80	0.03
Live Load	367.00
Reqd LL Def L/120	0.02
Section Modulus	0.6782
Reqd SM	0.0155
Mom of Inertia	1.2186
Reqd MI	0.0014

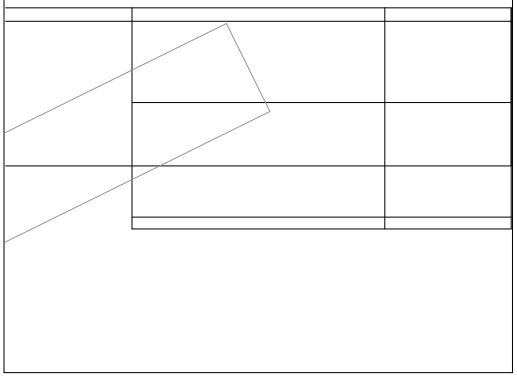
Seat Type: Lapped



TCX Right	
TCX Length	0-2
TCX Type	R
TCX Depth	3 1/2
BPL Length	0-6
Clear Bearing	0-7 5/8
BPL Material: 2018 = 2 x 2 x 0.188	

Total Load	550.00
Reqd TL Def L/80	0.03
Live Load	367.00
Reqd LL Def L/120	0.02
Section Modulus	0.6782
Reqd SM	0.0122
Mom of Inertia	1.2186
Reqd MI	0.0010

Seat Type: Lapped



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
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Case 3c: DL+CL+TL+LL+FEM
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Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

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Location:	Joist Description:	Mark:
PUYALLUP, WA	KCS Crimp 18KCS4	J14

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

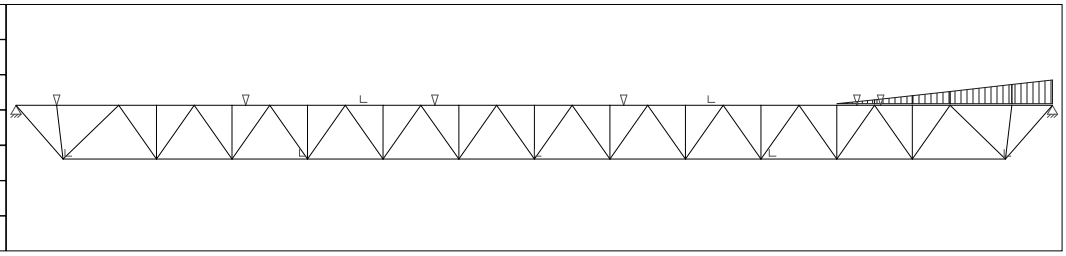
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:42:21 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J15**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
55-2 3/8	**54-10 3/8**	**36.00**	**34.03**	**12 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-8	2-8
TC Panel	2-4	2-4
First Half	2-11 1/4	2-11 1/8
First Diag.	5-7 1/4	5-7 1/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	55-2 3/8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	55-2 3/8	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	2-4	2-4	L-BL
Conc w/bending (lbs)	DL (1)	3,000.00	0.00	TC	+	12-4	12-4	L-BL
Conc w/bending (lbs)	DL (1)	3,000.00	0.00	TC	+	22-4	22-4	L-BL
Conc w/bending (lbs)	DL (1)	3,000.00	0.00	TC	+	32-4	32-4	L-BL
Uniform (plf)	LL (1)	0.00	420.00	TC	+	44-2 1/4	55-2 3/8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	44-8 1/8	44-8 1/8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	45-11 1/8	45-11 1/8	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	2-4	2-4	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	12-4	12-4	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	22-4	22-4	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	32-4	32-4	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	44-8 1/8	44-8 1/8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	45-11 1/8	45-11 1/8	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**59.25**	**20,184.63**	**19,567.79**	**5,046.16**	**91,792.25**	**91,549.02**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	14,567.73	17,435.03	0.00	0.00	26,364.35	22,028.56	45.36	0-2
V1S	14,121.13	16,924.06	0.00	0.00	3,898.31	4,464.00	34.26	2-4
W3	14,121.13	16,924.06	32,907.28	27,302.51	18,929.87	24,001.37	48.99	2-8
W4	35,730.59	43,088.73	32,907.28	27,302.51	18,392.76	15,171.71	41.64	5-7 1/4
V2	35,730.59	43,088.73	32,907.28	27,302.51	766.65	1,025.33	34.03	7-7 1/4
W5	35,730.59	43,088.73	52,738.41	43,743.97	14,155.81	16,872.06	41.64	7-7 1/4
W6	51,342.63	61,856.26	52,738.41	43,743.97	15,819.70	13,183.84	41.64	9-7 1/4
V3	51,342.63	61,856.26	52,738.41	43,743.97	2,750.96	3,174.09	34.03	11-7 1/4
W7	51,342.63	61,856.26	68,953.61	57,182.11	10,131.63	12,369.89	41.64	11-7 1/4
W8	61,835.46	74,664.98	68,953.61	57,182.11	10,215.40	8,622.47	41.64	13-7 1/4
V4	61,835.46	74,664.98	68,953.61	57,182.11	897.18	1,183.22	34.03	15-7 1/4
W9	61,835.46	74,664.98	79,860.06	66,074.10	7,902.94	9,292.74	41.64	15-7 1/4
W10	69,898.04	84,504.31	79,860.06	66,074.10	8,370.07	7,183.40	41.64	17-7 1/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:42:21 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J15

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
V5	69,898.04	84,504.31	79,860.06	66,074.10	937.49	1,232.52	34.03	19-7 1/4
W11	69,898.04	84,504.31	88,608.30	73,307.26	6,463.87	7,447.41	41.64	19-7 1/4
W12	74,957.30	90,734.50	88,608.30	73,307.26	6,174.98	5,152.50	41.64	21-7 1/4
V6	74,957.30	90,734.50	88,608.30	73,307.26	2,056.54	2,418.64	34.03	23-7 1/4
W13	74,957.30	90,734.50	91,549.02	75,421.22	5,152.50	6,174.98	41.64	23-7 1/4
W14	75,470.41	91,792.25	91,549.02	75,421.22	6,174.98	5,152.50	41.64	25-7 1/4
V7	75,470.41	91,792.25	91,549.02	75,421.22	965.35	1,268.96	34.03	27-7 1/4
W14	75,470.41	91,792.25	91,464.20	75,104.89	6,174.98	5,152.50	41.64	27-7 1/4
W13	74,324.69	90,564.85	91,464.20	75,104.89	5,152.50	6,174.98	41.64	29-7 1/4
V8	74,324.69	90,564.85	91,464.20	75,104.89	2,865.87	3,316.56	34.03	31-7 1/4
W12	74,324.69	90,564.85	87,749.76	71,785.27	6,174.98	5,152.50	41.64	31-7 1/4
W11	68,059.75	83,591.95	87,749.76	71,785.27	6,463.87	7,447.41	41.64	33-7 1/4
V9	68,059.75	83,591.95	87,749.76	71,785.27	928.30	1,227.96	34.03	35-7 1/4
W10	68,059.75	83,591.95	78,862.87	63,919.52	8,370.07	7,183.40	41.64	35-7 1/4
W9	59,364.57	73,562.49	78,862.87	63,919.52	7,902.94	9,292.74	41.64	37-7 1/4
V10	59,364.57	73,562.49	78,862.87	63,919.52	884.82	1,177.81	34.03	39-7 1/4
W8	59,364.57	73,562.49	67,690.84	54,394.89	10,215.40	8,622.47	41.64	39-7 1/4
W7	49,010.52	61,247.88	67,690.84	54,394.89	10,131.63	12,369.89	41.64	41-7 1/4
V11	49,010.52	61,247.88	67,690.84	54,394.89	1,528.37	1,841.03	34.03	43-7 1/4
W6	49,010.52	61,247.88	53,730.28	42,721.03	15,819.70	13,183.84	41.64	43-7 1/4
W5	34,562.16	44,083.03	53,730.28	42,721.03	14,155.81	16,872.06	41.64	45-7 1/4
V12	34,562.16	44,083.03	53,730.28	42,721.03	1,003.00	1,566.64	34.03	47-7 1/4
W4	34,562.16	44,083.03	33,486.30	25,817.78	18,392.76	15,171.71	41.64	47-7 1/4
W3	12,221.79	16,247.81	33,486.30	25,817.78	18,929.87	24,001.37	48.90	49-7 1/4
V1S	12,221.79	16,247.81	0.00	0.00	3,898.31	4,464.00	34.26	52-10 3/8
W2	12,315.57	16,482.36	0.00	0.00	26,364.35	22,028.56	45.36	52-6 3/8

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:42:21 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J15

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	2.0930	1.0824	0.6899	1.8930	0.9905	2.4522	0.9871	3531 = 3 1/2 x 3 1/2 x 0.313
BC	1.9266	1.0861	0.6914	1.8874	0.9811	2.2726	0.9552	3528 = 3 1/2 x 3 1/2 x 0.287

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	2,332.67	527.69	791.53	26-3	12-5 1/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	39.25	24.00	39.13	26.00
Bending Load	405.00	405.00	405.00	685.45	785.18
Axial Load	17,435.03	16,924.06	91,792.25	16,247.81	16,482.36
fa	4,165.08	4,043.02	21,675.71	3,881.47	3,937.50
Maximum K L/r	37.69	56.89	26.09	56.71	37.69
Fcr	44,547.34	39,073.66	46,989.80	39,131.76	44,547.34
Fa	26,728.41	23,444.20	28,193.88	23,479.05	26,728.41
F'e	496,051.28	217,667.69	1,034,971.13	219,060.75	496,051.28
Cm	0.9958	0.9907	0.9860	0.9911	0.9960
Panel Point Moment	3,989.42	3,989.42	13,734.99	7,091.83	7,091.83
Mid Panel Moment	1,740.14	2,748.24	9,643.85	4,584.47	2,838.19
Panel Point fb	2,041.32	2,041.32	7,027.97	3,628.77	3,628.77
Mid Panel fb	890.40	555.04	1,947.69	925.89	1,452.25
Fillers	0	0	0	0	0
Panel Point Stress	6,206.40	6,084.33	28,703.67	7,510.24	7,566.27
Mid Panel Stress	0.1083	0.1054	0.8285	0.1146	0.1232

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.9777
Max Load Fillers TC:	113,606.34
Max Load no Fillers TC:	110,686.55
TC OAL/Ryy:	347.80
BC OAL/Ryy:	348.83
BC Stress:	0.79
BC L/Rz:	85.6957
TC Shear Stress:	11,492.43
BC Shear Stress:	12,588.19

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	26,364.35	31,265.52	22,028.56	22,537.73	11.45 x 0.155	2	1715 = 1 3/4 x 1 3/4 x 0.155
V1S	3,898.31	10,742.43	4,464.00	5,556.49	2.33 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W3	18,929.87	36,161.88	24,001.37	26,019.31	10.36 x 0.156	2	2015 = 2 x 2 x 0.156
W4	18,392.76	28,597.25	15,171.71	15,471.89	6.61 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
V2	766.65	5,758.64	1,025.33	2,381.10	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	14,155.81	26,592.28	16,872.06	18,456.64	7.33 x 0.155	2	1515 = 1 1/2 x 1 1/2 x 0.155
W6	15,819.70	28,618.35	13,183.84	14,203.48	5.68 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V3	2,750.96	7,826.93	3,174.09	3,750.62	2.10 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	10,131.63	28,618.35	12,369.89	14,203.48	4.44 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W8	10,215.40	24,373.24	8,622.47	9,505.26	3.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V4	897.18	5,758.64	1,183.22	2,381.10	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	7,902.94	24,373.24	9,292.74	9,505.26	3.34 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	8,370.07	18,714.09	7,183.40	7,661.99	3.20 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V5	937.49	5,758.64	1,232.52	2,381.10	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	6,463.87	18,714.09	7,447.41	7,661.99	2.85 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W12	6,174.98	14,381.54	5,152.50	5,983.78	2.77 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V6	2,056.54	7,826.93	2,418.64	3,750.62	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W13	5,152.50	16,730.22	6,174.98	6,659.07	2.63 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W14	6,174.98	14,381.54	5,152.50	5,983.78	2.77 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:42:21 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J15**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	965.35	5,758.64	1,268.96	2,381.10	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	6,174.98	14,381.54	5,152.50	5,983.78	2.77 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W13	5,152.50	16,730.22	6,174.98	6,659.07	2.63 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V8	2,865.87	7,826.93	3,316.56	3,750.62	2.19 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W12	6,174.98	14,381.54	5,152.50	5,983.78	2.77 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W11	6,463.87	18,714.09	7,447.41	7,661.99	2.85 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V9	928.30	5,758.64	1,227.96	2,381.10	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	8,370.07	18,714.09	7,183.40	7,661.99	3.20 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W9	7,902.94	24,373.24	9,292.74	9,505.26	3.34 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V10	884.82	5,758.64	1,177.81	2,381.10	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	10,215.40	24,373.24	8,622.47	9,505.26	3.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W7	10,131.63	28,618.35	12,369.89	14,203.48	4.44 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V11	1,528.37	5,758.64	1,841.03	2,381.10	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	15,819.70	28,618.35	13,183.84	14,203.48	5.68 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W5	14,155.81	26,592.28	16,872.06	18,456.64	7.33 x 0.155	2	1515 = 1 1/2 x 1 1/2 x 0.155
V12	1,003.00	5,758.64	1,566.64	2,381.10	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	18,392.76	28,597.25	15,171.71	15,471.89	6.61 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W3	18,929.87	36,161.88	24,001.37	26,044.34	10.36 x 0.156	2	2015 = 2 x 2 x 0.156
V1S	3,898.31	10,742.43	4,464.00	5,556.49	2.33 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W2	26,364.35	31,265.52	22,028.56	22,537.73	11.45 x 0.155	2	1715 = 1 3/4 x 1 3/4 x 0.155

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:42:21 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J15**

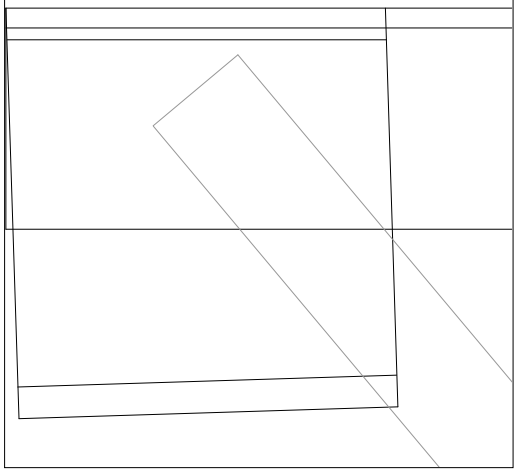
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 3/8
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

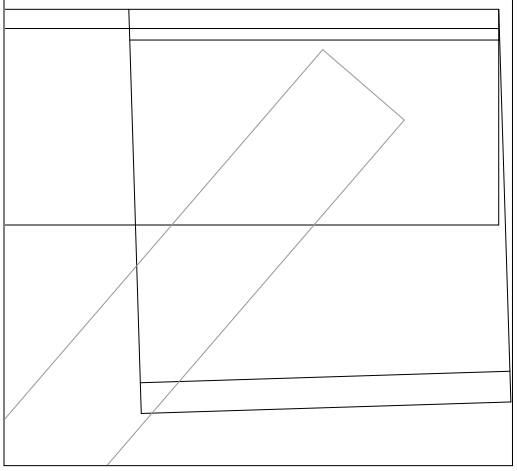
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: T-Plate 1" (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: T-Plate 1" (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:42:21 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J15

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

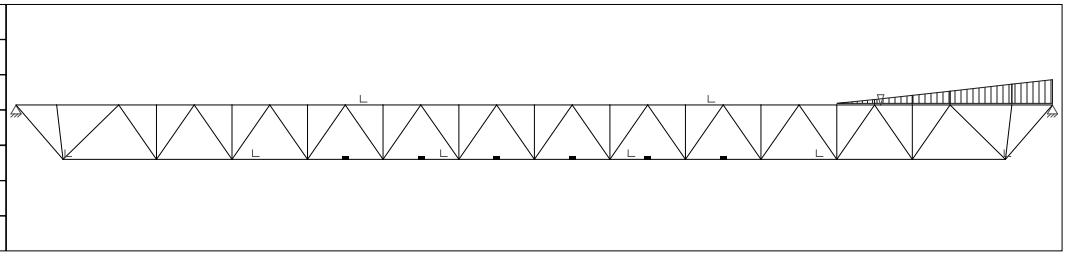
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:32:11 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J16**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
55-2 3/8	**54-10 3/8**	**36.00**	**34.53**	**12 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-8	2-8
TC Panel	2-4	2-4
First Half	2-11 1/4	2-11 1/8
First Diag.	5-7 1/4	5-7 1/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	55-2 3/8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	55-2 3/8	L-BL
Uniform (plf)	LL (1)	0.00	420.00	TC	+	44-2 1/4	55-2 3/8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	45-11 1/4	45-11 1/4	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	45-11 1/4	45-11 1/4	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**59.25**	**11,523.38**	**14,596.46**	**3,649.12**	**56,899.69**	**56,903.99**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,946.38	9,630.52	0.00	0.00	18,180.62	11,919.66	45.74	0-2
V1S	6,853.79	9,502.96	0.00	0.00	842.20	2,068.27	34.76	2-4
W3	6,853.79	9,502.96	19,694.76	14,199.80	11,697.21	16,730.87	49.34	2-8
W4	18,662.81	25,892.00	19,694.76	14,199.80	12,243.10	9,044.68	42.05	5-7 1/4
W5	18,662.81	25,892.00	31,526.24	22,717.12	8,024.14	10,594.12	42.05	7-7 1/4
W6	26,362.74	36,597.48	31,526.24	22,717.12	9,180.11	6,664.08	42.05	9-7 1/4
W7	26,362.74	36,597.48	41,105.74	29,599.68	6,050.07	8,334.28	42.05	11-7 1/4
W8	32,427.91	45,051.00	41,105.74	29,599.68	7,515.42	5,455.64	42.05	13-7 1/4
W9	32,427.91	45,051.00	48,433.27	34,847.46	4,880.78	6,723.52	42.05	15-7 1/4
W10	36,858.31	51,252.54	48,433.27	34,847.46	5,958.60	4,325.50	42.05	17-7 1/4
W11	36,858.31	51,252.54	53,508.82	38,460.47	3,789.80	5,220.64	42.05	19-7 1/4
W12	39,653.95	55,202.11	53,508.82	38,460.47	4,509.65	3,273.67	42.05	21-7 1/4
W13	39,653.95	55,202.11	56,332.40	40,438.72	2,836.46	4,443.99	42.05	23-7 1/4
W14	40,814.81	56,899.69	56,332.40	40,438.72	4,443.99	4,443.99	42.05	25-7 1/4
W14	40,814.81	56,899.69	56,903.99	40,782.21	4,443.99	4,443.99	42.05	27-7 1/4
W13	40,340.91	56,345.30	56,903.99	40,782.21	2,836.46	4,443.99	42.05	29-7 1/4
W12	40,340.91	56,345.30	55,223.63	39,490.93	4,509.65	3,273.67	42.05	31-7 1/4
W11	38,232.25	53,538.95	55,223.63	39,490.93	3,789.80	5,220.64	42.05	33-7 1/4
W10	38,232.25	53,538.95	51,291.28	36,564.88	5,958.60	4,325.50	42.05	35-7 1/4
W9	34,488.82	48,480.62	51,291.28	36,564.88	4,880.78	6,723.52	42.05	37-7 1/4
W8	34,488.82	48,480.62	45,106.96	32,004.06	7,515.42	5,455.64	42.05	39-7 1/4
W7	29,110.62	41,170.30	45,106.96	32,004.06	6,050.07	8,334.28	42.05	41-7 1/4
W6	29,110.62	41,170.30	36,657.89	25,808.48	9,180.11	6,664.08	42.05	43-7 1/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:32:11 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J16**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W5	21,228.84	30,611.48	36,657.89	25,808.48	8,024.14	10,594.12	42.05	45-7 1/4
W4	21,228.84	30,611.48	23,623.94	16,066.74	12,243.10	9,044.68	42.05	47-7 1/4
W3	7,725.18	11,692.75	23,623.94	16,066.74	11,697.21	16,730.87	49.26	49-7 1/4
V1S	7,725.18	11,692.75	0.00	0.00	842.20	2,068.27	34.76	52-10 3/8
W2	7,817.59	11,923.89	0.00	0.00	18,180.62	11,919.66	45.74	52-6 3/8

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	944.14	1,507.10	34.53

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:32:11 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J16

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0971	0.7723	0.4925	1.4884	0.7099	0.6543	0.9970	2523 = 2 1/2 x 2 1/2 x 0.230
BC	1.0162	0.8183	0.4925	1.5555	0.7604	0.6804	0.9652	A42A = 2.625 x 2.625 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,260.67	285.18	427.78	20-7 5/8	10-0 1/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	39.25	24.00	39.13	26.00
Bending Load	405.00	405.00	405.00	685.45	785.18
Axial Load	9,630.52	9,502.96	56,899.69	11,692.75	11,923.89
fa	4,389.08	4,330.95	25,931.86	5,328.94	5,434.28
Maximum K L/r	52.79	79.70	36.55	79.44	52.79
Fcr	40,684.30	31,374.96	45,224.13	31,467.47	40,684.30
Fa	24,410.58	18,824.97	27,134.48	18,880.48	24,410.58
F'e	252,535.91	110,812.95	526,895.88	111,522.15	252,535.91
Cm	0.9913	0.9805	0.9670	0.9761	0.9892
Panel Point Moment	3,989.42	3,989.42	1,620.00	7,093.35	7,093.35
Mid Panel Moment	1,740.14	2,748.24	810.00	4,586.24	2,839.46
Panel Point fb	5,457.32	5,457.33	2,216.08	9,703.35	9,703.35
Mid Panel fb	2,380.42	1,490.89	439.42	2,487.98	3,884.24
Fillers	0	0	0	0	0
Panel Point Stress	9,846.40	9,788.27	28,147.94	15,032.28	15,137.62
Mid Panel Stress	0.1712	0.2765	0.9694	0.3607	0.3411

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6131**
Max Load Fillers TC: **62,202.75**
Max Load no Fillers TC: **58,928.85**
TC OAL/Ryy: **442.33**
BC OAL/Ryy: **423.25**
BC Stress: **0.93**
BC L/Rz: **120.3046**
TC Shear Stress: **13,910.64**
BC Shear Stress: **15,882.10**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,180.62	28,618.35	11,919.66	14,248.02	6.53 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	11,697.21	29,969.07	16,730.87	17,836.61	3.25 x 0.245	1	WR112015 = Wrapped R112 with 2015
W4	12,243.10	24,373.24	9,044.68	9,393.02	4.40 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,024.14	28,621.37	10,594.12	10,883.86	3.81 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	9,180.11	18,714.09	6,664.08	7,573.79	3.51 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W7	6,050.07	24,373.24	8,334.28	9,393.02	2.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	7,515.42	14,381.54	5,455.64	5,916.34	3.37 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	4,880.78	18,714.09	6,723.52	7,573.79	2.57 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W10	5,958.60	10,742.43	4,325.50	4,559.43	3.11 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,789.80	14,381.54	5,220.64	5,916.34	2.34 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,509.65	10,742.43	3,273.67	4,559.43	2.35 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	2,836.46	10,742.43	4,443.99	4,559.43	2.32 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W14	4,443.99	10,742.43	4,443.99	4,559.43	2.32 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W14	4,443.99	10,742.43	4,443.99	4,559.43	2.32 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	2,836.46	10,742.43	4,443.99	4,559.43	2.32 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W12	4,509.65	10,742.43	3,273.67	4,559.43	2.35 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,789.80	14,381.54	5,220.64	5,916.34	2.34 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	5,958.60	10,742.43	4,325.50	4,559.43	3.11 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	4,880.78	18,714.09	6,723.52	7,573.79	2.57 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:32:11 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J16**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W8	7,515.42	14,381.54	5,455.64	5,916.34	3.37 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	6,050.07	24,373.24	8,334.28	9,393.02	2.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	9,180.11	18,714.09	6,664.08	7,573.79	3.51 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	8,024.14	28,621.37	10,594.12	10,883.86	3.81 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	12,243.10	24,373.24	9,044.68	9,393.02	4.40 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	11,697.21	29,969.07	16,730.87	17,870.08	3.25 x 0.245	1	WR112015 = Wrapped R112 with 2015
W2	18,180.62	28,618.35	11,919.66	14,248.02	6.53 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	842.20	5,758.64	2,068.27	2,297.08	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	944.14	5,758.64	1,507.10	2,323.45	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:32:11 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J16**

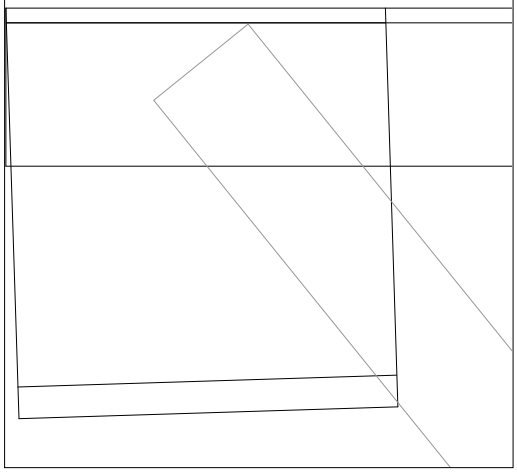
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 3/8
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

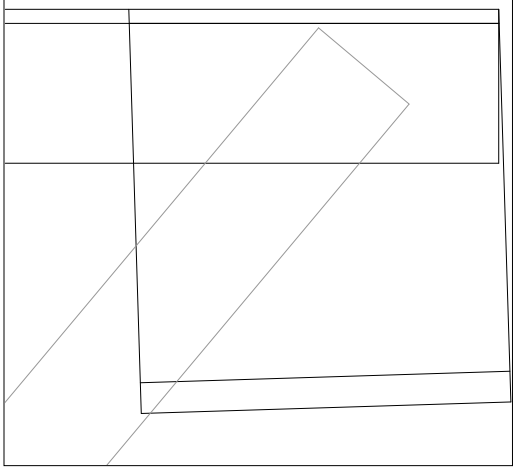
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:32:11 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J16

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

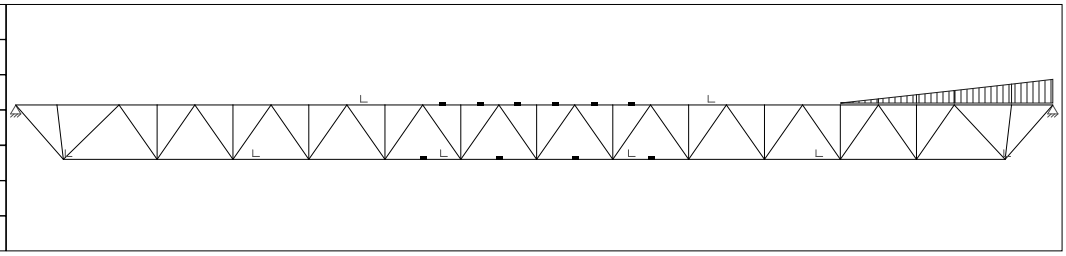
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:32:25 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J17**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
54-11 3/8	**54-7 3/8**	**36.00**	**34.54**	**12 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-8	2-8
TC Panel	2-4	2-4
First Half	2-11 1/4	2-8 1/8
First Diag.	5-7 1/4	5-4 1/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	54-11 3/8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	54-11 3/8	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Uniform (plf)	LL (1)	0.00	420.00	TC	+	43-11 1/4	54-11 3/8	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**59.25**	**11,515.06**	**13,648.80**	**3,386.89**	**55,392.14**	**55,079.85**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,697.16	9,493.54	0.00	0.00	16,789.53	10,212.43	45.75	0-2
V1S	6,604.59	9,366.01	0.00	0.00	838.14	2,272.77	34.77	2-4
W3	6,604.59	9,366.01	19,397.08	13,657.93	10,439.49	14,380.93	49.35	2-8
W4	17,921.77	25,485.02	19,397.08	13,657.93	11,131.25	7,988.91	42.06	5-7 1/4
W5	17,921.77	25,485.02	31,010.08	21,777.00	7,333.61	10,102.43	42.06	7-7 1/4
W6	25,223.61	35,972.25	31,010.08	21,777.00	9,226.81	6,697.98	42.06	9-7 1/4
W7	25,223.61	35,972.25	40,371.53	28,261.61	6,082.02	8,378.29	42.06	11-7 1/4
W8	30,890.99	44,207.93	40,371.53	28,261.61	7,556.86	5,485.72	42.06	13-7 1/4
W9	30,890.99	44,207.93	47,481.44	33,111.76	4,909.08	6,762.52	42.06	15-7 1/4
W10	34,923.92	50,192.07	47,481.44	33,111.76	5,995.26	4,352.12	42.06	17-7 1/4
W11	34,923.92	50,192.07	52,339.80	36,327.46	3,814.82	5,255.11	42.06	19-7 1/4
W12	37,322.40	53,924.66	52,339.80	36,327.46	4,542.04	3,297.18	42.06	21-7 1/4
W13	37,322.40	53,924.66	54,946.63	37,908.71	2,799.21	4,124.38	42.06	23-7 1/4
W14	38,086.42	55,392.14	54,946.63	37,908.71	4,124.38	2,565.38	42.06	25-7 1/4
W14	38,086.42	55,392.14	55,079.85	37,855.51	4,124.38	2,565.38	42.06	27-7 1/4
W13	37,215.99	54,204.68	55,079.85	37,855.51	2,799.21	4,124.38	42.06	29-7 1/4
W12	37,215.99	54,204.68	52,766.63	36,167.85	4,542.04	3,297.18	42.06	31-7 1/4
W11	34,711.11	50,765.70	52,766.63	36,167.85	3,814.82	5,255.11	42.06	33-7 1/4
W10	34,711.11	50,765.70	48,201.87	32,845.74	5,995.26	4,352.12	42.06	35-7 1/4
W9	30,571.76	45,075.16	48,201.87	32,845.74	4,909.08	6,762.52	42.06	37-7 1/4
W8	30,571.76	45,075.16	41,385.56	27,889.17	7,556.86	5,485.72	42.06	39-7 1/4
W7	24,797.97	37,133.08	41,385.56	27,889.17	6,082.02	8,378.29	42.06	41-7 1/4
W6	24,797.97	37,133.08	32,304.65	21,298.15	9,226.81	6,697.98	42.06	43-7 1/4
W5	17,389.72	26,808.89	32,304.65	21,298.15	7,333.61	10,102.43	42.06	45-7 1/4

* Continued on Next Page...

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:32:25 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J17**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W4	17,389.72	26,808.89	20,541.34	13,072.67	11,131.25	7,988.91	42.06	47-7 1/4
W3	6,609.02	10,660.68	20,541.34	13,072.67	9,978.02	14,673.54	47.17	49-7 1/4
V1S	6,609.02	10,660.68	0.00	0.00	838.14	2,272.77	34.77	52-7 3/8
W2	6,697.17	10,881.23	0.00	0.00	16,789.53	10,212.43	45.75	52-3 3/8

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	778.43	1,542.79	34.54

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:32:25 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J17

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	1.0162	0.8183	0.4925	1.5555	0.7604	0.6804	0.9652	A42A = 2.625 x 2.625 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,214.00	278.42	417.62	20-7	10-11 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	39.25	24.00	36.13	26.00
Bending Load	405.00	405.00	405.00	687.02	784.29
Axial Load	9,493.54	9,366.01	55,392.14	10,660.68	10,881.23
fa	4,676.16	4,613.35	27,284.08	5,251.05	5,359.68
Maximum K L/r	52.70	79.55	24.32	73.22	52.70
Fcr	39,759.50	30,923.80	46,409.20	33,115.39	39,759.50
Fa	23,855.70	18,554.28	27,845.52	19,869.23	23,855.70
F'e	254,173.50	111,531.52	530,312.63	131,662.25	254,173.50
Cm	0.9908	0.9793	0.9655	0.9801	0.9895
Panel Point Moment	3,989.42	3,989.42	1,620.00	6,243.86	6,243.86
Mid Panel Moment	1,740.14	2,748.24	810.00	3,792.77	2,546.55
Panel Point fb	5,881.98	5,881.98	2,388.52	9,205.93	9,205.93
Mid Panel fb	2,565.65	1,586.11	467.48	2,188.95	1,469.71
Fillers	0	0	6	0	0
Panel Point Stress	10,558.14	10,495.33	29,672.60	14,456.98	14,565.61
Mid Panel Stress	0.1883	0.2997	0.9950	0.3346	0.2708

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5968**
Max Load Fillers TC: **55,869.97**
Max Load no Fillers TC: **53,023.27**
TC OAL/Ryy: **441.60**
BC OAL/Ryy: **421.32**
BC Stress: **0.90**
BC L/Rz: **120.3046**
TC Shear Stress: **14,001.14**
BC Shear Stress: **14,667.99**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	16,789.53	28,621.37	10,212.43	11,220.71	6.03 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	10,439.49	23,679.79	14,380.93	14,939.01	2.98 x 0.230	1	WR102018 = Wrapped R100 with 2018
W4	11,131.25	24,373.24	7,988.91	9,391.54	4.00 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	7,333.61	28,621.37	10,102.43	10,882.13	3.63 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	9,226.81	18,714.09	6,697.98	7,572.62	3.53 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W7	6,082.02	24,373.24	8,378.29	9,391.54	3.01 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	7,556.86	14,381.54	5,485.72	5,915.45	3.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	4,909.08	18,714.09	6,762.52	7,572.62	2.59 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W10	5,995.26	10,742.43	4,352.12	4,558.75	3.13 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,814.82	14,381.54	5,255.11	5,915.45	2.36 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,542.04	10,742.43	3,297.18	4,558.75	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	2,799.21	10,742.43	4,124.38	4,558.75	2.15 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W14	4,124.38	7,826.93	2,565.38	3,019.55	2.72 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W14	4,124.38	7,826.93	2,565.38	3,019.55	2.72 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W13	2,799.21	10,742.43	4,124.38	4,558.75	2.15 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W12	4,542.04	10,742.43	3,297.18	4,558.75	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,814.82	14,381.54	5,255.11	5,915.45	2.36 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	5,995.26	10,742.43	4,352.12	4,558.75	3.13 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	4,909.08	18,714.09	6,762.52	7,572.62	2.59 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:32:25 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J17**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W8	7,556.86	14,381.54	5,485.72	5,915.45	3.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	6,082.02	24,373.24	8,378.29	9,391.54	3.01 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	9,226.81	18,714.09	6,697.98	7,572.62	3.53 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	7,333.61	28,621.37	10,102.43	10,882.13	3.63 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	11,131.25	24,373.24	7,988.91	9,391.54	4.00 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	9,978.02	29,969.07	14,673.54	14,705.42	2.85 x 0.245	1	WR111513 = Wrapped R112 with 1513
W2	16,789.53	28,621.37	10,212.43	11,220.71	6.03 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	838.14	5,758.64	2,272.77	2,296.34	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	778.43	5,758.64	1,542.79	2,322.69	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:32:25 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J17**

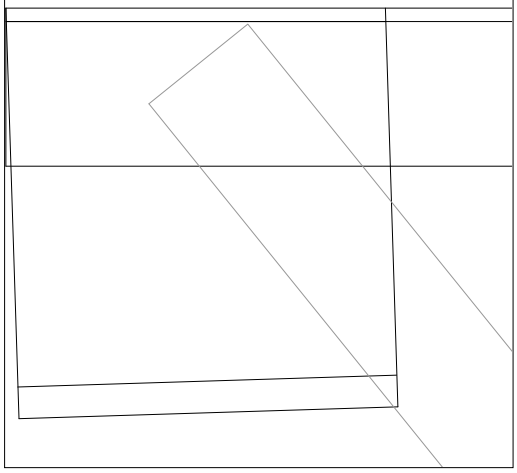
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-3
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

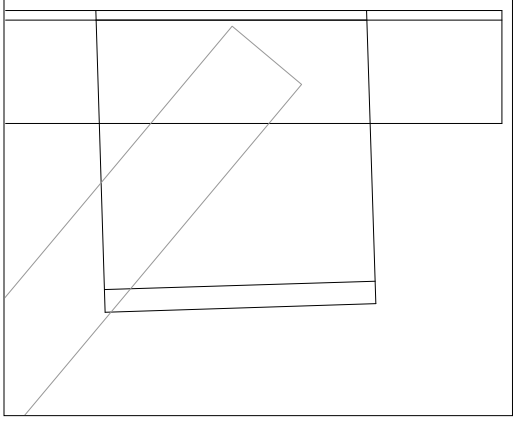
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.04
Live Load	200.00
Reqd LL Def L/120	0.03
Section Modulus	0.6782
Reqd SM	0.0141
Mom of Inertia	1.2186
Reqd MI	0.0015

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:32:25 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J17

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
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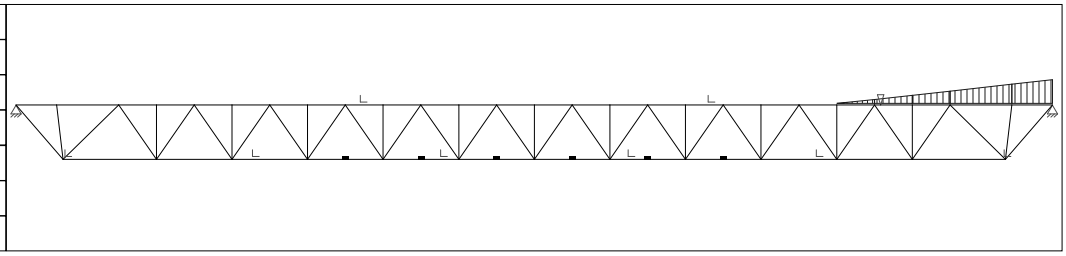
Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J18

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
55-2 3/8	54-10 3/8	36.00	34.53	12 @ 4-0	1.0220	Parallel Chords	0.0000

Variable	Left End	Right End
BC Panel	2-8	2-8
TC Panel	2-4	2-4
First Half	2-11 1/4	2-11 1/8
First Diag.	5-7 1/4	5-7 1/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	55-2 3/8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	55-2 3/8	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Uniform (plf)	LL (1)	0.00	420.00	TC	+	44-2 1/4	55-2 3/8	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	45-11 1/4	45-11 1/4	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	45-11 1/4	45-11 1/4	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	59.25	11,820.64	14,895.09	3,723.77	58,329.44	58,229.48

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,946.38	9,760.84	0.00	0.00	18,576.22	11,919.66	45.74	0-2
V1S	6,853.79	9,633.29	0.00	0.00	842.20	2,370.28	34.76	2-4
W3	6,853.79	9,633.29	19,978.21	14,199.80	11,697.21	17,115.82	49.34	2-8
W4	18,662.81	26,279.71	19,978.21	14,199.80	12,571.74	9,044.68	42.05	5-7 1/4
W5	18,662.81	26,279.71	32,018.21	22,717.12	8,024.14	10,896.07	42.05	7-7 1/4
W6	26,362.74	37,193.71	32,018.21	22,717.12	9,185.78	6,664.08	42.05	9-7 1/4
W7	26,362.74	37,193.71	41,806.22	29,599.68	6,050.07	8,334.28	42.05	11-7 1/4
W8	32,427.91	45,855.75	41,806.22	29,599.68	7,515.42	5,455.64	42.05	13-7 1/4
W9	32,427.91	45,855.75	49,342.27	34,847.46	4,880.78	6,723.52	42.05	15-7 1/4
W10	36,858.31	52,265.79	49,342.27	34,847.46	5,958.60	4,325.50	42.05	17-7 1/4
W11	36,858.31	52,265.79	54,626.33	38,460.47	3,789.80	5,220.64	42.05	19-7 1/4
W12	39,653.95	56,423.89	54,626.33	38,460.47	4,534.91	3,273.67	42.05	21-7 1/4
W13	39,653.95	56,423.89	57,658.43	40,438.72	2,836.46	4,534.91	42.05	23-7 1/4
W14	40,814.81	58,329.44	57,658.43	40,438.72	4,534.91	4,534.91	42.05	25-7 1/4
W14	40,814.81	58,329.44	58,229.48	40,782.21	4,534.91	4,534.91	42.05	27-7 1/4
W13	40,340.91	57,566.54	58,229.48	40,782.21	2,836.46	4,534.91	42.05	29-7 1/4
W12	40,340.91	57,566.54	56,340.60	39,490.93	4,534.91	3,273.67	42.05	31-7 1/4
W11	38,232.25	54,551.66	56,340.60	39,490.93	3,789.80	5,220.64	42.05	33-7 1/4
W10	38,232.25	54,551.66	52,199.73	36,564.88	5,958.60	4,325.50	42.05	35-7 1/4
W9	34,488.82	49,284.82	52,199.73	36,564.88	4,880.78	6,723.52	42.05	37-7 1/4
W8	34,488.82	49,284.82	45,806.90	32,004.06	7,515.42	5,455.64	42.05	39-7 1/4
W7	29,110.62	41,765.99	45,806.90	32,004.06	6,050.07	8,334.28	42.05	41-7 1/4

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
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Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J18**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W6	29,110.62	41,765.99	37,149.32	25,808.48	9,185.78	6,664.08	42.05	43-7 1/4
W5	21,228.84	30,998.64	37,149.32	25,808.48	8,024.14	10,896.07	42.05	45-7 1/4
W4	21,228.84	30,998.64	23,906.84	16,066.74	12,571.74	9,044.68	42.05	47-7 1/4
W3	7,725.18	11,823.07	23,906.84	16,066.74	11,697.21	17,115.82	49.26	49-7 1/4
V1S	7,725.18	11,823.07	0.00	0.00	842.20	2,370.28	34.76	52-10 3/8
W2	7,817.59	12,054.21	0.00	0.00	18,576.22	11,919.66	45.74	52-6 3/8

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	944.14	1,807.10	34.53

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
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Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J18

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0971	0.7723	0.4925	1.4884	0.7099	0.6543	0.9970	2523 = 2 1/2 x 2 1/2 x 0.230
BC	1.0162	0.8183	0.4925	1.5555	0.7604	0.6804	0.9652	A42A = 2.625 x 2.625 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,260.67	285.18	427.78	20-7 5/8	10-0 1/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	39.25	24.00	39.13	26.00
Bending Load	405.00	405.00	405.00	685.45	785.18
Axial Load	9,760.84	9,633.29	58,329.44	11,823.07	12,054.21
fa	4,448.47	4,390.34	26,583.46	5,388.33	5,493.67
Maximum K L/r	52.79	79.70	36.55	79.44	52.79
Fcr	40,684.30	31,374.96	45,224.13	31,467.47	40,684.30
Fa	24,410.58	18,824.97	27,134.48	18,880.48	24,410.58
F'e	252,535.91	110,812.95	526,895.88	111,522.15	252,535.91
Cm	0.9912	0.9802	0.9662	0.9758	0.9891
Panel Point Moment	3,989.42	3,989.42	1,620.00	7,066.00	7,066.00
Mid Panel Moment	1,740.14	2,748.24	810.00	4,554.40	2,816.67
Panel Point fb	5,457.32	5,457.33	2,216.08	9,665.94	9,665.94
Mid Panel fb	2,380.42	1,490.89	439.42	2,470.71	3,853.07
Fillers	0	0	0	0	0
Panel Point Stress	9,905.80	9,847.67	28,799.54	15,054.27	15,159.61
Mid Panel Stress	0.1724	0.2797	0.9935	0.3633	0.3426

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6285**
Max Load Fillers TC: **62,202.75**
Max Load no Fillers TC: **58,928.85**
TC OAL/Ryy: **442.33**
BC OAL/Ryy: **423.25**
BC Stress: **0.96**
BC L/Rz: **120.3046**
TC Shear Stress: **13,937.09**
BC Shear Stress: **16,227.68**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,576.22	28,618.35	11,919.66	14,248.02	6.67 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	11,697.21	29,969.07	17,115.82	17,836.61	3.33 x 0.245	1	WR112015 = Wrapped R112 with 2015
W4	12,571.74	24,373.24	9,044.68	9,393.02	4.52 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,024.14	28,618.35	10,896.07	14,116.75	3.91 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	9,185.78	18,714.09	6,664.08	7,573.79	3.51 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W7	6,050.07	24,373.24	8,334.28	9,393.02	2.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	7,515.42	14,381.54	5,455.64	5,916.34	3.37 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	4,880.78	18,714.09	6,723.52	7,573.79	2.57 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W10	5,958.60	10,742.43	4,325.50	4,559.43	3.11 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,789.80	14,381.54	5,220.64	5,916.34	2.34 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,534.91	10,742.43	3,273.67	4,559.43	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	2,836.46	10,742.43	4,534.91	4,559.43	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W14	4,534.91	10,742.43	4,534.91	4,559.43	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W14	4,534.91	10,742.43	4,534.91	4,559.43	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	2,836.46	10,742.43	4,534.91	4,559.43	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W12	4,534.91	10,742.43	3,273.67	4,559.43	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,789.80	14,381.54	5,220.64	5,916.34	2.34 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	5,958.60	10,742.43	4,325.50	4,559.43	3.11 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	4,880.78	18,714.09	6,723.52	7,573.79	2.57 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:45:48 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J18**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W8	7,515.42	14,381.54	5,455.64	5,916.34	3.37 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	6,050.07	24,373.24	8,334.28	9,393.02	2.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	9,185.78	18,714.09	6,664.08	7,573.79	3.51 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	8,024.14	28,618.35	10,896.07	14,116.75	3.91 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	12,571.74	24,373.24	9,044.68	9,393.02	4.52 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	11,697.21	29,969.07	17,115.82	17,870.08	3.33 x 0.245	1	WR112015 = Wrapped R112 with 2015
W2	18,576.22	28,618.35	11,919.66	14,248.02	6.67 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	842.20	7,826.93	2,370.28	3,681.37	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
V2	944.14	5,758.64	1,807.10	2,323.45	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:45:48 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J18**

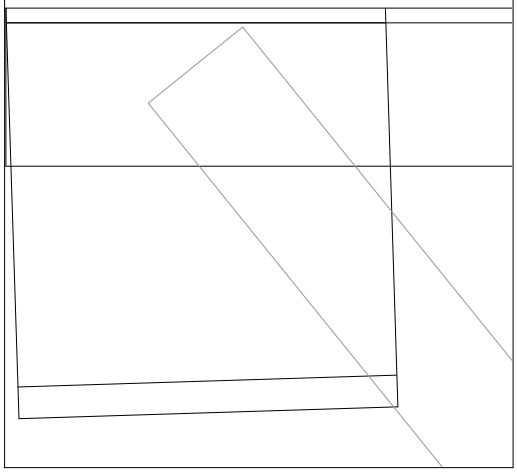
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 3/8
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

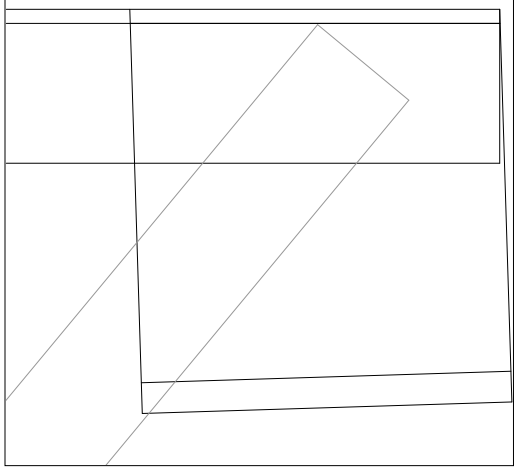
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 8:45:48 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J18

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

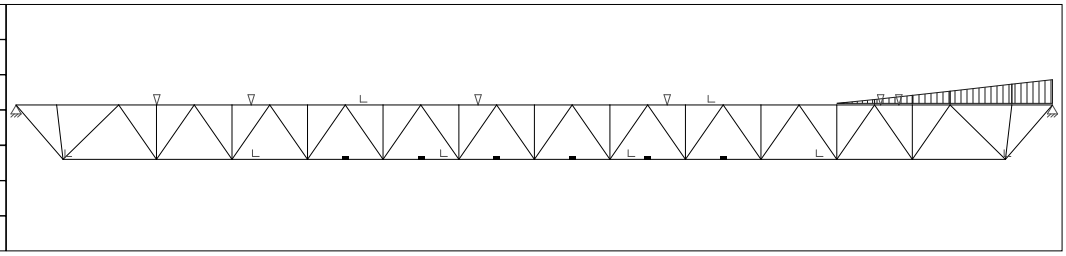
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:47:02 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J19**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
55-2 3/8	**54-10 3/8**	**36.00**	**34.52**	**12 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-8	2-8
TC Panel	2-4	2-4
First Half	2-11 1/4	2-11 1/8
First Diag.	5-7 1/4	5-7 1/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	55-2 3/8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	55-2 3/8	L-BL
Conc Load (lbs)	DL (1)	300.00	0.00	TC	+	7-7 1/2	7-7 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	12-7 1/2	12-7 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	24-7 5/8	24-7 5/8	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	34-7 5/8	34-7 5/8	L-BL
Uniform (plf)	LL (1)	0.00	420.00	TC	+	44-2 1/2	55-2 3/8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	45-11 1/4	45-11 1/4	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	46-10 3/4	46-10 3/4	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	45-11 1/4	45-11 1/4	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**59.25**	**12,336.69**	**15,283.15**	**3,820.79**	**60,713.27**	**60,657.29**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,947.83	10,339.29	0.00	0.00	19,092.00	11,920.73	45.74	0-2
V1S	6,855.22	10,211.71	0.00	0.00	842.21	2,071.27	34.75	2-4
W3	6,855.22	10,211.71	21,236.08	14,202.76	11,698.45	17,712.28	49.34	2-8
W4	18,666.70	28,000.02	21,236.08	14,202.76	13,080.25	9,045.29	42.05	5-7 1/4
W5	18,666.70	28,000.02	33,994.46	22,721.85	8,024.69	11,195.19	42.05	7-7 1/4
W6	26,368.24	39,423.61	33,994.46	22,721.85	9,511.26	6,664.54	42.05	9-7 1/4
W7	26,368.24	39,423.61	44,187.55	29,605.84	6,050.48	8,345.87	42.05	11-7 1/4
W8	32,434.67	48,281.92	44,187.55	29,605.84	7,515.93	5,456.01	42.05	13-7 1/4
W9	32,434.67	48,281.92	51,813.20	34,854.72	4,881.11	6,723.98	42.05	15-7 1/4
W10	36,865.98	54,781.34	51,813.20	34,854.72	5,959.00	4,325.79	42.05	17-7 1/4
W11	36,865.98	54,781.34	57,186.38	38,468.49	3,790.05	5,220.99	42.05	19-7 1/4
W12	39,662.20	59,028.32	57,186.38	38,468.49	4,653.37	3,273.90	42.05	21-7 1/4
W13	39,662.20	59,028.32	60,206.11	40,447.15	2,836.65	4,653.37	42.05	23-7 1/4
W14	40,823.32	60,713.27	60,206.11	40,447.15	4,653.37	2,836.65	42.05	25-7 1/4
W14	40,823.32	60,713.27	60,657.29	40,790.71	4,653.37	2,836.65	42.05	27-7 1/4
W13	40,349.32	60,038.24	60,657.29	40,790.71	2,836.65	4,653.37	42.05	29-7 1/4
W12	40,349.32	60,038.24	58,856.05	39,499.16	4,653.37	3,273.90	42.05	31-7 1/4
W11	38,240.22	57,009.73	58,856.05	39,499.16	3,790.05	5,220.99	42.05	33-7 1/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:47:02 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J19**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W10	38,240.22	57,009.73	54,492.77	36,572.50	5,959.00	4,325.79	42.05	35-7 1/4
W9	34,496.01	51,412.68	54,492.77	36,572.50	4,881.11	6,723.98	42.05	37-7 1/4
W8	34,496.01	51,412.68	47,769.50	32,010.74	7,515.93	5,456.01	42.05	39-7 1/4
W7	29,116.69	43,563.20	47,769.50	32,010.74	6,050.48	8,345.87	42.05	41-7 1/4
W6	29,116.69	43,563.20	38,781.02	25,813.87	9,511.26	6,664.54	42.05	43-7 1/4
W5	21,233.26	32,390.65	38,781.02	25,813.87	8,024.69	11,195.19	42.05	45-7 1/4
W4	21,233.26	32,390.65	24,924.27	16,070.09	13,080.25	9,045.29	42.05	47-7 1/4
W3	7,726.79	12,291.92	24,924.27	16,070.09	11,698.45	17,712.28	49.25	49-7 1/4
V1S	7,726.79	12,291.92	0.00	0.00	842.21	2,071.27	34.75	52-10 3/8
W2	7,819.22	12,523.11	0.00	0.00	19,092.00	11,920.73	45.74	52-6 3/8

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	944.17	1,709.74	34.52

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 8:47:02 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J19

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.1875	0.7695	0.4915	1.4931	0.7171	0.7031	1.0000	2525 = 2 1/2 x 2 1/2 x 0.250
BC	1.0162	0.8183	0.4925	1.5555	0.7604	0.6804	0.9652	A42A = 2.625 x 2.625 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,308.02	295.90	443.84	20-8 3/8	10-0 1/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	39.25	24.00	39.13	26.00
Bending Load	405.00	405.00	405.00	685.45	785.18
Axial Load	10,339.29	10,211.71	60,713.27	12,291.92	12,523.11
fa	4,353.39	4,299.67	25,563.48	5,175.55	5,272.89
Maximum K L/r	52.90	79.86	36.62	79.60	52.90
Fcr	40,748.39	31,366.40	45,329.46	31,459.54	40,748.39
Fa	24,449.04	18,819.84	27,197.67	18,875.73	24,449.04
F'e	250,708.08	110,010.89	523,082.22	110,714.96	250,708.08
Cm	0.9913	0.9805	0.9673	0.9766	0.9895
Panel Point Moment	3,989.42	3,989.42	1,620.00	7,128.25	7,128.24
Mid Panel Moment	1,740.14	2,748.24	810.00	4,626.88	2,868.54
Panel Point fb	5,058.12	5,058.12	2,053.97	9,037.80	9,037.79
Mid Panel fb	2,206.29	1,401.48	413.06	2,359.50	3,636.98
Fillers	0	0	0	0	0
Panel Point Stress	9,411.51	9,357.79	27,617.45	14,213.34	14,310.68
Mid Panel Stress	0.1641	0.2720	0.9528	0.3482	0.3262

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.6542
Max Load Fillers TC:	67,575.98
Max Load no Fillers TC:	63,994.57
TC OAL/Ryy:	440.93
BC OAL/Ryy:	423.25
BC Stress:	0.99
BC L/Rz:	120.3046
TC Shear Stress:	13,548.14
BC Shear Stress:	16,676.88

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,092.00	28,618.35	11,920.73	14,249.00	6.86 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	11,698.45	29,969.07	17,712.28	17,838.50	3.44 x 0.245	1	WR112015 = Wrapped R112 with 2015
W4	13,080.25	24,373.24	9,045.29	9,394.63	4.70 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,024.69	28,618.35	11,195.19	14,118.00	4.02 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	9,511.26	18,714.09	6,664.54	7,575.06	3.64 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W7	6,050.48	24,373.24	8,345.87	9,394.63	3.00 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	7,515.93	14,381.54	5,456.01	5,917.31	3.37 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	4,881.11	18,714.09	6,723.98	7,575.06	2.57 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W10	5,959.00	10,742.43	4,325.79	4,560.17	3.11 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,790.05	14,381.54	5,220.99	5,917.31	2.34 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,653.37	10,742.43	3,273.90	4,560.17	2.43 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	2,836.65	14,381.54	4,653.37	5,917.31	2.09 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,653.37	7,826.93	2,836.65	3,020.54	3.07 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W14	4,653.37	7,826.93	2,836.65	3,020.54	3.07 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W13	2,836.65	14,381.54	4,653.37	5,917.31	2.09 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,653.37	10,742.43	3,273.90	4,560.17	2.43 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,790.05	14,381.54	5,220.99	5,917.31	2.34 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	5,959.00	10,742.43	4,325.79	4,560.17	3.11 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	4,881.11	18,714.09	6,723.98	7,575.06	2.57 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:47:02 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J19**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W8	7,515.93	14,381.54	5,456.01	5,917.31	3.37 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	6,050.48	24,373.24	8,345.87	9,394.63	3.00 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	9,511.26	18,714.09	6,664.54	7,575.06	3.64 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	8,024.69	28,618.35	11,195.19	14,118.00	4.02 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	13,080.25	24,373.24	9,045.29	9,394.63	4.70 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	11,698.45	29,969.07	17,712.28	17,871.97	3.44 x 0.245	1	WR112015 = Wrapped R112 with 2015
W2	19,092.00	28,618.35	11,920.73	14,249.00	6.86 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	842.21	5,758.64	2,071.27	2,297.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	944.17	5,758.64	1,709.74	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:47:02 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J19**

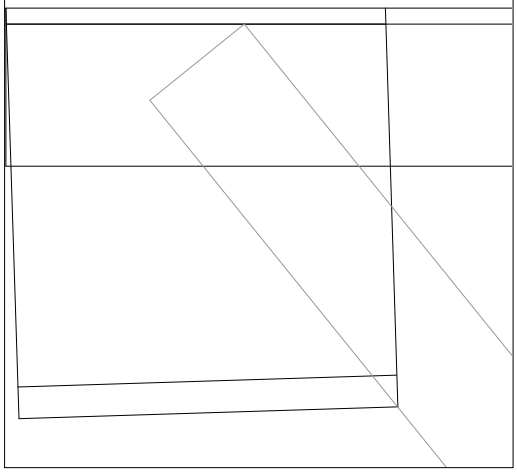
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 3/8
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

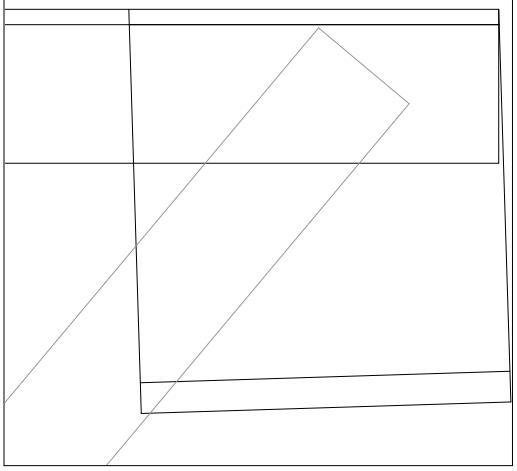
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 8:47:02 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J19

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

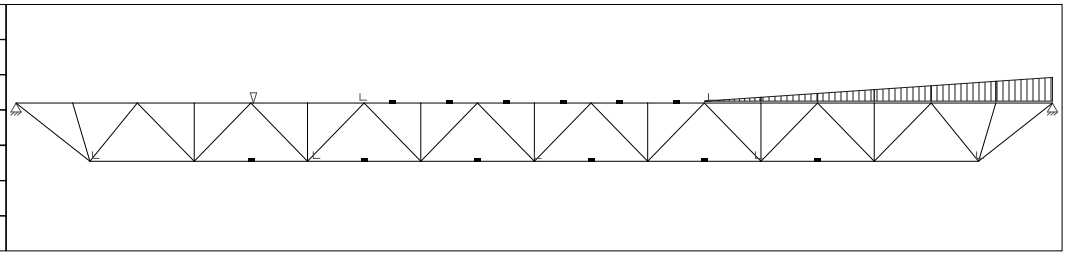
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:20:01 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J2**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-11 1/2	**39-7 1/2**	**28.00**	**26.80**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	1-9 3/4
First Diag.	4-9 3/4	4-9 3/4
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-11 1/2	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-11 1/2	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	9-3	9-3	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	27-11 1/2	39-11 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	9-3	9-3	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**10,703.01**	**11,325.94**	**2,831.48**	**41,918.22**	**41,518.11**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,451.01	11,557.46	0.00	0.00	16,745.90	10,761.45	43.30	0-2
V1S	8,247.18	11,276.68	0.00	0.00	1,270.48	2,055.24	27.97	2-4
W3	8,247.18	11,276.68	17,906.68	13,099.19	7,700.48	10,896.25	34.52	3-0
W4	18,236.85	24,919.66	17,906.68	13,099.19	10,132.61	7,379.03	37.34	4-9 3/4
W5	18,236.85	24,919.66	31,081.47	22,756.63	6,491.59	8,910.12	37.34	6-11 3/4
W6	25,273.51	35,007.11	31,081.47	22,756.63	6,542.96	4,749.70	37.34	9-1 3/4
W7	25,273.51	35,007.11	38,011.62	27,102.56	4,031.29	5,553.30	37.34	11-3 3/4
W8	28,313.73	40,164.98	38,011.62	27,102.56	4,613.78	3,349.26	37.34	13-5 3/4
W9	28,313.73	40,164.98	41,467.18	28,907.02	2,703.63	3,944.68	37.34	15-7 3/4
W10	28,882.43	41,918.22	41,467.18	28,907.02	3,944.68	2,431.40	37.34	17-9 3/4
W10	28,882.43	41,918.22	41,518.11	28,239.97	3,944.68	2,431.40	37.34	19-11 3/4
W9	26,979.62	40,266.83	41,518.11	28,239.97	2,703.63	3,944.68	37.34	22-1 3/4
W8	26,979.62	40,266.83	38,164.39	25,101.39	4,613.78	3,349.26	37.34	24-3 3/4
W7	22,605.29	35,189.41	38,164.39	25,101.39	4,031.29	5,553.30	37.34	26-5 3/4
W6	22,605.29	35,189.41	31,192.25	19,491.31	6,542.96	4,749.70	37.34	28-7 3/4
W5	15,759.45	26,001.88	31,192.25	19,491.31	6,491.59	8,910.12	37.34	30-9 3/4
W4	15,759.45	26,001.88	19,447.28	11,409.71	10,132.61	7,379.03	37.34	32-11 3/4
W3	7,216.83	12,581.65	19,447.28	11,409.71	7,700.48	10,896.25	34.52	35-1 3/4
V1S	7,216.83	12,581.65	0.00	0.00	1,270.48	2,055.24	27.97	37-7 1/2
W2	7,420.65	13,150.62	0.00	0.00	16,745.90	10,761.45	43.30	36-11 1/2

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	835.48	1,536.46	26.80

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:20:01 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J2

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	548.49	329.35	494.03	17-6 1/2	8-9 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	29.75	26.00
Bending Load	405.00	405.00	405.00	777.07	864.31
Axial Load	11,557.46	11,276.68	41,918.22	12,581.65	13,150.62
fa	3,767.10	6,898.74	25,644.33	7,697.08	8,045.16
Maximum K L/r	66.26	75.82	33.13	75.82	66.26
Fcr	36,271.07	32,843.23	46,144.25	32,843.23	36,271.07
Fa	21,762.64	19,705.94	27,686.55	19,705.94	21,762.64
F'e	521,433.53	121,677.79	283,214.88	121,677.79	159,308.36
Cm	0.9964	0.9717	0.9393	0.9684	0.9747
Panel Point Moment	20,524.43	2,604.35	1,901.25	5,615.93	5,615.92
Mid Panel Moment	15,720.26	1,828.86	950.63	2,396.97	3,537.98
Panel Point fb	8,450.18	6,013.45	4,390.00	12,967.21	12,967.20
Mid Panel fb	6,472.24	1,722.73	895.46	2,257.87	3,332.67
Fillers	0	0	6	0	0
Panel Point Stress	12,217.28	12,912.19	30,034.32	20,664.28	21,012.36
Mid Panel Stress	0.3041	0.4049	0.9556	0.4630	0.4748

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **44,039.91**
Max Load no Fillers TC: **39,844.50**
TC OAL/Ryy: **366.80**
BC OAL/Ryy: **354.02**
BC Stress: **0.97**
BC L/Rz: **135.7348**
TC Shear Stress: **13,559.14**
BC Shear Stress: **18,076.75**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	16,745.90	25,759.23	10,761.45	11,915.38	6.01 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	7,700.48	24,373.24	10,896.25	11,517.14	3.91 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	10,132.61	16,730.22	7,379.03	7,468.71	4.32 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	6,491.59	24,373.24	8,910.12	10,705.46	3.20 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	6,542.96	10,742.43	4,749.70	5,158.50	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,031.29	14,381.54	5,553.30	6,701.18	2.49 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,613.78	7,826.93	3,349.26	3,441.36	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,703.63	10,742.43	3,944.68	5,158.50	2.06 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,944.68	7,826.93	2,431.40	3,441.36	2.60 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,944.68	7,826.93	2,431.40	3,441.36	2.60 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,703.63	10,742.43	3,944.68	5,158.50	2.06 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,613.78	7,826.93	3,349.26	3,441.36	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,031.29	14,381.54	5,553.30	6,701.18	2.49 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,542.96	10,742.43	4,749.70	5,158.50	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	6,491.59	24,373.24	8,910.12	10,705.46	3.20 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	10,132.61	16,730.22	7,379.03	7,468.71	4.32 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	7,700.48	24,373.24	10,896.25	11,517.14	3.91 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W2	16,745.90	25,759.23	10,761.45	11,915.38	6.01 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	1,270.48	5,758.64	2,055.24	3,112.18	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	835.48	5,758.64	1,536.46	3,257.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:20:01 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J2**

TCX Design

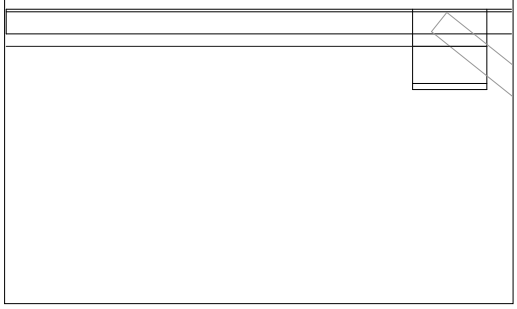
TCX Left	
TCX Length	2-8 7/8
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	5-6
Clear Bearing	0-7 3/8
BPL Material: 2018 = 2 x 2 x 0.188	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-2 1/8
Clear Bearing	0-7 3/8
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

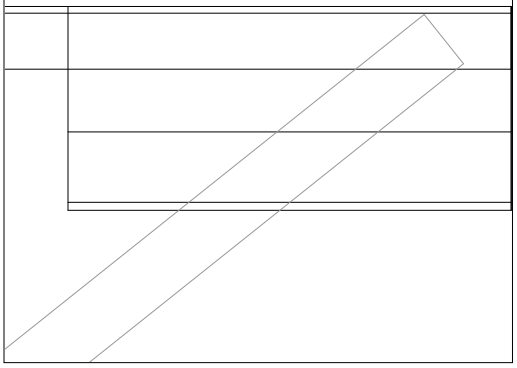
Total Load	405.00
Reqd TL Def L/80	0.41
Live Load	200.00
Reqd LL Def L/120	0.27
Section Modulus	2.4289
Reqd SM	0.6841
Mom of Inertia	3.7784
Reqd MI	0.4936

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:20:01 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J2

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

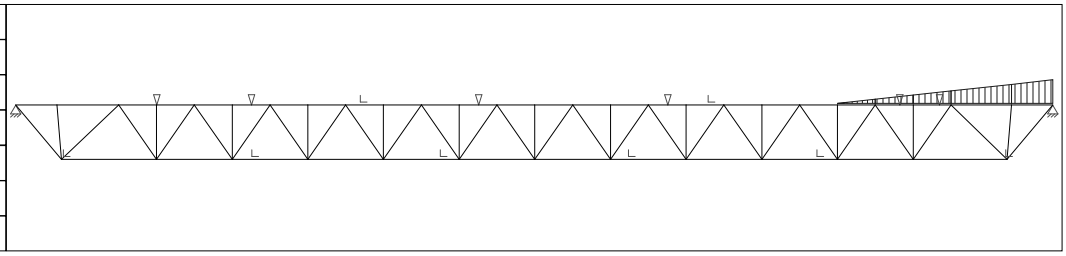
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:37:48 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J20**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
55-1 3/4	**54-9 3/4**	**36.00**	**34.46**	**12 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-7	2-7
TC Panel	2-4	2-4
First Half	3-0 1/4	2-11 1/2
First Diag.	5-7 1/4	5-6 1/2
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	205.00	205.00	TC	+	0-0	55-1 3/4	L-BL
Uniform (plf)	DL (1)	200.00	200.00	TC	+	0-0	55-1 3/4	L-BL
Conc Load (lbs)	DL (1)	300.00	0.00	TC	+	7-7 1/2	7-7 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	12-7 1/2	12-7 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	24-7 5/8	24-7 5/8	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	34-7 5/8	34-7 5/8	L-BL
Uniform (plf)	LL (1)	0.00	420.00	TC	+	44-1 5/8	55-1 3/4	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	46-10 3/4	46-10 3/4	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	49-0	49-0	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	49-0	49-0	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**60.25**	**12,239.17**	**15,369.92**	**3,837.21**	**59,890.92**	**59,766.95**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,650.37	9,930.59	0.00	0.00	18,920.59	11,861.26	45.04	0-2
V1S	6,580.78	9,834.73	0.00	0.00	835.59	2,044.74	34.59	2-4
W3	6,580.78	9,834.73	21,089.70	14,052.92	10,680.39	15,529.00	50.02	2-7
W4	18,460.37	27,797.91	21,089.70	14,052.92	11,933.81	7,964.07	41.99	5-7 1/4
W5	18,460.37	27,797.91	33,735.23	22,458.30	7,310.02	10,388.90	41.99	7-7 1/4
W6	26,046.73	39,106.25	33,735.23	22,458.30	9,398.01	6,675.59	41.99	9-7 1/4
W7	26,046.73	39,106.25	43,810.86	29,225.64	6,060.76	8,349.00	41.99	11-7 1/4
W8	31,995.04	47,844.69	43,810.86	29,225.64	7,529.06	5,465.54	41.99	13-7 1/4
W9	31,995.04	47,844.69	51,314.41	34,354.92	4,889.93	6,736.13	41.99	15-7 1/4
W10	36,305.29	54,219.98	51,314.41	34,354.92	5,970.21	4,333.93	41.99	17-7 1/4
W11	36,305.29	54,219.98	56,561.45	37,846.14	3,797.54	5,231.30	41.99	19-7 1/4
W12	38,977.49	58,338.78	56,561.45	37,846.14	4,676.11	3,280.75	41.99	21-7 1/4
W13	38,977.49	58,338.78	59,450.78	39,699.32	2,861.88	4,676.11	41.99	23-7 1/4
W14	40,011.63	59,890.92	59,450.78	39,699.32	4,676.11	2,861.88	41.99	25-7 1/4
W14	40,011.63	59,890.92	59,766.95	39,914.44	4,676.11	2,861.88	41.99	27-7 1/4
W13	39,407.72	59,078.84	59,766.95	39,914.44	2,861.88	4,676.11	41.99	29-7 1/4
W12	39,407.72	59,078.84	57,826.61	38,491.50	4,676.11	3,280.75	41.99	31-7 1/4
W11	37,165.76	55,909.05	57,826.61	38,491.50	3,797.54	5,231.30	41.99	33-7 1/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:37:48 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J20**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W10	37,165.76	55,909.05	53,319.63	35,430.51	5,970.21	4,333.93	41.99	35-7 1/4
W9	33,285.75	50,166.08	53,319.63	35,430.51	4,889.93	6,736.13	41.99	37-7 1/4
W8	33,285.75	50,166.08	46,448.41	30,731.47	7,529.06	5,465.54	41.99	39-7 1/4
W7	27,767.67	42,166.63	46,448.41	30,731.47	6,060.76	8,349.00	41.99	41-7 1/4
W6	27,767.67	42,166.63	37,307.84	24,394.37	9,398.01	6,675.59	41.99	43-7 1/4
W5	20,611.55	31,708.08	37,307.84	24,394.37	7,310.02	10,388.90	41.99	45-7 1/4
W4	20,611.55	31,708.08	24,887.95	16,103.64	11,933.81	7,964.07	41.99	47-7 1/4
W3	7,568.50	12,010.63	24,887.95	16,103.64	11,895.08	17,946.86	49.47	49-7 1/4
V1S	7,568.50	12,010.63	0.00	0.00	835.59	2,044.74	34.59	52-9 3/4
W2	7,637.29	12,182.68	0.00	0.00	18,920.59	11,861.26	45.04	52-6 3/4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,144.18	1,910.80	34.46

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:37:48 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/205	J20

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.1875	0.7695	0.4915	1.4931	0.7171	0.7031	1.0000	2525 = 2 1/2 x 2 1/2 x 0.250
BC	1.1207	0.8991	0.5436	1.6512	0.8225	0.9058	0.9280	A44A = 2.875 x 2.875 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,372.59	311.39	467.08	20-8 1/2	11-11 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	39.25	24.00	38.50	26.00
Bending Load	405.00	405.00	405.00	685.77	785.00
Axial Load	9,930.59	9,834.73	59,890.92	12,010.63	12,182.68
fa	4,181.30	4,140.94	25,217.23	5,057.11	5,129.55
Maximum K L/r	52.90	79.86	36.62	78.33	52.90
Fcr	40,748.39	31,366.40	45,329.46	31,924.91	40,748.39
Fa	24,449.04	18,819.84	27,197.67	19,154.95	24,449.04
F'e	250,708.08	110,010.89	523,082.22	114,338.78	250,708.08
Cm	0.9917	0.9812	0.9677	0.9779	0.9898
Panel Point Moment	3,989.42	3,989.42	1,620.00	7,976.70	6,144.32
Mid Panel Moment	1,740.14	2,748.24	810.00	3,527.84	2,787.88
Panel Point fb	5,058.12	5,058.12	2,053.97	10,113.53	7,790.29
Mid Panel fb	2,206.29	1,401.48	413.06	1,799.04	1,421.70
Fillers	0	0	0	0	0
Panel Point Stress	9,239.42	9,199.06	27,271.20	15,170.64	12,919.84
Mid Panel Stress	0.1605	0.2635	0.9401	0.3203	0.2530

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.6453
Max Load Fillers TC:	67,575.98
Max Load no Fillers TC:	63,994.57
TC OAL/Ryy:	440.52
BC OAL/Ryy:	398.35
BC Stress:	0.89
BC L/Rz:	110.8352
TC Shear Stress:	13,357.77
BC Shear Stress:	14,964.34

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,920.59	28,618.35	11,861.26	14,375.52	6.80 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	10,680.39	29,969.07	15,529.00	17,584.78	3.02 x 0.245	1	WR112015 = Wrapped R112 with 2015
W4	11,933.81	24,373.24	7,964.07	9,408.54	4.29 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	7,310.02	28,621.37	10,388.90	10,902.02	3.73 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	9,398.01	18,714.09	6,675.59	7,585.99	3.60 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W7	6,060.76	24,373.24	8,349.00	9,408.54	3.00 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	7,529.06	14,381.54	5,465.54	5,925.67	3.38 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	4,889.93	18,714.09	6,736.13	7,585.99	2.58 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W10	5,970.21	10,742.43	4,333.93	4,566.58	3.12 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,797.54	14,381.54	5,231.30	5,925.67	2.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,676.11	10,742.43	3,280.75	4,566.58	2.44 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	2,861.88	14,381.54	4,676.11	5,925.67	2.10 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,676.11	7,826.93	2,861.88	3,024.99	3.09 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W14	4,676.11	7,826.93	2,861.88	3,024.99	3.09 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W13	2,861.88	14,381.54	4,676.11	5,925.67	2.10 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,676.11	10,742.43	3,280.75	4,566.58	2.44 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,797.54	14,381.54	5,231.30	5,925.67	2.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	5,970.21	10,742.43	4,333.93	4,566.58	3.12 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	4,889.93	18,714.09	6,736.13	7,585.99	2.58 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:37:48 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J20**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W8	7,529.06	14,381.54	5,465.54	5,925.67	3.38 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	6,060.76	24,373.24	8,349.00	9,408.54	3.00 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	9,398.01	18,714.09	6,675.59	7,585.99	3.60 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	7,310.02	28,621.37	10,388.90	10,902.02	3.73 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	11,933.81	24,373.24	7,964.07	9,408.54	4.29 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	11,895.08	29,969.07	17,946.86	18,899.66	3.49 x 0.245	1	WR112018 = Wrapped R112 with 2018
W2	18,920.59	23,679.79	11,861.26	12,814.30	3.92 x 0.230	1	WR101513 = Wrapped R100 with 1513
V1	835.59	5,758.64	2,044.74	2,316.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,144.18	5,758.64	1,910.80	2,331.38	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:37:48 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J20**

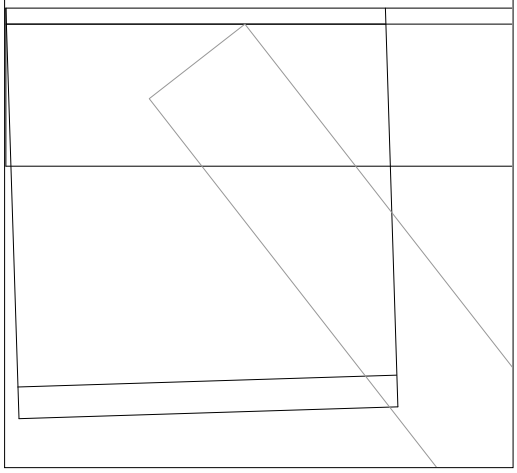
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 3/8
BPL Length	0-6
Clear Bearing	0-6 1/2
BPL Material: N/A	

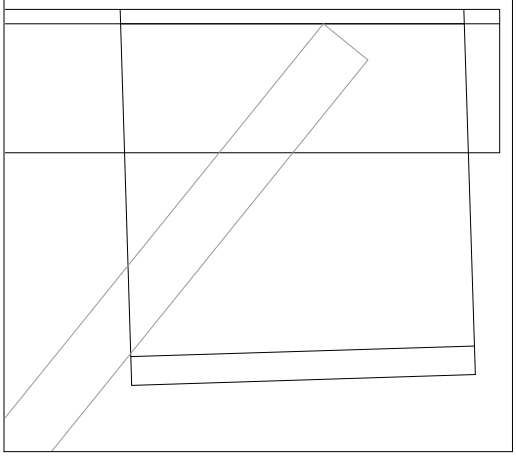
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	205.00
Reqd LL Def L/120	0.01
Section Modulus	0.7887
Reqd SM	0.0039
Mom of Inertia	1.4062
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:37:48 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/205	J20

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

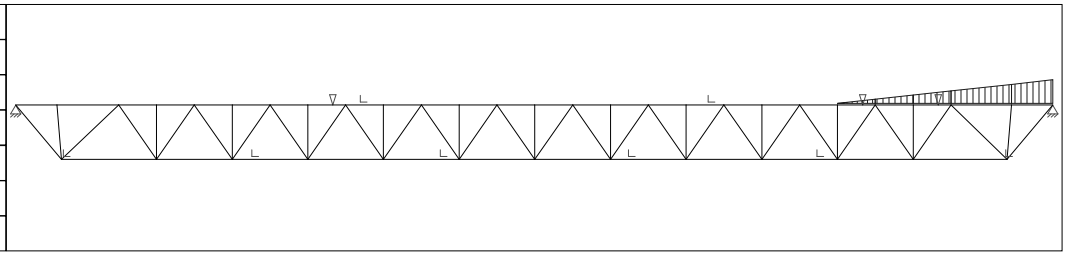
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:42:58 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J21**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
55-1 3/4	**54-9 3/4**	**36.00**	**34.33**	**12 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-7	2-7
TC Panel	2-4	2-4
First Half	3-0 1/4	2-11 1/2
First Diag.	5-7 1/4	5-6 1/2
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	200.00	200.00	TC	+	0-0	55-1 3/4	L-BL
Uniform (plf)	LL (1)	205.00	205.00	TC	+	0-0	55-1 3/4	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	16-11 1/8	16-11 1/8	L-BL
Uniform (plf)	LL (1)	0.00	420.00	TC	+	44-1 5/8	55-1 3/4	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	44-11 1/4	44-11 1/4	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	48-11 1/4	48-11 1/4	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	16-11 1/8	16-11 1/8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	44-11 1/4	44-11 1/4	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	48-11 1/4	48-11 1/4	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**60.25**	**12,744.36**	**16,364.72**	**4,085.91**	**63,338.81**	**63,148.09**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	7,788.41	10,394.46	0.00	0.00	20,252.17	14,081.63	44.94	0-2
V1S	7,718.57	10,298.24	0.00	0.00	841.30	2,049.22	34.46	2-4
W3	7,718.57	10,298.24	22,128.71	16,610.12	12,246.41	16,294.20	49.93	2-7
W4	21,955.30	29,215.16	22,128.71	16,610.12	13,219.38	10,007.03	41.89	5-7 1/4
W5	21,955.30	29,215.16	35,735.38	26,889.43	8,679.55	11,380.21	41.89	7-7 1/4
W6	31,412.52	41,689.36	35,735.38	26,889.43	10,391.92	7,894.48	41.89	9-7 1/4
W7	31,412.52	41,689.36	47,077.11	35,524.57	7,177.06	9,403.63	41.89	11-7 1/4
W8	39,225.57	51,898.61	47,077.11	35,524.57	8,415.34	6,459.63	41.89	13-7 1/4
W9	39,225.57	51,898.61	55,798.89	42,160.54	5,122.61	6,807.45	41.89	15-7 1/4
W10	43,990.86	58,439.34	55,798.89	42,160.54	5,977.51	4,339.23	41.89	17-7 1/4
W11	43,990.86	58,439.34	60,513.57	45,410.15	3,802.18	5,237.70	41.89	19-7 1/4
W12	46,418.38	62,021.55	60,513.57	45,410.15	4,985.28	3,378.49	41.89	21-7 1/4
W13	46,418.38	62,021.55	62,963.30	47,015.57	3,378.49	4,985.28	41.89	23-7 1/4
W14	47,201.72	63,338.81	62,963.30	47,015.57	4,985.28	3,378.49	41.89	25-7 1/4
W14	47,201.72	63,338.81	63,148.09	46,976.82	4,985.28	3,378.49	41.89	27-7 1/4
W13	46,340.89	62,391.13	63,148.09	46,976.82	3,378.49	4,985.28	41.89	29-7 1/4
W12	46,340.89	62,391.13	61,067.94	45,293.90	4,985.28	3,378.49	41.89	31-7 1/4
W11	43,835.86	59,178.51	61,067.94	45,293.90	3,802.18	5,237.70	41.89	33-7 1/4
W10	43,835.86	59,178.51	56,722.84	41,966.79	5,977.51	4,339.23	41.89	35-7 1/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:42:58 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J21**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W9	39,686.66	53,700.95	56,722.84	41,966.79	5,122.61	6,807.45	41.89	37-7 1/4
W8	39,686.66	53,700.95	50,112.81	36,995.50	8,415.34	6,459.63	41.89	39-7 1/4
W7	33,893.29	45,958.44	50,112.81	36,995.50	7,177.06	9,403.63	41.89	41-7 1/4
W6	33,893.29	45,958.44	40,875.40	30,030.50	10,391.92	7,894.48	41.89	43-7 1/4
W5	25,057.61	34,423.82	40,875.40	30,030.50	8,679.55	11,380.21	41.89	45-7 1/4
W4	25,057.61	34,423.82	26,849.99	19,324.15	13,219.38	10,007.03	41.89	47-7 1/4
W3	9,017.71	12,895.86	26,849.99	19,324.15	14,337.73	19,412.46	49.39	49-7 1/4
V1S	9,017.71	12,895.86	0.00	0.00	841.30	2,049.22	34.46	52-9 3/4
W2	9,086.75	13,068.55	0.00	0.00	20,252.17	14,081.63	44.94	52-6 3/4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,291.94	1,777.50	34.33

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:42:58 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/205	J21

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,549.24	351.46	527.19	23-3 1/2	12-0 1/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	39.25	24.00	38.50	26.00
Bending Load	405.00	405.00	405.00	685.77	785.00
Axial Load	10,394.46	10,298.24	63,338.81	12,895.86	13,068.55
fa	3,965.84	3,929.13	24,165.89	4,920.21	4,986.09
Maximum K L/r	43.79	66.11	30.32	64.85	43.79
Fcr	40,545.05	34,359.93	43,371.61	34,745.68	40,545.05
Fa	24,327.03	20,615.96	26,022.96	20,847.41	24,327.03
F'e	369,039.41	161,934.77	769,971.19	168,305.38	369,039.41
Cm	0.9946	0.9879	0.9790	0.9854	0.9932
Panel Point Moment	3,989.42	3,989.42	1,620.00	8,151.15	6,092.25
Mid Panel Moment	1,740.14	2,748.24	810.00	3,466.64	2,805.24
Panel Point fb	3,782.31	3,782.32	1,535.90	7,728.00	5,775.99
Mid Panel fb	1,649.80	1,003.25	295.69	1,265.51	1,024.06
Fillers	0	0	0	0	0
Panel Point Stress	7,748.15	7,711.44	25,701.80	12,648.21	10,762.08
Mid Panel Stress	0.1419	0.1326	0.9384	0.2781	0.2384

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.6825**

Max Load Fillers TC: **70,176.56**

Max Load no Fillers TC: **67,799.93**

TC OAL/Ryy: **391.56**

BC OAL/Ryy: **391.56**

BC Stress: **0.80**

BC L/Rz: **101.4822**

TC Shear Stress: **12,803.44**

BC Shear Stress: **12,943.87**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	20,252.17	28,618.35	14,081.63	14,393.34	7.27 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	12,246.41	29,969.07	16,294.20	17,617.91	3.17 x 0.245	1	WR112015 = Wrapped R112 with 2015
W4	13,219.38	28,621.37	10,007.03	10,935.66	4.75 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W5	8,679.55	28,618.35	11,380.21	14,151.00	4.09 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	10,391.92	24,373.24	7,894.48	9,437.29	3.73 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W7	7,177.06	24,373.24	9,403.63	9,437.29	3.38 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	8,415.34	16,730.22	6,459.63	6,613.24	3.59 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W9	5,122.61	18,714.09	6,807.45	7,608.59	2.60 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W10	5,977.51	10,742.43	4,339.23	4,579.81	3.12 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,802.18	14,381.54	5,237.70	5,942.95	2.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,985.28	10,742.43	3,378.49	4,579.81	2.60 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,378.49	14,381.54	4,985.28	5,942.95	2.24 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,985.28	10,742.43	3,378.49	4,579.81	2.60 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W14	4,985.28	10,742.43	3,378.49	4,579.81	2.60 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,378.49	14,381.54	4,985.28	5,942.95	2.24 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,985.28	10,742.43	3,378.49	4,579.81	2.60 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,802.18	14,381.54	5,237.70	5,942.95	2.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	5,977.51	10,742.43	4,339.23	4,579.81	3.12 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	5,122.61	18,714.09	6,807.45	7,608.59	2.60 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:42:58 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J21**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W8	8,415.34	16,730.22	6,459.63	6,613.24	3.59 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W7	7,177.06	24,373.24	9,403.63	9,437.29	3.38 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	10,391.92	24,373.24	7,894.48	9,437.29	3.73 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,679.55	28,618.35	11,380.21	14,151.00	4.09 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	13,219.38	28,621.37	10,007.03	10,935.66	4.75 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	14,337.73	29,969.07	19,412.46	20,639.20	3.77 x 0.245	1	WR112024 = Wrapped R112 with 2024
W2	20,252.17	28,618.35	14,081.63	14,393.34	7.27 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	841.30	5,758.64	2,049.22	2,331.10	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,291.94	5,758.64	1,777.50	2,346.11	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:42:58 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J21**

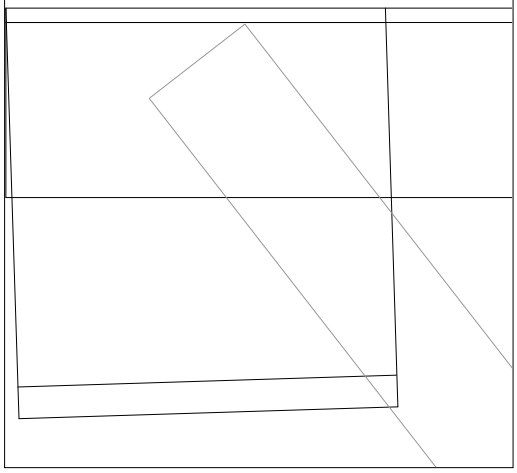
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 3/8
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

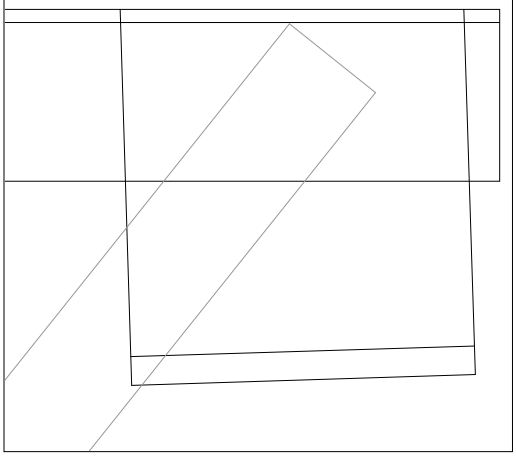
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	205.00
Reqd LL Def L/120	0.01
Section Modulus	1.0548
Reqd SM	0.0039
Mom of Inertia	2.2846
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:42:58 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/205	J21

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

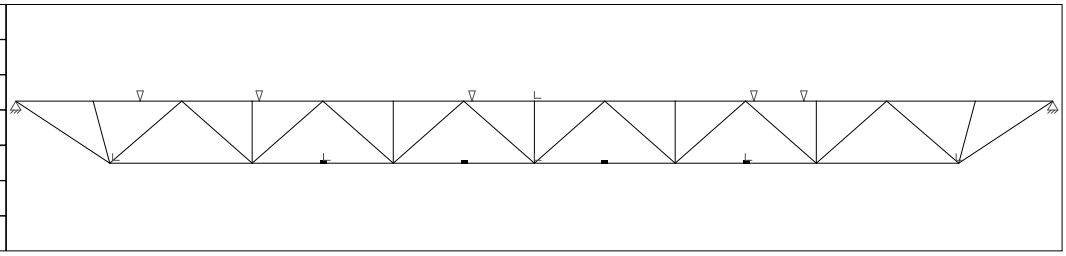
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:02:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J22**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
31-7	**31-3**	**24.00**	**22.46**	**6 @ 4-3**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	24.00	24.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	205.00	205.00	TC	+	0-0	31-7	L-BL
Uniform (plf)	DL (1)	200.00	200.00	TC	+	0-0	31-7	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	3-11	3-11	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	13-11	13-11	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	22-5	22-5	L-BL
Conc w/bending (lbs)	DL (1)	3,000.00	0.00	TC	+	23-11	23-11	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	3-11	3-11	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	13-11	13-11	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	22-5	22-5	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	23-11	23-11	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.50	**51.50**	**11,279.65**	**12,072.48**	**3,018.12**	**50,123.61**	**50,163.80**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	13,837.79	16,409.51	0.00	0.00	21,105.94	17,884.22	40.75	0-2
V1S	13,453.68	15,951.01	0.00	0.00	1,557.73	1,858.83	23.25	2-6
W3	13,453.68	15,951.01	26,512.64	22,371.03	13,955.40	16,361.34	34.36	3-0
W4	29,412.76	34,849.10	26,512.64	22,371.03	14,822.02	12,736.80	33.98	5-2
V2	29,412.76	34,849.10	26,512.64	22,371.03	2,124.75	2,469.70	22.46	7-3 1/2
W5	29,412.76	34,849.10	40,579.89	34,209.52	7,520.26	8,886.03	33.98	7-3 1/2
W6	38,130.17	45,220.75	40,579.89	34,209.52	6,184.83	5,225.01	33.98	9-5
V3	38,130.17	45,220.75	40,579.89	34,209.52	815.40	1,084.79	22.46	11-6 1/2
W7	38,130.17	45,220.75	48,956.53	41,341.63	4,279.89	4,978.64	33.98	11-6 1/2
W8	42,341.52	50,123.61	48,956.53	41,341.63	4,565.80	4,565.80	33.98	13-8
V4	42,341.52	50,123.61	48,956.53	41,341.63	1,012.93	1,284.99	22.46	15-9 1/2
W8	42,341.52	50,123.61	50,163.80	42,431.90	4,565.80	4,565.80	33.98	15-9 1/2
W7	41,813.11	49,298.90	50,163.80	42,431.90	4,279.89	4,978.64	33.98	17-11
V5	41,813.11	49,298.90	50,163.80	42,431.90	833.82	1,103.20	22.46	20-0 1/2
W6	41,813.11	49,298.90	47,528.93	40,485.13	6,184.83	5,225.01	33.98	20-0 1/2
W5	34,842.22	40,861.20	47,528.93	40,485.13	7,520.26	8,886.03	33.98	22-2

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STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:02:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J22**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
V6	34,842.22	40,861.20	47,528.93	40,485.13	3,622.49	4,128.15	22.46	24-3 1/2
W4	34,842.22	40,861.20	29,739.32	25,285.01	14,822.02	12,736.80	33.98	24-3 1/2
W3	14,725.16	17,358.93	29,739.32	25,285.01	13,955.40	16,361.34	34.36	26-5
V1S	14,725.16	17,358.93	0.00	0.00	1,557.73	1,858.83	23.25	29-1
W2	14,921.47	17,609.47	0.00	0.00	21,105.94	17,884.22	40.75	28-7

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 10:02:06 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J22

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	558.66	683.91	1,025.87	22-7	8-3 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.00	25.50	32.00	28.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	16,409.51	15,951.01	50,123.61	17,358.93	17,609.47
fa	6,260.78	6,085.85	15,589.93	6,623.02	6,718.61
Maximum K L/r	47.16	53.90	32.21	53.90	47.16
Fcr	39,715.32	37,931.74	43,026.19	37,931.74	39,715.32
Fa	23,829.19	22,759.04	25,815.71	22,759.04	23,829.19
F'e	318,202.34	243,623.67	682,050.56	243,623.67	318,202.34
Cm	0.9902	0.9875	0.9847	0.9864	0.9894
Panel Point Moment	7,232.04	7,376.05	12,294.54	3,527.74	3,527.73
Mid Panel Moment	4,189.20	8,265.95	4,608.19	1,956.57	1,764.10
Panel Point fb	6,856.61	6,993.14	11,656.29	3,344.60	3,344.60
Mid Panel fb	3,971.73	3,017.51	1,682.23	714.25	643.99
Fillers	0	0	0	0	0
Panel Point Stress	13,117.39	13,078.99	27,246.22	9,967.62	10,063.21
Mid Panel Stress	0.3933	0.3672	0.6592	0.3147	0.3032

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **66,304.71**
Max Load no Fillers TC: **63,778.50**
TC OAL/Ryy: **223.24**
BC OAL/Ryy: **256.31**
BC Stress: **0.88**
BC L/Rz: **116.9657**
TC Shear Stress: **10,453.07**
BC Shear Stress: **16,261.07**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	21,105.94	29,969.07	17,884.22	19,344.72	4.10 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1S	1,557.73	5,758.64	1,858.83	3,670.25	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	13,955.40	28,597.25	16,361.34	16,796.66	5.88 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	14,822.02	28,621.37	12,736.80	13,553.39	5.32 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V2	2,124.75	5,758.64	2,469.70	3,732.40	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	7,520.26	18,714.09	8,886.03	9,351.84	3.40 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	6,184.83	10,742.43	5,225.01	5,592.71	3.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V3	815.40	5,758.64	1,084.79	3,732.40	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	4,279.89	10,742.43	4,978.64	5,592.71	2.60 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,565.80	10,742.43	4,565.80	5,592.71	2.38 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	1,012.93	5,758.64	1,284.99	3,732.40	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	4,565.80	10,742.43	4,565.80	5,592.71	2.38 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,279.89	10,742.43	4,978.64	5,592.71	2.60 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	833.82	5,758.64	1,103.20	3,732.40	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	6,184.83	10,742.43	5,225.01	5,592.71	3.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	7,520.26	18,714.09	8,886.03	9,351.84	3.40 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V6	3,622.49	7,826.93	4,128.15	4,938.18	2.73 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	14,822.02	28,621.37	12,736.80	13,553.39	5.32 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	13,955.40	28,597.25	16,361.34	16,796.66	5.88 x 0.188	1	A40B = 2.375 x 2.375 x 0.218

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:02:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J22**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V1S	1,557.73	5,758.64	1,858.83	3,670.25	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	21,105.94	29,969.07	17,884.22	19,344.72	4.10 x 0.245	1	WR111513 = Wrapped R112 with 1513

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:02:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J22**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-9 1/2
BPL Material: N/A	

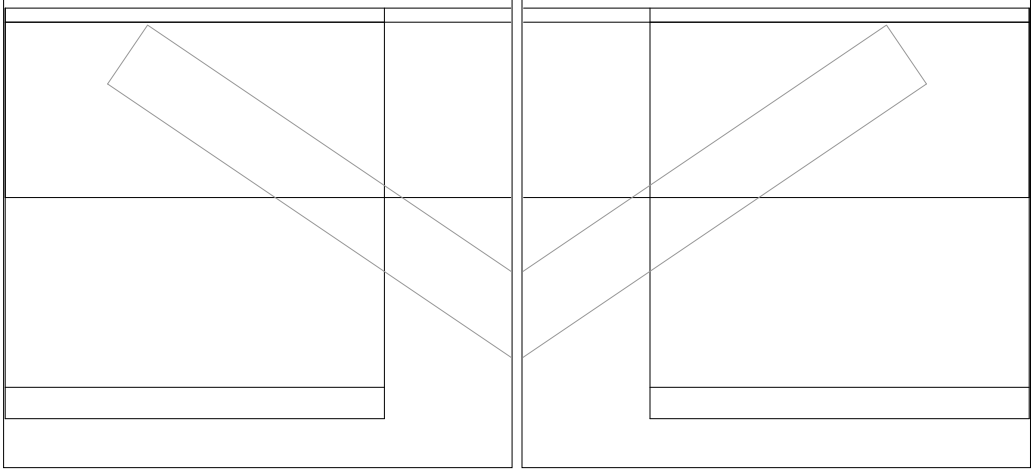
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-9 1/2
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 10:02:06 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J22

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

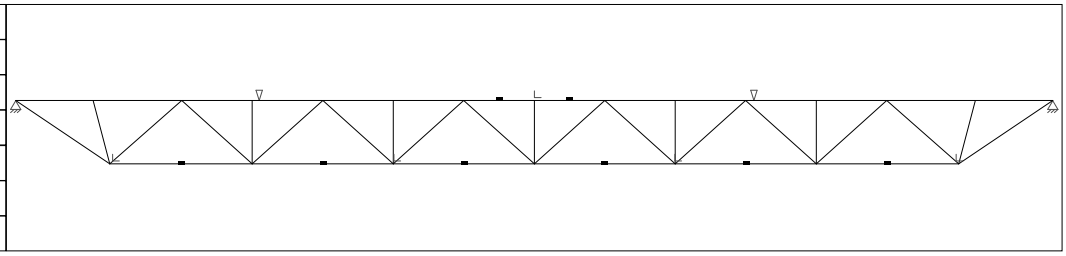
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:49:08 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J23**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
31-7	**31-3**	**24.00**	**22.81**	**6 @ 4-3**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	24.00	24.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	205.00	205.00	TC	+	0-0	31-7	L-BL
Uniform (plf)	DL (1)	200.00	200.00	TC	+	0-0	31-7	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	22-5	22-5	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	22-5	22-5	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.50	**51.50**	**8,340.12**	**8,816.13**	**2,204.03**	**35,996.88**	**36,088.19**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,333.13	11,724.81	0.00	0.00	14,974.14	12,093.90	40.95	0-2
V1S	9,139.83	11,458.54	0.00	0.00	810.20	1,109.10	23.59	2-6
W3	9,139.83	11,458.54	19,270.71	15,439.32	9,102.59	11,115.09	34.59	3-0
W4	20,830.38	25,848.14	19,270.71	15,439.32	9,539.61	7,947.73	34.22	5-2
W5	20,830.38	25,848.14	29,951.48	24,010.99	6,481.44	7,730.92	34.22	7-3 1/2
W6	26,328.95	32,928.52	29,951.48	24,010.99	4,495.81	3,263.62	34.22	9-5
W7	26,328.95	32,928.52	34,943.66	27,948.63	2,655.21	3,524.54	34.22	11-6 1/2
W8	28,870.03	35,996.88	34,943.66	27,948.63	3,305.49	3,305.49	34.22	13-8
W8	28,870.03	35,996.88	36,088.19	29,093.15	3,305.49	3,305.49	34.22	15-9 1/2
W7	28,617.99	35,217.57	36,088.19	29,093.15	2,655.21	3,524.54	34.22	17-11
W6	28,617.99	35,217.57	33,385.04	27,444.55	4,495.81	3,263.62	34.22	20-0 1/2
W5	22,614.22	27,631.99	33,385.04	27,444.55	6,481.44	7,730.92	34.22	22-2
W4	22,614.22	27,631.99	20,522.54	16,691.14	9,539.61	7,947.73	34.22	24-3 1/2
W3	9,849.20	12,167.90	20,522.54	16,691.14	9,102.59	11,115.09	34.59	26-5
V1S	9,849.20	12,167.90	0.00	0.00	810.20	1,109.10	23.59	29-1
W2	10,042.50	12,434.18	0.00	0.00	14,974.14	12,093.90	40.95	28-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,081.84	2,422.00	22.81

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 9:49:08 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J23

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.7167	0.6172	0.3938	1.2891	0.5693	0.2730	1.0000	2018 = 2 x 2 x 0.188
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	373.28	456.97	685.45	17-4	8-8 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.00	25.50	32.00	28.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	11,724.81	11,458.54	35,996.88	12,167.90	12,434.18
fa	8,179.72	7,993.96	25,112.94	8,488.84	8,674.60
Maximum K L/r	71.10	81.26	32.38	81.26	71.10
Fcr	34,548.98	30,852.62	46,310.89	30,852.62	34,548.98
Fa	20,729.39	18,511.57	27,786.54	18,511.57	20,729.39
F'e	139,070.03	106,475.49	298,089.53	106,475.49	139,070.03
Cm	0.9706	0.9625	0.9436	0.9601	0.9688
Panel Point Moment	3,220.21	3,220.22	1,828.83	3,220.22	3,220.21
Mid Panel Moment	1,866.60	1,533.73	914.41	1,533.73	1,866.60
Panel Point fb	8,438.02	8,438.03	4,792.13	8,438.03	8,438.02
Mid Panel fb	1,946.25	1,599.18	953.44	1,599.18	1,946.25
Fillers	0	0	2	0	0
Panel Point Stress	16,617.74	16,431.98	29,905.07	16,926.87	17,112.63
Mid Panel Stress	0.4567	0.4840	0.9348	0.5111	0.4808

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **38,680.62**
Max Load no Fillers TC: **35,153.54**
TC OAL/Ryy: **290.89**
BC OAL/Ryy: **279.19**
BC Stress: **0.84**
BC L/Rz: **134.4297**
TC Shear Stress: **13,732.19**
BC Shear Stress: **14,726.65**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	14,974.14	25,759.23	12,093.90	12,591.32	5.38 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	9,102.59	24,373.24	11,115.09	11,496.28	3.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	9,539.61	16,730.22	7,947.73	8,076.81	4.07 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	6,481.44	16,730.22	7,730.92	8,076.81	3.30 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	4,495.81	7,826.93	3,263.62	3,732.78	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	2,655.21	7,826.93	3,524.54	3,732.78	2.33 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	3,305.49	7,826.93	3,305.49	3,732.78	2.18 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	3,305.49	7,826.93	3,305.49	3,732.78	2.18 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	2,655.21	7,826.93	3,524.54	3,732.78	2.33 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	4,495.81	7,826.93	3,263.62	3,732.78	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	6,481.44	16,730.22	7,730.92	8,076.81	3.30 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W4	9,539.61	16,730.22	7,947.73	8,076.81	4.07 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	9,102.59	24,373.24	11,115.09	11,496.28	3.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W2	14,974.14	25,759.23	12,093.90	12,591.32	5.38 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	810.20	5,758.64	1,109.10	3,643.69	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,081.84	5,758.64	2,422.00	3,704.64	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:49:08 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J23**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

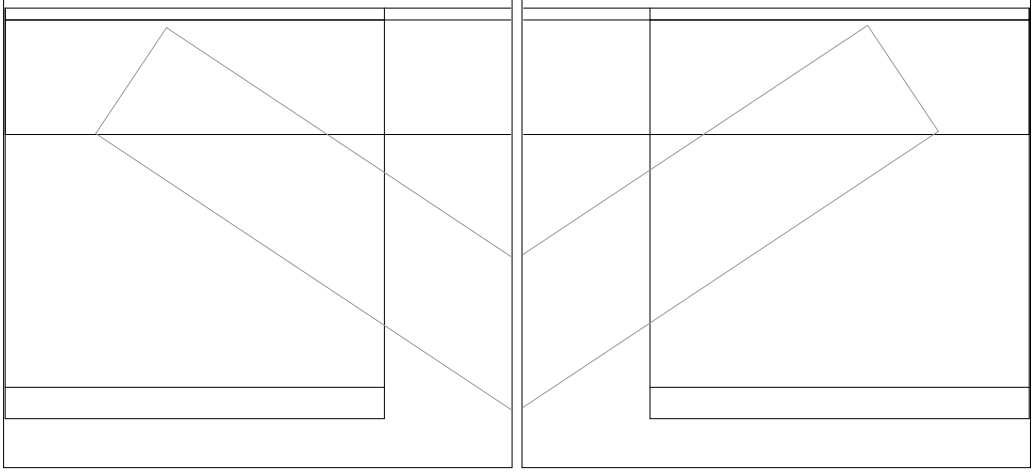
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 9:49:08 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J23

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

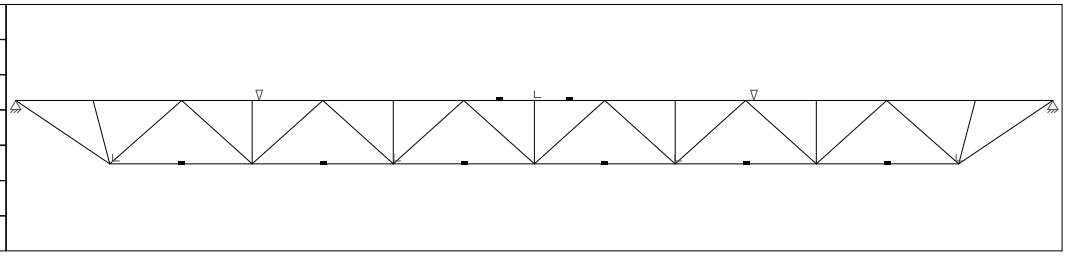
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:55:03 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J24**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
31-7	**31-3**	**24.00**	**22.81**	**6 @ 4-3**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	24.00	24.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	205.00	205.00	TC	+	0-0	31-7	L-BL
Uniform (plf)	DL (1)	200.00	200.00	TC	+	0-0	31-7	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	22-5	22-5	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	22-5	22-5	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.50	**51.50**	**8,340.12**	**8,816.13**	**2,204.03**	**35,996.88**	**36,088.19**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,333.13	11,724.81	0.00	0.00	14,974.14	12,093.90	40.95	0-2
V1S	9,139.83	11,458.54	0.00	0.00	810.20	1,109.10	23.59	2-6
W3	9,139.83	11,458.54	19,270.71	15,439.32	9,102.59	11,115.09	34.59	3-0
W4	20,830.38	25,848.14	19,270.71	15,439.32	9,539.61	7,947.73	34.22	5-2
W5	20,830.38	25,848.14	29,951.48	24,010.99	6,481.44	7,730.92	34.22	7-3 1/2
W6	26,328.95	32,928.52	29,951.48	24,010.99	4,495.81	3,263.62	34.22	9-5
W7	26,328.95	32,928.52	34,943.66	27,948.63	2,655.21	3,524.54	34.22	11-6 1/2
W8	28,870.03	35,996.88	34,943.66	27,948.63	3,305.49	3,305.49	34.22	13-8
W8	28,870.03	35,996.88	36,088.19	29,093.15	3,305.49	3,305.49	34.22	15-9 1/2
W7	28,617.99	35,217.57	36,088.19	29,093.15	2,655.21	3,524.54	34.22	17-11
W6	28,617.99	35,217.57	33,385.04	27,444.55	4,495.81	3,263.62	34.22	20-0 1/2
W5	22,614.22	27,631.99	33,385.04	27,444.55	6,481.44	7,730.92	34.22	22-2
W4	22,614.22	27,631.99	20,522.54	16,691.14	9,539.61	7,947.73	34.22	24-3 1/2
W3	9,849.20	12,167.90	20,522.54	16,691.14	9,102.59	11,115.09	34.59	26-5
V1S	9,849.20	12,167.90	0.00	0.00	810.20	1,109.10	23.59	29-1
W2	10,042.50	12,434.18	0.00	0.00	14,974.14	12,093.90	40.95	28-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,081.84	2,422.00	22.81

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:55:03 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J24**

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.7167	0.6172	0.3938	1.2891	0.5693	0.2730	1.0000	2018 = 2 x 2 x 0.188
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	**50,000.00**	**30,000.00**	**373.28**	**456.97**	**685.45**	**17-4**	**8-8 1/2**

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.00	25.50	32.00	28.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	11,724.81	11,458.54	35,996.88	12,167.90	12,434.18
fa	8,179.72	7,993.96	25,112.94	8,488.84	8,674.60
Maximum K L/r	71.10	81.26	32.38	81.26	71.10
Fcr	34,548.98	30,852.62	46,310.89	30,852.62	34,548.98
Fa	20,729.39	18,511.57	27,786.54	18,511.57	20,729.39
F'e	139,070.03	106,475.49	298,089.53	106,475.49	139,070.03
Cm	0.9706	0.9625	0.9436	0.9601	0.9688
Panel Point Moment	3,220.21	3,220.22	1,828.83	3,220.22	3,220.21
Mid Panel Moment	1,866.60	1,533.73	914.41	1,533.73	1,866.60
Panel Point fb	8,438.02	8,438.03	4,792.13	8,438.03	8,438.02
Mid Panel fb	1,946.25	1,599.18	953.44	1,599.18	1,946.25
Fillers	0	0	2	0	0
Panel Point Stress	16,617.74	16,431.98	29,905.07	16,926.87	17,112.63
Mid Panel Stress	0.4567	0.4840	0.9348	0.5111	0.4808

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **38,680.62**
Max Load no Fillers TC: **35,153.54**
TC OAL/Ryy: **290.89**
BC OAL/Ryy: **279.19**
BC Stress: **0.84**
BC L/Rz: **134.4297**
TC Shear Stress: **13,732.19**
BC Shear Stress: **14,726.65**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	14,974.14	25,759.23	12,093.90	12,591.32	5.38 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	9,102.59	24,373.24	11,115.09	11,496.28	3.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	9,539.61	16,730.22	7,947.73	8,076.81	4.07 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	6,481.44	16,730.22	7,730.92	8,076.81	3.30 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	4,495.81	7,826.93	3,263.62	3,732.78	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	2,655.21	7,826.93	3,524.54	3,732.78	2.33 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	3,305.49	7,826.93	3,305.49	3,732.78	2.18 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	3,305.49	7,826.93	3,305.49	3,732.78	2.18 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	2,655.21	7,826.93	3,524.54	3,732.78	2.33 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	4,495.81	7,826.93	3,263.62	3,732.78	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	6,481.44	16,730.22	7,730.92	8,076.81	3.30 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W4	9,539.61	16,730.22	7,947.73	8,076.81	4.07 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	9,102.59	24,373.24	11,115.09	11,496.28	3.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W2	14,974.14	25,759.23	12,093.90	12,591.32	5.38 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	810.20	5,758.64	1,109.10	3,643.69	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,081.84	5,758.64	2,422.00	3,704.64	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:55:03 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J24**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

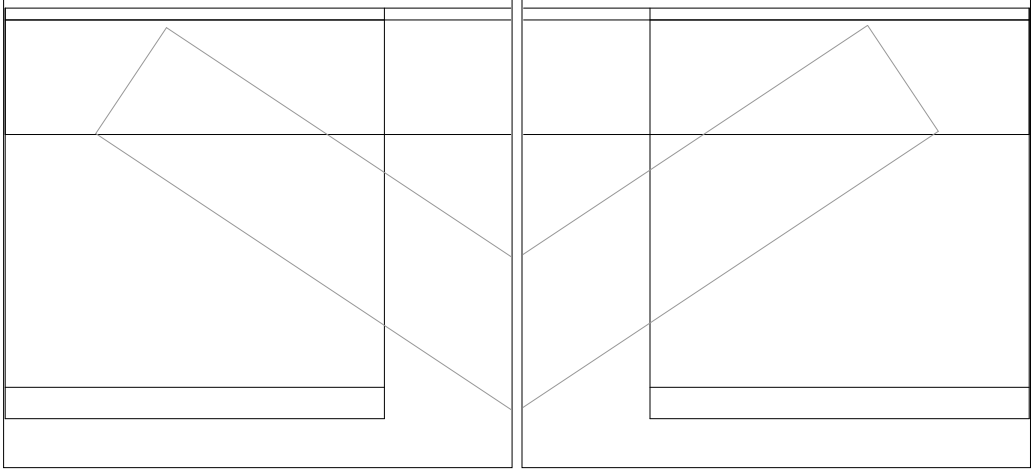
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 9:55:03 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J24

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

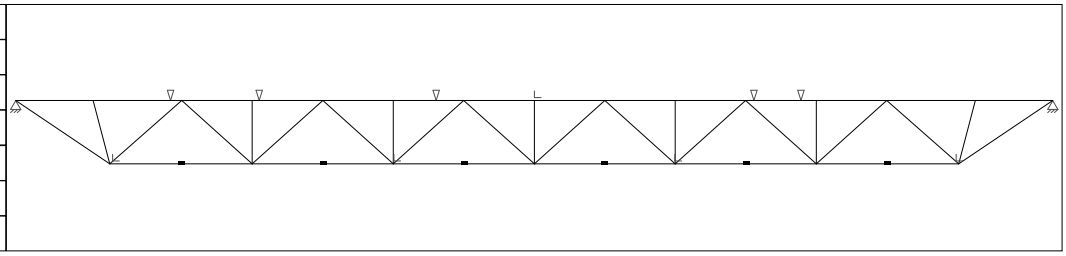
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:55:15 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J25**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
31-7	**31-3**	**24.00**	**22.80**	**6 @ 4-3**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	24.00	24.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	205.00	205.00	TC	+	0-0	31-7	L-BL
Uniform (plf)	DL (1)	200.00	200.00	TC	+	0-0	31-7	L-BL
Conc Load (lbs)	DL (1)	300.00	0.00	TC	+	4-10	4-10	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	12-10	12-10	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	22-5	22-5	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	23-10	23-10	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	22-5	22-5	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.50	**51.50**	**8,846.52**	**9,209.72**	**2,302.43**	**37,979.70**	**37,966.37**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,337.30	12,485.06	0.00	0.00	15,685.36	12,097.63	40.94	0-2
V1S	9,143.92	12,208.80	0.00	0.00	810.25	1,148.16	23.58	2-6
W3	9,143.92	12,208.80	20,559.07	15,446.22	9,104.89	11,714.81	34.58	3-0
W4	20,839.70	27,370.24	20,559.07	15,446.22	10,169.00	7,949.70	34.21	5-2
W5	20,839.70	27,370.24	31,706.21	24,021.73	6,483.05	7,995.80	34.21	7-3 1/2
W6	26,340.73	34,915.39	31,706.21	24,021.73	4,496.92	3,264.43	34.21	9-5
W7	26,340.73	34,915.39	37,030.67	27,961.13	2,655.87	3,525.42	34.21	11-6 1/2
W8	28,882.95	37,979.70	37,030.67	27,961.13	3,453.92	3,395.34	34.21	13-8
W8	28,882.95	37,979.70	37,966.37	29,106.17	3,453.92	3,395.34	34.21	15-9 1/2
W7	28,630.79	36,990.70	37,966.37	29,106.17	2,655.87	3,525.42	34.21	17-11
W6	28,630.79	36,990.70	35,052.69	27,456.83	4,496.92	3,264.43	34.21	20-0 1/2
W5	22,624.34	29,120.04	35,052.69	27,456.83	6,483.05	7,995.80	34.21	22-2
W4	22,624.34	29,120.04	21,567.29	16,698.60	10,169.00	7,949.70	34.21	24-3 1/2
W3	9,853.60	12,760.17	21,567.29	16,698.60	9,104.89	11,714.81	34.58	26-5
V1S	9,853.60	12,760.17	0.00	0.00	810.25	1,148.16	23.58	29-1
W2	10,046.99	13,026.56	0.00	0.00	15,685.36	12,097.63	40.94	28-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,081.89	2,430.42	22.80

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 9:55:15 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J25

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	397.33	486.41	729.62	17-5 1/8	8-8 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.00	25.50	32.00	28.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	12,485.06	12,208.80	37,979.70	12,760.17	13,026.56
fa	7,637.99	7,468.98	23,234.86	7,806.30	7,969.27
Maximum K L/r	71.36	81.55	48.74	81.55	71.36
Fcr	34,457.82	30,746.32	42,028.04	30,746.32	34,457.82
Fa	20,674.69	18,447.79	25,216.82	18,447.79	20,674.69
F'e	137,362.81	105,168.41	294,430.22	105,168.41	137,362.81
Cm	0.9722	0.9645	0.9471	0.9629	0.9710
Panel Point Moment	3,220.21	3,220.22	1,828.83	3,254.31	3,254.30
Mid Panel Moment	1,866.60	1,533.73	914.41	1,580.61	1,855.23
Panel Point fb	7,435.49	7,435.49	4,222.77	7,514.21	7,514.21
Mid Panel fb	1,758.28	1,444.73	861.35	1,488.88	1,747.57
Fillers	0	0	0	0	0
Panel Point Stress	15,073.48	14,904.48	27,457.63	15,320.50	15,483.47
Mid Panel Stress	0.4253	0.4517	0.9492	0.4716	0.4411

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **44,232.93**
Max Load no Fillers TC: **40,171.45**
TC OAL/Ryy: **289.27**
BC OAL/Ryy: **279.19**
BC Stress: **0.89**
BC L/Rz: **134.4297**
TC Shear Stress: **12,477.14**
BC Shear Stress: **15,421.96**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	15,685.36	25,759.23	12,097.63	12,592.96	5.63 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	9,104.89	28,621.37	11,714.81	13,348.74	4.21 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	10,169.00	16,730.22	7,949.70	8,078.15	4.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	6,483.05	16,730.22	7,995.80	8,078.15	3.41 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	4,496.92	7,826.93	3,264.43	3,733.43	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	2,655.87	7,826.93	3,525.42	3,733.43	2.33 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	3,453.92	7,826.93	3,395.34	3,733.43	2.28 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	3,453.92	7,826.93	3,395.34	3,733.43	2.28 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	2,655.87	7,826.93	3,525.42	3,733.43	2.33 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	4,496.92	7,826.93	3,264.43	3,733.43	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	6,483.05	16,730.22	7,995.80	8,078.15	3.41 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W4	10,169.00	16,730.22	7,949.70	8,078.15	4.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	9,104.89	28,621.37	11,714.81	13,348.74	4.21 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W2	15,685.36	25,759.23	12,097.63	12,592.96	5.63 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	810.25	5,758.64	1,148.16	3,644.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,081.89	5,758.64	2,430.42	3,705.45	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:55:15 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J25**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

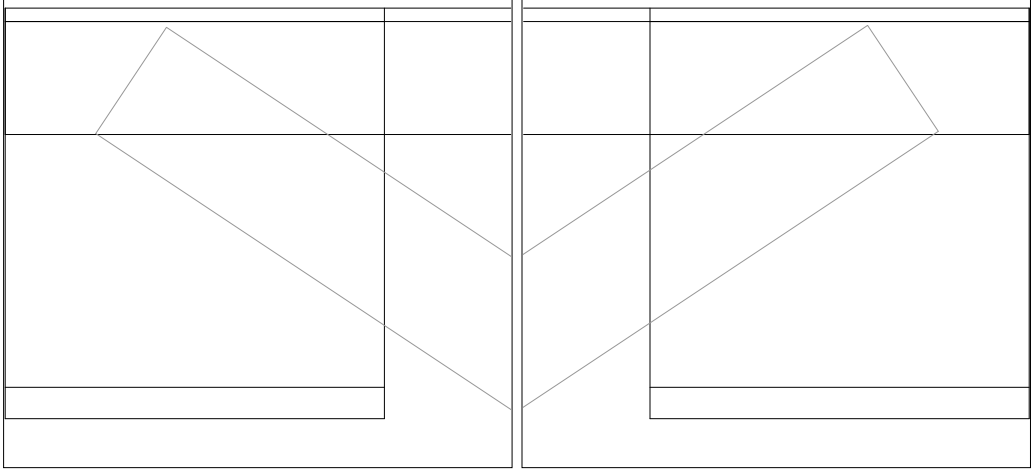
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 9:55:15 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J25

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

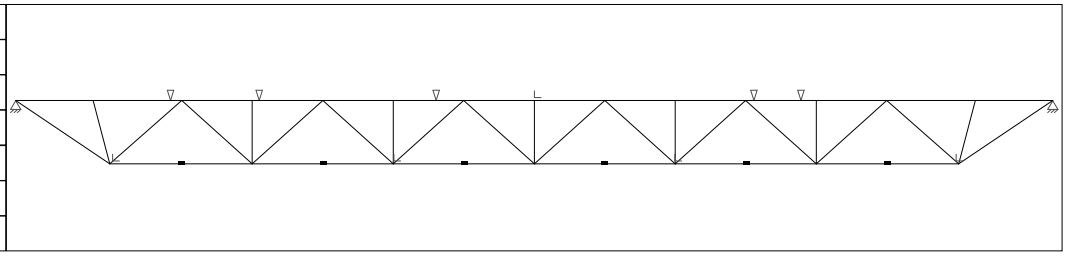
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:58:42 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J26**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
31-7	**31-3**	**24.00**	**22.80**	**6 @ 4-3**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	24.00	24.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	205.00	205.00	TC	+	0-0	31-7	L-BL
Uniform (plf)	DL (1)	200.00	200.00	TC	+	0-0	31-7	L-BL
Conc Load (lbs)	LL (1)	300.00	0.00	TC	+	4-10	4-10	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	12-10	12-10	L-BL
Conc Load (lbs)	LL (1)	3,000.00	0.00	TC	+	22-5	22-5	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	23-10	23-10	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	22-5	22-5	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.50	**51.50**	**8,846.52**	**9,209.72**	**2,302.43**	**37,979.70**	**37,966.37**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,337.30	12,485.06	0.00	0.00	15,685.36	12,097.63	40.94	0-2
V1S	9,143.92	12,208.80	0.00	0.00	810.25	1,148.16	23.58	2-6
W3	9,143.92	12,208.80	20,559.07	15,446.22	9,104.89	11,714.81	34.58	3-0
W4	20,839.70	27,370.24	20,559.07	15,446.22	10,132.43	7,949.70	34.21	5-2
W5	20,839.70	27,370.24	31,706.21	24,021.73	6,483.05	7,958.97	34.21	7-3 1/2
W6	26,340.73	34,915.39	31,706.21	24,021.73	4,496.92	3,264.43	34.21	9-5
W7	26,340.73	34,915.39	37,030.67	27,961.13	2,655.87	3,525.42	34.21	11-6 1/2
W8	28,882.95	37,979.70	37,030.67	27,961.13	3,453.92	2,655.87	34.21	13-8
W8	28,882.95	37,979.70	37,966.37	29,106.17	3,453.92	2,655.87	34.21	15-9 1/2
W7	28,630.79	36,990.70	37,966.37	29,106.17	2,655.87	3,525.42	34.21	17-11
W6	28,630.79	36,990.70	35,052.69	27,456.83	4,496.92	3,264.43	34.21	20-0 1/2
W5	22,624.34	29,120.04	35,052.69	27,456.83	6,483.05	7,958.97	34.21	22-2
W4	22,624.34	29,120.04	21,567.29	16,698.60	10,132.43	7,949.70	34.21	24-3 1/2
W3	9,853.60	12,760.17	21,567.29	16,698.60	9,104.89	11,714.81	34.58	26-5
V1S	9,853.60	12,760.17	0.00	0.00	810.25	1,148.16	23.58	29-1
W2	10,046.99	13,026.56	0.00	0.00	15,685.36	12,097.63	40.94	28-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,081.89	2,423.62	22.80

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 9:58:42 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J26

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	397.33	486.41	729.62	17-5 1/8	8-8 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.00	25.50	32.00	28.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	12,485.06	12,208.80	37,979.70	12,760.17	13,026.56
fa	7,637.99	7,468.98	23,234.86	7,806.30	7,969.27
Maximum K L/r	71.36	81.55	48.74	81.55	71.36
Fcr	34,457.82	30,746.32	42,028.04	30,746.32	34,457.82
Fa	20,674.69	18,447.79	25,216.82	18,447.79	20,674.69
F'e	137,362.81	105,168.41	294,430.22	105,168.41	137,362.81
Cm	0.9722	0.9645	0.9471	0.9629	0.9710
Panel Point Moment	3,220.21	3,220.22	1,828.83	3,254.31	3,254.30
Mid Panel Moment	1,866.60	1,533.73	914.41	1,580.61	1,855.23
Panel Point fb	7,435.49	7,435.49	4,222.77	7,514.21	7,514.21
Mid Panel fb	1,758.28	1,444.73	861.35	1,488.88	1,747.57
Fillers	0	0	0	0	0
Panel Point Stress	15,073.48	14,904.48	27,457.63	15,320.50	15,483.47
Mid Panel Stress	0.4253	0.4517	0.9492	0.4716	0.4411

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **44,232.93**
Max Load no Fillers TC: **40,171.45**
TC OAL/Ryy: **289.27**
BC OAL/Ryy: **279.19**
BC Stress: **0.89**
BC L/Rz: **134.4297**
TC Shear Stress: **12,392.35**
BC Shear Stress: **15,421.96**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	15,685.36	25,759.23	12,097.63	12,592.96	5.63 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	9,104.89	28,621.37	11,714.81	13,348.74	4.21 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	10,132.43	16,730.22	7,949.70	8,078.15	4.32 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	6,483.05	16,730.22	7,958.97	8,078.15	3.39 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	4,496.92	7,826.93	3,264.43	3,733.43	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	2,655.87	7,826.93	3,525.42	3,733.43	2.33 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	3,453.92	7,826.93	2,655.87	3,733.43	2.28 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	3,453.92	7,826.93	2,655.87	3,733.43	2.28 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	2,655.87	7,826.93	3,525.42	3,733.43	2.33 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	4,496.92	7,826.93	3,264.43	3,733.43	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	6,483.05	16,730.22	7,958.97	8,078.15	3.39 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W4	10,132.43	16,730.22	7,949.70	8,078.15	4.32 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	9,104.89	28,621.37	11,714.81	13,348.74	4.21 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W2	15,685.36	25,759.23	12,097.63	12,592.96	5.63 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	810.25	5,758.64	1,148.16	3,644.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,081.89	5,758.64	2,423.62	3,705.45	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:58:42 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J26**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

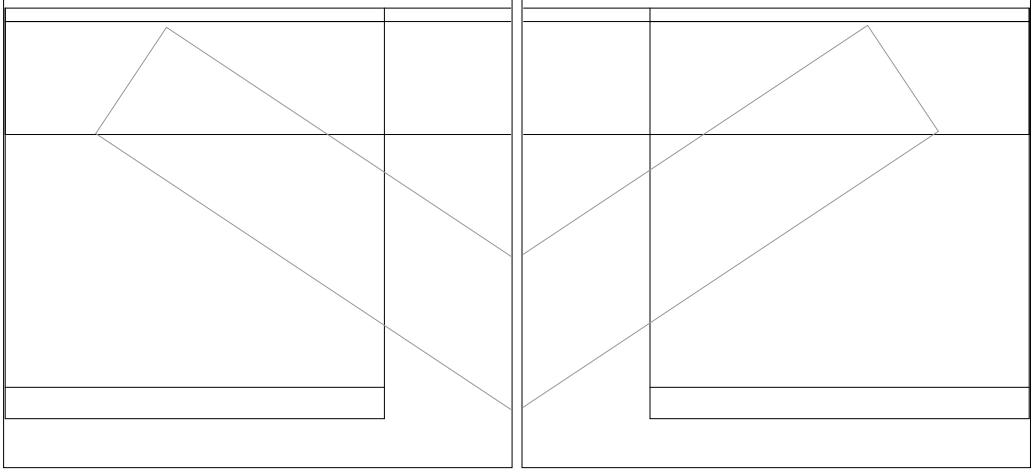
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 9:58:42 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J26

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

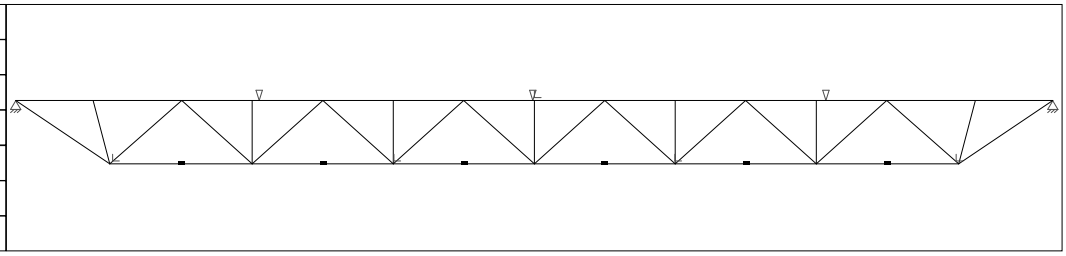
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:59:05 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J27**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
31-7	**31-3**	**24.00**	**22.80**	**6 @ 4-3**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	24.00	24.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	205.00	205.00	TC	+	0-0	31-7	L-BL
Uniform (plf)	DL (1)	200.00	200.00	TC	+	0-0	31-7	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	15-9	15-9	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	24-7	24-7	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	15-9	15-9	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	24-7	24-7	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.50	**51.50**	**8,556.13**	**8,600.12**	**2,150.03**	**37,756.05**	**36,493.72**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,659.35	12,052.10	0.00	0.00	14,590.98	11,709.86	40.94	0-2
V1S	9,465.96	11,785.70	0.00	0.00	808.64	1,107.55	23.58	2-6
W3	9,465.96	11,785.70	19,847.64	16,014.53	8,777.32	10,790.33	34.58	3-0
W4	21,649.54	26,669.54	19,847.64	16,014.53	9,151.95	7,559.67	34.21	5-2
W5	21,649.54	26,669.54	31,016.24	25,073.10	4,592.90	5,831.34	34.21	7-3 1/2
W6	27,633.63	34,236.16	31,016.24	25,073.10	4,496.92	3,501.09	34.21	9-5
W7	27,633.63	34,236.16	36,493.72	29,495.56	2,574.86	3,525.42	34.21	11-6 1/2
W8	30,626.02	37,756.05	36,493.72	29,495.56	3,225.31	2,574.86	34.21	13-8
W8	30,626.02	37,756.05	36,411.64	29,413.47	3,225.31	2,574.86	34.21	15-9 1/2
W7	27,502.34	34,104.86	36,411.64	29,413.47	2,574.86	3,525.42	34.21	17-11
W6	27,502.34	34,104.86	30,835.75	24,892.61	4,496.92	3,501.09	34.21	20-0 1/2
W5	21,584.29	26,604.29	30,835.75	24,892.61	4,592.90	5,831.34	34.21	22-2
W4	21,584.29	26,604.29	19,963.40	16,130.30	9,151.95	7,559.67	34.21	24-3 1/2
W3	9,531.56	11,851.30	19,963.40	16,130.30	8,777.32	10,790.33	34.58	26-5
V1S	9,531.56	11,851.30	0.00	0.00	808.64	1,107.55	23.58	29-1
W2	9,724.95	12,117.70	0.00	0.00	14,590.98	11,709.86	40.94	28-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,248.47	2,611.24	22.80

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 9:59:05 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J27

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	397.33	486.41	729.62	17-5 1/8	8-6 5/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.00	25.50	32.00	28.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	12,052.10	11,785.70	37,756.05	11,851.30	12,117.70
fa	7,373.12	7,210.15	23,098.04	7,250.28	7,413.25
Maximum K L/r	71.36	81.55	48.74	81.55	71.36
Fcr	34,457.82	30,746.32	42,028.04	30,746.32	34,457.82
Fa	20,674.69	18,447.79	25,216.82	18,447.79	20,674.69
F'e	137,362.81	105,168.41	294,430.22	105,168.41	137,362.81
Cm	0.9732	0.9657	0.9474	0.9655	0.9730
Panel Point Moment	3,220.21	3,220.22	1,828.83	3,220.22	3,220.21
Mid Panel Moment	1,866.60	1,533.73	914.41	1,533.73	1,866.60
Panel Point fb	7,435.49	7,435.49	4,222.77	7,435.49	7,435.49
Mid Panel fb	1,758.28	1,444.73	861.35	1,444.73	1,758.28
Fillers	0	0	0	0	0
Panel Point Stress	14,808.61	14,645.64	27,320.81	14,685.77	14,848.74
Mid Panel Stress	0.4123	0.4375	0.9438	0.4397	0.4143

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **44,232.93**
Max Load no Fillers TC: **40,171.45**
TC OAL/Ryy: **289.27**
BC OAL/Ryy: **279.19**
BC Stress: **0.85**
BC L/Rz: **134.4297**
TC Shear Stress: **11,480.67**
BC Shear Stress: **14,345.96**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	14,590.98	25,759.23	11,709.86	12,592.96	5.24 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	8,777.32	24,373.24	10,790.33	11,498.23	3.88 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	9,151.95	16,730.22	7,559.67	8,078.15	3.90 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	4,592.90	14,381.54	5,831.34	7,235.40	2.62 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	4,496.92	7,826.93	3,501.09	3,733.43	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	2,574.86	7,826.93	3,525.42	3,733.43	2.33 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	3,225.31	7,826.93	2,574.86	3,733.43	2.13 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	3,225.31	7,826.93	2,574.86	3,733.43	2.13 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	2,574.86	7,826.93	3,525.42	3,733.43	2.33 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	4,496.92	7,826.93	3,501.09	3,733.43	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	4,592.90	14,381.54	5,831.34	7,235.40	2.62 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W4	9,151.95	16,730.22	7,559.67	8,078.15	3.90 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	8,777.32	24,373.24	10,790.33	11,498.23	3.88 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W2	14,590.98	25,759.23	11,709.86	12,592.96	5.24 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	808.64	5,758.64	1,107.55	3,644.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,248.47	5,758.64	2,611.24	3,705.45	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:59:05 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J27**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

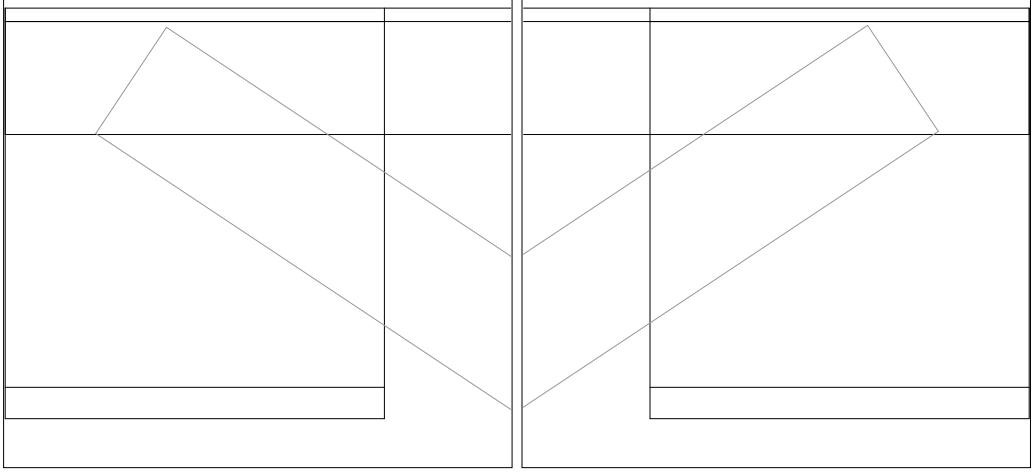
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 9:59:05 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J27

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

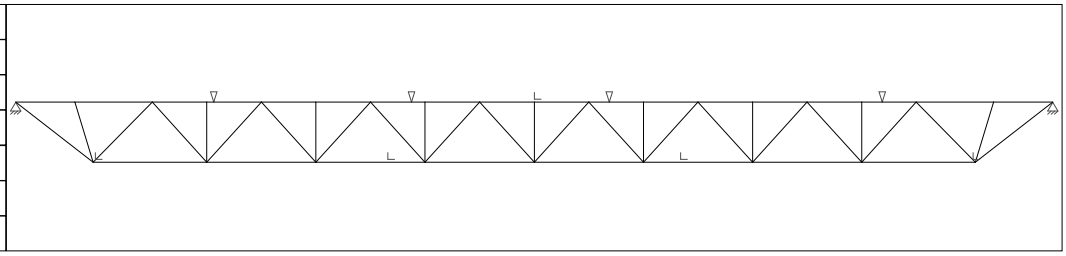
Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:30:46 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J28

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
38-4	38-0	28.00	26.33	8 @ 4-0	1.0220	Parallel Chords	0.0000

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	38-4	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	38-4	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	7-5	7-5	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	14-8	14-8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	21-11	21-11	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	31-11	31-11	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	7-5	7-5	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	14-8	14-8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	21-11	21-11	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	31-11	31-11	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	50.00	11,938.42	10,951.58	2,984.61	50,916.38	50,781.09

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	12,280.54	14,848.43	0.00	0.00	18,780.79	15,532.85	43.00	0-2
V1S	12,057.24	14,540.81	0.00	0.00	829.58	1,132.44	27.52	2-4
W3	12,057.24	14,540.81	24,895.76	20,722.51	12,333.03	14,771.16	37.01	3-0
W4	28,073.64	33,630.17	24,895.76	20,722.51	12,988.87	10,912.85	35.63	5-2
V2	28,073.64	33,630.17	24,895.76	20,722.51	3,353.37	3,828.84	26.33	7-2
W5	28,073.64	33,630.17	39,097.64	32,496.33	6,752.46	8,404.52	35.63	7-2
W6	36,041.30	43,553.14	39,097.64	32,496.33	7,308.56	5,956.87	35.63	9-2
V3	36,041.30	43,553.14	39,097.64	32,496.33	768.21	1,027.77	26.33	11-2
W7	36,041.30	43,553.14	47,270.38	39,050.34	5,161.28	6,212.59	35.63	11-2
W8	41,181.67	49,907.55	47,270.38	39,050.34	5,182.24	4,365.69	35.63	13-2
V4	41,181.67	49,907.55	47,270.38	39,050.34	1,918.91	2,247.95	26.33	15-2
W9	41,181.67	49,907.55	50,781.09	41,751.70	3,324.90	4,038.29	35.63	15-2
W10	41,785.80	50,916.38	50,781.09	41,751.70	4,038.29	3,324.90	35.63	17-2
V5	41,785.80	50,916.38	50,781.09	41,751.70	796.93	1,064.58	26.33	19-2
W10	41,785.80	50,916.38	50,313.38	41,283.98	4,038.29	3,324.90	35.63	19-2
W9	39,391.77	48,117.65	50,313.38	41,283.98	3,324.90	4,038.29	35.63	21-2
V6	39,391.77	48,117.65	50,313.38	41,283.98	1,347.46	1,615.18	26.33	23-2
W8	39,391.77	48,117.65	44,670.98	36,450.94	5,182.24	4,365.69	35.63	23-2

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STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:30:46 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J28**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W7	32,974.19	40,486.04	44,670.98	36,450.94	5,161.28	6,212.59	35.63	25-2
V7	32,974.19	40,486.04	44,670.98	36,450.94	752.87	1,012.43	26.33	27-2
W6	32,974.19	40,486.04	35,562.82	28,961.51	7,308.56	5,956.87	35.63	27-2
W5	24,412.90	29,901.36	35,562.82	28,961.51	6,752.46	8,404.52	35.63	29-2
V8	24,412.90	29,901.36	35,562.82	28,961.51	1,647.56	1,939.98	26.33	31-2
W4	24,412.90	29,901.36	22,647.14	18,473.90	12,988.87	10,912.85	35.63	31-2
W3	10,783.03	13,266.60	22,647.14	18,473.90	12,333.03	14,771.16	37.01	33-2
V1S	10,783.03	13,266.60	0.00	0.00	829.58	1,132.44	27.52	36-0
W2	11,006.33	13,574.21	0.00	0.00	18,780.79	15,532.85	43.00	35-4

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:30:46 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J28

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	913.24	621.77	932.66	22-10 1/8	13-6 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	34.00	24.00	34.00	26.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	14,848.43	14,540.81	50,916.38	13,266.60	13,574.21
fa	5,665.18	5,547.81	19,041.41	5,061.66	5,179.02
Maximum K L/r	43.79	57.27	30.32	57.27	43.79
Fcr	40,545.05	36,985.15	43,371.61	36,985.15	40,545.05
Fa	24,327.03	22,191.09	26,022.96	22,191.09	24,327.03
F'e	369,039.41	215,805.05	769,971.19	215,805.05	369,039.41
Cm	0.9923	0.9871	0.9834	0.9883	0.9930
Panel Point Moment	3,252.53	3,252.53	7,406.84	4,754.38	2,652.30
Mid Panel Moment	1,450.83	1,932.65	3,703.42	1,173.53	1,650.89
Panel Point fb	3,083.68	3,083.68	7,022.33	4,507.57	2,514.61
Mid Panel fb	529.63	705.52	1,351.94	428.40	602.66
Fillers	0	0	0	0	0
Panel Point Stress	8,748.86	8,631.49	26,063.75	9,569.23	7,693.63
Mid Panel Stress	0.2502	0.2734	0.7762	0.2422	0.2326

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5378**
Max Load Fillers TC: **67,414.77**
Max Load no Fillers TC: **65,133.55**
TC OAL/Ryy: **271.45**
BC OAL/Ryy: **271.45**
BC Stress: **0.65**
BC L/Rz: **84.2176**
TC Shear Stress: **10,276.02**
BC Shear Stress: **10,438.89**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,780.79	23,679.79	15,532.85	15,879.80	3.89 x 0.230	1	WR102015 = Wrapped R100 with 2015
V1S	829.58	5,758.64	1,132.44	3,168.42	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	12,333.03	28,618.35	14,771.16	15,187.47	5.31 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	12,988.87	24,373.24	10,912.85	11,196.20	4.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V2	3,353.37	7,826.93	3,828.84	4,516.84	2.53 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	6,752.46	18,714.09	8,404.52	8,982.69	3.22 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	7,308.56	14,381.54	5,956.87	6,992.48	3.28 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V3	768.21	5,758.64	1,027.77	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	5,161.28	14,381.54	6,212.59	6,992.48	2.79 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	5,182.24	10,742.43	4,365.69	5,379.60	2.71 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	1,918.91	5,758.64	2,247.95	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	3,324.90	10,742.43	4,038.29	5,379.60	2.11 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,038.29	7,826.93	3,324.90	3,600.01	2.67 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
V5	796.93	5,758.64	1,064.58	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	4,038.29	7,826.93	3,324.90	3,600.01	2.67 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	3,324.90	10,742.43	4,038.29	5,379.60	2.11 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	1,347.46	5,758.64	1,615.18	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	5,182.24	10,742.43	4,365.69	5,379.60	2.71 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	5,161.28	14,381.54	6,212.59	6,992.48	2.79 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:30:46 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J28**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	752.87	5,758.64	1,012.43	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	7,308.56	14,381.54	5,956.87	6,992.48	3.28 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	6,752.46	18,714.09	8,404.52	8,982.69	3.22 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V8	1,647.56	5,758.64	1,939.98	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	12,988.87	24,373.24	10,912.85	11,196.20	4.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	12,333.03	28,618.35	14,771.16	15,187.47	5.31 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	829.58	5,758.64	1,132.44	3,168.42	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	18,780.79	23,679.79	15,532.85	15,879.80	3.89 x 0.230	1	WR102015 = Wrapped R100 with 2015

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:30:46 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J28**

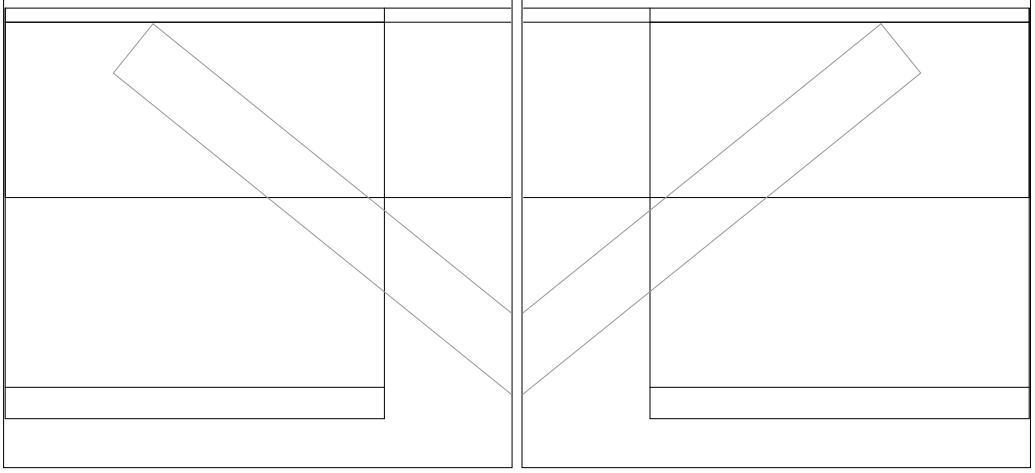
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/2
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/2
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:30:46 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J28

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

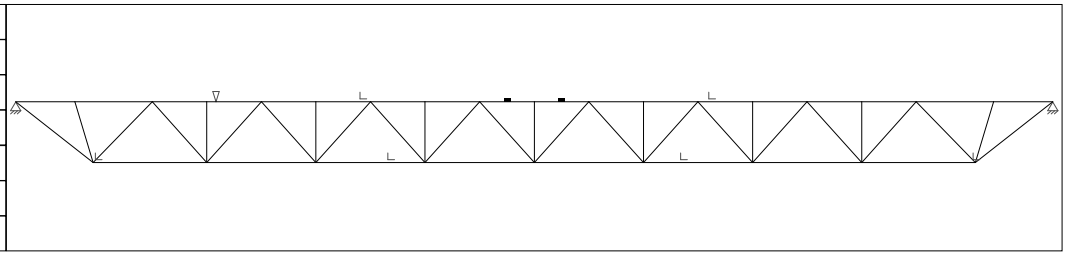
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:38:42 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J29**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
38-4	**38-0**	**28.00**	**26.73**	**8 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	38-4	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	38-4	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**50.00**	**9,201.58**	**8,282.50**	**2,300.39**	**36,568.42**	**36,330.00**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,240.28	10,960.85	0.00	0.00	14,178.67	10,481.75	43.25	0-2
V1S	8,020.29	10,657.81	0.00	0.00	808.42	1,423.88	27.90	2-4
W3	8,020.29	10,657.81	18,054.74	13,606.73	8,011.90	10,759.91	37.29	3-0
W4	18,125.48	24,003.85	18,054.74	13,606.73	9,050.36	6,763.53	35.92	5-2
W5	18,125.48	24,003.85	28,103.27	20,993.87	4,932.57	6,794.86	35.92	7-2
W6	23,109.81	31,250.91	28,103.27	20,993.87	5,878.14	4,267.09	35.92	9-2
W7	23,109.81	31,250.91	33,671.25	24,697.78	3,632.81	5,004.39	35.92	11-2
W8	25,757.79	35,364.28	33,671.25	24,697.78	4,173.60	3,029.73	35.92	13-2
W9	25,757.79	35,364.28	36,330.00	26,289.82	2,457.84	3,385.79	35.92	15-2
W10	26,293.88	36,568.42	36,330.00	26,289.82	3,091.65	2,283.57	35.92	17-2
W10	26,293.88	36,568.42	35,810.16	25,769.98	3,091.65	2,283.57	35.92	19-2
W9	24,718.11	34,324.59	35,810.16	25,769.98	2,457.84	3,385.79	35.92	21-2
W8	24,718.11	34,324.59	32,111.73	23,138.26	4,173.60	3,029.73	35.92	23-2
W7	21,030.44	29,171.55	32,111.73	23,138.26	3,632.81	5,004.39	35.92	25-2
W6	21,030.44	29,171.55	25,504.07	18,394.66	5,878.14	4,267.09	35.92	27-2
W5	15,230.90	21,109.28	25,504.07	18,394.66	4,932.57	6,794.86	35.92	29-2
W4	15,230.90	21,109.28	15,987.19	11,539.18	9,050.36	6,763.53	35.92	31-2
W3	6,848.68	9,486.19	15,987.19	11,539.18	8,011.90	10,759.91	37.29	33-2
V1S	6,848.68	9,486.19	0.00	0.00	808.42	1,423.88	27.90	36-0
W2	7,068.67	9,789.24	0.00	0.00	14,178.67	10,481.75	43.25	35-4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,928.63	2,583.21	26.73

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:38:42 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J29

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.7167	0.6172	0.3938	1.2891	0.5693	0.2730	1.0000	2018 = 2 x 2 x 0.188
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	584.88	398.21	597.32	17-6 3/8	13-4 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	34.00	24.00	34.00	26.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	10,960.85	10,657.81	36,568.42	9,486.19	9,789.24
fa	7,646.75	7,435.33	25,511.66	6,617.97	6,829.38
Maximum K L/r	66.02	86.34	30.47	86.34	66.02
Fcr	36,353.80	28,991.00	46,717.98	28,991.00	36,353.80
Fa	21,812.28	17,394.60	28,030.79	17,394.60	21,812.28
F'e	161,288.31	94,317.39	336,515.13	94,317.39	161,288.31
Cm	0.9763	0.9606	0.9492	0.9649	0.9788
Panel Point Moment	3,252.53	3,252.53	1,620.00	3,252.53	3,252.53
Mid Panel Moment	1,450.83	1,932.65	810.00	1,932.65	1,450.83
Panel Point fb	8,522.70	8,522.70	4,244.93	8,522.70	8,522.70
Mid Panel fb	1,512.74	2,015.12	844.57	2,015.12	1,512.74
Fillers	0	0	2	0	0
Panel Point Stress	16,169.45	15,958.03	29,756.60	15,140.67	15,352.08
Mid Panel Stress	0.3981	0.4935	0.9373	0.4457	0.3603

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **39,183.42**
Max Load no Fillers TC: **36,000.06**
TC OAL/Ryy: **353.72**
BC OAL/Ryy: **311.67**
BC Stress: **0.64**
BC L/Rz: **113.5589**
TC Shear Stress: **13,067.05**
BC Shear Stress: **11,285.44**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	14,178.67	25,759.23	10,481.75	11,928.77	5.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	8,011.90	28,621.37	10,759.91	12,438.27	3.86 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	9,050.36	14,381.54	6,763.53	6,942.30	4.06 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	4,932.57	14,381.54	6,794.86	6,942.30	3.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	5,878.14	10,742.43	4,267.09	5,341.57	3.07 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,632.81	10,742.43	5,004.39	5,341.57	2.61 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,173.60	7,826.93	3,029.73	3,572.58	2.76 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,457.84	7,826.93	3,385.79	3,572.58	2.24 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,091.65	7,826.93	2,283.57	3,572.58	2.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,091.65	7,826.93	2,283.57	3,572.58	2.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,457.84	7,826.93	3,385.79	3,572.58	2.24 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	4,173.60	7,826.93	3,029.73	3,572.58	2.76 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	3,632.81	10,742.43	5,004.39	5,341.57	2.61 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W6	5,878.14	10,742.43	4,267.09	5,341.57	3.07 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	4,932.57	14,381.54	6,794.86	6,942.30	3.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W4	9,050.36	14,381.54	6,763.53	6,942.30	4.06 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	8,011.90	28,621.37	10,759.91	12,438.27	3.86 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W2	14,178.67	25,759.23	10,481.75	11,928.77	5.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	808.42	5,758.64	1,423.88	3,121.20	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,928.63	5,758.64	2,583.21	3,266.96	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:38:42 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J29**

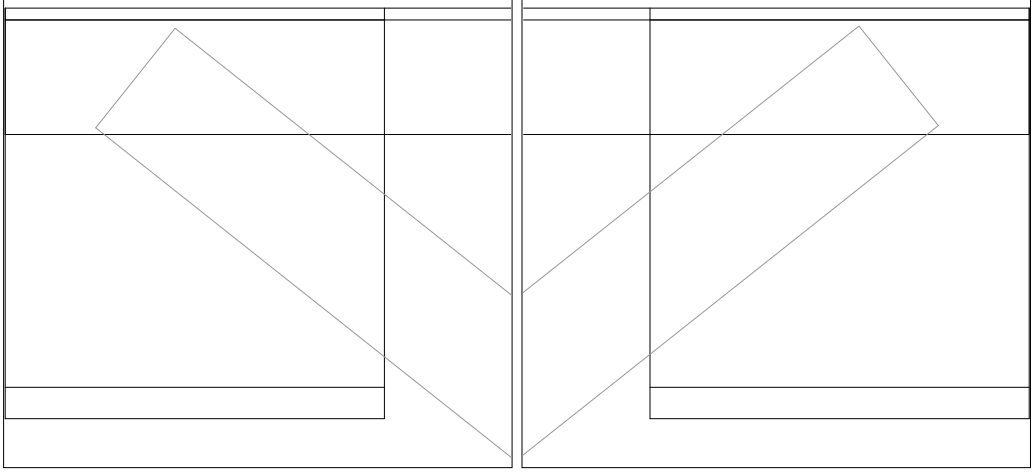
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:38:42 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J29

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

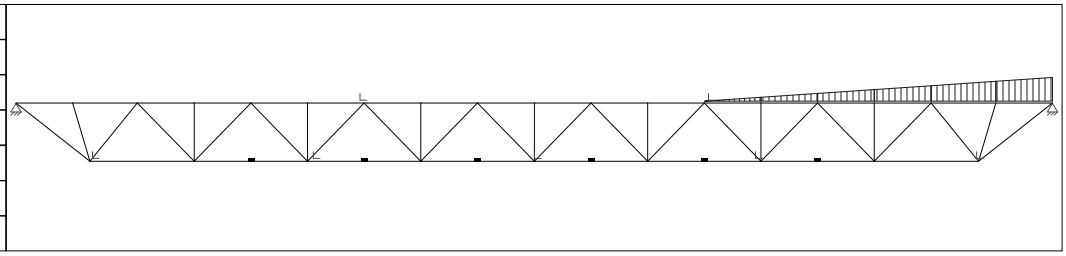
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:15:59 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J3**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-11 1/2	**39-7 1/2**	**28.00**	**26.80**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	1-9 3/4
First Diag.	4-9 3/4	4-9 3/4
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-11 1/2	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-11 1/2	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	27-11 1/2	39-11 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**9,546.86**	**10,982.09**	**2,745.52**	**38,868.37**	**38,801.78**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,984.50	10,090.96	0.00	0.00	16,190.51	8,894.01	43.30	0-2
V1S	6,780.68	9,810.17	0.00	0.00	1,264.98	2,053.06	27.97	2-4
W3	6,780.68	9,810.17	15,502.04	10,694.55	6,457.27	10,453.44	34.52	3-0
W4	14,710.76	21,393.57	15,502.04	10,694.55	8,935.10	6,295.72	37.34	4-9 3/4
W5	14,710.76	21,393.57	26,433.93	18,109.09	5,504.52	7,582.75	37.34	6-11 3/4
W6	20,889.55	30,623.14	26,433.93	18,109.09	6,542.96	4,749.70	37.34	9-1 3/4
W7	20,889.55	30,623.14	33,961.19	23,052.13	4,031.29	5,553.30	37.34	11-3 3/4
W8	24,596.82	36,448.07	33,961.19	23,052.13	4,613.78	3,349.26	37.34	13-5 3/4
W9	24,596.82	36,448.07	38,083.81	25,523.64	2,703.63	3,824.92	37.34	15-7 3/4
W10	25,832.58	38,868.37	38,083.81	25,523.64	3,824.92	2,410.33	37.34	17-9 3/4
W10	25,832.58	38,868.37	38,801.78	25,523.64	3,824.92	2,410.33	37.34	19-11 3/4
W9	24,596.83	37,884.03	38,801.78	25,523.64	2,703.63	3,824.92	37.34	22-1 3/4
W8	24,596.83	37,884.03	36,115.12	23,052.13	4,613.78	3,349.26	37.34	24-3 3/4
W7	20,889.55	33,473.67	36,115.12	23,052.13	4,031.29	5,553.30	37.34	26-5 3/4
W6	20,889.55	33,473.67	29,810.04	18,109.09	6,542.96	4,749.70	37.34	28-7 3/4
W5	14,710.76	24,953.19	29,810.04	18,109.09	5,504.52	7,582.75	37.34	30-9 3/4
W4	14,710.76	24,953.19	18,732.12	10,694.55	8,935.10	6,295.72	37.34	32-11 3/4
W3	6,780.67	12,145.50	18,732.12	10,694.55	6,457.27	10,453.44	34.52	35-1 3/4
V1S	6,780.67	12,145.50	0.00	0.00	1,264.98	2,053.06	27.97	37-7 1/2
W2	6,984.50	12,714.47	0.00	0.00	16,190.51	8,894.01	43.30	36-11 1/2

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	766.16	1,531.22	26.80

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:15:59 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J3

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	548.49	329.35	494.03	17-6 1/2	10-0 3/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	29.75	26.00
Bending Load	405.00	405.00	405.00	777.07	864.31
Axial Load	10,090.96	9,810.17	38,868.37	12,145.50	12,714.47
fa	3,289.10	6,001.57	23,778.52	7,430.25	7,778.34
Maximum K L/r	66.26	75.82	49.69	75.82	66.26
Fcr	36,271.07	32,843.23	41,739.96	32,843.23	36,271.07
Fa	21,762.64	19,705.94	25,043.98	19,705.94	21,762.64
F'e	521,433.53	121,677.79	283,214.88	121,677.79	159,308.36
Cm	0.9968	0.9753	0.9437	0.9695	0.9756
Panel Point Moment	20,524.43	2,604.35	1,901.25	5,615.93	5,615.92
Mid Panel Moment	15,720.26	1,828.86	950.63	2,396.97	3,537.98
Panel Point fb	8,450.18	6,013.45	4,390.00	12,967.21	12,967.20
Mid Panel fb	6,472.24	1,722.73	895.46	2,257.87	3,332.67
Fillers	0	0	0	0	0
Panel Point Stress	11,739.28	12,015.02	28,168.52	20,397.46	20,745.54
Mid Panel Stress	0.2929	0.3588	0.9786	0.4493	0.4623

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5000**

Max Load Fillers TC: **44,039.91**

Max Load no Fillers TC: **39,844.50**

TC OAL/Ryy: **366.80**

BC OAL/Ryy: **354.02**

BC Stress: **0.91**

BC L/Rz: **135.7348**

TC Shear Stress: **12,803.38**

BC Shear Stress: **17,477.22**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	16,190.51	21,935.91	8,894.01	10,271.21	5.82 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	6,457.27	24,373.24	10,453.44	11,517.14	3.75 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	8,935.10	14,381.54	6,295.72	6,701.18	4.01 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	5,504.52	18,714.09	7,582.75	8,601.11	2.90 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	6,542.96	10,742.43	4,749.70	5,158.50	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,031.29	14,381.54	5,553.30	6,701.18	2.49 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,613.78	7,826.93	3,349.26	3,441.36	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,703.63	10,742.43	3,824.92	5,158.50	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,824.92	7,826.93	2,410.33	3,441.36	2.53 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,824.92	7,826.93	2,410.33	3,441.36	2.53 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,703.63	10,742.43	3,824.92	5,158.50	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,613.78	7,826.93	3,349.26	3,441.36	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,031.29	14,381.54	5,553.30	6,701.18	2.49 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,542.96	10,742.43	4,749.70	5,158.50	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	5,504.52	18,714.09	7,582.75	8,601.11	2.90 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W4	8,935.10	14,381.54	6,295.72	6,701.18	4.01 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	6,457.27	24,373.24	10,453.44	11,517.14	3.75 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W2	16,190.51	21,935.91	8,894.01	10,271.21	5.82 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V1	1,264.98	5,758.64	2,053.06	3,112.18	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	766.16	5,758.64	1,531.22	3,257.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:15:59 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J3**

TCX Design

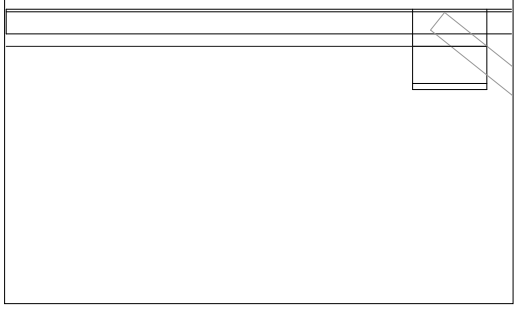
TCX Left	
TCX Length	2-8 7/8
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	5-6
Clear Bearing	0-7 1/2
BPL Material: 2018 = 2 x 2 x 0.188	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-2
Clear Bearing	0-7 1/2
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

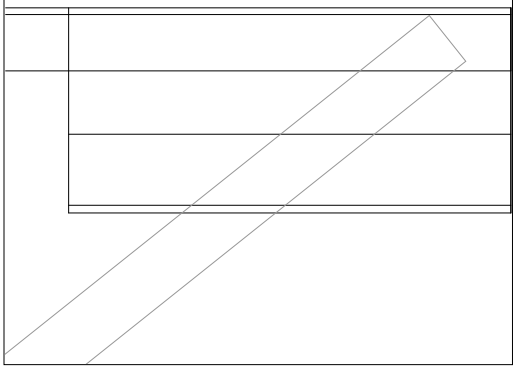
Total Load	405.00
Reqd TL Def L/80	0.41
Live Load	200.00
Reqd LL Def L/120	0.27
Section Modulus	2.4289
Reqd SM	0.6841
Mom of Inertia	3.7784
Reqd MI	0.4936

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:15:59 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J3

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

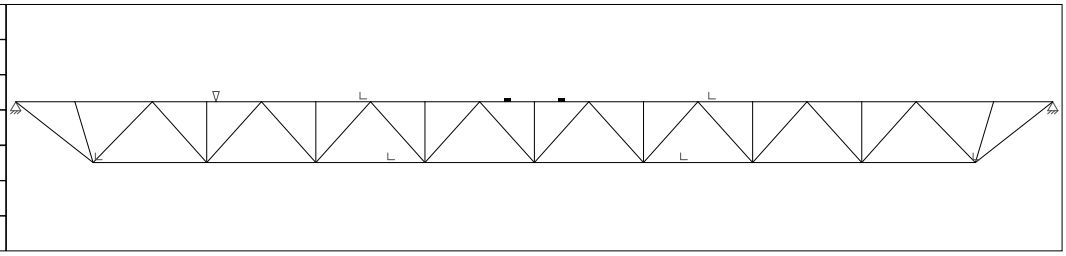
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:39:01 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J30**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
38-4	**38-0**	**28.00**	**26.73**	**8 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	38-4	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	38-4	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**50.00**	**9,201.58**	**8,282.50**	**2,300.39**	**36,568.42**	**36,330.00**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,240.28	10,960.85	0.00	0.00	14,178.67	10,481.75	43.25	0-2
V1S	8,020.29	10,657.81	0.00	0.00	808.42	1,423.88	27.90	2-4
W3	8,020.29	10,657.81	18,054.74	13,606.73	8,011.90	10,759.91	37.29	3-0
W4	18,125.48	24,003.85	18,054.74	13,606.73	9,050.36	6,763.53	35.92	5-2
W5	18,125.48	24,003.85	28,103.27	20,993.87	4,932.57	6,794.86	35.92	7-2
W6	23,109.81	31,250.91	28,103.27	20,993.87	5,878.14	4,267.09	35.92	9-2
W7	23,109.81	31,250.91	33,671.25	24,697.78	3,632.81	5,004.39	35.92	11-2
W8	25,757.79	35,364.28	33,671.25	24,697.78	4,173.60	3,029.73	35.92	13-2
W9	25,757.79	35,364.28	36,330.00	26,289.82	2,457.84	3,385.79	35.92	15-2
W10	26,293.88	36,568.42	36,330.00	26,289.82	3,091.65	2,283.57	35.92	17-2
W10	26,293.88	36,568.42	35,810.16	25,769.98	3,091.65	2,283.57	35.92	19-2
W9	24,718.11	34,324.59	35,810.16	25,769.98	2,457.84	3,385.79	35.92	21-2
W8	24,718.11	34,324.59	32,111.73	23,138.26	4,173.60	3,029.73	35.92	23-2
W7	21,030.44	29,171.55	32,111.73	23,138.26	3,632.81	5,004.39	35.92	25-2
W6	21,030.44	29,171.55	25,504.07	18,394.66	5,878.14	4,267.09	35.92	27-2
W5	15,230.90	21,109.28	25,504.07	18,394.66	4,932.57	6,794.86	35.92	29-2
W4	15,230.90	21,109.28	15,987.19	11,539.18	9,050.36	6,763.53	35.92	31-2
W3	6,848.68	9,486.19	15,987.19	11,539.18	8,011.90	10,759.91	37.29	33-2
V1S	6,848.68	9,486.19	0.00	0.00	808.42	1,423.88	27.90	36-0
W2	7,068.67	9,789.24	0.00	0.00	14,178.67	10,481.75	43.25	35-4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,928.63	2,583.21	26.73

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:39:01 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J30

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.7167	0.6172	0.3938	1.2891	0.5693	0.2730	1.0000	2018 = 2 x 2 x 0.188
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	584.88	398.21	597.32	17-6 3/8	13-4 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	34.00	24.00	34.00	26.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	10,960.85	10,657.81	36,568.42	9,486.19	9,789.24
fa	7,646.75	7,435.33	25,511.66	6,617.97	6,829.38
Maximum K L/r	66.02	86.34	30.47	86.34	66.02
Fcr	36,353.80	28,991.00	46,717.98	28,991.00	36,353.80
Fa	21,812.28	17,394.60	28,030.79	17,394.60	21,812.28
F'e	161,288.31	94,317.39	336,515.13	94,317.39	161,288.31
Cm	0.9763	0.9606	0.9492	0.9649	0.9788
Panel Point Moment	3,252.53	3,252.53	1,620.00	3,252.53	3,252.53
Mid Panel Moment	1,450.83	1,932.65	810.00	1,932.65	1,450.83
Panel Point fb	8,522.70	8,522.70	4,244.93	8,522.70	8,522.70
Mid Panel fb	1,512.74	2,015.12	844.57	2,015.12	1,512.74
Fillers	0	0	2	0	0
Panel Point Stress	16,169.45	15,958.03	29,756.60	15,140.67	15,352.08
Mid Panel Stress	0.3981	0.4935	0.9373	0.4457	0.3603

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **39,183.42**
Max Load no Fillers TC: **36,000.06**
TC OAL/Ryy: **353.72**
BC OAL/Ryy: **311.67**
BC Stress: **0.64**
BC L/Rz: **113.5589**
TC Shear Stress: **13,067.05**
BC Shear Stress: **11,285.44**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	14,178.67	25,759.23	10,481.75	11,928.77	5.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	8,011.90	28,621.37	10,759.91	12,438.27	3.86 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	9,050.36	14,381.54	6,763.53	6,942.30	4.06 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	4,932.57	14,381.54	6,794.86	6,942.30	3.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	5,878.14	10,742.43	4,267.09	5,341.57	3.07 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,632.81	10,742.43	5,004.39	5,341.57	2.61 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,173.60	7,826.93	3,029.73	3,572.58	2.76 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,457.84	7,826.93	3,385.79	3,572.58	2.24 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,091.65	7,826.93	2,283.57	3,572.58	2.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,091.65	7,826.93	2,283.57	3,572.58	2.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,457.84	7,826.93	3,385.79	3,572.58	2.24 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	4,173.60	7,826.93	3,029.73	3,572.58	2.76 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	3,632.81	10,742.43	5,004.39	5,341.57	2.61 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W6	5,878.14	10,742.43	4,267.09	5,341.57	3.07 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	4,932.57	14,381.54	6,794.86	6,942.30	3.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W4	9,050.36	14,381.54	6,763.53	6,942.30	4.06 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	8,011.90	28,621.37	10,759.91	12,438.27	3.86 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W2	14,178.67	25,759.23	10,481.75	11,928.77	5.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	808.42	5,758.64	1,423.88	3,121.20	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,928.63	5,758.64	2,583.21	3,266.96	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:39:01 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J30**

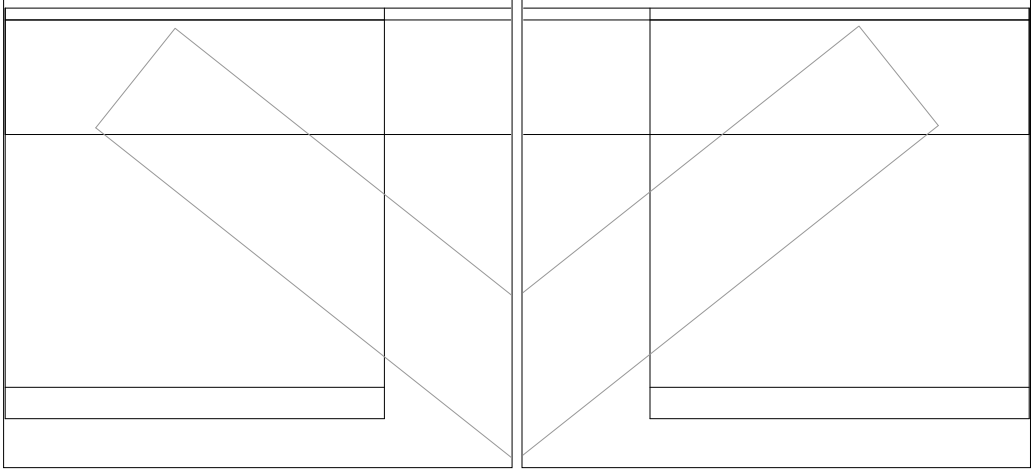
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:39:01 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J30

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

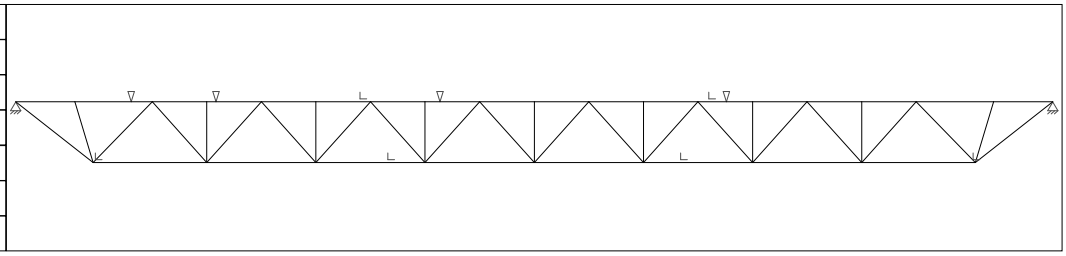
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:39:13 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J31**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
38-4	**38-0**	**28.00**	**26.72**	**8 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	38-4	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	38-4	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	4-4 3/4	4-4 3/4	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	15-8 1/2	15-8 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	26-2 1/2	26-2 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**50.00**	**9,739.90**	**8,644.18**	**2,434.98**	**38,719.94**	**38,536.83**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,243.43	11,650.06	0.00	0.00	15,053.25	10,484.23	43.24	0-2
V1S	8,023.36	11,322.47	0.00	0.00	808.46	1,512.56	27.89	2-4
W3	8,023.36	11,322.47	19,166.65	13,611.93	8,013.39	11,399.16	37.28	3-0
W4	18,132.40	25,332.10	19,166.65	13,611.93	9,372.25	6,764.69	35.91	5-2
W5	18,132.40	25,332.10	29,647.17	21,001.88	4,933.41	7,171.40	35.91	7-2
W6	23,118.63	33,010.08	29,647.17	21,001.88	6,082.60	4,267.82	35.91	9-2
W7	23,118.63	33,010.08	35,645.41	24,707.21	3,633.43	5,005.24	35.91	11-2
W8	25,767.62	37,553.16	35,645.41	24,707.21	4,174.32	3,030.24	35.91	13-2
W9	25,767.62	37,553.16	38,536.83	26,299.86	2,458.25	3,386.37	35.91	15-2
W10	26,303.93	38,719.94	38,536.83	26,299.86	3,273.08	3,168.03	35.91	17-2
W10	26,303.93	38,719.94	37,905.99	25,779.82	3,273.08	3,168.03	35.91	19-2
W9	24,727.54	36,364.46	37,905.99	25,779.82	2,458.25	3,386.37	35.91	21-2
W8	24,727.54	36,364.46	34,095.34	23,147.10	4,174.32	3,030.24	35.91	23-2
W7	21,038.48	30,969.51	34,095.34	23,147.10	3,633.43	5,005.24	35.91	25-2
W6	21,038.48	30,969.51	26,975.76	18,401.69	6,082.60	4,267.82	35.91	27-2
W5	15,236.72	22,254.41	26,975.76	18,401.69	4,933.41	7,171.40	35.91	29-2
W4	15,236.72	22,254.41	16,805.49	11,543.59	9,372.25	6,764.69	35.91	31-2
W3	6,851.30	9,950.06	16,805.49	11,543.59	8,013.39	11,399.16	37.28	33-2
V1S	6,851.30	9,950.06	0.00	0.00	808.46	1,512.56	27.89	36-0
W2	7,071.37	10,253.22	0.00	0.00	15,053.25	10,484.23	43.24	35-4

* Continued on Next Page...

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:39:13 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J31**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,928.66	2,590.56	26.72

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:39:13 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J31

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	628.45	427.88	641.82	17-7 5/8	13-4 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	34.00	24.00	34.00	26.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	11,650.06	11,322.47	38,719.94	9,950.06	10,253.22
fa	7,127.16	6,926.75	22,973.91	6,087.15	6,272.62
Maximum K L/r	66.26	86.65	45.87	86.65	66.26
Fcr	36,271.07	28,878.27	42,869.89	28,878.27	36,271.07
Fa	21,762.64	17,326.96	25,721.93	17,326.96	21,762.64
F'e	159,308.36	93,159.56	332,384.13	93,159.56	159,308.36
Cm	0.9776	0.9628	0.9537	0.9673	0.9803
Panel Point Moment	3,779.06	3,779.06	2,805.13	3,252.53	3,252.53
Mid Panel Moment	1,564.84	2,517.42	1,451.94	1,932.65	1,450.83
Panel Point fb	8,725.88	8,725.88	6,477.05	7,510.11	7,510.11
Mid Panel fb	3,613.23	2,371.34	1,367.69	1,820.49	1,366.63
Fillers	0	0	0	0	0
Panel Point Stress	15,853.04	15,652.63	29,450.97	13,597.26	13,782.72
Mid Panel Stress	0.4406	0.4770	0.9369	0.4099	0.3307

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **43,817.69**
Max Load no Fillers TC: **40,236.91**
TC OAL/Ryy: **351.76**
BC OAL/Ryy: **311.67**
BC Stress: **0.68**
BC L/Rz: **113.5589**
TC Shear Stress: **12,177.49**
BC Shear Stress: **11,979.04**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	15,053.25	25,759.23	10,484.23	11,930.57	5.41 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	8,013.39	28,621.37	11,399.16	12,440.71	4.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	9,372.25	14,381.54	6,764.69	6,943.59	4.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	4,933.41	16,730.22	7,171.40	7,744.46	3.06 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	6,082.60	10,742.43	4,267.82	5,342.55	3.18 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,633.43	10,742.43	5,005.24	5,342.55	2.61 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,174.32	7,826.93	3,030.24	3,573.28	2.76 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,458.25	7,826.93	3,386.37	3,573.28	2.24 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,273.08	7,826.93	3,168.03	3,573.28	2.16 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,273.08	7,826.93	3,168.03	3,573.28	2.16 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,458.25	7,826.93	3,386.37	3,573.28	2.24 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	4,174.32	7,826.93	3,030.24	3,573.28	2.76 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	3,633.43	10,742.43	5,005.24	5,342.55	2.61 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W6	6,082.60	10,742.43	4,267.82	5,342.55	3.18 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	4,933.41	16,730.22	7,171.40	7,744.46	3.06 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W4	9,372.25	14,381.54	6,764.69	6,943.59	4.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	8,013.39	28,621.37	11,399.16	12,440.71	4.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W2	15,053.25	25,759.23	10,484.23	11,930.57	5.41 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	808.46	5,758.64	1,512.56	3,122.41	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,928.66	5,758.64	2,590.56	3,268.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:39:13 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J31**

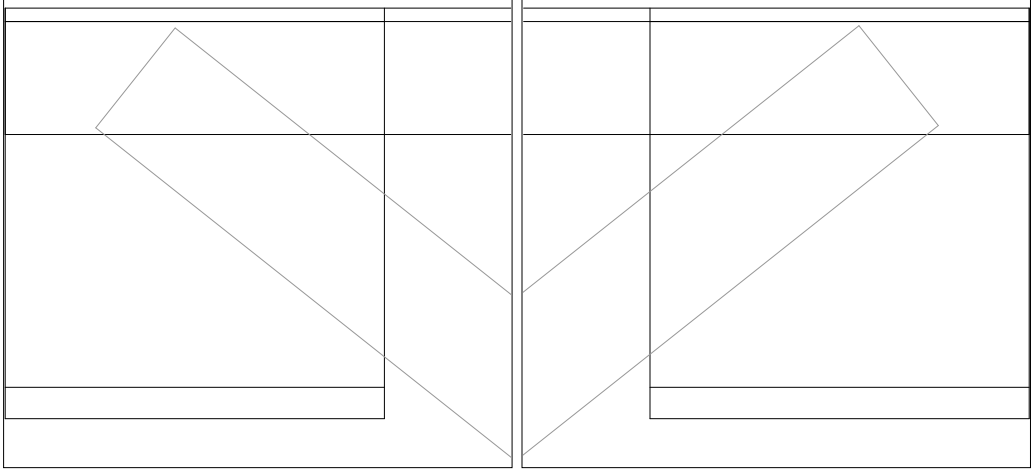
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:39:13 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J31

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

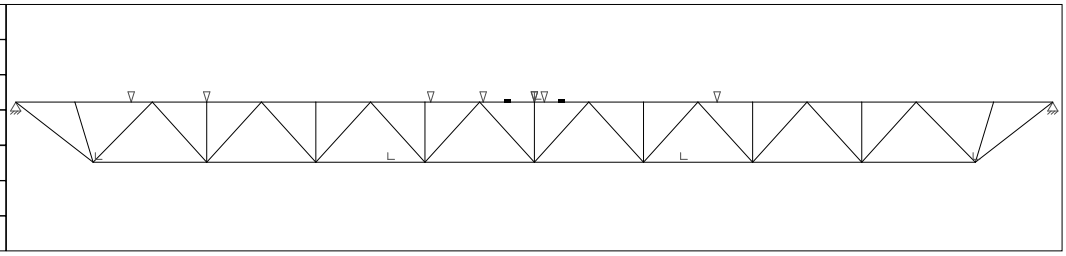
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:39:49 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J32**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
38-4	**38-0**	**28.00**	**26.46**	**8 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	38-4	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	38-4	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Conc Load (lbs)	DL (1)	300.00	0.00	TC	+	4-4 3/4	4-4 3/4	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	7-2	7-2	L-BL
Conc Load (lbs)	DL (1)	300.00	0.00	TC	+	15-4 1/2	15-4 1/2	L-BL
Conc Load (lbs)	SM (1)	3,700.00	0.00	TC	+	17-3 1/2	19-6 1/2	L-BL
Conc Load (lbs)	WL (1)	3,700.00	0.00	TC	+	17-3 1/2	19-6 1/2	L-BL
Conc Load (lbs)	DL (1)	600.00	0.00	TC	+	17-3 1/2	17-3 1/2	L-BL
Conc Load (lbs)	DL (1)	600.00	0.00	TC	+	19-6 1/2	19-6 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	25-10 1/2	25-10 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-2	7-2	L-BL
Conc Load (lbs)	WL (2)	3,700.00	0.00	TC	-	17-3	19-6 1/2	L-BL
Conc Load (lbs)	SM (2)	3,700.00	0.00	TC	-	17-3 1/2	19-6 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**50.00**	**11,661.55**	**10,229.59**	**2,915.39**	**54,654.71**	**53,176.49**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	10,716.98	14,076.16	0.00	0.00	18,321.48	13,881.67	43.08	0-2
V1S	10,494.78	13,763.91	0.00	0.00	2,935.51	2,875.77	27.65	2-4
W3	10,494.78	13,763.91	23,513.21	17,967.97	10,922.49	14,269.62	37.10	3-0
W4	24,221.92	31,466.97	23,513.21	17,967.97	12,185.01	9,559.02	35.72	5-2
V2	24,221.92	31,466.97	23,513.21	17,967.97	4,214.75	4,313.13	26.46	7-2
W5	24,221.92	31,466.97	37,230.50	28,582.19	7,282.50	9,635.19	35.72	7-2
W6	32,409.17	42,310.22	37,230.50	28,582.19	8,617.28	6,488.70	35.72	9-2
V3	32,409.17	42,310.22	37,230.50	28,582.19	2,738.91	2,625.89	26.46	11-2
W7	32,409.17	42,310.22	46,706.10	35,702.88	5,694.89	7,393.34	35.72	11-2
W8	38,463.31	50,418.15	46,706.10	35,702.88	6,085.80	4,901.08	35.72	13-2
V4	38,463.31	50,418.15	46,706.10	35,702.88	2,752.40	2,951.97	26.46	15-2
W9	38,463.31	50,418.15	53,176.49	40,690.46	4,107.27	5,123.81	35.72	15-2
W10	42,384.34	54,654.71	53,176.49	40,690.46	4,317.50	3,313.46	35.72	17-2
V5	42,384.34	54,654.71	53,176.49	40,690.46	4,499.92	5,348.43	26.46	19-2

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:39:49 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J32**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W10	42,384.34	54,654.71	52,103.84	40,189.26	4,317.50	3,313.46	35.72	19-2
W9	37,460.91	48,756.17	52,103.84	40,189.26	4,107.27	5,123.81	35.72	21-2
V6	37,460.91	48,756.17	52,103.84	40,189.26	1,676.42	1,893.48	26.46	23-2
W8	37,460.91	48,756.17	44,724.67	34,199.28	6,085.80	4,901.08	35.72	23-2
W7	30,404.37	39,814.76	44,724.67	34,199.28	5,694.89	7,393.34	35.72	25-2
V7	30,404.37	39,814.76	44,724.67	34,199.28	1,627.87	1,890.97	26.46	27-2
W6	30,404.37	39,814.76	34,114.32	26,076.18	8,617.28	6,488.70	35.72	27-2
W5	21,214.71	27,730.06	34,114.32	26,076.18	7,282.50	9,635.19	35.72	29-2
V8	21,214.71	27,730.06	34,114.32	26,076.18	1,676.42	1,888.46	26.46	31-2
W4	21,214.71	27,730.06	20,661.97	15,819.96	12,185.01	9,559.02	35.72	31-2
W3	9,277.58	12,109.72	20,661.97	15,819.96	10,922.49	14,269.62	37.10	33-2
V1S	9,277.58	12,109.72	0.00	0.00	2,935.51	2,875.77	27.65	36-0
W2	9,499.78	12,394.65	0.00	0.00	18,321.48	13,881.67	43.08	35-4

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:39:49 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J32

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	804.64	547.84	821.76	20-2 1/4	13-10 1/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	34.00	24.00	34.00	26.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	14,076.16	13,763.91	54,654.71	12,109.72	12,394.65
fa	6,933.38	6,779.58	26,920.85	5,964.79	6,105.14
Maximum K L/r	52.70	68.91	24.32	68.91	52.70
Fcr	39,759.50	34,581.39	46,409.20	34,581.39	39,759.50
Fa	23,855.70	20,748.84	27,845.52	20,748.84	23,855.70
F'e	254,173.50	148,634.33	530,312.63	148,634.33	254,173.50
Cm	0.9864	0.9772	0.9660	0.9799	0.9880
Panel Point Moment	3,252.53	3,252.53	1,620.00	3,252.53	3,252.53
Mid Panel Moment	1,450.83	1,932.65	810.00	1,932.65	1,450.83
Panel Point fb	4,795.52	4,795.52	2,388.52	4,795.52	4,795.52
Mid Panel fb	837.33	1,115.40	467.48	1,115.40	837.33
Fillers	0	0	2	0	0
Panel Point Stress	11,728.90	11,575.10	29,309.37	10,760.31	10,900.66
Mid Panel Stress	0.3171	0.3629	0.9819	0.3233	0.2823

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5889**
Max Load Fillers TC: **55,869.97**
Max Load no Fillers TC: **53,023.27**
TC OAL/Ryy: **307.26**
BC OAL/Ryy: **271.45**
BC Stress: **0.68**
BC L/Rz: **84.2176**
TC Shear Stress: **10,997.82**
BC Shear Stress: **8,753.44**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,321.48	28,618.35	13,881.67	14,730.54	6.58 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	2,935.51	5,758.64	2,875.77	3,152.86	2.20 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	10,922.49	28,618.35	14,269.62	15,167.58	5.13 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	12,185.01	24,373.24	9,559.02	11,168.35	4.38 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V2	4,214.75	7,826.93	4,313.13	4,503.12	2.85 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	7,282.50	24,373.24	9,635.19	11,168.35	3.46 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	8,617.28	14,381.54	6,488.70	6,975.98	3.87 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V3	2,738.91	5,758.64	2,625.89	3,300.11	2.05 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	5,694.89	16,730.22	7,393.34	7,781.39	3.15 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W8	6,085.80	10,742.43	4,901.08	5,367.10	3.18 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	2,752.40	5,758.64	2,951.97	3,300.11	2.21 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	4,107.27	10,742.43	5,123.81	5,367.10	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,317.50	7,826.93	3,313.46	3,590.98	2.85 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
V5	4,499.92	10,742.43	5,348.43	6,578.06	2.79 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,317.50	7,826.93	3,313.46	3,590.98	2.85 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	4,107.27	10,742.43	5,123.81	5,367.10	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	1,676.42	5,758.64	1,893.48	3,300.11	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	6,085.80	10,742.43	4,901.08	5,367.10	3.18 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	5,694.89	16,730.22	7,393.34	7,781.39	3.15 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:39:49 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J32**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	1,627.87	5,758.64	1,890.97	3,300.11	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	8,617.28	14,381.54	6,488.70	6,975.98	3.87 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	7,282.50	24,373.24	9,635.19	11,168.35	3.46 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V8	1,676.42	5,758.64	1,888.46	3,300.11	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	12,185.01	24,373.24	9,559.02	11,168.35	4.38 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	10,922.49	28,618.35	14,269.62	15,167.58	5.13 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	2,935.51	5,758.64	2,875.77	3,152.86	2.20 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	18,321.48	28,618.35	13,881.67	14,730.54	6.58 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:39:49 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J32**

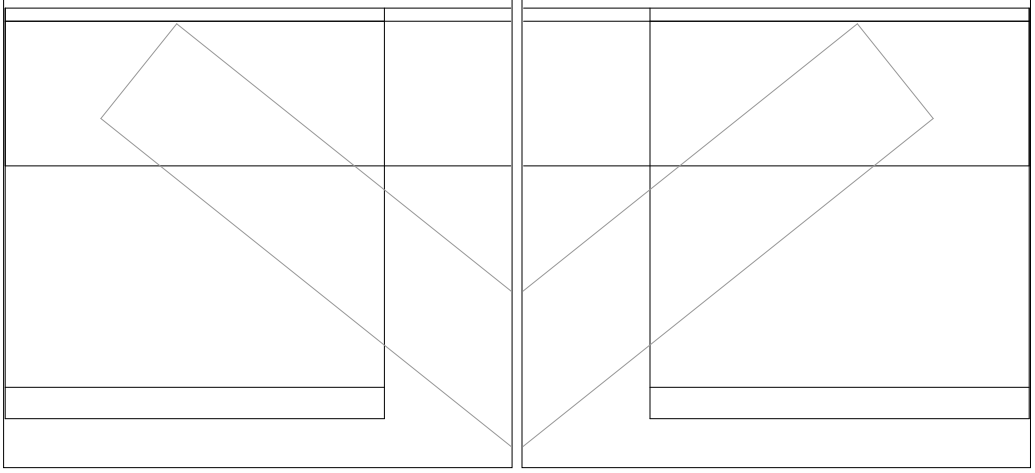
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/2
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/2
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:39:49 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J32

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

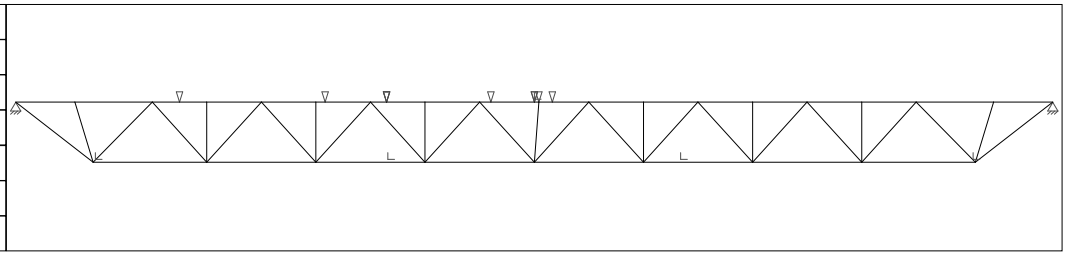
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:40:23 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J33**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
38-4	**38-0**	**28.00**	**26.43**	**8 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	38-4	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	38-4	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	6-2	6-2	L-BL
Conc Load (lbs)	SM (1)	3,700.00	0.00	TC	+	11-6	13-9	L-BL
Conc Load (lbs)	DL (1)	600.00	0.00	TC	+	11-6	11-6	L-BL
Conc Load (lbs)	WL (1)	3,700.00	0.00	TC	+	11-6	13-9	L-BL
Conc Load (lbs)	DL (1)	600.00	0.00	TC	+	13-9	13-9	L-BL
Conc Load (lbs)	WL (1)	3,700.00	0.00	TC	+	17-7	19-10	L-BL
Conc Load (lbs)	DL (1)	600.00	0.00	TC	+	17-7	17-7	L-BL
Conc Load (lbs)	SM (1)	3,700.00	0.00	TC	+	17-7	19-10	L-BL
Conc Load (lbs)	DL (1)	1.00	0.00	TC	+	19-4	19-4	L-OAL
Conc Load (lbs)	DL (1)	600.00	0.00	TC	+	19-10	19-10	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	6-2	6-2	L-BL
Conc Load (lbs)	WL (2)	3,700.00	0.00	TC	-	11-6	13-9	L-BL
Conc Load (lbs)	SM (2)	3,700.00	0.00	TC	-	11-6	13-9	L-BL
Conc Load (lbs)	SM (2)	3,700.00	0.00	TC	-	17-7	19-10	L-BL
Conc Load (lbs)	WL (2)	3,700.00	0.00	TC	-	17-7	19-10	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**50.00**	**13,580.39**	**10,907.27**	**3,395.10**	**62,906.32**	**62,632.60**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	13,839.72	16,592.54	0.00	0.00	21,462.47	18,124.65	43.06	0-2
V1S	13,617.24	16,307.25	0.00	0.00	5,608.56	5,457.45	27.61	2-4
W3	13,617.24	16,307.25	28,068.47	23,477.51	14,572.70	17,155.21	37.07	3-0
W4	31,253.03	37,343.50	28,068.47	23,477.51	14,166.91	12,059.77	35.70	5-2
V2	31,253.03	37,343.50	28,068.47	23,477.51	6,019.91	6,021.39	26.43	7-2
W5	31,253.03	37,343.50	45,179.71	37,813.54	10,252.42	12,026.62	35.70	7-2
W6	43,840.10	52,331.20	45,179.71	37,813.54	11,008.13	9,458.16	35.70	9-2
V3	43,840.10	52,331.20	45,179.71	37,813.54	5,294.46	5,769.20	26.43	11-2
W7	43,840.10	52,331.20	58,295.25	49,332.71	8,433.73	9,246.68	35.70	11-2
W8	51,911.41	61,261.74	58,295.25	49,332.71	7,802.99	7,639.47	35.70	13-2
V4	51,911.41	61,261.74	58,295.25	49,332.71	2,718.33	2,824.85	26.43	15-2

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:40:23 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J33

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W9	51,911.41	61,261.74	62,632.60	52,976.21	5,829.29	7,145.59	35.70	15-2
W10	53,226.35	62,609.10	62,632.60	52,976.21	6,286.25	5,068.13	35.70	17-2
V5	53,226.35	62,609.10	62,632.60	52,976.21	4,431.06	4,969.46	26.50	19-2
W10	53,529.30	62,906.32	59,316.24	50,144.03	6,286.25	5,068.13	35.70	19-2
W9	46,247.05	54,905.45	59,316.24	50,144.03	5,829.29	7,145.59	35.70	21-2
V6	46,247.05	54,905.45	59,316.24	50,144.03	3,009.31	3,204.71	26.43	23-2
W8	46,247.05	54,905.45	49,809.98	41,816.13	7,802.99	7,639.47	35.70	23-2
W7	36,851.24	44,029.80	49,809.98	41,816.13	8,433.73	9,246.68	35.70	25-2
V7	36,851.24	44,029.80	49,809.98	41,816.13	3,009.31	3,202.56	26.43	27-2
W6	36,851.24	44,029.80	37,564.94	31,352.42	11,008.13	9,458.16	35.70	27-2
W5	25,319.63	30,415.39	37,564.94	31,352.42	10,252.42	12,026.62	35.70	29-2
V8	25,319.63	30,415.39	37,564.94	31,352.42	3,009.31	3,200.41	26.43	31-2
W4	25,319.63	30,415.39	22,581.14	18,752.89	14,166.91	12,059.77	35.70	31-2
W3	10,939.96	13,197.76	22,581.14	18,752.89	14,572.70	17,155.21	37.07	33-2
V1S	10,939.96	13,197.76	0.00	0.00	5,608.56	5,457.45	27.61	36-0
W2	11,162.44	13,483.05	0.00	0.00	21,462.47	18,124.65	43.06	35-4

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:40:23 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J33

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.1875	0.7695	0.4915	1.4931	0.7171	0.7031	1.0000	2525 = 2 1/2 x 2 1/2 x 0.250
BC	1.6070	0.9260	0.5907	1.6920	0.8536	1.3780	1.0000	3028 = 3 x 3 x 0.281

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	958.16	652.36	978.54	20-3 3/4	13-7 5/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	34.00	26.00	34.00	26.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	16,592.54	16,307.25	62,906.32	13,197.76	13,483.05
fa	6,986.33	6,866.21	26,361.73	5,556.95	5,677.07
Maximum K L/r	52.90	69.18	39.67	69.18	52.90
Fcr	40,748.39	35,238.30	44,564.24	35,238.30	40,748.39
Fa	24,449.04	21,142.98	26,738.54	21,142.98	24,449.04
F'e	250,708.08	146,607.83	445,703.25	146,607.83	250,708.08
Cm	0.9861	0.9766	0.9604	0.9810	0.9887
Panel Point Moment	2,499.30	5,294.38	1,901.25	3,252.53	3,252.53
Mid Panel Moment	1,701.89	980.04	950.63	1,932.65	1,450.83
Panel Point fb	3,168.82	6,712.67	2,410.57	4,123.83	4,123.83
Mid Panel fb	867.89	499.77	484.78	985.56	739.86
Fillers	0	0	0	0	0
Panel Point Stress	10,155.15	13,578.88	28,772.29	9,680.78	9,800.91
Mid Panel Stress	0.3123	0.3404	1.0012	0.2934	0.2547

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6746**
Max Load Fillers TC: **66,891.86**
Max Load no Fillers TC: **62,751.41**
TC OAL/Ryy: **305.40**
BC OAL/Ryy: **269.50**
BC Stress: **0.65**
BC L/Rz: **84.6453**
TC Shear Stress: **11,036.41**
BC Shear Stress: **8,245.32**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	21,462.47	29,969.07	18,124.65	18,380.94	4.17 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1S	5,608.56	10,742.43	5,457.45	6,425.82	2.93 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W3	14,572.70	23,679.79	17,155.21	17,595.57	3.55 x 0.230	1	WR102015 = Wrapped R100 with 2015
W4	14,166.91	28,621.37	12,059.77	12,970.65	5.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V2	6,019.91	10,742.43	6,021.39	6,582.49	3.14 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	10,252.42	28,621.37	12,026.62	12,970.65	4.32 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	11,008.13	24,373.24	9,458.16	11,175.47	3.95 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	5,294.46	10,742.43	5,769.20	6,582.49	3.01 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	8,433.73	24,373.24	9,246.68	11,175.47	3.32 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	7,802.99	16,730.22	7,639.47	7,786.20	3.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V4	2,718.33	5,758.64	2,824.85	3,304.27	2.11 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	5,829.29	16,730.22	7,145.59	7,786.20	3.05 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W10	6,286.25	10,742.43	5,068.13	5,370.30	3.28 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	4,431.06	10,742.43	4,969.46	6,572.47	2.59 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	6,286.25	10,742.43	5,068.13	5,370.30	3.28 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	5,829.29	16,730.22	7,145.59	7,786.20	3.05 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V6	3,009.31	5,758.64	3,204.71	3,304.27	2.40 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	7,802.99	16,730.22	7,639.47	7,786.20	3.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W7	8,433.73	24,373.24	9,246.68	11,175.47	3.32 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199

* Continued on Next Page...

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:40:23 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J33**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	3,009.31	5,758.64	3,202.56	3,304.27	2.40 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	11,008.13	24,373.24	9,458.16	11,175.47	3.95 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	10,252.42	28,621.37	12,026.62	12,970.65	4.32 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V8	3,009.31	5,758.64	3,200.41	3,304.27	2.39 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	14,166.91	28,621.37	12,059.77	12,970.65	5.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	14,572.70	23,679.79	17,155.21	17,595.57	3.55 x 0.230	1	WR102015 = Wrapped R100 with 2015
V1S	5,608.56	10,742.43	5,457.45	6,425.82	2.93 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W2	21,462.47	29,969.07	18,124.65	18,380.94	4.17 x 0.245	1	WR111513 = Wrapped R112 with 1513

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:40:23 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J33**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

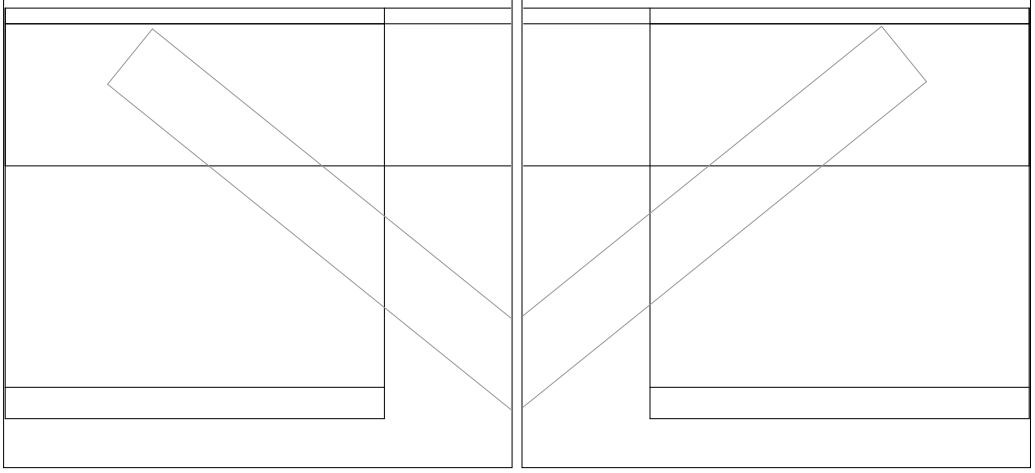
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:40:23 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J33

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

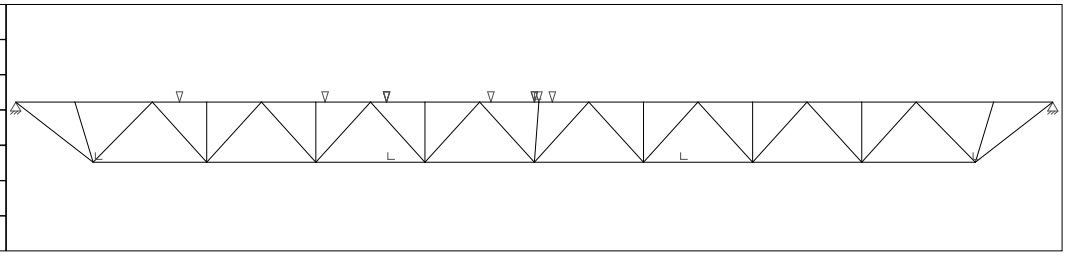
Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:40:40 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J34

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
38-4	38-0	28.00	26.43	8 @ 4-0	1.0220	Parallel Chords	0.0000

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	38-4	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	38-4	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	6-2	6-2	L-BL
Conc Load (lbs)	SM (1)	3,700.00	0.00	TC	+	11-6	13-9	L-BL
Conc Load (lbs)	DL (1)	600.00	0.00	TC	+	11-6	11-6	L-BL
Conc Load (lbs)	WL (1)	3,700.00	0.00	TC	+	11-6	13-9	L-BL
Conc Load (lbs)	DL (1)	600.00	0.00	TC	+	13-9	13-9	L-BL
Conc Load (lbs)	WL (1)	3,700.00	0.00	TC	+	17-7	19-10	L-BL
Conc Load (lbs)	DL (1)	600.00	0.00	TC	+	17-7	17-7	L-BL
Conc Load (lbs)	SM (1)	3,700.00	0.00	TC	+	17-7	19-10	L-BL
Conc Load (lbs)	DL (1)	1.00	0.00	TC	+	19-4	19-4	L-BL
Conc Load (lbs)	DL (1)	600.00	0.00	TC	+	19-10	19-10	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	6-2	6-2	L-BL
Conc Load (lbs)	SM (2)	3,700.00	0.00	TC	-	11-6	13-9	L-BL
Conc Load (lbs)	WL (2)	3,700.00	0.00	TC	-	11-6	13-9	L-BL
Conc Load (lbs)	WL (2)	3,700.00	0.00	TC	-	17-7	19-10	L-BL
Conc Load (lbs)	SM (2)	3,700.00	0.00	TC	-	17-7	19-10	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	50.00	13,580.39	10,907.27	3,395.10	62,906.32	62,632.60

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	13,839.72	16,592.54	0.00	0.00	21,462.47	18,124.65	43.06	0-2
V1S	13,617.24	16,307.25	0.00	0.00	5,608.56	5,457.45	27.61	2-4
W3	13,617.24	16,307.25	28,068.47	23,477.51	14,572.70	17,155.21	37.07	3-0
W4	31,253.03	37,343.50	28,068.47	23,477.51	14,166.91	12,059.77	35.70	5-2
V2	31,253.03	37,343.50	28,068.47	23,477.51	6,019.91	6,021.39	26.43	7-2
W5	31,253.03	37,343.50	45,179.71	37,813.54	10,252.42	12,026.62	35.70	7-2
W6	43,840.10	52,331.20	45,179.71	37,813.54	11,008.13	9,458.16	35.70	9-2
V3	43,840.10	52,331.20	45,179.71	37,813.54	5,294.46	5,769.20	26.43	11-2
W7	43,840.10	52,331.20	58,295.25	49,332.71	8,433.73	9,246.68	35.70	11-2
W8	51,911.41	61,261.74	58,295.25	49,332.71	7,802.99	7,639.47	35.70	13-2
V4	51,911.41	61,261.74	58,295.25	49,332.71	2,718.33	2,824.85	26.43	15-2

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:40:40 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J34**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W9	51,911.41	61,261.74	62,632.60	52,976.21	5,829.29	7,145.59	35.70	15-2
W10	53,226.35	62,609.10	62,632.60	52,976.21	6,286.25	5,068.13	35.70	17-2
V5	53,226.35	62,609.10	62,632.60	52,976.21	4,431.06	4,969.46	26.50	19-2
W10	53,529.30	62,906.32	59,316.24	50,144.03	6,286.25	5,068.13	35.70	19-2
W9	46,247.05	54,905.45	59,316.24	50,144.03	5,829.29	7,145.59	35.70	21-2
V6	46,247.05	54,905.45	59,316.24	50,144.03	3,009.31	3,204.71	26.43	23-2
W8	46,247.05	54,905.45	49,809.98	41,816.13	7,802.99	7,639.47	35.70	23-2
W7	36,851.24	44,029.80	49,809.98	41,816.13	8,433.73	9,246.68	35.70	25-2
V7	36,851.24	44,029.80	49,809.98	41,816.13	3,009.31	3,202.56	26.43	27-2
W6	36,851.24	44,029.80	37,564.94	31,352.42	11,008.13	9,458.16	35.70	27-2
W5	25,319.63	30,415.39	37,564.94	31,352.42	10,252.42	12,026.62	35.70	29-2
V8	25,319.63	30,415.39	37,564.94	31,352.42	3,009.31	3,200.41	26.43	31-2
W4	25,319.63	30,415.39	22,581.14	18,752.89	14,166.91	12,059.77	35.70	31-2
W3	10,939.96	13,197.76	22,581.14	18,752.89	14,572.70	17,155.21	37.07	33-2
V1S	10,939.96	13,197.76	0.00	0.00	5,608.56	5,457.45	27.61	36-0
W2	11,162.44	13,483.05	0.00	0.00	21,462.47	18,124.65	43.06	35-4

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:40:40 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J34

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.1875	0.7695	0.4915	1.4931	0.7171	0.7031	1.0000	2525 = 2 1/2 x 2 1/2 x 0.250
BC	1.6070	0.9260	0.5907	1.6920	0.8536	1.3780	1.0000	3028 = 3 x 3 x 0.281

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	958.16	652.36	978.54	20-3 3/4	13-7 5/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	34.00	26.00	34.00	26.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	16,592.54	16,307.25	62,906.32	13,197.76	13,483.05
fa	6,986.33	6,866.21	26,361.73	5,556.95	5,677.07
Maximum K L/r	52.90	69.18	39.67	69.18	52.90
Fcr	40,748.39	35,238.30	44,564.24	35,238.30	40,748.39
Fa	24,449.04	21,142.98	26,738.54	21,142.98	24,449.04
F'e	250,708.08	146,607.83	445,703.25	146,607.83	250,708.08
Cm	0.9861	0.9766	0.9604	0.9810	0.9887
Panel Point Moment	2,499.30	5,294.38	1,901.25	3,252.53	3,252.53
Mid Panel Moment	1,701.89	980.04	950.63	1,932.65	1,450.83
Panel Point fb	3,168.82	6,712.67	2,410.57	4,123.83	4,123.83
Mid Panel fb	867.89	499.77	484.78	985.56	739.86
Fillers	0	0	0	0	0
Panel Point Stress	10,155.15	13,578.88	28,772.29	9,680.78	9,800.91
Mid Panel Stress	0.3123	0.3404	1.0012	0.2934	0.2547

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6746**
Max Load Fillers TC: **66,891.86**
Max Load no Fillers TC: **62,751.41**
TC OAL/Ryy: **305.40**
BC OAL/Ryy: **269.50**
BC Stress: **0.65**
BC L/Rz: **84.6453**
TC Shear Stress: **11,036.41**
BC Shear Stress: **8,245.32**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	21,462.47	29,969.07	18,124.65	18,380.94	4.17 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1S	5,608.56	10,742.43	5,457.45	6,425.82	2.93 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W3	14,572.70	23,679.79	17,155.21	17,595.57	3.55 x 0.230	1	WR102015 = Wrapped R100 with 2015
W4	14,166.91	28,621.37	12,059.77	12,970.65	5.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V2	6,019.91	10,742.43	6,021.39	6,582.49	3.14 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	10,252.42	28,621.37	12,026.62	12,970.65	4.32 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	11,008.13	24,373.24	9,458.16	11,175.47	3.95 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	5,294.46	10,742.43	5,769.20	6,582.49	3.01 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	8,433.73	24,373.24	9,246.68	11,175.47	3.32 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	7,802.99	16,730.22	7,639.47	7,786.20	3.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V4	2,718.33	5,758.64	2,824.85	3,304.27	2.11 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	5,829.29	16,730.22	7,145.59	7,786.20	3.05 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W10	6,286.25	10,742.43	5,068.13	5,370.30	3.28 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	4,431.06	10,742.43	4,969.46	6,572.47	2.59 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	6,286.25	10,742.43	5,068.13	5,370.30	3.28 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	5,829.29	16,730.22	7,145.59	7,786.20	3.05 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V6	3,009.31	5,758.64	3,204.71	3,304.27	2.40 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	7,802.99	16,730.22	7,639.47	7,786.20	3.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W7	8,433.73	24,373.24	9,246.68	11,175.47	3.32 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199

* Continued on Next Page...

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:40:40 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J34**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	3,009.31	5,758.64	3,202.56	3,304.27	2.40 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	11,008.13	24,373.24	9,458.16	11,175.47	3.95 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	10,252.42	28,621.37	12,026.62	12,970.65	4.32 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V8	3,009.31	5,758.64	3,200.41	3,304.27	2.39 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	14,166.91	28,621.37	12,059.77	12,970.65	5.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	14,572.70	23,679.79	17,155.21	17,595.57	3.55 x 0.230	1	WR102015 = Wrapped R100 with 2015
V1S	5,608.56	10,742.43	5,457.45	6,425.82	2.93 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W2	21,462.47	29,969.07	18,124.65	18,380.94	4.17 x 0.245	1	WR111513 = Wrapped R112 with 1513

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:40:40 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J34**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

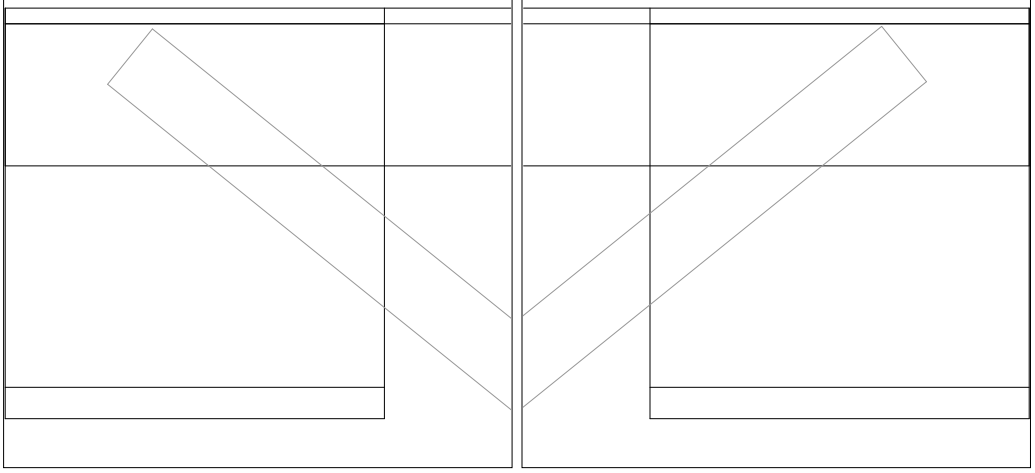
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:40:40 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J34

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

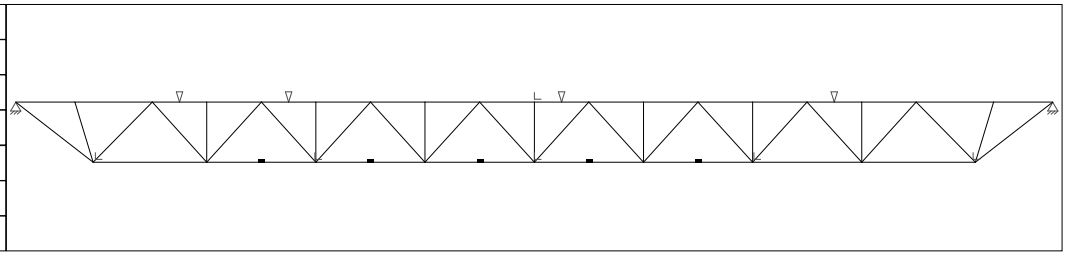
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 11:59:31 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J35**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
38-4	**38-0**	**28.00**	**26.58**	**8 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	38-4	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	38-4	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	6-2	6-2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	10-2	10-2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	20-2	20-2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	30-2	30-2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	6-2	6-2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	10-2	10-2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	20-2	20-2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	30-2	30-2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**50.00**	**11,089.74**	**10,300.26**	**2,772.43**	**47,222.83**	**46,536.39**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	11,079.95	13,623.78	0.00	0.00	17,293.09	14,064.13	43.16	0-2
V1S	10,858.74	13,319.05	0.00	0.00	822.97	1,125.48	27.76	2-4
W3	10,858.74	13,319.05	22,746.86	18,612.70	11,088.96	13,482.73	37.18	3-0
W4	24,451.53	29,888.56	22,746.86	18,612.70	10,656.83	8,712.66	35.81	5-2
W5	24,451.53	29,888.56	35,621.75	29,082.26	6,909.97	8,555.03	35.81	7-2
W6	32,504.92	39,946.41	35,621.75	29,082.26	6,453.23	5,107.28	35.81	9-2
W7	32,504.92	39,946.41	42,862.53	34,719.50	4,261.88	5,308.73	35.81	11-2
W8	36,403.17	45,047.31	42,862.53	34,719.50	4,217.42	3,469.66	35.81	13-2
W9	36,403.17	45,047.31	46,500.75	37,555.94	3,024.95	3,735.31	35.81	15-2
W10	38,177.80	47,222.83	46,500.75	37,555.94	3,735.31	3,024.95	35.81	17-2
W10	38,177.80	47,222.83	46,536.39	37,591.58	3,735.31	3,024.95	35.81	19-2
W9	35,797.28	44,441.43	46,536.39	37,591.58	3,024.95	3,735.31	35.81	21-2
W8	35,797.28	44,441.43	41,615.11	33,472.07	4,217.42	3,469.66	35.81	23-2
W7	30,615.96	38,057.44	41,615.11	33,472.07	4,261.88	5,308.73	35.81	25-2
W6	30,615.96	38,057.44	33,768.43	27,228.94	6,453.23	5,107.28	35.81	27-2
W5	22,633.84	28,070.88	33,768.43	27,228.94	6,909.97	8,555.03	35.81	29-2
W4	22,633.84	28,070.88	20,964.82	16,830.66	10,656.83	8,712.66	35.81	31-2
W3	9,848.91	12,309.22	20,964.82	16,830.66	11,088.96	13,482.73	37.18	33-2

* Continued on Next Page...

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 11:59:31 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J35**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
V1S	9,848.91	12,309.22	0.00	0.00	822.97	1,125.48	27.76	36-0
W2	10,070.12	12,613.95	0.00	0.00	17,293.09	14,064.13	43.16	35-4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,528.89	1,816.82	26.58

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 11:59:31 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J35

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.1875	0.7695	0.4915	1.4931	0.7171	0.7031	1.0000	2525 = 2 1/2 x 2 1/2 x 0.250
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	747.58	508.99	763.48	20-3 3/4	9-9 7/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	34.00	24.00	34.00	26.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	13,623.78	13,319.05	47,222.83	12,309.22	12,613.95
fa	5,736.33	5,608.02	19,883.30	5,182.83	5,311.14
Maximum K L/r	52.90	69.18	36.62	69.18	52.90
Fcr	40,748.39	35,238.30	45,329.46	35,238.30	40,748.39
Fa	24,449.04	21,142.98	27,197.67	21,142.98	24,449.04
F'e	250,708.08	146,607.83	523,082.22	146,607.83	250,708.08
Cm	0.9886	0.9809	0.9745	0.9823	0.9894
Panel Point Moment	2,499.30	5,294.38	6,763.86	3,403.18	3,403.17
Mid Panel Moment	1,701.89	980.04	5,953.86	2,123.17	1,400.62
Panel Point fb	3,168.82	6,712.67	8,575.80	4,314.84	4,314.83
Mid Panel fb	867.89	499.77	3,036.21	1,082.72	714.25
Fillers	0	0	0	0	0
Panel Point Stress	8,905.15	12,320.69	28,459.09	9,497.67	9,625.97
Mid Panel Stress	0.2611	0.2808	0.8247	0.2786	0.2389

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5088**
Max Load Fillers TC: **61,399.02**
Max Load no Fillers TC: **58,154.71**
TC OAL/Ryy: **305.40**
BC OAL/Ryy: **311.67**
BC Stress: **0.82**
BC L/Rz: **113.5589**
TC Shear Stress: **10,253.40**
BC Shear Stress: **13,722.33**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	17,293.09	28,618.35	14,064.13	14,717.31	6.21 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	11,088.96	28,618.35	13,482.73	15,149.55	4.84 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	10,656.83	18,714.09	8,712.66	8,941.48	4.08 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	6,909.97	18,714.09	8,555.03	8,941.48	3.27 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	6,453.23	10,742.43	5,107.28	5,355.77	3.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,261.88	10,742.43	5,308.73	5,355.77	2.77 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,217.42	7,826.93	3,469.66	3,582.81	2.78 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	3,024.95	10,742.43	3,735.31	5,355.77	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,735.31	7,826.93	3,024.95	3,582.81	2.47 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,735.31	7,826.93	3,024.95	3,582.81	2.47 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	3,024.95	10,742.43	3,735.31	5,355.77	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,217.42	7,826.93	3,469.66	3,582.81	2.78 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,261.88	10,742.43	5,308.73	5,355.77	2.77 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W6	6,453.23	10,742.43	5,107.28	5,355.77	3.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	6,909.97	18,714.09	8,555.03	8,941.48	3.27 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W4	10,656.83	18,714.09	8,712.66	8,941.48	4.08 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	11,088.96	28,618.35	13,482.73	15,149.55	4.84 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	17,293.09	28,618.35	14,064.13	14,717.31	6.21 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	822.97	5,758.64	1,125.48	3,138.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,528.89	5,758.64	1,816.82	3,285.37	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 11:59:31 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J35**

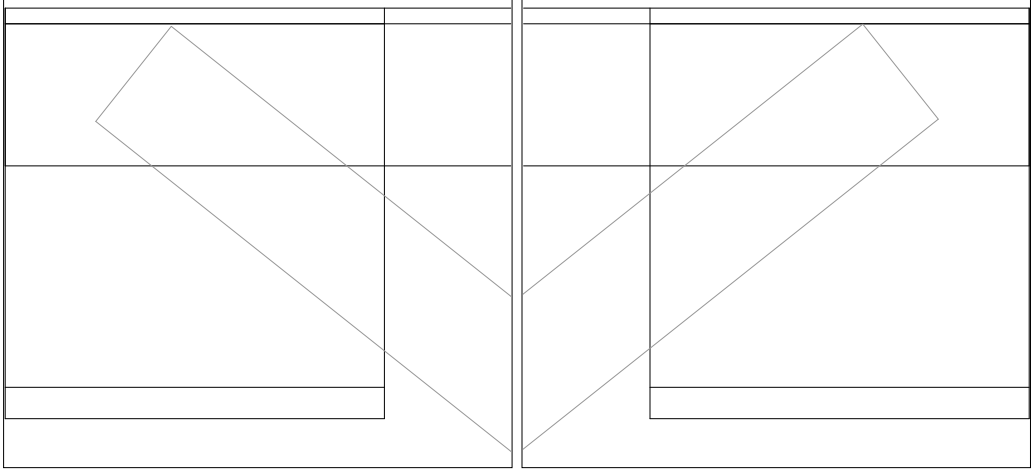
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 3/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 11:59:31 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J35

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

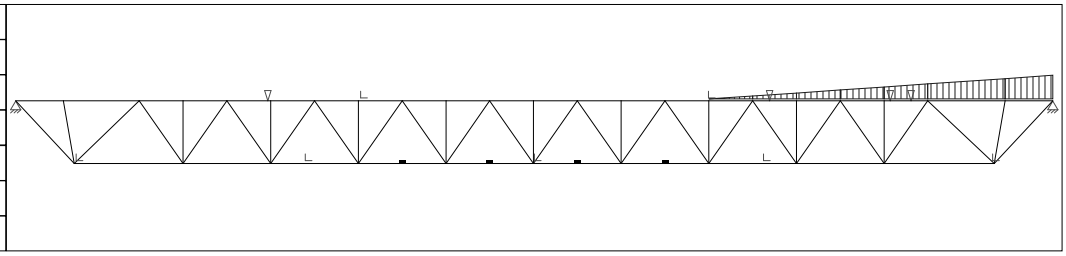
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:53:54 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/289**	**J36**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
47-8	**47-4**	**36.00**	**34.52**	**10 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-10	2-10
TC Panel	2-4	2-4
First Half	2-11 5/8	3-0 3/8
First Diag.	5-9 5/8	5-10 3/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	116.00	116.00	TC	+	0-0	47-8	L-BL
Uniform (plf)	LL (1)	289.00	289.00	TC	+	0-0	47-8	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	11-8	11-8	L-BL
Uniform (plf)	LL (1)	0.00	600.00	TC	+	33-8	47-8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	34-7	34-7	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	40-1	40-1	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	41-0 1/2	41-0 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	11-8	11-8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	34-7	34-7	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	40-1	40-1	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**60.38**	**11,950.60**	**16,928.78**	**4,232.19**	**52,627.95**	**52,862.05**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	7,804.24	10,670.70	0.00	0.00	21,628.87	12,762.01	47.07	0-2
V1S	7,660.26	10,472.36	0.00	0.00	893.53	2,702.47	35.04	2-4
W3	7,660.26	10,472.36	21,174.23	15,493.71	10,908.09	14,902.38	49.61	2-10
W4	20,212.10	27,614.03	21,174.23	15,493.71	12,829.31	9,131.81	42.05	5-9 5/8
V2	20,212.10	27,614.03	21,174.23	15,493.71	689.06	948.07	34.52	7-9 5/8
W5	20,212.10	27,614.03	33,490.71	24,521.71	7,549.96	10,295.29	42.05	7-9 5/8
W6	28,351.95	38,733.69	33,490.71	24,521.71	9,185.09	6,710.13	42.05	9-9 5/8
V3	28,351.95	38,733.69	33,490.71	24,521.71	2,128.20	2,412.34	34.52	11-9 5/8
W7	28,351.95	38,733.69	42,441.36	30,801.21	4,699.84	6,495.41	42.05	11-9 5/8
W8	32,841.70	45,585.92	42,441.36	30,801.21	5,674.50	4,119.27	42.05	13-9 5/8
V4	32,841.70	45,585.92	42,441.36	30,801.21	752.21	1,037.93	34.52	15-9 5/8
W9	32,841.70	45,585.92	48,167.37	34,473.42	3,569.21	5,154.43	42.05	15-9 5/8
W10	35,696.35	50,185.71	48,167.37	34,473.42	5,154.43	3,041.84	42.05	17-9 5/8
V5	35,696.35	50,185.71	48,167.37	34,473.42	766.48	1,060.93	34.52	19-9 5/8
W11	35,696.35	50,185.71	51,640.94	36,510.52	2,946.75	5,154.43	42.05	19-9 5/8
W12	36,915.89	52,533.05	51,640.94	36,510.52	5,154.43	5,154.43	42.05	21-9 5/8
V6	36,915.89	52,533.05	51,640.94	36,510.52	772.58	1,072.67	34.52	23-9 5/8
W12	36,915.89	52,533.05	52,862.05	36,912.50	5,154.43	5,154.43	42.05	23-9 5/8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:53:54 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/289**	**J36**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W11	36,500.33	52,627.95	52,862.05	36,912.50	2,946.75	5,154.43	42.05	25-9 5/8
V7	36,500.33	52,627.95	52,862.05	36,912.50	770.50	1,073.14	34.52	27-9 5/8
W10	36,500.33	52,627.95	51,830.73	35,679.38	5,154.43	3,041.84	42.05	27-9 5/8
W9	34,449.66	50,470.41	51,830.73	35,679.38	3,569.21	5,154.43	42.05	29-9 5/8
V8	34,449.66	50,470.41	51,830.73	35,679.38	760.25	1,081.46	34.52	31-9 5/8
W8	34,449.66	50,470.41	48,533.68	32,811.16	5,674.50	4,119.27	42.05	31-9 5/8
W7	30,128.42	45,292.11	48,533.68	32,811.16	4,699.84	6,495.41	42.05	33-9 5/8
V9	30,128.42	45,292.11	48,533.68	32,811.16	1,324.58	1,928.17	34.52	35-9 5/8
W6	30,128.42	45,292.11	40,867.50	26,629.57	9,185.09	6,710.13	42.05	35-9 5/8
W5	22,721.94	35,560.93	40,867.50	26,629.57	7,549.96	10,295.29	42.05	37-9 5/8
V10	22,721.94	35,560.93	40,867.50	26,629.57	1,990.67	3,078.52	34.52	39-9 5/8
W4	22,721.94	35,560.93	28,237.78	17,509.37	12,829.31	9,131.81	42.05	39-9 5/8
W3	8,530.11	14,253.25	28,237.78	17,509.37	12,379.47	19,280.09	50.15	41-9 5/8
V1S	8,530.11	14,253.25	0.00	0.00	893.53	2,702.47	35.04	45-4
W2	8,675.68	14,703.41	0.00	0.00	21,628.87	12,762.01	47.07	44-10

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:53:54 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/289	J36

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.1875	0.7695	0.4915	1.4931	0.7171	0.7031	1.0000	2525 = 2 1/2 x 2 1/2 x 0.250
BC	1.0162	0.8183	0.4925	1.5555	0.7604	0.6804	0.9652	A42A = 2.625 x 2.625 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,308.02	460.80	691.20	21-0 3/4	11-3 1/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	41.63	24.00	42.38	26.00
Bending Load	405.00	405.00	519.66	854.70	963.59
Axial Load	10,670.70	10,472.36	52,627.95	14,253.25	14,703.41
fa	4,492.92	4,409.42	19,070.36	6,001.37	6,190.91
Maximum K L/r	52.90	84.69	36.62	86.22	52.90
Fcr	40,748.39	29,594.85	45,329.46	29,035.87	40,748.39
Fa	24,449.04	17,756.91	27,197.67	17,421.52	24,449.04
F'e	250,708.08	97,815.24	523,082.22	94,383.39	250,708.08
Cm	0.9910	0.9775	0.9756	0.9682	0.9877
Panel Point Moment	4,375.90	4,375.90	8,047.75	9,610.22	9,610.22
Mid Panel Moment	2,062.21	3,139.90	5,702.68	6,538.39	4,238.90
Panel Point fb	5,548.14	5,548.14	10,203.63	12,184.65	12,184.65
Mid Panel fb	2,614.64	1,601.21	2,908.12	3,334.29	5,374.44
Fillers	0	0	0	0	0
Panel Point Stress	10,041.06	9,957.55	29,273.99	18,186.02	18,375.56
Mid Panel Stress	0.1809	0.2985	0.7907	0.4515	0.4173

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5000
Max Load Fillers TC:	61,699.72
Max Load no Fillers TC:	58,439.07
TC OAL/Ryy:	380.41
BC OAL/Ryy:	365.15
BC Stress:	0.87
BC L/Rz:	122.5888
TC Shear Stress:	12,689.96
BC Shear Stress:	18,399.69

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	21,628.87	28,618.35	12,762.01	14,006.62	6.68 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	893.53	7,826.93	2,702.47	3,655.09	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	10,908.09	29,969.07	14,902.38	17,737.74	2.90 x 0.245	1	WR112015 = Wrapped R112 with 2015
W4	12,829.31	24,373.24	9,131.81	9,394.63	4.61 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V2	689.06	5,758.64	948.07	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	7,549.96	28,621.37	10,295.29	10,885.74	3.70 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	9,185.09	18,714.09	6,710.13	7,575.06	3.51 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V3	2,128.20	7,826.93	2,412.34	3,703.83	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,699.84	16,730.22	6,495.41	6,584.46	2.77 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W8	5,674.50	10,742.43	4,119.27	4,560.17	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	752.21	5,758.64	1,037.93	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	3,569.21	14,381.54	5,154.43	5,917.31	2.31 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	5,154.43	10,742.43	3,041.84	4,560.17	2.69 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	766.48	5,758.64	1,060.93	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	2,946.75	14,381.54	5,154.43	5,917.31	2.31 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	5,154.43	14,381.54	5,154.43	5,917.31	2.31 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V6	772.58	5,758.64	1,072.67	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,154.43	14,381.54	5,154.43	5,917.31	2.31 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W11	2,946.75	14,381.54	5,154.43	5,917.31	2.31 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

* Continued on Next Page...

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:53:54 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/289**	**J36**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	770.50	5,758.64	1,073.14	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	5,154.43	10,742.43	3,041.84	4,560.17	2.69 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,569.21	14,381.54	5,154.43	5,917.31	2.31 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	760.25	5,758.64	1,081.46	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	5,674.50	10,742.43	4,119.27	4,560.17	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,699.84	16,730.22	6,495.41	6,584.46	2.77 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V9	1,324.58	5,758.64	1,928.17	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	9,185.09	18,714.09	6,710.13	7,575.06	3.51 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	7,549.96	28,621.37	10,295.29	10,885.74	3.70 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V10	1,990.67	7,826.93	3,078.52	3,703.83	2.03 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	12,829.31	24,373.24	9,131.81	9,394.63	4.61 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	12,379.47	29,969.07	19,280.09	20,400.70	3.75 x 0.245	1	WR112024 = Wrapped R112 with 2024
V1S	893.53	7,826.93	2,702.47	3,655.09	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W2	21,628.87	28,618.35	12,762.01	14,006.62	6.68 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:53:54 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/289**	**J36**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

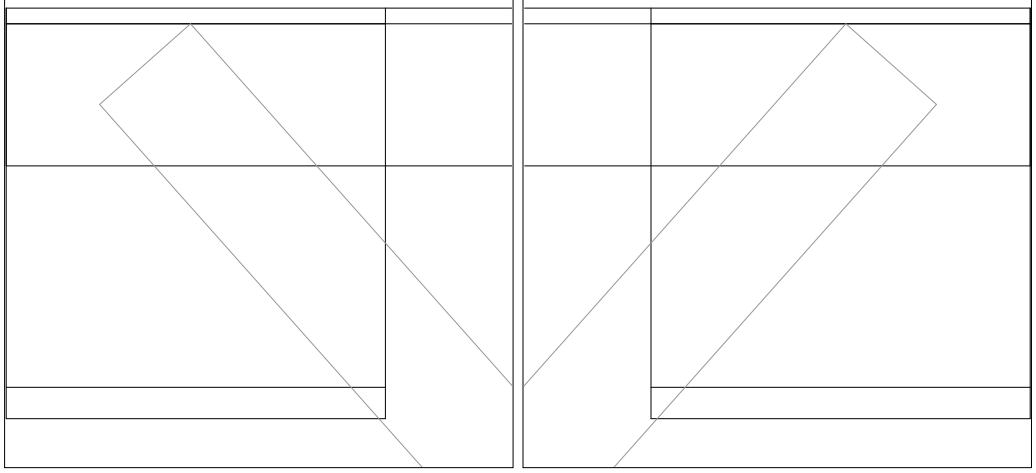
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	289.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	289.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:53:54 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/289	J36

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

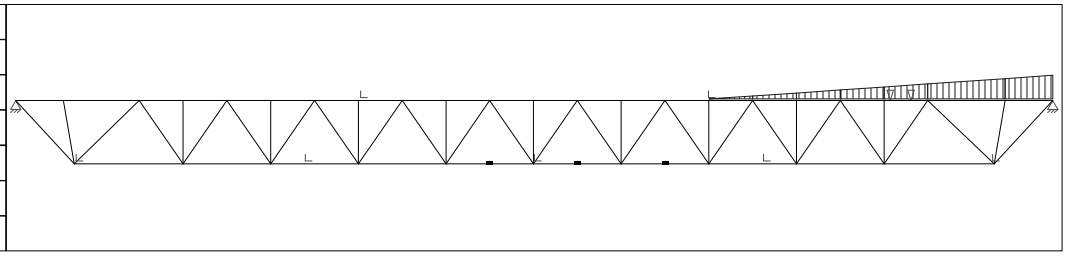
Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:46:08 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J37

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
47-8	47-4	36.00	34.59	10 @ 4-0	1.0220	Parallel Chords	0.0000

Variable	Left End	Right End
BC Panel	2-10	2-10
TC Panel	2-4	2-4
First Half	2-11 5/8	3-0 3/8
First Diag.	5-9 5/8	5-10 3/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	47-8	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	47-8	L-BL
Uniform (plf)	LL (1)	0.00	600.00	TC	+	33-8	47-8	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	40-1	40-1	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	41-0 1/2	41-0 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	40-1	40-1	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	60.38	10,405.70	15,473.67	3,868.42	46,104.06	46,368.82

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,358.91	9,219.38	0.00	0.00	19,625.83	10,767.54	47.13	0-2
V1S	6,215.23	9,021.46	0.00	0.00	886.66	2,695.42	35.11	2-4
W3	6,215.23	9,021.46	18,110.06	12,441.41	8,886.09	12,668.75	49.66	2-10
W4	16,078.18	23,464.64	18,110.06	12,441.41	11,049.60	7,354.62	42.10	5-9 5/8
V2	16,078.18	23,464.64	18,110.06	12,441.41	668.39	927.32	34.59	7-9 5/8
W5	16,078.18	23,464.64	28,257.29	19,307.03	5,901.60	8,408.02	42.10	7-9 5/8
W6	22,127.95	32,488.00	28,257.29	19,307.03	7,422.19	5,283.87	42.10	9-9 5/8
V3	22,127.95	32,488.00	28,257.29	19,307.03	698.64	972.44	34.59	11-9 5/8
W7	22,127.95	32,488.00	36,156.77	24,540.95	4,688.83	6,459.10	42.10	11-9 5/8
W8	26,546.04	39,263.62	36,156.77	24,540.95	5,670.64	4,116.47	42.10	13-9 5/8
V4	26,546.04	39,263.62	36,156.77	24,540.95	720.73	1,006.32	34.59	15-9 5/8
W9	26,546.04	39,263.62	41,808.53	28,143.19	3,566.78	4,913.42	42.10	15-9 5/8
W10	29,332.43	43,791.50	41,808.53	28,143.19	4,708.17	3,039.77	42.10	17-9 5/8
V5	29,332.43	43,791.50	41,808.53	28,143.19	734.66	1,028.96	34.59	19-9 5/8
W11	29,332.43	43,791.50	45,212.54	30,113.74	2,535.44	4,708.17	42.10	19-9 5/8
W12	30,487.13	46,071.66	45,212.54	30,113.74	4,708.17	4,708.17	42.10	21-9 5/8
V6	30,487.13	46,071.66	45,212.54	30,113.74	740.44	1,040.36	34.59	23-9 5/8
W12	30,487.13	46,071.66	46,368.82	30,452.60	4,708.17	4,708.17	42.10	23-9 5/8
W11	30,010.14	46,104.06	46,368.82	30,452.60	2,535.44	4,708.17	42.10	25-9 5/8
V7	30,010.14	46,104.06	46,368.82	30,452.60	738.05	1,040.52	34.59	27-9 5/8
W10	30,010.14	46,104.06	45,277.36	29,159.76	4,708.17	3,039.77	42.10	27-9 5/8
W9	27,901.46	43,888.73	45,277.36	29,159.76	3,566.78	4,913.42	42.10	29-9 5/8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:46:08 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J37**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
V8	27,901.46	43,888.73	45,277.36	29,159.76	727.51	1,048.55	34.59	31-9 5/8
W8	27,901.46	43,888.73	41,924.91	26,235.24	5,670.64	4,116.47	42.10	31-9 5/8
W7	24,161.09	39,293.09	41,924.91	26,235.24	4,688.83	6,459.10	42.10	33-9 5/8
V9	24,161.09	39,293.09	41,924.91	26,235.24	708.81	1,312.24	34.59	35-9 5/8
W6	24,161.09	39,293.09	35,887.20	21,679.03	7,422.19	5,283.87	42.10	35-9 5/8
W5	18,789.04	31,601.19	35,887.20	21,679.03	5,901.60	8,408.02	42.10	37-9 5/8
V10	18,789.04	31,601.19	35,887.20	21,679.03	1,971.01	3,058.72	34.59	39-9 5/8
W4	18,789.04	31,601.19	25,302.82	14,596.84	11,049.60	7,354.62	42.10	39-9 5/8
W3	7,166.32	12,877.50	25,302.82	14,596.84	10,254.43	17,147.46	50.20	41-9 5/8
V1S	7,166.32	12,877.50	0.00	0.00	886.66	2,695.42	35.11	45-4
W2	7,311.59	13,326.72	0.00	0.00	19,625.83	10,767.54	47.13	44-10

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:46:08 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J37

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,175.91	414.26	621.39	20-11 1/4	12-0 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	41.63	24.00	42.38	26.00
Bending Load	405.00	405.00	405.00	854.70	963.59
Axial Load	9,219.38	9,021.46	46,104.06	12,877.50	13,326.72
fa	4,541.12	4,443.63	22,709.12	6,342.97	6,564.24
Maximum K L/r	52.70	84.36	36.48	85.88	52.70
Fcr	39,759.50	29,244.46	44,043.28	28,713.76	39,759.50
Fa	23,855.70	17,546.68	26,425.97	17,228.26	23,855.70
F'e	254,173.50	99,167.30	530,312.63	95,688.02	254,173.50
Cm	0.9911	0.9776	0.9713	0.9669	0.9871
Panel Point Moment	4,375.90	4,375.90	1,620.00	9,871.46	9,871.46
Mid Panel Moment	2,062.21	3,139.89	810.00	6,829.30	4,456.61
Panel Point fb	6,451.81	6,451.81	2,388.52	14,554.46	14,554.45
Mid Panel fb	3,040.51	1,812.15	467.48	3,941.45	6,570.81
Fillers	0	0	0	0	0
Panel Point Stress	10,992.93	10,895.45	25,097.64	20,897.43	21,118.69
Mid Panel Stress	0.2022	0.3119	0.8743	0.4994	0.4827

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5000**

Max Load Fillers TC: **55,869.97**

Max Load no Fillers TC: **53,023.27**

TC OAL/Ryy: **382.73**

BC OAL/Ryy: **388.22**

BC Stress: **0.81**

BC L/Rz: **137.1224**

TC Shear Stress: **13,591.84**

BC Shear Stress: **18,256.20**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,625.83	28,621.37	10,767.54	10,835.26	7.05 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1S	886.66	7,826.93	2,695.42	3,648.40	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	8,886.09	28,597.25	12,668.75	13,878.40	4.55 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	11,049.60	18,714.09	7,354.62	7,562.33	4.23 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V2	668.39	5,758.64	927.32	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	5,901.60	24,373.24	8,408.02	9,378.44	3.02 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	7,422.19	14,381.54	5,283.87	5,907.57	3.33 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V3	698.64	5,758.64	972.44	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	4,688.83	16,730.22	6,459.10	6,573.54	2.75 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W8	5,670.64	10,742.43	4,116.47	4,552.72	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	720.73	5,758.64	1,006.32	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	3,566.78	14,381.54	4,913.42	5,907.57	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	4,708.17	10,742.43	3,039.77	4,552.72	2.46 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	734.66	5,758.64	1,028.96	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	2,535.44	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,708.17	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V6	740.44	5,758.64	1,040.36	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	4,708.17	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W11	2,535.44	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:46:08 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J37**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	738.05	5,758.64	1,040.52	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	4,708.17	10,742.43	3,039.77	4,552.72	2.46 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,566.78	14,381.54	4,913.42	5,907.57	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	727.51	5,758.64	1,048.55	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	5,670.64	10,742.43	4,116.47	4,552.72	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,688.83	16,730.22	6,459.10	6,573.54	2.75 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V9	708.81	5,758.64	1,312.24	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	7,422.19	14,381.54	5,283.87	5,907.57	3.33 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	5,901.60	24,373.24	8,408.02	9,378.44	3.02 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V10	1,971.01	7,826.93	3,058.72	3,697.01	2.02 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	11,049.60	18,714.09	7,354.62	7,562.33	4.23 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	10,254.43	29,969.07	17,147.46	17,516.11	3.33 x 0.245	1	WR112015 = Wrapped R112 with 2015
V1S	886.66	7,826.93	2,695.42	3,648.40	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W2	19,625.83	28,621.37	10,767.54	10,835.26	7.05 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:46:08 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J37**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

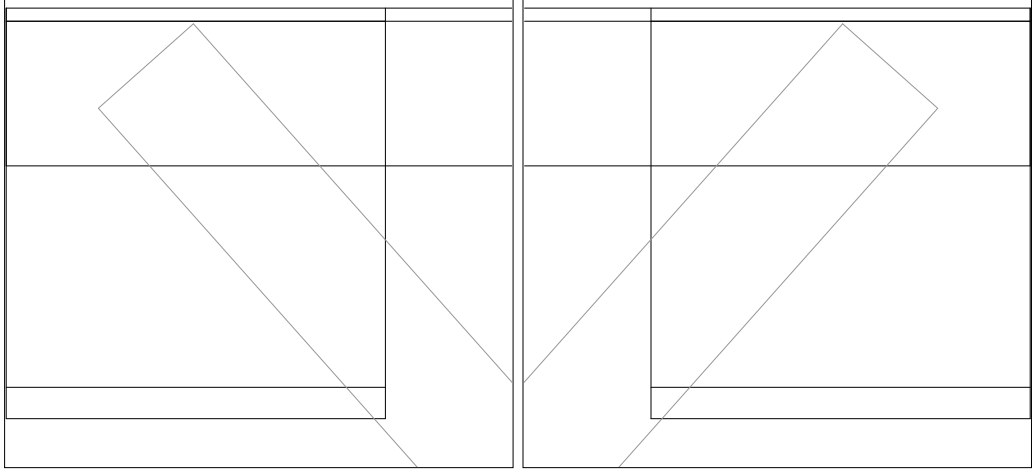
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:46:08 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J37

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

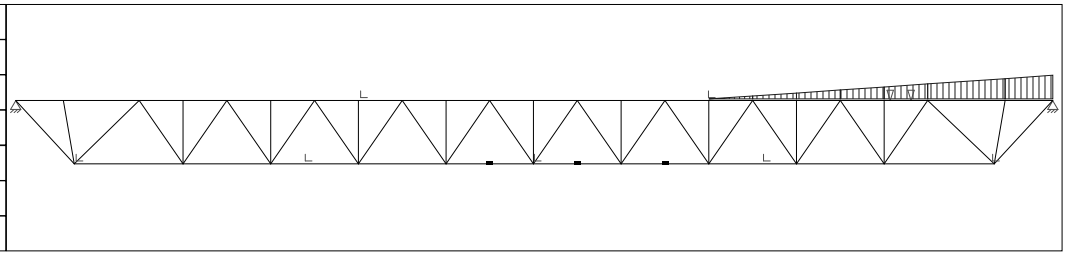
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:46:30 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J38**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
47-8	**47-4**	**36.00**	**34.59**	**10 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-10	2-10
TC Panel	2-4	2-4
First Half	2-11 5/8	3-0 3/8
First Diag.	5-9 5/8	5-10 3/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	47-8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	47-8	L-BL
Uniform (plf)	LL (1)	0.00	600.00	TC	+	33-8	47-8	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	40-1	40-1	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	41-0 1/2	41-0 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	40-1	40-1	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**60.38**	**10,405.70**	**15,473.67**	**3,868.42**	**46,104.06**	**46,368.82**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,358.91	9,219.38	0.00	0.00	19,625.83	10,767.54	47.13	0-2
V1S	6,215.23	9,021.46	0.00	0.00	886.66	2,695.42	35.11	2-4
W3	6,215.23	9,021.46	18,110.06	12,441.41	8,886.09	12,668.75	49.66	2-10
W4	16,078.18	23,464.64	18,110.06	12,441.41	11,049.60	7,354.62	42.10	5-9 5/8
V2	16,078.18	23,464.64	18,110.06	12,441.41	668.39	927.32	34.59	7-9 5/8
W5	16,078.18	23,464.64	28,257.29	19,307.03	5,901.60	8,408.02	42.10	7-9 5/8
W6	22,127.95	32,488.00	28,257.29	19,307.03	7,422.19	5,283.87	42.10	9-9 5/8
V3	22,127.95	32,488.00	28,257.29	19,307.03	698.64	972.44	34.59	11-9 5/8
W7	22,127.95	32,488.00	36,156.77	24,540.95	4,688.83	6,459.10	42.10	11-9 5/8
W8	26,546.04	39,263.62	36,156.77	24,540.95	5,670.64	4,116.47	42.10	13-9 5/8
V4	26,546.04	39,263.62	36,156.77	24,540.95	720.73	1,006.32	34.59	15-9 5/8
W9	26,546.04	39,263.62	41,808.53	28,143.19	3,566.78	4,913.42	42.10	15-9 5/8
W10	29,332.43	43,791.50	41,808.53	28,143.19	4,708.17	3,039.77	42.10	17-9 5/8
V5	29,332.43	43,791.50	41,808.53	28,143.19	734.66	1,028.96	34.59	19-9 5/8
W11	29,332.43	43,791.50	45,212.54	30,113.74	2,535.44	4,708.17	42.10	19-9 5/8
W12	30,487.13	46,071.66	45,212.54	30,113.74	4,708.17	4,708.17	42.10	21-9 5/8
V6	30,487.13	46,071.66	45,212.54	30,113.74	740.44	1,040.36	34.59	23-9 5/8
W12	30,487.13	46,071.66	46,368.82	30,452.60	4,708.17	4,708.17	42.10	23-9 5/8
W11	30,010.14	46,104.06	46,368.82	30,452.60	2,535.44	4,708.17	42.10	25-9 5/8
V7	30,010.14	46,104.06	46,368.82	30,452.60	738.05	1,040.52	34.59	27-9 5/8
W10	30,010.14	46,104.06	45,277.36	29,159.76	4,708.17	3,039.77	42.10	27-9 5/8
W9	27,901.46	43,888.73	45,277.36	29,159.76	3,566.78	4,913.42	42.10	29-9 5/8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:46:30 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J38**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
V8	27,901.46	43,888.73	45,277.36	29,159.76	727.51	1,048.55	34.59	31-9 5/8
W8	27,901.46	43,888.73	41,924.91	26,235.24	5,670.64	4,116.47	42.10	31-9 5/8
W7	24,161.09	39,293.09	41,924.91	26,235.24	4,688.83	6,459.10	42.10	33-9 5/8
V9	24,161.09	39,293.09	41,924.91	26,235.24	708.81	1,312.24	34.59	35-9 5/8
W6	24,161.09	39,293.09	35,887.20	21,679.03	7,422.19	5,283.87	42.10	35-9 5/8
W5	18,789.04	31,601.19	35,887.20	21,679.03	5,901.60	8,408.02	42.10	37-9 5/8
V10	18,789.04	31,601.19	35,887.20	21,679.03	1,971.01	3,058.72	34.59	39-9 5/8
W4	18,789.04	31,601.19	25,302.82	14,596.84	11,049.60	7,354.62	42.10	39-9 5/8
W3	7,166.32	12,877.50	25,302.82	14,596.84	10,254.43	17,147.46	50.20	41-9 5/8
V1S	7,166.32	12,877.50	0.00	0.00	886.66	2,695.42	35.11	45-4
W2	7,311.59	13,326.72	0.00	0.00	19,625.83	10,767.54	47.13	44-10

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:46:30 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J38

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,175.91	414.26	621.39	20-11 1/4	12-0 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	41.63	24.00	42.38	26.00
Bending Load	405.00	405.00	405.00	854.70	963.59
Axial Load	9,219.38	9,021.46	46,104.06	12,877.50	13,326.72
fa	4,541.12	4,443.63	22,709.12	6,342.97	6,564.24
Maximum K L/r	52.70	84.36	36.48	85.88	52.70
Fcr	39,759.50	29,244.46	44,043.28	28,713.76	39,759.50
Fa	23,855.70	17,546.68	26,425.97	17,228.26	23,855.70
F'e	254,173.50	99,167.30	530,312.63	95,688.02	254,173.50
Cm	0.9911	0.9776	0.9713	0.9669	0.9871
Panel Point Moment	4,375.90	4,375.90	1,620.00	9,610.22	9,610.22
Mid Panel Moment	2,062.21	3,139.89	810.00	6,538.39	4,238.90
Panel Point fb	6,451.81	6,451.81	2,388.52	14,169.28	14,169.27
Mid Panel fb	3,040.51	1,812.15	467.48	3,773.55	6,249.82
Fillers	0	0	0	0	0
Panel Point Stress	10,992.93	10,895.45	25,097.64	20,512.25	20,733.51
Mid Panel Stress	0.2022	0.3119	0.8743	0.4938	0.4725

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **55,869.97**
Max Load no Fillers TC: **53,023.27**
TC OAL/Ryy: **382.73**
BC OAL/Ryy: **388.22**
BC Stress: **0.81**
BC L/Rz: **137.1224**
TC Shear Stress: **13,591.84**
BC Shear Stress: **18,256.20**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,625.83	28,621.37	10,767.54	10,835.26	7.05 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1S	886.66	7,826.93	2,695.42	3,648.40	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	8,886.09	28,597.25	12,668.75	13,878.40	4.55 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	11,049.60	18,714.09	7,354.62	7,562.33	4.23 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V2	668.39	5,758.64	927.32	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	5,901.60	24,373.24	8,408.02	9,378.44	3.02 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	7,422.19	14,381.54	5,283.87	5,907.57	3.33 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V3	698.64	5,758.64	972.44	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	4,688.83	16,730.22	6,459.10	6,573.54	2.75 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W8	5,670.64	10,742.43	4,116.47	4,552.72	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	720.73	5,758.64	1,006.32	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	3,566.78	14,381.54	4,913.42	5,907.57	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	4,708.17	10,742.43	3,039.77	4,552.72	2.46 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	734.66	5,758.64	1,028.96	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	2,535.44	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,708.17	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V6	740.44	5,758.64	1,040.36	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	4,708.17	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W11	2,535.44	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:46:30 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J38**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	738.05	5,758.64	1,040.52	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	4,708.17	10,742.43	3,039.77	4,552.72	2.46 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,566.78	14,381.54	4,913.42	5,907.57	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	727.51	5,758.64	1,048.55	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	5,670.64	10,742.43	4,116.47	4,552.72	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,688.83	16,730.22	6,459.10	6,573.54	2.75 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V9	708.81	5,758.64	1,312.24	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	7,422.19	14,381.54	5,283.87	5,907.57	3.33 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	5,901.60	24,373.24	8,408.02	9,378.44	3.02 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V10	1,971.01	7,826.93	3,058.72	3,697.01	2.02 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	11,049.60	18,714.09	7,354.62	7,562.33	4.23 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	10,254.43	29,969.07	17,147.46	17,516.11	3.33 x 0.245	1	WR112015 = Wrapped R112 with 2015
V1S	886.66	7,826.93	2,695.42	3,648.40	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W2	19,625.83	28,621.37	10,767.54	10,835.26	7.05 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:46:30 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J38**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

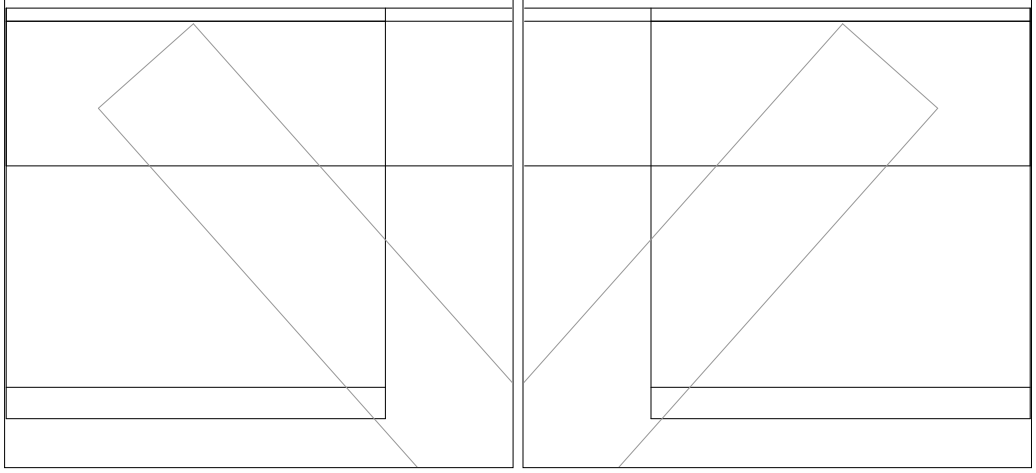
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:46:30 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J38

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

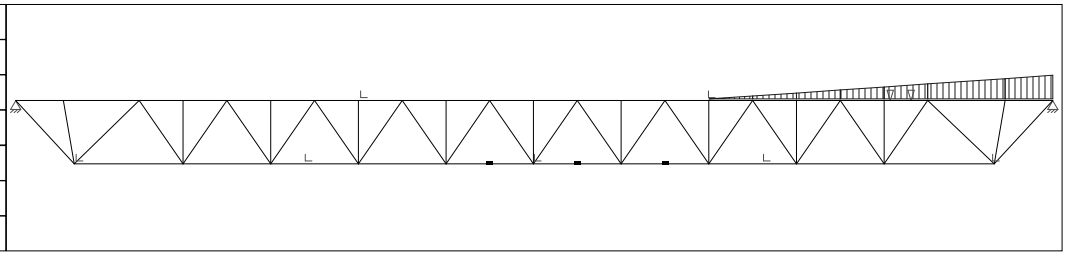
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:46:44 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J39**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
47-8	**47-4**	**36.00**	**34.59**	**10 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-10	2-10
TC Panel	2-4	2-4
First Half	2-11 5/8	3-0 3/8
First Diag.	5-9 5/8	5-10 3/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	47-8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	47-8	L-BL
Uniform (plf)	LL (1)	0.00	600.00	TC	+	33-8	47-8	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	40-1	40-1	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	41-0 1/2	41-0 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	40-1	40-1	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**60.38**	**10,405.70**	**15,473.67**	**3,868.42**	**46,104.06**	**46,368.82**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,358.91	9,219.38	0.00	0.00	19,625.83	10,767.54	47.13	0-2
V1S	6,215.23	9,021.46	0.00	0.00	886.66	2,695.42	35.11	2-4
W3	6,215.23	9,021.46	18,110.06	12,441.41	8,886.09	12,668.75	49.66	2-10
W4	16,078.18	23,464.64	18,110.06	12,441.41	11,049.60	7,354.62	42.10	5-9 5/8
V2	16,078.18	23,464.64	18,110.06	12,441.41	668.39	927.32	34.59	7-9 5/8
W5	16,078.18	23,464.64	28,257.29	19,307.03	5,901.60	8,408.02	42.10	7-9 5/8
W6	22,127.95	32,488.00	28,257.29	19,307.03	7,422.19	5,283.87	42.10	9-9 5/8
V3	22,127.95	32,488.00	28,257.29	19,307.03	698.64	972.44	34.59	11-9 5/8
W7	22,127.95	32,488.00	36,156.77	24,540.95	4,688.83	6,459.10	42.10	11-9 5/8
W8	26,546.04	39,263.62	36,156.77	24,540.95	5,670.64	4,116.47	42.10	13-9 5/8
V4	26,546.04	39,263.62	36,156.77	24,540.95	720.73	1,006.32	34.59	15-9 5/8
W9	26,546.04	39,263.62	41,808.53	28,143.19	3,566.78	4,913.42	42.10	15-9 5/8
W10	29,332.43	43,791.50	41,808.53	28,143.19	4,708.17	3,039.77	42.10	17-9 5/8
V5	29,332.43	43,791.50	41,808.53	28,143.19	734.66	1,028.96	34.59	19-9 5/8
W11	29,332.43	43,791.50	45,212.54	30,113.74	2,535.44	4,708.17	42.10	19-9 5/8
W12	30,487.13	46,071.66	45,212.54	30,113.74	4,708.17	4,708.17	42.10	21-9 5/8
V6	30,487.13	46,071.66	45,212.54	30,113.74	740.44	1,040.36	34.59	23-9 5/8
W12	30,487.13	46,071.66	46,368.82	30,452.60	4,708.17	4,708.17	42.10	23-9 5/8
W11	30,010.14	46,104.06	46,368.82	30,452.60	2,535.44	4,708.17	42.10	25-9 5/8
V7	30,010.14	46,104.06	46,368.82	30,452.60	738.05	1,040.52	34.59	27-9 5/8
W10	30,010.14	46,104.06	45,277.36	29,159.76	4,708.17	3,039.77	42.10	27-9 5/8
W9	27,901.46	43,888.73	45,277.36	29,159.76	3,566.78	4,913.42	42.10	29-9 5/8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:46:44 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J39**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
V8	27,901.46	43,888.73	45,277.36	29,159.76	727.51	1,048.55	34.59	31-9 5/8
W8	27,901.46	43,888.73	41,924.91	26,235.24	5,670.64	4,116.47	42.10	31-9 5/8
W7	24,161.09	39,293.09	41,924.91	26,235.24	4,688.83	6,459.10	42.10	33-9 5/8
V9	24,161.09	39,293.09	41,924.91	26,235.24	708.81	1,312.24	34.59	35-9 5/8
W6	24,161.09	39,293.09	35,887.20	21,679.03	7,422.19	5,283.87	42.10	35-9 5/8
W5	18,789.04	31,601.19	35,887.20	21,679.03	5,901.60	8,408.02	42.10	37-9 5/8
V10	18,789.04	31,601.19	35,887.20	21,679.03	1,971.01	3,058.72	34.59	39-9 5/8
W4	18,789.04	31,601.19	25,302.82	14,596.84	11,049.60	7,354.62	42.10	39-9 5/8
W3	7,166.32	12,877.50	25,302.82	14,596.84	10,254.43	17,147.46	50.20	41-9 5/8
V1S	7,166.32	12,877.50	0.00	0.00	886.66	2,695.42	35.11	45-4
W2	7,311.59	13,326.72	0.00	0.00	19,625.83	10,767.54	47.13	44-10

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:46:44 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J39

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,175.91	414.26	621.39	20-11 1/4	12-0 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	41.63	24.00	42.38	26.00
Bending Load	405.00	405.00	405.00	854.70	963.59
Axial Load	9,219.38	9,021.46	46,104.06	12,877.50	13,326.72
fa	4,541.12	4,443.63	22,709.12	6,342.97	6,564.24
Maximum K L/r	52.70	84.36	36.48	85.88	52.70
Fcr	39,759.50	29,244.46	44,043.28	28,713.76	39,759.50
Fa	23,855.70	17,546.68	26,425.97	17,228.26	23,855.70
F'e	254,173.50	99,167.30	530,312.63	95,688.02	254,173.50
Cm	0.9911	0.9776	0.9713	0.9669	0.9871
Panel Point Moment	4,375.90	4,375.90	1,620.00	9,610.22	9,610.22
Mid Panel Moment	2,062.21	3,139.89	810.00	6,538.39	4,238.90
Panel Point fb	6,451.81	6,451.81	2,388.52	14,169.28	14,169.27
Mid Panel fb	3,040.51	1,812.15	467.48	3,773.55	6,249.82
Fillers	0	0	0	0	0
Panel Point Stress	10,992.93	10,895.45	25,097.64	20,512.25	20,733.51
Mid Panel Stress	0.2022	0.3119	0.8743	0.4938	0.4725

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5000
Max Load Fillers TC:	55,869.97
Max Load no Fillers TC:	53,023.27
TC OAL/Ryy:	382.73
BC OAL/Ryy:	388.22
BC Stress:	0.81
BC L/Rz:	137.1224
TC Shear Stress:	13,591.84
BC Shear Stress:	18,256.20

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,625.83	28,621.37	10,767.54	10,835.26	7.05 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1S	886.66	7,826.93	2,695.42	3,648.40	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	8,886.09	28,597.25	12,668.75	13,878.40	4.55 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	11,049.60	18,714.09	7,354.62	7,562.33	4.23 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V2	668.39	5,758.64	927.32	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	5,901.60	24,373.24	8,408.02	9,378.44	3.02 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	7,422.19	14,381.54	5,283.87	5,907.57	3.33 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V3	698.64	5,758.64	972.44	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	4,688.83	16,730.22	6,459.10	6,573.54	2.75 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W8	5,670.64	10,742.43	4,116.47	4,552.72	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	720.73	5,758.64	1,006.32	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	3,566.78	14,381.54	4,913.42	5,907.57	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	4,708.17	10,742.43	3,039.77	4,552.72	2.46 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	734.66	5,758.64	1,028.96	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	2,535.44	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,708.17	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V6	740.44	5,758.64	1,040.36	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	4,708.17	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W11	2,535.44	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

* Continued on Next Page...

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:46:44 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J39**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	738.05	5,758.64	1,040.52	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	4,708.17	10,742.43	3,039.77	4,552.72	2.46 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,566.78	14,381.54	4,913.42	5,907.57	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	727.51	5,758.64	1,048.55	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	5,670.64	10,742.43	4,116.47	4,552.72	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,688.83	16,730.22	6,459.10	6,573.54	2.75 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V9	708.81	5,758.64	1,312.24	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	7,422.19	14,381.54	5,283.87	5,907.57	3.33 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	5,901.60	24,373.24	8,408.02	9,378.44	3.02 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V10	1,971.01	7,826.93	3,058.72	3,697.01	2.02 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	11,049.60	18,714.09	7,354.62	7,562.33	4.23 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	10,254.43	29,969.07	17,147.46	17,516.11	3.33 x 0.245	1	WR112015 = Wrapped R112 with 2015
V1S	886.66	7,826.93	2,695.42	3,648.40	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W2	19,625.83	28,621.37	10,767.54	10,835.26	7.05 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:46:44 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J39**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

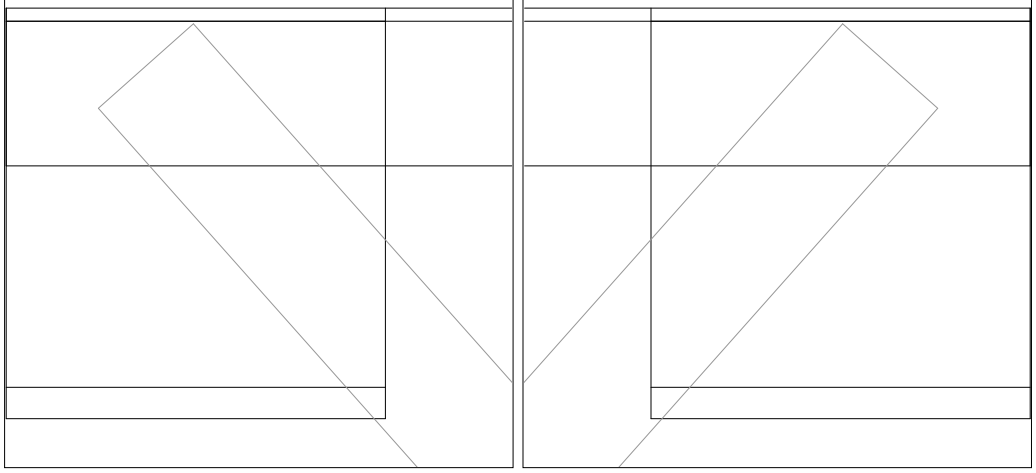
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:46:44 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J39

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

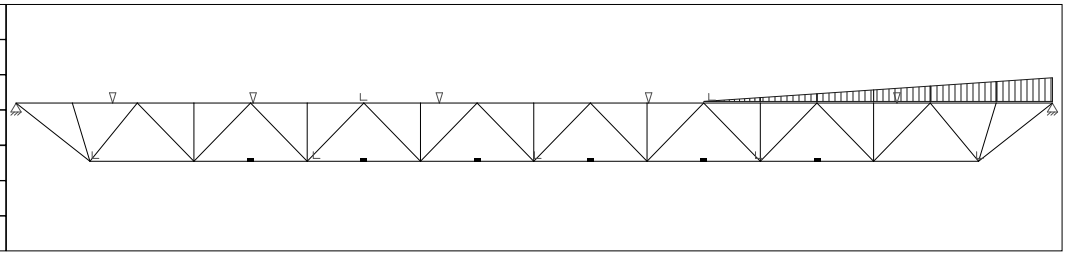
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:25:57 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J4**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
40-0	**39-8**	**28.00**	**26.75**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	1-10 1/4
First Diag.	4-9 3/4	4-10 1/4
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	40-0	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	40-0	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	3-10 1/2	3-10 1/2	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	9-3	9-3	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	16-4 1/2	16-4 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	24-4 1/2	24-4 1/2	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	28-0	40-0	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	33-10 1/2	33-10 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	9-3	9-3	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**11,325.03**	**11,931.17**	**2,982.79**	**44,874.23**	**44,494.80**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,475.36	12,370.05	0.00	0.00	17,744.21	10,784.60	43.26	0-2
V1S	8,271.15	12,054.81	0.00	0.00	1,270.78	2,077.06	27.92	2-4
W3	8,271.15	12,054.81	19,110.94	13,137.68	7,714.67	11,241.32	34.48	3-0
W4	18,291.43	26,450.28	19,110.94	13,137.68	10,591.01	7,394.90	37.31	4-9 3/4
W5	18,291.43	26,450.28	32,936.84	22,826.14	6,506.64	9,367.39	37.31	6-11 3/4
W6	25,354.12	37,182.95	32,936.84	22,826.14	6,560.32	4,762.31	37.31	9-1 3/4
W7	25,354.12	37,182.95	40,506.19	27,192.96	4,043.05	5,569.50	37.31	11-3 3/4
W8	28,412.74	42,976.64	40,506.19	27,192.96	4,628.81	3,360.18	37.31	13-5 3/4
W9	28,412.74	42,976.64	44,400.89	29,013.46	2,713.69	4,159.32	37.31	15-7 3/4
W10	28,995.13	44,874.23	44,400.89	29,013.46	4,159.32	2,435.91	37.31	17-9 3/4
W10	28,995.13	44,874.23	44,494.80	28,357.74	4,159.32	2,435.91	37.31	19-11 3/4
W9	27,101.30	43,262.59	44,494.80	28,357.74	2,713.69	4,159.32	37.31	22-1 3/4
W8	27,101.30	43,262.59	40,894.44	25,225.79	4,628.81	3,360.18	37.31	24-3 3/4
W7	22,731.24	37,643.75	40,894.44	25,225.79	4,043.05	5,569.50	37.31	26-5 3/4
W6	22,731.24	37,643.75	33,369.47	19,617.62	6,560.32	4,762.31	37.31	28-7 3/4
W5	15,884.95	27,900.77	33,369.47	19,617.62	6,506.64	9,367.39	37.31	30-9 3/4
W4	15,884.95	27,900.77	20,895.84	11,533.22	10,591.01	7,394.90	37.31	32-11 3/4
W3	7,236.08	13,369.67	20,895.84	11,533.22	6,720.31	11,770.18	34.80	35-1 3/4
V1S	7,236.08	13,369.67	0.00	0.00	1,270.78	2,077.06	27.92	37-8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:25:57 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J4**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	7,442.12	13,944.76	0.00	0.00	17,744.21	10,784.60	43.26	37-0

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	835.89	1,720.27	26.75

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:25:57 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J4

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.9305	0.6092	0.3912	1.3045	0.5910	0.3453	1.0000	2024 = 2 x 2 x 0.248
BC	0.8084	0.6885	0.4106	1.3990	0.6554	0.3832	1.0000	A38B = 2.219 x 2.219 x 0.199

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	620.70	371.54	557.31	17-7 3/4	10-5 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	30.25	26.00
Bending Load	405.00	405.00	405.00	776.68	864.44
Axial Load	12,370.05	12,054.81	44,874.23	13,369.67	13,944.76
fa	3,754.87	6,477.60	24,112.97	7,184.13	7,493.15
Maximum K L/r	66.46	76.05	49.85	77.33	66.46
Fcr	36,199.60	32,758.53	41,693.68	32,292.35	36,199.60
Fa	21,719.76	19,655.12	25,016.21	19,375.41	21,719.76
F'e	511,143.00	120,017.23	279,349.75	116,082.51	157,134.25
Cm	0.9963	0.9730	0.9422	0.9691	0.9762
Panel Point Moment	20,524.47	3,428.84	1,901.25	5,561.31	5,561.31
Mid Panel Moment	15,888.06	2,600.81	950.63	2,328.75	3,556.96
Panel Point fb	8,301.12	6,995.71	3,879.03	11,346.49	11,346.49
Mid Panel fb	6,425.93	2,225.71	813.52	1,992.89	3,043.97
Fillers	0	0	0	0	0
Panel Point Stress	12,056.00	13,473.31	27,992.00	18,530.62	18,839.65
Mid Panel Stress	0.3025	0.4001	0.9904	0.4346	0.4407

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5000
Max Load Fillers TC:	50,263.56
Max Load no Fillers TC:	45,446.59
TC OAL/Ryy:	364.90
BC OAL/Ryy:	340.23
BC Stress:	0.92
BC L/Rz:	126.6439
TC Shear Stress:	12,761.59
BC Shear Stress:	16,712.19

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	17,744.21	25,759.23	10,784.60	11,924.39	6.37 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	7,714.67	24,373.24	11,241.32	11,528.64	4.04 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	10,591.01	16,730.22	7,394.90	7,475.74	4.51 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	6,506.64	24,373.24	9,367.39	10,715.86	3.36 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	6,560.32	10,742.43	4,762.31	5,163.20	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,043.05	14,381.54	5,569.50	6,707.37	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,628.81	7,826.93	3,360.18	3,444.72	3.06 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,713.69	10,742.43	4,159.32	5,163.20	2.17 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,159.32	7,826.93	2,435.91	3,444.72	2.75 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,159.32	7,826.93	2,435.91	3,444.72	2.75 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,713.69	10,742.43	4,159.32	5,163.20	2.17 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,628.81	7,826.93	3,360.18	3,444.72	3.06 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,043.05	14,381.54	5,569.50	6,707.37	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,560.32	10,742.43	4,762.31	5,163.20	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	6,506.64	24,373.24	9,367.39	10,715.86	3.36 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	10,591.01	16,730.22	7,394.90	7,475.74	4.51 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	6,720.31	28,621.37	11,770.18	13,276.40	4.23 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W2	17,744.21	25,759.23	10,784.60	11,924.39	6.37 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	1,270.78	5,758.64	2,077.06	3,118.25	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	835.89	5,758.64	1,720.27	3,263.87	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:25:57 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J4**

TCX Design

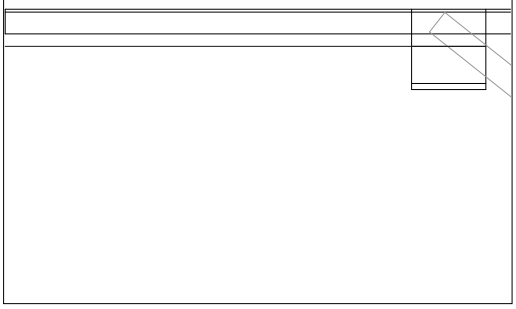
TCX Left	
TCX Length	2-8 7/8
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	5-6
Clear Bearing	0-7 1/4
BPL Material: 2018 = 2 x 2 x 0.188	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-2 1/8
Clear Bearing	0-7 1/4
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

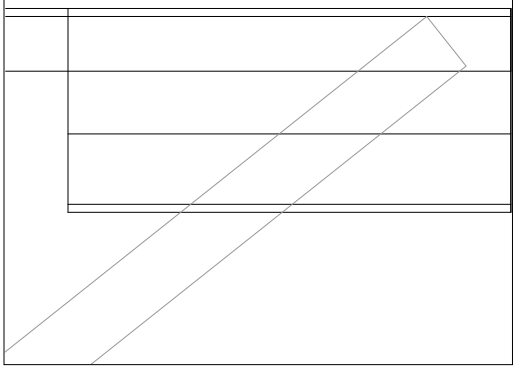
Total Load	405.00
Reqd TL Def L/80	0.41
Live Load	200.00
Reqd LL Def L/120	0.27
Section Modulus	2.4725
Reqd SM	0.6841
Mom of Inertia	3.9771
Reqd MI	0.4936

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:25:57 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J4

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

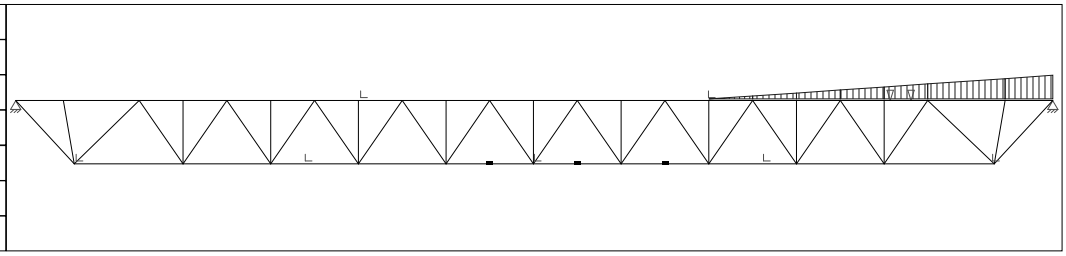
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:47:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J40**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
47-8	**47-4**	**36.00**	**34.59**	**10 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-10	2-10
TC Panel	2-4	2-4
First Half	2-11 5/8	3-0 3/8
First Diag.	5-9 5/8	5-10 3/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	47-8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	47-8	L-BL
Uniform (plf)	LL (1)	0.00	600.00	TC	+	33-8	47-8	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	40-1	40-1	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	41-0 1/2	41-0 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	40-1	40-1	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**60.38**	**10,405.70**	**15,473.67**	**3,868.42**	**46,104.06**	**46,368.82**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,358.91	9,219.38	0.00	0.00	19,625.83	10,767.54	47.13	0-2
V1S	6,215.23	9,021.46	0.00	0.00	886.66	2,695.42	35.11	2-4
W3	6,215.23	9,021.46	18,110.06	12,441.41	8,886.09	12,668.75	49.66	2-10
W4	16,078.18	23,464.64	18,110.06	12,441.41	11,049.60	7,354.62	42.10	5-9 5/8
V2	16,078.18	23,464.64	18,110.06	12,441.41	668.39	927.32	34.59	7-9 5/8
W5	16,078.18	23,464.64	28,257.29	19,307.03	5,901.60	8,408.02	42.10	7-9 5/8
W6	22,127.95	32,488.00	28,257.29	19,307.03	7,422.19	5,283.87	42.10	9-9 5/8
V3	22,127.95	32,488.00	28,257.29	19,307.03	698.64	972.44	34.59	11-9 5/8
W7	22,127.95	32,488.00	36,156.77	24,540.95	4,688.83	6,459.10	42.10	11-9 5/8
W8	26,546.04	39,263.62	36,156.77	24,540.95	5,670.64	4,116.47	42.10	13-9 5/8
V4	26,546.04	39,263.62	36,156.77	24,540.95	720.73	1,006.32	34.59	15-9 5/8
W9	26,546.04	39,263.62	41,808.53	28,143.19	3,566.78	4,913.42	42.10	15-9 5/8
W10	29,332.43	43,791.50	41,808.53	28,143.19	4,708.17	3,039.77	42.10	17-9 5/8
V5	29,332.43	43,791.50	41,808.53	28,143.19	734.66	1,028.96	34.59	19-9 5/8
W11	29,332.43	43,791.50	45,212.54	30,113.74	2,535.44	4,708.17	42.10	19-9 5/8
W12	30,487.13	46,071.66	45,212.54	30,113.74	4,708.17	4,708.17	42.10	21-9 5/8
V6	30,487.13	46,071.66	45,212.54	30,113.74	740.44	1,040.36	34.59	23-9 5/8
W12	30,487.13	46,071.66	46,368.82	30,452.60	4,708.17	4,708.17	42.10	23-9 5/8
W11	30,010.14	46,104.06	46,368.82	30,452.60	2,535.44	4,708.17	42.10	25-9 5/8
V7	30,010.14	46,104.06	46,368.82	30,452.60	738.05	1,040.52	34.59	27-9 5/8
W10	30,010.14	46,104.06	45,277.36	29,159.76	4,708.17	3,039.77	42.10	27-9 5/8
W9	27,901.46	43,888.73	45,277.36	29,159.76	3,566.78	4,913.42	42.10	29-9 5/8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:47:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J40**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
V8	27,901.46	43,888.73	45,277.36	29,159.76	727.51	1,048.55	34.59	31-9 5/8
W8	27,901.46	43,888.73	41,924.91	26,235.24	5,670.64	4,116.47	42.10	31-9 5/8
W7	24,161.09	39,293.09	41,924.91	26,235.24	4,688.83	6,459.10	42.10	33-9 5/8
V9	24,161.09	39,293.09	41,924.91	26,235.24	708.81	1,312.24	34.59	35-9 5/8
W6	24,161.09	39,293.09	35,887.20	21,679.03	7,422.19	5,283.87	42.10	35-9 5/8
W5	18,789.04	31,601.19	35,887.20	21,679.03	5,901.60	8,408.02	42.10	37-9 5/8
V10	18,789.04	31,601.19	35,887.20	21,679.03	1,971.01	3,058.72	34.59	39-9 5/8
W4	18,789.04	31,601.19	25,302.82	14,596.84	11,049.60	7,354.62	42.10	39-9 5/8
W3	7,166.32	12,877.50	25,302.82	14,596.84	10,254.43	17,147.46	50.20	41-9 5/8
V1S	7,166.32	12,877.50	0.00	0.00	886.66	2,695.42	35.11	45-4
W2	7,311.59	13,326.72	0.00	0.00	19,625.83	10,767.54	47.13	44-10

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:47:06 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J40

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,175.91	414.26	621.39	20-11 1/4	12-0 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	41.63	24.00	42.38	26.00
Bending Load	405.00	405.00	405.00	854.70	963.59
Axial Load	9,219.38	9,021.46	46,104.06	12,877.50	13,326.72
fa	4,541.12	4,443.63	22,709.12	6,342.97	6,564.24
Maximum K L/r	52.70	84.36	36.48	85.88	52.70
Fcr	39,759.50	29,244.46	44,043.28	28,713.76	39,759.50
Fa	23,855.70	17,546.68	26,425.97	17,228.26	23,855.70
F'e	254,173.50	99,167.30	530,312.63	95,688.02	254,173.50
Cm	0.9911	0.9776	0.9713	0.9669	0.9871
Panel Point Moment	4,375.90	4,375.90	1,620.00	9,610.22	9,610.22
Mid Panel Moment	2,062.21	3,139.89	810.00	6,538.39	4,238.90
Panel Point fb	6,451.81	6,451.81	2,388.52	14,169.28	14,169.27
Mid Panel fb	3,040.51	1,812.15	467.48	3,773.55	6,249.82
Fillers	0	0	0	0	0
Panel Point Stress	10,992.93	10,895.45	25,097.64	20,512.25	20,733.51
Mid Panel Stress	0.2022	0.3119	0.8743	0.4938	0.4725

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **55,869.97**
Max Load no Fillers TC: **53,023.27**
TC OAL/Ryy: **382.73**
BC OAL/Ryy: **388.22**
BC Stress: **0.81**
BC L/Rz: **137.1224**
TC Shear Stress: **13,591.84**
BC Shear Stress: **18,256.20**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,625.83	28,621.37	10,767.54	10,835.26	7.05 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1S	886.66	7,826.93	2,695.42	3,648.40	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	8,886.09	28,597.25	12,668.75	13,878.40	4.55 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	11,049.60	18,714.09	7,354.62	7,562.33	4.23 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V2	668.39	5,758.64	927.32	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	5,901.60	24,373.24	8,408.02	9,378.44	3.02 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	7,422.19	14,381.54	5,283.87	5,907.57	3.33 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V3	698.64	5,758.64	972.44	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	4,688.83	16,730.22	6,459.10	6,573.54	2.75 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W8	5,670.64	10,742.43	4,116.47	4,552.72	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	720.73	5,758.64	1,006.32	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	3,566.78	14,381.54	4,913.42	5,907.57	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	4,708.17	10,742.43	3,039.77	4,552.72	2.46 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	734.66	5,758.64	1,028.96	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	2,535.44	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,708.17	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V6	740.44	5,758.64	1,040.36	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	4,708.17	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W11	2,535.44	14,381.54	4,708.17	5,907.57	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:47:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J40**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	738.05	5,758.64	1,040.52	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	4,708.17	10,742.43	3,039.77	4,552.72	2.46 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,566.78	14,381.54	4,913.42	5,907.57	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	727.51	5,758.64	1,048.55	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	5,670.64	10,742.43	4,116.47	4,552.72	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,688.83	16,730.22	6,459.10	6,573.54	2.75 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V9	708.81	5,758.64	1,312.24	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	7,422.19	14,381.54	5,283.87	5,907.57	3.33 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	5,901.60	24,373.24	8,408.02	9,378.44	3.02 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V10	1,971.01	7,826.93	3,058.72	3,697.01	2.02 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	11,049.60	18,714.09	7,354.62	7,562.33	4.23 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	10,254.43	29,969.07	17,147.46	17,516.11	3.33 x 0.245	1	WR112015 = Wrapped R112 with 2015
V1S	886.66	7,826.93	2,695.42	3,648.40	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W2	19,625.83	28,621.37	10,767.54	10,835.26	7.05 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:47:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J40**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

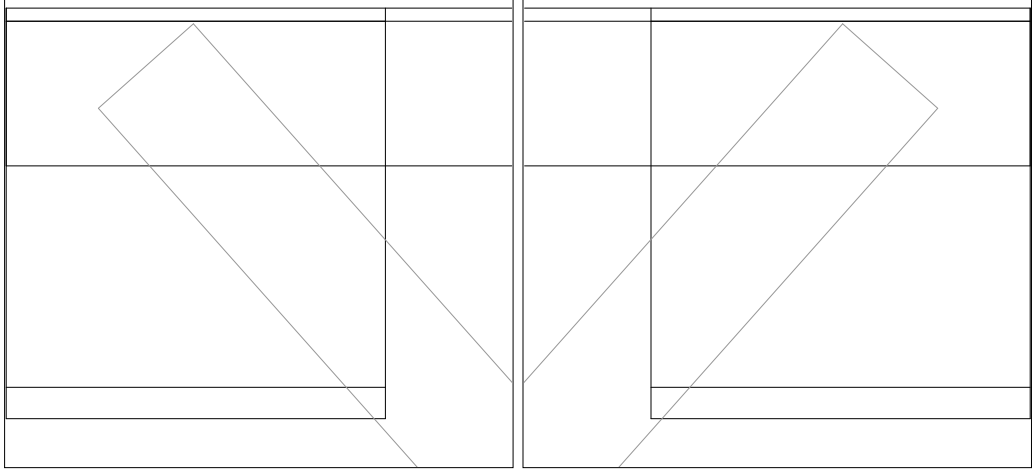
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:47:06 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J40

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

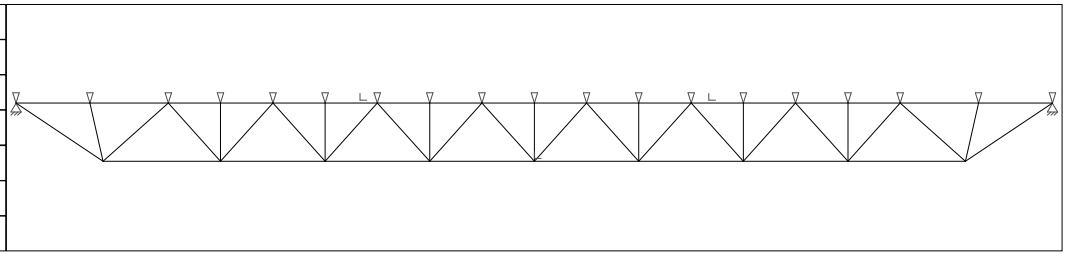
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/1/2024 12:17:42 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH400/200**	**J400**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
40-0	**39-8**	**28.00**	**26.85**	**8 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-6	3-6
TC Panel	3-0	3-0
First Half	2-6	2-6
First Diag.	6-0	6-0
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Conc Load (lbs)	TL	600.00	0.00	TC	+	0-2	0-2	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	3-0	3-0	L-BL
Conc Load (lbs)	TL	1,000.00	0.00	TC	+	6-0	6-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	8-0	8-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	10-0	10-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	12-0	12-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	14-0	14-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	16-0	16-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	18-0	18-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	20-0	20-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	22-0	22-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	24-0	24-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	26-0	26-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	28-0	28-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	30-0	30-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	32-0	32-0	L-BL
Conc Load (lbs)	TL	1,000.00	0.00	TC	+	34-0	34-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	3-0	3-0	R-BL
Conc Load (lbs)	TL	600.00	0.00	TC	+	0-2	0-2	R-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**54.00**	**8,000.00**	**8,000.00**	**2,000.00**	**35,197.21**	**34,839.73**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	0.00	11,022.41	0.00	0.00	13,276.05	0.00	48.18	0-2
V1S	0.00	10,754.29	0.00	0.00	0.00	1,284.70	27.52	3-0
W3	0.00	10,754.29	17,680.53	0.00	0.00	9,295.85	40.26	3-6
W4	0.00	22,327.81	17,680.53	0.00	6,974.04	0.00	36.02	6-0
W5	0.00	22,327.81	26,260.13	0.00	0.00	5,901.11	36.02	8-0
W6	0.00	29,477.48	26,260.13	0.00	4,828.18	0.00	36.02	10-0
W7	0.00	29,477.48	31,979.87	0.00	0.00	3,755.25	36.02	12-0
W8	0.00	33,767.29	31,979.87	0.00	2,682.32	0.00	36.02	14-0
W9	0.00	33,767.29	34,839.73	0.00	0.00	2,682.32	36.02	16-0
W10	0.00	35,197.21	34,839.73	0.00	2,682.32	0.00	36.02	18-0

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/1/2024 12:17:42 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH400/200**	**J400**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W10	0.00	35,197.21	34,839.73	0.00	2,682.32	0.00	36.02	20-0
W9	0.00	33,767.28	34,839.73	0.00	0.00	2,682.32	36.02	22-0
W8	0.00	33,767.28	31,979.86	0.00	2,682.32	0.00	36.02	24-0
W7	0.00	29,477.48	31,979.86	0.00	0.00	3,755.25	36.02	26-0
W6	0.00	29,477.48	26,260.13	0.00	4,828.18	0.00	36.02	28-0
W5	0.00	22,327.81	26,260.13	0.00	0.00	5,901.11	36.02	30-0
W4	0.00	22,327.81	17,680.53	0.00	6,974.04	0.00	36.02	32-0
W3	0.00	10,754.29	17,680.53	0.00	0.00	9,295.85	40.26	34-0
V1S	0.00	10,754.29	0.00	0.00	0.00	1,284.70	27.52	37-0
W2	0.00	11,022.40	0.00	0.00	13,276.05	0.00	48.18	36-6

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	0.00	975.99	26.85

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/1/2024 12:17:42 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH400/200	J400

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.7167	0.6172	0.3938	1.2891	0.5693	0.2730	1.0000	2018 = 2 x 2 x 0.188
BC	0.6209	0.6011	0.3559	1.2877	0.5763	0.2243	1.0000	A34A = 1.938 x 1.938 x 0.176

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	480.83	287.82	431.73	17-5 1/4	25-9

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	34.00	36.00	24.00	36.00	34.00
Bending Load	0.00	0.00	0.00	0.00	0.00
Axial Load	11,022.41	10,754.29	35,197.21	10,754.29	11,022.40
fa	7,689.69	7,502.65	24,555.05	7,502.64	7,689.69
Maximum K L/r	86.34	91.42	45.71	91.42	86.34
Fcr	28,991.00	27,139.15	42,916.73	27,139.15	28,991.00
Fa	17,394.60	16,283.49	25,750.04	16,283.49	17,394.60
F'e	94,317.39	84,128.78	336,515.13	84,128.78	94,317.39
Cm	0.9592	0.9554	0.9511	0.9554	0.9592
Panel Point Moment	0.00	0.00	0.00	0.00	0.00
Mid Panel Moment	0.00	0.00	0.00	0.00	0.00
Panel Point fb	0.00	0.00	0.00	0.00	0.00
Mid Panel fb	0.00	0.00	0.00	0.00	0.00
Fillers	0	0	0	0	0
Panel Point Stress	7,689.69	7,502.65	24,555.05	7,502.64	7,689.69
Mid Panel Stress	0.4421	0.4608	0.9536	0.4608	0.4421

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **40,380.19**
Max Load no Fillers TC: **37,094.62**
TC OAL/Ryy: **369.24**
BC OAL/Ryy: **369.66**
BC Stress: **0.94**
BC L/Rz: **151.7280**
TC Shear Stress: **12,684.19**
BC Shear Stress: **15,259.66**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	13,276.05	15,057.20	0.00	6,371.55	5.66 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	0.00	24,373.24	9,295.85	9,884.83	3.34 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	6,974.04	10,742.43	0.00	5,329.49	3.64 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	0.00	14,381.54	5,901.11	6,926.36	2.65 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	4,828.18	5,758.64	0.00	2,156.03	3.61 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	0.00	10,742.43	3,755.25	5,329.49	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	2,682.32	5,758.64	0.00	2,156.03	2.15 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	0.00	7,826.93	2,682.32	3,563.88	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	2,682.32	5,758.64	0.00	2,156.03	2.15 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	2,682.32	5,758.64	0.00	2,156.03	2.15 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	0.00	7,826.93	2,682.32	3,563.88	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	2,682.32	5,758.64	0.00	2,156.03	2.15 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	0.00	10,742.43	3,755.25	5,329.49	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W6	4,828.18	5,758.64	0.00	2,156.03	3.61 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	0.00	14,381.54	5,901.11	6,926.36	2.65 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W4	6,974.04	10,742.43	0.00	5,329.49	3.64 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W3	0.00	24,373.24	9,295.85	9,884.83	3.34 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W2	13,276.05	15,057.20	0.00	6,371.55	5.66 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V1	0.00	5,758.64	1,284.70	3,168.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	0.00	5,758.64	975.99	3,251.32	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/1/2024 12:17:42 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH400/200**	**J400**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-3 1/4
Clear Bearing	0-8 7/8
BPL Material: 2018 = 2 x 2 x 0.188	

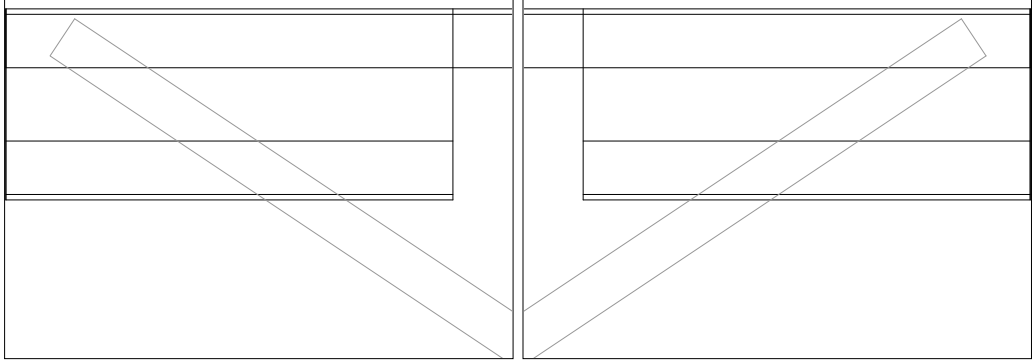
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-3 1/4
Clear Bearing	0-8 7/8
BPL Material: 2018 = 2 x 2 x 0.188	

Total Load	400.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Pegged or Butted

Total Load	400.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/1/2024 12:17:42 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH400/200	J400

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

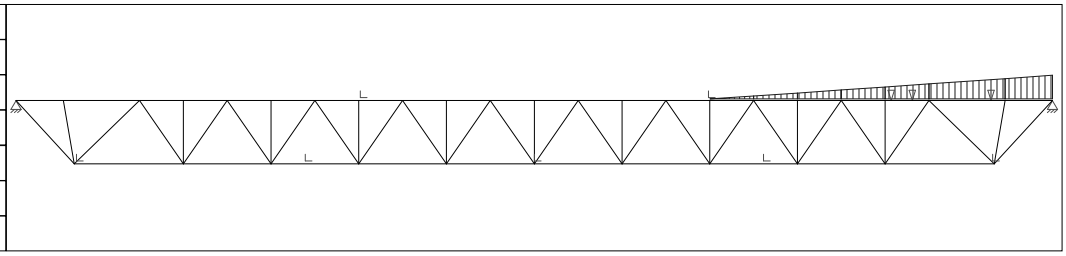
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:41:19 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J41**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
47-7 1/4	**47-3 1/4**	**36.00**	**34.52**	**10 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-10	2-10
TC Panel	2-4	2-4
First Half	2-11 5/8	2-11 5/8
First Diag.	5-9 5/8	5-9 5/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	47-7 1/4	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	47-7 1/4	L-BL
Uniform (plf)	LL (1)	0.00	600.00	TC	+	33-7 1/4	47-7 1/4	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	40-1	40-1	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	41-0 1/2	41-0 1/2	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	44-7 1/2	44-7 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	40-1	40-1	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**59.63**	**10,650.52**	**17,210.33**	**4,296.25**	**48,552.34**	**48,647.46**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,578.47	9,465.61	0.00	0.00	21,978.07	12,494.79	47.07	0-2
V1S	6,434.49	9,267.28	0.00	0.00	883.29	3,088.44	35.04	2-4
W3	6,434.49	9,267.28	18,627.55	12,903.31	11,977.43	18,895.55	49.61	2-10
W4	16,702.38	24,163.54	18,627.55	12,903.31	12,336.73	8,658.60	42.05	5-9 5/8
V2	16,702.38	24,163.54	18,627.55	12,903.31	671.51	930.82	34.52	7-9 5/8
W5	16,702.38	24,163.54	29,136.42	20,092.68	5,939.41	8,711.92	42.05	7-9 5/8
W6	23,074.19	33,546.18	29,136.42	20,092.68	7,725.41	5,276.63	42.05	9-9 5/8
V3	23,074.19	33,546.18	29,136.42	20,092.68	703.37	977.73	34.52	11-9 5/8
W7	23,074.19	33,546.18	37,392.84	25,646.93	4,681.34	6,738.90	42.05	11-9 5/8
W8	27,810.89	40,676.39	37,392.84	25,646.93	5,752.40	4,108.78	42.05	13-9 5/8
V4	27,810.89	40,676.39	37,392.84	25,646.93	727.05	1,013.38	34.52	15-9 5/8
W9	27,810.89	40,676.39	43,396.82	29,566.08	3,558.94	5,232.44	42.05	15-9 5/8
W10	30,912.49	45,554.15	43,396.82	29,566.08	5,232.44	3,031.82	42.05	17-9 5/8
V5	30,912.49	45,554.15	43,396.82	29,566.08	742.56	1,037.77	34.52	19-9 5/8
W11	30,912.49	45,554.15	47,148.37	31,850.12	2,887.08	5,232.44	42.05	19-9 5/8
W12	32,378.97	48,179.47	47,148.37	31,850.12	5,232.44	5,232.44	42.05	21-9 5/8
V6	32,378.97	48,179.47	47,148.37	31,850.12	749.90	1,050.90	34.52	23-9 5/8
W12	32,378.97	48,179.47	48,647.46	32,499.05	5,232.44	5,232.44	42.05	23-9 5/8
W11	32,210.36	48,552.34	48,647.46	32,499.05	2,887.08	5,232.44	42.05	25-9 5/8
V7	32,210.36	48,552.34	48,647.46	32,499.05	749.05	1,052.76	34.52	27-9 5/8
W10	32,210.36	48,552.34	47,894.11	31,512.88	5,232.44	3,031.82	42.05	27-9 5/8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:41:19 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J41**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W9	30,406.63	46,672.77	47,894.11	31,512.88	3,558.94	5,232.44	42.05	29-9 5/8
V8	30,406.63	46,672.77	47,894.11	31,512.88	740.03	1,062.55	34.52	31-9 5/8
W8	30,406.63	46,672.77	44,874.98	28,891.60	5,752.40	4,108.78	42.05	31-9 5/8
W7	26,967.80	42,407.37	44,874.98	28,891.60	4,681.34	6,738.90	42.05	33-9 5/8
V9	26,967.80	42,407.37	44,874.98	28,891.60	722.84	1,329.03	34.52	35-9 5/8
W6	26,967.80	42,407.37	39,163.22	24,635.21	7,725.41	5,276.63	42.05	35-9 5/8
W5	21,893.86	35,035.83	39,163.22	24,635.21	5,939.41	8,711.92	42.05	37-9 5/8
V10	21,893.86	35,035.83	39,163.22	24,635.21	3,275.59	4,444.31	34.52	39-9 5/8
W4	21,893.86	35,035.83	27,994.01	16,951.41	12,336.73	8,658.60	42.05	39-9 5/8
W3	8,350.04	14,424.75	27,994.01	16,951.41	11,977.43	18,895.55	49.61	41-9 5/8
V1S	8,350.04	14,424.75	0.00	0.00	883.29	3,088.44	35.04	45-3 1/4
W2	8,494.02	14,940.80	0.00	0.00	21,978.07	12,494.79	47.07	44-9 1/4

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 2:41:19 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J41

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.1875	0.7695	0.4915	1.4931	0.7171	0.7031	1.0000	2525 = 2 1/2 x 2 1/2 x 0.250
BC	1.0162	0.8183	0.4925	1.5555	0.7604	0.6804	0.9652	A42A = 2.625 x 2.625 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,308.02	462.63	693.95	21-0 3/4	12-8 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	41.63	24.00	41.63	26.00
Bending Load	405.00	405.00	405.00	855.30	963.43
Axial Load	9,465.61	9,267.28	48,552.34	14,424.75	14,940.80
fa	3,985.52	3,902.01	20,443.09	6,073.58	6,290.86
Maximum K L/r	52.90	84.69	36.62	84.69	52.90
Fcr	40,748.39	29,594.85	45,329.46	29,594.85	40,748.39
Fa	24,449.04	17,756.91	27,197.67	17,756.91	24,449.04
F'e	250,708.08	97,815.24	523,082.22	97,815.24	250,708.08
Cm	0.9921	0.9801	0.9738	0.9690	0.9875
Panel Point Moment	4,375.90	4,375.90	1,620.00	11,069.33	11,069.33
Mid Panel Moment	2,062.21	3,139.90	810.00	6,919.50	2,255.50
Panel Point fb	5,548.14	5,548.14	2,053.97	14,034.64	14,034.64
Mid Panel fb	2,614.64	1,601.21	413.06	3,528.64	1,150.20
Fillers	0	0	0	0	0
Panel Point Stress	9,533.66	9,450.15	22,497.06	20,108.22	20,325.50
Mid Panel Stress	0.1703	0.2696	0.7644	0.4551	0.2924

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5231
Max Load Fillers TC:	67,575.98
Max Load no Fillers TC:	63,994.57
TC OAL/Ryy:	379.90
BC OAL/Ryy:	364.67
BC Stress:	0.80
BC L/Rz:	121.0660
TC Shear Stress:	12,894.85
BC Shear Stress:	18,696.76

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	21,978.07	28,618.35	12,494.79	14,006.62	6.79 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	883.29	7,826.93	3,088.44	3,655.09	2.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	11,977.43	29,969.07	18,895.55	20,569.86	3.67 x 0.245	1	WR112024 = Wrapped R112 with 2024
W4	12,336.73	24,373.24	8,658.60	9,394.63	4.43 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V2	671.51	5,758.64	930.82	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	5,939.41	24,373.24	8,711.92	9,394.63	3.13 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	7,725.41	14,381.54	5,276.63	5,917.31	3.47 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V3	703.37	5,758.64	977.73	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	4,681.34	18,714.09	6,738.90	7,575.06	2.58 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W8	5,752.40	10,742.43	4,108.78	4,560.17	3.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	727.05	5,758.64	1,013.38	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	3,558.94	14,381.54	5,232.44	5,917.31	2.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	5,232.44	10,742.43	3,031.82	4,560.17	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	742.56	5,758.64	1,037.77	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	2,887.08	14,381.54	5,232.44	5,917.31	2.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	5,232.44	14,381.54	5,232.44	5,917.31	2.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V6	749.90	5,758.64	1,050.90	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,232.44	14,381.54	5,232.44	5,917.31	2.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W11	2,887.08	14,381.54	5,232.44	5,917.31	2.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:41:19 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J41**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	749.05	5,758.64	1,052.76	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	5,232.44	10,742.43	3,031.82	4,560.17	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,558.94	14,381.54	5,232.44	5,917.31	2.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	740.03	5,758.64	1,062.55	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	5,752.40	10,742.43	4,108.78	4,560.17	3.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,681.34	18,714.09	6,738.90	7,575.06	2.58 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V9	722.84	5,758.64	1,329.03	2,324.27	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	7,725.41	14,381.54	5,276.63	5,917.31	3.47 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	5,939.41	24,373.24	8,711.92	9,394.63	3.13 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V10	3,275.59	10,742.43	4,444.31	5,522.79	2.32 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W4	12,336.73	24,373.24	8,658.60	9,394.63	4.43 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	11,977.43	29,969.07	18,895.55	20,569.86	3.67 x 0.245	1	WR112024 = Wrapped R112 with 2024
V1S	883.29	7,826.93	3,088.44	3,655.09	2.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W2	21,978.07	28,618.35	12,494.79	14,006.62	6.79 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:41:19 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J41**

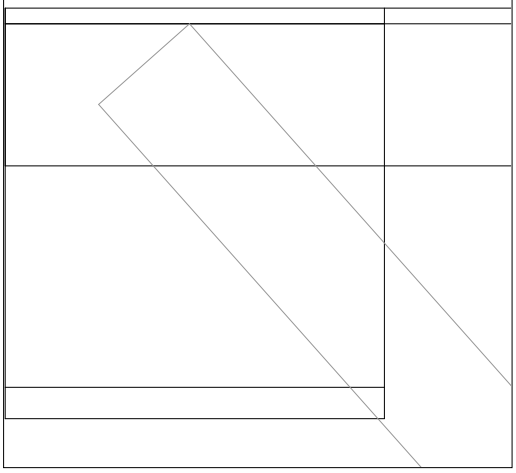
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 3/4
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

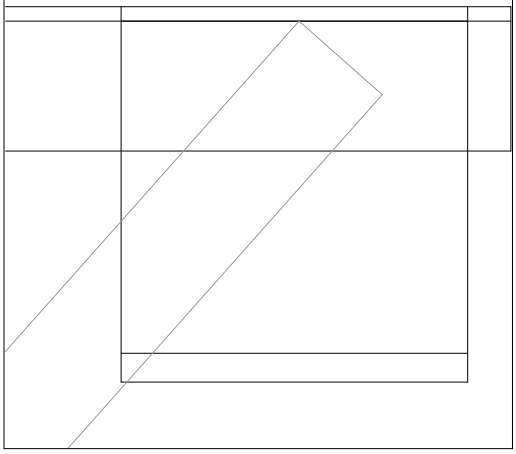
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.7887
Reqd SM	0.0043
Mom of Inertia	1.4062
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 2:41:19 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J41

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

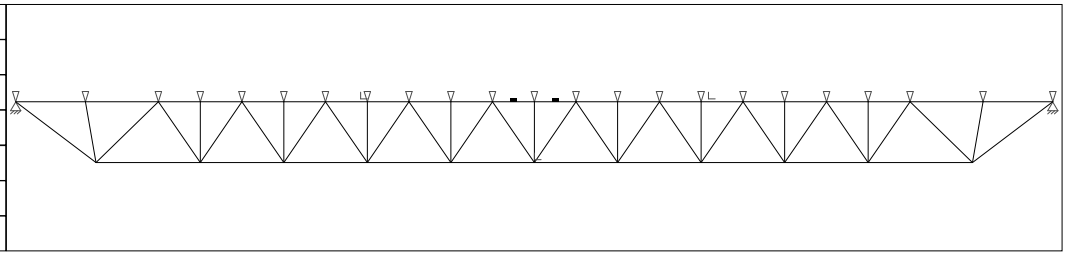
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/1/2024 12:18:01 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH400/200**	**J410**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
50-0	**49-8**	**36.00**	**34.80**	**10 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	4-0	4-0
TC Panel	3-6	3-6
First Half	3-0	3-0
First Diag.	7-0	7-0
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Conc Load (lbs)	TL	700.00	0.00	TC	+	0-2	0-2	L-BL
Conc Load (lbs)	TL	1,400.00	0.00	TC	+	3-6	3-6	L-BL
Conc Load (lbs)	TL	1,100.00	0.00	TC	+	7-0	7-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	9-0	9-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	11-0	11-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	13-0	13-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	15-0	15-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	17-0	17-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	19-0	19-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	21-0	21-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	23-0	23-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	25-0	25-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	27-0	27-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	29-0	29-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	31-0	31-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	33-0	33-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	35-0	35-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	37-0	37-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	39-0	39-0	L-BL
Conc Load (lbs)	TL	800.00	0.00	TC	+	41-0	41-0	L-BL
Conc Load (lbs)	TL	1,100.00	0.00	TC	+	43-0	43-0	L-BL
Conc Load (lbs)	TL	1,400.00	0.00	TC	+	3-6	3-6	R-BL
Conc Load (lbs)	TL	700.00	0.00	TC	+	0-2	0-2	R-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**60.00**	**10,000.00**	**10,000.00**	**2,500.00**	**42,563.34**	**42,287.52**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	0.00	12,291.48	0.00	0.00	15,413.32	0.00	57.68	0-2
V1S	0.00	12,050.13	0.00	0.00	0.00	1,482.11	35.32	3-6
W3	0.00	12,050.13	20,221.46	0.00	0.00	11,365.77	50.07	4-0
W4	0.00	24,910.50	20,221.46	0.00	8,259.97	0.00	42.28	7-0
W5	0.00	24,910.50	29,047.89	0.00	0.00	7,288.21	42.28	9-0
W6	0.00	32,633.62	29,047.89	0.00	6,316.45	0.00	42.28	11-0

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/1/2024 12:18:01 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH400/200**	**J410**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W7	0.00	32,633.62	35,667.70	0.00	0.00	5,344.68	42.28	13-0
W8	0.00	38,150.13	35,667.70	0.00	4,372.92	0.00	42.28	15-0
W9	0.00	38,150.13	40,080.91	0.00	0.00	3,401.16	42.28	17-0
W10	0.00	41,460.04	40,080.91	0.00	3,036.75	0.00	42.28	19-0
W11	0.00	41,460.04	42,287.52	0.00	0.00	3,036.75	42.28	21-0
W12	0.00	42,563.34	42,287.52	0.00	3,036.75	0.00	42.28	23-0
W12	0.00	42,563.34	42,287.51	0.00	3,036.75	0.00	42.28	25-0
W11	0.00	41,460.04	42,287.51	0.00	0.00	3,036.75	42.28	27-0
W10	0.00	41,460.04	40,080.91	0.00	3,036.75	0.00	42.28	29-0
W9	0.00	38,150.13	40,080.91	0.00	0.00	3,401.16	42.28	31-0
W8	0.00	38,150.13	35,667.70	0.00	4,372.92	0.00	42.28	33-0
W7	0.00	32,633.62	35,667.70	0.00	0.00	5,344.68	42.28	35-0
W6	0.00	32,633.62	29,047.88	0.00	6,316.45	0.00	42.28	37-0
W5	0.00	24,910.50	29,047.88	0.00	0.00	7,288.21	42.28	39-0
W4	0.00	24,910.50	20,221.46	0.00	8,259.97	0.00	42.28	41-0
W3	0.00	12,050.13	20,221.46	0.00	0.00	11,365.77	50.07	43-0
V1S	0.00	12,050.13	0.00	0.00	0.00	1,482.11	35.32	46-6
W2	0.00	12,291.48	0.00	0.00	15,413.32	0.00	57.68	46-0

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	0.00	1,012.82	34.80

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/1/2024 12:18:01 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH400/200	J410

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	923.91	281.73	422.60	18-2 1/8	26-10 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	40.00	42.00	24.00	42.00	40.00
Bending Load	0.00	0.00	0.00	0.00	0.00
Axial Load	12,291.48	12,050.13	42,563.34	12,050.13	12,291.48
fa	7,519.56	7,371.92	26,039.00	7,371.91	7,519.56
Maximum K L/r	101.94	107.03	30.58	107.03	101.94
Fcr	23,388.71	21,636.40	46,695.31	21,636.40	23,388.71
Fa	14,033.22	12,981.84	28,017.19	12,981.84	14,033.22
F'e	67,307.78	61,050.14	332,384.13	61,050.14	67,307.78
Cm	0.9441	0.9396	0.9475	0.9396	0.9441
Panel Point Moment	0.00	0.00	0.00	0.00	0.00
Mid Panel Moment	0.00	0.00	0.00	0.00	0.00
Panel Point fb	0.00	0.00	0.00	0.00	0.00
Mid Panel fb	0.00	0.00	0.00	0.00	0.00
Fillers	0	0	2	0	0
Panel Point Stress	7,519.56	7,371.92	26,039.00	7,371.91	7,519.56
Mid Panel Stress	0.5358	0.5679	0.9294	0.5679	0.5358

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5000
Max Load Fillers TC:	46,025.83
Max Load no Fillers TC:	42,255.25
TC OAL/Ryy:	459.75
BC OAL/Ryy:	443.73
BC Stress:	0.99
BC L/Rz:	156.6171
TC Shear Stress:	13,522.53
BC Shear Stress:	16,260.48

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	15,413.32	18,714.09	0.00	5,696.34	5.90 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	0.00	28,618.35	11,365.77	12,432.53	4.08 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	8,259.97	10,742.43	0.00	4,531.07	4.31 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	0.00	18,714.09	7,288.21	7,525.37	2.79 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	6,316.45	7,826.93	0.00	3,000.34	4.17 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	0.00	14,381.54	5,344.68	5,879.31	2.40 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,372.92	5,758.64	0.00	1,565.88	3.27 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	0.00	10,742.43	3,401.16	4,531.07	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,036.75	5,758.64	0.00	1,565.88	2.27 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	0.00	10,742.43	3,036.75	4,531.07	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W12	3,036.75	5,758.64	0.00	1,565.88	2.27 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	3,036.75	5,758.64	0.00	1,565.88	2.27 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	0.00	10,742.43	3,036.75	4,531.07	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,036.75	5,758.64	0.00	1,565.88	2.27 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	0.00	10,742.43	3,401.16	4,531.07	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,372.92	5,758.64	0.00	1,565.88	3.27 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	0.00	14,381.54	5,344.68	5,879.31	2.40 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,316.45	7,826.93	0.00	3,000.34	4.17 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	0.00	18,714.09	7,288.21	7,525.37	2.79 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/1/2024 12:18:01 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH400/200**	**J410**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W4	8,259.97	10,742.43	0.00	4,531.07	4.31 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W3	0.00	28,618.35	11,365.77	12,432.53	4.08 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	15,413.32	18,714.09	0.00	5,696.34	5.90 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V1	0.00	5,758.64	1,482.11	2,233.98	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	0.00	5,758.64	1,012.82	2,292.08	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/1/2024 12:18:01 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH400/200**	**J410**

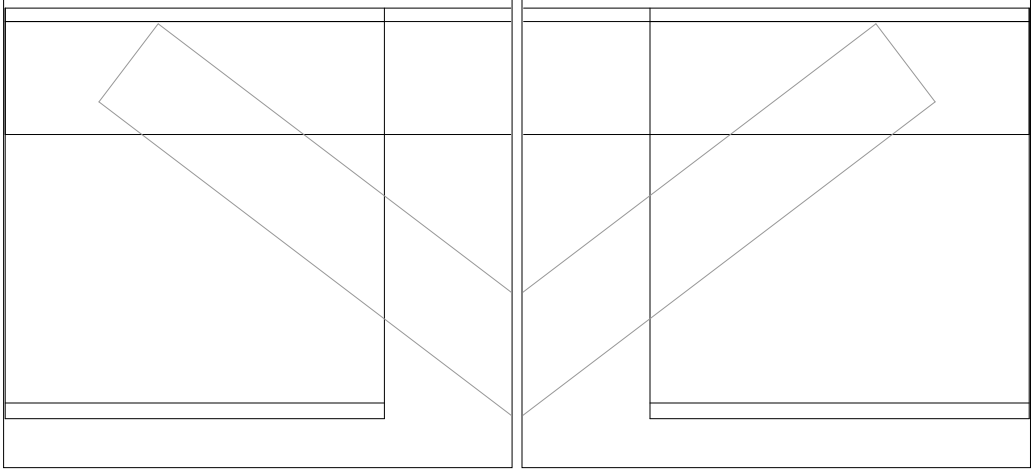
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/8
BPL Material: N/A	

Total Load	400.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.25)	

Total Load	400.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.25)	



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/1/2024 12:18:01 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH400/200	J410

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

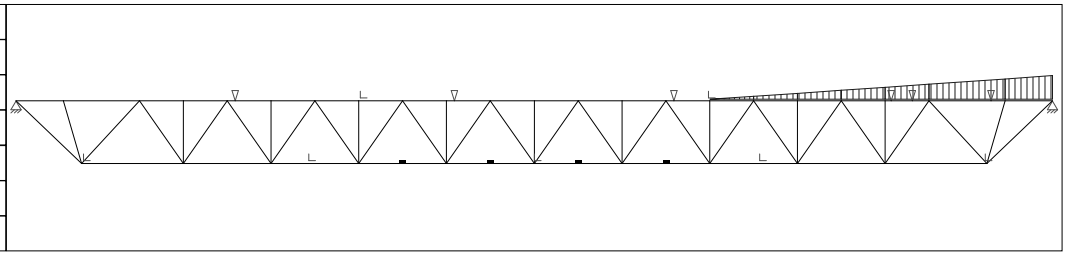
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:56:50 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/289**	**J42**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
47-7 1/4	**47-3 1/4**	**36.00**	**34.34**	**10 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-2	3-2
TC Panel	2-4	2-4
First Half	2-7 5/8	2-7 5/8
First Diag.	5-9 5/8	5-9 5/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	289.00	289.00	TC	+	0-0	47-7 1/4	L-BL
Uniform (plf)	DL (1)	116.00	116.00	TC	+	0-0	47-7 1/4	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	10-2	10-2	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	20-2	20-2	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	30-2	30-2	L-BL
Uniform (plf)	LL (1)	0.00	600.00	TC	+	33-7 1/4	47-7 1/4	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	40-1	40-1	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	41-0 1/2	41-0 1/2	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	44-7 1/2	44-7 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	10-2	10-2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	20-2	20-2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	30-2	30-2	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	40-1	40-1	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**55.63**	**13,246.60**	**19,114.25**	**4,772.23**	**60,818.31**	**61,006.47**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	10,160.64	13,425.61	0.00	0.00	26,109.55	16,033.73	49.75	0-2
V1S	9,919.43	13,093.33	0.00	0.00	920.82	3,187.00	35.77	2-4
W3	9,919.43	13,093.33	23,836.51	18,082.44	13,918.98	20,463.62	46.69	3-2
W4	23,715.51	31,215.56	23,836.51	18,082.44	14,680.47	10,996.08	41.90	5-9 5/8
V2	23,715.51	31,215.56	23,836.51	18,082.44	706.58	966.08	34.34	7-9 5/8
W5	23,715.51	31,215.56	38,028.55	28,937.67	9,116.67	11,893.90	41.90	7-9 5/8
W6	32,891.78	43,418.35	38,028.55	28,937.67	9,409.33	6,902.94	41.90	9-9 5/8
V3	32,891.78	43,418.35	38,028.55	28,937.67	1,025.90	1,300.53	34.34	11-9 5/8
W7	32,891.78	43,418.35	48,051.02	36,243.88	5,852.01	8,087.56	41.90	11-9 5/8
W8	39,185.09	52,117.64	48,051.02	36,243.88	7,099.38	5,134.66	41.90	13-9 5/8
V4	39,185.09	52,117.64	48,051.02	36,243.88	783.93	1,070.59	34.34	15-9 5/8
W9	39,185.09	52,117.64	55,618.23	41,715.39	4,417.31	6,111.19	41.90	15-9 5/8
W10	43,834.78	58,552.76	55,618.23	41,715.39	5,822.03	3,699.96	41.90	17-9 5/8
V5	43,834.78	58,552.76	55,618.23	41,715.39	2,033.74	2,329.33	34.34	19-9 5/8
W11	43,834.78	58,552.76	60,064.10	44,686.12	3,472.68	5,822.03	41.90	19-9 5/8

* Continued on Next Page...

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 7:56:50 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/289	J42

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W12	44,935.46	60,818.31	60,064.10	44,686.12	5,822.03	5,822.03	41.90	21-9 5/8
V6	44,935.46	60,818.31	60,064.10	44,686.12	812.68	1,114.09	34.34	23-9 5/8
W12	44,935.46	60,818.31	61,006.47	44,773.89	5,822.03	5,822.03	41.90	23-9 5/8
W11	44,201.42	60,628.58	61,006.47	44,773.89	3,472.68	5,822.03	41.90	25-9 5/8
V7	44,201.42	60,628.58	61,006.47	44,773.89	809.01	1,113.14	34.34	27-9 5/8
W10	44,201.42	60,628.58	59,684.66	43,218.04	5,822.03	3,699.96	41.90	27-9 5/8
W9	40,966.61	57,317.53	59,684.66	43,218.04	4,417.31	6,111.19	41.90	29-9 5/8
V8	40,966.61	57,317.53	59,684.66	43,218.04	1,066.27	1,389.21	34.34	31-9 5/8
W8	40,966.61	57,317.53	54,179.86	38,113.17	7,099.38	5,134.66	41.90	31-9 5/8
W7	34,848.84	50,368.88	54,179.86	38,113.17	5,852.01	8,087.56	41.90	33-9 5/8
V9	34,848.84	50,368.88	54,179.86	38,113.17	762.24	1,368.84	34.34	35-9 5/8
W6	34,848.84	50,368.88	45,777.32	31,173.59	9,409.33	6,902.94	41.90	35-9 5/8
W5	27,087.44	40,297.91	45,777.32	31,173.59	9,116.67	11,893.90	41.90	37-9 5/8
V10	27,087.44	40,297.91	45,777.32	31,173.59	3,301.56	4,401.28	34.34	39-9 5/8
W4	27,087.44	40,297.91	31,888.89	20,788.73	14,680.47	10,996.08	41.90	39-9 5/8
W3	11,360.12	18,027.20	31,888.89	20,788.73	13,918.98	20,463.62	46.69	41-9 5/8
V1S	11,360.12	18,027.20	0.00	0.00	920.82	3,187.00	35.77	45-3 1/4
W2	11,601.33	18,891.77	0.00	0.00	26,109.55	16,033.73	49.75	44-5 1/4

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
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Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/289	J42

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	1.1207	0.8991	0.5436	1.6512	0.8225	0.9058	0.9280	A44A = 2.875 x 2.875 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,429.13	505.47	758.20	23-8 3/8	10-3 3/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	41.63	24.00	41.63	26.00
Bending Load	405.00	405.00	405.00	855.30	963.43
Axial Load	13,425.61	13,093.33	60,818.31	18,027.20	18,891.77
fa	5,122.32	4,995.55	23,204.24	6,877.98	7,207.85
Maximum K L/r	43.79	70.11	30.32	70.11	43.79
Fcr	40,545.05	33,119.34	43,371.61	33,119.34	40,545.05
Fa	24,327.03	19,871.60	26,022.96	19,871.60	24,327.03
F'e	369,039.41	143,982.91	769,971.19	143,982.91	369,039.41
Cm	0.9931	0.9827	0.9798	0.9761	0.9902
Panel Point Moment	4,375.90	4,375.90	1,620.00	11,069.33	11,069.33
Mid Panel Moment	2,062.21	3,139.90	810.00	6,919.50	2,255.50
Panel Point fb	4,148.73	4,148.73	1,535.90	10,494.69	10,494.69
Mid Panel fb	1,955.15	1,146.23	295.69	2,525.98	823.38
Fillers	0	0	0	0	0
Panel Point Stress	9,271.06	9,144.28	24,740.14	17,372.68	17,702.54
Mid Panel Stress	0.2744	0.2898	0.9015	0.4321	0.3233

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.6553
Max Load Fillers TC:	70,176.56
Max Load no Fillers TC:	67,799.93
TC OAL/Ryy:	337.68
BC OAL/Ryy:	343.54
BC Stress:	0.91
BC L/Rz:	102.3271
TC Shear Stress:	13,232.37
BC Shear Stress:	18,798.42

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	26,109.55	29,969.07	16,033.73	17,682.89	5.07 x 0.245	1	WR112015 = Wrapped R112 with 2015
V1S	920.82	7,826.93	3,187.00	3,586.81	2.10 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	13,918.98	29,969.07	20,463.62	21,474.13	3.98 x 0.245	1	WR112024 = Wrapped R112 with 2024
W4	14,680.47	28,618.35	10,996.08	14,149.00	5.27 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	706.58	5,758.64	966.08	2,344.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	9,116.67	28,618.35	11,893.90	14,149.00	4.27 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	9,409.33	18,714.09	6,902.94	7,606.56	3.60 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V3	1,025.90	5,758.64	1,300.53	2,344.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	5,852.01	24,373.24	8,087.56	9,434.71	2.90 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	7,099.38	14,381.54	5,134.66	5,941.40	3.19 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V4	783.93	5,758.64	1,070.59	2,344.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	4,417.31	16,730.22	6,111.19	6,611.50	2.60 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W10	5,822.03	10,742.43	3,699.96	4,578.62	3.04 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	2,033.74	5,758.64	2,329.33	2,344.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	3,472.68	14,381.54	5,822.03	5,941.40	2.61 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	5,822.03	14,381.54	5,822.03	5,941.40	2.61 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V6	812.68	5,758.64	1,114.09	2,344.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,822.03	14,381.54	5,822.03	5,941.40	2.61 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W11	3,472.68	14,381.54	5,822.03	5,941.40	2.61 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

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NEW MILLENNIUM
A Steel Dynamics Company

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Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/289**	**J42**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	809.01	5,758.64	1,113.14	2,344.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	5,822.03	10,742.43	3,699.96	4,578.62	3.04 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	4,417.31	16,730.22	6,111.19	6,611.50	2.60 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V8	1,066.27	5,758.64	1,389.21	2,344.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	7,099.38	14,381.54	5,134.66	5,941.40	3.19 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	5,852.01	24,373.24	8,087.56	9,434.71	2.90 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V9	762.24	5,758.64	1,368.84	2,344.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	9,409.33	18,714.09	6,902.94	7,606.56	3.60 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	9,116.67	28,618.35	11,893.90	14,149.00	4.27 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V10	3,301.56	10,742.43	4,401.28	5,546.00	2.30 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W4	14,680.47	28,618.35	10,996.08	14,149.00	5.27 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	13,918.98	29,969.07	20,463.62	21,474.13	3.98 x 0.245	1	WR112024 = Wrapped R112 with 2024
V1S	920.82	7,826.93	3,187.00	3,586.81	2.10 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W2	26,109.55	29,969.07	16,033.73	17,682.89	5.07 x 0.245	1	WR112015 = Wrapped R112 with 2015

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 7:56:50 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/289**	**J42**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7
BPL Material: N/A	

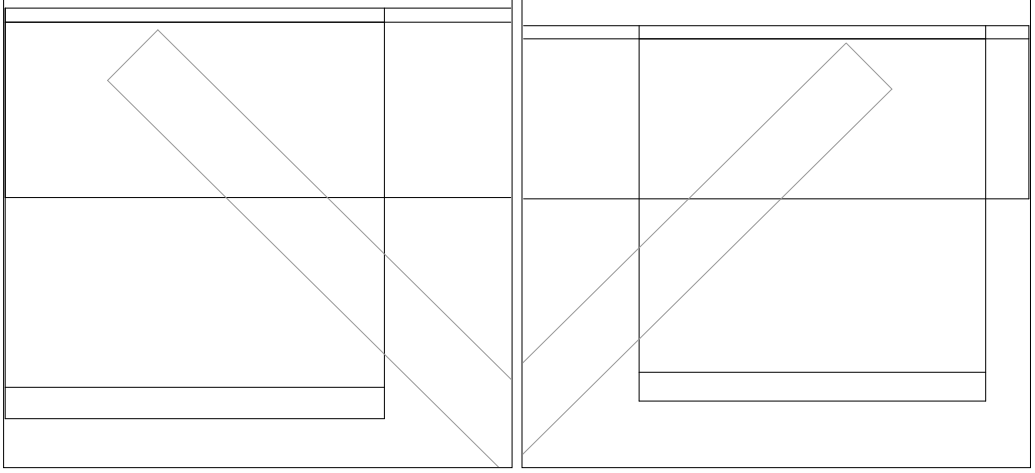
TCX Right	
TCX Length	0-0 3/4
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	289.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	289.00
Reqd LL Def L/120	0.01
Section Modulus	1.0548
Reqd SM	0.0043
Mom of Inertia	2.2846
Reqd MI	0.0003

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

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Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/289	J42

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

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NEW MILLENNIUM
A Steel Dynamics Company

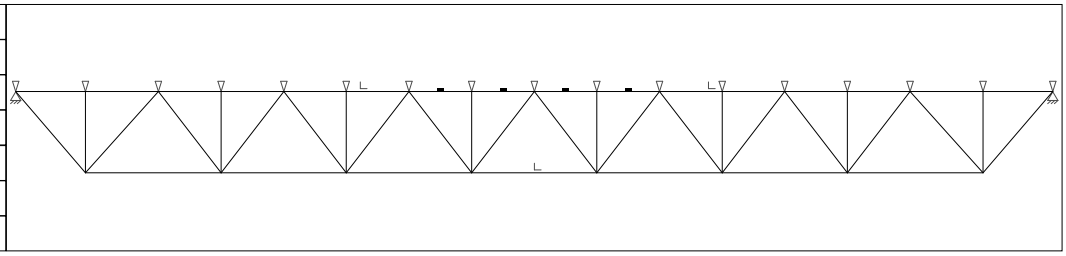
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/1/2024 12:24:54 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 48LH400/200**	**J420**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
50-0	**49-8**	**48.00**	**46.87**	**7 @ 6-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-6	3-6
TC Panel	3-6	3-6
First Half	3-6	3-6
First Diag.	7-0	7-0
Depth	48.00	48.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Conc Load (lbs)	TL	700.00	0.00	TC	+	0-2	0-2	L-BL
Conc Load (lbs)	TL	1,400.00	0.00	TC	+	3-6	3-6	L-BL
Conc Load (lbs)	TL	1,300.00	0.00	TC	+	7-0	7-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	10-0	10-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	13-0	13-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	16-0	16-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	19-0	19-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	22-0	22-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	25-0	25-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	28-0	28-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	31-0	31-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	34-0	34-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	37-0	37-0	L-BL
Conc Load (lbs)	TL	1,200.00	0.00	TC	+	40-0	40-0	L-BL
Conc Load (lbs)	TL	1,300.00	0.00	TC	+	43-0	43-0	L-BL
Conc Load (lbs)	TL	1,400.00	0.00	TC	+	3-6	3-6	R-BL
Conc Load (lbs)	TL	700.00	0.00	TC	+	0-2	0-2	R-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
36.00	**78.00**	**10,000.00**	**10,000.00**	**2,500.00**	**31,142.80**	**31,603.61**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	0.00	7,936.10	0.00	0.00	12,225.86	0.00	61.62	0-2
W3	0.00	7,936.10	15,014.59	0.00	0.00	10,607.31	62.94	3-6
W4	0.00	20,083.46	15,014.59	0.00	8,321.86	0.00	59.10	7-0
W5	0.00	20,083.46	24,230.71	0.00	0.00	6,808.80	59.10	10-0
W6	0.00	27,456.35	24,230.71	0.00	5,295.73	0.00	59.10	13-0
W7	0.00	27,456.35	29,760.38	0.00	0.00	3,782.66	59.10	16-0
W8	0.00	31,142.80	29,760.38	0.00	3,152.22	0.00	59.10	19-0
W9	0.00	31,142.80	31,603.61	0.00	0.00	3,152.22	59.10	22-0
W9	0.00	31,142.80	31,603.61	0.00	0.00	3,152.22	59.10	25-0
W8	0.00	31,142.80	29,760.38	0.00	3,152.22	0.00	59.10	28-0
W7	0.00	27,456.35	29,760.38	0.00	0.00	3,782.66	59.10	31-0
W6	0.00	27,456.35	24,230.71	0.00	5,295.73	0.00	59.10	34-0

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STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/1/2024 12:24:54 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 48LH400/200**	**J420**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W5	0.00	20,083.46	24,230.71	0.00	0.00	6,808.80	59.10	37-0
W4	0.00	20,083.46	15,014.59	0.00	8,321.86	0.00	59.10	40-0
W3	0.00	7,936.10	15,014.59	0.00	0.00	10,607.31	62.94	43-0
W2	0.00	7,936.10	0.00	0.00	12,225.86	0.00	61.62	46-6

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V1	End Panel	0.00	1,439.68	46.87
V2	Interior	0.00	1,355.71	46.87

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/1/2024 12:24:54 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 48LH400/200	J420

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.7167	0.6172	0.3938	1.2891	0.5693	0.2730	1.0000	2018 = 2 x 2 x 0.188
BC	0.5550	0.5933	0.3554	1.2664	0.5563	0.1954	0.9834	A32B = 1.906 x 1.906 x 0.158

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,375.44	419.42	629.13	18-3 1/8	25-4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	40.00	42.00	36.00	42.00	40.00
Bending Load	0.00	0.00	0.00	0.00	0.00
Axial Load	7,936.10	7,936.10	31,142.80	7,936.10	7,936.10
fa	5,536.56	5,536.56	21,726.52	5,536.56	5,536.56
Maximum K L/r	101.57	106.65	45.71	106.65	101.57
Fcr	23,515.17	21,765.41	42,916.73	21,765.41	23,515.17
Fa	14,109.10	13,059.25	25,750.04	13,059.25	14,109.10
F'e	68,144.31	61,808.90	149,562.28	61,808.90	68,144.31
Cm	0.9594	0.9552	0.9027	0.9552	0.9594
Panel Point Moment	0.00	0.00	0.00	0.00	0.00
Mid Panel Moment	0.00	0.00	0.00	0.00	0.00
Panel Point fb	0.00	0.00	0.00	0.00	0.00
Mid Panel fb	0.00	0.00	0.00	0.00	0.00
Fillers	0	0	4	0	0
Panel Point Stress	5,536.56	5,536.56	21,726.52	5,536.56	5,536.56
Mid Panel Stress	0.3924	0.4240	0.8437	0.4240	0.3924

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5000
Max Load Fillers TC:	37,094.62
Max Load no Fillers TC:	30,646.55
TC OAL/Ryy:	462.32
BC OAL/Ryy:	470.62
BC Stress:	0.95
BC L/Rz:	219.4710
TC Shear Stress:	12,367.02
BC Shear Stress:	19,969.03

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	12,225.86	16,730.22	0.00	4,524.40	5.21 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	0.00	28,597.25	10,607.31	11,115.18	3.81 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	8,321.86	10,742.43	0.00	2,744.69	4.34 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	0.00	28,618.35	6,808.80	10,570.72	2.45 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	5,295.73	7,826.93	0.00	1,825.77	3.50 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	0.00	16,730.22	3,782.66	4,051.30	2.00 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W8	3,152.22	7,826.93	0.00	1,825.77	2.58 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	0.00	14,381.54	3,152.22	3,591.91	2.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	0.00	14,381.54	3,152.22	3,591.91	2.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	3,152.22	7,826.93	0.00	1,825.77	2.58 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	0.00	16,730.22	3,782.66	4,051.30	2.00 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	5,295.73	7,826.93	0.00	1,825.77	3.50 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	0.00	28,618.35	6,808.80	10,570.72	2.45 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	8,321.86	10,742.43	0.00	2,744.69	4.34 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W3	0.00	28,597.25	10,607.31	11,115.18	3.81 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W2	12,225.86	16,730.22	0.00	4,524.40	5.21 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V1	0.00	7,826.93	1,439.68	2,607.64	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
V2	0.00	7,826.93	1,355.71	2,607.64	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/1/2024 12:24:54 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 48LH400/200**	**J420**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

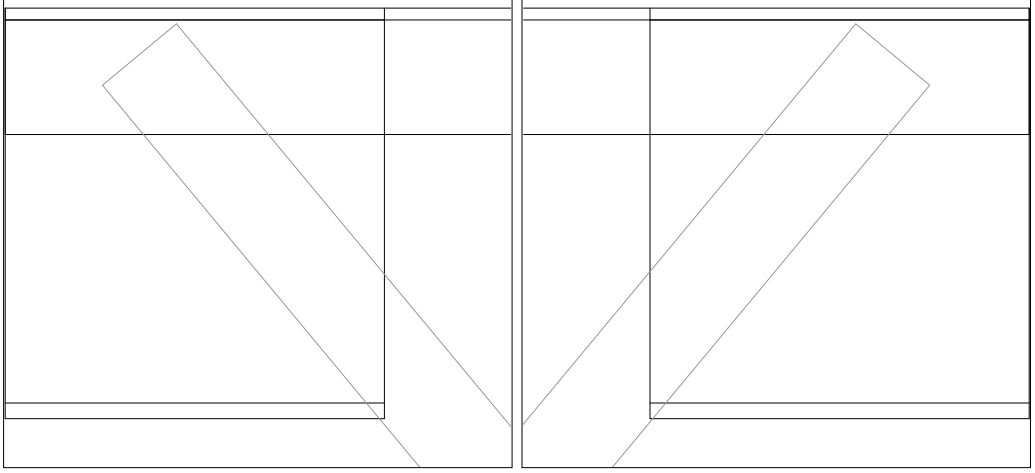
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6
BPL Material: N/A	

Total Load	400.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.25)

Total Load	400.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.25)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/1/2024 12:24:54 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 48LH400/200	J420

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

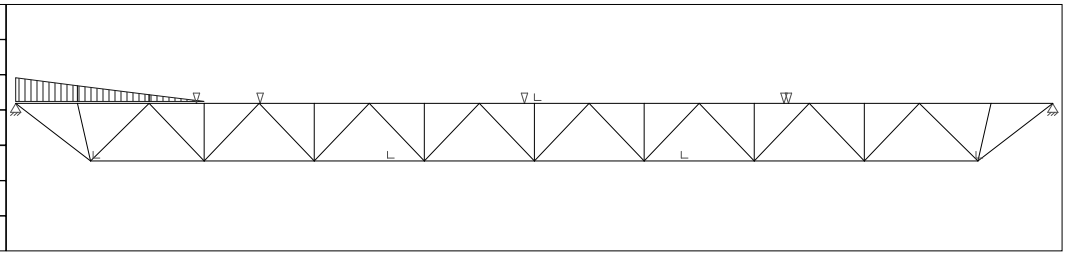
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:52:46 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/289**	**J43**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-7	**39-3**	**28.00**	**26.29**	**8 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2 1/2	2-2 1/2
First Diag.	5-2 1/2	5-2 1/2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	289.00	289.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	DL (1)	116.00	116.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	LL (1)	300.00	0.00	TC	+	0-0	7-0	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	7-0	7-0	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	9-5	9-5	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	19-5	19-5	L-BL
Conc w/bending (lbs)	DL (1)	3,000.00	0.00	TC	+	29-3	29-3	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	29-5	29-5	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-0	7-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	9-5	9-5	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	19-5	19-5	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	29-3	29-3	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	29-5	29-5	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**51.50**	**13,262.98**	**12,702.02**	**3,315.75**	**58,636.08**	**57,993.54**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	12,589.67	16,124.46	0.00	0.00	20,383.27	16,539.59	42.98	0-2
V1S	12,420.54	15,777.68	0.00	0.00	825.60	1,639.26	26.97	2-6
W3	12,420.54	15,777.68	26,813.70	21,486.11	13,313.12	15,914.03	37.33	3-0
W4	29,169.09	35,887.93	26,813.70	21,486.11	14,127.72	11,966.90	36.28	5-2 1/2
W5	29,169.09	35,887.93	42,911.57	35,043.09	11,121.71	12,963.44	36.28	7-3 1/2
W6	38,936.97	47,735.19	42,911.57	35,043.09	8,280.42	6,757.80	36.28	9-4 1/2
W7	38,936.97	47,735.19	51,728.01	42,219.92	4,764.31	5,794.49	36.28	11-5 1/2
W8	44,920.48	54,918.55	51,728.01	42,219.92	4,630.21	3,919.13	36.28	13-6 1/2
W9	44,920.48	54,918.55	57,306.82	47,038.65	3,608.71	4,575.38	36.28	15-7 1/2
W10	48,317.69	58,636.08	57,306.82	47,038.65	4,575.38	3,608.71	36.28	17-8 1/2
W10	48,317.69	58,636.08	57,993.54	47,844.81	4,575.38	3,608.71	36.28	19-9 1/2
W9	46,789.52	56,548.71	57,993.54	47,844.81	3,608.71	4,575.38	36.28	21-10 1/2
W8	46,789.52	56,548.71	54,301.61	45,151.86	4,630.21	3,919.13	36.28	23-11 1/2
W7	42,931.79	51,252.23	54,301.61	45,151.86	4,764.31	5,794.49	36.28	26-0 1/2
W6	42,931.79	51,252.23	45,546.43	38,275.19	8,280.42	6,757.80	36.28	28-1 1/2

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:52:46 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/289**	**J43**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W5	30,611.54	36,613.70	45,546.43	38,275.19	11,121.71	12,963.44	36.28	30-2 1/2
W4	30,611.54	36,613.70	26,878.70	22,365.49	14,127.72	11,966.90	36.28	32-3 1/2
W3	12,914.74	15,581.61	26,878.70	22,365.49	13,313.12	15,914.03	37.33	34-4 1/2
V1S	12,914.74	15,581.61	0.00	0.00	825.60	1,639.26	26.97	37-1
W2	13,083.87	15,814.59	0.00	0.00	20,383.27	16,539.59	42.98	36-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,777.16	3,124.40	26.29

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:52:46 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/289	J43

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.7800	0.9216	0.5891	1.6993	0.8652	1.5119	1.0000	3031 = 3 x 3 x 0.313
BC	1.4375	0.9304	0.5924	1.6850	0.8424	1.2442	0.9613	3025 = 3 x 3 x 0.250

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,105.02	682.74	1,024.10	23-0 1/4	13-3 1/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.50	25.00	32.50	28.00
Bending Load	655.88	549.74	405.00	405.00	405.00
Axial Load	16,124.46	15,777.68	58,636.08	15,581.61	15,814.59
fa	4,529.34	4,431.93	14,396.70	4,376.86	4,442.30
Maximum K L/r	47.53	55.17	31.83	55.17	47.53
Fcr	42,387.04	40,024.14	46,430.32	40,024.14	42,387.04
Fa	25,432.23	24,014.48	27,858.19	24,014.48	25,432.23
F'e	310,074.88	230,152.63	691,480.75	230,152.63	310,074.88
Cm	0.9927	0.9904	0.9861	0.9905	0.9928
Panel Point Moment	4,722.81	4,722.80	19,518.88	3,281.15	3,281.15
Mid Panel Moment	3,186.91	1,815.60	16,217.25	1,617.87	1,846.29
Panel Point fb	3,334.30	3,334.30	13,780.31	2,316.49	2,316.49
Mid Panel fb	911.87	519.50	4,640.24	462.92	528.28
Fillers	0	0	0	0	0
Panel Point Stress	7,863.64	7,766.23	28,177.00	6,693.35	6,758.79
Mid Panel Stress	0.1200	0.1100	0.6572	0.1069	0.1052

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5522**
Max Load Fillers TC: **87,440.62**
Max Load no Fillers TC: **83,929.53**
TC OAL/Ryy: **277.17**
BC OAL/Ryy: **279.52**
BC Stress: **0.67**
BC L/Rz: **86.9345**
TC Shear Stress: **8,568.90**
BC Shear Stress: **10,861.46**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	20,383.27	29,969.07	16,539.59	18,415.95	3.96 x 0.245	1	WR111513 = Wrapped R112 with 1513
W3	13,313.12	28,597.25	15,914.03	16,273.98	5.72 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	14,127.72	28,621.37	11,966.90	12,775.32	5.07 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W5	11,121.71	28,618.35	12,963.44	15,342.34	4.66 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	8,280.42	14,381.54	6,757.80	6,881.33	3.72 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	4,764.31	14,381.54	5,794.49	6,881.33	2.60 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,630.21	10,742.43	3,919.13	5,295.33	2.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,608.71	10,742.43	4,575.38	5,295.33	2.39 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,575.38	10,742.43	3,608.71	5,295.33	2.39 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,575.38	10,742.43	3,608.71	5,295.33	2.39 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,608.71	10,742.43	4,575.38	5,295.33	2.39 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,630.21	10,742.43	3,919.13	5,295.33	2.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,764.31	14,381.54	5,794.49	6,881.33	2.60 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	8,280.42	14,381.54	6,757.80	6,881.33	3.72 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	11,121.71	28,618.35	12,963.44	15,342.34	4.66 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	14,127.72	28,621.37	11,966.90	12,775.32	5.07 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	13,313.12	28,597.25	15,914.03	16,273.98	5.72 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W2	20,383.27	29,969.07	16,539.59	18,415.95	3.96 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1	825.60	5,758.64	1,639.26	3,237.13	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,777.16	5,758.64	3,124.40	3,321.32	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:52:46 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/289**	**J43**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/8
BPL Material: N/A	

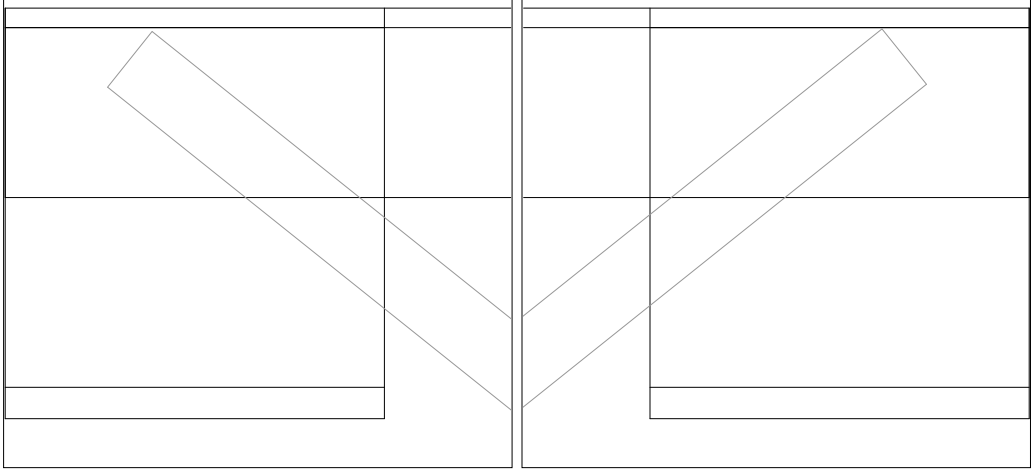
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	289.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	289.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:52:46 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/289	J43

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

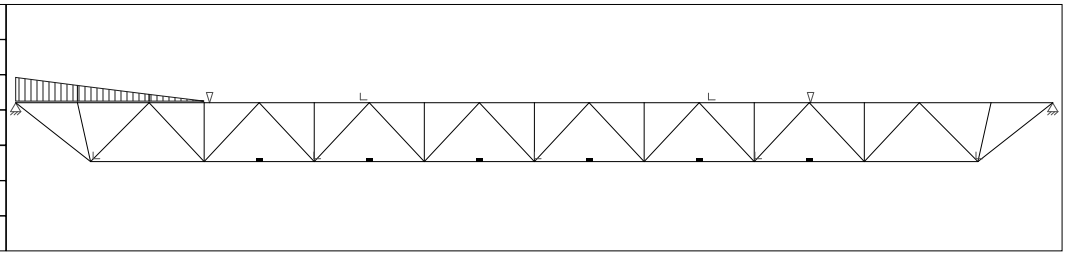
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:11:32 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J44**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-7	**39-3**	**28.00**	**26.75**	**8 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2 1/2	2-2 1/2
First Diag.	5-2 1/2	5-2 1/2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-7	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Uniform (plf)	LL (1)	300.00	0.00	TC	+	0-0	7-0	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	30-3	30-3	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	30-3	30-3	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**51.50**	**11,170.63**	**10,888.64**	**2,792.66**	**45,489.52**	**45,289.26**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,337.16	13,001.63	0.00	0.00	16,844.15	12,947.26	43.26	0-2
V1S	9,170.94	12,660.84	0.00	0.00	810.41	1,928.83	27.42	2-6
W3	9,170.94	12,660.84	21,289.29	15,714.33	10,226.02	13,170.21	37.66	3-0
W4	21,229.13	28,311.51	21,289.29	15,714.33	11,478.42	8,979.53	36.62	5-2 1/2
W5	21,229.13	28,311.51	33,262.44	24,910.07	8,059.12	10,199.66	36.62	7-3 1/2
W6	27,878.48	37,284.74	33,262.44	24,910.07	6,223.05	4,517.47	36.62	9-4 1/2
W7	27,878.48	37,284.74	40,518.60	30,274.54	3,843.36	5,294.43	36.62	11-5 1/2
W8	32,098.25	42,964.02	40,518.60	30,274.54	4,411.78	3,202.63	36.62	13-6 1/2
W9	32,098.25	42,964.02	44,620.99	33,349.61	2,856.84	3,822.17	36.62	15-7 1/2
W10	34,028.62	45,489.52	44,620.99	33,349.61	3,822.17	3,637.95	36.62	17-8 1/2
W10	34,028.62	45,489.52	45,289.26	34,135.27	3,822.17	3,637.95	36.62	19-9 1/2
W9	33,669.57	44,300.56	45,289.26	34,135.27	2,856.84	3,822.17	36.62	21-10 1/2
W8	33,669.57	44,300.56	42,523.42	32,631.51	4,411.78	3,202.63	36.62	23-11 1/2
W7	31,021.10	39,957.82	42,523.42	32,631.51	3,843.36	5,294.43	36.62	26-0 1/2
W6	31,021.10	39,957.82	36,603.79	28,838.34	6,223.05	4,517.47	36.62	28-1 1/2
W5	23,335.94	29,714.01	36,603.79	28,838.34	8,059.12	10,199.66	36.62	30-2 1/2
W4	23,335.94	29,714.01	21,979.72	17,205.11	11,478.42	8,979.53	36.62	32-3 1/2
W3	10,008.74	12,820.26	21,979.72	17,205.11	10,226.02	13,170.21	37.66	34-4 1/2
V1S	10,008.74	12,820.26	0.00	0.00	810.41	1,928.83	27.42	37-1
W2	10,174.95	13,049.23	0.00	0.00	16,844.15	12,947.26	43.26	36-7

* Continued on Next Page...

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:11:32 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J44**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,068.65	2,763.74	26.75

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:11:32 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J44**

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.9305	0.6092	0.3912	1.3045	0.5910	0.3453	1.0000	2024 = 2 x 2 x 0.248
BC	0.8084	0.6885	0.4106	1.3990	0.6554	0.3832	1.0000	A38B = 2.219 x 2.219 x 0.199

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	**50,000.00**	**30,000.00**	**620.70**	**383.50**	**575.25**	**17-8 1/8**	**8-7 7/8**

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.50	25.00	32.50	28.00
Bending Load	655.88	549.74	405.00	405.00	405.00
Axial Load	13,001.63	12,660.84	45,489.52	12,820.26	13,049.23
fa	6,986.37	6,803.25	24,443.59	6,888.91	7,011.94
Maximum K L/r	71.57	83.08	47.93	83.08	71.57
Fcr	34,379.09	30,185.89	42,269.07	30,185.89	34,379.09
Fa	20,627.45	18,111.53	25,361.44	18,111.53	20,627.45
F'e	135,488.20	100,565.91	302,144.69	100,565.91	135,488.20
Cm	0.9742	0.9662	0.9458	0.9657	0.9741
Panel Point Moment	4,935.56	4,935.57	1,757.81	3,281.15	3,281.15
Mid Panel Moment	3,116.00	2,105.27	878.91	1,617.87	1,846.29
Panel Point fb	10,069.81	10,069.81	3,586.39	6,694.39	6,694.38
Mid Panel fb	2,666.60	1,801.65	752.15	1,384.54	1,580.01
Fillers	0	0	0	0	0
Panel Point Stress	17,056.18	16,873.06	28,029.98	13,583.29	13,706.32
Mid Panel Stress	0.4229	0.4338	0.9882	0.4251	0.3899

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **50,690.21**
Max Load no Fillers TC: **46,180.84**
TC OAL/Ryy: **361.07**
BC OAL/Ryy: **336.66**
BC Stress: **0.93**
BC L/Rz: **125.4262**
TC Shear Stress: **12,641.50**
BC Shear Stress: **15,864.48**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	16,844.15	25,756.52	12,947.26	14,697.95	6.05 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	10,226.02	28,618.35	13,170.21	15,048.52	4.73 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	11,478.42	24,373.24	8,979.53	10,912.61	4.12 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,059.12	24,373.24	10,199.66	10,912.61	3.66 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	6,223.05	10,742.43	4,517.47	5,252.04	3.25 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,843.36	14,381.54	5,294.43	6,824.29	2.38 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,411.78	7,826.93	3,202.63	3,508.24	2.91 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,856.84	10,742.43	3,822.17	5,252.04	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,822.17	10,742.43	3,637.95	5,252.04	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,822.17	10,742.43	3,637.95	5,252.04	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,856.84	10,742.43	3,822.17	5,252.04	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,411.78	7,826.93	3,202.63	3,508.24	2.91 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	3,843.36	14,381.54	5,294.43	6,824.29	2.38 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,223.05	10,742.43	4,517.47	5,252.04	3.25 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	8,059.12	24,373.24	10,199.66	10,912.61	3.66 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	11,478.42	24,373.24	8,979.53	10,912.61	4.12 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	10,226.02	28,618.35	13,170.21	15,048.52	4.73 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	16,844.15	25,756.52	12,947.26	14,697.95	6.05 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	810.41	5,758.64	1,928.83	3,181.14	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,068.65	5,758.64	2,763.74	3,263.87	2.07 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:11:32 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J44**

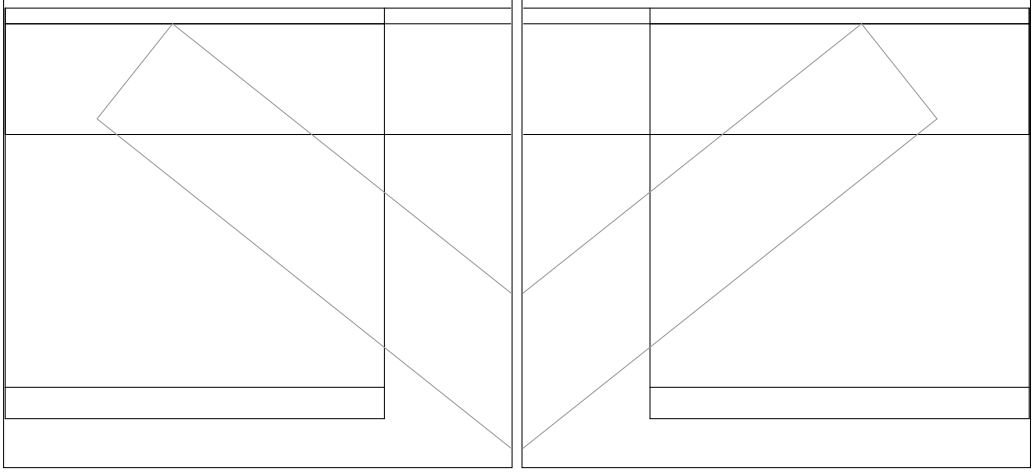
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 3/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 10:11:32 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J44

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

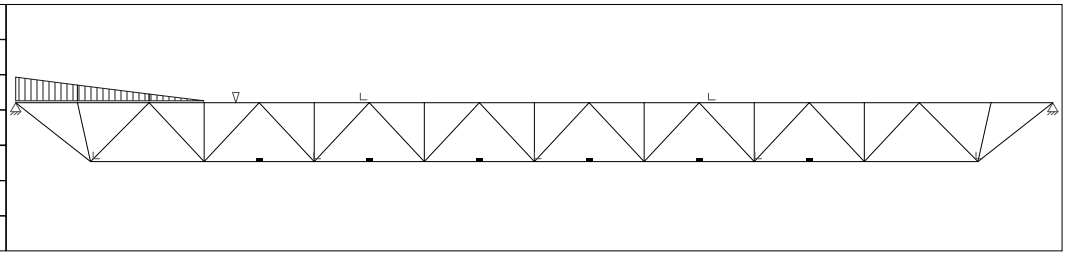
Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 10:12:06 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J45

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-7	39-3	28.00	26.79	8 @ 4-2	1.0220	Parallel Chords	0.0000

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2 1/2	2-2 1/2
First Diag.	5-2 1/2	5-2 1/2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-7	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Uniform (plf)	LL (1)	300.00	0.00	TC	+	0-0	7-0	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	8-6	8-6	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	8-6	8-6	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	51.50	10,431.77	8,627.50	2,607.94	39,600.06	39,422.22

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,385.79	12,044.87	0.00	0.00	15,571.50	10,676.65	43.29	0-2
V1S	8,219.83	11,704.58	0.00	0.00	801.41	1,923.91	27.46	2-6
W3	8,219.83	11,704.58	19,589.54	14,022.80	8,252.15	11,364.71	37.68	3-0
W4	18,840.06	25,912.01	19,589.54	14,022.80	9,415.18	7,061.18	36.65	5-2 1/2
W5	18,840.06	25,912.01	30,838.04	22,497.98	5,361.81	7,326.46	36.65	7-3 1/2
W6	24,772.61	34,165.00	30,838.04	22,497.98	6,218.77	4,514.37	36.65	9-4 1/2
W7	24,772.61	34,165.00	36,704.70	26,475.74	3,840.72	5,290.79	36.65	11-5 1/2
W8	27,607.35	38,457.10	36,704.70	26,475.74	4,408.75	3,200.43	36.65	13-6 1/2
W9	27,607.35	38,457.10	39,422.22	28,167.46	2,593.48	3,572.65	36.65	15-7 1/2
W10	28,156.05	39,600.06	39,422.22	28,167.46	3,566.91	3,347.24	36.65	17-8 1/2
W10	28,156.05	39,600.06	38,710.69	27,573.15	3,566.91	3,347.24	36.65	19-9 1/2
W9	26,418.72	37,034.04	38,710.69	27,573.15	2,593.48	3,572.65	36.65	21-10 1/2
W8	26,418.72	37,034.04	34,570.11	24,692.79	4,408.75	3,200.43	36.65	23-11 1/2
W7	22,395.35	31,318.89	34,570.11	24,692.79	3,840.72	5,290.79	36.65	26-0 1/2
W6	22,395.35	31,318.89	27,280.40	19,526.40	6,218.77	4,514.37	36.65	28-1 1/2
W5	16,085.95	22,454.61	27,280.40	19,526.40	5,361.81	7,326.46	36.65	30-2 1/2
W4	16,085.95	22,454.61	16,841.55	12,073.98	9,415.18	7,061.18	36.65	32-3 1/2
W3	7,124.62	9,932.00	16,841.55	12,073.98	8,252.15	11,364.71	37.68	34-4 1/2
V1S	7,124.62	9,932.00	0.00	0.00	801.41	1,923.91	27.46	37-1
W2	7,290.59	10,160.63	0.00	0.00	15,571.50	10,676.65	43.29	36-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,336.70	1,953.23	26.79

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:12:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J45**

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.9305	0.6092	0.3912	1.3045	0.5910	0.3453	1.0000	2024 = 2 x 2 x 0.248
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	**50,000.00**	**30,000.00**	**580.95**	**358.94**	**538.41**	**17-8 1/8**	**9-0 3/4**

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.50	25.00	32.50	28.00
Bending Load	655.88	549.74	405.00	405.00	405.00
Axial Load	12,044.87	11,704.58	39,600.06	9,932.00	10,160.63
fa	6,472.26	6,289.40	13,923.70	5,336.92	5,459.77
Maximum K L/r	71.57	83.08	47.93	83.08	71.57
Fcr	34,379.09	30,185.89	42,269.07	30,185.89	34,379.09
Fa	20,627.45	18,111.53	25,361.44	18,111.53	20,627.45
F'e	135,488.20	100,565.91	302,144.69	100,565.91	135,488.20
Cm	0.9761	0.9687	0.9691	0.9735	0.9799
Panel Point Moment	5,062.89	5,062.89	7,814.19	3,281.15	3,281.15
Mid Panel Moment	3,073.56	2,278.63	5,966.27	1,617.87	1,846.29
Panel Point fb	10,329.58	10,329.58	15,942.95	6,694.39	6,694.38
Mid Panel fb	2,630.28	1,950.00	5,105.80	1,384.54	1,580.01
Fillers	0	0	0	0	0
Panel Point Stress	16,801.84	16,618.99	29,866.65	12,031.30	12,154.15
Mid Panel Stress	0.3964	0.4098	0.7078	0.3385	0.3139

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **42,775.03**
Max Load no Fillers TC: **39,001.63**
TC OAL/Ryy: **361.07**
BC OAL/Ryy: **350.67**
BC Stress: **0.92**
BC L/Rz: **134.4297**
TC Shear Stress: **11,025.17**
BC Shear Stress: **16,805.04**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	15,571.50	25,759.23	10,676.65	11,917.41	5.59 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	8,252.15	28,621.37	11,364.71	12,306.56	4.08 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	9,415.18	16,730.22	7,061.18	7,603.02	4.01 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	5,361.81	16,730.22	7,326.46	7,603.02	3.12 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	6,218.77	10,742.43	4,514.37	5,248.32	3.25 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,840.72	14,381.54	5,290.79	6,819.39	2.38 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,408.75	7,826.93	3,200.43	3,505.57	2.91 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,593.48	10,742.43	3,572.65	5,248.32	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,566.91	7,826.93	3,347.24	3,505.57	2.35 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,566.91	7,826.93	3,347.24	3,505.57	2.35 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,593.48	10,742.43	3,572.65	5,248.32	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,408.75	7,826.93	3,200.43	3,505.57	2.91 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	3,840.72	14,381.54	5,290.79	6,819.39	2.38 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,218.77	10,742.43	4,514.37	5,248.32	3.25 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	5,361.81	16,730.22	7,326.46	7,603.02	3.12 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W4	9,415.18	16,730.22	7,061.18	7,603.02	4.01 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	8,252.15	28,621.37	11,364.71	12,306.56	4.08 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W2	15,571.50	25,759.23	10,676.65	11,917.41	5.59 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	801.41	5,758.64	1,923.91	3,176.34	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,336.70	5,758.64	1,953.23	3,258.95	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:12:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J45**

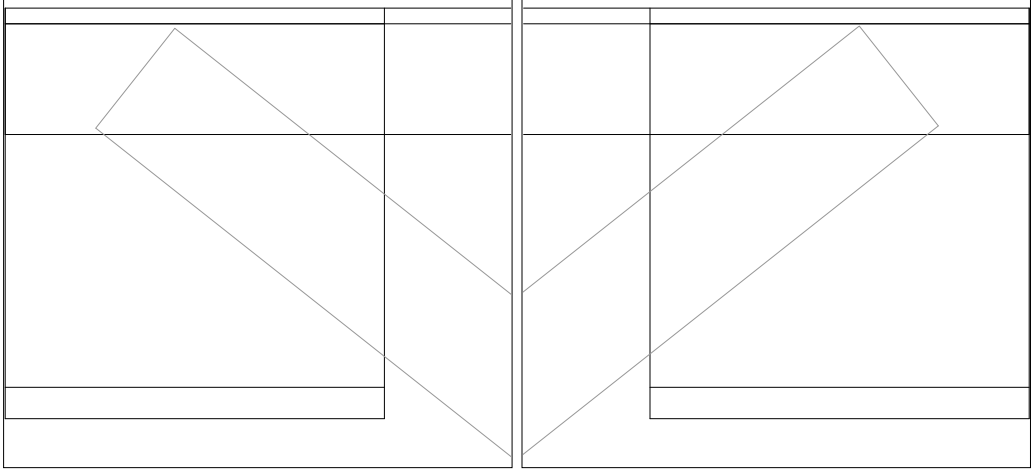
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 10:12:06 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J45

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

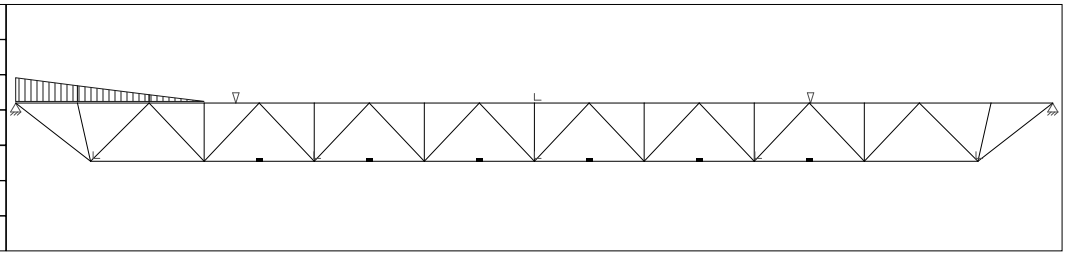
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:18:54 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J46**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-7	**39-3**	**28.00**	**26.46**	**8 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2 1/2	2-2 1/2
First Diag.	5-2 1/2	5-2 1/2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	LL (1)	300.00	0.00	TC	+	0-0	7-0	L-BL
Conc w/bending (lbs)	DL (1)	3,000.00	0.00	TC	+	8-6	8-6	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	30-3	30-3	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-6	8-6	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	30-3	30-3	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**51.50**	**12,017.76**	**10,947.24**	**3,004.44**	**47,826.43**	**47,428.73**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	10,908.18	14,420.03	0.00	0.00	18,273.30	13,823.02	43.09	0-2
V1S	10,740.15	14,075.51	0.00	0.00	814.48	1,630.24	27.14	2-6
W3	10,740.15	14,075.51	23,793.01	18,499.98	10,966.63	13,733.32	37.45	3-0
W4	25,155.17	31,830.41	23,793.01	18,499.98	11,704.17	9,691.38	36.41	5-2 1/2
W5	25,155.17	31,830.41	37,858.87	30,041.46	8,591.01	10,427.07	36.41	7-3 1/2
W6	32,705.39	41,446.52	37,858.87	30,041.46	6,254.88	4,540.58	36.41	9-4 1/2
W7	32,705.39	41,446.52	44,237.11	34,790.71	3,863.02	5,321.51	36.41	11-5 1/2
W8	36,297.42	46,230.62	44,237.11	34,790.71	4,434.34	3,219.01	36.41	13-6 1/2
W9	36,297.42	46,230.62	47,427.06	37,225.51	3,037.93	4,133.06	36.41	15-7 1/2
W10	37,574.98	47,826.43	47,427.06	37,225.51	4,133.06	3,037.93	36.41	17-8 1/2
W10	37,574.98	47,826.43	47,428.73	37,345.85	4,133.06	3,037.93	36.41	19-9 1/2
W9	36,538.10	46,233.96	47,428.73	37,345.85	3,037.93	4,133.06	36.41	21-10 1/2
W8	36,538.10	46,233.96	44,242.12	35,151.73	4,434.34	3,219.01	36.41	23-11 1/2
W7	33,186.75	41,453.21	44,242.12	35,151.73	3,863.02	5,321.51	36.41	26-0 1/2
W6	33,186.75	41,453.21	37,867.23	30,643.16	6,254.88	4,540.58	36.41	28-1 1/2
W5	24,743.60	30,706.83	37,867.23	30,643.16	8,591.01	10,427.07	36.41	30-2 1/2
W4	24,743.60	30,706.83	22,692.68	18,208.75	11,704.17	9,691.38	36.41	32-3 1/2
W3	10,576.48	13,226.05	22,692.68	18,208.75	10,966.63	13,733.32	37.45	34-4 1/2
V1S	10,576.48	13,226.05	0.00	0.00	814.48	1,630.24	27.14	37-1
W2	10,744.51	13,457.52	0.00	0.00	18,273.30	13,823.02	43.09	36-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,998.28	2,353.81	26.46

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:18:54 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J46**

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	**50,000.00**	**30,000.00**	**774.04**	**478.24**	**717.36**	**22-9 1/8**	**9-10 7/8**

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.50	25.00	32.50	28.00
Bending Load	655.88	549.74	405.00	405.00	405.00
Axial Load	14,420.03	14,075.51	47,826.43	13,226.05	13,457.52
fa	5,501.73	5,370.28	12,144.38	5,046.19	5,134.50
Maximum K L/r	47.16	54.74	31.58	54.74	47.16
Fcr	39,715.32	37,698.26	43,143.34	37,698.26	39,715.32
Fa	23,829.19	22,618.96	25,886.01	22,618.96	23,829.19
F'e	318,202.34	236,185.22	709,605.38	236,185.22	318,202.34
Cm	0.9914	0.9886	0.9885	0.9893	0.9919
Panel Point Moment	5,190.21	5,190.21	13,870.57	3,281.15	3,281.15
Mid Panel Moment	3,031.12	2,451.98	11,053.63	1,617.87	1,846.29
Panel Point fb	4,920.77	4,920.77	13,150.51	3,110.82	3,110.82
Mid Panel fb	1,106.52	895.10	4,035.16	590.61	673.99
Fillers	0	0	0	0	0
Panel Point Stress	10,422.50	10,291.06	25,294.89	8,157.00	8,245.31
Mid Panel Stress	0.2671	0.2670	0.6010	0.2425	0.2375

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **60,262.39**
Max Load no Fillers TC: **58,058.11**
TC OAL/Ryy: **280.38**
BC OAL/Ryy: **321.92**
BC Stress: **0.83**
BC L/Rz: **116.9657**
TC Shear Stress: **9,617.74**
BC Shear Stress: **14,464.86**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,273.30	28,618.35	13,823.02	14,730.39	6.56 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	10,966.63	28,618.35	13,733.32	15,092.24	4.93 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	11,704.17	24,373.24	9,691.38	10,972.99	4.20 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,591.01	24,373.24	10,427.07	10,972.99	3.75 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	6,254.88	10,742.43	4,540.58	5,279.25	3.27 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,863.02	14,381.54	5,321.51	6,860.14	2.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,434.34	7,826.93	3,219.01	3,527.76	2.93 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	3,037.93	10,742.43	4,133.06	5,279.25	2.16 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,133.06	7,826.93	3,037.93	3,527.76	2.73 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,133.06	7,826.93	3,037.93	3,527.76	2.73 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	3,037.93	10,742.43	4,133.06	5,279.25	2.16 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,434.34	7,826.93	3,219.01	3,527.76	2.93 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	3,863.02	14,381.54	5,321.51	6,860.14	2.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,254.88	10,742.43	4,540.58	5,279.25	3.27 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	8,591.01	24,373.24	10,427.07	10,972.99	3.75 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	11,704.17	24,373.24	9,691.38	10,972.99	4.20 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	10,966.63	28,618.35	13,733.32	15,092.24	4.93 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	18,273.30	28,618.35	13,823.02	14,730.39	6.56 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	814.48	5,758.64	1,630.24	3,216.29	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,998.28	5,758.64	2,353.81	3,299.93	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:18:54 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J46**

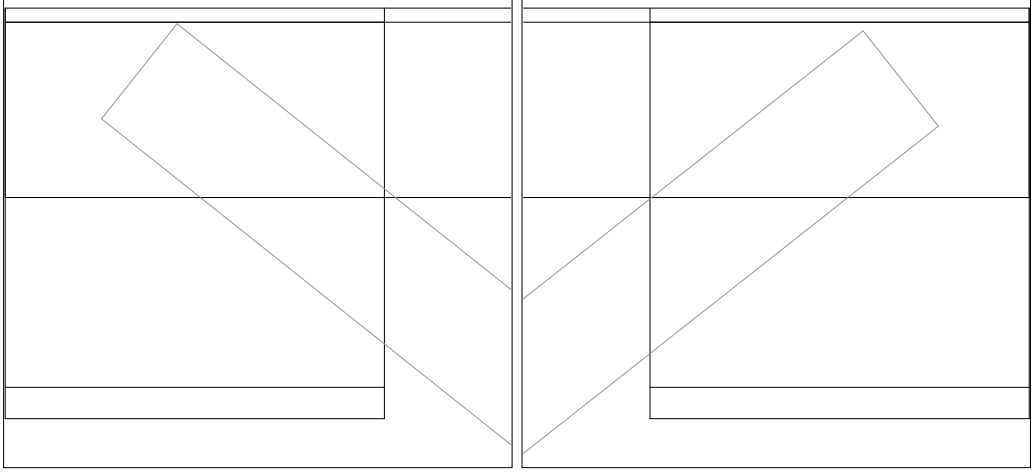
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/2
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 10:18:54 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J46

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

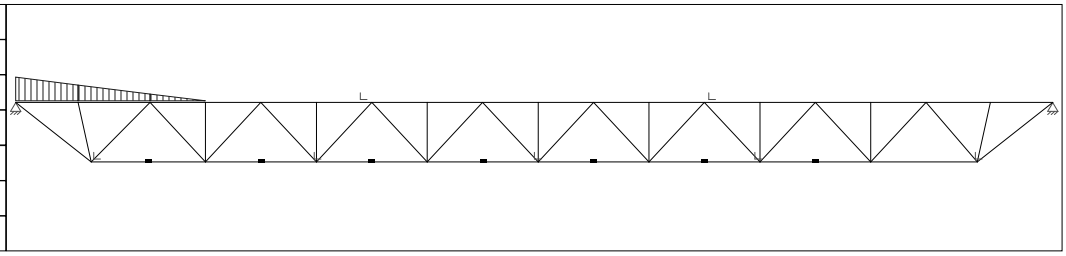
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:12:38 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J47**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-3 1/2	**38-11 1/2**	**28.00**	**26.85**	**8 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2 1/2	1-11
First Diag.	5-2 1/2	4-11
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-3 1/2	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-3 1/2	L-BL
Uniform (plf)	LL (1)	300.00	0.00	TC	+	0-0	7-0	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**51.50**	**8,945.16**	**8,054.05**	**2,223.63**	**34,879.33**	**34,600.48**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,816.45	10,256.18	0.00	0.00	13,069.44	8,686.21	43.33	0-2
V1S	6,650.87	9,916.66	0.00	0.00	793.48	1,608.32	27.52	2-6
W3	6,650.87	9,916.66	16,410.92	11,232.35	6,907.38	9,515.27	37.73	3-0
W4	14,898.76	21,423.95	16,410.92	11,232.35	8,270.33	6,003.65	36.69	5-2 1/2
W5	14,898.76	21,423.95	25,630.23	17,994.97	5,260.12	7,246.08	36.69	7-3 1/2
W6	20,520.98	29,051.02	25,630.23	17,994.97	6,268.07	4,550.15	36.69	9-4 1/2
W7	20,520.98	29,051.02	31,686.33	22,476.78	3,873.75	5,336.29	36.69	11-5 1/2
W8	23,862.37	33,536.15	31,686.33	22,476.78	4,450.74	3,230.91	36.69	13-6 1/2
W9	23,862.37	33,536.15	34,600.48	24,677.77	2,621.63	3,611.43	36.69	15-7 1/2
W10	24,922.96	34,879.33	34,600.48	24,677.77	3,038.06	2,071.52	36.69	17-8 1/2
W10	24,922.96	34,879.33	34,372.69	24,597.94	3,038.06	2,071.52	36.69	19-9 1/2
W9	23,702.72	33,080.57	34,372.69	24,597.94	2,621.63	3,611.43	36.69	21-10 1/2
W8	23,702.72	33,080.57	31,002.96	22,237.29	4,450.74	3,230.91	36.69	23-11 1/2
W7	20,201.66	28,139.87	31,002.96	22,237.29	3,873.75	5,336.29	36.69	26-0 1/2
W6	20,201.66	28,139.87	24,491.29	17,595.83	6,268.07	4,550.15	36.69	28-1 1/2
W5	14,419.79	20,057.22	24,491.29	17,595.83	5,260.12	7,246.08	36.69	30-2 1/2
W4	14,419.79	20,057.22	14,837.67	10,673.54	8,270.33	6,003.65	36.69	32-3 1/2
W3	6,660.45	9,255.22	14,837.67	10,673.54	6,473.38	8,917.42	35.36	34-4 1/2
V1S	6,660.45	9,255.22	0.00	0.00	793.48	1,608.32	27.52	36-9 1/2
W2	6,816.45	9,470.13	0.00	0.00	13,069.44	8,686.21	43.33	36-3 1/2

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	737.11	1,018.15	26.85

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 10:12:38 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J47

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.7167	0.6172	0.3938	1.2891	0.5693	0.2730	1.0000	2018 = 2 x 2 x 0.188
BC	0.6209	0.6011	0.3559	1.2877	0.5763	0.2243	1.0000	A34A = 1.938 x 1.938 x 0.176

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	480.83	303.80	455.70	17-5 3/4	8-7 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.50	25.00	29.00	28.00
Bending Load	655.88	549.74	405.00	405.00	405.00
Axial Load	10,256.18	9,916.66	34,879.33	9,255.22	9,470.13
fa	7,155.14	6,918.28	24,333.28	6,456.83	6,606.76
Maximum K L/r	71.10	82.53	47.61	73.64	71.10
Fcr	34,548.98	30,387.04	42,362.62	33,632.86	34,548.98
Fa	20,729.39	18,232.22	25,417.57	20,179.71	20,729.39
F'e	139,070.03	103,224.52	310,132.34	129,644.35	139,070.03
Cm	0.9743	0.9665	0.9474	0.9751	0.9762
Panel Point Moment	4,883.52	4,883.52	1,757.81	2,823.72	2,823.72
Mid Panel Moment	2,995.54	2,123.46	878.91	1,148.43	1,717.51
Panel Point fb	12,796.43	12,796.43	4,606.05	7,399.09	7,399.08
Mid Panel fb	3,123.37	2,214.07	916.41	1,197.44	1,790.81
Fillers	0	0	0	0	0
Panel Point Stress	19,951.56	19,714.71	28,939.33	13,855.92	14,005.84
Mid Panel Stress	0.4438	0.4508	0.9869	0.3577	0.3750

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5000**

Max Load Fillers TC: **38,851.16**

Max Load no Fillers TC: **35,439.36**

TC OAL/Ryy: **362.64**

BC OAL/Ryy: **363.06**

BC Stress: **0.93**

BC L/Rz: **144.7036**

TC Shear Stress: **12,767.34**

BC Shear Stress: **16,405.00**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	13,069.44	21,935.91	8,686.21	10,263.69	4.69 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	6,907.38	24,373.24	9,515.27	10,596.08	3.42 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	8,270.33	14,381.54	6,003.65	6,811.78	3.71 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	5,260.12	16,730.22	7,246.08	7,594.37	3.09 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	6,268.07	10,742.43	4,550.15	5,242.54	3.27 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,873.75	14,381.54	5,336.29	6,811.78	2.40 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,450.74	7,826.93	3,230.91	3,501.43	2.94 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,621.63	10,742.43	3,611.43	5,242.54	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,038.06	5,758.64	2,071.52	2,079.10	2.27 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	3,038.06	5,758.64	2,071.52	2,079.10	2.27 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	2,621.63	10,742.43	3,611.43	5,242.54	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,450.74	7,826.93	3,230.91	3,501.43	2.94 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	3,873.75	14,381.54	5,336.29	6,811.78	2.40 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,268.07	10,742.43	4,550.15	5,242.54	3.27 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	5,260.12	16,730.22	7,246.08	7,594.37	3.09 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W4	8,270.33	14,381.54	6,003.65	6,811.78	3.71 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	6,473.38	18,714.09	8,917.42	9,043.25	3.41 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W2	13,069.44	21,935.91	8,686.21	10,263.69	4.69 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V1	793.48	5,758.64	1,608.32	3,168.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	737.11	5,758.64	1,018.15	3,251.32	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:12:38 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J47**

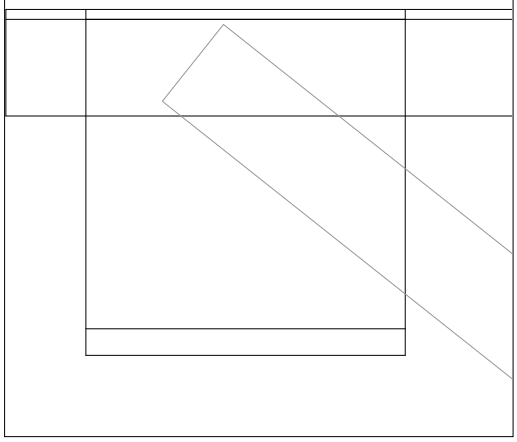
TCX Design

TCX Left	
TCX Length	0-1 1/2
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/2
BPL Material: N/A	

TCX Right	
TCX Length	0-3
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/2
BPL Material: N/A	

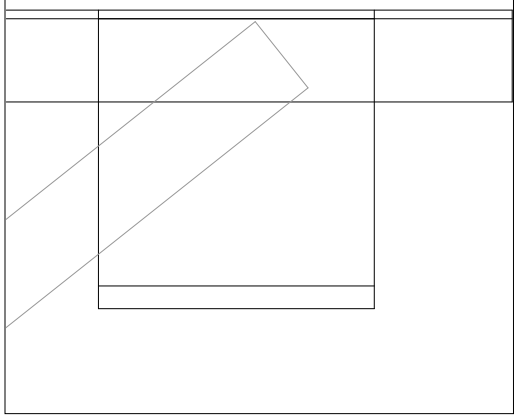
Total Load	405.00
Reqd TL Def L/80	0.02
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.3816
Reqd SM	0.0069
Mom of Inertia	0.5460
Reqd MI	0.0005

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.04
Live Load	200.00
Reqd LL Def L/120	0.03
Section Modulus	0.3816
Reqd SM	0.0141
Mom of Inertia	0.5460
Reqd MI	0.0015

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 10:12:38 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J47

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

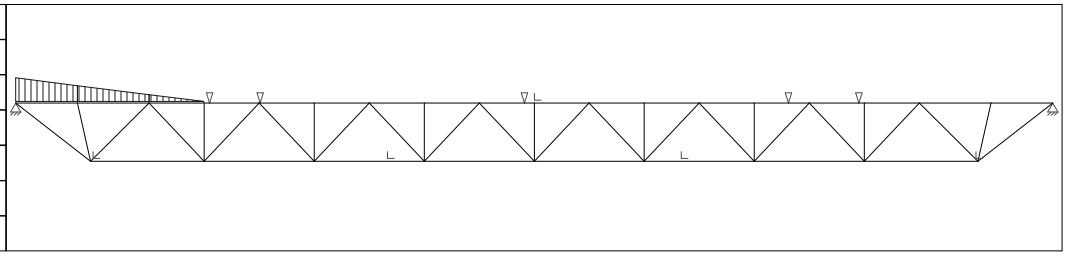
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:53:06 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/289**	**J48**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-7	**39-3**	**28.00**	**26.33**	**8 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2 1/2	2-2 1/2
First Diag.	5-2 1/2	5-2 1/2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	116.00	116.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	LL (1)	289.00	289.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	LL (1)	300.00	0.00	TC	+	0-0	7-0	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	9-5	9-5	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	19-5	19-5	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	29-5	29-5	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	32-1	32-1	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	9-5	9-5	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	19-5	19-5	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	29-5	29-5	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	32-1	32-1	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**51.50**	**12,747.06**	**11,717.94**	**3,186.76**	**54,275.54**	**53,438.09**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	11,904.58	15,434.04	0.00	0.00	19,521.50	15,057.31	43.00	0-2
V1S	11,735.70	15,087.79	0.00	0.00	819.64	1,635.70	27.01	2-6
W3	11,735.70	15,087.79	25,588.00	20,268.42	12,028.89	14,802.54	37.36	3-0
W4	27,649.40	34,358.13	25,588.00	20,268.42	12,760.68	10,719.98	36.31	5-2 1/2
W5	27,649.40	34,358.13	41,023.79	33,167.16	8,013.87	9,735.70	36.31	7-3 1/2
W6	36,565.35	45,350.33	41,023.79	33,167.16	7,083.03	5,561.49	36.31	9-4 1/2
W7	36,565.35	45,350.33	48,847.33	39,353.54	4,049.50	5,334.11	36.31	11-5 1/2
W8	41,560.20	51,543.25	48,847.33	39,353.54	4,444.85	3,296.54	36.31	13-6 1/2
W9	41,560.20	51,543.25	53,438.09	43,185.37	3,296.54	4,394.26	36.31	15-7 1/2
W10	43,972.66	54,275.54	53,438.09	43,185.37	4,394.26	3,296.54	36.31	17-8 1/2
W10	43,972.66	54,275.54	53,144.13	43,010.66	4,394.26	3,296.54	36.31	19-9 1/2
W9	41,467.14	51,211.65	53,144.13	43,010.66	3,296.54	4,394.26	36.31	21-10 1/2
W8	41,467.14	51,211.65	48,478.10	39,342.11	4,444.85	3,296.54	36.31	23-11 1/2
W7	36,635.55	44,943.48	48,478.10	39,342.11	4,049.50	5,334.11	36.31	26-0 1/2
W6	36,635.55	44,943.48	40,066.63	32,806.32	7,083.03	5,561.49	36.31	28-1 1/2

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:53:06 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/289**	**J48**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W5	27,370.20	33,363.34	40,066.63	32,806.32	8,013.87	9,735.70	36.31	30-2 1/2
W4	27,370.20	33,363.34	24,577.27	20,070.86	12,760.68	10,719.98	36.31	32-3 1/2
W3	11,624.68	14,287.54	24,577.27	20,070.86	12,028.89	14,802.54	37.36	34-4 1/2
V1S	11,624.68	14,287.54	0.00	0.00	819.64	1,635.70	27.01	37-1
W2	11,793.55	14,520.17	0.00	0.00	19,521.50	15,057.31	43.00	36-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,100.75	2,392.82	26.33

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:53:06 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/289	J48

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	913.24	564.24	846.36	22-9 1/8	13-1 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.50	25.00	32.50	28.00
Bending Load	655.88	549.74	405.00	405.00	405.00
Axial Load	15,434.04	15,087.79	54,275.54	14,287.54	14,520.17
fa	5,888.61	5,756.50	20,707.95	5,451.18	5,539.93
Maximum K L/r	47.16	54.74	31.58	54.74	47.16
Fcr	39,715.32	37,698.26	43,143.34	37,698.26	39,715.32
Fa	23,829.19	22,618.96	25,886.01	22,618.96	23,829.19
F'e	318,202.34	236,185.22	709,605.38	236,185.22	318,202.34
Cm	0.9907	0.9878	0.9804	0.9885	0.9913
Panel Point Moment	5,036.36	5,036.37	6,945.91	3,381.95	3,381.95
Mid Panel Moment	3,082.40	2,242.52	2,746.62	1,755.11	1,812.69
Panel Point fb	4,774.91	4,774.91	6,585.33	3,206.39	3,206.38
Mid Panel fb	1,125.24	818.64	1,002.66	640.71	661.73
Fillers	0	0	0	0	0
Panel Point Stress	10,663.52	10,531.42	27,293.28	8,657.56	8,746.32
Mid Panel Stress	0.2840	0.2816	0.8331	0.2621	0.2542

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5848
Max Load Fillers TC:	68,162.88
Max Load no Fillers TC:	65,663.26
TC OAL/Ryy:	280.38
BC OAL/Ryy:	280.38
BC Stress:	0.68
BC L/Rz:	86.7441
TC Shear Stress:	10,669.63
BC Shear Stress:	11,022.59

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,521.50	23,679.79	15,057.31	15,879.80	4.04 x 0.230	1	WR102015 = Wrapped R100 with 2015
W3	12,028.89	28,618.35	14,802.54	15,112.13	5.32 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	12,760.68	24,373.24	10,719.98	11,000.47	4.58 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,013.87	24,373.24	9,735.70	11,000.47	3.50 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	7,083.03	14,381.54	5,561.49	6,876.44	3.18 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	4,049.50	14,381.54	5,334.11	6,876.44	2.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,444.85	7,826.93	3,296.54	3,536.64	2.93 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	3,296.54	10,742.43	4,394.26	5,291.62	2.29 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,394.26	7,826.93	3,296.54	3,536.64	2.90 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,394.26	7,826.93	3,296.54	3,536.64	2.90 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	3,296.54	10,742.43	4,394.26	5,291.62	2.29 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,444.85	7,826.93	3,296.54	3,536.64	2.93 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,049.50	14,381.54	5,334.11	6,876.44	2.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	7,083.03	14,381.54	5,561.49	6,876.44	3.18 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	8,013.87	24,373.24	9,735.70	11,000.47	3.50 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	12,760.68	24,373.24	10,719.98	11,000.47	4.58 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	12,028.89	28,618.35	14,802.54	15,112.13	5.32 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	19,521.50	23,679.79	15,057.31	15,879.80	4.04 x 0.230	1	WR102015 = Wrapped R100 with 2015
V1	819.64	5,758.64	1,635.70	3,232.32	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,100.75	5,758.64	2,392.82	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:53:06 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/289**	**J48**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/2
BPL Material: N/A	

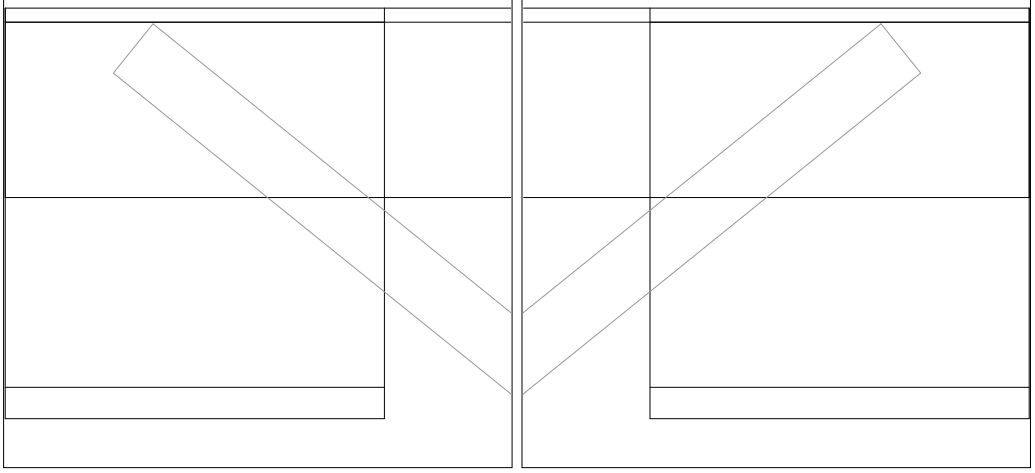
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/2
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	289.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	289.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:53:06 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/289	J48

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

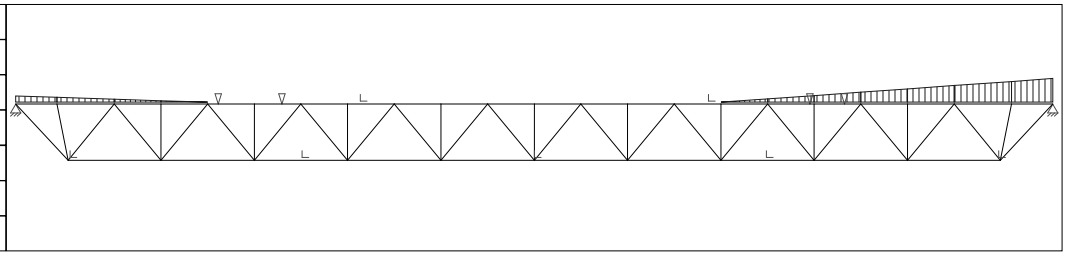
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:05:15 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J49**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
46-7 1/2	**46-3 1/2**	**32.00**	**30.29**	**10 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-0 3/4	2-0 3/4
First Diag.	4-6 3/4	4-6 3/4
Depth	32.00	32.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	46-7 1/2	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	46-7 1/2	L-BL
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc w/bending (lbs)	DL (1)	3,000.00	0.00	TC	+	9-2 1/2	9-2 1/2	L-BL
Conc w/bending (lbs)	DL (1)	3,000.00	0.00	TC	+	12-0 1/2	12-0 1/2	L-BL
Uniform (plf)	LL (1)	0.00	570.00	TC	+	32-7 1/2	46-7 1/2	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	35-7 1/2	35-7 1/2	L-BL
Conc w/bending (lbs)	DL (1)	3,000.00	0.00	TC	+	37-2	37-2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	9-2 1/2	9-2 1/2	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	12-0 1/2	12-0 1/2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	35-7 1/2	35-7 1/2	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	37-2	37-2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**50.00**	**16,107.68**	**18,105.88**	**4,522.25**	**68,607.00**	**68,264.31**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	11,214.71	14,346.70	0.00	0.00	23,437.58	16,522.12	41.25	0-2
V1S	11,086.72	14,120.46	0.00	0.00	714.81	2,090.35	30.88	2-0
W3	11,086.72	14,120.46	25,868.68	20,471.77	14,833.30	19,678.47	39.12	2-6
W4	29,388.01	36,815.20	25,868.68	20,471.77	17,317.34	14,007.99	39.28	4-6 3/4
V2	29,388.01	36,815.20	25,868.68	20,471.77	759.44	1,103.86	30.29	6-7 3/4
W5	29,388.01	36,815.20	47,002.65	37,798.76	13,213.84	16,081.55	39.28	6-7 3/4
W6	43,797.64	54,579.54	47,002.65	37,798.76	11,904.33	9,424.63	39.28	8-8 3/4
V3	43,797.64	54,579.54	47,002.65	37,798.76	2,751.49	3,182.42	30.29	10-9 3/4
W7	43,797.64	54,579.54	59,875.55	47,706.50	6,141.07	8,320.94	39.28	10-9 3/4
W8	49,649.12	63,014.50	59,875.55	47,706.50	6,159.14	4,471.08	39.28	12-10 3/4
V4	49,649.12	63,014.50	59,875.55	47,706.50	860.75	1,158.82	30.29	14-11 3/4
W9	49,649.12	63,014.50	65,457.11	51,086.27	4,020.18	5,863.40	39.28	14-11 3/4
W10	52,017.94	67,203.41	65,457.11	51,086.27	5,863.40	4,020.18	39.28	17-0 3/4
V5	52,017.94	67,203.41	65,457.11	51,086.27	872.59	1,179.77	30.29	19-1 3/4
W11	52,017.94	67,203.41	68,253.38	52,444.12	4,020.18	5,863.40	39.28	19-1 3/4
W12	52,364.82	68,607.00	68,253.38	52,444.12	5,863.40	4,020.18	39.28	21-2 3/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:05:15 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J49**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
V6	52,364.82	68,607.00	68,253.38	52,444.12	874.32	1,186.79	30.29	23-3 3/4
W12	52,364.82	68,607.00	68,264.31	51,780.04	5,863.40	4,020.18	39.28	23-3 3/4
W11	50,689.77	67,225.28	68,264.31	51,780.04	4,020.18	5,863.40	39.28	25-4 3/4
V7	50,689.77	67,225.28	68,264.31	51,780.04	865.95	1,179.88	30.29	27-5 3/4
W10	50,689.77	67,225.28	65,489.92	49,094.02	5,863.40	4,020.18	39.28	27-5 3/4
W9	46,992.79	63,058.24	65,489.92	49,094.02	4,020.18	5,863.40	39.28	29-6 3/4
V8	46,992.79	63,058.24	65,489.92	49,094.02	847.46	1,179.92	30.29	31-7 3/4
W8	46,992.79	63,058.24	59,913.00	44,386.07	6,159.14	4,471.08	39.28	31-7 3/4
W7	41,162.45	55,822.18	59,913.00	44,386.07	6,141.07	8,320.94	39.28	33-8 3/4
V9	41,162.45	55,822.18	59,913.00	44,386.07	3,233.31	3,981.02	30.29	35-9 3/4
W6	41,162.45	55,822.18	48,766.31	35,440.31	11,904.33	9,424.63	39.28	35-9 3/4
W5	27,603.39	38,991.30	48,766.31	35,440.31	13,213.84	16,081.55	39.28	37-10 3/4
V10	27,603.39	38,991.30	48,766.31	35,440.31	750.52	1,706.78	30.29	39-11 3/4
W4	27,603.39	38,991.30	27,968.63	19,260.99	17,317.34	14,007.99	39.28	39-11 3/4
W3	10,444.03	15,518.04	27,968.63	19,260.99	14,833.30	19,678.47	39.12	42-0 3/4
V1S	10,444.03	15,518.04	0.00	0.00	714.81	2,090.35	30.88	44-7 1/2
W2	10,572.02	15,908.72	0.00	0.00	23,437.58	16,522.12	41.25	44-1 1/2

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:05:15 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J49

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.6070	0.9260	0.5907	1.6920	0.8536	1.3780	1.0000	3028 = 3 x 3 x 0.281
BC	1.6070	0.9260	0.5907	1.6920	0.8536	1.3780	1.0000	3028 = 3 x 3 x 0.281

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,480.18	557.45	836.18	23-2 5/8	13-9

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	30.75	25.00	30.75	22.00
Bending Load	538.94	500.44	605.42	855.15	939.73
Axial Load	14,346.70	14,120.46	68,607.00	15,518.04	15,908.72
fa	4,463.81	4,393.42	17,368.45	4,828.26	4,949.82
Maximum K L/r	37.24	52.06	31.74	52.06	37.24
Fcr	45,177.59	41,012.67	46,448.93	41,012.67	45,177.59
Fa	27,106.55	24,607.60	27,869.36	24,607.60	27,106.55
F'e	507,077.53	259,555.05	698,099.19	259,555.05	507,077.53
Cm	0.9956	0.9915	0.9833	0.9907	0.9951
Panel Point Moment	3,112.38	3,112.38	15,305.17	5,479.54	5,479.54
Mid Panel Moment	1,149.99	1,961.19	10,188.08	3,308.18	2,314.54
Panel Point fb	2,423.95	2,423.95	11,919.82	4,267.52	4,267.52
Mid Panel fb	356.18	607.43	3,155.50	1,024.62	716.87
Fillers	0	0	0	0	0
Panel Point Stress	6,887.77	6,817.38	29,288.26	9,095.78	9,217.34
Mid Panel Stress	0.0943	0.1099	0.7191	0.1330	0.1155

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6015**
Max Load Fillers TC: **83,688.34**
Max Load no Fillers TC: **80,341.41**
TC OAL/Ryy: **328.31**
BC OAL/Ryy: **328.31**
BC Stress: **0.71**
BC L/Rz: **84.6453**
TC Shear Stress: **11,359.99**
BC Shear Stress: **11,517.13**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	23,437.58	29,969.07	16,522.12	19,136.68	4.56 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1S	714.81	5,758.64	2,090.35	2,754.54	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	14,833.30	29,969.07	19,678.47	21,629.31	3.82 x 0.245	1	WR112015 = Wrapped R112 with 2015
W4	17,317.34	28,618.35	14,007.99	14,703.97	6.22 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	759.44	5,758.64	1,103.86	2,826.17	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	13,213.84	23,679.79	16,081.55	16,967.81	3.33 x 0.230	1	WR102015 = Wrapped R100 with 2015
W6	11,904.33	24,373.24	9,424.63	10,159.87	4.28 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	2,751.49	7,826.93	3,182.42	4,112.90	2.10 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	6,141.07	24,373.24	8,320.94	10,159.87	2.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	6,159.14	10,742.43	4,471.08	4,910.77	3.22 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	860.75	5,758.64	1,158.82	2,826.17	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	4,020.18	14,381.54	5,863.40	6,375.92	2.63 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	5,863.40	10,742.43	4,020.18	4,910.77	3.06 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	872.59	5,758.64	1,179.77	2,826.17	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,020.18	14,381.54	5,863.40	6,375.92	2.63 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	5,863.40	10,742.43	4,020.18	4,910.77	3.06 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	874.32	5,758.64	1,186.79	2,826.17	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,863.40	10,742.43	4,020.18	4,910.77	3.06 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,020.18	14,381.54	5,863.40	6,375.92	2.63 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:05:15 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J49**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	865.95	5,758.64	1,179.88	2,826.17	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	5,863.40	10,742.43	4,020.18	4,910.77	3.06 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	4,020.18	14,381.54	5,863.40	6,375.92	2.63 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	847.46	5,758.64	1,179.92	2,826.17	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	6,159.14	10,742.43	4,471.08	4,910.77	3.22 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	6,141.07	24,373.24	8,320.94	10,159.87	2.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V9	3,233.31	7,826.93	3,981.02	4,112.90	2.63 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	11,904.33	24,373.24	9,424.63	10,159.87	4.28 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	13,213.84	23,679.79	16,081.55	16,967.81	3.33 x 0.230	1	WR102015 = Wrapped R100 with 2015
V10	750.52	5,758.64	1,706.78	2,826.17	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	17,317.34	28,618.35	14,007.99	14,703.97	6.22 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	14,833.30	29,969.07	19,678.47	21,629.31	3.82 x 0.245	1	WR112015 = Wrapped R112 with 2015
V1S	714.81	5,758.64	2,090.35	2,754.54	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	23,437.58	29,969.07	16,522.12	19,136.68	4.56 x 0.245	1	WR111513 = Wrapped R112 with 1513

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:05:15 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J49**

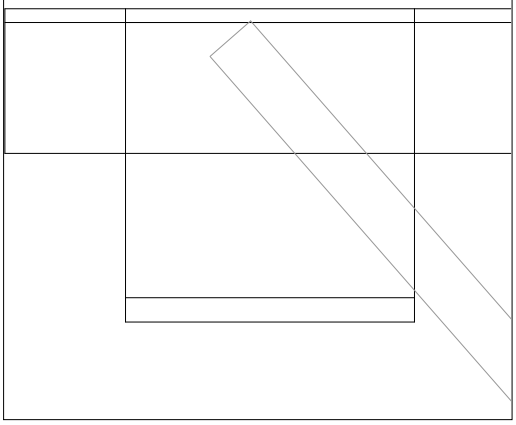
TCX Design

TCX Left	
TCX Length	0-2 1/2
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 5/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 1/2
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

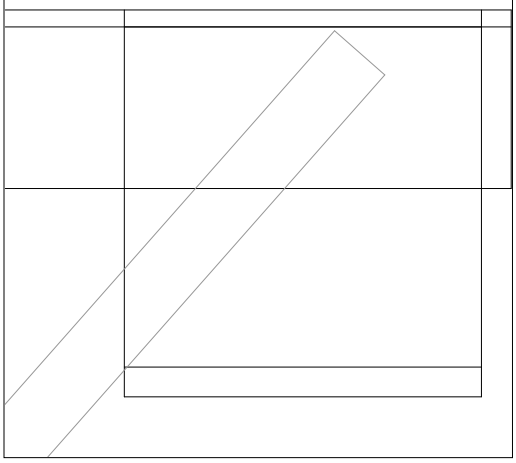
Total Load	405.00
Reqd TL Def L/80	0.03
Live Load	200.00
Reqd LL Def L/120	0.02
Section Modulus	1.2840
Reqd SM	0.0114
Mom of Inertia	2.7560
Reqd MI	0.0011

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	1.2840
Reqd SM	0.0035
Mom of Inertia	2.7560
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:05:15 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J49

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

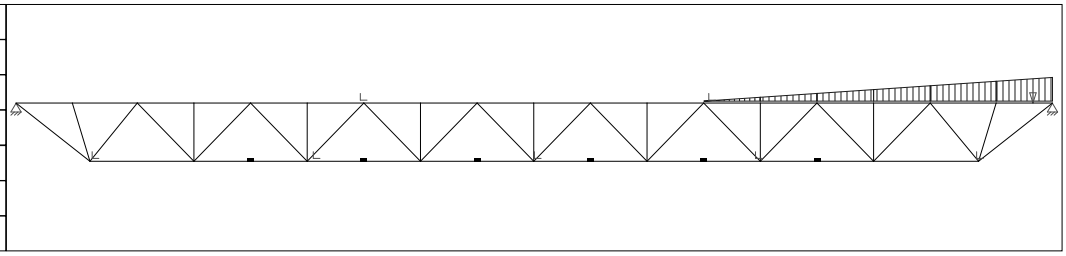
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:18:46 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J5**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
40-0	**39-8**	**28.00**	**26.80**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	1-10 1/4
First Diag.	4-9 3/4	4-10 1/4
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	40-0	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	40-0	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	28-0	40-0	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	39-1	39-1	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**9,566.63**	**11,489.57**	**2,872.39**	**39,044.13**	**38,996.75**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,992.27	10,116.09	0.00	0.00	16,482.03	8,903.91	43.30	0-2
V1S	6,788.44	9,835.30	0.00	0.00	1,265.01	2,252.36	27.97	2-4
W3	6,788.44	9,835.30	15,543.25	10,707.29	6,465.13	9,114.45	34.52	3-0
W4	14,729.44	21,454.00	15,543.25	10,707.29	8,902.80	6,304.16	37.34	4-9 3/4
W5	14,729.44	21,454.00	26,513.58	18,133.72	5,512.86	7,594.24	37.34	6-11 3/4
W6	20,920.11	30,722.01	26,513.58	18,133.72	6,554.26	4,757.91	37.34	9-1 3/4
W7	20,920.11	30,722.01	34,079.28	23,088.63	4,039.31	5,564.36	37.34	11-3 3/4
W8	24,639.27	36,585.38	34,079.28	23,088.63	4,624.54	3,357.07	37.34	13-5 3/4
W9	24,639.27	36,585.38	38,240.33	25,572.03	2,711.19	4,001.67	37.34	15-7 3/4
W10	25,886.91	39,044.13	38,240.33	25,572.03	4,001.67	2,414.74	37.34	17-9 3/4
W10	25,886.91	39,044.13	38,996.75	25,583.91	4,001.67	2,414.74	37.34	19-11 3/4
W9	24,663.04	38,098.22	38,996.75	25,583.91	2,711.19	4,001.67	37.34	22-1 3/4
W8	24,663.04	38,098.22	36,348.53	23,124.28	4,624.54	3,357.07	37.34	24-3 3/4
W7	20,967.64	33,726.36	36,348.53	23,124.28	4,039.31	5,564.36	37.34	26-5 3/4
W6	20,967.64	33,726.36	30,082.55	18,193.13	6,554.26	4,757.91	37.34	28-7 3/4
W5	14,800.73	25,246.59	30,082.55	18,193.13	5,512.86	7,594.24	37.34	30-9 3/4
W4	14,800.73	25,246.59	19,048.01	10,790.46	8,902.80	6,304.16	37.34	32-11 3/4
W3	6,786.62	12,317.76	19,048.01	10,790.46	6,524.54	10,537.30	34.84	35-1 3/4
V1S	6,786.62	12,317.76	0.00	0.00	1,265.01	2,252.36	27.97	37-8
W2	6,992.27	12,943.41	0.00	0.00	16,482.03	8,903.91	43.30	37-0

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	766.43	1,531.03	26.80

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:18:46 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J5

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	548.49	328.31	492.47	17-6 1/2	10-0 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	30.25	26.00
Bending Load	405.00	405.00	405.00	776.68	864.44
Axial Load	10,116.09	9,835.30	39,044.13	12,317.76	12,943.41
fa	3,297.29	6,016.95	23,886.04	7,535.64	7,918.39
Maximum K L/r	66.26	75.82	49.69	77.09	66.26
Fcr	36,271.07	32,843.23	41,739.96	32,378.68	36,271.07
Fa	21,762.64	19,705.94	25,043.98	19,427.21	21,762.64
F'e	521,433.53	121,677.79	283,214.88	117,688.63	159,308.36
Cm	0.9968	0.9753	0.9435	0.9680	0.9751
Panel Point Moment	20,524.43	2,604.35	1,901.25	6,845.19	6,845.20
Mid Panel Moment	15,720.26	1,828.86	950.63	2,128.49	5,962.34
Panel Point fb	8,450.18	6,013.45	4,390.00	15,805.59	15,805.59
Mid Panel fb	6,472.24	1,722.73	895.46	2,004.98	5,616.35
Fillers	0	0	0	0	0
Panel Point Stress	11,747.47	12,030.40	28,276.04	23,341.23	23,723.99
Mid Panel Stress	0.2931	0.3596	0.9829	0.4523	0.5408

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **44,039.91**
Max Load no Fillers TC: **39,844.50**
TC OAL/Ryy: **367.18**
BC OAL/Ryy: **354.39**
BC Stress: **0.91**
BC L/Rz: **135.7348**
TC Shear Stress: **12,940.28**
BC Shear Stress: **17,791.92**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	16,482.03	21,935.91	8,903.91	10,271.21	5.92 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	6,465.13	18,714.09	9,114.45	9,231.39	3.49 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W4	8,902.80	14,381.54	6,304.16	6,701.18	4.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	5,512.86	18,714.09	7,594.24	8,601.11	2.91 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	6,554.26	10,742.43	4,757.91	5,158.50	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,039.31	14,381.54	5,564.36	6,701.18	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,624.54	7,826.93	3,357.07	3,441.36	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,711.19	10,742.43	4,001.67	5,158.50	2.09 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,001.67	7,826.93	2,414.74	3,441.36	2.64 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,001.67	7,826.93	2,414.74	3,441.36	2.64 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,711.19	10,742.43	4,001.67	5,158.50	2.09 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,624.54	7,826.93	3,357.07	3,441.36	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,039.31	14,381.54	5,564.36	6,701.18	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,554.26	10,742.43	4,757.91	5,158.50	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	5,512.86	18,714.09	7,594.24	8,601.11	2.91 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W4	8,902.80	14,381.54	6,304.16	6,701.18	4.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	6,524.54	24,373.24	10,537.30	11,425.11	3.78 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W2	16,482.03	21,935.91	8,903.91	10,271.21	5.92 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V1	1,265.01	5,758.64	2,252.36	3,112.18	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	766.43	5,758.64	1,531.03	3,257.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:18:46 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J5**

TCX Design

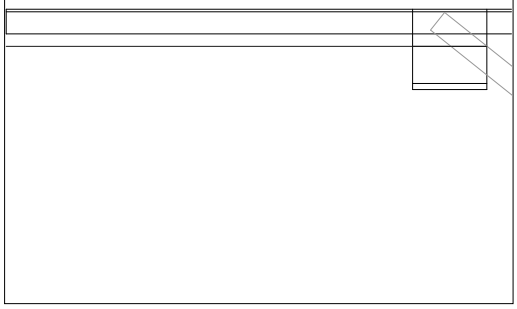
TCX Left	
TCX Length	2-8 7/8
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	5-6
Clear Bearing	0-7 1/2
BPL Material: 2018 = 2 x 2 x 0.188	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-2
Clear Bearing	0-7 1/2
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

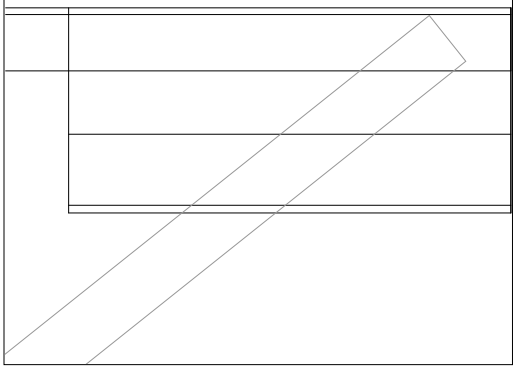
Total Load	405.00
Reqd TL Def L/80	0.41
Live Load	200.00
Reqd LL Def L/120	0.27
Section Modulus	2.4289
Reqd SM	0.6841
Mom of Inertia	3.7784
Reqd MI	0.4936

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:18:46 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J5

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

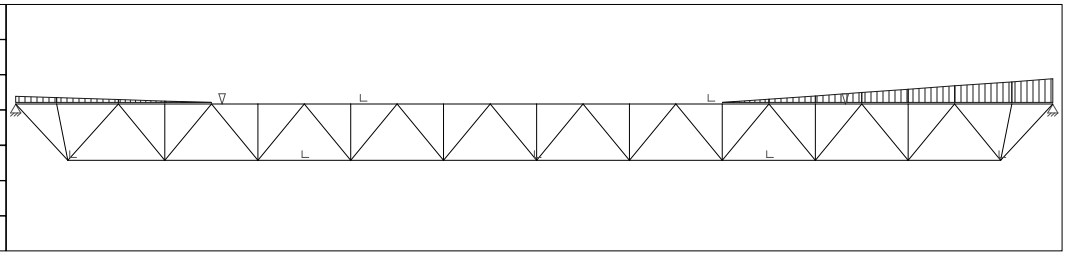
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:06:29 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J50**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
46-10	**46-6**	**32.00**	**30.32**	**10 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-3 1/4	2-0 3/4
First Diag.	4-9 1/4	4-6 3/4
Depth	32.00	32.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	46-10	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	46-10	L-BL
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc w/bending (lbs)	DL (1)	3,000.00	0.00	TC	+	9-5	9-5	L-BL
Uniform (plf)	LL (1)	0.00	570.00	TC	+	32-10	46-10	L-BL
Conc w/bending (lbs)	DL (1)	3,000.00	0.00	TC	+	37-4 1/2	37-4 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	9-5	9-5	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	37-4 1/2	37-4 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**52.25**	**13,481.99**	**16,246.94**	**4,057.52**	**58,817.31**	**58,771.04**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,835.47	11,985.78	0.00	0.00	20,896.15	13,024.03	41.27	0-2
V1S	8,701.55	11,749.08	0.00	0.00	734.11	2,081.61	30.91	2-0
W3	8,701.55	11,749.08	22,338.82	16,692.14	11,954.71	15,843.28	40.77	2-6
W4	23,434.67	31,095.30	22,338.82	16,692.14	14,900.99	10,671.78	39.30	4-9 1/4
W5	23,434.67	31,095.30	39,094.96	29,672.23	9,877.96	12,941.61	39.30	6-10 1/4
W6	33,500.37	44,486.91	39,094.96	29,672.23	8,671.44	6,556.87	39.30	8-11 1/4
W7	33,500.37	44,486.91	48,614.37	36,254.68	5,150.87	7,095.59	39.30	11-0 1/4
W8	38,504.00	52,046.20	48,614.37	36,254.68	6,208.20	4,506.69	39.30	13-1 1/4
W9	38,504.00	52,046.20	54,782.41	40,248.37	3,889.19	5,357.55	39.30	15-2 1/4
W10	41,487.76	56,823.00	54,782.41	40,248.37	5,258.68	3,298.36	39.30	17-3 1/4
W11	41,487.76	56,823.00	58,167.96	42,222.18	3,187.65	5,258.68	39.30	19-4 1/4
W12	42,451.64	58,817.31	58,167.96	42,222.18	5,258.68	3,187.65	39.30	21-5 1/4
W12	42,451.64	58,817.31	58,771.04	42,176.12	5,258.68	3,187.65	39.30	23-6 1/4
W11	41,395.63	58,029.14	58,771.04	42,176.12	3,187.65	5,258.68	39.30	25-7 1/4
W10	41,395.63	58,029.14	56,591.62	40,110.17	5,258.68	3,298.36	39.30	27-8 1/4
W9	38,319.75	54,458.48	56,591.62	40,110.17	3,889.19	5,357.55	39.30	29-9 1/4
W8	38,319.75	54,458.48	51,612.51	36,024.35	6,208.20	4,506.69	39.30	31-10 1/4
W7	33,223.99	47,933.21	51,612.51	36,024.35	5,150.87	7,095.59	39.30	33-11 1/4
W6	33,223.99	47,933.21	42,417.25	29,052.99	8,671.44	6,556.87	39.30	36-0 1/4
W5	22,769.36	34,184.90	42,417.25	29,052.99	9,877.96	12,941.61	39.30	38-1 1/4

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STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:06:29 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J50**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W4	22,769.36	34,184.90	24,706.16	15,980.77	14,900.99	10,671.78	39.30	40-2 1/4
W3	8,702.65	13,785.61	24,706.16	15,980.77	11,510.26	17,270.96	39.14	42-3 1/4
V1S	8,702.65	13,785.61	0.00	0.00	734.11	2,081.61	30.91	44-10
W2	8,830.50	14,175.90	0.00	0.00	20,896.15	13,024.03	41.27	44-4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,828.62	2,467.45	30.32

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:06:29 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J50

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.4375	0.9304	0.5924	1.6850	0.8424	1.2442	0.9613	3025 = 3 x 3 x 0.250
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,265.50	470.22	705.33	23-1 1/4	13-4 7/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	33.25	25.00	30.75	22.00
Bending Load	539.32	499.95	605.42	855.15	939.73
Axial Load	11,985.78	11,749.08	58,817.31	13,785.61	14,175.90
fa	4,168.97	4,086.64	16,672.42	4,795.00	4,930.75
Maximum K L/r	37.14	56.13	31.65	51.91	37.14
Fcr	43,624.90	38,518.42	44,797.56	39,772.78	43,624.90
Fa	26,174.94	23,111.05	26,878.54	23,863.67	26,174.94
F'e	511,907.88	224,106.19	704,749.25	262,027.53	511,907.88
Cm	0.9959	0.9909	0.9841	0.9909	0.9952
Panel Point Moment	3,582.75	3,582.75	15,305.17	5,479.54	5,479.54
Mid Panel Moment	1,475.02	2,362.82	10,188.08	3,308.18	2,314.54
Panel Point fb	3,106.47	3,106.47	13,270.55	4,751.11	4,751.11
Mid Panel fb	1,278.93	799.89	3,448.98	1,119.92	783.54
Fillers	0	0	0	0	0
Panel Point Stress	7,275.44	7,193.11	29,942.97	9,546.10	9,681.85
Mid Panel Stress	0.1244	0.1168	0.7292	0.2362	0.1217

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5165**
Max Load Fillers TC: **70,892.96**
Max Load no Fillers TC: **68,181.23**
TC OAL/Ryy: **331.15**
BC OAL/Ryy: **332.17**
BC Stress: **0.75**
BC L/Rz: **88.0074**
TC Shear Stress: **11,011.21**
BC Shear Stress: **12,218.44**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	20,896.15	28,618.35	13,024.03	15,060.15	7.51 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	11,954.71	23,679.79	15,843.28	16,535.57	3.28 x 0.230	1	WR102015 = Wrapped R100 with 2015
W4	14,900.99	28,621.37	10,671.78	11,773.56	5.35 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W5	9,877.96	28,618.35	12,941.61	14,698.92	4.65 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	8,671.44	16,730.22	6,556.87	7,096.08	3.70 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W7	5,150.87	16,730.22	7,095.59	7,096.08	3.02 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W8	6,208.20	10,742.43	4,506.69	4,907.74	3.24 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,889.19	14,381.54	5,357.55	6,371.95	2.41 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	5,258.68	10,742.43	3,298.36	4,907.74	2.75 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,187.65	14,381.54	5,258.68	6,371.95	2.36 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	5,258.68	7,826.93	3,187.65	3,263.63	3.47 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W12	5,258.68	7,826.93	3,187.65	3,263.63	3.47 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W11	3,187.65	14,381.54	5,258.68	6,371.95	2.36 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	5,258.68	10,742.43	3,298.36	4,907.74	2.75 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,889.19	14,381.54	5,357.55	6,371.95	2.41 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	6,208.20	10,742.43	4,506.69	4,907.74	3.24 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	5,150.87	16,730.22	7,095.59	7,096.08	3.02 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	8,671.44	16,730.22	6,556.87	7,096.08	3.70 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	9,877.96	28,618.35	12,941.61	14,698.92	4.65 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:06:29 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J50**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W4	14,900.99	28,621.37	10,671.78	11,773.56	5.35 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	11,510.26	29,969.07	17,270.96	18,354.66	3.36 x 0.245	1	WR111513 = Wrapped R112 with 1513
W2	20,896.15	28,618.35	13,024.03	15,060.15	7.51 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	734.11	5,758.64	2,081.61	2,750.87	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,828.62	5,758.64	2,467.45	2,822.41	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:06:29 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J50**

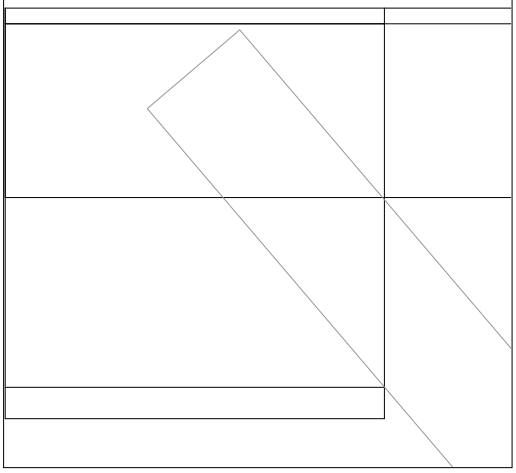
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 1/2
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

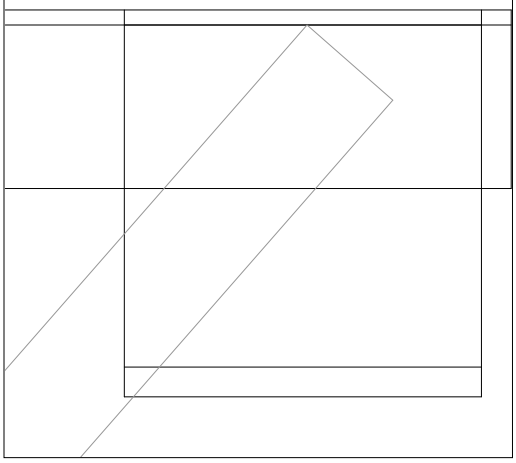
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	1.1533
Reqd SM	0.0035
Mom of Inertia	2.4884
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:06:29 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J50

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

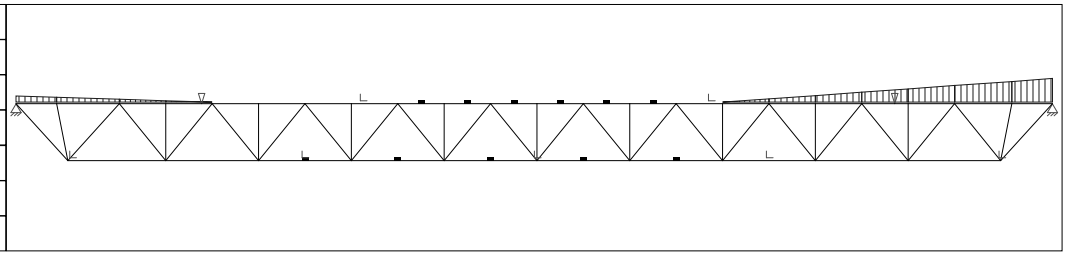
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 4:00:22 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J51**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
46-10 1/2	**46-6 1/2**	**32.00**	**30.54**	**10 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-3 3/4	2-0 3/4
First Diag.	4-9 3/4	4-6 3/4
Depth	32.00	32.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	46-10 1/2	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	46-10 1/2	L-BL
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-6	8-6	L-BL
Uniform (plf)	LL (1)	0.00	570.00	TC	+	32-10 1/2	46-10 1/2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	39-7 1/2	39-7 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-6	8-6	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	39-7 1/2	39-7 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**52.75**	**13,181.26**	**15,050.61**	**3,762.65**	**54,546.10**	**54,237.57**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,493.87	11,626.51	0.00	0.00	19,229.32	12,567.97	41.43	0-2
V1S	8,359.68	11,389.34	0.00	0.00	738.47	2,075.19	31.12	2-0
W3	8,359.68	11,389.34	21,815.12	16,157.09	11,594.03	15,502.19	41.26	2-6
W4	22,592.58	30,247.71	21,815.12	16,157.09	13,334.76	10,158.99	39.46	4-9 3/4
W5	22,592.58	30,247.71	37,364.14	27,961.70	8,475.66	11,233.91	39.46	6-10 3/4
W6	30,938.19	41,891.03	37,364.14	27,961.70	8,007.79	5,813.06	39.46	8-11 3/4
W7	30,938.19	41,891.03	45,727.15	33,413.23	5,143.99	7,086.10	39.46	11-0 3/4
W8	35,386.81	48,872.49	45,727.15	33,413.23	6,201.03	4,501.49	39.46	13-1 3/4
W9	35,386.81	48,872.49	51,327.07	36,858.95	3,885.56	5,352.56	39.46	15-2 3/4
W10	37,829.62	53,090.86	51,327.07	36,858.95	4,862.81	3,296.21	39.46	17-3 3/4
W11	37,829.62	53,090.86	54,163.87	38,298.84	3,080.01	4,862.81	39.46	19-4 3/4
W12	38,266.62	54,546.10	54,163.87	38,298.84	4,862.81	3,080.01	39.46	21-5 3/4
W12	38,266.62	54,546.10	54,237.57	37,732.94	4,862.81	3,080.01	39.46	23-6 3/4
W11	36,697.81	53,238.26	54,237.57	37,732.94	3,080.01	4,862.81	39.46	25-7 3/4
W10	36,697.81	53,238.26	51,548.17	35,161.23	4,862.81	3,296.21	39.46	27-8 3/4
W9	33,123.19	49,167.30	51,548.17	35,161.23	3,885.56	5,352.56	39.46	29-9 3/4
W8	33,123.19	49,167.30	46,078.57	30,583.71	6,201.03	4,501.49	39.46	31-10 3/4
W7	27,542.77	42,162.33	46,078.57	30,583.71	5,143.99	7,086.10	39.46	33-11 3/4
W6	27,542.77	42,162.33	37,281.82	24,000.37	8,007.79	5,813.06	39.46	36-0 3/4
W5	19,600.39	30,944.20	37,281.82	24,000.37	8,475.66	11,233.91	39.46	38-1 3/4

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STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 4:00:22 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J51**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W4	19,600.39	30,944.20	22,496.94	13,827.05	13,334.76	10,158.99	39.46	40-2 3/4
W3	7,557.91	12,608.27	22,496.94	13,827.05	9,956.37	15,704.74	39.31	42-3 3/4
V1S	7,557.91	12,608.27	0.00	0.00	738.47	2,075.19	31.12	44-10 1/2
W2	7,684.88	12,995.84	0.00	0.00	19,229.32	12,567.97	41.43	44-4 1/2

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,775.50	2,731.54	30.54

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 4:00:22 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J51

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	1.0162	0.8183	0.4925	1.5555	0.7604	0.6804	0.9652	A42A = 2.625 x 2.625 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	949.64	351.91	527.87	20-4 1/4	10-9 7/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	33.75	25.00	30.75	22.00
Bending Load	539.40	499.86	405.00	855.15	939.73
Axial Load	11,626.51	11,389.34	54,546.10	12,608.27	12,995.84
fa	5,726.78	5,609.96	26,867.35	6,210.36	6,401.26
Maximum K L/r	44.59	68.40	25.33	62.32	44.59
Fcr	42,041.70	34,752.08	46,244.23	36,762.88	42,041.70
Fa	25,225.02	20,851.25	27,746.54	22,057.73	25,225.02
F'e	355,002.66	150,844.48	488,736.13	181,713.31	355,002.66
Cm	0.9919	0.9814	0.9632	0.9829	0.9910
Panel Point Moment	3,666.71	3,666.71	1,757.81	5,708.75	5,708.74
Mid Panel Moment	1,544.78	2,450.81	878.91	3,549.04	2,308.46
Panel Point fb	5,406.18	5,406.18	2,591.71	8,416.96	8,416.95
Mid Panel fb	2,277.61	1,414.46	507.25	2,048.28	1,332.30
Fillers	0	0	6	0	0
Panel Point Stress	11,132.96	11,016.14	29,459.07	14,627.32	14,818.21
Mid Panel Stress	0.2981	0.3144	0.9848	0.3469	0.2954

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5877**
Max Load Fillers TC: **55,588.59**
Max Load no Fillers TC: **52,522.33**
TC OAL/Ryy: **376.33**
BC OAL/Ryy: **359.05**
BC Stress: **0.89**
BC L/Rz: **107.1066**
TC Shear Stress: **14,317.26**
BC Shear Stress: **16,433.23**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,229.32	28,618.35	12,567.97	15,031.62	6.91 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	11,594.03	28,597.25	15,502.19	15,544.21	5.57 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	13,334.76	28,621.37	10,158.99	11,719.77	4.79 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W5	8,475.66	28,621.37	11,233.91	11,719.77	4.03 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	8,007.79	14,381.54	5,813.06	6,344.49	3.60 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	5,143.99	18,714.09	7,086.10	8,134.03	2.71 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W8	6,201.03	10,742.43	4,501.49	4,886.78	3.24 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,885.56	14,381.54	5,352.56	6,344.49	2.40 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	4,862.81	10,742.43	3,296.21	4,886.78	2.54 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,080.01	10,742.43	4,862.81	4,886.78	2.54 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W12	4,862.81	7,826.93	3,080.01	3,248.87	3.21 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W12	4,862.81	7,826.93	3,080.01	3,248.87	3.21 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W11	3,080.01	10,742.43	4,862.81	4,886.78	2.54 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,862.81	10,742.43	3,296.21	4,886.78	2.54 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,885.56	14,381.54	5,352.56	6,344.49	2.40 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	6,201.03	10,742.43	4,501.49	4,886.78	3.24 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	5,143.99	18,714.09	7,086.10	8,134.03	2.71 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	8,007.79	14,381.54	5,813.06	6,344.49	3.60 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	8,475.66	28,621.37	11,233.91	11,719.77	4.03 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 4:00:22 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J51**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W4	13,334.76	28,621.37	10,158.99	11,719.77	4.79 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	9,956.37	28,597.25	15,704.74	15,912.01	5.64 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W2	19,229.32	28,618.35	12,567.97	15,031.62	6.91 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	738.47	5,758.64	2,075.19	2,725.59	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,775.50	5,758.64	2,731.54	2,796.48	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 4:00:22 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J51**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

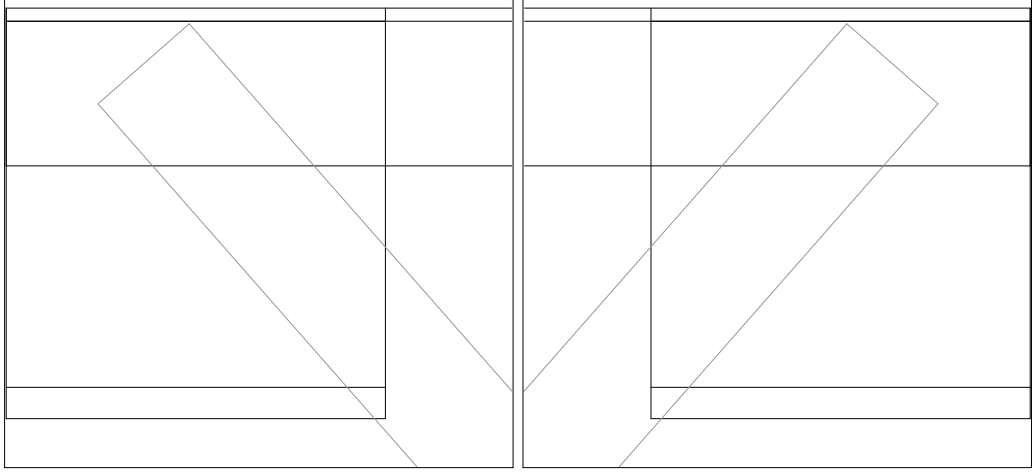
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 4:00:22 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J51

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

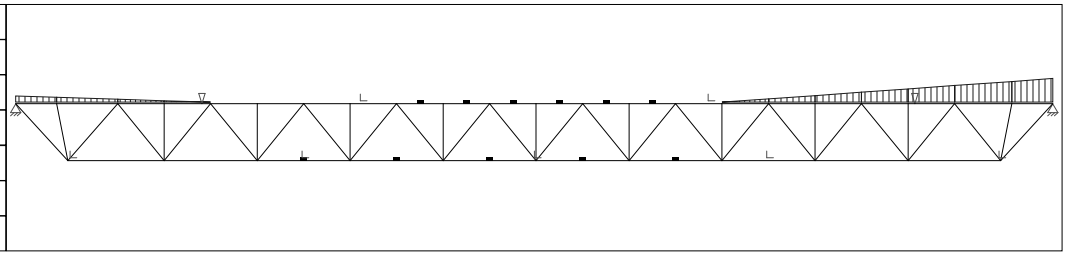
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 4:00:55 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J52**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
46-9 1/2	**46-5 1/2**	**32.00**	**30.54**	**10 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-2 3/4	2-0 3/4
First Diag.	4-8 3/4	4-6 3/4
Depth	32.00	32.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	46-9 1/2	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	46-9 1/2	L-BL
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-6	8-6	L-BL
Uniform (plf)	LL (1)	0.00	570.00	TC	+	32-9 1/2	46-9 1/2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	40-5 1/2	40-5 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-6	8-6	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	40-5 1/2	40-5 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**51.75**	**13,129.48**	**15,096.42**	**3,765.67**	**54,112.98**	**53,794.79**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,454.99	11,579.09	0.00	0.00	19,245.31	12,510.44	41.43	0-2
V1S	8,323.21	11,346.16	0.00	0.00	725.79	2,075.24	31.12	2-0
W3	8,323.21	11,346.16	21,369.87	15,813.22	11,366.87	15,212.02	40.60	2-6
W4	22,234.05	29,793.46	21,369.87	15,813.22	13,297.39	10,135.86	39.46	4-8 3/4
V2	22,234.05	29,793.46	21,369.87	15,813.22	1,293.67	1,637.30	30.54	6-9 3/4
W5	22,234.05	29,793.46	36,998.55	27,686.78	8,607.61	11,373.88	39.46	6-9 3/4
W6	30,648.61	41,515.80	36,998.55	27,686.78	7,986.54	5,797.63	39.46	8-10 3/4
V3	30,648.61	41,515.80	36,998.55	27,686.78	765.74	1,051.33	30.54	10-11 3/4
W7	30,648.61	41,515.80	45,342.27	33,108.98	5,128.78	7,065.15	39.46	10-11 3/4
W8	35,067.91	48,477.96	45,342.27	33,108.98	6,180.45	4,486.55	39.46	13-0 3/4
V4	35,067.91	48,477.96	45,342.27	33,108.98	787.84	1,086.14	30.54	15-1 3/4
W9	35,067.91	48,477.96	50,922.88	36,525.39	3,870.94	5,332.41	39.46	15-1 3/4
W10	37,481.42	52,677.02	50,922.88	36,525.39	4,866.70	3,281.95	39.46	17-2 3/4
V5	37,481.42	52,677.02	50,922.88	36,525.39	799.91	1,107.13	30.54	19-3 3/4
W11	37,481.42	52,677.02	53,740.38	37,935.98	3,066.31	4,866.70	39.46	19-3 3/4
W12	37,889.10	54,112.98	53,740.38	37,935.98	4,866.70	3,066.31	39.46	21-4 3/4
V6	37,889.10	54,112.98	53,740.38	37,935.98	801.95	1,114.32	30.54	23-5 3/4
W12	37,889.10	54,112.98	53,794.79	37,340.77	4,866.70	3,066.31	39.46	23-5 3/4
W11	36,290.98	52,785.83	53,794.79	37,340.77	3,066.31	4,866.70	39.46	25-6 3/4
V7	36,290.98	52,785.83	53,794.79	37,340.77	793.96	1,107.68	30.54	27-7 3/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 4:00:55 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J52**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W10	36,290.98	52,785.83	51,086.09	34,739.74	4,866.70	3,281.95	39.46	27-7 3/4
W9	32,687.05	48,695.57	51,086.09	34,739.74	3,870.94	5,332.41	39.46	29-8 3/4
V8	32,687.05	48,695.57	51,086.09	34,739.74	775.94	1,108.10	30.54	31-9 3/4
W8	32,687.05	48,695.57	45,597.19	30,132.91	6,180.45	4,486.55	39.46	31-9 3/4
W7	27,077.31	41,671.29	45,597.19	30,132.91	5,128.78	7,065.15	39.46	33-10 3/4
V9	27,077.31	41,671.29	45,597.19	30,132.91	747.89	1,386.14	30.54	35-11 3/4
W6	27,077.31	41,671.29	36,781.14	23,520.26	7,986.54	5,797.63	39.46	35-11 3/4
W5	19,461.76	30,790.01	36,781.14	23,520.26	8,607.61	11,373.88	39.46	38-0 3/4
V10	19,461.76	30,790.01	36,781.14	23,520.26	1,984.81	2,940.77	30.54	40-1 3/4
W4	19,461.76	30,790.01	22,517.30	13,857.97	13,297.39	10,135.86	39.46	40-1 3/4
W3	7,574.32	12,619.08	22,517.30	13,857.97	9,979.41	15,720.26	39.31	42-2 3/4
V1S	7,574.32	12,619.08	0.00	0.00	725.79	2,075.24	31.12	44-9 1/2
W2	7,701.29	13,006.65	0.00	0.00	19,245.31	12,510.44	41.43	44-3 1/2

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 4:00:55 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J52

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	1.0162	0.8183	0.4925	1.5555	0.7604	0.6804	0.9652	A42A = 2.625 x 2.625 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	949.64	353.81	530.71	20-4 1/4	10-11 1/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	32.75	25.00	30.75	22.00
Bending Load	539.25	500.05	405.00	855.15	939.73
Axial Load	11,579.09	11,346.16	54,112.98	12,619.08	13,006.65
fa	5,703.42	5,588.69	26,654.01	6,215.68	6,406.59
Maximum K L/r	44.59	66.38	25.33	62.32	44.59
Fcr	42,041.70	35,430.41	46,244.23	36,762.88	42,041.70
Fa	25,225.02	21,258.25	27,746.54	22,057.73	25,225.02
F'e	355,002.66	160,197.00	488,736.13	181,713.31	355,002.66
Cm	0.9920	0.9826	0.9635	0.9829	0.9910
Panel Point Moment	3,500.61	3,500.61	1,757.81	5,643.04	5,209.52
Mid Panel Moment	1,406.78	2,275.55	878.91	2,996.60	2,373.59
Panel Point fb	5,161.29	5,161.29	2,591.71	8,320.08	7,680.90
Mid Panel fb	2,074.15	1,313.30	507.25	1,729.45	1,369.89
Fillers	0	0	6	0	0
Panel Point Stress	10,864.71	10,749.98	29,245.73	14,535.76	14,087.48
Mid Panel Stress	0.2908	0.3048	0.9771	0.3370	0.2968

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5831
Max Load Fillers TC:	55,588.59
Max Load no Fillers TC:	52,522.33
TC OAL/Ryy:	375.65
BC OAL/Ryy:	358.40
BC Stress:	0.88
BC L/Rz:	105.0761
TC Shear Stress:	14,210.61
BC Shear Stress:	16,446.90

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,245.31	28,618.35	12,510.44	15,031.62	6.91 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	725.79	5,758.64	2,075.24	2,725.59	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	11,366.87	28,597.25	15,212.02	15,670.50	5.46 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	13,297.39	28,621.37	10,135.86	11,719.77	4.78 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V2	1,293.67	5,758.64	1,637.30	2,796.48	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	8,607.61	28,621.37	11,373.88	11,719.77	4.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	7,986.54	14,381.54	5,797.63	6,344.49	3.59 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V3	765.74	5,758.64	1,051.33	2,796.48	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	5,128.78	18,714.09	7,065.15	8,134.03	2.70 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W8	6,180.45	10,742.43	4,486.55	4,886.78	3.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	787.84	5,758.64	1,086.14	2,796.48	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	3,870.94	14,381.54	5,332.41	6,344.49	2.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	4,866.70	10,742.43	3,281.95	4,886.78	2.54 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	799.91	5,758.64	1,107.13	2,796.48	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	3,066.31	10,742.43	4,866.70	4,886.78	2.54 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W12	4,866.70	7,826.93	3,066.31	3,248.87	3.21 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
V6	801.95	5,758.64	1,114.32	2,796.48	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	4,866.70	7,826.93	3,066.31	3,248.87	3.21 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W11	3,066.31	10,742.43	4,866.70	4,886.78	2.54 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 4:00:55 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J52**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	793.96	5,758.64	1,107.68	2,796.48	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	4,866.70	10,742.43	3,281.95	4,886.78	2.54 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,870.94	14,381.54	5,332.41	6,344.49	2.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	775.94	5,758.64	1,108.10	2,796.48	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	6,180.45	10,742.43	4,486.55	4,886.78	3.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	5,128.78	18,714.09	7,065.15	8,134.03	2.70 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V9	747.89	5,758.64	1,386.14	2,796.48	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	7,986.54	14,381.54	5,797.63	6,344.49	3.59 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	8,607.61	28,621.37	11,373.88	11,719.77	4.09 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V10	1,984.81	7,826.93	2,940.77	4,088.78	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	13,297.39	28,621.37	10,135.86	11,719.77	4.78 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	9,979.41	28,597.25	15,720.26	15,912.01	5.65 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
V1S	725.79	5,758.64	2,075.24	2,725.59	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	19,245.31	28,618.35	12,510.44	15,031.62	6.91 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 4:00:55 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J52**

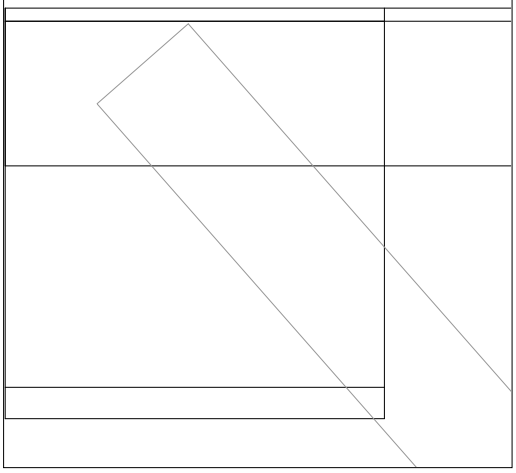
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-1
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

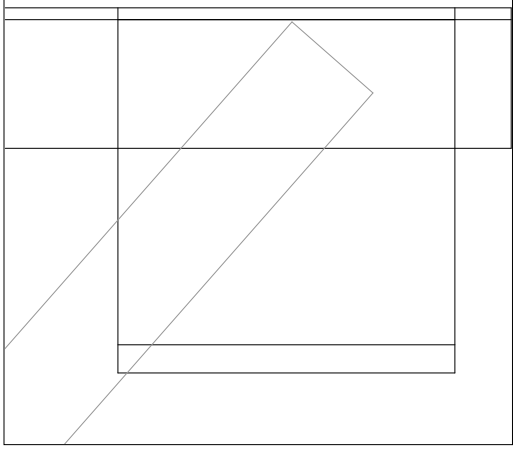
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.6782
Reqd SM	0.0051
Mom of Inertia	1.2186
Reqd MI	0.0003

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 4:00:55 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J52

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

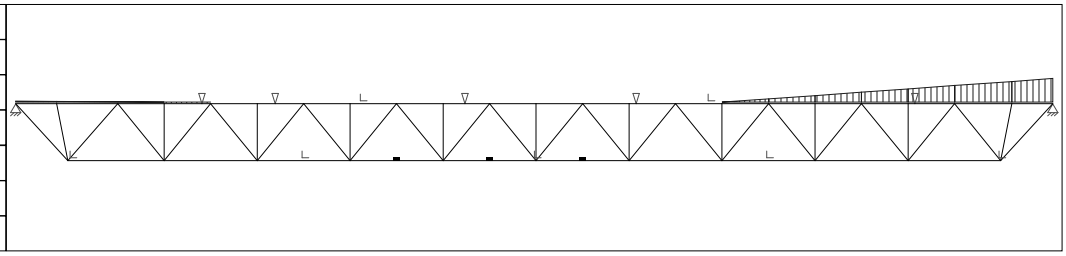
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:58:06 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J53**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
46-9 1/2	**46-5 1/2**	**32.00**	**30.53**	**10 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-2 3/4	2-0 3/4
First Diag.	4-8 3/4	4-6 3/4
Depth	32.00	32.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	46-9 1/2	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	46-9 1/2	L-BL
Uniform (plf)	LL (1)	25.00	0.00	TC	+	0-0	7-0	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-6	8-6	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	11-9 1/2	11-9 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	20-3 1/2	20-3 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	27-11 1/2	27-11 1/2	L-BL
Uniform (plf)	LL (1)	0.00	570.00	TC	+	32-9 1/2	46-9 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	40-5 1/2	40-5 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-6	8-6	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**51.75**	**12,973.73**	**14,406.59**	**3,593.21**	**55,329.23**	**55,128.65**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,274.21	11,538.32	0.00	0.00	18,311.19	12,241.52	41.43	0-2
V1S	8,142.40	11,348.18	0.00	0.00	724.89	2,072.11	31.11	2-0
W3	8,142.40	11,348.18	21,523.69	15,459.58	11,103.22	15,440.50	40.59	2-6
W4	21,718.76	30,211.06	21,523.69	15,459.58	13,712.02	9,879.40	39.46	4-8 3/4
W5	21,718.76	30,211.06	37,730.57	27,009.62	8,351.01	11,868.68	39.46	6-9 3/4
W6	29,809.05	42,568.02	37,730.57	27,009.62	8,379.96	5,872.95	39.46	8-10 3/4
W7	29,809.05	42,568.02	46,564.69	32,106.92	5,129.22	7,065.77	39.46	10-11 3/4
W8	33,903.23	49,774.62	46,564.69	32,106.92	6,180.98	4,486.93	39.46	13-0 3/4
W9	33,903.23	49,774.62	52,293.62	35,197.98	3,871.27	5,332.87	39.46	15-1 3/4
W10	35,991.17	54,121.71	52,293.62	35,197.98	4,644.22	3,282.23	39.46	17-2 3/4
W11	35,991.17	54,121.71	55,128.65	36,282.80	3,002.24	4,644.22	39.46	19-3 3/4
W12	36,072.87	55,329.23	55,128.65	36,282.80	4,644.22	3,002.24	39.46	21-4 3/4
W12	36,072.87	55,329.23	54,838.87	35,361.38	4,644.22	3,002.24	39.46	23-5 3/4
W11	34,148.32	53,657.58	54,838.87	35,361.38	3,002.24	4,644.22	39.46	25-6 3/4
W10	34,148.32	53,657.58	51,576.56	32,433.71	4,644.22	3,282.23	39.46	27-7 3/4
W9	30,217.53	48,767.77	51,576.56	32,433.71	3,871.27	5,332.87	39.46	29-8 3/4
W8	30,217.53	48,767.77	45,250.95	27,499.79	6,180.98	4,486.93	39.46	31-9 3/4
W7	24,280.50	40,906.43	45,250.95	27,499.79	5,129.22	7,065.77	39.46	33-10 3/4

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STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:58:06 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J53**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W6	24,280.50	40,906.43	35,597.46	20,559.64	8,379.96	5,872.95	39.46	35-11 3/4
W5	16,337.22	29,187.27	35,597.46	20,559.64	8,351.01	11,868.68	39.46	38-0 3/4
W4	16,337.22	29,187.27	21,330.26	11,613.24	13,712.02	9,879.40	39.46	40-1 3/4
W3	6,382.86	11,989.14	21,330.26	11,613.24	8,305.58	14,833.58	39.30	42-2 3/4
V1S	6,382.86	11,989.14	0.00	0.00	724.89	2,072.11	31.11	44-9 1/2
W2	6,509.85	12,376.79	0.00	0.00	18,311.19	12,241.52	41.43	44-3 1/2

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,291.09	1,912.76	30.53

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:58:06 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J53

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0971	0.7723	0.4925	1.4884	0.7099	0.6543	0.9970	2523 = 2 1/2 x 2 1/2 x 0.230
BC	1.0162	0.8183	0.4925	1.5555	0.7604	0.6804	0.9652	A42A = 2.625 x 2.625 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	986.09	367.39	551.08	20-5	11-5 3/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	32.75	25.00	30.75	22.00
Bending Load	427.37	420.84	405.00	855.15	939.73
Axial Load	11,538.32	11,348.18	55,329.23	11,989.14	12,376.79
fa	5,258.56	5,171.90	24,665.80	5,464.01	5,640.68
Maximum K L/r	44.67	66.50	38.07	62.44	44.67
Fcr	43,100.95	36,113.29	44,851.07	37,518.30	43,100.95
Fa	25,860.57	21,667.97	26,910.64	22,510.98	25,860.57
F'e	352,715.44	159,164.86	485,587.28	180,542.55	352,715.44
Cm	0.9925	0.9838	0.9660	0.9849	0.9920
Panel Point Moment	2,874.85	2,874.85	2,889.66	5,417.07	5,417.07
Mid Panel Moment	1,198.66	1,921.20	1,942.84	3,248.85	2,304.43
Panel Point fb	3,932.65	3,932.65	3,952.91	7,410.28	7,410.28
Mid Panel fb	1,639.71	1,042.23	1,053.97	1,762.46	1,250.13
Fillers	0	0	0	0	0
Panel Point Stress	9,191.21	9,104.55	28,618.71	12,874.29	13,050.96
Mid Panel Stress	0.2529	0.2709	0.9496	0.2971	0.2560

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5832**

Max Load Fillers TC: **60,632.66**

Max Load no Fillers TC: **57,180.59**

TC OAL/Ryy: **374.56**

BC OAL/Ryy: **358.40**

BC Stress: **0.90**

BC L/Rz: **105.0761**

TC Shear Stress: **13,373.49**

BC Shear Stress: **15,647.19**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,311.19	28,621.37	12,241.52	12,452.49	6.58 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	11,103.22	28,597.25	15,440.50	15,671.44	5.55 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	13,712.02	24,373.24	9,879.40	10,108.69	4.92 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,351.01	28,618.35	11,868.68	14,665.14	4.26 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	8,379.96	14,381.54	5,872.95	6,345.34	3.76 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	5,129.22	16,730.22	7,065.77	7,066.04	3.01 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W8	6,180.98	10,742.43	4,486.93	4,887.43	3.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,871.27	14,381.54	5,332.87	6,345.34	2.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	4,644.22	10,742.43	3,282.23	4,887.43	2.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,002.24	10,742.43	4,644.22	4,887.43	2.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W12	4,644.22	7,826.93	3,002.24	3,249.33	3.07 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W12	4,644.22	7,826.93	3,002.24	3,249.33	3.07 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W11	3,002.24	10,742.43	4,644.22	4,887.43	2.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,644.22	10,742.43	3,282.23	4,887.43	2.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,871.27	14,381.54	5,332.87	6,345.34	2.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	6,180.98	10,742.43	4,486.93	4,887.43	3.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	5,129.22	16,730.22	7,065.77	7,066.04	3.01 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	8,379.96	14,381.54	5,872.95	6,345.34	3.76 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	8,351.01	28,618.35	11,868.68	14,665.14	4.26 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:58:06 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J53**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W4	13,712.02	24,373.24	9,879.40	10,108.69	4.92 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	8,305.58	28,597.25	14,833.58	15,912.96	5.33 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W2	18,311.19	23,679.79	12,241.52	14,085.51	3.79 x 0.230	1	WR101513 = Wrapped R100 with 1513
V1	724.89	5,758.64	2,072.11	2,726.38	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,291.09	5,758.64	1,912.76	2,797.28	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:58:06 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J53**

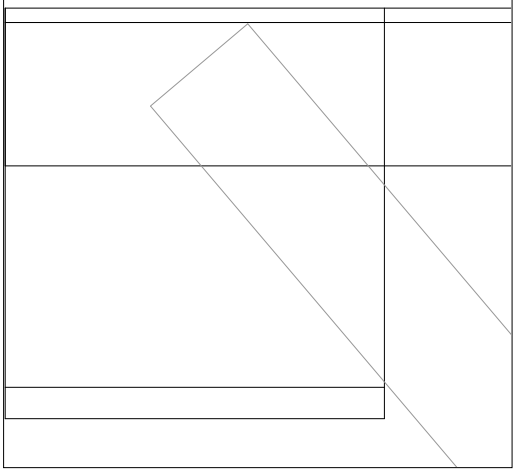
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/2
BPL Material: N/A	

TCX Right	
TCX Length	0-1
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 5/8
BPL Material: N/A	

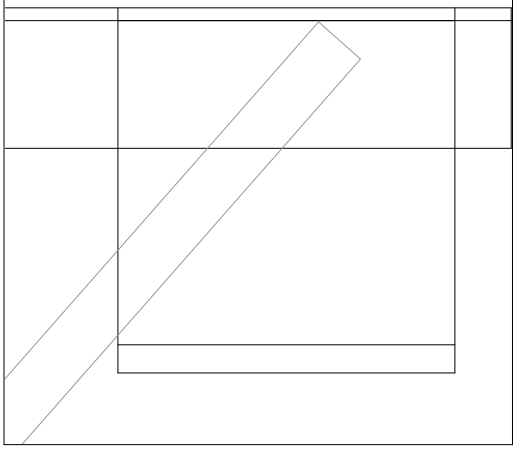
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.7310
Reqd SM	0.0051
Mom of Inertia	1.3086
Reqd MI	0.0003

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:58:06 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J53

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

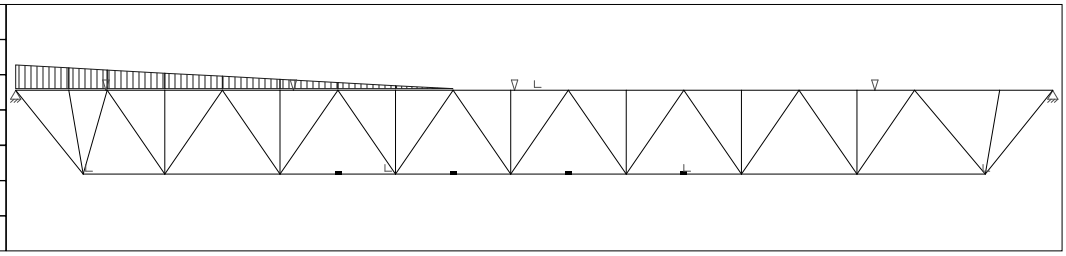
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:16:11 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH336/177**	**J54**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
36-3 1/2	**35-11 1/2**	**36.00**	**34.87**	**8 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	0-10	2-5 1/2
First Diag.	3-4	4-11 1/2
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	177.00	177.00	TC	+	0-0	36-3 1/2	L-BL
Uniform (plf)	DL (1)	159.00	159.00	TC	+	0-0	36-3 1/2	L-BL
Uniform (plf)	LL (1)	600.00	0.00	TC	+	0-0	15-0	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	3-3 1/2	3-3 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	9-9 1/2	9-9 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	17-5 1/2	17-5 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	29-11 1/2	29-11 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**53.50**	**10,837.31**	**7,194.69**	**2,709.33**	**24,797.74**	**24,759.67**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	4,028.52	8,027.48	0.00	0.00	12,820.27	6,433.74	44.72	0-2
V1S	3,948.42	7,788.18	0.00	0.00	734.87	1,451.20	35.38	2-0
W3	3,948.42	7,788.18	10,256.29	5,253.66	4,802.70	8,952.27	36.27	2-6
W4	8,048.97	14,923.79	10,256.29	5,253.66	8,231.88	5,324.20	42.33	3-4
W5	8,048.97	14,923.79	18,584.10	10,439.52	4,672.39	6,455.52	42.33	5-4
W6	12,425.32	21,346.14	18,584.10	10,439.52	4,871.28	4,050.37	42.33	7-4
W7	12,425.32	21,346.14	23,159.64	14,006.38	3,458.12	3,952.14	42.33	9-4
W8	15,182.68	24,245.40	23,159.64	14,006.38	3,309.32	2,895.65	42.33	11-4
W9	15,182.68	24,245.40	24,759.67	15,954.23	2,362.96	3,289.16	42.33	13-4
W10	16,321.04	24,797.74	24,759.67	15,954.23	3,289.16	2,153.41	42.33	15-4
W10	16,321.04	24,797.74	24,179.65	16,283.09	3,289.16	2,153.41	42.33	17-4
W9	15,840.40	23,086.08	24,179.65	16,283.09	2,362.96	3,289.16	42.33	19-4
W8	15,840.40	23,086.08	21,529.93	14,992.95	3,309.32	2,895.65	42.33	21-4
W7	13,740.76	19,511.22	21,529.93	14,992.95	3,458.12	3,952.14	42.33	23-4
W6	13,740.76	19,511.22	17,029.94	12,083.82	4,871.28	4,050.37	42.33	25-4
W5	10,022.12	14,086.08	17,029.94	12,083.82	4,672.39	6,455.52	42.33	27-4
W4	10,022.12	14,086.08	10,537.68	7,555.68	8,231.88	5,324.20	42.33	29-4
W3	3,907.31	5,391.99	10,537.68	7,555.68	6,047.31	7,966.50	45.67	31-4
V1S	3,907.31	5,391.99	0.00	0.00	734.87	1,451.20	35.38	34-3 1/2
W2	4,028.52	5,530.52	0.00	0.00	12,820.27	6,433.74	44.72	33-9 1/2

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	669.61	1,537.83	34.87

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:16:11 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH336/177	J54

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.5997	0.6218	0.3955	1.2812	0.5577	0.2318	0.9354	2015 = 2 x 2 x 0.156
BC	0.6209	0.6011	0.3559	1.2877	0.5763	0.2243	1.0000	A34A = 1.938 x 1.938 x 0.176

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	742.59	596.69	895.04	18-1 3/4	12-2 1/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	16.00	24.00	35.50	22.00
Bending Load	899.74	837.10	533.80	336.00	336.00
Axial Load	8,027.48	7,788.17	24,797.74	5,391.99	5,530.52
fa	6,692.92	6,493.39	17,797.35	4,495.57	4,611.07
Maximum K L/r	55.63	40.46	45.51	89.76	55.63
Fcr	37,850.04	41,817.96	40,592.88	26,956.22	37,850.04
Fa	22,710.02	25,090.77	24,355.72	16,173.73	22,710.02
F'e	228,640.84	432,274.09	341,549.88	87,809.70	228,640.84
Cm	0.9854	0.9925	0.9651	0.9744	0.9899
Panel Point Moment	3,166.68	3,166.68	3,255.89	2,806.98	2,504.87
Mid Panel Moment	2,976.59	1,720.88	1,581.25	1,754.95	1,146.28
Panel Point fb	9,851.82	9,851.81	10,129.35	8,732.76	7,792.88
Mid Panel fb	3,580.77	5,353.80	1,902.21	2,111.16	3,566.18
Fillers	0	0	0	0	0
Panel Point Stress	16,544.73	16,345.20	27,926.70	13,228.34	12,403.95
Mid Panel Stress	0.4122	0.4314	0.7944	0.3492	0.3188

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5000
Max Load Fillers TC:	29,509.59
Max Load no Fillers TC:	27,283.51
TC OAL/Ryy:	336.80
BC OAL/Ryy:	335.10
BC Stress:	0.66
BC L/Rz:	150.3231
TC Shear Stress:	16,019.13
BC Shear Stress:	19,856.11

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	12,820.27	18,714.09	6,433.74	8,003.29	4.91 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	4,802.70	24,373.24	8,952.27	11,011.28	3.22 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	8,231.88	14,381.54	5,324.20	5,871.04	3.70 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	4,672.39	16,730.22	6,455.52	6,532.57	2.75 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	4,871.28	10,742.43	4,050.37	4,524.73	2.54 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,458.12	10,742.43	3,952.14	4,524.73	2.06 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	3,309.32	7,826.93	2,895.65	2,995.94	2.18 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,362.96	10,742.43	3,289.16	4,524.73	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,289.16	7,826.93	2,153.41	2,995.94	2.17 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,289.16	7,826.93	2,153.41	2,995.94	2.17 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,362.96	10,742.43	3,289.16	4,524.73	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	3,309.32	7,826.93	2,895.65	2,995.94	2.18 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	3,458.12	10,742.43	3,952.14	4,524.73	2.06 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W6	4,871.28	10,742.43	4,050.37	4,524.73	2.54 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	4,672.39	16,730.22	6,455.52	6,532.57	2.75 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W4	8,231.88	14,381.54	5,324.20	5,871.04	3.70 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	6,047.31	24,373.24	7,966.50	8,406.12	2.86 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W2	12,820.27	18,714.09	6,433.74	8,003.29	4.91 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V1	734.87	5,758.64	1,451.20	2,227.17	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	669.61	5,758.64	1,537.83	2,285.09	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:16:11 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH336/177**	**J54**

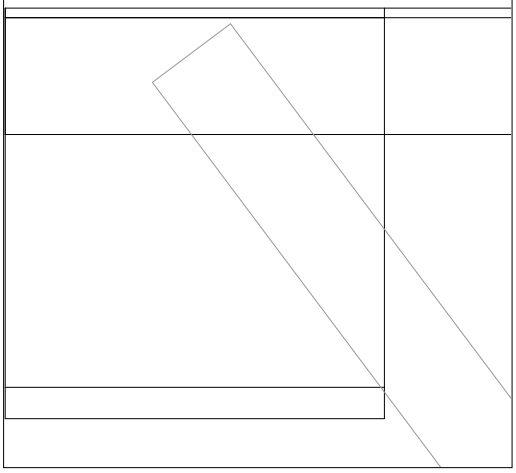
TCX Design

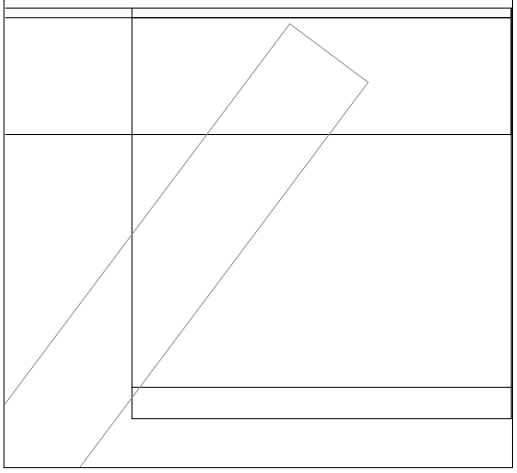
TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/4
BPL Material: N/A	

Total Load	336.00
Reqd TL Def L/80	0.00
Live Load	177.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	

Total Load	336.00
Reqd TL Def L/80	0.00
Live Load	177.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	





Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:16:11 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH336/177	J54

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

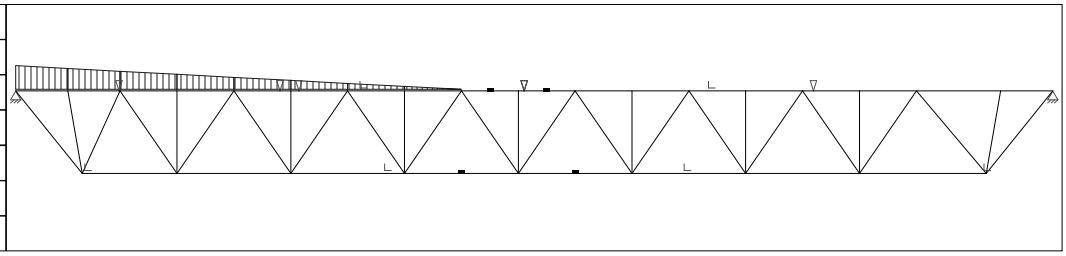
Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 11:09:57 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH364/180	J55

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
36-9 1/2	36-5 1/2	36.00	34.72	8 @ 4-0	1.0220	Parallel Chords	0.0000

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	1-4	2-5 1/2
First Diag.	3-10	4-11 1/2
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	184.00	184.00	TC	+	0-0	36-9 1/2	L-BL
Uniform (plf)	LL (1)	180.00	180.00	TC	+	0-0	36-9 1/2	L-BL
Uniform (plf)	LL (1)	600.00	0.00	TC	+	0-0	15-0	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	3-9 1/2	3-9 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	9-5 1/2	9-5 1/2	L-BL
Conc Load (lbs)	SM (1)	1,400.00	0.00	TC	+	10-1 1/2	18-0 1/2	L-BL
Conc Load (lbs)	DL (1)	1,000.00	0.00	TC	+	10-1 1/2	10-1 1/2	L-BL
Conc Load (lbs)	WL (1)	1,400.00	0.00	TC	+	10-1 1/2	18-0 1/2	L-BL
Conc Load (lbs)	DL (1)	1,000.00	0.00	TC	+	18-0 1/2	18-0 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	28-2 1/2	28-2 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	9-5 1/2	9-5 1/2	L-BL
Conc Load (lbs)	SM (2)	1,400.00	0.00	TC	-	10-1 1/2	18-0 1/2	L-BL
Conc Load (lbs)	WL (2)	1,400.00	0.00	TC	-	10-1 1/2	18-0 1/2	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	28-2 1/2	28-2 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	53.50	15,295.08	11,494.83	3,819.98	41,919.64	41,443.53

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	7,041.80	11,623.15	0.00	0.00	18,515.04	11,604.05	44.60	0-2
V1S	6,948.65	11,338.00	0.00	0.00	1,609.09	2,209.41	35.23	2-0
W3	6,948.65	11,338.00	17,219.41	10,724.13	9,352.14	14,308.99	38.23	2-6
W4	15,997.83	24,614.67	17,219.41	10,724.13	13,550.75	9,640.39	42.21	3-10
V2	15,997.83	24,614.67	17,219.41	10,724.13	1,675.72	2,130.74	34.72	5-10
W5	15,997.83	24,614.67	31,279.01	20,865.06	8,925.58	12,028.78	42.21	5-10
W6	24,936.98	36,746.14	31,279.01	20,865.06	9,889.29	7,526.95	42.21	7-10
V3	24,936.98	36,746.14	31,279.01	20,865.06	4,152.99	5,602.90	34.72	9-10
W7	24,936.98	36,746.14	38,987.05	26,917.46	3,755.68	5,079.72	42.21	9-10
W8	28,491.47	40,489.17	38,987.05	26,917.46	4,643.84	3,040.86	42.21	11-10
V4	28,491.47	40,489.17	38,987.05	26,917.46	2,113.60	2,032.19	34.72	13-10
W9	28,491.47	40,489.17	41,443.53	29,659.01	2,771.05	4,643.84	42.21	13-10
W10	30,420.08	41,919.64	41,443.53	29,659.01	4,643.84	2,771.05	42.21	15-10
V5	30,420.08	41,919.64	41,443.53	29,659.01	2,118.31	2,987.33	34.72	17-10

* Continued on Next Page...

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 11:09:57 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH364/180**	**J55**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W10	30,420.08	41,919.64	40,591.47	29,907.72	4,643.84	2,771.05	42.21	17-10
W9	28,888.07	38,639.63	40,591.47	29,907.72	2,771.05	4,643.84	42.21	19-10
V6	28,888.07	38,639.63	40,591.47	29,907.72	732.44	912.21	34.72	21-10
W8	28,888.07	38,639.63	36,219.45	27,461.96	4,643.84	3,040.86	42.21	21-10
W7	25,629.38	33,330.95	36,219.45	27,461.96	3,755.68	5,079.72	42.21	23-10
V7	25,629.38	33,330.95	36,219.45	27,461.96	716.15	887.77	34.72	25-10
W6	25,629.38	33,330.95	29,974.12	23,390.34	9,889.29	7,526.95	42.21	25-10
W5	19,059.84	24,283.16	29,974.12	23,390.34	8,925.58	12,028.78	42.21	27-10
V8	19,059.84	24,283.16	29,974.12	23,390.34	1,245.80	1,421.77	34.72	29-10
W4	19,059.84	24,283.16	17,693.31	13,934.04	13,550.75	9,640.39	42.21	29-10
W3	7,014.26	8,879.72	17,693.31	13,934.04	10,686.74	13,611.51	45.56	31-10
V1S	7,014.26	8,879.72	0.00	0.00	1,609.09	2,209.41	35.23	34-9 1/2
W2	7,135.99	9,019.97	0.00	0.00	18,515.04	11,604.05	44.60	34-3 1/2

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 11:09:57 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH364/180	J55

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,060.00	817.18	1,225.76	18-4 3/8	12-2 5/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	22.00	24.00	35.50	22.00
Bending Load	928.89	858.68	364.00	364.00	364.00
Axial Load	11,623.15	11,338.00	41,919.64	8,879.72	9,019.97
fa	7,110.70	6,936.25	25,645.20	5,432.35	5,518.15
Maximum K L/r	56.07	56.07	30.58	90.47	56.07
Fcr	39,733.42	39,733.42	46,695.31	27,483.50	39,733.42
Fa	23,840.05	23,840.05	28,017.19	16,490.10	23,840.05
F'e	222,505.06	222,505.06	332,384.13	85,453.24	222,505.06
Cm	0.9840	0.9844	0.9483	0.9682	0.9876
Panel Point Moment	3,778.54	3,778.53	1,456.00	2,830.08	2,830.07
Mid Panel Moment	2,840.10	1,032.04	728.00	2,031.60	1,338.86
Panel Point fb	8,724.67	8,724.66	3,361.91	6,534.66	6,534.66
Mid Panel fb	2,675.29	972.15	685.75	1,913.71	3,091.43
Fillers	0	0	2	0	0
Panel Point Stress	15,835.36	15,660.91	29,007.11	11,967.01	12,052.81
Mid Panel Stress	0.3807	0.3209	0.9375	0.3909	0.3258

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **44,917.17**
Max Load no Fillers TC: **41,242.02**
TC OAL/Ryy: **337.49**
BC OAL/Ryy: **299.03**
BC Stress: **0.73**
BC L/Rz: **121.5081**
TC Shear Stress: **16,680.69**
BC Shear Stress: **18,180.99**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,515.04	28,618.35	11,604.05	14,454.77	5.72 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	1,609.09	5,758.64	2,209.41	2,243.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	9,352.14	28,618.35	14,308.99	14,926.79	5.14 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	13,550.75	28,621.37	9,640.39	10,834.35	4.87 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V2	1,675.72	5,758.64	2,130.74	2,301.87	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	8,925.58	28,618.35	12,028.78	14,083.97	4.32 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	9,889.29	18,714.09	7,526.95	7,540.52	3.78 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V3	4,152.99	14,381.54	5,602.90	7,148.05	2.52 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	3,755.68	14,381.54	5,079.72	5,890.90	2.28 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,643.84	10,742.43	3,040.86	4,539.95	2.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	2,113.60	5,758.64	2,032.19	2,301.87	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	2,771.05	14,381.54	4,643.84	5,890.90	2.08 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	4,643.84	7,826.93	2,771.05	3,006.50	3.07 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
V5	2,118.31	7,826.93	2,987.33	3,685.33	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,643.84	7,826.93	2,771.05	3,006.50	3.07 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,771.05	14,381.54	4,643.84	5,890.90	2.08 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V6	732.44	5,758.64	912.21	2,301.87	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	4,643.84	10,742.43	3,040.86	4,539.95	2.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,755.68	14,381.54	5,079.72	5,890.90	2.28 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 11:09:57 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH364/180**	**J55**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	716.15	5,758.64	887.77	2,301.87	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	9,889.29	18,714.09	7,526.95	7,540.52	3.78 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	8,925.58	28,618.35	12,028.78	14,083.97	4.32 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V8	1,245.80	5,758.64	1,421.77	2,301.87	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	13,550.75	28,621.37	9,640.39	10,834.35	4.87 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	10,686.74	28,597.25	13,611.51	14,706.48	4.89 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
V1S	1,609.09	5,758.64	2,209.41	2,243.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	18,515.04	28,618.35	11,604.05	14,454.77	5.72 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218

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NEW MILLENNIUM
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Job Number:	Job Name:	Date Run:
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Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH364/180**	**J55**

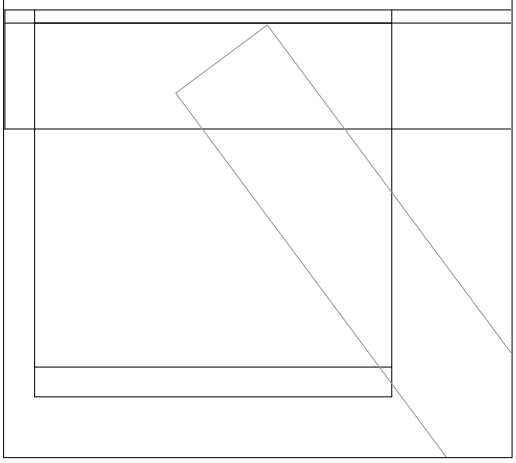
TCX Design

TCX Left	
TCX Length	0-0 1/2
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/8
BPL Material: N/A	

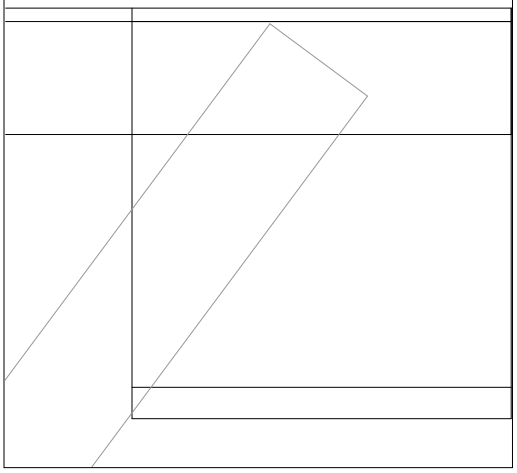
Total Load	364.00
Reqd TL Def L/80	0.01
Live Load	180.00
Reqd LL Def L/120	0.00
Section Modulus	0.4331
Reqd SM	0.0032
Mom of Inertia	0.6152
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	364.00
Reqd TL Def L/80	0.00
Live Load	180.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 11:09:57 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH364/180	J55

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

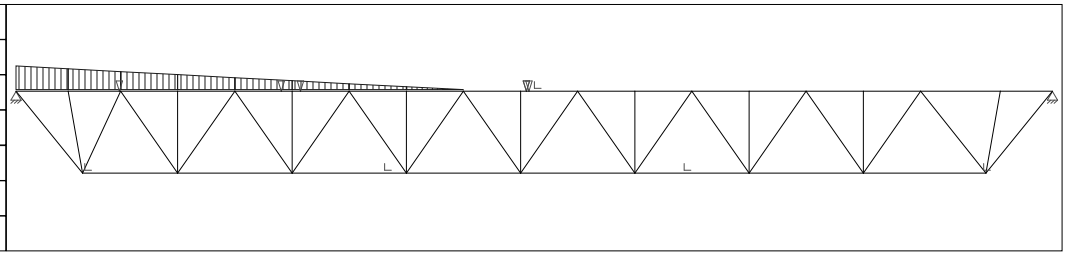
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:13:51 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J56**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
36-7 1/2	**36-3 1/2**	**36.00**	**34.33**	**8 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	1-4	2-3 1/2
First Diag.	3-10	4-9 1/2
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	36-7 1/2	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	36-7 1/2	L-BL
Uniform (plf)	LL (1)	600.00	0.00	TC	+	0-0	15-0	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	3-9 1/2	3-9 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	9-5 1/2	9-5 1/2	L-BL
Conc Load (lbs)	SM (1)	6,100.00	0.00	TC	+	10-1 1/2	18-1 1/2	L-BL
Conc Load (lbs)	DL (1)	3,100.00	0.00	TC	+	10-1 1/2	10-1 1/2	L-BL
Conc Load (lbs)	WL (1)	6,100.00	0.00	TC	+	10-1 1/2	18-0 1/2	L-BL
Conc Load (lbs)	DL (1)	3,100.00	0.00	TC	+	18-0 1/2	18-0 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	9-5 1/2	9-5 1/2	L-BL
Conc Load (lbs)	WL (2)	6,100.00	0.00	TC	-	10-1 1/2	18-0 1/2	L-BL
Conc Load (lbs)	SM (2)	6,100.00	0.00	TC	-	10-1 1/2	18-1 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**51.50**	**20,390.29**	**13,250.39**	**5,093.35**	**62,024.66**	**60,446.35**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,476.02	15,192.60	0.00	0.00	25,327.32	15,111.87	44.30	0-2
V1S	8,381.82	14,942.30	0.00	0.00	5,057.47	4,976.63	34.85	2-0
W3	8,381.82	14,942.30	22,956.33	12,974.07	12,325.60	20,074.11	37.88	2-6
W4	19,468.52	33,633.79	22,956.33	12,974.07	19,855.17	12,943.52	41.89	3-10
V2	19,468.52	33,633.79	22,956.33	12,974.07	5,068.34	4,989.44	34.33	5-10
W5	19,468.52	33,633.79	43,382.57	25,551.93	12,226.09	18,234.30	41.89	5-10
W6	30,831.07	51,847.58	43,382.57	25,551.93	15,993.64	10,822.35	41.89	7-10
V3	30,831.07	51,847.58	43,382.57	25,551.93	7,541.01	10,865.38	34.33	9-10
W7	30,831.07	51,847.58	55,608.09	33,995.22	6,942.07	10,696.17	41.89	9-10
W8	36,748.32	58,330.92	55,608.09	33,995.22	9,776.21	6,224.64	41.89	11-10
V4	36,748.32	58,330.92	55,608.09	33,995.22	6,797.81	6,750.35	34.33	13-10
W9	36,748.32	58,330.92	60,446.35	39,090.39	5,507.21	8,861.19	41.89	13-10
W10	41,021.40	62,024.66	60,446.35	39,090.39	7,804.84	6,214.48	41.89	15-10
V5	41,021.40	62,024.66	60,446.35	39,090.39	6,797.53	9,928.07	34.33	17-10
W10	41,021.40	62,024.66	58,194.43	38,721.31	7,804.84	6,214.48	41.89	17-10
W9	35,565.99	53,120.76	58,194.43	38,721.31	5,507.21	8,861.19	41.89	19-10

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:13:51 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J56**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
V6	35,565.99	53,120.76	58,194.43	38,721.31	2,803.15	3,010.15	34.33	21-10
W8	35,565.99	53,120.76	47,520.00	31,999.63	9,776.21	6,224.64	41.89	21-10
W7	28,022.22	41,392.15	47,520.00	31,999.63	6,942.07	10,696.17	41.89	23-10
V7	28,022.22	41,392.15	47,520.00	31,999.63	2,803.15	3,004.79	34.33	25-10
W6	28,022.22	41,392.15	34,737.21	23,633.77	15,993.64	10,822.35	41.89	25-10
W5	18,834.27	27,555.20	34,737.21	23,633.77	12,226.09	18,234.30	41.89	27-10
V8	18,834.27	27,555.20	34,737.21	23,633.77	2,803.15	2,999.42	34.33	29-10
W4	18,834.27	27,555.20	19,846.09	13,623.72	19,855.17	12,943.52	41.89	29-10
W3	7,089.10	10,289.25	19,846.09	13,623.72	10,452.52	15,287.57	43.99	31-10
V1S	7,089.10	10,289.25	0.00	0.00	5,057.47	4,976.63	34.85	34-7 1/2
W2	7,207.92	10,441.62	0.00	0.00	25,327.32	15,111.87	44.30	34-1 1/2

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:13:51 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J56

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,549.24	1,210.87	1,816.31	23-9 5/8	14-3 3/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	22.00	24.00	33.50	22.00
Bending Load	969.89	899.68	405.00	405.00	405.00
Axial Load	15,192.60	14,942.30	62,024.66	10,289.25	10,441.62
fa	5,796.49	5,700.99	23,664.50	3,925.70	3,983.83
Maximum K L/r	37.06	37.06	30.32	56.43	37.06
Fcr	42,063.18	42,063.18	43,371.61	37,224.91	42,063.18
Fa	25,237.91	25,237.91	26,022.96	22,334.95	25,237.91
F'e	515,435.19	515,435.19	769,971.19	222,295.06	515,435.19
Cm	0.9944	0.9945	0.9794	0.9912	0.9961
Panel Point Moment	3,946.94	3,946.93	1,620.00	2,771.36	2,771.36
Mid Panel Moment	2,960.59	1,083.27	810.00	2,003.27	609.97
Panel Point fb	3,742.04	3,742.04	1,535.90	2,627.49	2,627.49
Mid Panel fb	1,080.77	395.45	295.69	731.30	222.67
Fillers	0	0	0	0	0
Panel Point Stress	9,538.53	9,443.03	25,200.40	6,553.19	6,611.32
Mid Panel Stress	0.2648	0.2388	0.9192	0.1149	0.0870

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6683**
Max Load Fillers TC: **70,176.56**
Max Load no Fillers TC: **67,799.93**
TC OAL/Ryy: **259.25**
BC OAL/Ryy: **259.25**
BC Stress: **0.77**
BC L/Rz: **86.7441**
TC Shear Stress: **14,419.92**
BC Shear Stress: **14,730.72**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	25,327.32	29,969.07	15,111.87	17,864.20	4.92 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1S	5,057.47	10,742.43	4,976.63	5,480.03	2.64 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W3	12,325.60	29,969.07	20,074.11	22,074.18	3.90 x 0.245	1	WR112015 = Wrapped R112 with 2015
W4	19,855.17	28,618.35	12,943.52	14,151.00	7.13 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	5,068.34	10,742.43	4,989.44	5,547.50	2.65 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	12,226.09	29,969.07	18,234.30	20,618.95	3.54 x 0.245	1	WR112015 = Wrapped R112 with 2015
W6	15,993.64	28,621.37	10,822.35	10,935.66	5.74 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V3	7,541.01	24,373.24	10,865.38	11,571.45	3.90 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W7	6,942.07	28,621.37	10,696.17	10,935.66	3.84 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W8	9,776.21	16,730.22	6,224.64	6,613.24	4.17 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V4	6,797.81	14,381.54	6,750.35	7,214.38	3.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,507.21	24,373.24	8,861.19	9,437.29	3.18 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	7,804.84	16,730.22	6,214.48	6,613.24	3.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V5	6,797.53	24,373.24	9,928.07	11,571.45	3.57 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	7,804.84	16,730.22	6,214.48	6,613.24	3.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W9	5,507.21	24,373.24	8,861.19	9,437.29	3.18 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V6	2,803.15	7,826.93	3,010.15	3,721.84	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	9,776.21	16,730.22	6,224.64	6,613.24	4.17 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W7	6,942.07	28,621.37	10,696.17	10,935.66	3.84 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:13:51 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J56**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	2,803.15	7,826.93	3,004.79	3,721.84	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	15,993.64	28,621.37	10,822.35	10,935.66	5.74 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W5	12,226.09	29,969.07	18,234.30	20,618.95	3.54 x 0.245	1	WR112015 = Wrapped R112 with 2015
V8	2,803.15	7,826.93	2,999.42	3,721.84	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	19,855.17	28,618.35	12,943.52	14,151.00	7.13 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	10,452.52	23,679.79	15,287.57	15,588.94	3.17 x 0.230	1	WR102015 = Wrapped R100 with 2015
V1S	5,057.47	10,742.43	4,976.63	5,480.03	2.64 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W2	25,327.32	29,969.07	15,111.87	17,864.20	4.92 x 0.245	1	WR111513 = Wrapped R112 with 1513

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:13:51 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J56**

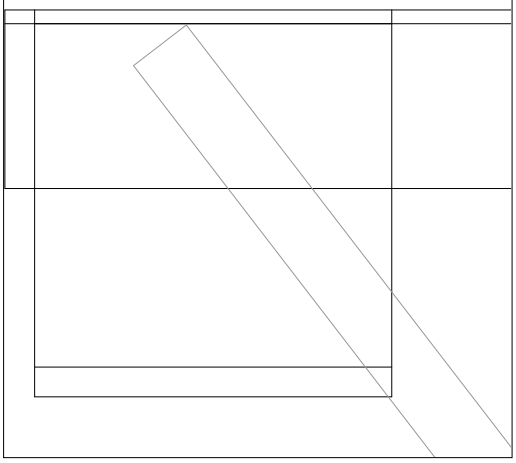
TCX Design

TCX Left	
TCX Length	0-0 1/2
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6
BPL Material: N/A	

TCX Right	
TCX Length	0-3
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6
BPL Material: N/A	

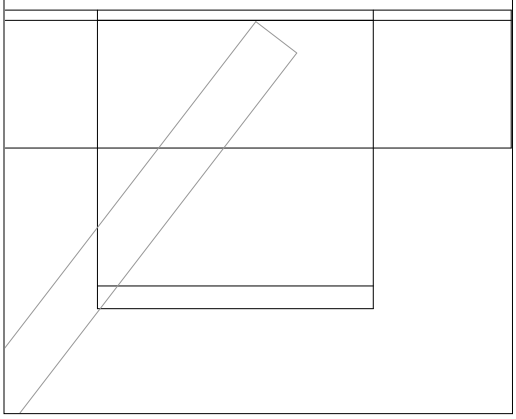
Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	1.0548
Reqd SM	0.0035
Mom of Inertia	2.2846
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.04
Live Load	200.00
Reqd LL Def L/120	0.03
Section Modulus	1.0548
Reqd SM	0.0141
Mom of Inertia	2.2846
Reqd MI	0.0015

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:13:51 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J56

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

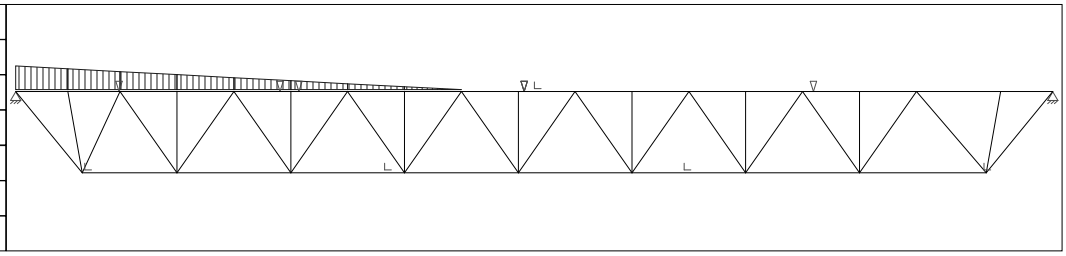
Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 11:17:52 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J57

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
36-9 1/2	36-5 1/2	36.00	34.33	8 @ 4-0	1.0220	Parallel Chords	0.0000

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	1-4	2-5 1/2
First Diag.	3-10	4-11 1/2
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	36-9 1/2	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	36-9 1/2	L-BL
Uniform (plf)	LL (1)	600.00	0.00	TC	+	0-0	15-0	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	3-9 1/2	3-9 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	9-5 1/2	9-5 1/2	L-BL
Conc Load (lbs)	DL (1)	3,100.00	0.00	TC	+	10-1 1/2	10-1 1/2	L-BL
Conc Load (lbs)	SM (1)	6,100.00	0.00	TC	+	10-1 1/2	18-0 1/2	L-BL
Conc Load (lbs)	WL (1)	6,100.00	0.00	TC	+	10-1 1/2	18-0 1/2	L-BL
Conc Load (lbs)	DL (1)	3,100.00	0.00	TC	+	18-0 1/2	18-0 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	28-2 1/2	28-2 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	9-5 1/2	9-5 1/2	L-BL
Conc Load (lbs)	WL (2)	6,100.00	0.00	TC	-	10-1 1/2	18-0 1/2	L-BL
Conc Load (lbs)	SM (2)	6,100.00	0.00	TC	-	10-1 1/2	18-0 1/2	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	28-2 1/2	28-2 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	53.50	21,213.03	15,695.66	5,299.04	67,196.83	65,032.99

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,074.91	15,875.72	0.00	0.00	26,388.71	16,051.57	44.30	0-2
V1S	8,980.71	15,625.42	0.00	0.00	5,068.17	4,987.77	34.85	2-0
W3	8,980.71	15,625.42	24,029.80	13,915.17	13,129.02	20,981.80	37.88	2-6
W4	20,922.95	35,292.79	24,029.80	13,915.17	20,859.01	13,832.03	41.89	3-10
V2	20,922.95	35,292.79	24,029.80	13,915.17	5,083.11	5,005.28	34.33	5-10
W5	20,922.95	35,292.79	45,627.11	27,519.69	13,114.60	19,238.13	41.89	5-10
W6	33,312.16	54,677.64	45,627.11	27,519.69	16,997.47	11,710.86	41.89	7-10
V3	33,312.16	54,677.64	45,627.11	27,519.69	7,560.83	10,887.01	34.33	9-10
W7	33,312.16	54,677.64	59,023.67	36,989.64	7,611.59	9,673.42	41.89	9-10
W8	40,256.07	62,332.04	59,023.67	36,989.64	8,753.45	6,894.16	41.89	11-10
V4	40,256.07	62,332.04	59,023.67	36,989.64	6,815.02	6,770.12	34.33	13-10
W9	40,256.07	62,332.04	65,032.99	43,111.46	5,361.09	7,833.49	41.89	13-10
W10	45,555.81	67,196.83	65,032.99	43,111.46	6,773.70	4,643.67	41.89	15-10
V5	45,555.81	67,196.83	65,032.99	43,111.46	6,819.78	9,953.63	34.33	17-10

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 11:17:52 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J57**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W10	45,555.81	67,196.83	63,818.88	43,769.05	6,773.70	4,643.67	41.89	17-10
W9	41,127.06	59,330.73	63,818.88	43,769.05	5,361.09	7,833.49	41.89	19-10
V6	41,127.06	59,330.73	63,818.88	43,769.05	2,786.58	3,019.91	34.33	21-10
W8	41,127.06	59,330.73	54,315.50	38,074.03	8,753.45	6,894.16	41.89	21-10
W7	34,609.95	48,773.18	54,315.50	38,074.03	7,611.59	9,673.42	41.89	23-10
V7	34,609.95	48,773.18	54,315.50	38,074.03	2,786.58	3,019.40	34.33	25-10
W6	34,609.95	48,773.18	42,703.77	30,734.82	16,997.47	11,710.86	41.89	25-10
W5	24,744.70	34,220.48	42,703.77	30,734.82	13,114.60	19,238.13	41.89	27-10
V8	24,744.70	34,220.48	42,703.77	30,734.82	2,529.56	2,973.92	34.33	29-10
W4	24,744.70	34,220.48	24,774.70	17,950.32	20,859.01	13,832.03	41.89	29-10
W3	8,972.59	12,361.14	24,774.70	17,950.32	13,775.53	19,047.51	45.27	31-10
V1S	8,972.59	12,361.14	0.00	0.00	5,068.17	4,987.77	34.85	34-9 1/2
W2	9,095.69	12,519.00	0.00	0.00	26,388.71	16,051.57	44.30	34-3 1/2

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 11:17:52 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J57**

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	**50,000.00**	**30,000.00**	**1,549.24**	**1,194.34**	**1,791.51**	**23-9 5/8**	**12-11 1/2**

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	22.00	24.00	35.50	22.00
Bending Load	969.89	899.68	405.00	405.00	405.00
Axial Load	15,875.72	15,625.42	67,196.83	12,361.14	12,519.00
fa	6,057.12	5,961.63	25,637.86	4,716.19	4,776.42
Maximum K L/r	37.06	37.06	30.32	59.79	37.06
Fcr	42,063.18	42,063.18	43,371.61	36,254.29	42,063.18
Fa	25,237.91	25,237.91	26,022.96	21,752.57	25,237.91
F'e	515,435.19	515,435.19	769,971.19	197,953.30	515,435.19
Cm	0.9941	0.9942	0.9777	0.9881	0.9954
Panel Point Moment	3,946.94	3,946.93	1,620.00	3,148.85	3,148.85
Mid Panel Moment	2,960.59	1,083.27	810.00	2,260.43	1,489.66
Panel Point fb	3,742.04	3,742.04	1,535.90	2,985.38	2,985.38
Mid Panel fb	1,080.77	395.45	295.69	825.18	1,412.33
Fillers	0	0	0	0	0
Panel Point Stress	9,799.16	9,703.66	27,173.76	7,701.58	7,761.80
Mid Panel Stress	0.2752	0.2491	0.9950	0.2441	0.1462

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.7240**
Max Load Fillers TC: **70,176.56**
Max Load no Fillers TC: **67,799.93**
TC OAL/Ryy: **260.44**
BC OAL/Ryy: **260.44**
BC Stress: **0.83**
BC L/Rz: **90.1129**
TC Shear Stress: **15,023.49**
BC Shear Stress: **15,348.03**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	26,388.71	29,969.07	16,051.57	17,864.20	5.13 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1S	5,068.17	10,742.43	4,987.77	5,480.03	2.65 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W3	13,129.02	29,969.07	20,981.80	22,074.18	4.08 x 0.245	1	WR112015 = Wrapped R112 with 2015
W4	20,859.01	28,618.35	13,832.03	14,151.00	7.49 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	5,083.11	10,742.43	5,005.28	5,547.50	2.65 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	13,114.60	29,969.07	19,238.13	20,618.95	3.74 x 0.245	1	WR112015 = Wrapped R112 with 2015
W6	16,997.47	28,618.35	11,710.86	14,151.00	6.10 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V3	7,560.83	24,373.24	10,887.01	11,571.45	3.91 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W7	7,611.59	28,621.37	9,673.42	10,935.66	3.47 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W8	8,753.45	18,714.09	6,894.16	7,608.59	3.35 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V4	6,815.02	14,381.54	6,770.12	7,214.38	3.06 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,361.09	24,373.24	7,833.49	9,437.29	2.81 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,773.70	14,381.54	4,643.67	5,942.95	3.04 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	6,819.78	24,373.24	9,953.63	11,571.45	3.58 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,773.70	14,381.54	4,643.67	5,942.95	3.04 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,361.09	24,373.24	7,833.49	9,437.29	2.81 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V6	2,786.58	7,826.93	3,019.91	3,721.84	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	8,753.45	18,714.09	6,894.16	7,608.59	3.35 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W7	7,611.59	28,621.37	9,673.42	10,935.66	3.47 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 11:17:52 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J57**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	2,786.58	7,826.93	3,019.40	3,721.84	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	16,997.47	28,618.35	11,710.86	14,151.00	6.10 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W5	13,114.60	29,969.07	19,238.13	20,618.95	3.74 x 0.245	1	WR112015 = Wrapped R112 with 2015
V8	2,529.56	7,826.93	2,973.92	3,721.84	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	20,859.01	28,618.35	13,832.03	14,151.00	7.49 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	13,775.53	29,969.07	19,047.51	19,365.65	3.70 x 0.245	1	WR112015 = Wrapped R112 with 2015
V1S	5,068.17	10,742.43	4,987.77	5,480.03	2.65 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W2	26,388.71	29,969.07	16,051.57	17,864.20	5.13 x 0.245	1	WR111513 = Wrapped R112 with 1513

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 11:17:52 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/200**	**J57**

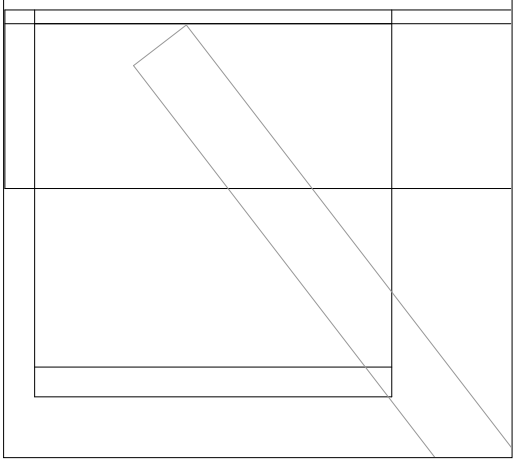
TCX Design

TCX Left	
TCX Length	0-0 1/2
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6
BPL Material: N/A	

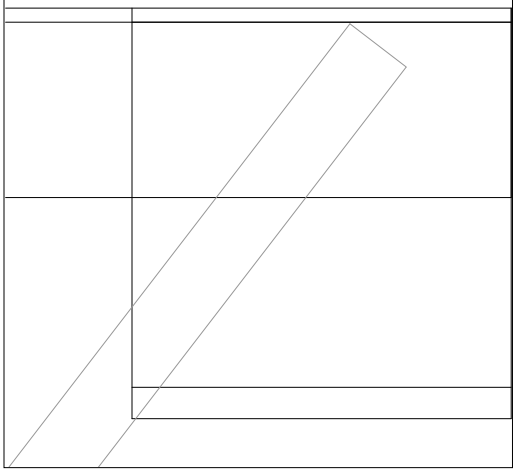
Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	1.0548
Reqd SM	0.0035
Mom of Inertia	2.2846
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 11:17:52 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/200	J57

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

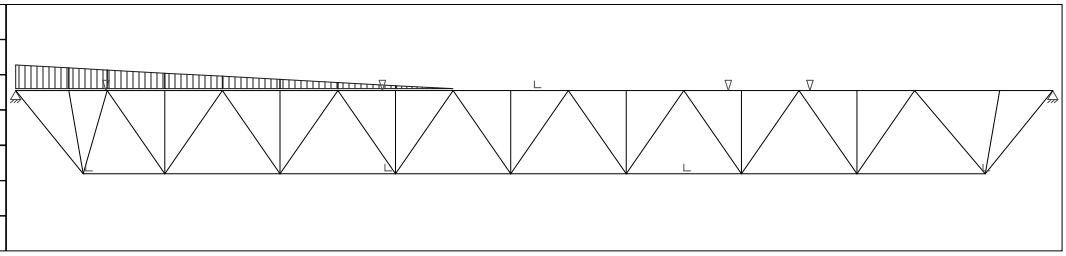
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:17:27 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH473/289**	**J58**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
36-3 1/2	**35-11 1/2**	**36.00**	**34.75**	**8 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	0-10	2-5 1/2
First Diag.	3-4	4-11 1/2
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	289.00	289.00	TC	+	0-0	36-3 1/2	L-BL
Uniform (plf)	DL (1)	184.00	184.00	TC	+	0-0	36-3 1/2	L-BL
Axial (lbs)	SM (1)	7,000.00	0.00	TC	+	0-0	0-0	L-BL
Uniform (plf)	LL (1)	600.00	0.00	TC	+	0-0	15-0	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	3-3 1/2	3-3 1/2	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	12-10 1/2	12-10 1/2	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	24-10 1/2	24-10 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	27-8 1/2	27-8 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	27-8 1/2	27-8 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**53.50**	**14,055.50**	**12,002.79**	**3,513.88**	**38,986.68**	**36,934.58**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	5,241.10	14,534.26	0.00	0.00	16,807.99	9,392.68	44.63	0-2
V1S	5,265.31	14,307.17	0.00	0.00	744.26	1,684.04	35.27	2-0
W3	5,265.31	14,307.17	13,571.08	6,038.45	5,466.22	11,946.83	36.16	2-6
W4	9,327.72	23,035.64	13,571.08	6,038.45	11,457.71	7,146.94	42.24	3-4
W5	9,327.72	23,035.64	25,393.01	12,210.93	5,748.77	9,424.26	42.24	5-4
W6	14,688.08	31,728.18	25,393.01	12,210.93	7,427.64	4,359.29	42.24	7-4
W7	14,688.08	31,728.18	32,853.35	16,759.17	3,644.71	5,701.07	42.24	9-4
W8	18,424.20	37,026.54	32,853.35	16,759.17	4,663.50	2,930.12	42.24	11-4
W9	18,424.20	37,026.54	36,401.92	19,683.17	2,365.42	4,270.33	42.24	13-4
W10	20,536.08	38,986.68	36,401.92	19,683.17	4,270.33	3,739.74	42.24	15-4
W10	20,536.08	38,986.68	36,934.58	20,982.94	4,270.33	3,739.74	42.24	17-4
W9	21,023.74	38,613.51	36,934.58	20,982.94	2,365.42	4,270.33	42.24	19-4
W8	21,023.74	38,613.51	34,854.11	20,658.47	4,663.50	2,930.12	42.24	21-4
W7	19,887.15	35,829.64	34,854.11	20,658.47	3,644.71	5,701.07	42.24	23-4
W6	19,887.15	35,829.64	29,736.08	18,709.77	7,427.64	4,359.29	42.24	25-4
W5	15,443.06	28,181.74	29,736.08	18,709.77	5,748.77	9,424.26	42.24	27-4
W4	15,443.06	28,181.74	17,983.74	11,381.83	11,457.71	7,146.94	42.24	29-4
W3	5,771.22	13,794.35	17,983.74	11,381.83	8,669.97	13,688.71	45.59	31-4
V1S	5,771.22	13,794.35	0.00	0.00	744.26	1,684.04	35.27	34-3 1/2

* Continued on Next Page...

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:17:27 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH473/289**	**J58**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	5,892.82	13,968.28	0.00	0.00	16,807.99	9,392.68	44.63	33-9 1/2

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,227.72	1,837.62	34.75

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:17:27 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH473/289**	**J58**

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.9305	0.6092	0.3912	1.3045	0.5910	0.3453	1.0000	2024 = 2 x 2 x 0.248
BC	0.8084	0.6885	0.4106	1.3990	0.6554	0.3832	1.0000	A38B = 2.219 x 2.219 x 0.199

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	**50,000.00**	**30,000.00**	**1,046.41**	**840.82**	**1,261.23**	**18-5 3/4**	**13-3 3/4**

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	16.00	24.00	35.50	22.00
Bending Load	1,036.74	974.10	591.68	473.00	473.00
Axial Load	14,534.26	14,307.17	38,986.68	13,794.35	13,968.28
fa	4,169.32	7,687.90	19,896.04	7,412.33	4,006.97
Maximum K L/r	56.24	40.90	46.01	90.75	56.24
Fcr	39,677.35	44,243.70	42,829.38	27,382.63	39,677.35
Fa	23,806.41	26,546.22	25,697.63	16,429.57	23,806.41
F'e	474,573.91	414,932.63	327,847.97	84,287.05	474,573.91
Cm	0.9956	0.9907	0.9593	0.9560	0.9958
Panel Point Moment	2,311.06	2,838.01	4,234.52	4,284.17	4,284.17
Mid Panel Moment	4,071.34	148.07	2,039.44	2,432.67	2,245.30
Panel Point fb	1,045.53	5,790.26	8,639.51	8,740.80	1,938.16
Mid Panel fb	1,796.42	126.71	1,745.31	2,081.82	1,015.78
Fillers	0	0	0	0	0
Panel Point Stress	5,214.85	13,478.15	28,535.55	16,153.13	5,945.13
Mid Panel Stress	0.1481	0.2934	0.8294	0.5203	0.1184

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **49,172.00**
Max Load no Fillers TC: **45,132.94**
TC OAL/Ryy: **330.78**
BC OAL/Ryy: **308.43**
BC Stress: **0.76**
BC L/Rz: **130.2971**
TC Shear Stress: **13,194.09**
BC Shear Stress: **19,533.75**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	16,807.99	24,373.24	9,392.68	9,947.17	6.04 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	5,466.22	28,621.37	11,946.83	12,814.63	4.29 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	11,457.71	18,714.09	7,146.94	7,534.35	4.38 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W5	5,748.77	28,621.37	9,424.26	10,825.18	3.38 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	7,427.64	10,742.43	4,359.29	4,536.33	3.88 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,644.71	14,381.54	5,701.07	5,886.19	2.56 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,663.50	7,826.93	2,930.12	3,003.99	3.08 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,365.42	10,742.43	4,270.33	4,536.33	2.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,270.33	10,742.43	3,739.74	4,536.33	2.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,270.33	10,742.43	3,739.74	4,536.33	2.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,365.42	10,742.43	4,270.33	4,536.33	2.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,663.50	7,826.93	2,930.12	3,003.99	3.08 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	3,644.71	14,381.54	5,701.07	5,886.19	2.56 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	7,427.64	10,742.43	4,359.29	4,536.33	3.88 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	5,748.77	28,621.37	9,424.26	10,825.18	3.38 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	11,457.71	18,714.09	7,146.94	7,534.35	4.38 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	8,669.97	28,597.25	13,688.71	14,701.17	4.92 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W2	16,807.99	24,373.24	9,392.68	9,947.17	6.04 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V1	744.26	5,758.64	1,684.04	2,239.64	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,227.72	5,758.64	1,837.62	2,297.88	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:17:27 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH473/289**	**J58**

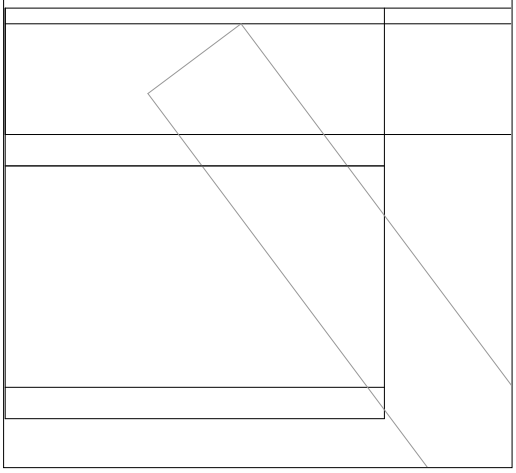
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	2-3 3/8
Clear Bearing	0-6 1/8
BPL Material: 1725 = 1 3/4 x 1 3/4 x 0.250	

TCX Right	
TCX Length	0-0
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	2-3 3/8
Clear Bearing	0-6 1/8
BPL Material: 1725 = 1 3/4 x 1 3/4 x 0.250	

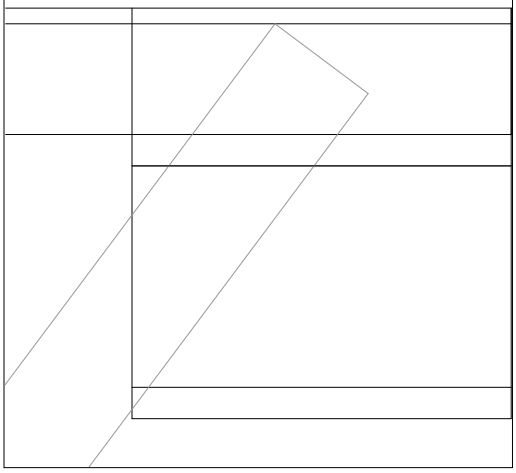
Total Load	473.00
Reqd TL Def L/80	0.00
Live Load	289.00
Reqd LL Def L/120	0.00
Section Modulus	2.2104
Reqd SM	0.0000
Mom of Inertia	2.7976
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Total Load	473.00
Reqd TL Def L/80	0.00
Live Load	289.00
Reqd LL Def L/120	0.00
Section Modulus	2.2104
Reqd SM	0.0000
Mom of Inertia	2.7976
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:17:27 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH473/289	J58

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

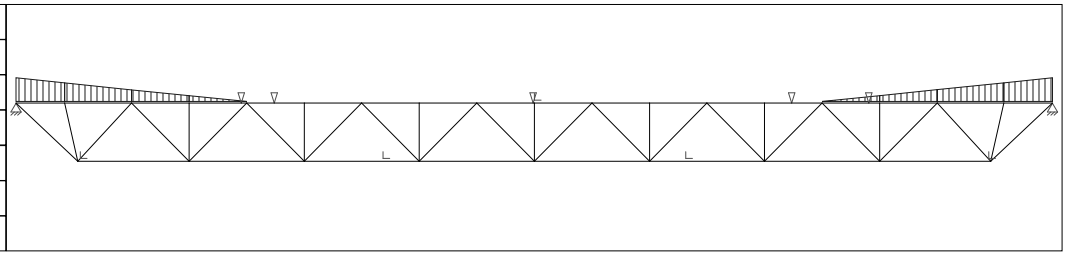
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:23:27 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/247**	**J59**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-4 3/8	**39-0 3/8**	**28.00**	**26.33**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-0 1/4	2-0 1/8
First Diag.	4-6 1/4	4-6 1/8
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	247.00	247.00	TC	+	0-0	39-4 3/8	L-BL
Uniform (plf)	DL (1)	158.00	158.00	TC	+	0-0	39-4 3/8	L-BL
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-7 7/8	8-7 7/8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	9-10 3/4	9-10 3/4	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	19-7 5/8	19-7 5/8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	29-4 1/2	29-4 1/2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	32-3 3/8	32-3 3/8	L-BL
Uniform (plf)	LL (1)	0.00	150.00	TC	+	32-4 3/8	39-4 3/8	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-7 7/8	8-7 7/8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	9-10 3/4	9-10 3/4	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	19-7 5/8	19-7 5/8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	29-4 1/2	29-4 1/2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	32-3 3/8	32-3 3/8	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**13,758.45**	**12,984.11**	**3,430.12**	**58,827.09**	**57,920.23**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	10,991.57	13,900.55	0.00	0.00	19,295.13	15,088.53	38.44	0-2
V1S	10,845.73	13,642.41	0.00	0.00	711.43	1,538.34	27.01	2-0
W3	10,845.73	13,642.41	24,637.95	19,775.76	13,182.26	16,386.03	35.80	2-6
W4	28,669.85	35,313.05	24,637.95	19,775.76	15,353.50	12,658.71	37.01	4-6 1/4
W5	28,669.85	35,313.05	44,771.08	36,664.39	11,378.40	13,575.36	37.01	6-8 1/4
W6	40,569.35	49,892.07	44,771.08	36,664.39	8,584.07	6,735.18	37.01	8-10 1/4
W7	40,569.35	49,892.07	53,434.55	43,133.27	4,725.18	6,190.15	37.01	11-0 1/4
W8	45,068.23	56,110.61	53,434.55	43,133.27	4,956.98	3,829.99	37.01	13-2 1/4
W9	45,068.23	56,110.61	57,920.23	46,374.21	3,726.32	4,820.44	37.01	15-4 1/4
W10	47,015.63	58,827.09	57,920.23	46,374.21	4,820.44	3,726.32	37.01	17-6 1/4
W10	47,015.63	58,827.09	57,126.53	45,582.59	4,820.44	3,726.32	37.01	19-8 1/4
W9	43,520.59	54,559.54	57,126.53	45,582.59	3,726.32	4,820.44	37.01	21-10 1/4
W8	43,520.59	54,559.54	51,126.10	40,829.62	4,956.98	3,829.99	37.01	24-0 1/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:23:27 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/247**	**J59**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W7	37,509.67	46,826.23	51,126.10	40,829.62	4,725.18	6,190.15	37.01	26-2 1/4
W6	37,509.67	46,826.23	40,876.65	32,777.49	8,584.07	6,735.18	37.01	28-4 1/4
W5	26,440.82	33,075.10	40,876.65	32,777.49	11,378.40	13,575.36	37.01	30-6 1/4
W4	26,440.82	33,075.10	23,123.60	18,271.79	15,353.50	12,658.71	37.01	32-8 1/4
W3	10,061.98	12,858.34	23,123.60	18,271.79	13,182.26	16,386.03	35.71	34-10 1/4
V1S	10,061.98	12,858.34	0.00	0.00	711.43	1,538.34	27.01	37-4 3/8
W2	10,207.47	13,115.87	0.00	0.00	19,295.13	15,088.53	38.44	36-10 3/8

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,336.02	3,018.77	26.33

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:23:27 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/247	J59

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	913.24	573.78	860.67	22-9 1/4	12-2 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	30.25	26.00	30.13	22.00
Bending Load	539.17	501.58	405.00	501.61	539.15
Axial Load	13,900.55	13,642.41	58,827.09	12,858.34	13,115.87
fa	5,303.53	5,205.04	22,444.52	4,905.89	5,004.15
Maximum K L/r	37.06	50.95	32.84	50.74	37.06
Fcr	42,063.18	38,731.17	42,907.04	38,787.17	42,063.18
Fa	25,237.91	23,238.70	25,744.22	23,272.30	25,237.91
F'e	515,435.19	272,626.88	656,070.13	274,894.03	515,435.19
Cm	0.9949	0.9905	0.9771	0.9911	0.9951
Panel Point Moment	3,065.19	3,065.19	1,901.25	3,269.80	3,269.79
Mid Panel Moment	1,284.71	1,844.78	950.63	2,037.69	1,326.29
Panel Point fb	2,906.06	2,906.07	1,802.55	3,100.05	3,100.05
Mid Panel fb	468.99	673.44	347.03	743.87	484.16
Fillers	0	0	0	0	0
Panel Point Stress	8,209.59	8,111.11	24,247.07	8,005.94	8,104.20
Mid Panel Stress	0.2254	0.2461	0.8834	0.2352	0.1168

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.6339
Max Load Fillers TC:	69,704.45
Max Load no Fillers TC:	66,942.45
TC OAL/Ryy:	278.82
BC OAL/Ryy:	278.82
BC Stress:	0.74
BC L/Rz:	87.5863
TC Shear Stress:	11,432.90
BC Shear Stress:	11,742.28

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,295.13	28,618.35	15,088.53	15,579.12	6.93 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	13,182.26	28,597.25	16,386.03	16,547.14	5.89 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	15,353.50	28,618.35	12,658.71	15,187.47	5.51 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W5	11,378.40	28,618.35	13,575.36	15,187.47	4.88 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	8,584.07	14,381.54	6,735.18	6,758.36	3.85 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	4,725.18	14,381.54	6,190.15	6,758.36	2.78 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,956.98	10,742.43	3,829.99	5,201.96	2.59 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,726.32	10,742.43	4,820.44	5,201.96	2.52 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,820.44	10,742.43	3,726.32	5,201.96	2.52 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,820.44	10,742.43	3,726.32	5,201.96	2.52 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,726.32	10,742.43	4,820.44	5,201.96	2.52 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,956.98	10,742.43	3,829.99	5,201.96	2.59 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,725.18	14,381.54	6,190.15	6,758.36	2.78 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	8,584.07	14,381.54	6,735.18	6,758.36	3.85 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	11,378.40	28,618.35	13,575.36	15,187.47	4.88 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	15,353.50	28,618.35	12,658.71	15,187.47	5.51 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	13,182.26	28,597.25	16,386.03	16,562.00	5.89 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W2	19,295.13	28,618.35	15,088.53	15,579.12	6.93 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	711.43	5,758.64	1,538.34	3,232.32	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,336.02	5,758.64	3,018.77	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:23:27 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/247**	**J59**

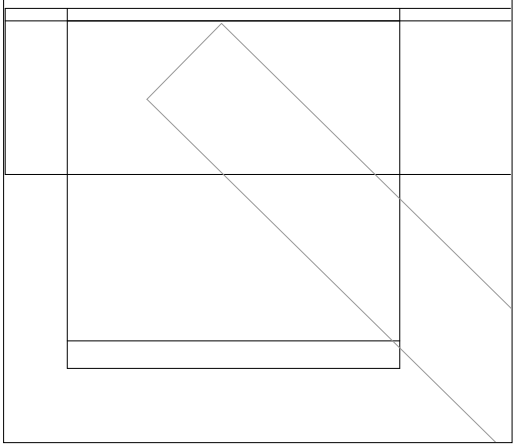
TCX Design

TCX Left	
TCX Length	0-1 1/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

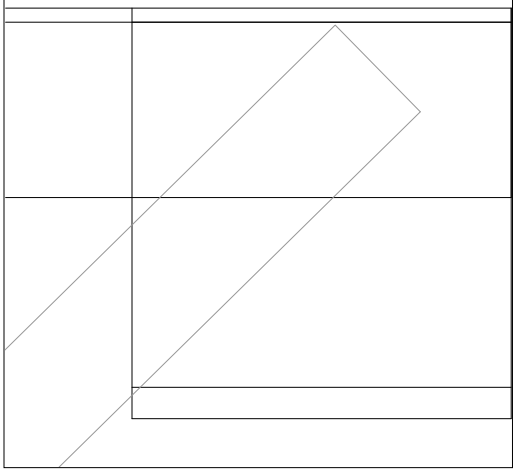
Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	247.00
Reqd LL Def L/120	0.01
Section Modulus	1.0548
Reqd SM	0.0055
Mom of Inertia	2.2846
Reqd MI	0.0004

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	247.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:23:27 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/247	J59

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

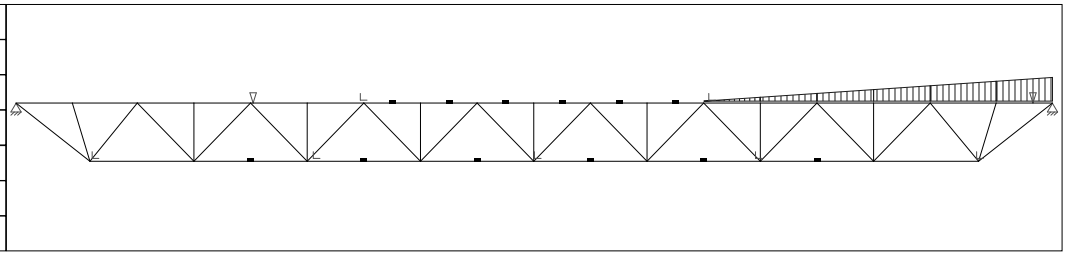
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:23:18 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J6**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
40-0	**39-8**	**28.00**	**26.80**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	1-10 1/4
First Diag.	4-9 3/4	4-10 1/4
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	40-0	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	40-0	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	9-3	9-3	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	28-0	40-0	L-BL
Conc w/bending (lbs)	CL (1)	500.00	0.00	TC	+	39-1	39-1	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	9-3	9-3	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**10,723.14**	**11,833.06**	**2,958.26**	**42,097.18**	**41,716.62**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,459.24	11,583.05	0.00	0.00	17,036.84	10,771.93	43.30	0-2
V1S	8,255.41	11,302.27	0.00	0.00	1,270.51	2,254.54	27.97	2-4
W3	8,255.41	11,302.27	17,948.64	13,112.68	7,708.84	10,603.80	34.52	3-0
W4	18,256.63	24,981.19	17,948.64	13,112.68	10,160.65	7,388.07	37.34	4-9 3/4
W5	18,256.63	24,981.19	31,162.57	22,782.71	6,500.63	8,938.16	37.34	6-11 3/4
W6	25,305.88	35,107.78	31,162.57	22,782.71	6,554.26	4,757.91	37.34	9-1 3/4
W7	25,305.88	35,107.78	38,131.87	27,141.22	4,039.31	5,564.36	37.34	11-3 3/4
W8	28,358.68	40,304.79	38,131.87	27,141.22	4,624.54	3,357.07	37.34	13-5 3/4
W9	28,358.68	40,304.79	41,626.56	28,958.26	2,711.19	4,121.31	37.34	15-7 3/4
W10	28,939.96	42,097.18	41,626.56	28,958.26	4,121.31	2,433.66	37.34	17-9 3/4
W10	28,939.96	42,097.18	41,716.62	28,303.79	4,121.31	2,433.66	37.34	19-11 3/4
W9	27,049.74	40,484.92	41,716.62	28,303.79	2,711.19	4,121.31	37.34	22-1 3/4
W8	27,049.74	40,484.92	38,402.05	25,177.80	4,624.54	3,357.07	37.34	24-3 3/4
W7	22,687.99	35,446.71	38,402.05	25,177.80	4,039.31	5,564.36	37.34	26-5 3/4
W6	22,687.99	35,446.71	31,469.72	19,580.30	6,554.26	4,757.91	37.34	28-7 3/4
W5	15,854.73	26,300.58	31,469.72	19,580.30	6,500.63	8,938.16	37.34	30-9 3/4
W4	15,854.73	26,300.58	19,768.82	11,511.28	10,160.65	7,388.07	37.34	32-11 3/4
W3	7,222.31	12,753.45	19,768.82	11,511.28	6,715.09	10,983.71	34.84	35-1 3/4
V1S	7,222.31	12,753.45	0.00	0.00	1,270.51	2,254.54	27.97	37-8
W2	7,427.96	13,379.10	0.00	0.00	17,036.84	10,771.93	43.30	37-0

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	835.64	1,536.30	26.80

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:23:18 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J6

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	548.49	328.31	492.47	17-6 1/2	8-9 1/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	30.25	26.00
Bending Load	405.00	405.00	405.00	776.68	864.44
Axial Load	11,583.05	11,302.27	42,097.18	12,753.45	13,379.10
fa	3,775.44	6,914.40	25,753.81	7,802.19	8,184.94
Maximum K L/r	66.26	75.82	33.13	77.09	66.26
Fcr	36,271.07	32,843.23	46,144.25	32,378.68	36,271.07
Fa	21,762.64	19,705.94	27,686.55	19,427.21	21,762.64
F'e	521,433.53	121,677.79	283,214.88	117,688.63	159,308.36
Cm	0.9964	0.9716	0.9391	0.9669	0.9743
Panel Point Moment	20,524.43	2,604.35	1,901.25	6,845.19	6,845.20
Mid Panel Moment	15,720.26	1,828.86	950.63	2,128.49	5,962.34
Panel Point fb	8,450.18	6,013.45	4,390.00	15,805.59	15,805.59
Mid Panel fb	6,472.24	1,722.73	895.46	2,004.98	5,616.35
Fillers	0	0	6	0	0
Panel Point Stress	12,225.62	12,927.84	30,143.81	23,607.78	23,990.53
Mid Panel Stress	0.3043	0.4057	0.9596	0.4662	0.5535

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5000**

Max Load Fillers TC: **44,039.91**

Max Load no Fillers TC: **39,844.50**

TC OAL/Ryy: **367.18**

BC OAL/Ryy: **354.39**

BC Stress: **0.97**

BC L/Rz: **135.7348**

TC Shear Stress: **13,696.34**

BC Shear Stress: **18,390.82**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	17,036.84	25,759.23	10,771.93	11,915.38	6.12 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	7,708.84	24,373.24	10,603.80	11,517.14	3.81 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	10,160.65	16,730.22	7,388.07	7,468.71	4.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	6,500.63	24,373.24	8,938.16	10,705.46	3.21 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	6,554.26	10,742.43	4,757.91	5,158.50	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,039.31	14,381.54	5,564.36	6,701.18	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,624.54	7,826.93	3,357.07	3,441.36	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,711.19	10,742.43	4,121.31	5,158.50	2.15 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,121.31	7,826.93	2,433.66	3,441.36	2.72 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,121.31	7,826.93	2,433.66	3,441.36	2.72 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,711.19	10,742.43	4,121.31	5,158.50	2.15 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,624.54	7,826.93	3,357.07	3,441.36	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,039.31	14,381.54	5,564.36	6,701.18	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,554.26	10,742.43	4,757.91	5,158.50	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	6,500.63	24,373.24	8,938.16	10,705.46	3.21 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	10,160.65	16,730.22	7,388.07	7,468.71	4.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	6,715.09	24,373.24	10,983.71	11,425.11	3.94 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W2	17,036.84	25,759.23	10,771.93	11,915.38	6.12 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	1,270.51	5,758.64	2,254.54	3,112.18	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	835.64	5,758.64	1,536.30	3,257.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:23:18 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J6**

TCX Design

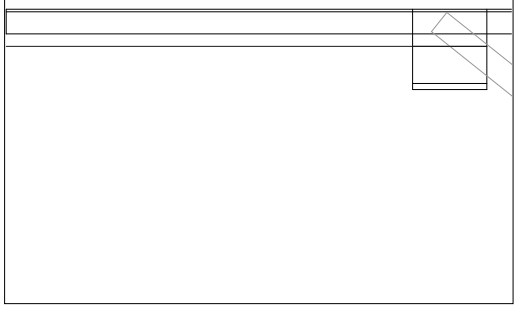
TCX Left	
TCX Length	2-8 7/8
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	5-6
Clear Bearing	0-7 3/8
BPL Material: 2018 = 2 x 2 x 0.188	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-2 1/8
Clear Bearing	0-7 3/8
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

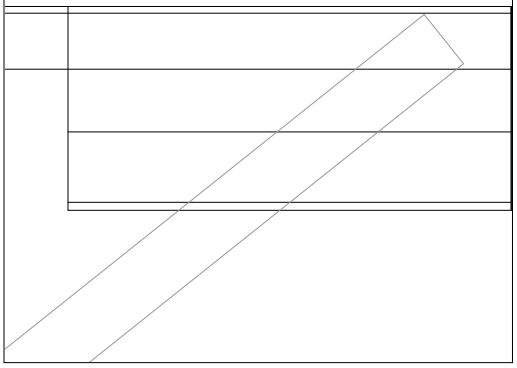
Total Load	405.00
Reqd TL Def L/80	0.41
Live Load	200.00
Reqd LL Def L/120	0.27
Section Modulus	2.4289
Reqd SM	0.6841
Mom of Inertia	3.7784
Reqd MI	0.4936

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:23:18 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J6

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

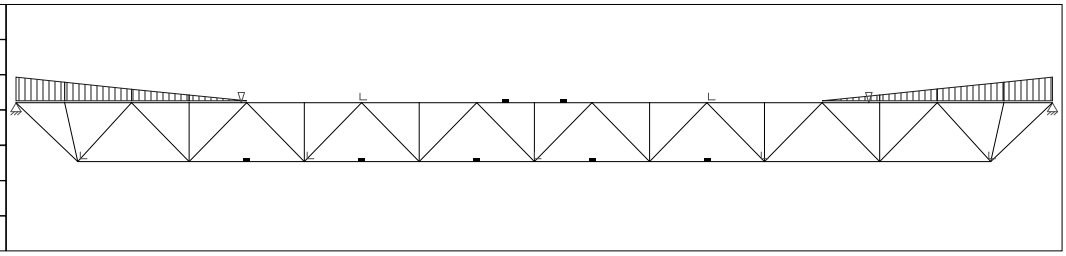
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:24:04 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J60**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-4 3/8	**39-0 3/8**	**28.00**	**26.71**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-0 1/4	2-0 1/8
First Diag.	4-6 1/4	4-6 1/8
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-4 3/8	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-4 3/8	L-BL
Conc @ any pp (lbs)	CL (1)	600.00	0.00	TC	+			
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-7 7/8	8-7 7/8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	32-3 3/8	32-3 3/8	L-BL
Uniform (plf)	LL (1)	0.00	150.00	TC	+	32-4 3/8	39-4 3/8	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-7 7/8	8-7 7/8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	32-3 3/8	32-3 3/8	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**11,799.19**	**11,037.58**	**2,940.31**	**46,167.98**	**45,828.82**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,472.61	11,497.99	0.00	0.00	16,313.14	11,708.71	38.69	0-2
V1S	8,328.81	11,243.47	0.00	0.00	698.38	1,832.02	27.37	2-0
W3	8,328.81	11,243.47	20,172.88	15,085.52	10,051.19	13,590.25	36.07	2-6
W4	21,659.00	28,648.38	20,172.88	15,085.52	12,467.44	9,423.57	37.27	4-6 1/4
W5	21,659.00	28,648.38	35,923.93	27,345.57	8,152.11	10,655.96	37.27	6-8 1/4
W6	29,758.22	39,681.55	35,923.93	27,345.57	6,703.24	4,743.99	37.27	8-10 1/4
W7	29,758.22	39,681.55	42,584.91	31,550.73	4,021.72	5,540.12	37.27	11-0 1/4
W8	32,723.10	44,634.00	42,584.91	31,550.73	4,596.13	3,336.45	37.27	13-2 1/4
W9	32,723.10	44,634.00	45,828.82	33,275.34	2,913.66	4,103.54	37.27	15-4 1/4
W10	33,207.45	46,167.98	45,828.82	33,275.34	4,103.54	3,976.06	37.27	17-6 1/4
W10	33,207.45	46,167.98	45,070.15	32,519.42	4,103.54	3,976.06	37.27	19-8 1/4
W9	31,211.26	43,118.05	45,070.15	32,519.42	2,913.66	4,103.54	37.27	21-10 1/4
W8	31,211.26	43,118.05	40,311.70	29,282.96	4,596.13	3,336.45	37.27	24-0 1/4
W7	26,734.53	36,651.07	40,311.70	29,282.96	4,021.72	5,540.12	37.27	26-2 1/4
W6	26,734.53	36,651.07	32,136.18	23,565.96	6,703.24	4,743.99	37.27	28-4 1/4
W5	19,503.45	26,483.34	32,136.18	23,565.96	8,152.11	10,655.96	37.27	30-6 1/4
W4	19,503.45	26,483.34	18,710.74	13,634.33	12,467.44	9,423.57	37.27	32-8 1/4
W3	7,567.40	10,481.75	18,710.74	13,634.33	10,051.19	13,590.25	35.99	34-10 1/4
V1S	7,567.40	10,481.75	0.00	0.00	698.38	1,832.02	27.37	37-4 3/8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:24:04 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J60**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	7,710.85	10,735.66	0.00	0.00	16,313.14	11,708.71	38.69	36-10 3/8

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,953.27	3,014.92	26.71

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:24:04 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J60**

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.9305	0.6092	0.3912	1.3045	0.5910	0.3453	1.0000	2024 = 2 x 2 x 0.248
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	**50,000.00**	**30,000.00**	**671.77**	**422.07**	**633.11**	**17-8 1/4**	**11-2**

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	30.25	26.00	30.13	22.00
Bending Load	539.17	501.58	405.00	501.61	539.15
Axial Load	11,497.99	11,243.47	46,167.98	10,481.75	10,735.66
fa	6,178.40	6,041.63	24,808.16	5,632.32	5,768.76
Maximum K L/r	56.24	77.33	33.23	77.01	56.24
Fcr	39,677.35	32,292.35	46,121.50	32,408.99	39,677.35
Fa	23,806.41	19,375.41	27,672.90	19,445.39	23,806.41
F'e	219,468.48	116,082.51	279,349.75	117,047.84	219,468.48
Cm	0.9859	0.9740	0.9405	0.9759	0.9869
Panel Point Moment	3,065.19	3,065.19	1,901.25	3,269.80	3,269.79
Mid Panel Moment	1,284.71	1,844.78	950.63	2,037.69	1,326.29
Panel Point fb	6,253.76	6,253.77	3,879.03	6,671.22	6,671.21
Mid Panel fb	1,099.42	1,578.72	813.52	1,743.81	1,135.01
Fillers	0	0	2	0	0
Panel Point Stress	12,432.16	12,295.40	28,687.19	12,303.54	12,439.97
Mid Panel Stress	0.2932	0.3617	0.9231	0.3445	0.2770

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **50,263.56**
Max Load no Fillers TC: **45,446.59**
TC OAL/Ryy: **359.05**
BC OAL/Ryy: **320.13**
BC Stress: **0.81**
BC L/Rz: **118.1013**
TC Shear Stress: **12,565.52**
BC Shear Stress: **14,342.24**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	16,313.14	25,759.23	11,708.71	13,246.81	5.86 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	10,051.19	28,618.35	13,590.25	15,386.62	4.88 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	12,467.44	24,373.24	9,423.57	10,725.34	4.48 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,152.11	24,373.24	10,655.96	10,725.34	3.83 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	6,703.24	10,742.43	4,743.99	5,167.49	3.50 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,021.72	14,381.54	5,540.12	6,713.01	2.49 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,596.13	7,826.93	3,336.45	3,447.78	3.03 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,913.66	10,742.43	4,103.54	5,167.49	2.14 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,103.54	10,742.43	3,976.06	5,167.49	2.14 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,103.54	10,742.43	3,976.06	5,167.49	2.14 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,913.66	10,742.43	4,103.54	5,167.49	2.14 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,596.13	7,826.93	3,336.45	3,447.78	3.03 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,021.72	14,381.54	5,540.12	6,713.01	2.49 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,703.24	10,742.43	4,743.99	5,167.49	3.50 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	8,152.11	24,373.24	10,655.96	10,725.34	3.83 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	12,467.44	24,373.24	9,423.57	10,725.34	4.48 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	10,051.19	28,618.35	13,590.25	15,404.59	4.88 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	16,313.14	25,759.23	11,708.71	13,246.81	5.86 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	698.38	5,758.64	1,832.02	3,186.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,953.27	5,758.64	3,014.92	3,269.66	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:24:04 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J60**

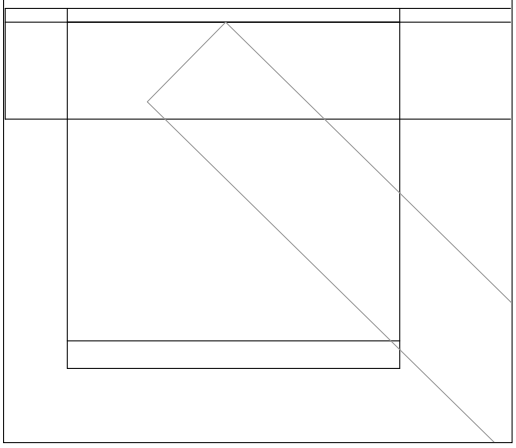
TCX Design

TCX Left	
TCX Length	0-1 1/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

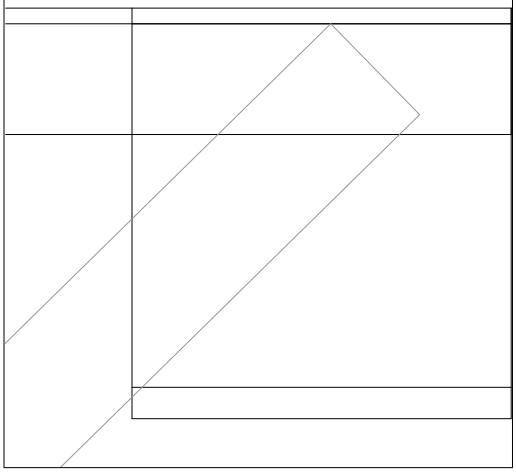
Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.4901
Reqd SM	0.0055
Mom of Inertia	0.6906
Reqd MI	0.0004

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:24:04 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J60

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

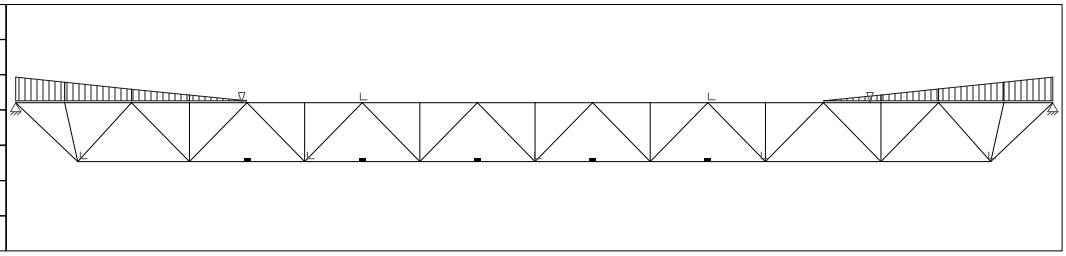
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:24:19 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J61**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-3 3/4	**38-11 3/4**	**28.00**	**26.71**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-0 1/4	1-11 1/2
First Diag.	4-6 1/4	4-5 1/2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-3 3/4	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-3 3/4	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-7 7/8	8-7 7/8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	32-3 3/8	32-3 3/8	L-BL
Uniform (plf)	LL (1)	0.00	150.00	TC	+	32-3 3/4	39-3 3/4	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-7 7/8	8-7 7/8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	32-3 3/8	32-3 3/8	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**11,489.16**	**10,749.23**	**2,862.80**	**44,729.94**	**44,552.89**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,461.94	11,326.43	0.00	0.00	15,864.31	11,693.96	38.69	0-2
V1S	8,318.14	11,071.92	0.00	0.00	698.33	1,524.47	27.37	2-0
W3	8,318.14	11,071.92	19,852.75	15,065.61	10,037.44	13,215.64	36.07	2-6
W4	21,629.18	28,168.95	19,852.75	15,065.61	12,080.38	9,409.37	37.27	4-6 1/4
W5	21,629.18	28,168.95	35,285.19	27,305.85	8,137.91	10,314.53	37.27	6-8 1/4
W6	29,708.58	38,883.52	35,285.19	27,305.85	6,545.45	4,751.51	37.27	8-10 1/4
W7	29,708.58	38,883.52	41,627.57	31,491.18	4,028.57	5,549.56	37.27	11-0 1/4
W8	32,653.65	43,517.36	41,627.57	31,491.18	4,604.73	3,342.69	37.27	13-2 1/4
W9	32,653.65	43,517.36	44,552.89	33,195.98	2,910.11	3,995.37	37.27	15-4 1/4
W10	33,118.18	44,729.94	44,552.89	33,195.98	3,995.37	3,857.02	37.27	17-6 1/4
W10	33,118.18	44,729.94	43,764.87	32,420.25	3,995.37	3,857.02	37.27	19-8 1/4
W9	31,102.17	41,945.53	43,764.87	32,420.25	2,910.11	3,995.37	37.27	21-10 1/4
W8	31,102.17	41,945.53	39,271.93	29,163.97	4,604.73	3,342.69	37.27	24-0 1/4
W7	26,605.62	35,744.05	39,271.93	29,163.97	4,028.57	5,549.56	37.27	26-2 1/4
W6	26,605.62	35,744.05	31,361.92	23,427.15	6,545.45	4,751.51	37.27	28-4 1/4
W5	19,354.74	25,841.78	31,361.92	23,427.15	8,137.91	10,314.53	37.27	30-6 1/4
W4	19,354.74	25,841.78	18,201.40	13,475.71	12,080.38	9,409.37	37.27	32-8 1/4
W3	7,563.74	10,315.66	18,201.40	13,475.71	8,949.50	12,091.08	35.57	34-10 1/4
V1S	7,563.74	10,315.66	0.00	0.00	698.33	1,524.47	27.37	37-3 3/4

* Continued on Next Page...

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:24:19 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J61**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	7,705.47	10,566.53	0.00	0.00	15,864.31	11,693.96	38.69	36-9 3/4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,952.52	2,682.14	26.71

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:24:19 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J61

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.9305	0.6092	0.3912	1.3045	0.5910	0.3453	1.0000	2024 = 2 x 2 x 0.248
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	671.77	423.77	635.65	17-8 1/4	11-2 1/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	30.25	26.00	29.50	22.00
Bending Load	539.17	501.58	405.00	501.74	539.06
Axial Load	11,326.43	11,071.92	44,729.94	10,315.66	10,566.53
fa	6,086.21	5,949.45	24,035.43	5,543.07	5,677.88
Maximum K L/r	56.24	77.33	49.85	75.41	56.24
Fcr	39,677.35	32,292.35	41,693.68	32,991.19	39,677.35
Fa	23,806.41	19,375.41	25,016.21	19,794.71	23,806.41
F'e	219,468.48	116,082.51	279,349.75	122,060.04	219,468.48
Cm	0.9861	0.9744	0.9424	0.9773	0.9871
Panel Point Moment	3,065.19	3,065.19	1,901.25	3,154.28	3,154.27
Mid Panel Moment	1,284.71	1,844.78	950.63	1,946.04	1,286.84
Panel Point fb	6,253.76	6,253.77	3,879.03	6,435.53	6,435.52
Mid Panel fb	1,099.42	1,578.72	813.52	1,665.37	1,101.25
Fillers	0	0	0	0	0
Panel Point Stress	12,339.97	12,203.21	27,914.47	11,978.60	12,113.40
Mid Panel Stress	0.2893	0.3569	0.9873	0.3322	0.2722

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **50,263.56**
Max Load no Fillers TC: **45,446.59**
TC OAL/Ryy: **358.57**
BC OAL/Ryy: **319.70**
BC Stress: **0.78**
BC L/Rz: **118.1013**
TC Shear Stress: **12,503.30**
BC Shear Stress: **13,947.63**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	15,864.31	25,759.23	11,693.96	13,246.81	5.70 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	10,037.44	28,618.35	13,215.64	15,386.62	4.75 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	12,080.38	24,373.24	9,409.37	10,725.34	4.34 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,137.91	24,373.24	10,314.53	10,725.34	3.70 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	6,545.45	10,742.43	4,751.51	5,167.49	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,028.57	14,381.54	5,549.56	6,713.01	2.49 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,604.73	7,826.93	3,342.69	3,447.78	3.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,910.11	10,742.43	3,995.37	5,167.49	2.09 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,995.37	10,742.43	3,857.02	5,167.49	2.09 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,995.37	10,742.43	3,857.02	5,167.49	2.09 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,910.11	10,742.43	3,995.37	5,167.49	2.09 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,604.73	7,826.93	3,342.69	3,447.78	3.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,028.57	14,381.54	5,549.56	6,713.01	2.49 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,545.45	10,742.43	4,751.51	5,167.49	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	8,137.91	24,373.24	10,314.53	10,725.34	3.70 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	12,080.38	24,373.24	9,409.37	10,725.34	4.34 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	8,949.50	28,621.37	12,091.08	13,013.21	4.34 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W2	15,864.31	25,759.23	11,693.96	13,246.81	5.70 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	698.33	5,758.64	1,524.47	3,186.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,952.52	5,758.64	2,682.14	3,269.66	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:24:19 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J61**

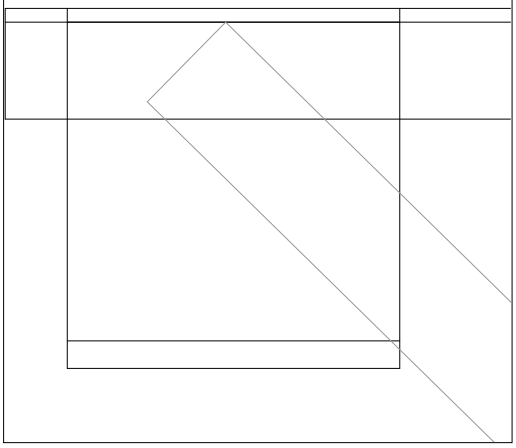
TCX Design

TCX Left	
TCX Length	0-1 1/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

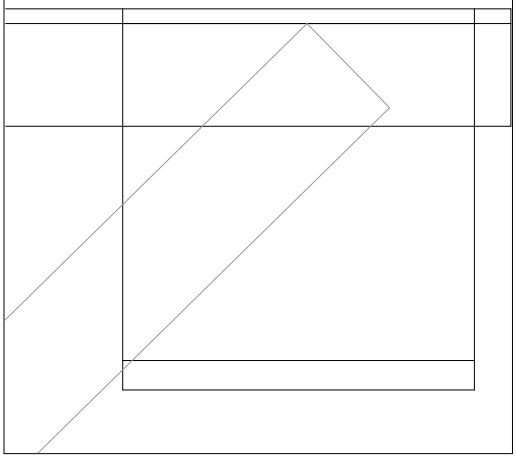
Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.4901
Reqd SM	0.0055
Mom of Inertia	0.6906
Reqd MI	0.0004

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.4901
Reqd SM	0.0039
Mom of Inertia	0.6906
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:24:19 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J61

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

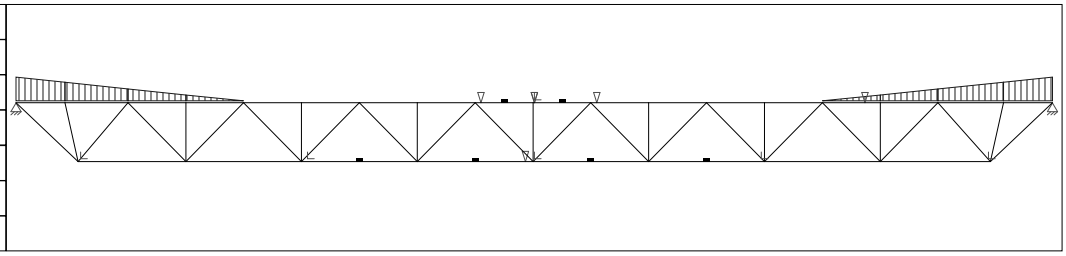
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:24:39 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J62**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-1 7/8	**38-9 7/8**	**28.00**	**26.59**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	1-10 3/8	1-11 1/2
First Diag.	4-4 3/8	4-5 1/2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-1 7/8	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-1 7/8	L-BL
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc Load (lbs)	DL (1)	1,000.00	0.00	TC	+	17-7	17-7	L-BL
Conc Load (lbs)	WL (1)	1,600.00	0.00	TC	+	17-7	21-11	L-BL
Conc Load (lbs)	SM (1)	1,600.00	0.00	TC	+	17-7	21-11	L-BL
Conc Load (lbs)	DL (1)	700.00	0.00	BC	+	19-3	19-3	L-BL
Conc Load (lbs)	DL (1)	1,000.00	0.00	TC	+	21-11	21-11	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	31-11 1/2	31-11 1/2	L-BL
Uniform (plf)	LL (1)	0.00	150.00	TC	+	32-1 7/8	39-1 7/8	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	SM (2)	1,600.00	0.00	TC	-	17-7	21-11	L-BL
Conc Load (lbs)	WL (2)	1,600.00	0.00	TC	-	17-7	21-11	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	31-11 1/2	31-11 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**10,354.14**	**11,352.33**	**2,832.81**	**52,493.61**	**51,463.17**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,853.06	10,263.06	0.00	0.00	15,810.00	10,977.22	38.62	0-2
V1S	6,713.84	10,043.54	0.00	0.00	1,598.26	1,760.81	27.26	2-0
W3	6,713.84	10,043.54	17,426.20	11,670.99	7,806.49	11,548.18	34.76	2-6
W4	16,780.06	25,041.88	17,426.20	11,670.99	12,430.60	8,739.19	37.19	4-4 3/8
W5	16,780.06	25,041.88	31,798.47	21,266.37	6,531.58	9,751.50	37.19	6-6 3/8
W6	25,129.94	37,748.95	31,798.47	21,266.37	8,598.35	5,640.74	37.19	8-8 3/8
W7	25,129.94	37,748.95	42,900.86	28,370.74	4,749.91	7,456.03	37.19	10-10 3/8
W8	30,988.79	47,254.21	42,900.86	28,370.74	6,313.70	3,859.07	37.19	13-0 3/8
W9	30,988.79	47,254.21	50,759.82	32,984.09	2,968.23	5,101.02	37.19	15-2 3/8
W10	34,356.64	52,493.61	50,759.82	32,984.09	3,961.65	2,704.43	37.19	17-4 3/8
W10	34,356.64	52,493.61	51,463.17	33,576.06	3,961.65	2,704.43	37.19	19-6 3/8
W9	32,138.89	48,635.54	51,463.17	33,576.06	2,968.23	5,101.02	37.19	21-8 3/8
W8	32,138.89	48,635.54	44,900.04	30,078.96	6,313.70	3,859.07	37.19	23-10 3/8
W7	27,396.28	40,365.99	44,900.04	30,078.96	4,749.91	7,456.03	37.19	26-0 3/8
W6	27,396.28	40,365.99	35,033.38	24,090.85	8,598.35	5,640.74	37.19	28-2 3/8

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STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:24:39 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J62**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W5	19,774.90	28,465.35	35,033.38	24,090.85	6,531.58	9,751.50	37.19	30-4 3/8
W4	19,774.90	28,465.35	19,844.45	13,757.50	12,430.60	8,739.19	37.19	32-6 3/8
W3	7,717.95	11,164.69	19,844.45	13,757.50	9,246.40	13,202.31	35.49	34-8 3/8
V1S	7,717.95	11,164.69	0.00	0.00	1,598.26	1,760.81	27.26	37-1 7/8
W2	7,860.28	11,389.10	0.00	0.00	15,810.00	10,977.22	38.62	36-7 7/8

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,374.17	2,398.37	26.59

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:24:39 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J62

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	695.86	444.28	666.42	20-1 5/8	11-0 7/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	28.38	26.00	29.50	22.00
Bending Load	538.88	501.98	405.00	501.74	539.06
Axial Load	10,263.06	10,043.54	52,493.61	11,164.69	11,389.10
fa	5,055.20	4,947.07	25,856.37	5,499.30	5,609.84
Maximum K L/r	44.59	57.51	26.35	59.79	44.59
Fcr	42,041.70	38,294.58	46,073.15	37,576.60	42,041.70
Fa	25,225.02	22,976.75	27,643.89	22,545.96	25,225.02
F'e	355,002.66	213,405.31	451,864.00	197,439.00	355,002.66
Cm	0.9929	0.9884	0.9617	0.9861	0.9921
Panel Point Moment	2,743.78	2,743.78	1,901.25	3,183.13	3,183.13
Mid Panel Moment	1,219.15	1,556.30	950.63	1,981.98	1,277.23
Panel Point fb	4,045.42	4,045.42	2,803.20	4,693.20	4,693.20
Mid Panel fb	703.62	898.20	548.64	1,143.88	737.13
Fillers	0	0	2	0	0
Panel Point Stress	9,100.62	8,992.49	28,659.57	10,192.51	10,303.04
Mid Panel Stress	0.2223	0.2436	0.9532	0.2801	0.2454

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5656**

Max Load Fillers TC: **55,296.63**

Max Load no Fillers TC: **52,005.50**

TC OAL/Ryy: **313.92**

BC OAL/Ryy: **318.42**

BC Stress: **0.90**

BC L/Rz: **118.1013**

TC Shear Stress: **12,207.72**

BC Shear Stress: **13,871.94**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	15,810.00	24,373.24	10,977.22	11,426.75	5.68 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	7,806.49	28,621.37	11,548.18	13,290.53	4.15 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	12,430.60	24,373.24	8,739.19	10,748.22	4.46 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	6,531.58	24,373.24	9,751.50	10,748.22	3.50 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	8,598.35	14,381.54	5,640.74	6,726.61	3.86 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	4,749.91	16,730.22	7,456.03	7,497.58	3.18 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W8	6,313.70	10,742.43	3,859.07	5,177.83	3.30 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,968.23	10,742.43	5,101.02	5,177.83	2.66 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,961.65	7,826.93	2,704.43	3,455.16	2.62 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,961.65	7,826.93	2,704.43	3,455.16	2.62 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,968.23	10,742.43	5,101.02	5,177.83	2.66 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	6,313.70	10,742.43	3,859.07	5,177.83	3.30 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,749.91	16,730.22	7,456.03	7,497.58	3.18 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	8,598.35	14,381.54	5,640.74	6,726.61	3.86 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	6,531.58	24,373.24	9,751.50	10,748.22	3.50 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	12,430.60	24,373.24	8,739.19	10,748.22	4.46 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	9,246.40	28,618.35	13,202.31	15,511.89	4.74 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	15,810.00	24,373.24	10,977.22	11,426.75	5.68 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V1	1,598.26	5,758.64	1,760.81	3,200.42	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,374.17	5,758.64	2,398.37	3,283.65	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:24:39 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J62**

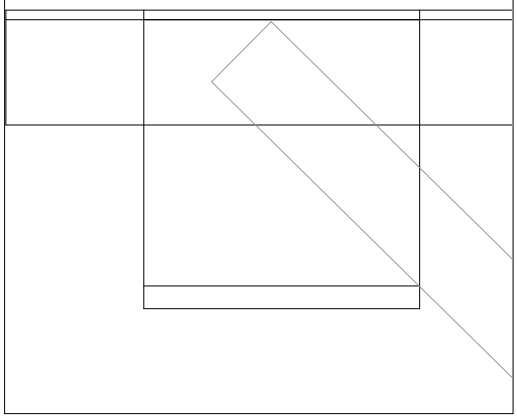
TCX Design

TCX Left	
TCX Length	0-3
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/2
BPL Material: N/A	

TCX Right	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/2
BPL Material: N/A	

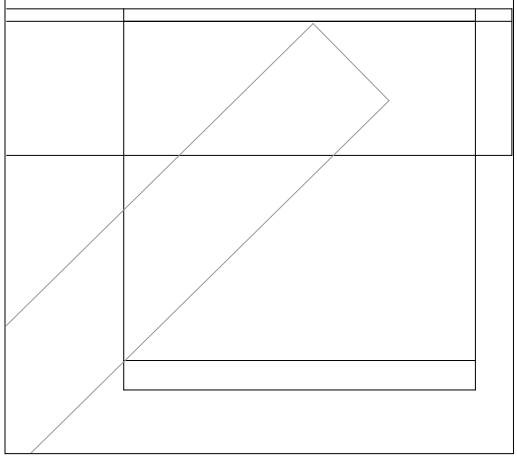
Total Load	405.00
Reqd TL Def L/80	0.04
Live Load	200.00
Reqd LL Def L/120	0.03
Section Modulus	0.6782
Reqd SM	0.0141
Mom of Inertia	1.2186
Reqd MI	0.0015

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.6782
Reqd SM	0.0039
Mom of Inertia	1.2186
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:24:39 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J62

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

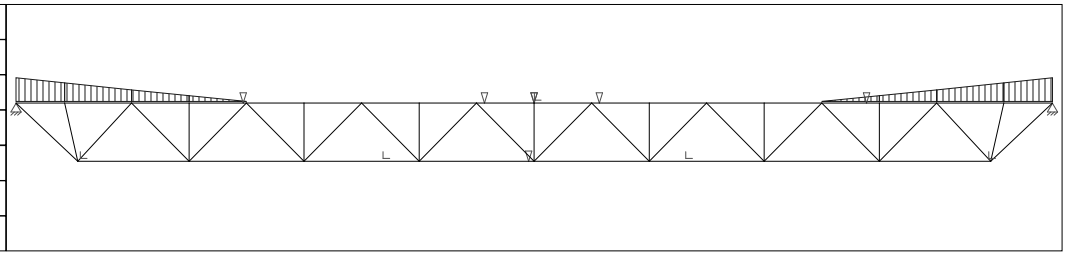
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:25:11 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J63**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-4 5/8	**39-0 5/8**	**28.00**	**26.33**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-0 1/4	2-0 3/8
First Diag.	4-6 1/4	4-6 3/8
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-4 5/8	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-4 5/8	L-BL
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-8 3/4	8-8 3/4	L-BL
Conc Load (lbs)	WL (1)	1,600.00	0.00	TC	+	17-9 3/4	22-1 3/4	L-BL
Conc w/bending (lbs)	DL (1)	1,000.00	0.00	TC	+	17-9 3/4	17-9 3/4	L-BL
Conc Load (lbs)	SM (1)	1,600.00	0.00	TC	+	17-9 3/4	22-1 3/4	L-BL
Conc w/bending (lbs)	DL (1)	700.00	0.00	BC	+	19-5 3/4	19-5 3/4	L-BL
Conc Load (lbs)	DL (1)	1,000.00	0.00	TC	+	22-1 3/4	22-1 3/4	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	32-2 1/2	32-2 1/2	L-BL
Uniform (plf)	LL (1)	0.00	150.00	TC	+	32-4 5/8	39-4 5/8	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-8 3/4	8-8 3/4	L-BL
Conc Load (lbs)	WL (2)	1,600.00	0.00	TC	-	17-9 3/4	22-1 3/4	L-BL
Conc Load (lbs)	SM (2)	1,600.00	0.00	TC	-	17-9 3/4	22-1 3/4	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	32-2 1/2	32-2 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**13,218.30**	**12,473.19**	**3,302.47**	**61,513.15**	**60,291.35**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,445.33	13,342.29	0.00	0.00	18,635.31	13,077.44	38.44	0-2
V1S	9,299.48	13,112.35	0.00	0.00	1,618.16	1,533.48	27.01	2-0
W3	9,299.48	13,112.35	23,738.37	16,890.35	11,309.26	15,934.51	35.80	2-6
W4	24,348.64	34,126.25	23,738.37	16,890.35	15,041.84	10,722.51	37.01	4-6 1/4
W5	24,348.64	34,126.25	43,458.34	31,007.06	9,584.09	13,488.30	37.01	6-8 1/4
W6	34,245.25	48,885.60	43,458.34	31,007.06	9,193.59	5,834.14	37.01	8-10 1/4
W7	34,245.25	48,885.60	53,506.32	36,854.46	4,938.95	7,994.80	37.01	11-0 1/4
W8	38,834.70	57,320.50	53,506.32	36,854.46	6,846.89	4,043.76	37.01	13-2 1/4
W9	38,834.70	57,320.50	60,291.35	40,185.97	3,215.44	5,427.81	37.01	15-4 1/4
W10	40,912.07	61,513.15	60,291.35	40,185.97	4,641.04	3,215.44	37.01	17-6 1/4
W10	40,912.07	61,513.15	59,536.17	39,425.58	4,641.04	3,215.44	37.01	19-8 1/4
W9	37,310.12	55,806.50	59,536.17	39,425.58	3,215.44	5,427.81	37.01	21-10 1/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:25:11 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J63**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W8	37,310.12	55,806.50	51,123.11	34,565.70	6,846.89	4,043.76	37.01	24-0 1/4
W7	31,192.30	45,633.19	51,123.11	34,565.70	4,938.95	7,994.80	37.01	26-2 1/4
W6	31,192.30	45,633.19	39,336.74	27,189.93	9,193.59	5,834.14	37.01	28-4 1/4
W5	22,231.05	31,863.56	39,336.74	27,189.93	9,584.09	13,488.30	37.01	30-6 1/4
W4	22,231.05	31,863.56	22,246.58	15,489.66	15,041.84	10,722.51	37.01	32-8 1/4
W3	8,530.34	12,286.48	22,246.58	15,489.66	11,309.26	15,934.51	35.88	34-10 1/4
V1S	8,530.34	12,286.48	0.00	0.00	1,618.16	1,533.48	27.01	37-4 5/8
W2	8,676.53	12,516.97	0.00	0.00	18,635.31	13,077.44	38.44	36-10 5/8

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,445.41	2,864.19	26.33

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:25:11 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J63

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	913.24	572.86	859.29	22-9 1/4	14-0

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	30.25	26.00	30.38	22.00
Bending Load	539.17	501.58	405.00	501.56	539.19
Axial Load	13,342.29	13,112.35	61,513.15	12,286.48	12,516.97
fa	5,090.54	5,002.80	23,469.34	4,687.71	4,775.65
Maximum K L/r	37.06	50.95	32.84	51.16	37.06
Fcr	42,063.18	38,731.17	42,907.04	38,675.02	42,063.18
Fa	25,237.91	23,238.70	25,744.22	23,205.01	25,237.91
F'e	515,435.19	272,626.88	656,070.13	270,387.66	515,435.19
Cm	0.9951	0.9908	0.9760	0.9913	0.9954
Panel Point Moment	3,083.41	3,083.42	4,897.40	3,294.83	3,294.82
Mid Panel Moment	1,331.54	1,838.29	1,757.28	2,106.99	1,240.59
Panel Point fb	2,923.34	2,923.35	4,643.16	3,123.78	3,123.78
Mid Panel fb	486.08	671.07	641.50	769.16	452.88
Fillers	0	0	0	0	0
Panel Point Stress	8,013.88	7,926.15	28,112.50	7,811.49	7,899.43
Mid Panel Stress	0.2175	0.2373	0.9330	0.2272	0.1111

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.6628
Max Load Fillers TC:	68,935.03
Max Load no Fillers TC:	66,204.23
TC OAL/Ryy:	278.97
BC OAL/Ryy:	278.97
BC Stress:	0.77
BC L/Rz:	87.5863
TC Shear Stress:	10,890.33
BC Shear Stress:	11,301.85

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,635.31	28,621.37	13,077.44	13,322.41	6.69 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	11,309.26	28,597.25	15,934.51	16,547.14	5.72 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	15,041.84	24,373.24	10,722.51	10,801.62	5.40 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	9,584.09	28,618.35	13,488.30	15,187.47	4.84 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	9,193.59	14,381.54	5,834.14	6,758.36	4.13 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	4,938.95	18,714.09	7,994.80	8,676.00	3.06 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W8	6,846.89	10,742.43	4,043.76	5,201.96	3.57 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,215.44	14,381.54	5,427.81	6,758.36	2.44 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	4,641.04	7,826.93	3,215.44	3,472.39	3.06 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,641.04	7,826.93	3,215.44	3,472.39	3.06 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	3,215.44	14,381.54	5,427.81	6,758.36	2.44 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	6,846.89	10,742.43	4,043.76	5,201.96	3.57 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,938.95	18,714.09	7,994.80	8,676.00	3.06 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	9,193.59	14,381.54	5,834.14	6,758.36	4.13 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	9,584.09	28,618.35	13,488.30	15,187.47	4.84 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	15,041.84	24,373.24	10,722.51	10,801.62	5.40 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	11,309.26	28,597.25	15,934.51	16,532.21	5.72 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W2	18,635.31	28,621.37	13,077.44	13,322.41	6.69 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	1,618.16	5,758.64	1,533.48	3,232.32	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,445.41	5,758.64	2,864.19	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:25:11 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J63**

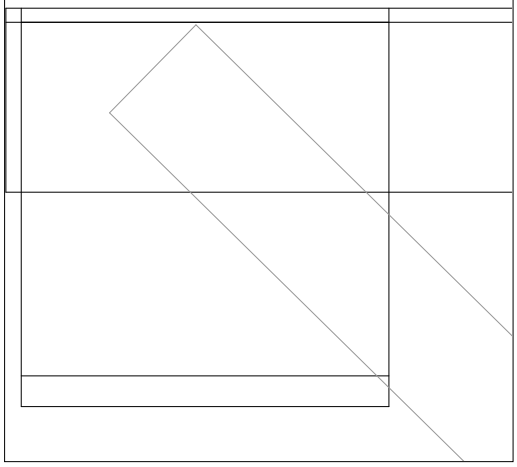
TCX Design

TCX Left	
TCX Length	0-0 1/4
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/4
BPL Material: N/A	

TCX Right	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/4
BPL Material: N/A	

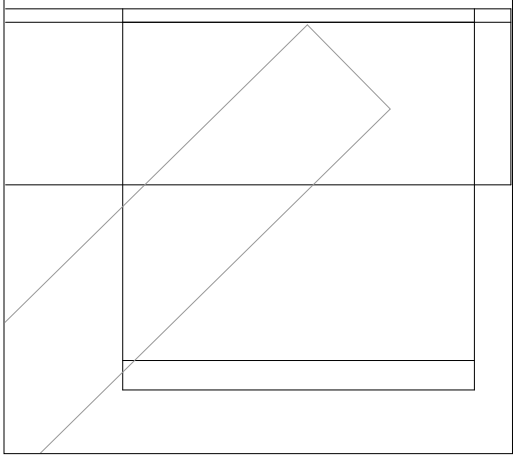
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	1.0548
Reqd SM	0.0028
Mom of Inertia	2.2846
Reqd MI	0.0001

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	1.0548
Reqd SM	0.0039
Mom of Inertia	2.2846
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:25:11 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J63

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

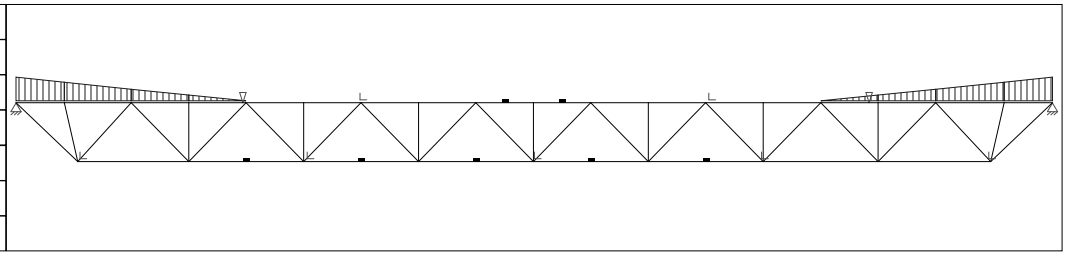
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:26:03 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J64**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-5 1/4	**39-1 1/4**	**28.00**	**26.71**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-0 1/4	2-1
First Diag.	4-6 1/4	4-7
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-5 1/4	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-5 1/4	L-BL
Conc @ any pp (lbs)	CL (1)	600.00	0.00	TC	+			
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-8 3/4	8-8 3/4	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	32-4 1/4	32-4 1/4	L-BL
Uniform (plf)	LL (1)	0.00	150.00	TC	+	32-5 1/4	39-5 1/4	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-8 3/4	8-8 3/4	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	32-4 1/4	32-4 1/4	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**11,780.18**	**11,061.90**	**2,942.94**	**46,361.39**	**46,010.43**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,478.74	11,509.19	0.00	0.00	16,328.63	11,717.18	38.69	0-2
V1S	8,334.94	11,254.67	0.00	0.00	704.07	1,844.95	27.37	2-0
W3	8,334.94	11,254.67	20,193.79	15,096.95	10,059.08	13,604.46	36.07	2-6
W4	21,676.13	28,679.69	20,193.79	15,096.95	12,482.12	9,431.73	37.27	4-6 1/4
W5	21,676.13	28,679.69	36,063.93	27,466.68	8,301.17	10,811.54	37.27	6-8 1/4
W6	29,885.01	39,831.96	36,063.93	27,466.68	6,688.33	4,754.83	37.27	8-10 1/4
W7	29,885.01	39,831.96	42,745.72	31,683.22	4,032.43	5,554.87	37.27	11-0 1/4
W8	32,861.28	44,805.21	42,745.72	31,683.22	4,610.61	3,346.96	37.27	13-2 1/4
W9	32,861.28	44,805.21	46,010.43	33,419.21	2,915.70	4,107.21	37.27	15-4 1/4
W10	33,357.01	46,361.39	46,010.43	33,419.21	4,107.21	3,979.13	37.27	17-6 1/4
W10	33,357.01	46,361.39	45,282.40	32,674.67	4,107.21	3,979.13	37.27	19-8 1/4
W9	31,372.20	43,340.71	45,282.40	32,674.67	2,915.70	4,107.21	37.27	21-10 1/4
W8	31,372.20	43,340.71	40,544.75	29,449.60	4,610.61	3,346.96	37.27	24-0 1/4
W7	26,906.85	36,894.53	40,544.75	29,449.60	4,032.43	5,554.87	37.27	26-2 1/4
W6	26,906.85	36,894.53	32,390.04	23,743.98	6,688.33	4,754.83	37.27	28-4 1/4
W5	19,736.30	26,796.82	32,390.04	23,743.98	8,301.17	10,811.54	37.27	30-6 1/4
W4	19,736.30	26,796.82	19,035.38	13,872.87	12,482.12	9,431.73	37.27	32-8 1/4
W3	7,581.34	10,502.93	19,035.38	13,872.87	9,206.37	12,801.58	36.58	34-10 1/4
V1S	7,581.34	10,502.93	0.00	0.00	704.07	1,844.95	27.37	37-5 1/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:26:03 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J64**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	7,727.20	10,761.09	0.00	0.00	16,328.63	11,717.18	38.69	36-11 1/4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,004.91	3,071.78	26.71

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:26:03 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J64

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.9305	0.6092	0.3912	1.3045	0.5910	0.3453	1.0000	2024 = 2 x 2 x 0.248
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	671.77	419.71	629.57	17-8 1/8	11-1 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	30.25	26.00	31.00	22.00
Bending Load	539.17	501.58	405.00	501.43	539.29
Axial Load	11,509.19	11,254.67	46,361.39	10,502.93	10,761.09
fa	6,184.41	6,047.65	24,912.09	5,643.70	5,782.42
Maximum K L/r	56.24	77.33	33.23	79.24	56.24
Fcr	39,677.35	32,292.35	46,121.50	31,591.32	39,677.35
Fa	23,806.41	19,375.41	27,672.90	18,954.79	23,806.41
F'e	219,468.48	116,082.51	279,349.75	110,533.55	219,468.48
Cm	0.9859	0.9740	0.9403	0.9745	0.9868
Panel Point Moment	3,083.41	3,083.42	1,901.25	3,378.19	3,378.19
Mid Panel Moment	1,331.54	1,838.29	950.63	2,156.97	1,304.66
Panel Point fb	6,290.95	6,290.95	3,879.03	6,892.37	6,892.37
Mid Panel fb	1,139.50	1,573.16	813.52	1,845.89	2,661.83
Fillers	0	0	2	0	0
Panel Point Stress	12,475.36	12,338.60	28,791.12	12,536.07	12,674.79
Mid Panel Stress	0.2947	0.3619	0.9269	0.3560	0.3243

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5000
Max Load Fillers TC:	50,263.56
Max Load no Fillers TC:	45,446.59
TC OAL/Ryy:	359.72
BC OAL/Ryy:	320.73
BC Stress:	0.81
BC L/Rz:	118.1013
TC Shear Stress:	12,611.54
BC Shear Stress:	14,355.85

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	16,328.63	25,759.23	11,717.18	13,246.81	5.86 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	10,059.08	28,618.35	13,604.46	15,386.62	4.89 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	12,482.12	24,373.24	9,431.73	10,725.34	4.48 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,301.17	28,621.37	10,811.54	12,443.45	3.88 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	6,688.33	10,742.43	4,754.83	5,167.49	3.49 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,032.43	14,381.54	5,554.87	6,713.01	2.49 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,610.61	7,826.93	3,346.96	3,447.78	3.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,915.70	10,742.43	4,107.21	5,167.49	2.14 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,107.21	10,742.43	3,979.13	5,167.49	2.14 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,107.21	10,742.43	3,979.13	5,167.49	2.14 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,915.70	10,742.43	4,107.21	5,167.49	2.14 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,610.61	7,826.93	3,346.96	3,447.78	3.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,032.43	14,381.54	5,554.87	6,713.01	2.49 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,688.33	10,742.43	4,754.83	5,167.49	3.49 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	8,301.17	28,621.37	10,811.54	12,443.45	3.88 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	12,482.12	24,373.24	9,431.73	10,725.34	4.48 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	9,206.37	28,618.35	12,801.58	15,277.80	4.60 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	16,328.63	25,759.23	11,717.18	13,246.81	5.86 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	704.07	5,758.64	1,844.95	3,186.79	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,004.91	5,758.64	3,071.78	3,269.66	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:26:03 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J64**

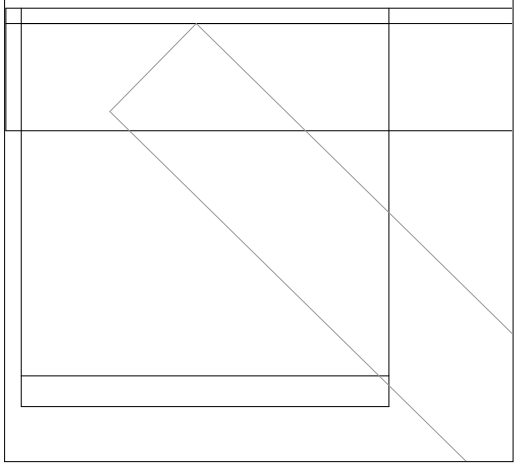
TCX Design

TCX Left	
TCX Length	0-0 1/4
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

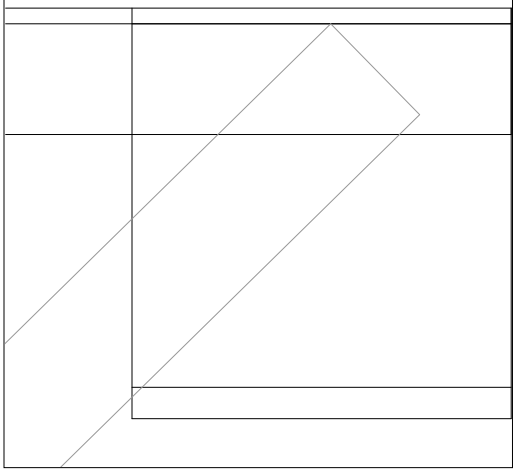
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.4901
Reqd SM	0.0028
Mom of Inertia	0.6906
Reqd MI	0.0001

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:26:03 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J64

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

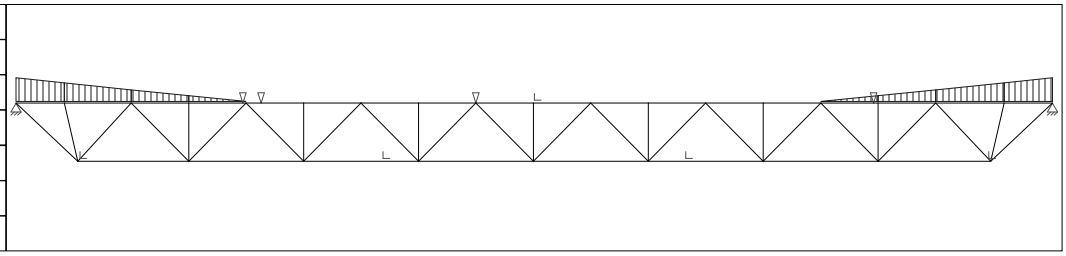
Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:26:19 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/247	J65

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-5 1/4	39-1 1/4	28.00	26.33	8 @ 4-4	1.0220	Parallel Chords	0.0000

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-0 1/4	2-1
First Diag.	4-6 1/4	4-7
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	247.00	247.00	TC	+	0-0	39-5 1/4	L-BL
Uniform (plf)	DL (1)	158.00	158.00	TC	+	0-0	39-5 1/4	L-BL
Conc @ any pp (lbs)	CL (1)	300.00	0.00	TC	+			
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-8 3/4	8-8 3/4	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	9-5	9-5	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	17-6 1/4	17-6 1/4	L-BL
Uniform (plf)	LL (1)	0.00	150.00	TC	+	32-5 1/4	39-5 1/4	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	32-6 1/4	32-6 1/4	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-8 3/4	8-8 3/4	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	9-5 1/4	9-5 1/4	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	17-6 1/4	17-6 1/4	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	32-6 1/4	32-6 1/4	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	52.00	13,716.05	13,031.80	3,426.90	57,041.48	57,591.94

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	10,972.07	13,887.05	0.00	0.00	19,276.60	15,061.77	38.44	0-2
V1S	10,826.23	13,628.90	0.00	0.00	717.14	1,551.30	27.01	2-0
W3	10,826.23	13,628.90	24,612.75	19,739.37	13,157.33	16,368.54	35.80	2-6
W4	28,615.35	35,275.30	24,612.75	19,739.37	15,335.42	12,632.94	37.01	4-6 1/4
V2	28,615.35	35,275.30	24,612.75	19,739.37	953.15	1,605.78	26.33	6-8 1/4
W5	28,615.35	35,275.30	44,820.51	36,691.48	11,494.52	13,699.16	37.01	6-8 1/4
W6	40,265.02	49,601.39	44,820.51	36,691.48	7,487.12	5,646.15	37.01	8-10 1/4
V3	40,265.02	49,601.39	44,820.51	36,691.48	1,242.17	1,811.22	26.33	11-0 1/4
W7	40,265.02	49,601.39	53,131.34	42,810.84	4,750.95	6,208.00	37.01	11-0 1/4
W8	44,727.69	55,794.86	53,131.34	42,810.84	4,974.82	3,855.76	37.01	13-2 1/4
V4	44,727.69	55,794.86	53,131.34	42,810.84	860.64	1,451.28	26.33	15-4 1/4
W9	44,727.69	55,794.86	57,591.94	46,015.56	3,719.88	4,815.92	37.01	15-4 1/4
W10	45,193.39	57,041.48	57,591.94	46,015.56	4,815.92	4,815.92	37.01	17-6 1/4
V5	45,193.39	57,041.48	57,591.94	46,015.56	862.97	1,458.38	26.33	19-8 1/4
W10	45,193.39	57,041.48	55,332.66	43,742.25	4,815.92	4,815.92	37.01	19-8 1/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:26:19 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/247**	**J65**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W9	41,662.14	52,753.13	55,332.66	43,742.25	3,719.88	4,815.92	37.01	21-10 1/4
V6	41,662.14	52,753.13	55,332.66	43,742.25	845.31	1,436.05	26.33	24-0 1/4
W8	41,662.14	52,753.13	49,307.15	38,953.05	4,974.82	3,855.76	37.01	24-0 1/4
W7	35,615.00	44,994.74	49,307.15	38,953.05	4,750.95	6,208.00	37.01	26-2 1/4
V7	35,615.00	44,994.74	49,307.15	38,953.05	815.08	1,398.74	26.33	28-4 1/4
W6	35,615.00	44,994.74	39,815.89	31,647.98	7,487.12	5,646.15	37.01	28-4 1/4
W5	26,824.13	33,532.81	39,815.89	31,647.98	11,494.52	13,699.16	37.01	30-6 1/4
V8	26,824.13	33,532.81	39,815.89	31,647.98	3,540.35	4,399.52	26.33	32-8 1/4
W4	26,824.13	33,532.81	23,569.52	18,637.00	15,335.42	12,632.94	37.01	32-8 1/4
W3	10,101.83	12,904.69	23,569.52	18,637.00	12,396.29	15,648.47	36.31	34-10 1/4
V1S	10,101.83	12,904.69	0.00	0.00	717.14	1,551.30	27.01	37-5 1/4
W2	10,249.77	13,166.53	0.00	0.00	19,276.60	15,061.77	38.44	36-11 1/4

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:26:19 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/247	J65

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	913.24	570.58	855.87	22-9 1/4	12-3 5/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	30.25	26.00	31.00	22.00
Bending Load	539.17	501.58	405.00	501.43	539.29
Axial Load	13,887.05	13,628.90	57,041.48	12,904.69	13,166.53
fa	5,298.38	5,199.89	18,924.61	4,923.57	5,023.47
Maximum K L/r	37.06	50.95	32.84	52.21	37.06
Fcr	42,063.18	38,731.17	42,907.04	38,392.03	42,063.18
Fa	25,237.91	23,238.70	25,744.22	23,035.22	25,237.91
F'e	515,435.19	272,626.88	656,070.13	259,594.84	515,435.19
Cm	0.9949	0.9905	0.9807	0.9905	0.9951
Panel Point Moment	3,083.41	3,083.42	8,245.59	3,214.07	3,214.07
Mid Panel Moment	1,331.54	1,838.29	4,244.80	1,958.45	1,345.45
Panel Point fb	2,923.34	2,923.35	7,817.54	3,047.22	3,047.22
Mid Panel fb	486.08	671.07	1,549.58	714.94	491.16
Fillers	0	0	0	0	0
Panel Point Stress	8,221.72	8,123.23	26,742.15	7,970.80	8,070.69
Mid Panel Stress	0.2257	0.2458	0.7864	0.2372	0.1175

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5345**
Max Load Fillers TC: **66,565.01**
Max Load no Fillers TC: **63,930.30**
TC OAL/Ryy: **279.34**
BC OAL/Ryy: **279.34**
BC Stress: **0.73**
BC L/Rz: **87.5863**
TC Shear Stress: **11,549.94**
BC Shear Stress: **11,258.74**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,276.60	28,618.35	15,061.77	15,579.12	6.92 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	717.14	5,758.64	1,551.30	3,232.32	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	13,157.33	28,597.25	16,368.54	16,547.14	5.88 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	15,335.42	28,618.35	12,632.94	15,187.47	5.51 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	953.15	5,758.64	1,605.78	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	11,494.52	28,618.35	13,699.16	15,187.47	4.92 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	7,487.12	14,381.54	5,646.15	6,758.36	3.36 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V3	1,242.17	5,758.64	1,811.22	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	4,750.95	14,381.54	6,208.00	6,758.36	2.79 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,974.82	10,742.43	3,855.76	5,201.96	2.60 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	860.64	5,758.64	1,451.28	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	3,719.88	10,742.43	4,815.92	5,201.96	2.51 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,815.92	10,742.43	4,815.92	5,201.96	2.51 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	862.97	5,758.64	1,458.38	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	4,815.92	10,742.43	4,815.92	5,201.96	2.51 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,719.88	10,742.43	4,815.92	5,201.96	2.51 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	845.31	5,758.64	1,436.05	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	4,974.82	10,742.43	3,855.76	5,201.96	2.60 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,750.95	14,381.54	6,208.00	6,758.36	2.79 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

* Continued on Next Page...

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:26:19 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/247**	**J65**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	815.08	5,758.64	1,398.74	3,316.39	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	7,487.12	14,381.54	5,646.15	6,758.36	3.36 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	11,494.52	28,618.35	13,699.16	15,187.47	4.92 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V8	3,540.35	7,826.93	4,399.52	4,516.84	2.90 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	15,335.42	28,618.35	12,632.94	15,187.47	5.51 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	12,396.29	28,597.25	15,648.47	16,456.63	5.62 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
V1S	717.14	5,758.64	1,551.30	3,232.32	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	19,276.60	28,618.35	15,061.77	15,579.12	6.92 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 8:26:19 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/247**	**J65**

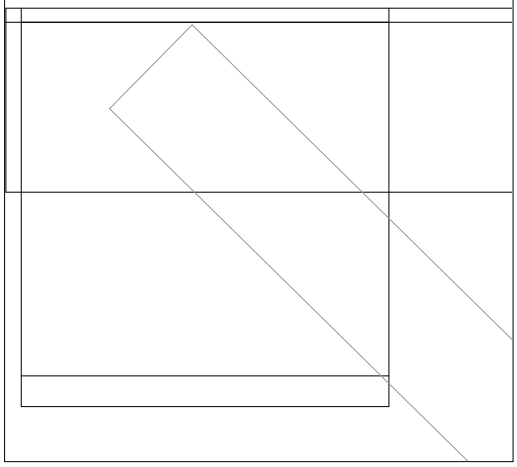
TCX Design

TCX Left	
TCX Length	0-0 1/4
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

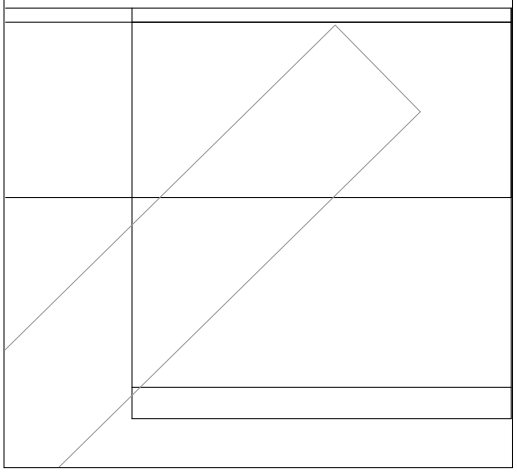
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	247.00
Reqd LL Def L/120	0.00
Section Modulus	1.0548
Reqd SM	0.0028
Mom of Inertia	2.2846
Reqd MI	0.0001

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	247.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 8:26:19 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/247	J65

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

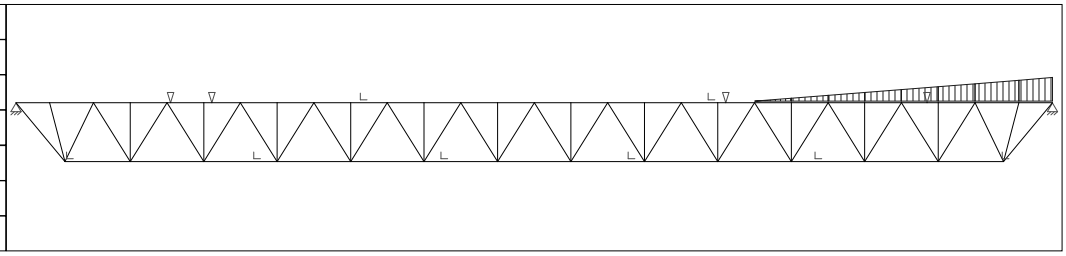
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:31:12 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J66**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
56-9 1/2	**56-5 1/2**	**40.00**	**38.33**	**13 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-10	2-10
TC Panel	2-0	2-0
First Half	1-6 3/4	1-6 3/4
First Diag.	4-4 3/4	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	56-9 1/2	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	56-9 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-7	8-7	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	10-10	10-10	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	38-10	38-10	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	41-9 1/2	56-9 1/2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	49-9 1/2	49-9 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-7	8-7	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	10-10	10-10	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	38-10	38-10	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	49-9 1/2	49-9 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.00**	**16,088.76**	**16,711.24**	**4,177.81**	**64,653.09**	**64,809.01**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	10,396.32	13,121.16	0.00	0.00	20,937.26	16,222.60	49.93	0-2
V1S	10,234.13	12,897.74	0.00	0.00	694.48	1,528.02	39.61	2-0
W3	10,234.13	12,897.74	20,167.01	16,021.63	13,171.43	16,543.72	42.67	2-10
W4	23,025.04	28,914.34	20,167.01	16,021.63	16,483.42	13,197.19	45.23	4-4 3/4
V2	23,025.04	28,914.34	20,167.01	16,021.63	703.12	954.57	38.33	6-4 3/4
W5	23,025.04	28,914.34	37,154.52	29,660.30	12,503.44	15,527.75	45.23	6-4 3/4
W6	34,225.18	43,185.32	37,154.52	29,660.30	11,364.41	8,602.02	45.23	8-4 3/4
V3	34,225.18	43,185.32	37,154.52	29,660.30	2,212.25	2,574.38	38.33	10-4 3/4
W7	34,225.18	43,185.32	47,799.16	37,512.08	7,756.69	9,981.55	45.23	10-4 3/4
W8	40,225.39	51,700.42	47,799.16	37,512.08	8,851.40	7,062.95	45.23	12-4 3/4
V4	40,225.39	51,700.42	47,799.16	37,512.08	789.13	1,068.50	38.33	14-4 3/4
W9	40,225.39	51,700.42	55,094.51	42,570.57	6,369.21	7,808.50	45.23	14-4 3/4
W10	44,547.57	57,981.47	55,094.51	42,570.57	6,569.94	5,288.33	45.23	16-4 3/4
V5	44,547.57	57,981.47	55,094.51	42,570.57	810.74	1,099.91	38.33	18-4 3/4
W11	44,547.57	57,981.47	60,361.28	46,156.43	4,234.32	5,833.00	45.23	18-4 3/4
W12	47,397.13	62,233.93	60,361.28	46,156.43	5,121.45	3,752.76	45.23	20-4 3/4
V6	47,397.13	62,233.93	60,361.28	46,156.43	824.99	1,121.17	38.33	22-4 3/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:31:12 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J66

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W13	47,397.13	62,233.93	63,599.44	48,269.68	3,752.76	4,929.13	45.23	22-4 3/4
W14	48,774.10	64,457.80	63,599.44	48,269.68	4,929.13	3,752.76	45.23	24-4 3/4
V7	48,774.10	64,457.80	63,599.44	48,269.68	831.87	1,132.29	38.33	26-4 3/4
W15	48,774.10	64,457.80	64,809.01	48,910.35	3,752.76	4,929.13	45.23	26-4 3/4
W15	48,678.45	64,653.09	64,809.01	48,910.35	3,752.76	4,929.13	45.23	28-4 3/4
V8	48,678.45	64,653.09	64,809.01	48,910.35	831.39	1,133.27	38.33	30-4 3/4
W14	48,678.45	64,653.09	63,990.00	48,078.40	4,929.13	3,752.76	45.23	30-4 3/4
W13	47,110.20	62,819.77	63,990.00	48,078.40	3,752.76	4,929.13	45.23	32-4 3/4
V9	47,110.20	62,819.77	63,990.00	48,078.40	823.55	1,124.10	38.33	34-4 3/4
W12	47,110.20	62,819.77	61,142.39	45,773.84	5,121.45	3,752.76	45.23	34-4 3/4
W11	44,069.32	58,957.86	61,142.39	45,773.84	4,234.32	5,833.00	45.23	36-4 3/4
V10	44,069.32	58,957.86	61,142.39	45,773.84	1,980.22	2,334.11	38.33	38-4 3/4
W10	44,069.32	58,957.86	55,532.47	41,262.94	6,569.94	5,288.33	45.23	38-4 3/4
W9	37,882.97	51,388.70	55,532.47	41,262.94	6,369.21	7,808.50	45.23	40-4 3/4
V11	37,882.97	51,388.70	55,532.47	41,262.94	777.41	1,140.88	38.33	42-4 3/4
W8	37,882.97	51,388.70	46,691.48	34,134.84	8,851.40	7,062.95	45.23	42-4 3/4
W7	30,018.57	41,394.53	46,691.48	34,134.84	7,756.69	9,981.55	45.23	44-4 3/4
V12	30,018.57	41,394.53	46,691.48	34,134.84	738.09	1,238.80	38.33	46-4 3/4
W6	30,018.57	41,394.53	35,451.54	25,534.13	11,364.41	8,602.02	45.23	46-4 3/4
W5	20,397.85	28,532.52	35,451.54	25,534.13	12,503.44	15,527.75	45.23	48-4 3/4
V13	20,397.85	28,532.52	35,451.54	25,534.13	1,736.86	2,369.24	38.33	50-4 3/4
W4	20,397.85	28,532.52	20,219.42	14,237.95	16,483.42	13,197.19	45.23	50-4 3/4
W3	9,109.45	13,048.94	20,219.42	14,237.95	13,171.43	16,543.72	42.67	52-4 3/4
V1S	9,109.45	13,048.94	0.00	0.00	694.48	1,528.02	39.61	54-9 1/2
W2	9,271.63	13,417.72	0.00	0.00	20,937.26	16,222.60	49.93	53-11 1/2

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:31:12 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J66

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,930.14	400.69	601.03	23-9 5/8	11-5 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	28.75	24.00	28.75	22.00
Bending Load	405.00	405.00	405.00	648.97	688.06
Axial Load	13,121.16	12,897.74	64,653.09	13,048.94	13,417.72
fa	5,006.16	4,920.92	22,494.42	4,978.61	5,119.31
Maximum K L/r	37.06	48.43	30.32	48.43	37.06
Fcr	42,063.18	39,393.00	43,371.61	39,393.00	42,063.18
Fa	25,237.91	23,635.80	26,022.96	23,635.80	25,237.91
F'e	515,435.19	301,817.03	769,971.19	301,817.03	515,435.19
Cm	0.9951	0.9918	0.9804	0.9918	0.9950
Panel Point Moment	2,281.81	2,281.82	7,114.24	3,960.56	3,960.56
Mid Panel Moment	1,054.40	1,324.51	3,213.73	2,356.47	1,763.33
Panel Point fb	2,163.36	2,163.36	6,744.92	3,754.96	3,754.96
Mid Panel fb	384.91	483.52	1,173.18	860.24	643.71
Fillers	0	0	0	0	0
Panel Point Stress	7,169.52	7,084.28	29,239.33	8,733.57	8,874.27
Mid Panel Stress	0.1132	0.2240	0.9032	0.2388	0.2238

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.6353
Max Load Fillers TC:	67,881.86
Max Load no Fillers TC:	65,584.52
TC OAL/Ryy:	403.31
BC OAL/Ryy:	403.31
BC Stress:	0.82
BC L/Rz:	80.8489
TC Shear Stress:	13,194.18
BC Shear Stress:	13,071.18

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	20,937.26	29,969.07	16,222.60	17,615.69	4.07 x 0.245	1	WR112015 = Wrapped R112 with 2015
V1S	694.48	5,758.64	1,528.02	1,783.42	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	13,171.43	29,969.07	16,543.72	16,734.25	3.22 x 0.245	1	WR111513 = Wrapped R112 with 1513
W4	16,483.42	28,618.35	13,197.19	13,448.07	5.92 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	703.12	5,758.64	954.57	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	12,503.44	29,969.07	15,527.75	15,574.50	3.02 x 0.245	1	WR111513 = Wrapped R112 with 1513
W6	11,364.41	28,621.37	8,602.02	9,866.58	4.08 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V3	2,212.25	7,826.93	2,574.38	3,351.10	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	7,756.69	28,618.35	9,981.55	13,448.07	3.59 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W8	8,851.40	24,373.24	7,062.95	8,523.25	3.18 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V4	789.13	5,758.64	1,068.50	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	6,369.21	24,373.24	7,808.50	8,523.25	2.80 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,569.94	14,381.54	5,288.33	5,402.96	2.95 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	810.74	5,758.64	1,099.91	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,234.32	16,730.22	5,833.00	5,999.13	2.49 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,121.45	10,742.43	3,752.76	4,165.53	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	824.99	5,758.64	1,121.17	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W13	3,752.76	14,381.54	4,929.13	5,402.96	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,929.13	10,742.43	3,752.76	4,165.53	2.57 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

* Continued on Next Page...

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:31:12 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J66**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	831.87	5,758.64	1,132.29	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W15	3,752.76	14,381.54	4,929.13	5,402.96	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	3,752.76	14,381.54	4,929.13	5,402.96	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	831.39	5,758.64	1,133.27	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	4,929.13	10,742.43	3,752.76	4,165.53	2.57 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,752.76	14,381.54	4,929.13	5,402.96	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V9	823.55	5,758.64	1,124.10	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,121.45	10,742.43	3,752.76	4,165.53	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,234.32	16,730.22	5,833.00	5,999.13	2.49 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V10	1,980.22	7,826.93	2,334.11	3,351.10	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	6,569.94	14,381.54	5,288.33	5,402.96	2.95 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	6,369.21	24,373.24	7,808.50	8,523.25	2.80 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V11	777.41	5,758.64	1,140.88	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	8,851.40	24,373.24	7,062.95	8,523.25	3.18 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W7	7,756.69	28,618.35	9,981.55	13,448.07	3.59 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V12	738.09	5,758.64	1,238.80	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	11,364.41	28,621.37	8,602.02	9,866.58	4.08 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W5	12,503.44	29,969.07	15,527.75	15,574.50	3.02 x 0.245	1	WR111513 = Wrapped R112 with 1513
V13	1,736.86	7,826.93	2,369.24	3,351.10	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	16,483.42	28,618.35	13,197.19	13,448.07	5.92 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	13,171.43	29,969.07	16,543.72	16,734.25	3.22 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1S	694.48	5,758.64	1,528.02	1,783.42	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	20,937.26	29,969.07	16,222.60	17,615.69	4.07 x 0.245	1	WR112015 = Wrapped R112 with 2015

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:31:12 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J66**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/8
BPL Material: N/A	

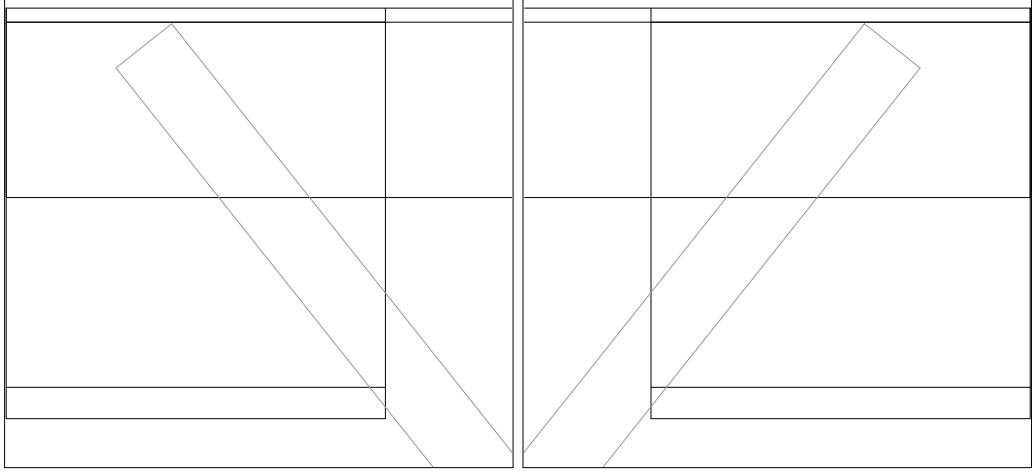
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:31:12 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J66

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

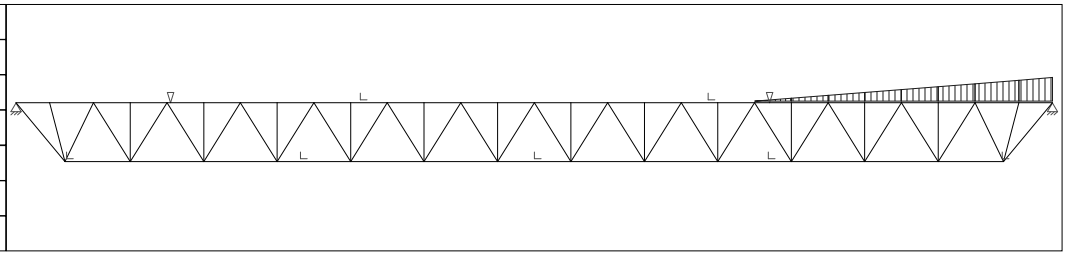
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:31:39 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J67**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
56-9 1/2	**56-5 1/2**	**40.00**	**38.45**	**13 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-10	2-10
TC Panel	2-0	2-0
First Half	1-6 3/4	1-6 3/4
First Diag.	4-4 3/4	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	56-9 1/2	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	56-9 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-7	8-7	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	41-2 1/2	41-2 1/2	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	41-9 1/2	56-9 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-7	8-7	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	41-2 1/2	41-2 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.00**	**14,627.50**	**15,172.49**	**3,793.12**	**59,828.42**	**59,959.69**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,148.55	11,865.10	0.00	0.00	18,909.19	14,301.23	50.02	0-2
V1S	8,986.86	11,642.36	0.00	0.00	688.11	1,521.13	39.73	2-0
W3	8,986.86	11,642.36	18,176.94	14,044.16	11,537.96	14,908.27	42.78	2-10
W4	20,114.16	25,985.55	18,176.94	14,044.16	14,746.76	11,463.33	45.32	4-4 3/4
W5	20,114.16	25,985.55	33,288.56	25,817.12	10,770.18	13,791.91	45.32	6-4 3/4
W6	29,455.99	38,388.90	33,288.56	25,817.12	11,143.68	8,397.53	45.32	8-4 3/4
W7	29,455.99	38,388.90	42,808.08	32,552.28	7,704.38	9,927.34	45.32	10-4 3/4
W8	35,281.52	46,721.65	42,808.08	32,552.28	8,798.16	7,011.23	45.32	12-4 3/4
W9	35,281.52	46,721.65	50,129.61	37,643.74	5,599.73	7,326.00	45.32	14-4 3/4
W10	39,638.92	53,031.98	50,129.61	37,643.74	6,564.32	4,765.21	45.32	16-4 3/4
W11	39,638.92	53,031.98	55,428.73	41,267.08	4,230.70	5,828.01	45.32	18-4 3/4
W12	42,528.20	57,319.88	55,428.73	41,267.08	5,117.07	3,714.61	45.32	20-4 3/4
W13	42,528.20	57,319.88	58,705.42	43,422.29	3,318.91	4,471.43	45.32	22-4 3/4
W14	43,949.34	59,585.36	58,705.42	43,422.29	4,471.43	3,318.91	45.32	24-4 3/4
W15	43,949.34	59,585.36	59,959.69	44,109.36	3,318.91	4,471.43	45.32	26-4 3/4
W15	43,902.36	59,828.42	59,959.69	44,109.36	3,318.91	4,471.43	45.32	28-4 3/4
W14	43,902.36	59,828.42	59,191.53	43,328.30	4,471.43	3,318.91	45.32	30-4 3/4
W13	42,387.23	58,049.05	59,191.53	43,328.30	3,318.91	4,471.43	45.32	32-4 3/4
W12	42,387.23	58,049.05	56,400.96	41,079.12	5,117.07	3,714.61	45.32	34-4 3/4
W11	39,403.98	54,247.26	56,400.96	41,079.12	4,230.70	5,828.01	45.32	36-4 3/4
W10	39,403.98	54,247.26	51,587.95	37,361.82	6,564.32	4,765.21	45.32	38-4 3/4

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:31:39 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J67

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W9	34,396.68	47,861.33	51,587.95	37,361.82	5,599.73	7,326.00	45.32	40-4 3/4
W8	34,396.68	47,861.33	43,202.59	30,684.13	8,798.16	7,011.23	45.32	42-4 3/4
W7	26,604.55	37,945.93	43,202.59	30,684.13	7,704.38	9,927.34	45.32	44-4 3/4
W6	26,604.55	37,945.93	32,045.19	22,157.94	11,143.68	8,397.53	45.32	46-4 3/4
W5	17,344.30	25,454.24	32,045.19	22,157.94	10,770.18	13,791.91	45.32	48-4 3/4
W4	17,344.30	25,454.24	18,126.90	12,163.62	14,746.76	11,463.33	45.32	50-4 3/4
W3	7,801.09	11,728.61	18,126.90	12,163.62	11,537.96	14,908.27	42.78	52-4 3/4
V1S	7,801.09	11,728.61	0.00	0.00	688.11	1,521.13	39.73	54-9 1/2
W2	7,962.79	12,096.27	0.00	0.00	18,909.19	14,301.23	50.02	53-11 1/2

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,369.36	1,732.62	38.45

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:31:39 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J67

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.1875	0.7695	0.4915	1.4931	0.7171	0.7031	1.0000	2525 = 2 1/2 x 2 1/2 x 0.250
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,845.63	383.14	574.72	21-1 7/8	12-10 1/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	28.75	24.00	28.75	22.00
Bending Load	405.00	405.00	423.49	648.97	688.06
Axial Load	11,865.10	11,642.37	59,828.42	11,728.61	12,096.27
fa	4,995.83	4,902.05	20,152.14	4,938.36	5,093.17
Maximum K L/r	44.76	58.49	36.62	58.49	44.76
Fcr	43,186.57	38,933.12	45,329.46	38,933.12	43,186.57
Fa	25,911.94	23,359.87	27,197.67	23,359.87	25,911.94
F'e	350,162.50	205,040.34	523,082.22	205,040.34	350,162.50
Cm	0.9929	0.9880	0.9742	0.9880	0.9927
Panel Point Moment	2,281.81	2,281.82	7,587.52	3,765.64	3,765.63
Mid Panel Moment	1,054.40	1,324.51	5,635.52	2,109.85	1,828.30
Panel Point fb	2,893.08	2,893.08	9,620.11	4,774.39	4,774.39
Mid Panel fb	537.70	675.44	2,873.87	1,075.93	932.35
Fillers	0	0	0	0	0
Panel Point Stress	7,888.91	7,795.13	29,772.25	9,712.75	9,867.56
Mid Panel Stress	0.1146	0.2304	0.8296	0.2442	0.1299

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5157
Max Load Fillers TC:	61,780.15
Max Load no Fillers TC:	58,515.12
TC OAL/Ryy:	453.74
BC OAL/Ryy:	403.31
BC Stress:	0.76
BC L/Rz:	80.8489
TC Shear Stress:	13,440.94
BC Shear Stress:	12,069.17

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,909.19	29,969.07	14,301.23	15,495.51	3.68 x 0.245	1	WR111513 = Wrapped R112 with 1513
W3	11,537.96	28,597.25	14,908.27	15,253.03	5.35 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	14,746.76	28,618.35	11,463.33	13,427.24	5.30 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W5	10,770.18	28,597.25	13,791.91	14,753.10	4.95 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W6	11,143.68	24,373.24	8,397.53	8,497.02	4.00 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W7	7,704.38	28,618.35	9,927.34	13,427.24	3.57 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W8	8,798.16	24,373.24	7,011.23	8,497.02	3.16 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W9	5,599.73	24,373.24	7,326.00	8,497.02	2.63 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,564.32	14,381.54	4,765.21	5,387.18	2.95 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W11	4,230.70	16,730.22	5,828.01	5,980.97	2.48 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,117.07	10,742.43	3,714.61	4,153.40	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,318.91	14,381.54	4,471.43	5,387.18	2.01 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,471.43	10,742.43	3,318.91	4,153.40	2.33 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W15	3,318.91	14,381.54	4,471.43	5,387.18	2.01 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	3,318.91	14,381.54	4,471.43	5,387.18	2.01 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,471.43	10,742.43	3,318.91	4,153.40	2.33 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,318.91	14,381.54	4,471.43	5,387.18	2.01 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	5,117.07	10,742.43	3,714.61	4,153.40	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,230.70	16,730.22	5,828.01	5,980.97	2.48 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158

* Continued on Next Page...

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:31:39 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J67**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W10	6,564.32	14,381.54	4,765.21	5,387.18	2.95 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,599.73	24,373.24	7,326.00	8,497.02	2.63 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	8,798.16	24,373.24	7,011.23	8,497.02	3.16 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W7	7,704.38	28,618.35	9,927.34	13,427.24	3.57 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	11,143.68	24,373.24	8,397.53	8,497.02	4.00 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	10,770.18	28,597.25	13,791.91	14,753.10	4.95 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	14,746.76	28,618.35	11,463.33	13,427.24	5.30 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	11,537.96	28,597.25	14,908.27	15,253.03	5.35 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W2	18,909.19	29,969.07	14,301.23	15,495.51	3.68 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1	688.11	5,758.64	1,521.13	1,773.28	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,369.36	5,758.64	1,732.62	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:31:39 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J67**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6
BPL Material: N/A	

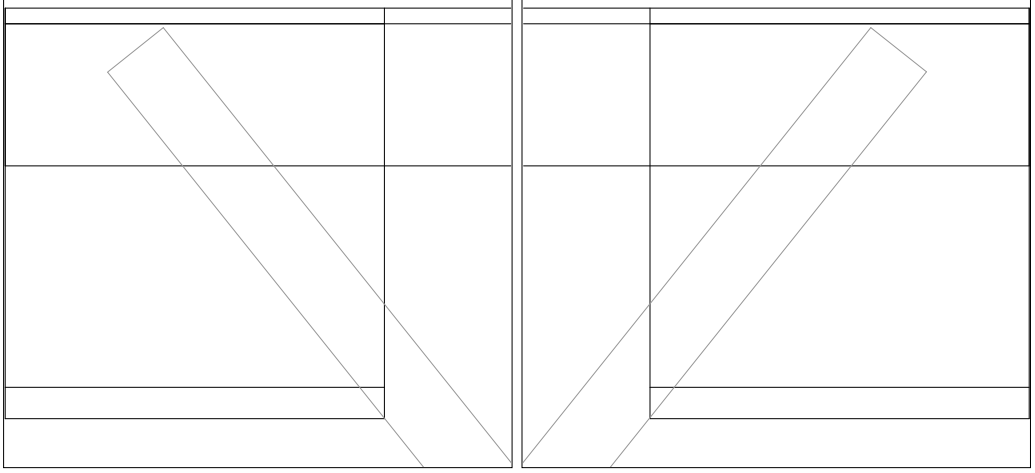
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:31:39 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J67

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

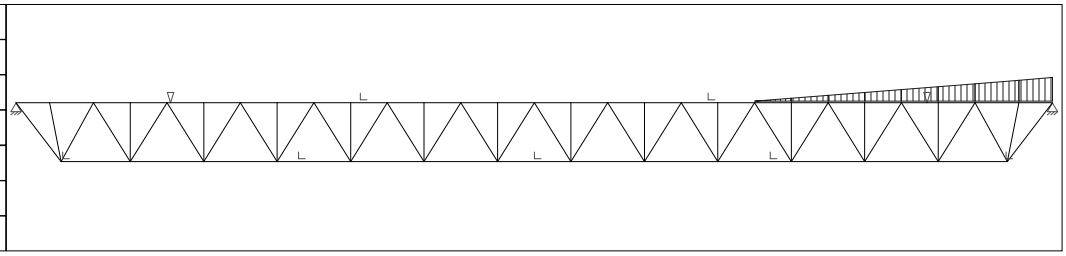
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:20:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J68**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
56-9 1/2	**56-5 1/2**	**40.00**	**38.46**	**13 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-7 1/2	2-7 1/2
TC Panel	2-0	2-0
First Half	1-9 1/4	1-9 1/4
First Diag.	4-4 3/4	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	56-9 1/2	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	56-9 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-7	8-7	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	41-9 1/2	56-9 1/2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	49-9 1/2	49-9 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-7	8-7	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	49-9 1/2	49-9 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.00**	**14,399.46**	**15,400.54**	**3,850.13**	**57,707.76**	**57,939.70**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,257.30	10,761.16	0.00	0.00	18,605.20	13,566.54	48.47	0-2
V1S	8,136.06	10,594.14	0.00	0.00	674.69	1,496.88	39.18	2-0
W3	8,136.06	10,594.14	17,872.59	13,740.58	11,587.97	15,250.80	43.94	2-7 1/2
W4	19,667.12	25,537.42	17,872.59	13,740.58	14,477.17	11,193.92	45.33	4-4 3/4
V2	19,667.12	25,537.42	17,872.59	13,740.58	686.34	937.69	38.46	6-4 3/4
W5	19,667.12	25,537.42	32,696.74	25,226.70	10,500.81	13,522.37	45.33	6-4 3/4
W6	28,722.57	37,653.81	32,696.74	25,226.70	9,762.73	7,087.02	45.33	8-4 3/4
V3	28,722.57	37,653.81	32,696.74	25,226.70	1,012.86	1,279.52	38.46	10-4 3/4
W7	28,722.57	37,653.81	41,929.85	31,675.96	6,478.88	8,924.99	45.33	10-4 3/4
W8	34,262.37	45,700.36	41,929.85	31,675.96	8,112.62	5,889.16	45.33	12-4 3/4
V4	34,262.37	45,700.36	41,929.85	31,675.96	759.31	1,038.50	38.46	14-4 3/4
W9	34,262.37	45,700.36	48,965.38	36,481.84	5,317.85	7,325.61	45.33	14-4 3/4
W10	38,334.32	51,724.88	48,965.38	36,481.84	6,563.97	4,764.96	45.33	16-4 3/4
V5	38,334.32	51,724.88	48,965.38	36,481.84	779.67	1,068.62	38.46	18-4 3/4
W11	38,334.32	51,724.88	53,978.86	39,819.86	4,230.48	5,827.70	45.33	18-4 3/4
W12	40,938.41	55,727.34	53,978.86	39,819.86	5,116.80	3,714.42	45.33	20-4 3/4
V6	40,938.41	55,727.34	53,978.86	39,819.86	792.69	1,088.64	38.46	22-4 3/4
W13	40,938.41	55,727.34	56,970.30	41,690.02	3,251.53	4,538.40	45.33	22-4 3/4
W14	42,074.66	57,707.76	56,970.30	41,690.02	4,538.40	3,251.53	45.33	24-4 3/4
V7	42,074.66	57,707.76	56,970.30	41,690.02	798.37	1,098.54	38.46	26-4 3/4
W15	42,074.66	57,707.76	57,939.70	42,092.32	3,251.53	4,538.40	45.33	26-4 3/4

* Continued on Next Page...

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:20:06 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J68

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W15	41,743.03	57,666.12	57,939.70	42,092.32	3,251.53	4,538.40	45.33	28-4 3/4
V8	41,743.03	57,666.12	57,939.70	42,092.32	796.71	1,098.33	38.46	30-4 3/4
W14	41,743.03	57,666.12	56,887.04	41,026.78	4,538.40	3,251.53	45.33	30-4 3/4
W13	39,943.57	55,602.45	56,887.04	41,026.78	3,251.53	4,538.40	45.33	32-4 3/4
V9	39,943.57	55,602.45	56,887.04	41,026.78	787.72	1,088.01	38.46	34-4 3/4
W12	39,943.57	55,602.45	53,812.34	38,493.37	5,116.80	3,714.42	45.33	34-4 3/4
W11	36,676.23	51,516.73	53,812.34	38,493.37	4,230.48	5,827.70	45.33	36-4 3/4
V10	36,676.23	51,516.73	53,812.34	38,493.37	771.38	1,067.58	38.46	38-4 3/4
W10	36,676.23	51,516.73	48,715.60	34,492.12	6,563.97	4,764.96	45.33	38-4 3/4
W9	31,941.04	45,403.18	48,715.60	34,492.12	5,317.85	7,325.61	45.33	40-4 3/4
V11	31,941.04	45,403.18	48,715.60	34,492.12	747.71	1,110.96	38.46	42-4 3/4
W8	31,941.04	45,403.18	41,539.12	29,023.01	8,112.62	5,889.16	45.33	42-4 3/4
W7	25,738.00	37,077.25	41,539.12	29,023.01	6,478.88	8,924.99	45.33	44-4 3/4
V12	25,738.00	37,077.25	41,539.12	29,023.01	716.69	1,217.21	38.46	46-4 3/4
W6	25,738.00	37,077.25	31,971.44	22,086.04	9,762.73	7,087.02	45.33	46-4 3/4
W5	17,784.31	25,892.74	31,971.44	22,086.04	10,500.81	13,522.37	45.33	48-4 3/4
V13	17,784.31	25,892.74	31,971.44	22,086.04	1,723.80	2,356.04	38.46	50-4 3/4
W4	17,784.31	25,892.74	18,424.45	12,462.29	14,477.17	11,193.92	45.33	50-4 3/4
W3	7,393.01	11,048.40	18,424.45	12,462.29	11,587.97	15,250.80	43.94	52-4 3/4
V1S	7,393.01	11,048.40	0.00	0.00	674.69	1,496.88	39.18	54-9 1/2
W2	7,514.25	11,324.10	0.00	0.00	18,605.20	13,566.54	48.47	54-2

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:20:06 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J68

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0971	0.7723	0.4925	1.4884	0.7099	0.6543	0.9970	2523 = 2 1/2 x 2 1/2 x 0.230
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,769.87	367.42	551.12	21-1	13-5 1/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	28.75	24.00	28.75	22.00
Bending Load	405.00	405.00	405.00	648.97	688.06
Axial Load	10,761.16	10,594.14	57,707.76	11,048.40	11,324.10
fa	4,904.37	4,828.25	26,300.13	5,035.28	5,160.92
Maximum K L/r	44.67	58.38	36.55	58.38	44.67
Fcr	43,100.95	38,884.38	45,224.13	38,884.38	43,100.95
Fa	25,860.57	23,330.63	27,134.48	23,330.63	25,860.57
F'e	352,715.44	206,535.22	526,895.88	206,535.22	352,715.44
Cm	0.9930	0.9883	0.9666	0.9878	0.9927
Panel Point Moment	2,281.81	2,281.82	1,620.00	3,960.56	3,960.56
Mid Panel Moment	1,054.40	1,324.51	810.00	2,356.47	1,763.33
Panel Point fb	3,121.41	3,121.41	2,216.08	5,417.86	5,417.85
Mid Panel fb	572.00	718.53	439.42	1,278.36	956.59
Fillers	0	0	0	0	0
Panel Point Stress	8,025.78	7,949.66	28,516.21	10,453.13	10,578.77
Mid Panel Stress	0.1143	0.2289	0.9830	0.2549	0.1323

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6218**
Max Load Fillers TC: **62,202.75**
Max Load no Fillers TC: **58,928.85**
TC OAL/Ryy: **455.18**
BC OAL/Ryy: **403.31**
BC Stress: **0.74**
BC L/Rz: **80.8489**
TC Shear Stress: **14,100.82**
BC Shear Stress: **11,673.85**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,605.20	28,618.35	13,566.54	13,753.54	6.68 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	674.69	5,758.64	1,496.88	1,823.18	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	11,587.97	23,679.79	15,250.80	15,604.11	3.16 x 0.230	1	WR102015 = Wrapped R100 with 2015
W4	14,477.17	28,618.35	11,193.92	13,425.95	5.20 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	686.34	5,758.64	937.69	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	10,500.81	28,597.25	13,522.37	14,751.88	4.86 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W6	9,762.73	24,373.24	7,087.02	8,495.41	3.51 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	1,012.86	5,758.64	1,279.52	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	6,478.88	28,621.37	8,924.99	9,834.50	3.21 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W8	8,112.62	16,730.22	5,889.16	5,979.85	3.46 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V4	759.31	5,758.64	1,038.50	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	5,317.85	24,373.24	7,325.61	8,495.41	2.63 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,563.97	14,381.54	4,764.96	5,386.20	2.95 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	779.67	5,758.64	1,068.62	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,230.48	16,730.22	5,827.70	5,979.85	2.48 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,116.80	10,742.43	3,714.42	4,152.65	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	792.69	5,758.64	1,088.64	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W13	3,251.53	14,381.54	4,538.40	5,386.20	2.04 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,538.40	10,742.43	3,251.53	4,152.65	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:20:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J68**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	798.37	5,758.64	1,098.54	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W15	3,251.53	14,381.54	4,538.40	5,386.20	2.04 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	3,251.53	14,381.54	4,538.40	5,386.20	2.04 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	796.71	5,758.64	1,098.33	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	4,538.40	10,742.43	3,251.53	4,152.65	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,251.53	14,381.54	4,538.40	5,386.20	2.04 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V9	787.72	5,758.64	1,088.01	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,116.80	10,742.43	3,714.42	4,152.65	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,230.48	16,730.22	5,827.70	5,979.85	2.48 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V10	771.38	5,758.64	1,067.58	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	6,563.97	14,381.54	4,764.96	5,386.20	2.95 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,317.85	24,373.24	7,325.61	8,495.41	2.63 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V11	747.71	5,758.64	1,110.96	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	8,112.62	16,730.22	5,889.16	5,979.85	3.46 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W7	6,478.88	28,621.37	8,924.99	9,834.50	3.21 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V12	716.69	5,758.64	1,217.21	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	9,762.73	24,373.24	7,087.02	8,495.41	3.51 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	10,500.81	28,597.25	13,522.37	14,751.88	4.86 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
V13	1,723.80	7,826.93	2,356.04	3,339.84	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	14,477.17	28,618.35	11,193.92	13,425.95	5.20 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	11,587.97	23,679.79	15,250.80	15,604.11	3.16 x 0.230	1	WR102015 = Wrapped R100 with 2015
V1S	674.69	5,758.64	1,496.88	1,823.18	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	18,605.20	28,618.35	13,566.54	13,753.54	6.68 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:20:06 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J68**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

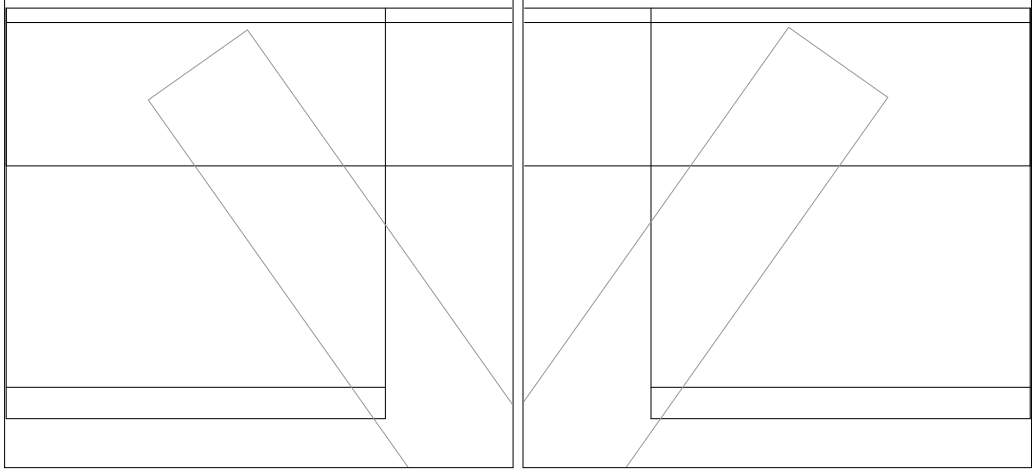
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:20:06 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J68

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

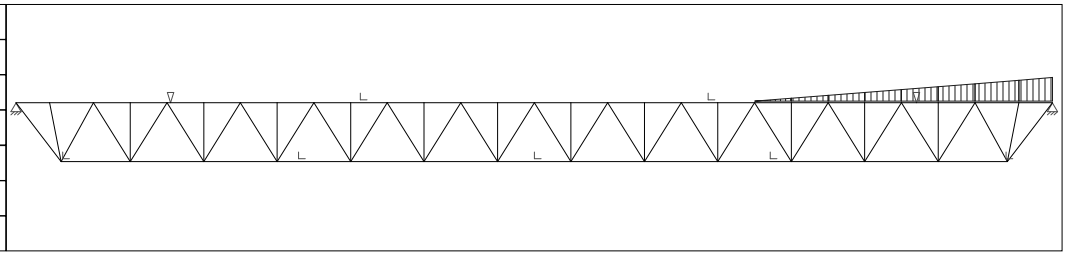
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:32:24 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J69**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
56-9 1/2	**56-5 1/2**	**40.00**	**38.46**	**13 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-7 1/2	2-7 1/2
TC Panel	2-0	2-0
First Half	1-9 1/4	1-9 1/4
First Diag.	4-4 3/4	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	56-9 1/2	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	56-9 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-7	8-7	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	41-9 1/2	56-9 1/2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	49-2 1/2	49-2 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-7	8-7	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	49-2 1/2	49-2 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.00**	**14,414.96**	**15,385.04**	**3,846.26**	**57,834.61**	**58,076.21**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,269.19	10,773.05	0.00	0.00	18,585.67	13,586.07	48.47	0-2
V1S	8,147.94	10,606.02	0.00	0.00	674.75	1,496.82	39.18	2-0
W3	8,147.94	10,606.02	17,893.04	13,761.04	11,605.68	15,233.09	43.94	2-7 1/2
W4	19,697.25	25,567.54	17,893.04	13,761.04	14,495.44	11,212.19	45.33	4-4 3/4
V2	19,697.25	25,567.54	17,893.04	13,761.04	686.49	937.84	38.46	6-4 3/4
W5	19,697.25	25,567.54	32,736.53	25,266.50	10,519.08	13,540.64	45.33	6-4 3/4
W6	28,772.04	37,703.29	32,736.53	25,266.50	9,762.73	7,087.02	45.33	8-4 3/4
V3	28,772.04	37,703.29	32,736.53	25,266.50	1,013.11	1,279.77	38.46	10-4 3/4
W7	28,772.04	37,703.29	41,988.98	31,735.10	6,478.88	8,924.99	45.33	10-4 3/4
W8	34,331.19	45,769.17	41,988.98	31,735.10	8,112.62	5,889.16	45.33	12-4 3/4
V4	34,331.19	45,769.17	41,988.98	31,735.10	759.66	1,038.85	38.46	14-4 3/4
W9	34,331.19	45,769.17	49,043.86	36,560.32	5,317.85	7,325.61	45.33	14-4 3/4
W10	38,422.48	51,813.04	49,043.86	36,560.32	6,563.97	4,764.96	45.33	16-4 3/4
V5	38,422.48	51,813.04	49,043.86	36,560.32	780.11	1,069.07	38.46	18-4 3/4
W11	38,422.48	51,813.04	54,076.69	39,917.68	4,230.48	5,827.70	45.33	18-4 3/4
W12	41,045.92	55,834.84	54,076.69	39,917.68	5,116.80	3,714.42	45.33	20-4 3/4
V6	41,045.92	55,834.84	54,076.69	39,917.68	793.23	1,089.17	38.46	22-4 3/4
W13	41,045.92	55,834.84	57,087.48	41,807.19	3,256.10	4,533.84	45.33	22-4 3/4
W14	42,201.50	57,834.61	57,087.48	41,807.19	4,533.84	3,256.10	45.33	24-4 3/4
V7	42,201.50	57,834.61	57,087.48	41,807.19	799.01	1,099.17	38.46	26-4 3/4
W15	42,201.50	57,834.61	58,076.21	42,228.84	3,256.10	4,533.84	45.33	26-4 3/4

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STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:32:24 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J69**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W15	41,889.22	57,812.31	58,076.21	42,228.84	3,256.10	4,533.84	45.33	28-4 3/4
V8	41,889.22	57,812.31	58,076.21	42,228.84	797.45	1,099.06	38.46	30-4 3/4
W14	41,889.22	57,812.31	57,042.90	41,182.64	4,533.84	3,256.10	45.33	30-4 3/4
W13	40,109.10	55,767.99	57,042.90	41,182.64	3,256.10	4,533.84	45.33	32-4 3/4
V9	40,109.10	55,767.99	57,042.90	41,182.64	788.55	1,088.84	38.46	34-4 3/4
W12	40,109.10	55,767.99	53,987.55	38,668.58	5,116.80	3,714.42	45.33	34-4 3/4
W11	36,861.11	51,701.61	53,987.55	38,668.58	4,230.48	5,827.70	45.33	36-4 3/4
V10	36,861.11	51,701.61	53,987.55	38,668.58	772.31	1,068.51	38.46	38-4 3/4
W10	36,861.11	51,701.61	48,910.16	34,686.67	6,563.97	4,764.96	45.33	38-4 3/4
W9	32,145.27	45,607.41	48,910.16	34,686.67	5,317.85	7,325.61	45.33	40-4 3/4
V11	32,145.27	45,607.41	48,910.16	34,686.67	748.73	1,111.98	38.46	42-4 3/4
W8	32,145.27	45,607.41	41,753.02	29,236.90	8,112.62	5,889.16	45.33	42-4 3/4
W7	25,961.57	37,300.82	41,753.02	29,236.90	6,478.88	8,924.99	45.33	44-4 3/4
V12	25,961.57	37,300.82	41,753.02	29,236.90	717.81	1,218.33	38.46	46-4 3/4
W6	25,961.57	37,300.82	32,204.68	22,319.28	9,762.73	7,087.02	45.33	46-4 3/4
W5	17,754.19	25,862.61	32,204.68	22,319.28	10,519.08	13,540.64	45.33	48-4 3/4
V13	17,754.19	25,862.61	32,204.68	22,319.28	1,286.15	1,918.39	38.46	50-4 3/4
W4	17,754.19	25,862.61	18,404.00	12,441.84	14,495.44	11,212.19	45.33	50-4 3/4
W3	7,381.12	11,036.51	18,404.00	12,441.84	11,605.68	15,233.09	43.94	52-4 3/4
V1S	7,381.12	11,036.51	0.00	0.00	674.75	1,496.82	39.18	54-9 1/2
W2	7,502.37	11,312.21	0.00	0.00	18,585.67	13,586.07	48.47	54-2

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:32:24 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J69

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0971	0.7723	0.4925	1.4884	0.7099	0.6543	0.9970	2523 = 2 1/2 x 2 1/2 x 0.230
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,769.87	367.42	551.12	21-1	13-4 3/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	28.75	24.00	28.75	22.00
Bending Load	405.00	405.00	405.00	648.97	688.06
Axial Load	10,773.05	10,606.02	57,834.61	11,036.51	11,312.21
fa	4,909.78	4,833.66	26,357.95	5,029.86	5,155.51
Maximum K L/r	44.67	58.38	36.55	58.38	44.67
Fcr	43,100.95	38,884.38	45,224.13	38,884.38	43,100.95
Fa	25,860.57	23,330.63	27,134.48	23,330.63	25,860.57
F'e	352,715.44	206,535.22	526,895.88	206,535.22	352,715.44
Cm	0.9930	0.9883	0.9665	0.9878	0.9927
Panel Point Moment	2,281.81	2,281.82	1,620.00	3,895.45	3,895.45
Mid Panel Moment	1,054.40	1,324.51	810.00	2,274.09	1,785.03
Panel Point fb	3,121.41	3,121.41	2,216.08	5,328.79	5,328.78
Mid Panel fb	572.00	718.53	439.42	1,233.67	968.36
Fillers	0	0	0	0	0
Panel Point Stress	8,031.19	7,955.08	28,574.03	10,358.64	10,484.29
Mid Panel Stress	0.1144	0.2291	0.9852	0.2533	0.1326

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.6232**

Max Load Fillers TC: **62,202.75**

Max Load no Fillers TC: **58,928.85**

TC OAL/Ryy: **455.18**

BC OAL/Ryy: **403.31**

BC Stress: **0.74**

BC L/Rz: **80.8489**

TC Shear Stress: **14,127.57**

BC Shear Stress: **11,694.41**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,585.67	28,618.35	13,586.07	13,753.54	6.68 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	674.75	5,758.64	1,496.82	1,823.18	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	11,605.68	23,679.79	15,233.09	15,604.11	3.15 x 0.230	1	WR102015 = Wrapped R100 with 2015
W4	14,495.44	28,618.35	11,212.19	13,425.95	5.21 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	686.49	5,758.64	937.84	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	10,519.08	28,597.25	13,540.64	14,751.88	4.86 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W6	9,762.73	24,373.24	7,087.02	8,495.41	3.51 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	1,013.11	5,758.64	1,279.77	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	6,478.88	28,621.37	8,924.99	9,834.50	3.21 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W8	8,112.62	16,730.22	5,889.16	5,979.85	3.46 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V4	759.66	5,758.64	1,038.85	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	5,317.85	24,373.24	7,325.61	8,495.41	2.63 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,563.97	14,381.54	4,764.96	5,386.20	2.95 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	780.11	5,758.64	1,069.07	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,230.48	16,730.22	5,827.70	5,979.85	2.48 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,116.80	10,742.43	3,714.42	4,152.65	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	793.23	5,758.64	1,089.17	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W13	3,256.10	14,381.54	4,533.84	5,386.20	2.04 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,533.84	10,742.43	3,256.10	4,152.65	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:32:24 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J69**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	799.01	5,758.64	1,099.17	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W15	3,256.10	14,381.54	4,533.84	5,386.20	2.04 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	3,256.10	14,381.54	4,533.84	5,386.20	2.04 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	797.45	5,758.64	1,099.06	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	4,533.84	10,742.43	3,256.10	4,152.65	2.37 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,256.10	14,381.54	4,533.84	5,386.20	2.04 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V9	788.55	5,758.64	1,088.84	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,116.80	10,742.43	3,714.42	4,152.65	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,230.48	16,730.22	5,827.70	5,979.85	2.48 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V10	772.31	5,758.64	1,068.51	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	6,563.97	14,381.54	4,764.96	5,386.20	2.95 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,317.85	24,373.24	7,325.61	8,495.41	2.63 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V11	748.73	5,758.64	1,111.98	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	8,112.62	16,730.22	5,889.16	5,979.85	3.46 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W7	6,478.88	28,621.37	8,924.99	9,834.50	3.21 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V12	717.81	5,758.64	1,218.33	1,892.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	9,762.73	24,373.24	7,087.02	8,495.41	3.51 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	10,519.08	28,597.25	13,540.64	14,751.88	4.86 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
V13	1,286.15	7,826.93	1,918.39	3,339.84	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	14,495.44	28,618.35	11,212.19	13,425.95	5.21 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	11,605.68	23,679.79	15,233.09	15,604.11	3.15 x 0.230	1	WR102015 = Wrapped R100 with 2015
V1S	674.75	5,758.64	1,496.82	1,823.18	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	18,585.67	28,618.35	13,586.07	13,753.54	6.68 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:32:24 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J69**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

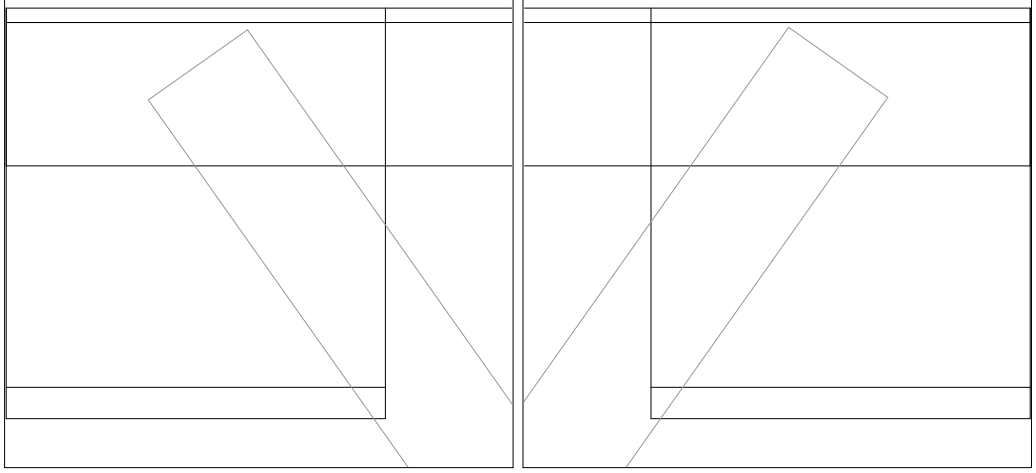
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:32:24 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J69

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

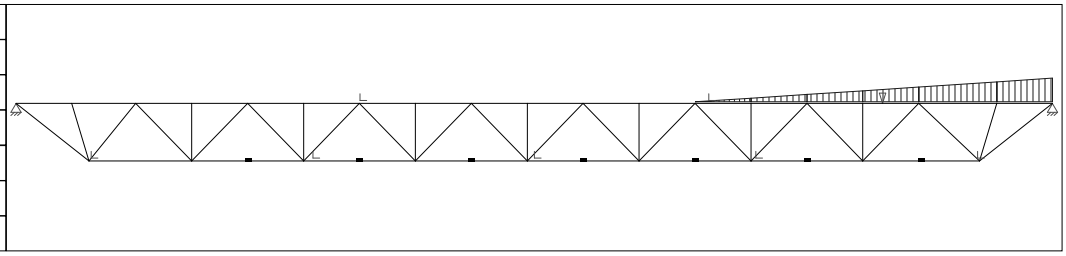
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:30:37 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J7**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
40-6	**40-2**	**28.00**	**26.68**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	2-4 1/4
First Diag.	4-9 3/4	5-4 1/4
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	40-6	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	40-6	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	28-6	40-6	L-BL
Conc w/bending (lbs)	CL (1)	1,500.00	0.00	TC	+	33-9	33-9	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	33-9	33-9	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**54.25**	**9,945.10**	**12,456.17**	**3,114.04**	**42,441.25**	**42,745.35**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	7,431.67	10,622.93	0.00	0.00	18,623.26	11,080.00	43.22	0-2
V1S	7,226.90	10,340.85	0.00	0.00	1,287.50	2,291.24	27.85	2-4
W3	7,226.90	10,340.85	16,369.48	11,424.26	6,642.98	9,597.78	34.42	3-0
W4	15,776.28	22,659.35	16,369.48	11,424.26	9,713.97	6,676.17	37.25	4-9 3/4
W5	15,776.28	22,659.35	28,094.11	19,507.55	5,625.66	7,848.36	37.25	6-11 3/4
W6	22,618.08	32,673.75	28,094.11	19,507.55	6,705.03	4,867.36	37.25	9-1 3/4
W7	22,618.08	32,673.75	36,398.29	25,107.86	4,145.04	5,710.00	37.25	11-3 3/4
W8	26,976.90	39,267.72	36,398.29	25,107.86	4,764.53	3,458.70	37.25	13-5 3/4
W9	26,976.90	39,267.72	41,282.04	28,225.19	2,808.35	4,348.10	37.25	15-7 3/4
W10	28,852.73	42,441.25	41,282.04	28,225.19	4,348.10	4,348.10	37.25	17-9 3/4
W10	28,852.73	42,441.25	42,745.35	28,859.53	4,348.10	4,348.10	37.25	19-11 3/4
W9	28,245.58	42,194.35	42,745.35	28,859.53	2,808.35	4,348.10	37.25	22-1 3/4
W8	28,245.58	42,194.35	40,788.23	27,010.88	4,764.53	3,458.70	37.25	24-3 3/4
W7	25,155.44	38,506.36	40,788.23	27,010.88	4,145.04	5,710.00	37.25	26-5 3/4
W6	25,155.44	38,506.36	35,204.29	22,679.26	6,705.03	4,867.36	37.25	28-7 3/4
W5	19,582.33	30,716.90	35,204.29	22,679.26	5,625.66	7,848.36	37.25	30-9 3/4
W4	19,582.33	30,716.90	23,937.42	14,922.96	9,713.97	6,676.17	37.25	32-11 3/4
W3	8,487.92	14,013.80	23,937.42	14,922.96	8,851.37	13,649.91	38.86	35-1 3/4
V1S	8,487.92	14,013.80	0.00	0.00	1,287.50	2,291.24	27.85	38-2
W2	8,716.57	14,650.82	0.00	0.00	18,623.26	11,080.00	43.22	37-6

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,701.26	2,505.70	26.68

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:30:37 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J7

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	598.20	344.86	517.30	20-0 5/8	8-9 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	36.25	26.00
Bending Load	405.00	405.00	678.68	772.29	865.90
Axial Load	10,622.93	10,340.85	42,441.25	14,013.80	14,650.82
fa	3,067.02	5,093.51	15,129.99	6,902.67	7,216.44
Maximum K L/r	52.70	60.30	39.52	73.47	52.70
Fcr	39,759.50	37,415.15	43,328.96	33,028.41	39,759.50
Fa	23,855.70	22,449.09	25,997.38	19,817.05	23,855.70
F'e	522,179.44	194,134.64	451,864.00	130,755.80	254,173.50
Cm	0.9971	0.9869	0.9776	0.9736	0.9858
Panel Point Moment	21,117.21	2,861.68	9,768.57	7,814.86	6,427.25
Mid Panel Moment	16,064.21	2,161.46	6,276.74	3,450.21	3,277.48
Panel Point fb	7,819.83	4,219.25	14,402.75	11,522.21	9,476.32
Mid Panel fb	5,948.67	1,247.46	3,622.54	1,991.25	1,891.56
Fillers	0	0	0	0	0
Panel Point Stress	10,886.85	9,312.76	29,532.74	18,424.87	16,692.76
Mid Panel Stress	0.2706	0.2663	0.6968	0.4134	0.3624

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **49,128.61**
Max Load no Fillers TC: **46,216.39**
TC OAL/Ryy: **324.78**
BC OAL/Ryy: **358.86**
BC Stress: **1.00**
BC L/Rz: **141.6079**
TC Shear Stress: **11,578.73**
BC Shear Stress: **20,051.96**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,623.26	28,621.37	11,080.00	11,937.24	5.75 x 0.218	1	C40BA = 1.125 x 2.014 x 0.218
W3	6,642.98	24,373.24	9,597.78	11,545.05	3.45 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	9,713.97	14,381.54	6,676.17	6,716.20	4.36 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	5,625.66	18,714.09	7,848.36	8,620.78	3.00 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	6,705.03	10,742.43	4,867.36	5,169.91	3.50 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,145.04	14,381.54	5,710.00	6,716.20	2.56 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,764.53	10,742.43	3,458.70	5,169.91	2.49 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,808.35	10,742.43	4,348.10	5,169.91	2.27 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,348.10	10,742.43	4,348.10	5,169.91	2.27 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,348.10	10,742.43	4,348.10	5,169.91	2.27 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,808.35	10,742.43	4,348.10	5,169.91	2.27 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,764.53	10,742.43	3,458.70	5,169.91	2.49 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,145.04	14,381.54	5,710.00	6,716.20	2.56 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,705.03	10,742.43	4,867.36	5,169.91	3.50 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	5,625.66	18,714.09	7,848.36	8,620.78	3.00 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W4	9,713.97	14,381.54	6,676.17	6,716.20	4.36 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	8,851.37	28,618.35	13,649.91	14,792.90	4.90 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	18,623.26	28,621.37	11,080.00	11,937.24	5.75 x 0.218	1	C40BA = 1.125 x 2.014 x 0.218
V1	1,287.50	5,758.64	2,291.24	3,126.91	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,701.26	5,758.64	2,505.70	3,272.94	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:30:37 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J7**

TCX Design

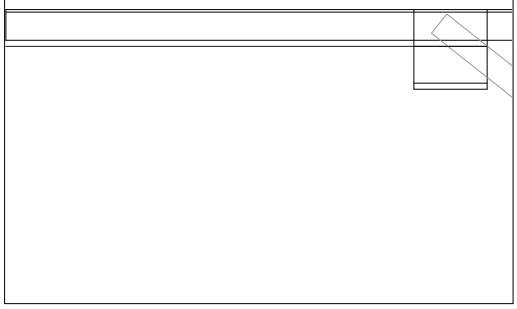
TCX Left	
TCX Length	2-9 3/8
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	5-6 1/2
Clear Bearing	0-7 1/4
BPL Material: 2018 = 2 x 2 x 0.188	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-2
Clear Bearing	0-7 1/4
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

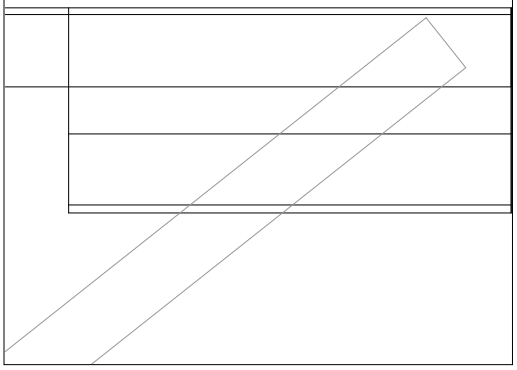
Total Load	405.00
Reqd TL Def L/80	0.42
Live Load	200.00
Reqd LL Def L/120	0.28
Section Modulus	2.7005
Reqd SM	0.7039
Mom of Inertia	4.2717
Reqd MI	0.5152

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:30:37 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J7

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

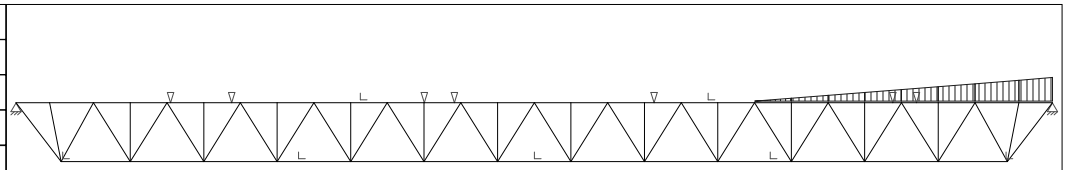
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:35:30 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J70**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
56-9 1/2	**56-5 1/2**	**40.00**	**38.33**	**13 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-7 1/2	2-7 1/2
TC Panel	2-0	2-0
First Half	1-9 1/4	1-9 1/4
First Diag.	4-4 3/4	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	56-9 1/2	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	56-9 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	8-7	8-7	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	11-11	11-11	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	22-5	22-5	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	24-0 1/2	24-0 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	34-11	34-11	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	41-9 1/2	56-9 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	47-11	47-11	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	49-2 1/2	49-2 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-7	8-7	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	49-2 1/2	49-2 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.00**	**15,564.04**	**16,335.96**	**4,083.99**	**64,199.38**	**64,222.06**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,295.96	11,692.25	0.00	0.00	19,807.91	13,602.38	48.37	0-2
V1S	8,174.33	11,524.69	0.00	0.00	674.96	1,500.83	39.06	2-0
W3	8,174.33	11,524.69	19,472.31	13,805.59	11,614.48	16,391.96	43.83	2-7 1/2
W4	19,761.02	27,891.10	19,472.31	13,805.59	15,864.34	11,222.38	45.23	4-4 3/4
V2	19,761.02	27,891.10	19,472.31	13,805.59	686.80	949.46	38.33	6-4 3/4
W5	19,761.02	27,891.10	35,802.76	25,348.30	10,528.64	14,908.67	45.23	6-4 3/4
W6	28,865.20	41,505.03	35,802.76	25,348.30	10,745.33	7,093.46	45.23	8-4 3/4
V3	28,865.20	41,505.03	35,802.76	25,348.30	1,013.58	1,418.57	38.33	10-4 3/4
W7	28,865.20	41,505.03	46,449.05	31,837.85	6,484.77	9,316.49	45.23	10-4 3/4
W8	34,442.35	50,647.88	46,449.05	31,837.85	8,119.99	5,894.51	45.23	12-4 3/4
V4	34,442.35	50,647.88	46,449.05	31,837.85	760.21	1,063.24	38.33	14-4 3/4
W9	34,442.35	50,647.88	54,339.56	36,678.69	5,322.68	7,332.27	45.23	14-4 3/4
W10	38,546.88	57,524.09	54,339.56	36,678.69	6,569.94	4,769.29	45.23	16-4 3/4
V5	38,546.88	57,524.09	54,339.56	36,678.69	780.73	1,097.62	38.33	18-4 3/4
W11	38,546.88	57,524.09	60,201.46	40,046.93	4,234.32	5,833.00	45.23	18-4 3/4
W12	41,178.82	62,371.70	60,201.46	40,046.93	5,121.45	3,717.79	45.23	20-4 3/4

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:35:30 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J70**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
V6	41,178.82	62,371.70	60,201.46	40,046.93	793.89	1,705.19	38.33	22-4 3/4
W13	41,178.82	62,371.70	63,669.55	41,942.55	3,259.06	4,818.44	45.23	22-4 3/4
W14	42,338.13	64,199.38	63,669.55	41,942.55	4,818.44	3,259.06	45.23	24-4 3/4
V7	42,338.13	64,199.38	63,669.55	41,942.55	799.69	1,131.00	38.33	26-4 3/4
W15	42,338.13	64,199.38	64,222.06	42,365.56	4,508.40	4,818.44	45.23	26-4 3/4
W15	42,024.86	63,737.58	64,222.06	42,365.56	4,508.40	4,818.44	45.23	28-4 3/4
V8	42,024.86	63,737.58	64,222.06	42,365.56	798.12	1,128.69	38.33	30-4 3/4
W14	42,024.86	63,737.58	62,745.97	41,315.97	4,818.44	3,259.06	45.23	30-4 3/4
W13	40,238.95	61,247.21	62,745.97	41,315.97	3,259.06	4,818.44	45.23	32-4 3/4
V9	40,238.95	61,247.21	62,745.97	41,315.97	789.19	1,338.11	38.33	34-4 3/4
W12	40,238.95	61,247.21	59,102.37	38,793.77	5,121.45	3,717.79	45.23	34-4 3/4
W11	36,980.45	56,401.48	59,102.37	38,793.77	4,234.32	5,833.00	45.23	36-4 3/4
V10	36,980.45	56,401.48	59,102.37	38,793.77	772.90	1,092.01	38.33	38-4 3/4
W10	36,980.45	56,401.48	53,193.44	34,798.97	6,569.94	4,769.29	45.23	38-4 3/4
W9	32,249.34	49,472.46	53,193.44	34,798.97	5,322.68	7,332.27	45.23	40-4 3/4
V11	32,249.34	49,472.46	53,193.44	34,798.97	749.25	1,131.30	38.33	42-4 3/4
W8	32,249.34	49,472.46	45,198.04	29,331.56	8,119.99	5,894.51	45.23	42-4 3/4
W7	26,045.63	40,323.89	45,198.04	29,331.56	6,484.77	9,316.49	45.23	44-4 3/4
V12	26,045.63	40,323.89	45,198.04	29,331.56	718.23	1,305.32	38.33	46-4 3/4
W6	26,045.63	40,323.89	34,758.69	22,391.54	10,745.33	7,093.46	45.23	46-4 3/4
W5	17,811.67	27,800.71	34,758.69	22,391.54	10,528.64	14,908.67	45.23	48-4 3/4
V13	17,811.67	27,800.71	34,758.69	22,391.54	1,286.43	1,928.08	38.33	50-4 3/4
W4	17,811.67	27,800.71	19,722.57	12,482.12	15,864.34	11,222.38	45.23	50-4 3/4
W3	7,405.02	11,804.07	19,722.57	12,482.12	11,614.48	16,391.96	43.83	52-4 3/4
V1S	7,405.02	11,804.07	0.00	0.00	674.96	1,500.83	39.06	54-9 1/2
W2	7,526.66	12,080.66	0.00	0.00	19,807.91	13,602.38	48.37	54-2

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:35:30 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J70

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,930.14	400.69	601.03	23-9 5/8	13-4 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	28.75	24.00	28.75	22.00
Bending Load	405.00	405.00	405.00	648.97	688.06
Axial Load	11,692.25	11,524.69	64,199.38	11,804.07	12,080.66
fa	4,460.99	4,397.06	24,494.23	4,503.65	4,609.18
Maximum K L/r	37.06	48.43	30.32	48.43	37.06
Fcr	42,063.18	39,393.00	43,371.61	39,393.00	42,063.18
Fa	25,237.91	23,635.80	26,022.96	23,635.80	25,237.91
F'e	515,435.19	301,817.03	769,971.19	301,817.03	515,435.19
Cm	0.9957	0.9927	0.9787	0.9925	0.9955
Panel Point Moment	2,281.81	2,281.82	1,620.00	3,895.45	3,895.45
Mid Panel Moment	1,054.40	1,324.51	810.00	2,274.09	1,785.03
Panel Point fb	2,163.36	2,163.36	1,535.90	3,693.23	3,693.23
Mid Panel fb	384.91	483.52	295.69	830.16	651.63
Fillers	0	0	0	0	0
Panel Point Stress	6,624.35	6,560.42	26,030.13	8,196.88	8,302.40
Mid Panel Stress	0.1024	0.1108	0.9511	0.1258	0.1151

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6917**
Max Load Fillers TC: **70,176.56**
Max Load no Fillers TC: **67,799.93**
TC OAL/Ryy: **403.31**
BC OAL/Ryy: **403.31**
BC Stress: **0.82**
BC L/Rz: **80.8489**
TC Shear Stress: **13,083.16**
BC Shear Stress: **12,984.80**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,807.91	28,618.35	13,602.38	13,771.39	7.11 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	674.96	5,758.64	1,500.83	1,834.57	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W3	11,614.48	23,679.79	16,391.96	16,465.68	3.39 x 0.230	1	WR102018 = Wrapped R100 with 2018
W4	15,864.34	28,618.35	11,222.38	13,448.07	5.70 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	686.80	5,758.64	949.46	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	10,528.64	23,679.79	14,908.67	15,221.48	3.09 x 0.230	1	WR102015 = Wrapped R100 with 2015
W6	10,745.33	24,373.24	7,093.46	8,523.25	3.86 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	1,013.58	5,758.64	1,418.57	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	6,484.77	28,621.37	9,316.49	9,866.58	3.35 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W8	8,119.99	16,730.22	5,894.51	5,999.13	3.46 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V4	760.21	5,758.64	1,063.24	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	5,322.68	24,373.24	7,332.27	8,523.25	2.63 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,569.94	14,381.54	4,769.29	5,402.96	2.95 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	780.73	5,758.64	1,097.62	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,234.32	16,730.22	5,833.00	5,999.13	2.49 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,121.45	10,742.43	3,717.79	4,165.53	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	793.89	5,758.64	1,705.19	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W13	3,259.06	14,381.54	4,818.44	5,402.96	2.16 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,818.44	10,742.43	3,259.06	4,165.53	2.52 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:35:30 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J70**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	799.69	5,758.64	1,131.00	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W15	4,508.40	14,381.54	4,818.44	5,402.96	2.16 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	4,508.40	14,381.54	4,818.44	5,402.96	2.16 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	798.12	5,758.64	1,128.69	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	4,818.44	10,742.43	3,259.06	4,165.53	2.52 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,259.06	14,381.54	4,818.44	5,402.96	2.16 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V9	789.19	5,758.64	1,338.11	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,121.45	10,742.43	3,717.79	4,165.53	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,234.32	16,730.22	5,833.00	5,999.13	2.49 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V10	772.90	5,758.64	1,092.01	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	6,569.94	14,381.54	4,769.29	5,402.96	2.95 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,322.68	24,373.24	7,332.27	8,523.25	2.63 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V11	749.25	5,758.64	1,131.30	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	8,119.99	16,730.22	5,894.51	5,999.13	3.46 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W7	6,484.77	28,621.37	9,316.49	9,866.58	3.35 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V12	718.23	5,758.64	1,305.32	1,904.80	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	10,745.33	24,373.24	7,093.46	8,523.25	3.86 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	10,528.64	23,679.79	14,908.67	15,221.48	3.09 x 0.230	1	WR102015 = Wrapped R100 with 2015
V13	1,286.43	7,826.93	1,928.08	3,351.10	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	15,864.34	28,618.35	11,222.38	13,448.07	5.70 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	11,614.48	23,679.79	16,391.96	16,465.68	3.39 x 0.230	1	WR102018 = Wrapped R100 with 2018
V1S	674.96	5,758.64	1,500.83	1,834.57	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	19,807.91	28,618.35	13,602.38	13,771.39	7.11 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 11:35:30 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J70**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6
BPL Material: N/A	

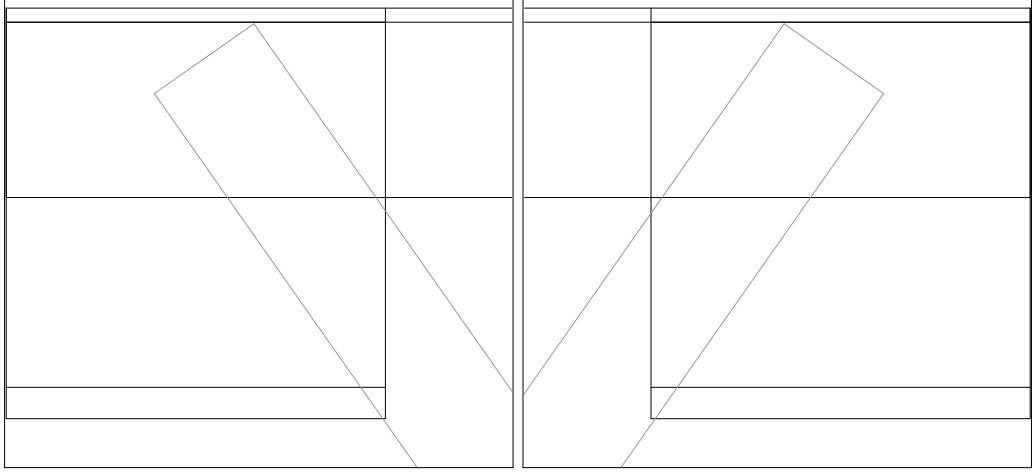
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 11:35:30 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J70

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

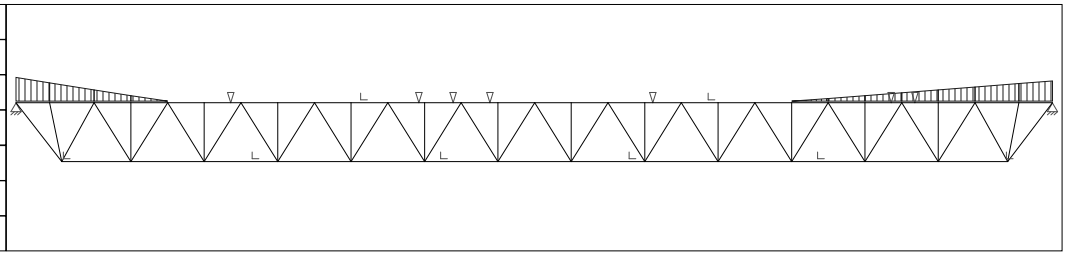
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:01:43 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J71**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
56-10	**56-6**	**40.00**	**38.34**	**13 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-8	2-7 1/2
TC Panel	2-0	2-0
First Half	1-9 1/4	1-9 1/4
First Diag.	4-5 1/4	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	56-10	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	56-10	L-BL
Uniform (plf)	LL (1)	350.00	0.00	TC	+	0-0	8-0	L-BL
Axial (lbs)	SM (1)	21,700.00	0.00	TC	+	0-0	0-0	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	11-10 1/2	11-10 1/2	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	22-1 1/2	22-1 1/2	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	24-0	24-0	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	26-0	26-0	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	34-10 1/2	34-10 1/2	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	43-10	56-4	L-BL
Conc Load (lbs)	DL (1)	300.00	0.00	TC	+	47-10 1/2	47-10 1/2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	49-2	49-2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	49-2	49-2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.00**	**14,621.45**	**15,942.82**	**3,985.71**	**75,745.64**	**62,495.05**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	19,115.69	28,165.20	0.00	0.00	17,710.24	10,457.04	48.68	0-2
V1S	19,157.43	28,060.77	0.00	0.00	673.56	1,518.36	39.16	2-0
W3	19,157.43	28,060.77	17,552.54	10,530.46	9,964.61	15,895.75	43.83	2-8
W4	15,625.63	39,462.41	17,552.54	10,530.46	14,800.13	9,519.89	45.23	4-5 1/4
W5	15,625.63	39,462.41	31,000.47	18,870.79	8,180.95	12,801.28	45.23	6-5 1/4
W6	22,488.78	51,257.28	31,000.47	18,870.79	11,113.05	7,100.40	45.23	8-5 1/4
W7	22,488.78	51,257.28	42,199.46	25,738.64	6,491.67	9,991.50	45.23	10-5 1/4
W8	28,620.38	60,709.91	42,199.46	25,738.64	8,611.86	5,901.35	45.23	12-5 1/4
W9	28,620.38	60,709.91	50,832.01	31,133.99	5,329.44	7,656.21	45.23	14-5 1/4
W10	33,279.49	68,025.23	50,832.01	31,133.99	6,700.56	4,775.96	45.23	16-5 1/4
W11	33,279.49	68,025.23	57,436.14	35,056.87	4,240.89	5,842.04	45.23	18-5 1/4
W12	36,466.11	73,398.20	57,436.14	35,056.87	5,130.33	3,724.24	45.23	20-5 1/4
W13	36,466.11	73,398.20	61,581.41	37,507.25	3,226.00	4,702.37	45.23	22-5 1/4
W14	38,180.25	75,745.64	61,581.41	37,507.25	4,702.37	2,833.42	45.23	24-5 1/4
W15	38,180.25	75,745.64	62,495.05	38,485.13	2,833.42	4,702.37	45.23	26-5 1/4

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:01:43 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J71**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W15	38,421.89	75,316.68	62,495.05	38,485.13	2,833.42	4,702.37	45.23	28-5 1/4
W14	38,421.89	75,316.68	61,135.71	37,990.53	4,702.37	2,833.42	45.23	30-5 1/4
W13	37,191.05	72,999.55	61,135.71	37,990.53	3,226.00	4,702.37	45.23	32-5 1/4
W12	37,191.05	72,999.55	57,601.20	36,023.45	5,130.33	3,724.24	45.23	34-5 1/4
W11	34,487.72	68,423.77	57,601.20	36,023.45	4,240.89	5,842.04	45.23	36-5 1/4
W10	34,487.72	68,423.77	51,809.36	32,583.87	6,700.56	4,775.96	45.23	38-5 1/4
W9	30,311.90	61,914.32	51,809.36	32,583.87	5,329.44	7,656.21	45.23	40-5 1/4
W8	30,311.90	61,914.32	43,982.52	27,671.80	8,611.86	5,901.35	45.23	42-5 1/4
W7	24,663.59	53,467.18	43,982.52	27,671.80	6,491.67	9,991.50	45.23	44-5 1/4
W6	24,663.59	53,467.18	33,856.61	21,287.25	11,113.05	7,100.40	45.23	46-5 1/4
W5	16,946.08	41,887.86	33,856.61	21,287.25	8,180.95	12,801.28	45.23	48-5 1/4
W4	16,946.08	41,887.86	19,210.09	11,894.41	14,800.13	9,519.89	45.23	50-5 1/4
W3	18,897.96	28,709.88	19,210.09	11,894.41	9,964.61	15,895.75	43.83	52-5 1/4
V1S	18,897.96	28,709.88	0.00	0.00	673.56	1,518.36	39.06	54-10
W2	18,859.21	28,806.82	0.00	0.00	19,312.62	11,781.42	48.37	54-2 1/2

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,219.61	1,829.53	38.34

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:01:43 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J71

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.4375	0.9304	0.5924	1.6850	0.8424	1.2442	0.9613	3025 = 3 x 3 x 0.250
BC	1.1207	0.8991	0.5436	1.6512	0.8225	0.9058	0.9280	A44A = 2.875 x 2.875 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,855.21	384.28	576.42	23-10 1/2	12-5

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	29.25	24.00	28.75	22.00
Bending Load	716.21	625.84	405.00	641.09	685.67
Axial Load	28,165.20	28,060.77	75,745.64	28,709.88	28,806.82
fa	5,364.80	9,760.27	26,346.31	9,986.04	5,487.01
Maximum K L/r	37.14	49.38	30.38	48.53	37.14
Fcr	43,624.90	40,496.22	45,045.55	40,732.12	43,624.90
Fa	26,174.94	24,297.73	27,027.33	24,439.27	26,174.94
F'e	990,336.75	289,591.25	764,701.88	299,751.56	990,336.75
Cm	0.9973	0.9831	0.9769	0.9833	0.9972
Panel Point Moment	3,988.56	3,988.56	3,451.41	4,049.13	4,049.13
Mid Panel Moment	1,880.18	2,074.67	1,611.24	2,152.82	1,723.14
Panel Point fb	807.39	3,458.33	2,992.59	3,510.85	819.66
Mid Panel fb	367.87	702.34	545.46	728.80	337.15
Fillers	0	0	0	0	0
Panel Point Stress	6,172.19	13,218.60	29,338.90	13,496.90	6,306.67
Mid Panel Stress	0.2164	0.4242	0.9922	0.4320	0.2201

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.8162
Max Load Fillers TC:	79,393.27
Max Load no Fillers TC:	76,583.19
TC OAL/Ryy:	402.37
BC OAL/Ryy:	410.61
BC Stress:	0.93
BC L/Rz:	88.3002
TC Shear Stress:	13,804.57
BC Shear Stress:	15,778.34

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	17,710.24	28,618.35	10,457.04	13,715.35	6.36 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	9,964.61	29,969.07	15,895.75	16,205.98	3.09 x 0.245	1	WR111513 = Wrapped R112 with 1513
W4	14,800.13	28,621.37	9,519.89	9,865.78	5.32 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W5	8,180.95	28,618.35	12,801.28	13,447.52	4.60 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	11,113.05	24,373.24	7,100.40	8,522.55	3.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W7	6,491.67	28,618.35	9,991.50	13,447.52	3.59 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W8	8,611.86	16,730.22	5,901.35	5,998.65	3.67 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W9	5,329.44	24,373.24	7,656.21	8,522.55	2.75 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,700.56	14,381.54	4,775.96	5,402.54	3.01 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W11	4,240.89	16,730.22	5,842.04	5,998.65	2.49 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,130.33	10,742.43	3,724.24	4,165.21	2.68 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,226.00	14,381.54	4,702.37	5,402.54	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,702.37	10,742.43	2,833.42	4,165.21	2.45 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W15	2,833.42	14,381.54	4,702.37	5,402.54	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	2,833.42	14,381.54	4,702.37	5,402.54	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,702.37	10,742.43	2,833.42	4,165.21	2.45 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,226.00	14,381.54	4,702.37	5,402.54	2.11 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	5,130.33	10,742.43	3,724.24	4,165.21	2.68 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,240.89	16,730.22	5,842.04	5,998.65	2.49 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:01:43 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J71**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W10	6,700.56	14,381.54	4,775.96	5,402.54	3.01 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,329.44	24,373.24	7,656.21	8,522.55	2.75 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W8	8,611.86	16,730.22	5,901.35	5,998.65	3.67 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W7	6,491.67	28,618.35	9,991.50	13,447.52	3.59 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	11,113.05	24,373.24	7,100.40	8,522.55	3.99 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,180.95	28,618.35	12,801.28	13,447.52	4.60 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	14,800.13	28,621.37	9,519.89	9,865.78	5.32 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	9,964.61	29,969.07	15,895.75	16,205.98	3.09 x 0.245	1	WR111513 = Wrapped R112 with 1513
W2	19,312.62	28,618.35	11,781.42	13,770.94	6.94 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	673.56	5,758.64	1,518.36	1,825.01	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,219.61	5,758.64	1,829.53	1,904.49	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:01:43 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J71**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	2-3 3/4
Clear Bearing	0-6
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

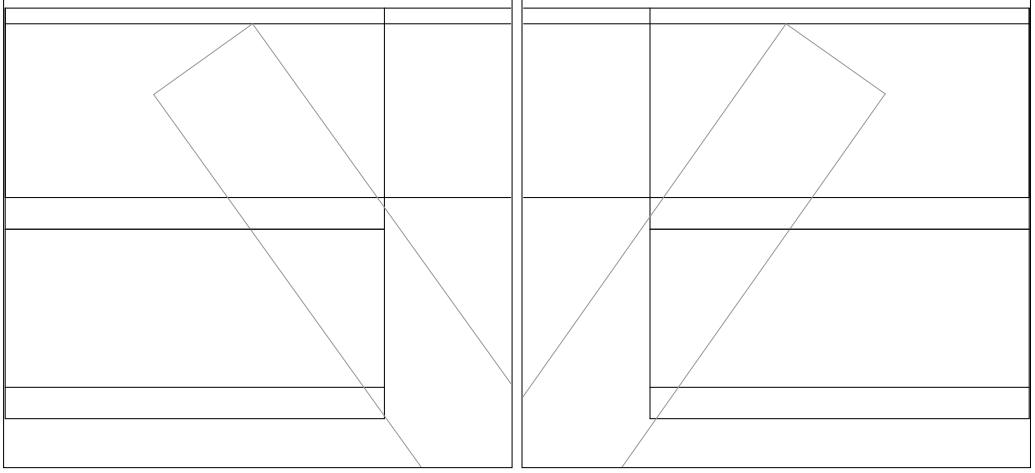
TCX Right	
TCX Length	0-0
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	2-3 5/8
Clear Bearing	0-5 7/8
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	4.9400
Reqd SM	0.0000
Mom of Inertia	8.7920
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	4.9400
Reqd SM	0.0000
Mom of Inertia	8.7920
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:01:43 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J71

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

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NEW MILLENNIUM
A Steel Dynamics Company

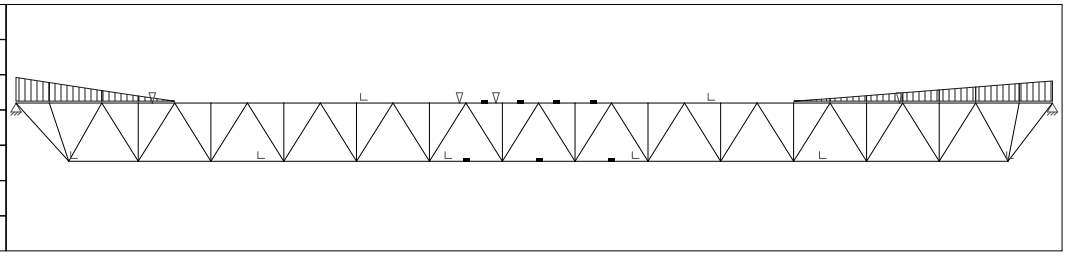
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:04:42 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J72**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
57-3 3/8	**56-11 3/8**	**40.00**	**38.52**	**13 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-1	2-7 1/2
TC Panel	2-0	2-0
First Half	1-9 5/8	1-9 1/4
First Diag.	4-10 5/8	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	57-3 3/8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	57-3 3/8	L-BL
Uniform (plf)	LL (1)	350.00	0.00	TC	+	0-0	8-0	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	7-8	7-8	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	24-6 1/2	24-6 1/2	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	26-6 1/2	26-6 1/2	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	44-3 3/8	57-3 1/2	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	48-8 1/2	48-8 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-8	7-8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	48-8 1/2	48-8 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.00**	**15,236.36**	**15,525.92**	**3,871.99**	**61,043.15**	**61,033.48**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,745.97	13,230.32	0.00	0.00	19,674.05	13,005.63	52.05	0-2
V1S	8,511.88	12,696.16	0.00	0.00	775.82	1,736.63	40.66	2-0
W3	8,511.88	12,696.16	19,982.06	13,526.22	10,243.31	14,883.62	44.18	3-1
W4	18,643.84	27,193.87	19,982.06	13,526.22	14,244.16	9,791.06	45.39	4-10 5/8
V2	18,643.84	27,193.87	19,982.06	13,526.22	1,595.28	2,020.61	38.52	6-10 5/8
W5	18,643.84	27,193.87	33,231.46	22,825.61	9,098.27	12,892.35	45.39	6-10 5/8
W6	26,275.96	38,386.82	33,231.46	22,825.61	10,029.08	7,167.15	45.39	8-10 5/8
V3	26,275.96	38,386.82	33,231.46	22,825.61	719.38	1,001.93	38.52	10-10 5/8
W7	26,275.96	38,386.82	43,037.51	29,359.96	6,558.56	9,034.76	45.39	10-10 5/8
W8	32,077.62	47,183.54	43,037.51	29,359.96	8,221.54	5,968.23	45.39	12-10 5/8
V4	32,077.62	47,183.54	43,037.51	29,359.96	748.39	1,045.92	38.52	14-10 5/8
W9	32,077.62	47,183.54	50,824.91	34,428.92	5,396.14	7,433.46	45.39	14-10 5/8
W10	36,413.88	53,961.61	50,824.91	34,428.92	6,670.52	4,842.31	45.39	16-10 5/8
V5	36,413.88	53,961.61	50,824.91	34,428.92	770.07	1,079.81	38.52	18-10 5/8
W11	36,413.88	53,961.61	56,593.64	38,032.48	4,306.72	5,932.72	45.39	18-10 5/8
W12	39,284.74	58,721.02	56,593.64	38,032.48	5,220.06	3,789.37	45.39	20-10 5/8
V6	39,284.74	58,721.02	56,593.64	38,032.48	784.42	1,189.54	38.52	22-10 5/8
W13	39,284.74	58,721.02	60,290.18	40,170.64	3,290.28	4,562.02	45.39	22-10 5/8

* Continued on Next Page...

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:04:42 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J72

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W14	40,690.21	61,043.15	60,290.18	40,170.64	4,562.02	2,914.66	45.39	24-10 5/8
V7	40,690.21	61,043.15	60,290.18	40,170.64	791.45	1,529.28	38.52	26-10 5/8
W15	40,690.21	61,043.15	61,033.48	40,843.41	4,562.02	4,562.02	45.39	26-10 5/8
W15	40,630.27	60,519.14	61,033.48	40,843.41	4,562.02	4,562.02	45.39	28-10 5/8
V8	40,630.27	60,519.14	61,033.48	40,843.41	791.15	1,112.60	38.52	30-10 5/8
W14	40,630.27	60,519.14	59,500.15	40,050.78	4,562.02	2,914.66	45.39	30-10 5/8
W13	39,104.94	57,976.48	59,500.15	40,050.78	3,290.28	4,562.02	45.39	32-10 5/8
V9	39,104.94	57,976.48	59,500.15	40,050.78	783.52	1,099.88	38.52	34-10 5/8
W12	39,104.94	57,976.48	55,948.15	37,792.74	5,220.06	3,789.37	45.39	34-10 5/8
W11	36,114.21	53,415.16	55,948.15	37,792.74	4,306.72	5,932.72	45.39	36-10 5/8
V10	36,114.21	53,415.16	55,948.15	37,792.74	768.57	1,077.08	38.52	38-10 5/8
W10	36,114.21	53,415.16	50,377.50	34,069.32	6,670.52	4,842.31	45.39	38-10 5/8
W9	31,658.08	46,835.18	50,377.50	34,069.32	5,396.14	7,433.46	45.39	40-10 5/8
V11	31,658.08	46,835.18	50,377.50	34,069.32	746.29	1,054.72	38.52	42-10 5/8
W8	31,658.08	46,835.18	42,781.61	28,880.49	8,221.54	5,968.23	45.39	42-10 5/8
W7	25,736.55	38,170.84	42,781.61	28,880.49	6,558.56	9,034.76	45.39	44-10 5/8
V12	25,736.55	38,170.84	42,781.61	28,880.49	849.50	1,302.33	38.52	46-10 5/8
W6	25,736.55	38,170.84	32,867.58	22,143.51	10,029.08	7,167.15	45.39	46-10 5/8
W5	17,332.31	26,050.20	32,867.58	22,143.51	9,098.27	12,892.35	45.39	48-10 5/8
V13	17,332.31	26,050.20	32,867.58	22,143.51	674.66	1,277.59	38.52	50-10 5/8
W4	17,332.31	26,050.20	18,517.98	12,154.76	14,244.16	9,791.06	45.39	50-10 5/8
W3	7,214.00	11,099.61	18,517.98	12,154.76	10,228.69	15,358.29	43.99	52-10 5/8
V1S	7,214.00	11,099.61	0.00	0.00	670.04	1,485.98	39.24	55-3 3/8
W2	7,335.04	11,372.73	0.00	0.00	18,704.84	12,064.01	48.52	54-7 7/8

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:04:42 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J72

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0971	0.7723	0.4925	1.4884	0.7099	0.6543	0.9970	2523 = 2 1/2 x 2 1/2 x 0.230
BC	1.1875	0.8021	0.4813	1.5548	0.7695	0.7639	1.0000	A46A = 2.594 x 2.594 x 0.250

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,695.17	342.91	514.36	21-1	12-1

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	34.63	24.00	28.75	22.00
Bending Load	718.20	623.49	405.00	641.09	685.67
Axial Load	13,230.32	12,696.16	61,043.15	11,099.61	11,372.73
fa	6,029.68	5,786.24	27,820.23	5,058.61	5,183.09
Maximum K L/r	44.67	70.30	24.37	58.38	44.67
Fcr	43,100.95	34,767.91	47,737.98	38,884.38	43,100.95
Fa	25,860.57	20,860.74	28,642.79	23,330.63	25,860.57
F'e	352,715.44	142,393.53	526,895.88	206,535.22	352,715.44
Cm	0.9915	0.9797	0.9646	0.9878	0.9927
Panel Point Moment	5,083.56	5,083.57	1,620.00	3,697.69	3,697.69
Mid Panel Moment	2,224.67	3,471.10	810.00	2,096.12	1,730.41
Panel Point fb	6,954.06	6,954.07	2,216.08	5,058.26	5,058.25
Mid Panel fb	3,043.24	1,883.03	439.42	1,137.12	938.73
Fillers	0	0	4	0	0
Panel Point Stress	12,983.74	12,740.31	30,036.31	10,116.87	10,241.34
Mid Panel Stress	0.3255	0.3362	0.9851	0.2516	0.2288

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6577**
Max Load Fillers TC: **62,202.75**
Max Load no Fillers TC: **58,928.85**
TC OAL/Ryy: **459.13**
BC OAL/Ryy: **439.52**
BC Stress: **0.86**
BC L/Rz: **99.7299**
TC Shear Stress: **14,730.37**
BC Shear Stress: **14,816.22**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,674.05	28,618.35	13,005.63	13,104.55	6.08 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	775.82	7,826.93	1,736.63	3,142.75	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	10,243.31	28,597.25	14,883.62	14,980.11	5.35 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	14,244.16	28,621.37	9,791.06	9,817.88	5.12 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V2	1,595.28	7,826.93	2,020.61	3,333.99	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	9,098.27	28,618.35	12,892.35	13,414.45	4.63 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	10,029.08	24,373.24	7,167.15	8,480.98	3.60 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	719.38	5,758.64	1,001.93	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	6,558.56	28,621.37	9,034.76	9,817.88	3.24 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W8	8,221.54	16,730.22	5,968.23	5,969.86	3.50 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V4	748.39	5,758.64	1,045.92	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	5,396.14	24,373.24	7,433.46	8,480.98	2.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,670.52	14,381.54	4,842.31	5,377.49	2.99 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	770.07	5,758.64	1,079.81	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,306.72	16,730.22	5,932.72	5,969.86	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,220.06	10,742.43	3,789.37	4,145.96	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	784.42	5,758.64	1,189.54	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W13	3,290.28	14,381.54	4,562.02	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,562.02	10,742.43	2,914.66	4,145.96	2.38 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:04:42 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J72**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	791.45	5,758.64	1,529.28	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W15	4,562.02	14,381.54	4,562.02	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	4,562.02	14,381.54	4,562.02	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	791.15	5,758.64	1,112.60	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	4,562.02	10,742.43	2,914.66	4,145.96	2.38 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,290.28	14,381.54	4,562.02	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V9	783.52	5,758.64	1,099.88	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,220.06	10,742.43	3,789.37	4,145.96	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,306.72	16,730.22	5,932.72	5,969.86	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V10	768.57	5,758.64	1,077.08	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	6,670.52	14,381.54	4,842.31	5,377.49	2.99 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,396.14	24,373.24	7,433.46	8,480.98	2.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V11	746.29	5,758.64	1,054.72	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	8,221.54	16,730.22	5,968.23	5,969.86	3.50 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W7	6,558.56	28,621.37	9,034.76	9,817.88	3.24 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V12	849.50	5,758.64	1,302.33	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	10,029.08	24,373.24	7,167.15	8,480.98	3.60 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	9,098.27	28,618.35	12,892.35	13,414.45	4.63 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V13	674.66	5,758.64	1,277.59	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	14,244.16	28,621.37	9,791.06	9,817.88	5.12 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	10,228.69	23,679.79	15,358.29	15,587.38	3.18 x 0.230	1	WR102015 = Wrapped R100 with 2015
V1S	670.04	5,758.64	1,485.98	1,817.30	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	18,704.84	28,618.35	12,064.01	13,744.26	5.78 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:04:42 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J72**

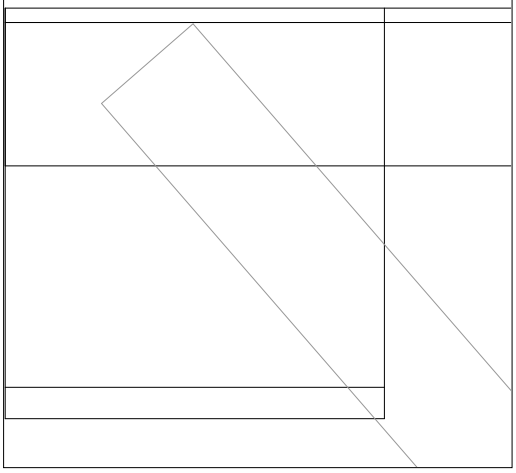
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-1 1/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

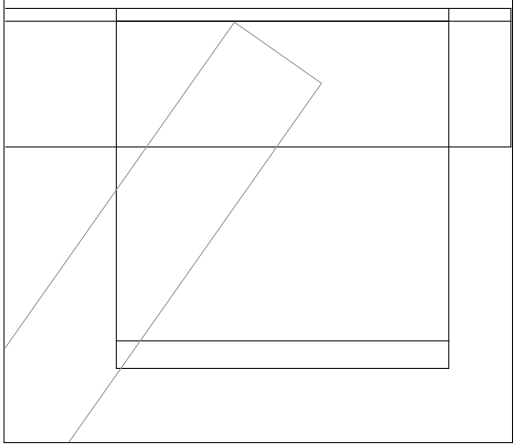
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.7310
Reqd SM	0.0055
Mom of Inertia	1.3086
Reqd MI	0.0004

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:04:42 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J72

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

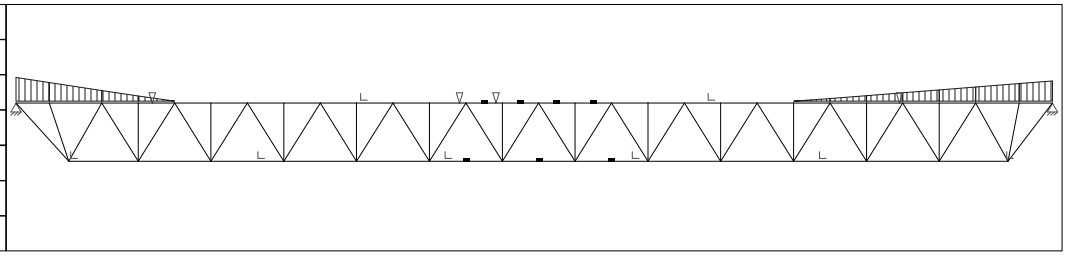
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:05:45 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J73**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
57-3 3/8	**56-11 3/8**	**40.00**	**38.52**	**13 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-1	2-7 1/2
TC Panel	2-0	2-0
First Half	1-9 5/8	1-9 1/4
First Diag.	4-10 5/8	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	57-3 3/8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	57-3 3/8	L-BL
Uniform (plf)	LL (1)	350.00	0.00	TC	+	0-0	8-0	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	7-8	7-8	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	24-6 1/2	24-6 1/2	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	26-6 1/2	26-6 1/2	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	44-3 3/8	57-3 1/2	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	48-8 1/2	48-8 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-8	7-8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	48-8 1/2	48-8 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.00**	**15,236.36**	**15,525.92**	**3,871.99**	**61,043.15**	**61,033.48**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,745.97	13,230.32	0.00	0.00	19,674.05	13,005.63	52.05	0-2
V1S	8,511.88	12,696.16	0.00	0.00	775.82	1,736.63	40.66	2-0
W3	8,511.88	12,696.16	19,982.06	13,526.22	10,243.31	14,883.62	44.18	3-1
W4	18,643.84	27,193.87	19,982.06	13,526.22	14,244.16	9,791.06	45.39	4-10 5/8
V2	18,643.84	27,193.87	19,982.06	13,526.22	1,595.28	2,020.61	38.52	6-10 5/8
W5	18,643.84	27,193.87	33,231.46	22,825.61	9,098.27	12,892.35	45.39	6-10 5/8
W6	26,275.96	38,386.82	33,231.46	22,825.61	10,029.08	7,167.15	45.39	8-10 5/8
V3	26,275.96	38,386.82	33,231.46	22,825.61	719.38	1,001.93	38.52	10-10 5/8
W7	26,275.96	38,386.82	43,037.51	29,359.96	6,558.56	9,034.76	45.39	10-10 5/8
W8	32,077.62	47,183.54	43,037.51	29,359.96	8,221.54	5,968.23	45.39	12-10 5/8
V4	32,077.62	47,183.54	43,037.51	29,359.96	748.39	1,045.92	38.52	14-10 5/8
W9	32,077.62	47,183.54	50,824.91	34,428.92	5,396.14	7,433.46	45.39	14-10 5/8
W10	36,413.88	53,961.61	50,824.91	34,428.92	6,670.52	4,842.31	45.39	16-10 5/8
V5	36,413.88	53,961.61	50,824.91	34,428.92	770.07	1,079.81	38.52	18-10 5/8
W11	36,413.88	53,961.61	56,593.64	38,032.48	4,306.72	5,932.72	45.39	18-10 5/8
W12	39,284.74	58,721.02	56,593.64	38,032.48	5,220.06	3,789.37	45.39	20-10 5/8
V6	39,284.74	58,721.02	56,593.64	38,032.48	784.42	1,189.54	38.52	22-10 5/8
W13	39,284.74	58,721.02	60,290.18	40,170.64	3,290.28	4,562.02	45.39	22-10 5/8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:05:45 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J73

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W14	40,690.21	61,043.15	60,290.18	40,170.64	4,562.02	2,914.66	45.39	24-10 5/8
V7	40,690.21	61,043.15	60,290.18	40,170.64	791.45	1,529.28	38.52	26-10 5/8
W15	40,690.21	61,043.15	61,033.48	40,843.41	4,562.02	4,562.02	45.39	26-10 5/8
W15	40,630.27	60,519.14	61,033.48	40,843.41	4,562.02	4,562.02	45.39	28-10 5/8
V8	40,630.27	60,519.14	61,033.48	40,843.41	791.15	1,112.60	38.52	30-10 5/8
W14	40,630.27	60,519.14	59,500.15	40,050.78	4,562.02	2,914.66	45.39	30-10 5/8
W13	39,104.94	57,976.48	59,500.15	40,050.78	3,290.28	4,562.02	45.39	32-10 5/8
V9	39,104.94	57,976.48	59,500.15	40,050.78	783.52	1,099.88	38.52	34-10 5/8
W12	39,104.94	57,976.48	55,948.15	37,792.74	5,220.06	3,789.37	45.39	34-10 5/8
W11	36,114.21	53,415.16	55,948.15	37,792.74	4,306.72	5,932.72	45.39	36-10 5/8
V10	36,114.21	53,415.16	55,948.15	37,792.74	768.57	1,077.08	38.52	38-10 5/8
W10	36,114.21	53,415.16	50,377.50	34,069.32	6,670.52	4,842.31	45.39	38-10 5/8
W9	31,658.08	46,835.18	50,377.50	34,069.32	5,396.14	7,433.46	45.39	40-10 5/8
V11	31,658.08	46,835.18	50,377.50	34,069.32	746.29	1,054.72	38.52	42-10 5/8
W8	31,658.08	46,835.18	42,781.61	28,880.49	8,221.54	5,968.23	45.39	42-10 5/8
W7	25,736.55	38,170.84	42,781.61	28,880.49	6,558.56	9,034.76	45.39	44-10 5/8
V12	25,736.55	38,170.84	42,781.61	28,880.49	849.50	1,302.33	38.52	46-10 5/8
W6	25,736.55	38,170.84	32,867.58	22,143.51	10,029.08	7,167.15	45.39	46-10 5/8
W5	17,332.31	26,050.20	32,867.58	22,143.51	9,098.27	12,892.35	45.39	48-10 5/8
V13	17,332.31	26,050.20	32,867.58	22,143.51	674.66	1,277.59	38.52	50-10 5/8
W4	17,332.31	26,050.20	18,517.98	12,154.76	14,244.16	9,791.06	45.39	50-10 5/8
W3	7,214.00	11,099.61	18,517.98	12,154.76	10,228.69	15,358.29	43.99	52-10 5/8
V1S	7,214.00	11,099.61	0.00	0.00	670.04	1,485.98	39.24	55-3 3/8
W2	7,335.04	11,372.73	0.00	0.00	18,704.84	12,064.01	48.52	54-7 7/8

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:05:45 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J73

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0971	0.7723	0.4925	1.4884	0.7099	0.6543	0.9970	2523 = 2 1/2 x 2 1/2 x 0.230
BC	1.1875	0.8021	0.4813	1.5548	0.7695	0.7639	1.0000	A46A = 2.594 x 2.594 x 0.250

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,695.17	342.91	514.36	21-1	12-1

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	34.63	24.00	28.75	22.00
Bending Load	718.20	623.49	405.00	641.09	685.67
Axial Load	13,230.32	12,696.16	61,043.15	11,099.61	11,372.73
fa	6,029.68	5,786.24	27,820.23	5,058.61	5,183.09
Maximum K L/r	44.67	70.30	24.37	58.38	44.67
Fcr	43,100.95	34,767.91	47,737.98	38,884.38	43,100.95
Fa	25,860.57	20,860.74	28,642.79	23,330.63	25,860.57
F'e	352,715.44	142,393.53	526,895.88	206,535.22	352,715.44
Cm	0.9915	0.9797	0.9646	0.9878	0.9927
Panel Point Moment	5,083.56	5,083.57	1,620.00	3,697.69	3,697.69
Mid Panel Moment	2,224.67	3,471.10	810.00	2,096.12	1,730.41
Panel Point fb	6,954.06	6,954.07	2,216.08	5,058.26	5,058.25
Mid Panel fb	3,043.24	1,883.03	439.42	1,137.12	938.73
Fillers	0	0	4	0	0
Panel Point Stress	12,983.74	12,740.31	30,036.31	10,116.87	10,241.34
Mid Panel Stress	0.3255	0.3362	0.9851	0.2516	0.2288

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6577**
Max Load Fillers TC: **62,202.75**
Max Load no Fillers TC: **58,928.85**
TC OAL/Ryy: **459.13**
BC OAL/Ryy: **439.52**
BC Stress: **0.86**
BC L/Rz: **99.7299**
TC Shear Stress: **14,730.37**
BC Shear Stress: **14,816.22**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,674.05	28,618.35	13,005.63	13,104.55	6.08 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	775.82	7,826.93	1,736.63	3,142.75	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	10,243.31	28,597.25	14,883.62	14,980.11	5.35 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	14,244.16	28,621.37	9,791.06	9,817.88	5.12 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V2	1,595.28	7,826.93	2,020.61	3,333.99	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	9,098.27	28,618.35	12,892.35	13,414.45	4.63 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	10,029.08	24,373.24	7,167.15	8,480.98	3.60 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	719.38	5,758.64	1,001.93	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	6,558.56	28,621.37	9,034.76	9,817.88	3.24 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W8	8,221.54	16,730.22	5,968.23	5,969.86	3.50 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V4	748.39	5,758.64	1,045.92	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	5,396.14	24,373.24	7,433.46	8,480.98	2.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,670.52	14,381.54	4,842.31	5,377.49	2.99 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	770.07	5,758.64	1,079.81	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,306.72	16,730.22	5,932.72	5,969.86	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,220.06	10,742.43	3,789.37	4,145.96	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	784.42	5,758.64	1,189.54	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W13	3,290.28	14,381.54	4,562.02	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,562.02	10,742.43	2,914.66	4,145.96	2.38 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

* Continued on Next Page...

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:05:45 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J73**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	791.45	5,758.64	1,529.28	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W15	4,562.02	14,381.54	4,562.02	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	4,562.02	14,381.54	4,562.02	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	791.15	5,758.64	1,112.60	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	4,562.02	10,742.43	2,914.66	4,145.96	2.38 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,290.28	14,381.54	4,562.02	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V9	783.52	5,758.64	1,099.88	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,220.06	10,742.43	3,789.37	4,145.96	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,306.72	16,730.22	5,932.72	5,969.86	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V10	768.57	5,758.64	1,077.08	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	6,670.52	14,381.54	4,842.31	5,377.49	2.99 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,396.14	24,373.24	7,433.46	8,480.98	2.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V11	746.29	5,758.64	1,054.72	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	8,221.54	16,730.22	5,968.23	5,969.86	3.50 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W7	6,558.56	28,621.37	9,034.76	9,817.88	3.24 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V12	849.50	5,758.64	1,302.33	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	10,029.08	24,373.24	7,167.15	8,480.98	3.60 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	9,098.27	28,618.35	12,892.35	13,414.45	4.63 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V13	674.66	5,758.64	1,277.59	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	14,244.16	28,621.37	9,791.06	9,817.88	5.12 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	10,228.69	23,679.79	15,358.29	15,587.38	3.18 x 0.230	1	WR102015 = Wrapped R100 with 2015
V1S	670.04	5,758.64	1,485.98	1,817.30	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	18,704.84	28,618.35	12,064.01	13,744.26	5.78 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:05:45 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J73**

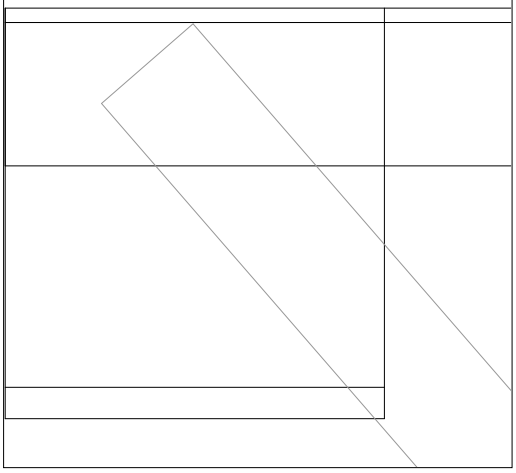
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-1 1/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

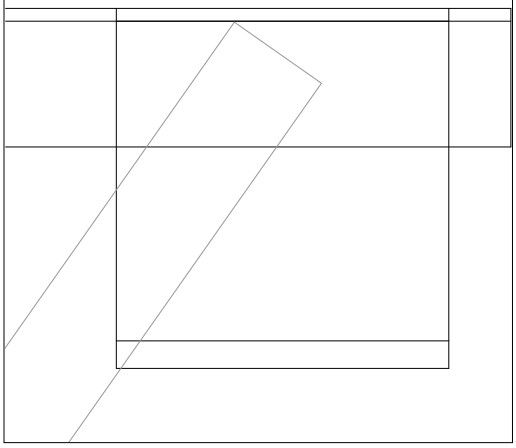
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.7310
Reqd SM	0.0055
Mom of Inertia	1.3086
Reqd MI	0.0004

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:05:45 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J73

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

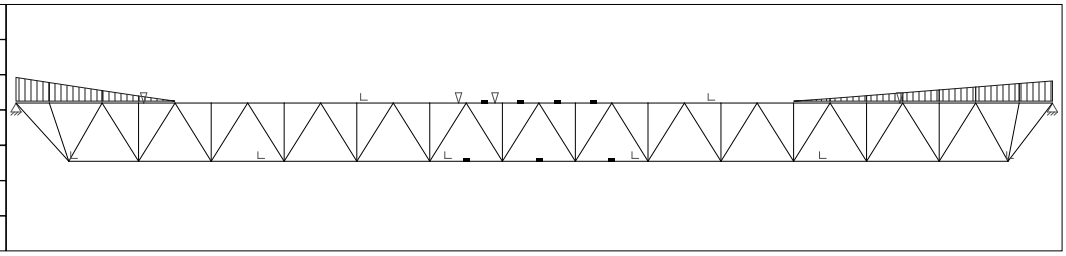
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:07:27 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J74**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
57-3 5/8	**56-11 5/8**	**40.00**	**38.52**	**13 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-1	2-7 1/2
TC Panel	2-0	2-0
First Half	1-9 7/8	1-9 1/4
First Diag.	4-10 7/8	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	57-3 5/8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	57-3 5/8	L-BL
Uniform (plf)	LL (1)	350.00	0.00	TC	+	0-0	8-0	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	7-2 3/8	7-2 3/8	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	24-5 7/8	24-5 7/8	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	26-5 7/8	26-5 7/8	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	44-3 5/8	57-2 7/8	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	48-8 7/8	48-8 7/8	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-2 3/8	7-2 3/8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	48-8 7/8	48-8 7/8	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.00**	**15,278.10**	**15,487.63**	**3,869.80**	**60,958.04**	**60,953.68**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,759.71	13,249.00	0.00	0.00	19,701.83	13,026.06	52.05	0-2
V1S	8,524.58	12,712.49	0.00	0.00	779.12	1,744.08	40.66	2-0
W3	8,524.58	12,712.49	20,090.34	13,603.75	10,285.68	14,940.72	44.30	3-1
W4	18,726.97	27,307.18	20,090.34	13,603.75	14,233.83	9,780.46	45.39	4-10 7/8
V2	18,726.97	27,307.18	20,090.34	13,603.75	1,962.88	2,422.44	38.52	6-10 7/8
W5	18,726.97	27,307.18	33,121.29	22,685.56	9,087.67	12,882.03	45.39	6-10 7/8
W6	26,141.53	38,281.95	33,121.29	22,685.56	10,009.55	7,170.70	45.39	8-10 7/8
V3	26,141.53	38,281.95	33,121.29	22,685.56	718.71	1,001.41	38.52	10-10 7/8
W7	26,141.53	38,281.95	42,937.96	29,231.13	6,562.08	9,039.61	45.39	10-10 7/8
W8	31,954.39	47,089.30	42,937.96	29,231.13	8,226.34	5,971.71	45.39	12-10 7/8
V4	31,954.39	47,089.30	42,937.96	29,231.13	747.77	1,045.45	38.52	14-10 7/8
W9	31,954.39	47,089.30	50,735.97	34,311.30	5,399.58	7,438.20	45.39	14-10 7/8
W10	36,301.86	53,877.98	50,735.97	34,311.30	6,675.19	4,845.69	45.39	16-10 7/8
V5	36,301.86	53,877.98	50,735.97	34,311.30	769.51	1,079.39	38.52	18-10 7/8
W11	36,301.86	53,877.98	56,515.33	37,926.07	4,310.05	5,937.31	45.39	18-10 7/8
W12	39,183.94	58,648.00	56,515.33	37,926.07	5,224.56	3,792.64	45.39	20-10 7/8
V6	39,183.94	58,648.00	56,515.33	37,926.07	783.92	1,207.41	38.52	22-10 7/8
W13	39,183.94	58,648.00	60,211.11	40,075.45	3,293.48	4,559.44	45.39	22-10 7/8

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STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:07:27 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J74

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W14	40,600.61	60,958.04	60,211.11	40,075.45	4,559.44	2,919.12	45.39	24-10 7/8
V7	40,600.61	60,958.04	60,211.11	40,075.45	791.00	1,510.62	38.52	26-10 7/8
W15	40,600.61	60,958.04	60,953.68	40,759.43	4,559.44	4,559.44	45.39	26-10 7/8
W15	40,551.89	60,444.66	60,953.68	40,759.43	4,559.44	4,559.44	45.39	28-10 7/8
V8	40,551.89	60,444.66	60,953.68	40,759.43	790.76	1,112.22	38.52	30-10 7/8
W14	40,551.89	60,444.66	59,430.97	39,978.00	4,559.44	2,919.12	45.39	30-10 7/8
W13	39,037.76	57,912.61	59,430.97	39,978.00	3,293.48	4,559.44	45.39	32-10 7/8
V9	39,037.76	57,912.61	59,430.97	39,978.00	783.19	1,099.56	38.52	34-10 7/8
W12	39,037.76	57,912.61	55,889.59	37,731.18	5,224.56	3,792.64	45.39	34-10 7/8
W11	36,058.24	53,361.91	55,889.59	37,731.18	4,310.05	5,937.31	45.39	36-10 7/8
V10	36,058.24	53,361.91	55,889.59	37,731.18	768.29	1,076.81	38.52	38-10 7/8
W10	36,058.24	53,361.91	50,329.55	34,018.96	6,675.19	4,845.69	45.39	38-10 7/8
W9	31,613.33	46,792.53	50,329.55	34,018.96	5,399.58	7,438.20	45.39	40-10 7/8
V11	31,613.33	46,792.53	50,329.55	34,018.96	746.07	1,054.50	38.52	42-10 7/8
W8	31,613.33	46,792.53	42,744.29	28,841.35	8,226.34	5,971.71	45.39	42-10 7/8
W7	25,703.02	38,138.83	42,744.29	28,841.35	6,562.08	9,039.61	45.39	44-10 7/8
V12	25,703.02	38,138.83	42,744.29	28,841.35	841.52	1,294.36	38.52	46-10 7/8
W6	25,703.02	38,138.83	32,845.74	22,120.45	10,009.55	7,170.70	45.39	46-10 7/8
W5	17,314.85	26,033.67	32,845.74	22,120.45	9,087.67	12,882.03	45.39	48-10 7/8
V13	17,314.85	26,033.67	32,845.74	22,120.45	674.57	1,277.50	38.52	50-10 7/8
W4	17,314.85	26,033.67	18,506.76	12,142.91	14,233.83	9,780.46	45.39	50-10 7/8
W3	7,207.11	11,093.08	18,506.76	12,142.91	10,218.42	15,348.28	43.99	52-10 7/8
V1S	7,207.11	11,093.08	0.00	0.00	670.00	1,485.95	39.24	55-3 5/8
W2	7,328.15	11,366.20	0.00	0.00	18,694.10	12,052.68	48.52	54-8 1/8

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:07:27 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J74

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0971	0.7723	0.4925	1.4884	0.7099	0.6543	0.9970	2523 = 2 1/2 x 2 1/2 x 0.230
BC	1.1875	0.8021	0.4813	1.5548	0.7695	0.7639	1.0000	A46A = 2.594 x 2.594 x 0.250

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,695.17	342.53	513.80	21-1	12-1 1/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	34.88	24.00	28.75	22.00
Bending Load	718.29	623.39	405.00	641.09	685.67
Axial Load	13,249.00	12,712.49	60,958.04	11,093.08	11,366.20
fa	6,038.19	5,793.68	27,781.44	5,055.64	5,180.11
Maximum K L/r	44.67	70.81	24.37	58.38	44.67
Fcr	43,100.95	34,586.83	47,737.98	38,884.38	43,100.95
Fa	25,860.57	20,752.10	28,642.79	23,330.63	25,860.57
F'e	352,715.44	140,359.36	526,895.88	206,535.22	352,715.44
Cm	0.9914	0.9794	0.9647	0.9878	0.9927
Panel Point Moment	5,062.78	5,062.78	1,620.00	3,716.44	3,716.44
Mid Panel Moment	1,453.90	3,477.33	810.00	2,089.48	1,777.07
Panel Point fb	6,925.63	6,925.63	2,216.08	5,083.91	5,083.90
Mid Panel fb	788.72	1,886.41	439.42	1,133.52	964.04
Fillers	0	0	4	0	0
Panel Point Stress	12,963.82	12,719.31	29,997.52	10,139.54	10,264.01
Mid Panel Stress	0.2574	0.3382	0.9837	0.2514	0.2295

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.6568
Max Load Fillers TC:	62,202.75
Max Load no Fillers TC:	58,928.85
TC OAL/Ryy:	459.30
BC OAL/Ryy:	439.68
BC Stress:	0.86
BC L/Rz:	99.7299
TC Shear Stress:	14,713.13
BC Shear Stress:	14,807.72

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,701.83	28,618.35	13,026.06	13,104.55	6.09 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	779.12	7,826.93	1,744.08	3,142.75	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	10,285.68	28,597.25	14,940.72	14,955.94	5.37 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	14,233.83	28,621.37	9,780.46	9,817.88	5.11 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V2	1,962.88	7,826.93	2,422.44	3,333.99	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	9,087.67	28,618.35	12,882.03	13,414.45	4.63 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	10,009.55	24,373.24	7,170.70	8,480.98	3.60 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	718.71	5,758.64	1,001.41	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	6,562.08	28,621.37	9,039.61	9,817.88	3.25 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W8	8,226.34	18,714.09	5,971.71	6,865.31	3.15 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V4	747.77	5,758.64	1,045.45	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	5,399.58	24,373.24	7,438.20	8,480.98	2.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,675.19	14,381.54	4,845.69	5,377.49	3.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	769.51	5,758.64	1,079.39	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,310.05	16,730.22	5,937.31	5,969.86	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,224.56	10,742.43	3,792.64	4,145.96	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	783.92	5,758.64	1,207.41	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W13	3,293.48	14,381.54	4,559.44	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,559.44	10,742.43	2,919.12	4,145.96	2.38 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

* Continued on Next Page...

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:07:27 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J74**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	791.00	5,758.64	1,510.62	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W15	4,559.44	14,381.54	4,559.44	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	4,559.44	14,381.54	4,559.44	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	790.76	5,758.64	1,112.22	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	4,559.44	10,742.43	2,919.12	4,145.96	2.38 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,293.48	14,381.54	4,559.44	5,377.49	2.05 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V9	783.19	5,758.64	1,099.56	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,224.56	10,742.43	3,792.64	4,145.96	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,310.05	16,730.22	5,937.31	5,969.86	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V10	768.29	5,758.64	1,076.81	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	6,675.19	14,381.54	4,845.69	5,377.49	3.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,399.58	24,373.24	7,438.20	8,480.98	2.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V11	746.07	5,758.64	1,054.50	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	8,226.34	18,714.09	5,971.71	6,865.31	3.15 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W7	6,562.08	28,621.37	9,039.61	9,817.88	3.25 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V12	841.52	5,758.64	1,294.36	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	10,009.55	24,373.24	7,170.70	8,480.98	3.60 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	9,087.67	28,618.35	12,882.03	13,414.45	4.63 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V13	674.57	5,758.64	1,277.50	1,886.19	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	14,233.83	28,621.37	9,780.46	9,817.88	5.11 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	10,218.42	23,679.79	15,348.28	15,587.38	3.18 x 0.230	1	WR102015 = Wrapped R100 with 2015
V1S	670.00	5,758.64	1,485.95	1,817.30	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	18,694.10	28,618.35	12,052.68	13,744.26	6.71 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:07:27 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J74**

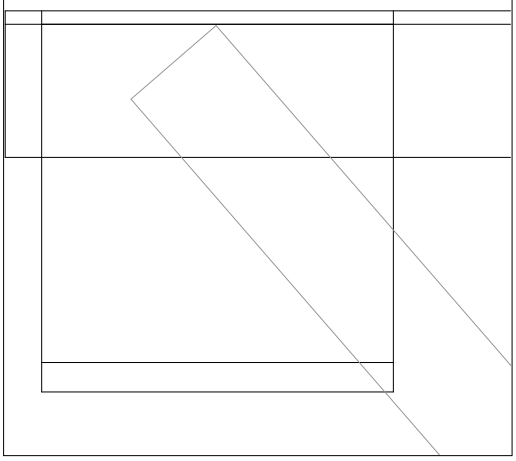
TCX Design

TCX Left	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 1/4
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

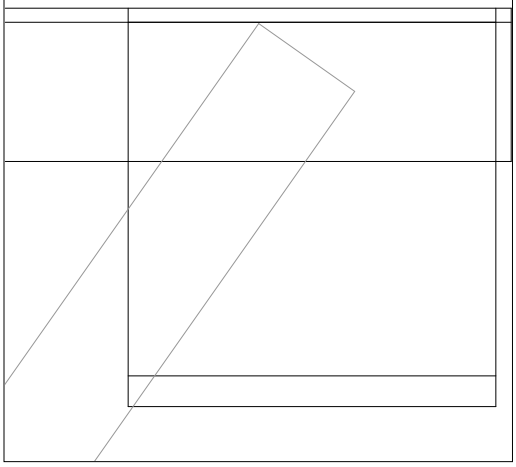
Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.7310
Reqd SM	0.0039
Mom of Inertia	1.3086
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.7310
Reqd SM	0.0028
Mom of Inertia	1.3086
Reqd MI	0.0001

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:07:27 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J74

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

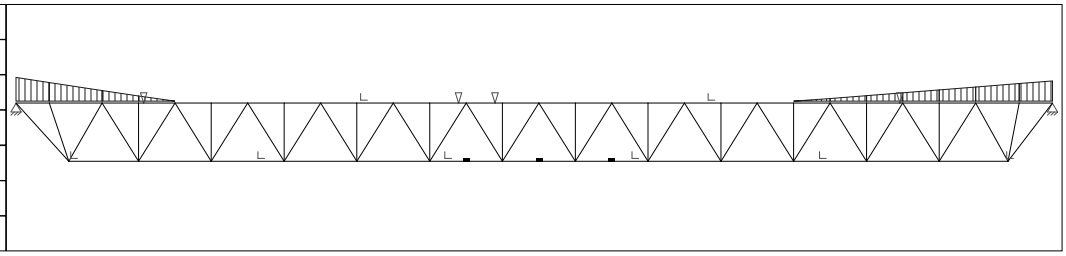
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:10:10 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J75**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
57-3 5/8	**56-11 5/8**	**40.00**	**38.51**	**13 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-1	2-7 1/2
TC Panel	2-0	2-0
First Half	1-9 7/8	1-9 1/4
First Diag.	4-10 7/8	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	57-3 5/8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	57-3 5/8	L-BL
Conc @ any pp (lbs)	CL (1)	600.00	0.00	TC	+			
Uniform (plf)	LL (1)	350.00	0.00	TC	+	0-0	8-0	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	7-2 3/8	7-2 3/8	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	24-5 7/8	24-5 7/8	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	26-5 7/8	26-5 7/8	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	44-3 5/8	56-9 7/8	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	48-8 7/8	48-8 7/8	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-2 3/8	7-2 3/8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	48-8 7/8	48-8 7/8	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.00**	**15,872.83**	**16,084.99**	**4,019.14**	**63,468.88**	**63,603.75**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,761.34	13,524.11	0.00	0.00	20,507.13	13,027.16	52.04	0-2
V1S	8,526.17	12,987.50	0.00	0.00	779.15	2,377.38	40.65	2-0
W3	8,526.17	12,987.50	20,537.12	13,606.28	10,286.15	15,567.87	44.29	3-1
W4	18,730.46	27,942.26	20,537.12	13,606.28	14,888.83	9,780.97	45.38	4-10 7/8
V2	18,730.46	27,942.26	20,537.12	13,606.28	1,962.90	3,086.85	38.51	6-10 7/8
W5	18,730.46	27,942.26	33,944.39	22,689.80	9,088.14	13,487.34	45.38	6-10 7/8
W6	26,146.41	39,292.96	33,944.39	22,689.80	10,614.71	7,171.07	45.38	8-10 7/8
V3	26,146.41	39,292.96	33,944.39	22,689.80	718.73	1,601.45	38.51	10-10 7/8
W7	26,146.41	39,292.96	44,136.80	29,236.59	6,562.43	9,351.02	45.38	10-10 7/8
W8	31,960.36	48,475.86	44,136.80	29,236.59	8,396.62	5,972.03	45.38	12-10 7/8
V4	31,960.36	48,475.86	44,136.80	29,236.59	747.80	1,645.49	38.51	14-10 7/8
W9	31,960.36	48,475.86	52,310.16	34,317.72	5,399.87	7,438.59	45.38	14-10 7/8
W10	36,308.64	55,639.70	52,310.16	34,317.72	6,675.54	4,845.95	45.38	16-10 7/8
V5	36,308.64	55,639.70	52,310.16	34,317.72	769.54	1,679.44	38.51	18-10 7/8
W11	36,308.64	55,639.70	58,464.49	37,933.16	4,310.27	5,937.62	45.38	18-10 7/8
W12	39,191.25	60,784.51	58,464.49	37,933.16	5,224.83	3,792.84	45.38	20-10 7/8
V6	39,191.25	60,784.51	58,464.49	37,933.16	783.96	1,811.47	38.51	22-10 7/8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:10:10 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J75**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W13	39,191.25	60,784.51	62,534.86	40,082.94	3,293.65	4,735.64	45.38	22-10 7/8
W14	40,608.19	63,468.88	62,534.86	40,082.94	4,735.64	2,919.27	45.38	24-10 7/8
V7	40,608.19	63,468.88	62,534.86	40,082.94	791.04	2,145.33	38.51	26-10 7/8
W15	40,608.19	63,468.88	63,603.75	40,767.03	4,735.64	4,735.64	45.38	26-10 7/8
W15	40,559.46	62,907.69	63,603.75	40,767.03	4,735.64	4,735.64	45.38	28-10 7/8
V8	40,559.46	62,907.69	63,603.75	40,767.03	790.80	1,712.28	38.51	30-10 7/8
W14	40,559.46	62,907.69	61,706.86	39,985.47	4,735.64	2,919.27	45.38	30-10 7/8
W13	39,045.05	60,001.27	61,706.86	39,985.47	3,293.65	4,735.64	45.38	32-10 7/8
V9	39,045.05	60,001.27	61,706.86	39,985.47	783.23	1,699.62	38.51	34-10 7/8
W12	39,045.05	60,001.27	57,790.93	37,738.23	5,224.83	3,792.84	45.38	34-10 7/8
W11	36,064.98	55,075.82	57,790.93	37,738.23	4,310.27	5,937.62	45.38	36-10 7/8
V10	36,064.98	55,075.82	57,790.93	37,738.23	768.32	1,676.86	38.51	38-10 7/8
W10	36,064.98	55,075.82	51,855.95	34,025.31	6,675.54	4,845.95	45.38	38-10 7/8
W9	31,619.23	48,131.34	51,855.95	34,025.31	5,399.87	7,438.59	45.38	40-10 7/8
V11	31,619.23	48,131.34	51,855.95	34,025.31	746.10	1,654.55	38.51	42-10 7/8
W8	31,619.23	48,131.34	43,895.38	28,846.74	8,396.62	5,972.03	45.38	42-10 7/8
W7	25,707.81	39,102.11	43,895.38	28,846.74	6,562.43	9,351.02	45.38	44-10 7/8
V12	25,707.81	39,102.11	43,895.38	28,846.74	841.54	1,894.40	38.51	46-10 7/8
W6	25,707.81	39,102.11	33,621.09	22,124.58	10,614.71	7,171.07	45.38	46-10 7/8
W5	17,318.09	26,620.79	33,621.09	22,124.58	9,088.14	13,487.34	45.38	48-10 7/8
V13	17,318.09	26,620.79	33,621.09	22,124.58	674.59	1,877.53	38.51	50-10 7/8
W4	17,318.09	26,620.79	18,905.53	12,145.18	14,888.83	9,780.97	45.38	50-10 7/8
W3	7,208.46	11,324.94	18,905.53	12,145.18	10,218.86	15,983.13	43.99	52-10 7/8
V1S	7,208.46	11,324.94	0.00	0.00	670.01	2,097.24	39.24	55-3 5/8
W2	7,329.52	11,598.12	0.00	0.00	19,447.86	12,053.51	48.51	54-8 1/8

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:10:10 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J75

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.1875	0.7695	0.4915	1.4931	0.7171	0.7031	1.0000	2525 = 2 1/2 x 2 1/2 x 0.250
BC	1.1875	0.8021	0.4813	1.5548	0.7695	0.7639	1.0000	A46A = 2.594 x 2.594 x 0.250

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,764.33	356.51	534.76	21-1 7/8	12-1 1/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	34.88	24.00	28.75	22.00
Bending Load	718.29	623.39	405.00	641.09	685.67
Axial Load	13,524.11	12,987.50	63,468.88	11,324.95	11,598.12
fa	5,694.36	5,468.42	26,723.74	4,768.40	4,883.42
Maximum K L/r	44.76	70.96	36.62	58.49	44.76
Fcr	43,186.57	34,601.36	45,329.46	38,933.12	43,186.57
Fa	25,911.94	20,760.81	27,197.67	23,359.87	25,911.94
F'e	350,162.50	139,343.45	523,082.22	205,040.34	350,162.50
Cm	0.9919	0.9804	0.9658	0.9884	0.9930
Panel Point Moment	5,062.78	5,062.78	1,620.00	3,716.44	3,716.44
Mid Panel Moment	1,453.90	3,477.33	810.00	2,089.48	1,777.07
Panel Point fb	6,419.02	6,419.02	2,053.97	4,712.02	4,712.02
Mid Panel fb	741.42	1,773.29	413.06	1,065.54	906.23
Fillers	0	0	0	0	0
Panel Point Stress	12,113.38	11,887.45	28,777.71	9,480.42	9,595.43
Mid Panel Stress	0.2422	0.3185	0.9955	0.2366	0.1249

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6839**
Max Load Fillers TC: **67,575.98**
Max Load no Fillers TC: **63,994.57**
TC OAL/Ryy: **457.84**
BC OAL/Ryy: **439.68**
BC Stress: **0.89**
BC L/Rz: **99.7299**
TC Shear Stress: **13,639.25**
BC Shear Stress: **15,403.79**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	20,507.13	28,618.35	13,027.16	13,105.51	6.33 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218
V1S	779.15	7,826.93	2,377.38	3,143.35	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	10,286.15	29,969.07	15,567.87	15,996.50	3.03 x 0.245	1	WR111513 = Wrapped R112 with 1513
W4	14,888.83	28,621.37	9,780.97	9,819.73	5.35 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V2	1,962.90	7,826.93	3,086.85	3,334.65	2.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	9,088.14	28,597.25	13,487.34	14,742.23	4.84 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W6	10,614.71	24,373.24	7,171.07	8,482.59	3.81 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	718.73	5,758.64	1,601.45	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	6,562.43	28,621.37	9,351.02	9,819.73	3.36 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W8	8,396.62	18,714.09	5,972.03	6,866.66	3.21 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V4	747.80	5,758.64	1,645.49	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	5,399.87	24,373.24	7,438.59	8,482.59	2.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,675.54	14,381.54	4,845.95	5,378.47	3.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	769.54	5,758.64	1,679.44	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,310.27	16,730.22	5,937.62	5,970.97	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,224.83	10,742.43	3,792.84	4,146.70	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	783.96	5,758.64	1,811.47	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W13	3,293.65	14,381.54	4,735.64	5,378.47	2.13 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,735.64	10,742.43	2,919.27	4,146.70	2.47 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:10:10 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J75**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	791.04	7,826.93	2,145.33	3,334.65	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W15	4,735.64	14,381.54	4,735.64	5,378.47	2.13 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	4,735.64	14,381.54	4,735.64	5,378.47	2.13 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	790.80	5,758.64	1,712.28	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	4,735.64	10,742.43	2,919.27	4,146.70	2.47 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,293.65	14,381.54	4,735.64	5,378.47	2.13 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V9	783.23	5,758.64	1,699.62	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,224.83	10,742.43	3,792.84	4,146.70	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,310.27	16,730.22	5,937.62	5,970.97	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V10	768.32	5,758.64	1,676.86	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	6,675.54	14,381.54	4,845.95	5,378.47	3.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,399.87	24,373.24	7,438.59	8,482.59	2.67 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V11	746.10	5,758.64	1,654.55	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	8,396.62	18,714.09	5,972.03	6,866.66	3.21 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W7	6,562.43	28,621.37	9,351.02	9,819.73	3.36 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V12	841.54	7,826.93	1,894.40	3,334.65	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	10,614.71	24,373.24	7,171.07	8,482.59	3.81 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	9,088.14	28,597.25	13,487.34	14,742.23	4.84 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
V13	674.59	5,758.64	1,877.53	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	14,888.83	28,621.37	9,780.97	9,819.73	5.35 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	10,218.86	29,969.07	15,983.13	16,135.07	3.11 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1S	670.01	7,826.93	2,097.24	3,269.34	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W2	19,447.86	28,618.35	12,053.51	13,745.29	6.01 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:10:10 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J75**

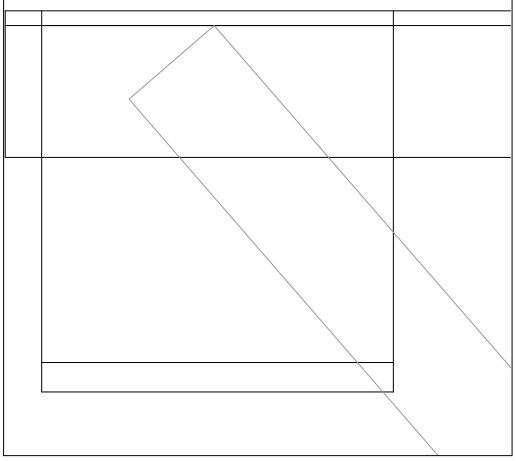
TCX Design

TCX Left	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 1/4
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

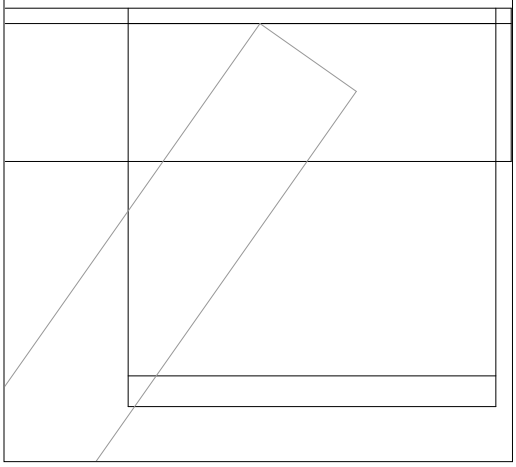
Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.7887
Reqd SM	0.0039
Mom of Inertia	1.4062
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.7887
Reqd SM	0.0028
Mom of Inertia	1.4062
Reqd MI	0.0001

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:10:10 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J75

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

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NEW MILLENNIUM
A Steel Dynamics Company

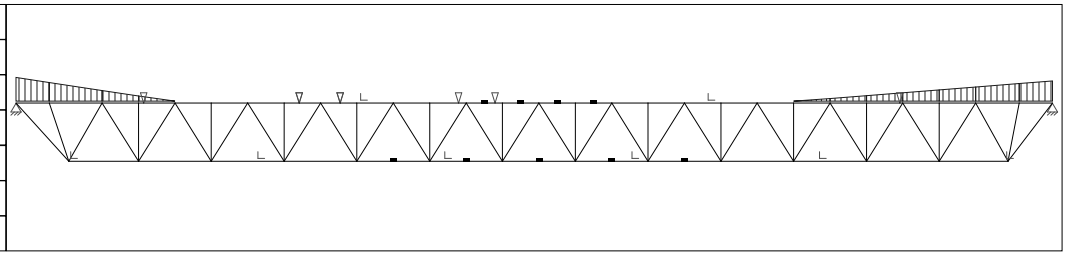
Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:11:01 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J76

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
57-3 5/8	56-11 5/8	40.00	38.51	13 @ 4-0	1.0220	Parallel Chords	0.0000

Variable	Left End	Right End
BC Panel	3-1	2-7 1/2
TC Panel	2-0	2-0
First Half	1-9 7/8	1-9 1/4
First Diag.	4-10 7/8	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	57-3 5/8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	57-3 5/8	L-BL
Uniform (plf)	LL (1)	350.00	0.00	TC	+	0-0	8-0	L-BL
Conc @ any pp (lbs)	CL (1)	600.00	0.00	TC	+			
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	7-2 3/8	7-2 3/8	L-BL
Conc Load (lbs)	SM (1)	1,300.00	0.00	TC	+	15-8 7/8	15-8 7/8	L-BL
Conc Load (lbs)	WL (1)	1,300.00	0.00	TC	+	15-8 7/8	17-11 7/8	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	15-8 7/8	15-8 7/8	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	17-11 7/8	17-11 7/8	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	24-5 7/8	24-5 7/8	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	26-5 7/8	26-5 7/8	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	44-3 5/8	56-9 7/8	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	48-8 7/8	48-8 7/8	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-2 3/8	7-2 3/8	L-BL
Conc Load (lbs)	WL (2)	1,300.00	0.00	TC	-	15-8 7/8	17-11 7/8	L-BL
Conc Load (lbs)	SM (2)	1,300.00	0.00	TC	-	15-8 7/8	15-8 7/8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	48-8 7/8	48-8 7/8	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	48.00	16,296.97	16,260.86	4,068.97	65,125.30	65,150.59

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,573.14	13,909.55	0.00	0.00	21,080.24	14,301.28	52.04	0-2
V1S	9,337.97	13,372.94	0.00	0.00	1,774.33	2,379.31	40.65	2-0
W3	9,337.97	13,372.94	21,229.33	14,925.46	11,370.55	16,236.72	44.29	3-1
W4	20,606.30	29,088.01	21,229.33	14,925.46	15,178.61	10,799.84	45.38	4-10 7/8
V2	20,606.30	29,088.01	21,229.33	14,925.46	2,905.82	3,099.22	38.51	6-10 7/8
W5	20,606.30	29,088.01	35,517.88	25,122.30	9,567.36	13,694.56	45.38	6-10 7/8
W6	29,135.56	41,317.57	35,517.88	25,122.30	11,233.95	7,646.78	45.38	8-10 7/8
V3	29,135.56	41,317.57	35,517.88	25,122.30	1,661.65	1,619.41	38.51	10-10 7/8
W7	29,135.56	41,317.57	46,647.41	32,782.41	6,953.95	10,290.60	45.38	10-10 7/8
W8	36,062.84	51,507.39	46,647.41	32,782.41	9,402.19	6,261.13	45.38	12-10 7/8
V4	36,062.84	51,507.39	46,647.41	32,782.41	1,690.72	2,430.82	38.51	14-10 7/8

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:11:01 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J76**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W9	36,062.84	51,507.39	55,422.34	38,976.86	5,534.71	7,713.93	45.38	14-10 7/8
W10	41,153.16	58,433.12	55,422.34	38,976.86	6,675.54	4,845.95	45.38	16-10 7/8
V5	41,153.16	58,433.12	55,422.34	38,976.86	1,497.93	1,880.79	38.51	18-10 7/8
W11	41,153.16	58,433.12	60,861.90	42,524.21	4,310.27	5,937.62	45.38	18-10 7/8
W12	43,528.86	62,820.84	60,861.90	42,524.21	5,224.83	3,792.84	45.38	20-10 7/8
V6	43,528.86	62,820.84	60,861.90	42,524.21	805.64	1,836.06	38.51	22-10 7/8
W13	43,528.86	62,820.84	64,300.88	44,167.10	3,293.65	4,794.36	45.38	22-10 7/8
W14	44,438.91	65,125.30	64,300.88	44,167.10	4,794.36	3,182.41	45.38	24-10 7/8
V7	44,438.91	65,125.30	64,300.88	44,167.10	810.19	2,167.06	38.51	26-10 7/8
W15	44,438.91	65,125.30	65,150.59	44,344.31	4,794.36	4,794.36	45.38	26-10 7/8
W15	43,883.30	64,344.93	65,150.59	44,344.31	4,794.36	4,794.36	45.38	28-10 7/8
V8	43,883.30	64,344.93	65,150.59	44,344.31	807.42	1,722.92	38.51	30-10 7/8
W14	43,883.30	64,344.93	63,034.52	43,055.86	4,794.36	3,182.41	45.38	30-10 7/8
W13	41,862.00	61,219.34	63,034.52	43,055.86	3,293.65	4,794.36	45.38	32-10 7/8
V9	41,862.00	61,219.34	63,034.52	43,055.86	797.31	1,707.70	38.51	34-10 7/8
W12	41,862.00	61,219.34	58,899.40	40,301.73	5,224.83	3,792.84	45.38	34-10 7/8
W11	38,375.04	56,074.70	58,899.40	40,301.73	4,310.27	5,937.62	45.38	36-10 7/8
V10	38,375.04	56,074.70	58,899.40	40,301.73	779.88	1,683.08	38.51	38-10 7/8
W10	38,375.04	56,074.70	52,745.24	36,081.92	6,675.54	4,845.95	45.38	38-10 7/8
W9	33,422.39	48,911.03	52,745.24	36,081.92	5,534.71	7,713.93	45.38	40-10 7/8
V11	33,422.39	48,911.03	52,745.24	36,081.92	755.11	1,658.45	38.51	42-10 7/8
W8	33,422.39	48,911.03	44,565.48	30,396.45	9,402.19	6,261.13	45.38	42-10 7/8
W7	27,004.08	39,662.62	44,565.48	30,396.45	6,953.95	10,290.60	45.38	44-10 7/8
V12	27,004.08	39,662.62	44,565.48	30,396.45	848.02	1,897.20	38.51	46-10 7/8
W6	27,004.08	39,662.62	34,072.01	23,167.41	11,233.95	7,646.78	45.38	46-10 7/8
W5	18,107.46	26,962.13	34,072.01	23,167.41	9,567.36	13,694.56	45.38	48-10 7/8
V13	18,107.46	26,962.13	34,072.01	23,167.41	678.54	1,879.23	38.51	50-10 7/8
W4	18,107.46	26,962.13	19,137.27	12,681.11	15,178.61	10,799.84	45.38	50-10 7/8
W3	7,519.98	11,459.65	19,137.27	12,681.11	10,683.38	16,183.98	43.99	52-10 7/8
V1S	7,519.98	11,459.65	0.00	0.00	1,080.27	2,097.91	39.24	55-3 5/8
W2	7,641.05	11,732.82	0.00	0.00	19,669.39	12,565.83	48.51	54-8 1/8

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NEW MILLENNIUM
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Job Number:	Job Name:	Date Run:
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Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J76

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.1875	0.7695	0.4915	1.4931	0.7171	0.7031	1.0000	2525 = 2 1/2 x 2 1/2 x 0.250
BC	1.1875	0.8021	0.4813	1.5548	0.7695	0.7639	1.0000	A46A = 2.594 x 2.594 x 0.250

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,764.33	356.51	534.76	21-1 7/8	11-1 7/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	34.88	24.00	28.75	22.00
Bending Load	718.29	623.39	405.00	641.09	685.67
Axial Load	13,909.55	13,372.94	65,125.30	11,459.65	11,732.82
fa	5,856.65	5,630.71	27,421.18	4,825.12	4,940.14
Maximum K L/r	44.76	70.96	24.42	58.49	44.76
Fcr	43,186.57	34,601.36	47,867.57	38,933.12	43,186.57
Fa	25,911.94	20,760.81	28,720.54	23,359.87	25,911.94
F'e	350,162.50	139,343.45	523,082.22	205,040.34	350,162.50
Cm	0.9916	0.9798	0.9649	0.9882	0.9929
Panel Point Moment	5,062.78	5,062.78	1,620.00	3,716.44	3,716.44
Mid Panel Moment	1,453.90	3,477.33	810.00	2,089.48	1,777.07
Panel Point fb	6,419.02	6,419.02	2,053.97	4,712.02	4,712.02
Mid Panel fb	741.42	1,773.29	413.06	1,065.54	906.23
Fillers	0	0	4	0	0
Panel Point Stress	12,275.68	12,049.74	29,475.15	9,537.13	9,652.15
Mid Panel Stress	0.2484	0.3264	0.9677	0.2390	0.1260

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.7017**
Max Load Fillers TC: **67,575.98**
Max Load no Fillers TC: **63,994.57**
TC OAL/Ryy: **457.84**
BC OAL/Ryy: **439.68**
BC Stress: **0.91**
BC L/Rz: **99.7299**
TC Shear Stress: **13,949.09**
BC Shear Stress: **15,647.49**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	21,080.24	29,969.07	14,301.28	14,676.65	4.10 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1S	1,774.33	7,826.93	2,379.31	3,143.35	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	11,370.55	23,679.79	16,236.72	16,338.81	3.36 x 0.230	1	WR102018 = Wrapped R100 with 2018
W4	15,178.61	28,618.35	10,799.84	13,415.73	5.45 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	2,905.82	7,826.93	3,099.22	3,334.65	2.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	9,567.36	28,597.25	13,694.56	14,742.23	4.92 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W6	11,233.95	24,373.24	7,646.78	8,482.59	4.03 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	1,661.65	5,758.64	1,619.41	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	6,953.95	28,618.35	10,290.60	13,415.73	3.70 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W8	9,402.19	18,714.09	6,261.13	6,866.66	3.60 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V4	1,690.72	7,826.93	2,430.82	3,334.65	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	5,534.71	24,373.24	7,713.93	8,482.59	2.77 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,675.54	14,381.54	4,845.95	5,378.47	3.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	1,497.93	5,758.64	1,880.79	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,310.27	16,730.22	5,937.62	5,970.97	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,224.83	10,742.43	3,792.84	4,146.70	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	805.64	5,758.64	1,836.06	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W13	3,293.65	14,381.54	4,794.36	5,378.47	2.15 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,794.36	10,742.43	3,182.41	4,146.70	2.50 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:11:01 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J76**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	810.19	7,826.93	2,167.06	3,334.65	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W15	4,794.36	14,381.54	4,794.36	5,378.47	2.15 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	4,794.36	14,381.54	4,794.36	5,378.47	2.15 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	807.42	5,758.64	1,722.92	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	4,794.36	10,742.43	3,182.41	4,146.70	2.50 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,293.65	14,381.54	4,794.36	5,378.47	2.15 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V9	797.31	5,758.64	1,707.70	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,224.83	10,742.43	3,792.84	4,146.70	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,310.27	16,730.22	5,937.62	5,970.97	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V10	779.88	5,758.64	1,683.08	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	6,675.54	14,381.54	4,845.95	5,378.47	3.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,534.71	24,373.24	7,713.93	8,482.59	2.77 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V11	755.11	5,758.64	1,658.45	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	9,402.19	18,714.09	6,261.13	6,866.66	3.60 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W7	6,953.95	28,618.35	10,290.60	13,415.73	3.70 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V12	848.02	7,826.93	1,897.20	3,334.65	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	11,233.95	24,373.24	7,646.78	8,482.59	4.03 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	9,567.36	28,597.25	13,694.56	14,742.23	4.92 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
V13	678.54	5,758.64	1,879.23	1,886.90	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	15,178.61	28,618.35	10,799.84	13,415.73	5.45 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	10,683.38	23,679.79	16,183.98	16,422.32	3.35 x 0.230	1	WR102018 = Wrapped R100 with 2018
V1S	1,080.27	7,826.93	2,097.91	3,269.34	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W2	19,669.39	28,618.35	12,565.83	13,745.29	6.08 x 0.218	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:11:01 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J76**

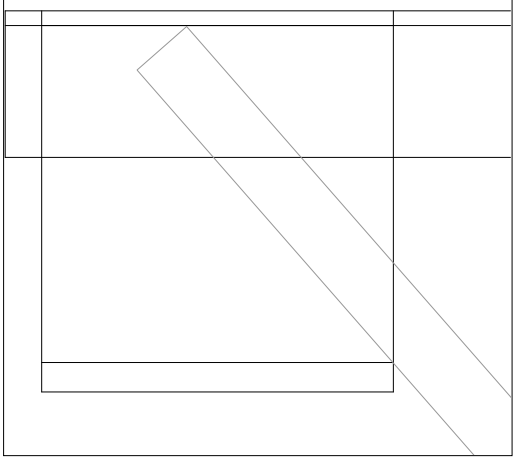
TCX Design

TCX Left	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 1/4
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

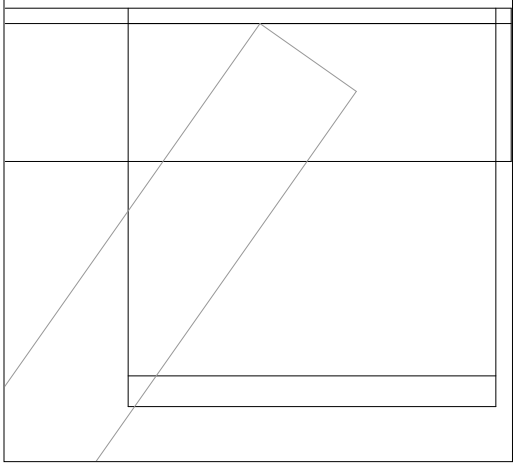
Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.7887
Reqd SM	0.0039
Mom of Inertia	1.4062
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.7887
Reqd SM	0.0028
Mom of Inertia	1.4062
Reqd MI	0.0001

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:11:01 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J76

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

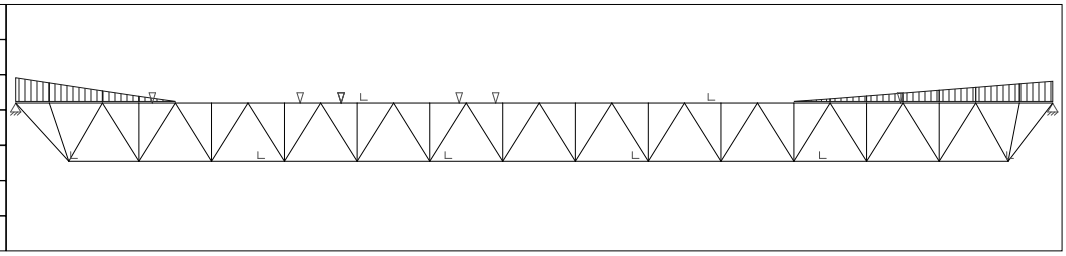
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:13:13 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J77**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
57-3 7/8	**56-11 7/8**	**40.00**	**38.45**	**13 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-1	2-7 1/2
TC Panel	2-0	2-0
First Half	1-10 1/8	1-9 1/4
First Diag.	4-11 1/8	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	57-3 7/8	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	57-3 7/8	L-BL
Uniform (plf)	LL (1)	350.00	0.00	TC	+	0-0	8-0	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	7-8	7-8	L-BL
Conc Load (lbs)	WL (1)	1,300.00	0.00	TC	+	15-9 1/2	18-0 1/2	L-BL
Conc Load (lbs)	SM (1)	1,300.00	0.00	TC	+	15-9 1/2	18-0 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	15-9 1/2	15-9 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	18-0 1/2	18-0 1/2	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	24-6 1/2	24-6 1/2	L-BL
Conc Load (lbs)	DL (1)	500.00	0.00	TC	+	26-6 1/2	26-6 1/2	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	44-3 7/8	56-10 1/2	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	48-9 1/2	48-9 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-8	7-8	L-BL
Conc Load (lbs)	WL (2)	1,300.00	0.00	TC	-	15-9 1/2	18-0 1/2	L-BL
Conc Load (lbs)	SM (2)	1,300.00	0.00	TC	-	15-9 1/2	18-0 1/2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	48-9 1/2	48-9 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**48.00**	**15,674.15**	**15,695.34**	**3,918.56**	**62,895.77**	**62,769.75**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,579.05	13,653.44	0.00	0.00	20,282.56	14,297.04	51.99	0-2
V1S	9,342.45	13,113.58	0.00	0.00	1,776.78	2,258.33	40.59	2-0
W3	9,342.45	13,113.58	20,825.70	14,995.10	11,390.72	15,572.58	44.36	3-1
W4	20,674.68	28,410.49	20,825.70	14,995.10	14,471.20	10,784.53	45.32	4-11 1/8
V2	20,674.68	28,410.49	20,825.70	14,995.10	2,569.14	2,762.00	38.45	6-11 1/8
W5	20,674.68	28,410.49	34,838.83	25,397.17	9,592.21	13,118.69	45.32	6-11 1/8
W6	29,406.39	40,403.78	34,838.83	25,397.17	10,553.41	7,629.99	45.32	8-11 1/8
V3	29,406.39	40,403.78	34,838.83	25,397.17	1,661.92	1,651.18	38.45	10-11 1/8
W7	29,406.39	40,403.78	45,498.08	33,048.57	6,936.84	9,664.58	45.32	10-11 1/8
W8	36,323.72	50,121.73	45,498.08	33,048.57	8,775.75	6,243.69	45.32	12-11 1/8
V4	36,323.72	50,121.73	45,498.08	33,048.57	1,690.93	1,884.18	38.45	14-11 1/8
W9	36,323.72	50,121.73	54,157.02	39,231.83	5,516.93	7,639.40	45.32	14-11 1/8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:13:13 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J77**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W10	41,413.68	57,270.79	54,157.02	39,231.83	6,683.35	4,851.62	45.32	16-11 1/8
V5	41,413.68	57,270.79	54,157.02	39,231.83	1,519.55	1,768.84	38.45	18-11 1/8
W11	41,413.68	57,270.79	59,459.19	42,776.27	4,315.63	5,945.00	45.32	18-11 1/8
W12	43,771.81	61,176.93	59,459.19	42,776.27	5,231.79	3,797.89	45.32	20-11 1/8
V6	43,771.81	61,176.93	59,459.19	42,776.27	806.86	1,210.43	38.45	22-11 1/8
W13	43,771.81	61,176.93	62,357.42	44,400.34	3,298.39	4,619.30	45.32	22-11 1/8
W14	44,661.82	62,895.77	62,357.42	44,400.34	4,619.30	3,180.61	45.32	24-11 1/8
V7	44,661.82	62,895.77	62,357.42	44,400.34	811.31	1,528.12	38.45	26-11 1/8
W15	44,661.82	62,895.77	62,769.75	44,556.27	4,619.30	4,619.30	45.32	26-11 1/8
W15	44,083.70	62,138.13	62,769.75	44,556.27	4,619.30	4,619.30	45.32	28-11 1/8
V8	44,083.70	62,138.13	62,769.75	44,556.27	808.42	1,120.69	38.45	30-11 1/8
W14	44,083.70	62,138.13	61,000.89	43,244.09	4,619.30	3,180.61	45.32	30-11 1/8
W13	42,037.43	59,358.05	61,000.89	43,244.09	3,298.39	4,619.30	45.32	32-11 1/8
V9	42,037.43	59,358.05	61,000.89	43,244.09	798.19	1,106.79	38.45	34-11 1/8
W12	42,037.43	59,358.05	57,209.62	40,463.76	5,231.79	3,797.89	45.32	34-11 1/8
W11	38,523.06	54,555.56	57,209.62	40,463.76	4,315.63	5,945.00	45.32	36-11 1/8
V10	38,523.06	54,555.56	57,209.62	40,463.76	780.62	1,082.78	38.45	38-11 1/8
W10	38,523.06	54,555.56	51,395.91	36,215.32	6,683.35	4,851.62	45.32	38-11 1/8
W9	33,540.55	47,730.64	51,395.91	36,215.32	5,516.93	7,639.40	45.32	40-11 1/8
V11	33,540.55	47,730.64	51,395.91	36,215.32	755.70	1,059.20	38.45	42-11 1/8
W8	33,540.55	47,730.64	43,553.20	30,498.74	8,775.75	6,243.69	45.32	42-11 1/8
W7	27,089.90	38,817.50	43,553.20	30,498.74	6,936.84	9,664.58	45.32	44-11 1/8
V12	27,089.90	38,817.50	43,553.20	30,498.74	825.01	1,274.32	38.45	46-11 1/8
W6	27,089.90	38,817.50	33,407.52	23,250.63	10,553.41	7,629.99	45.32	46-11 1/8
W5	18,171.43	26,461.10	33,407.52	23,250.63	9,592.21	13,118.69	45.32	48-11 1/8
V13	18,171.43	26,461.10	33,407.52	23,250.63	678.86	1,279.64	38.45	50-11 1/8
W4	18,171.43	26,461.10	18,798.50	12,725.18	14,471.20	10,784.53	45.32	50-11 1/8
W3	7,545.85	11,263.29	18,798.50	12,725.18	10,707.30	15,577.83	43.93	52-11 1/8
V1S	7,545.85	11,263.29	0.00	0.00	1,081.53	1,592.13	39.17	55-3 7/8
W2	7,667.12	11,536.93	0.00	0.00	18,952.63	12,595.40	48.46	54-8 3/8

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:13:13 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J77

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.1875	0.7695	0.4915	1.4931	0.7171	0.7031	1.0000	2525 = 2 1/2 x 2 1/2 x 0.250
BC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,845.63	372.53	558.79	21-1 7/8	12-8 3/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	35.13	24.00	28.75	22.00
Bending Load	718.38	623.28	405.00	641.09	685.67
Axial Load	13,653.45	13,113.58	62,895.77	11,263.29	11,536.93
fa	5,748.82	5,521.51	26,482.43	4,742.44	4,857.65
Maximum K L/r	44.76	71.46	36.62	58.49	44.76
Fcr	43,186.57	34,418.57	45,329.46	38,933.12	43,186.57
Fa	25,911.94	20,651.14	27,197.67	23,359.87	25,911.94
F'e	350,162.50	137,366.98	523,082.22	205,040.34	350,162.50
Cm	0.9918	0.9799	0.9661	0.9884	0.9931
Panel Point Moment	5,194.79	5,194.80	1,620.00	3,709.15	3,709.15
Mid Panel Moment	2,316.87	3,582.60	810.00	2,092.06	1,758.94
Panel Point fb	6,586.40	6,586.41	2,053.97	4,702.78	4,702.77
Mid Panel fb	2,937.53	1,826.97	413.06	1,066.86	896.98
Fillers	0	0	0	0	0
Panel Point Stress	12,335.22	12,107.91	28,536.40	9,445.22	9,560.43
Mid Panel Stress	0.3106	0.3242	0.9866	0.2355	0.1241

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.6777**
Max Load Fillers TC: **67,575.98**
Max Load no Fillers TC: **63,994.57**
TC OAL/Ryy: **458.01**
BC OAL/Ryy: **407.11**
BC Stress: **0.80**
BC L/Rz: **80.8489**
TC Shear Stress: **13,953.36**
BC Shear Stress: **12,769.33**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	20,282.56	29,969.07	14,297.04	14,695.87	3.94 x 0.245	1	WR111513 = Wrapped R112 with 1513
V1S	1,776.78	7,826.93	2,258.33	3,148.77	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	11,390.72	29,969.07	15,572.58	15,965.64	3.03 x 0.245	1	WR111513 = Wrapped R112 with 1513
W4	14,471.20	28,618.35	10,784.53	13,427.24	5.20 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	2,569.14	7,826.93	2,762.00	3,340.49	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	9,592.21	28,618.35	13,118.69	13,427.24	4.71 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	10,553.41	24,373.24	7,629.99	8,497.02	3.79 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V3	1,661.92	5,758.64	1,651.18	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	6,936.84	28,621.37	9,664.58	9,836.36	3.47 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W8	8,775.75	18,714.09	6,243.69	6,878.70	3.36 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V4	1,690.93	5,758.64	1,884.18	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	5,516.93	24,373.24	7,639.40	8,497.02	2.74 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,683.35	14,381.54	4,851.62	5,387.18	3.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	1,519.55	5,758.64	1,768.84	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,315.63	16,730.22	5,945.00	5,980.97	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,231.79	10,742.43	3,797.89	4,153.40	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	806.86	5,758.64	1,210.43	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W13	3,298.39	14,381.54	4,619.30	5,387.18	2.07 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	4,619.30	10,742.43	3,180.61	4,153.40	2.41 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

* Continued on Next Page...

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:13:13 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J77**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	811.31	5,758.64	1,528.12	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W15	4,619.30	14,381.54	4,619.30	5,387.18	2.07 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	4,619.30	14,381.54	4,619.30	5,387.18	2.07 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	808.42	5,758.64	1,120.69	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	4,619.30	10,742.43	3,180.61	4,153.40	2.41 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,298.39	14,381.54	4,619.30	5,387.18	2.07 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V9	798.19	5,758.64	1,106.79	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,231.79	10,742.43	3,797.89	4,153.40	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,315.63	16,730.22	5,945.00	5,980.97	2.53 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V10	780.62	5,758.64	1,082.78	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	6,683.35	14,381.54	4,851.62	5,387.18	3.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,516.93	24,373.24	7,639.40	8,497.02	2.74 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V11	755.70	5,758.64	1,059.20	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	8,775.75	18,714.09	6,243.69	6,878.70	3.36 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W7	6,936.84	28,621.37	9,664.58	9,836.36	3.47 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V12	825.01	5,758.64	1,274.32	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	10,553.41	24,373.24	7,629.99	8,497.02	3.79 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	9,592.21	28,618.35	13,118.69	13,427.24	4.71 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V13	678.86	5,758.64	1,279.64	1,893.23	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W4	14,471.20	28,618.35	10,784.53	13,427.24	5.20 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	10,707.30	23,679.79	15,577.83	15,605.98	3.23 x 0.230	1	WR102015 = Wrapped R100 with 2015
V1S	1,081.53	5,758.64	1,592.13	1,823.84	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	18,952.63	28,618.35	12,595.40	13,754.58	6.81 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:13:13 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J77**

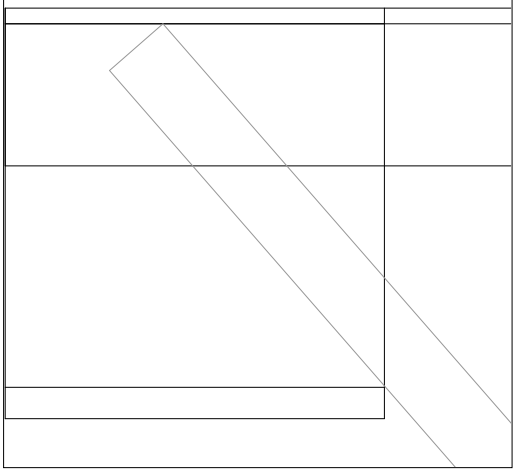
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/2
BPL Material: N/A	

TCX Right	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

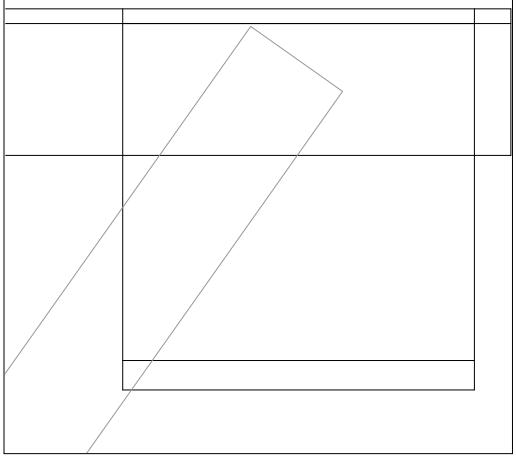
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	0.7887
Reqd SM	0.0039
Mom of Inertia	1.4062
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:13:13 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J77

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

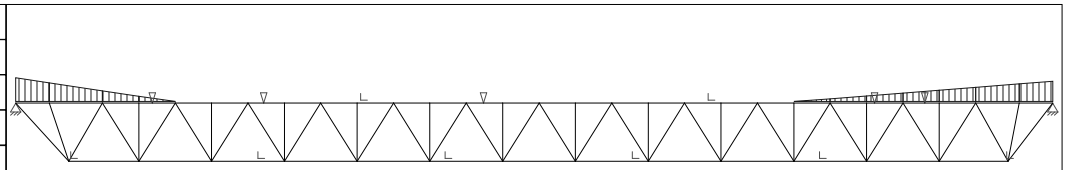
Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:14:42 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J78

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
57-3 7/8	56-11 7/8	40.00	38.32	13 @ 4-0	1.0220	Parallel Chords	0.0000

Variable	Left End	Right End
BC Panel	3-1	2-7 1/2
TC Panel	2-0	2-0
First Half	1-10 1/8	1-9 1/4
First Diag.	4-11 1/8	4-4 3/4
Depth	40.00	40.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	57-3 7/8	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	57-3 7/8	L-BL
Uniform (plf)	LL (1)	350.00	0.00	TC	+	0-0	8-0	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	7-8	7-8	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	13-9 1/2	13-9 1/2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	25-10 1/2	25-10 1/2	L-BL
Uniform (plf)	LL (1)	0.00	300.00	TC	+	44-3 7/8	57-3 1/2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	47-4 1/2	47-4 1/2	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	50-1 1/2	50-1 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-8	7-8	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	13-9 1/2	13-9 1/2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	25-10 1/2	25-10 1/2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	47-4 1/2	47-4 1/2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	50-1 1/2	50-1 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	48.00	16,882.83	17,386.66	4,341.39	68,895.28	68,648.99

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	10,795.27	14,805.18	0.00	0.00	21,951.72	16,006.20	51.89	0-2
V1S	10,557.84	14,263.43	0.00	0.00	792.94	1,760.14	40.46	2-0
W3	10,557.84	14,263.43	22,700.41	16,977.91	12,838.52	16,871.83	44.24	3-1
W4	23,488.38	30,966.53	22,700.41	16,977.91	16,481.10	12,543.51	45.21	4-11 1/8
V2	23,488.38	30,966.53	22,700.41	16,977.91	1,650.75	2,070.24	38.32	6-11 1/8
W5	23,488.38	30,966.53	38,033.05	29,038.40	10,789.54	14,067.13	45.21	6-11 1/8
W6	33,872.66	44,232.23	38,033.05	29,038.40	11,706.57	9,106.79	45.21	8-11 1/8
V3	33,872.66	44,232.23	38,033.05	29,038.40	757.36	1,031.16	38.32	10-11 1/8
W7	33,872.66	44,232.23	49,924.05	38,338.61	8,412.96	10,722.25	45.21	10-11 1/8
W8	41,902.84	54,575.08	49,924.05	38,338.61	8,761.64	6,714.31	45.21	12-11 1/8
V4	41,902.84	54,575.08	49,924.05	38,338.61	1,445.95	1,736.02	38.32	14-11 1/8
W9	41,902.84	54,575.08	58,312.59	44,692.59	5,534.42	7,454.12	45.21	14-11 1/8
W10	47,114.02	61,542.73	58,312.59	44,692.59	6,689.89	4,856.37	45.21	16-11 1/8
V5	47,114.02	61,542.73	58,312.59	44,692.59	823.57	1,117.71	38.32	18-11 1/8

* Continued on Next Page...

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:14:42 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J78**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W11	47,114.02	61,542.73	64,265.48	49,167.14	4,319.86	5,950.83	45.21	18-11 1/8
W12	50,851.96	66,480.87	64,265.48	49,167.14	5,236.91	3,801.61	45.21	20-11 1/8
V6	50,851.96	66,480.87	64,265.48	49,167.14	842.26	1,142.40	38.32	22-11 1/8
W13	50,851.96	66,480.87	68,188.89	52,168.46	3,589.40	5,122.76	45.21	22-11 1/8
W14	52,622.38	68,895.28	68,188.89	52,168.46	5,122.76	3,589.40	45.21	24-11 1/8
V7	52,622.38	68,895.28	68,188.89	52,168.46	1,562.05	1,873.45	38.32	26-11 1/8
W15	52,622.38	68,895.28	68,648.99	52,262.67	5,122.76	5,122.76	45.21	26-11 1/8
W15	51,534.65	67,895.32	68,648.99	52,262.67	5,122.76	5,122.76	45.21	28-11 1/8
V8	51,534.65	67,895.32	68,648.99	52,262.67	845.67	1,149.48	38.32	30-11 1/8
W14	51,534.65	67,895.32	66,634.28	50,438.32	5,122.76	3,589.40	45.21	30-11 1/8
W13	48,973.67	64,865.87	66,634.28	50,438.32	3,589.40	5,122.76	45.21	32-11 1/8
V9	48,973.67	64,865.87	66,634.28	50,438.32	832.87	1,134.33	38.32	34-11 1/8
W12	48,973.67	64,865.87	62,590.09	47,140.71	5,236.91	3,801.61	45.21	34-11 1/8
W11	44,939.43	59,806.95	62,590.09	47,140.71	4,319.86	5,950.83	45.21	36-11 1/8
V10	44,939.43	59,806.95	62,590.09	47,140.71	812.70	1,109.03	38.32	38-11 1/8
W10	44,939.43	59,806.95	56,516.42	42,369.86	6,689.89	4,856.37	45.21	38-11 1/8
W9	39,431.95	52,718.53	56,516.42	42,369.86	5,534.42	7,454.12	45.21	40-11 1/8
V11	39,431.95	52,718.53	56,516.42	42,369.86	785.16	1,084.13	38.32	42-11 1/8
W8	39,431.95	52,718.53	48,406.67	36,125.73	8,761.64	6,714.31	45.21	42-11 1/8
W7	32,451.21	43,534.61	48,406.67	36,125.73	8,412.96	10,722.25	45.21	44-11 1/8
V12	32,451.21	43,534.61	48,406.67	36,125.73	1,914.32	2,378.80	38.32	46-11 1/8
W6	32,451.21	43,534.61	37,320.38	27,679.22	11,706.57	9,106.79	45.21	46-11 1/8
W5	21,951.68	29,853.07	37,320.38	27,679.22	10,789.54	14,067.13	45.21	48-11 1/8
V13	21,951.68	29,853.07	37,320.38	27,679.22	1,596.20	2,195.04	38.32	50-11 1/8
W4	21,951.68	29,853.07	21,104.32	15,293.07	16,481.10	12,543.51	45.21	50-11 1/8
W3	9,039.03	12,604.79	21,104.32	15,293.07	12,894.62	17,524.59	43.81	52-11 1/8
V1S	9,039.03	12,604.79	0.00	0.00	679.29	1,493.79	39.04	55-3 7/8
W2	9,160.72	12,879.38	0.00	0.00	21,111.71	15,016.14	48.36	54-8 3/8

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:14:42 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J78

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.4375	0.9304	0.5924	1.6850	0.8424	1.2442	0.9613	3025 = 3 x 3 x 0.250
BC	1.4375	0.9304	0.5924	1.6850	0.8424	1.2442	0.9613	3025 = 3 x 3 x 0.250

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	2,115.31	426.96	640.44	23-10 1/2	12-2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	35.13	24.00	28.75	22.00
Bending Load	718.38	623.28	405.00	641.09	685.67
Axial Load	14,805.18	14,263.43	68,895.28	12,604.79	12,879.38
fa	5,149.63	4,961.19	23,963.58	4,384.28	4,479.78
Maximum K L/r	37.14	59.29	30.38	48.53	37.14
Fcr	43,624.90	37,541.96	45,045.55	40,732.12	43,624.90
Fa	26,174.94	22,525.17	27,027.33	24,439.27	26,174.94
F'e	511,907.88	200,818.86	764,701.88	299,751.56	511,907.88
Cm	0.9950	0.9876	0.9790	0.9927	0.9956
Panel Point Moment	5,194.79	5,194.80	7,017.09	3,899.75	3,899.75
Mid Panel Moment	2,316.87	3,582.60	5,925.99	2,333.21	1,695.41
Panel Point fb	4,504.21	4,504.22	6,084.26	3,381.33	3,381.33
Mid Panel fb	2,008.87	1,212.82	2,006.13	789.86	573.95
Fillers	0	0	0	0	0
Panel Point Stress	9,653.84	9,465.41	30,047.84	7,765.61	7,861.11
Mid Panel Stress	0.1689	0.2588	0.9505	0.1176	0.1057

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.7423
Max Load Fillers TC:	75,208.01
Max Load no Fillers TC:	72,549.11
TC OAL/Ryy:	405.86
BC OAL/Ryy:	405.86
BC Stress:	0.80
BC L/Rz:	81.0263
TC Shear Stress:	12,617.25
BC Shear Stress:	12,744.86

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	21,951.72	29,969.07	16,006.20	16,881.66	4.27 x 0.245	1	WR112015 = Wrapped R112 with 2015
V1S	792.94	7,826.93	1,760.14	3,160.00	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	12,838.52	29,969.07	16,871.83	19,746.43	3.28 x 0.245	1	WR112015 = Wrapped R112 with 2015
W4	16,481.10	28,618.35	12,543.51	13,451.06	5.92 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V2	1,650.75	7,826.93	2,070.24	3,352.62	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	10,789.54	28,597.25	14,067.13	14,775.60	5.05 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W6	11,706.57	28,621.37	9,106.79	9,870.93	4.20 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V3	757.36	5,758.64	1,031.16	1,906.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	8,412.96	28,618.35	10,722.25	13,451.06	3.85 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W8	8,761.64	18,714.09	6,714.31	6,905.83	3.35 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V4	1,445.95	5,758.64	1,736.02	1,906.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	5,534.42	24,373.24	7,454.12	8,527.02	2.68 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W10	6,689.89	14,381.54	4,856.37	5,405.23	3.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V5	823.57	5,758.64	1,117.71	1,906.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	4,319.86	16,730.22	5,950.83	6,001.75	2.54 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W12	5,236.91	10,742.43	3,801.61	4,167.27	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V6	842.26	5,758.64	1,142.40	1,906.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W13	3,589.40	14,381.54	5,122.76	5,405.23	2.30 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W14	5,122.76	10,742.43	3,589.40	4,167.27	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129

* Continued on Next Page...

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:14:42 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J78**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	1,562.05	5,758.64	1,873.45	1,906.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W15	5,122.76	14,381.54	5,122.76	5,405.23	2.30 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W15	5,122.76	14,381.54	5,122.76	5,405.23	2.30 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	845.67	5,758.64	1,149.48	1,906.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W14	5,122.76	10,742.43	3,589.40	4,167.27	2.67 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W13	3,589.40	14,381.54	5,122.76	5,405.23	2.30 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V9	832.87	5,758.64	1,134.33	1,906.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	5,236.91	10,742.43	3,801.61	4,167.27	2.73 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	4,319.86	16,730.22	5,950.83	6,001.75	2.54 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V10	812.70	5,758.64	1,109.03	1,906.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	6,689.89	14,381.54	4,856.37	5,405.23	3.00 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W9	5,534.42	24,373.24	7,454.12	8,527.02	2.68 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V11	785.16	5,758.64	1,084.13	1,906.47	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	8,761.64	18,714.09	6,714.31	6,905.83	3.35 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W7	8,412.96	28,618.35	10,722.25	13,451.06	3.85 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V12	1,914.32	7,826.93	2,378.80	3,352.62	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	11,706.57	28,621.37	9,106.79	9,870.93	4.20 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W5	10,789.54	28,597.25	14,067.13	14,775.60	5.05 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
V13	1,596.20	7,826.93	2,195.04	3,352.62	2.00 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	16,481.10	28,618.35	12,543.51	13,451.06	5.92 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	12,894.62	29,969.07	17,524.59	19,906.79	3.41 x 0.245	1	WR112015 = Wrapped R112 with 2015
V1S	679.29	5,758.64	1,493.79	1,836.12	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W2	21,111.71	29,969.07	15,016.14	16,180.14	4.10 x 0.245	1	WR111513 = Wrapped R112 with 1513

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/7/2024 12:14:42 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 40LH405/200**	**J78**

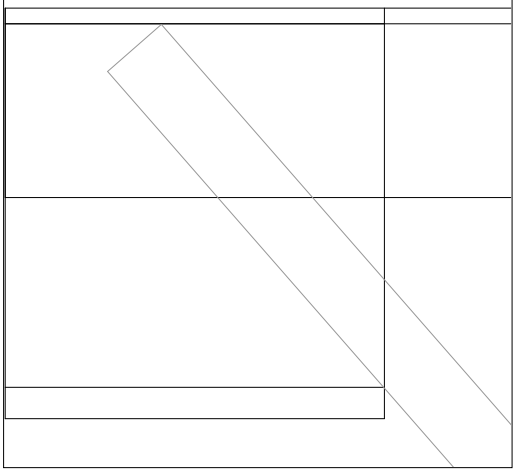
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-6 1/4
BPL Material: N/A	

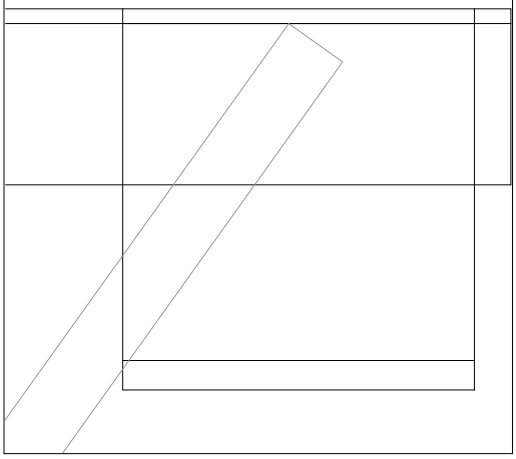
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	1.1533
Reqd SM	0.0039
Mom of Inertia	2.4884
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/7/2024 12:14:42 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 40LH405/200	J78

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

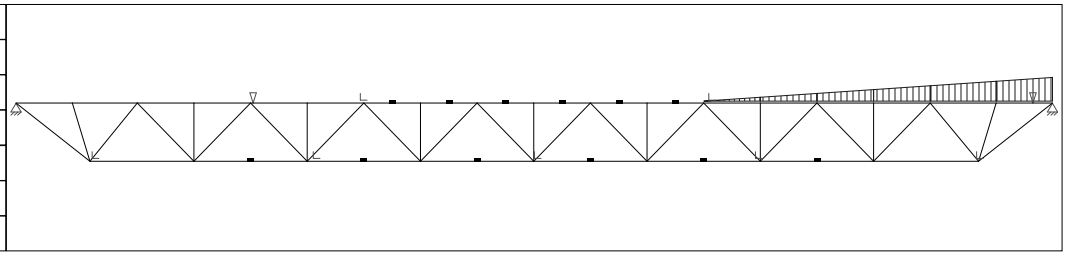
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:23:37 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J79**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
40-0	**39-8**	**28.00**	**26.80**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	1-10 1/4
First Diag.	4-9 3/4	4-10 1/4
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	40-0	L-BL
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	40-0	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	9-3	9-3	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	28-0	40-0	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	39-1	39-1	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	9-3	9-3	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**10,723.14**	**11,833.06**	**2,958.26**	**42,097.18**	**41,716.62**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,459.24	11,583.05	0.00	0.00	17,036.84	10,771.93	43.30	0-2
V1S	8,255.41	11,302.27	0.00	0.00	1,270.51	2,254.54	27.97	2-4
W3	8,255.41	11,302.27	17,948.64	13,112.68	7,708.84	10,603.80	34.52	3-0
W4	18,256.63	24,981.19	17,948.64	13,112.68	10,160.65	7,388.07	37.34	4-9 3/4
W5	18,256.63	24,981.19	31,162.57	22,782.71	6,500.63	8,938.16	37.34	6-11 3/4
W6	25,305.88	35,107.78	31,162.57	22,782.71	6,554.26	4,757.91	37.34	9-1 3/4
W7	25,305.88	35,107.78	38,131.87	27,141.22	4,039.31	5,564.36	37.34	11-3 3/4
W8	28,358.68	40,304.79	38,131.87	27,141.22	4,624.54	3,357.07	37.34	13-5 3/4
W9	28,358.68	40,304.79	41,626.56	28,958.26	2,711.19	4,121.31	37.34	15-7 3/4
W10	28,939.96	42,097.18	41,626.56	28,958.26	4,121.31	2,433.66	37.34	17-9 3/4
W10	28,939.96	42,097.18	41,716.62	28,303.79	4,121.31	2,433.66	37.34	19-11 3/4
W9	27,049.74	40,484.92	41,716.62	28,303.79	2,711.19	4,121.31	37.34	22-1 3/4
W8	27,049.74	40,484.92	38,402.05	25,177.80	4,624.54	3,357.07	37.34	24-3 3/4
W7	22,687.99	35,446.71	38,402.05	25,177.80	4,039.31	5,564.36	37.34	26-5 3/4
W6	22,687.99	35,446.71	31,469.72	19,580.30	6,554.26	4,757.91	37.34	28-7 3/4
W5	15,854.73	26,300.58	31,469.72	19,580.30	6,500.63	8,938.16	37.34	30-9 3/4
W4	15,854.73	26,300.58	19,768.82	11,511.28	10,160.65	7,388.07	37.34	32-11 3/4
W3	7,222.31	12,753.45	19,768.82	11,511.28	6,715.09	10,983.71	34.84	35-1 3/4
V1S	7,222.31	12,753.45	0.00	0.00	1,270.51	2,254.54	27.97	37-8
W2	7,427.96	13,379.10	0.00	0.00	17,036.84	10,771.93	43.30	37-0

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	835.64	1,536.30	26.80

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:23:37 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J79

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	548.49	328.31	492.47	17-6 1/2	8-9 1/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	30.25	26.00
Bending Load	405.00	405.00	405.00	776.68	864.44
Axial Load	11,583.05	11,302.27	42,097.18	12,753.45	13,379.10
fa	3,775.44	6,914.40	25,753.81	7,802.19	8,184.94
Maximum K L/r	66.26	75.82	33.13	77.09	66.26
Fcr	36,271.07	32,843.23	46,144.25	32,378.68	36,271.07
Fa	21,762.64	19,705.94	27,686.55	19,427.21	21,762.64
F'e	521,433.53	121,677.79	283,214.88	117,688.63	159,308.36
Cm	0.9964	0.9716	0.9391	0.9669	0.9743
Panel Point Moment	20,524.43	2,604.35	1,901.25	6,845.19	6,845.20
Mid Panel Moment	15,720.26	1,828.86	950.63	2,128.49	5,962.34
Panel Point fb	8,450.18	6,013.45	4,390.00	15,805.59	15,805.59
Mid Panel fb	6,472.24	1,722.73	895.46	2,004.98	5,616.35
Fillers	0	0	6	0	0
Panel Point Stress	12,225.62	12,927.84	30,143.81	23,607.78	23,990.53
Mid Panel Stress	0.3043	0.4057	0.9596	0.4662	0.5535

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **44,039.91**
Max Load no Fillers TC: **39,844.50**
TC OAL/Ryy: **367.18**
BC OAL/Ryy: **354.39**
BC Stress: **0.97**
BC L/Rz: **135.7348**
TC Shear Stress: **13,696.34**
BC Shear Stress: **18,390.82**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	17,036.84	25,759.23	10,771.93	11,915.38	6.12 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	7,708.84	24,373.24	10,603.80	11,517.14	3.81 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	10,160.65	16,730.22	7,388.07	7,468.71	4.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	6,500.63	24,373.24	8,938.16	10,705.46	3.21 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	6,554.26	10,742.43	4,757.91	5,158.50	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,039.31	14,381.54	5,564.36	6,701.18	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,624.54	7,826.93	3,357.07	3,441.36	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,711.19	10,742.43	4,121.31	5,158.50	2.15 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,121.31	7,826.93	2,433.66	3,441.36	2.72 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,121.31	7,826.93	2,433.66	3,441.36	2.72 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,711.19	10,742.43	4,121.31	5,158.50	2.15 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,624.54	7,826.93	3,357.07	3,441.36	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,039.31	14,381.54	5,564.36	6,701.18	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,554.26	10,742.43	4,757.91	5,158.50	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	6,500.63	24,373.24	8,938.16	10,705.46	3.21 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	10,160.65	16,730.22	7,388.07	7,468.71	4.33 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	6,715.09	24,373.24	10,983.71	11,425.11	3.94 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W2	17,036.84	25,759.23	10,771.93	11,915.38	6.12 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	1,270.51	5,758.64	2,254.54	3,112.18	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	835.64	5,758.64	1,536.30	3,257.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:23:37 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J79**

TCX Design

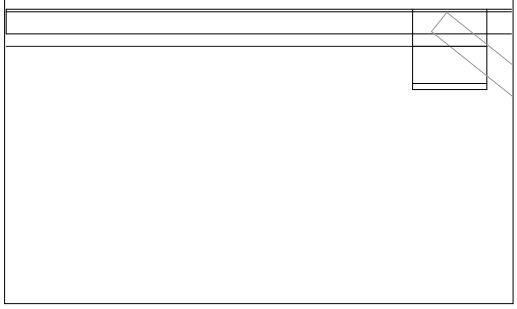
TCX Left	
TCX Length	2-8 7/8
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	5-6 1/8
Clear Bearing	0-7 3/8
BPL Material: 2018 = 2 x 2 x 0.188	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-2 1/8
Clear Bearing	0-7 3/8
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

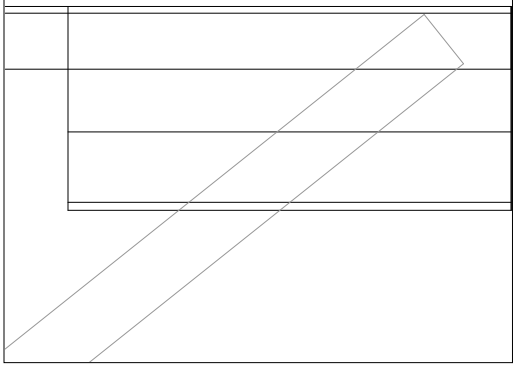
Total Load	405.00
Reqd TL Def L/80	0.41
Live Load	200.00
Reqd LL Def L/120	0.27
Section Modulus	2.4289
Reqd SM	0.6841
Mom of Inertia	3.7784
Reqd MI	0.4936

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:23:37 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J79

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

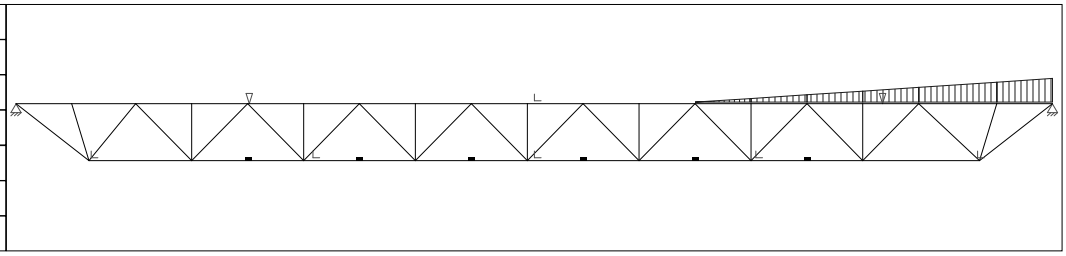
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:25:50 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J8**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
40-6	**40-2**	**28.00**	**26.46**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	2-4 1/4
First Diag.	4-9 3/4	5-4 1/4
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	40-6	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	40-6	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	9-2 1/2	9-2 1/2	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	28-6	40-6	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	33-9	33-9	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	9-2 1/2	9-2 1/2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	33-9	33-9	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**54.25**	**12,269.79**	**13,131.48**	**3,282.87**	**49,021.55**	**48,664.68**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	10,479.19	13,696.58	0.00	0.00	19,817.24	13,279.40	43.09	0-2
V1S	10,272.74	13,412.19	0.00	0.00	1,299.81	2,297.68	27.65	2-4
W3	10,272.74	13,412.19	21,400.77	16,415.06	9,673.82	12,638.31	34.26	3-0
W4	23,086.63	30,026.06	21,400.77	16,415.06	12,368.77	9,519.61	37.10	4-9 3/4
W5	23,086.63	30,026.06	37,789.24	29,132.38	8,626.62	11,138.63	37.10	6-11 3/4
W6	31,689.94	41,827.95	37,789.24	29,132.38	6,731.83	4,886.81	37.10	9-1 3/4
W7	31,689.94	41,827.95	44,919.52	33,536.63	4,161.60	5,732.82	37.10	11-3 3/4
W8	34,757.50	47,148.97	44,919.52	33,536.63	4,783.58	3,472.52	37.10	13-5 3/4
W9	34,757.50	47,148.97	48,516.32	35,352.55	2,970.22	4,602.15	37.10	15-7 3/4
W10	35,321.77	49,021.55	48,516.32	35,352.55	4,602.15	2,970.22	37.10	17-9 3/4
W10	35,321.77	49,021.55	48,664.68	34,665.15	4,602.15	2,970.22	37.10	19-11 3/4
W9	33,382.70	47,445.68	48,664.68	34,665.15	2,970.22	4,602.15	37.10	22-1 3/4
W8	33,382.70	47,445.68	45,364.59	31,474.43	4,783.58	3,472.52	37.10	24-3 3/4
W7	28,940.33	42,400.57	45,364.59	31,474.43	4,161.60	5,732.82	37.10	26-5 3/4
W6	28,940.33	42,400.57	38,407.98	25,780.40	6,731.83	4,886.81	37.10	28-7 3/4
W5	21,994.64	33,220.38	38,407.98	25,780.40	8,626.62	11,138.63	37.10	30-9 3/4
W4	21,994.64	33,220.38	25,721.92	16,633.65	12,368.77	9,519.61	37.10	32-11 3/4
W3	9,425.04	14,996.16	25,721.92	16,633.65	9,877.53	14,696.88	38.71	35-1 3/4
V1S	9,425.04	14,996.16	0.00	0.00	1,299.81	2,297.68	27.65	38-2
W2	9,655.56	15,638.40	0.00	0.00	19,817.24	13,279.40	43.09	37-6

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,713.32	2,518.22	26.46

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 8:25:50 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J8

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	774.04	446.24	669.36	22-8 3/8	10-6 1/4

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	36.25	26.00
Bending Load	405.00	405.00	405.00	772.29	865.90
Axial Load	13,696.58	13,412.19	49,021.55	14,996.16	15,638.40
fa	5,225.71	5,117.20	18,703.38	5,721.54	5,966.58
Maximum K L/r	43.79	50.11	32.84	61.06	43.79
Fcr	40,545.05	38,954.27	42,907.04	35,882.70	40,545.05
Fa	24,327.03	23,372.56	25,744.22	21,529.62	24,327.03
F'e	369,039.41	281,867.81	656,070.13	189,846.86	369,039.41
Cm	0.9929	0.9909	0.9809	0.9849	0.9919
Panel Point Moment	21,117.21	3,688.15	1,901.25	7,814.86	6,427.25
Mid Panel Moment	15,582.35	3,813.42	950.63	3,450.21	3,277.48
Panel Point fb	20,020.96	3,496.69	1,802.55	7,409.17	6,093.59
Mid Panel fb	14,773.43	1,392.10	347.03	1,259.51	1,196.45
Fillers	0	0	0	0	0
Panel Point Stress	25,246.67	8,613.89	20,505.93	13,130.71	12,060.17
Mid Panel Stress	0.6971	0.2646	0.7380	0.3077	0.2844

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5282
Max Load Fillers TC:	69,704.45
Max Load no Fillers TC:	66,942.45
TC OAL/Ryy:	286.93
BC OAL/Ryy:	329.44
BC Stress:	0.86
BC L/Rz:	123.2115
TC Shear Stress:	9,962.32
BC Shear Stress:	15,687.01

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,817.24	28,618.35	13,279.40	14,730.39	7.12 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	9,673.82	28,621.37	12,638.31	13,460.73	4.54 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	12,368.77	24,373.24	9,519.61	10,774.80	4.44 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,626.62	28,621.37	11,138.63	12,501.37	4.00 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	6,731.83	10,742.43	4,886.81	5,189.84	3.51 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,161.60	14,381.54	5,732.82	6,742.42	2.57 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,783.58	10,742.43	3,472.52	5,189.84	2.50 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,970.22	10,742.43	4,602.15	5,189.84	2.40 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,602.15	7,826.93	2,970.22	3,463.74	3.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,602.15	7,826.93	2,970.22	3,463.74	3.04 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,970.22	10,742.43	4,602.15	5,189.84	2.40 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,783.58	10,742.43	3,472.52	5,189.84	2.50 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,161.60	14,381.54	5,732.82	6,742.42	2.57 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,731.83	10,742.43	4,886.81	5,189.84	3.51 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	8,626.62	28,621.37	11,138.63	12,501.37	4.00 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	12,368.77	24,373.24	9,519.61	10,774.80	4.44 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	9,877.53	28,618.35	14,696.88	14,824.45	5.28 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	19,817.24	28,618.35	13,279.40	14,730.39	7.12 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	1,299.81	5,758.64	2,297.68	3,152.70	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,713.32	5,758.64	2,518.22	3,299.93	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:25:50 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J8**

TCX Design

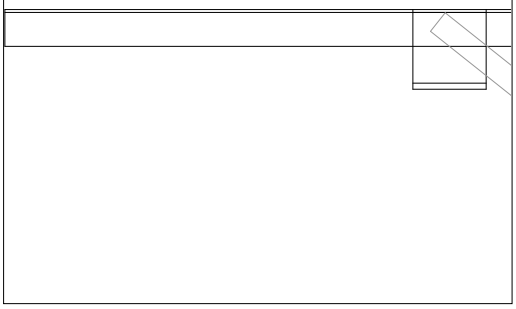
TCX Left	
TCX Length	2-9 3/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-2 1/8
Clear Bearing	0-7 3/8
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

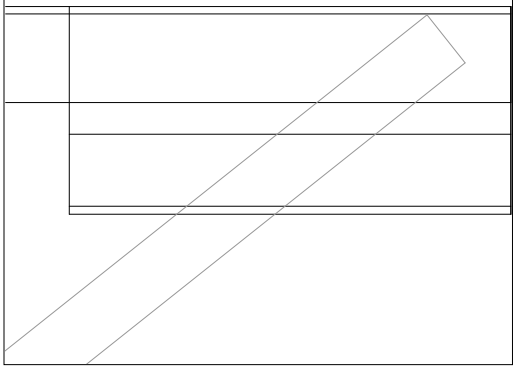
Total Load	405.00
Reqd TL Def L/80	0.42
Live Load	200.00
Reqd LL Def L/120	0.28
Section Modulus	1.0548
Reqd SM	0.7039
Mom of Inertia	2.2846
Reqd MI	0.5152

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 8:25:50 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J8

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

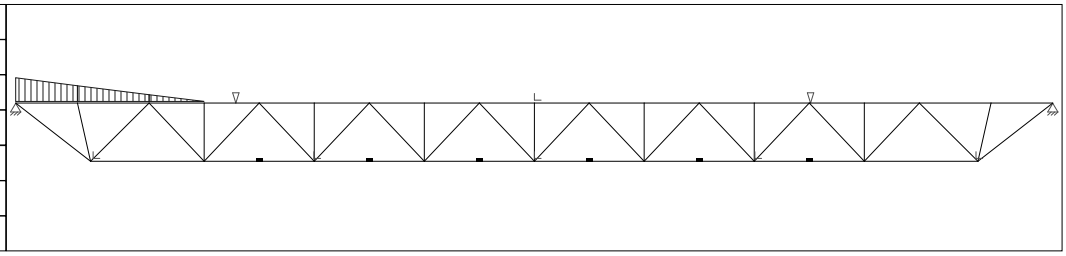
Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:53:29 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J80

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-7	39-3	28.00	26.46	8 @ 4-2	1.0220	Parallel Chords	0.0000

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2 1/2	2-2 1/2
First Diag.	5-2 1/2	5-2 1/2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	LL (1)	300.00	0.00	TC	+	0-0	7-0	L-BL
Conc w/bending (lbs)	CL (1)	3,000.00	0.00	TC	+	8-6	8-6	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	30-3	30-3	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	8-6	8-6	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	30-3	30-3	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	51.50	12,017.76	10,947.24	3,004.44	47,826.43	47,428.73

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	10,908.18	14,420.03	0.00	0.00	18,273.30	13,823.02	43.09	0-2
V1S	10,740.15	14,075.51	0.00	0.00	814.48	1,630.24	27.14	2-6
W3	10,740.15	14,075.51	23,793.01	18,499.98	10,966.63	13,733.32	37.45	3-0
W4	25,155.17	31,830.41	23,793.01	18,499.98	11,704.17	9,691.38	36.41	5-2 1/2
W5	25,155.17	31,830.41	37,858.87	30,041.46	8,591.01	10,427.07	36.41	7-3 1/2
W6	32,705.39	41,446.52	37,858.87	30,041.46	6,254.88	4,540.58	36.41	9-4 1/2
W7	32,705.39	41,446.52	44,237.11	34,790.71	3,863.02	5,321.51	36.41	11-5 1/2
W8	36,297.42	46,230.62	44,237.11	34,790.71	4,434.34	3,219.01	36.41	13-6 1/2
W9	36,297.42	46,230.62	47,427.06	37,225.51	3,037.93	4,133.06	36.41	15-7 1/2
W10	37,574.98	47,826.43	47,427.06	37,225.51	4,133.06	3,037.93	36.41	17-8 1/2
W10	37,574.98	47,826.43	47,428.73	37,345.85	4,133.06	3,037.93	36.41	19-9 1/2
W9	36,538.10	46,233.96	47,428.73	37,345.85	3,037.93	4,133.06	36.41	21-10 1/2
W8	36,538.10	46,233.96	44,242.12	35,151.73	4,434.34	3,219.01	36.41	23-11 1/2
W7	33,186.75	41,453.21	44,242.12	35,151.73	3,863.02	5,321.51	36.41	26-0 1/2
W6	33,186.75	41,453.21	37,867.23	30,643.16	6,254.88	4,540.58	36.41	28-1 1/2
W5	24,743.60	30,706.83	37,867.23	30,643.16	8,591.01	10,427.07	36.41	30-2 1/2
W4	24,743.60	30,706.83	22,692.68	18,208.75	11,704.17	9,691.38	36.41	32-3 1/2
W3	10,576.48	13,226.05	22,692.68	18,208.75	10,966.63	13,733.32	37.45	34-4 1/2
V1S	10,576.48	13,226.05	0.00	0.00	814.48	1,630.24	27.14	37-1
W2	10,744.51	13,457.52	0.00	0.00	18,273.30	13,823.02	43.09	36-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,998.28	2,353.81	26.46

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:53:29 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J80**

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	**50,000.00**	**30,000.00**	**774.04**	**478.24**	**717.36**	**22-9 1/8**	**9-10 7/8**

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.50	25.00	32.50	28.00
Bending Load	655.88	549.74	405.00	405.00	405.00
Axial Load	14,420.03	14,075.51	47,826.43	13,226.05	13,457.52
fa	5,501.73	5,370.28	12,144.38	5,046.19	5,134.50
Maximum K L/r	47.16	54.74	31.58	54.74	47.16
Fcr	39,715.32	37,698.26	43,143.34	37,698.26	39,715.32
Fa	23,829.19	22,618.96	25,886.01	22,618.96	23,829.19
F'e	318,202.34	236,185.22	709,605.38	236,185.22	318,202.34
Cm	0.9914	0.9886	0.9885	0.9893	0.9919
Panel Point Moment	5,190.21	5,190.21	13,870.57	3,281.15	3,281.15
Mid Panel Moment	3,031.12	2,451.98	11,053.63	1,617.87	1,846.29
Panel Point fb	4,920.77	4,920.77	13,150.51	3,110.82	3,110.82
Mid Panel fb	1,106.52	895.10	4,035.16	590.61	673.99
Fillers	0	0	0	0	0
Panel Point Stress	10,422.50	10,291.06	25,294.89	8,157.00	8,245.31
Mid Panel Stress	0.2671	0.2670	0.6010	0.2425	0.2375

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **60,262.39**
Max Load no Fillers TC: **58,058.11**
TC OAL/Ryy: **280.38**
BC OAL/Ryy: **321.92**
BC Stress: **0.83**
BC L/Rz: **116.9657**
TC Shear Stress: **9,617.74**
BC Shear Stress: **14,464.86**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	18,273.30	28,618.35	13,823.02	14,730.39	6.56 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	10,966.63	28,618.35	13,733.32	15,092.24	4.93 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W4	11,704.17	24,373.24	9,691.38	10,972.99	4.20 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,591.01	24,373.24	10,427.07	10,972.99	3.75 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	6,254.88	10,742.43	4,540.58	5,279.25	3.27 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,863.02	14,381.54	5,321.51	6,860.14	2.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,434.34	7,826.93	3,219.01	3,527.76	2.93 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	3,037.93	10,742.43	4,133.06	5,279.25	2.16 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,133.06	7,826.93	3,037.93	3,527.76	2.73 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,133.06	7,826.93	3,037.93	3,527.76	2.73 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	3,037.93	10,742.43	4,133.06	5,279.25	2.16 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,434.34	7,826.93	3,219.01	3,527.76	2.93 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	3,863.02	14,381.54	5,321.51	6,860.14	2.39 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,254.88	10,742.43	4,540.58	5,279.25	3.27 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	8,591.01	24,373.24	10,427.07	10,972.99	3.75 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	11,704.17	24,373.24	9,691.38	10,972.99	4.20 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	10,966.63	28,618.35	13,733.32	15,092.24	4.93 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	18,273.30	28,618.35	13,823.02	14,730.39	6.56 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	814.48	5,758.64	1,630.24	3,216.29	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,998.28	5,758.64	2,353.81	3,299.93	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:53:29 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J80**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/2
BPL Material: N/A	

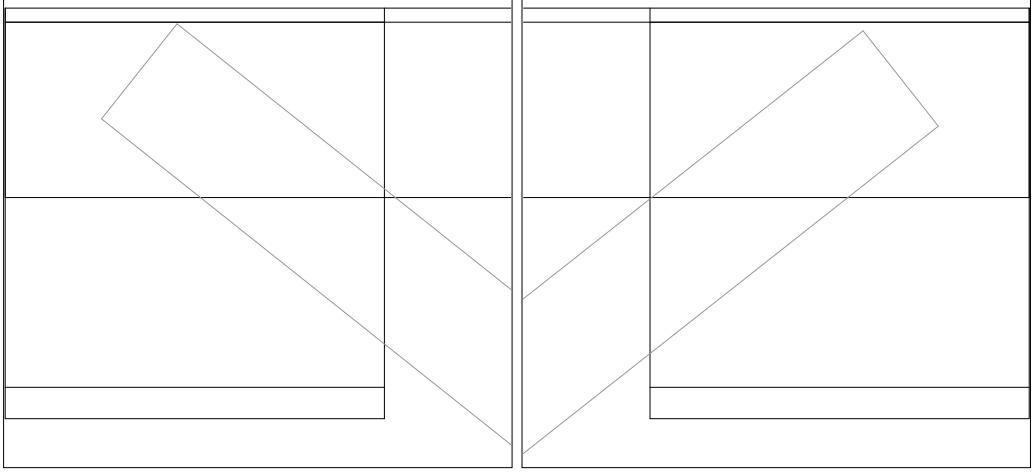
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:53:29 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J80

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

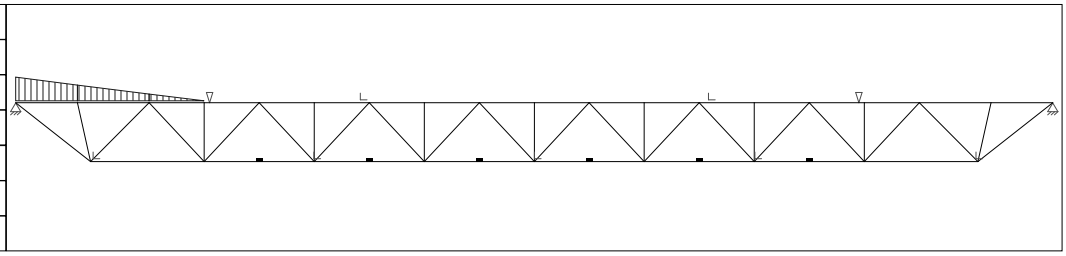
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:13:24 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH403/200**	**J81**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-7	**39-3**	**28.00**	**26.80**	**8 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2 1/2	2-2 1/2
First Diag.	5-2 1/2	5-2 1/2
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	DL (1)	203.00	203.00	TC	+	0-0	39-7	L-BL
Uniform (plf)	LL (1)	300.00	0.00	TC	+	0-0	7-0	L-BL
Conc w/bending (lbs)	CL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Conc w/bending (lbs)	CL (1)	1,500.00	0.00	TC	+	32-1	32-1	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	32-1	32-1	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**51.50**	**10,414.82**	**9,471.68**	**2,603.70**	**40,219.28**	**39,886.33**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,786.16	12,206.57	0.00	0.00	15,543.76	11,188.23	43.30	0-2
V1S	8,620.27	11,867.56	0.00	0.00	803.40	1,613.05	27.47	2-6
W3	8,620.27	11,867.56	19,884.19	14,735.60	8,698.23	11,402.56	37.69	3-0
W4	19,847.83	26,335.80	19,884.19	14,735.60	9,599.55	7,495.26	36.65	5-2 1/2
W5	19,847.83	26,335.80	30,723.95	23,129.68	5,220.32	7,155.75	36.65	7-3 1/2
W6	25,700.37	34,189.13	30,723.95	23,129.68	6,186.83	4,513.47	36.65	9-4 1/2
W7	25,700.37	34,189.13	36,871.26	27,699.79	3,839.96	5,263.61	36.65	11-5 1/2
W8	29,127.95	38,770.32	36,871.26	27,699.79	4,386.10	3,199.79	36.65	13-6 1/2
W9	29,127.95	38,770.32	39,886.33	29,984.84	2,592.96	3,560.40	36.65	15-7 1/2
W10	30,270.48	40,219.28	39,886.33	29,984.84	3,560.40	2,485.23	36.65	17-8 1/2
W10	30,270.48	40,219.28	39,769.16	29,984.85	3,560.40	2,485.23	36.65	19-9 1/2
W9	29,127.95	38,536.00	39,769.16	29,984.85	2,592.96	3,560.40	36.65	21-10 1/2
W8	29,127.95	38,536.00	36,519.77	27,699.79	4,386.10	3,199.79	36.65	23-11 1/2
W7	25,700.37	33,720.48	36,519.77	27,699.79	3,839.96	5,263.61	36.65	26-0 1/2
W6	25,700.37	33,720.48	30,138.14	23,129.68	6,186.83	4,513.47	36.65	28-1 1/2
W5	19,847.83	25,632.83	30,138.14	23,129.68	5,220.32	7,155.75	36.65	30-2 1/2
W4	19,847.83	25,632.83	19,085.35	14,735.60	9,599.55	7,495.26	36.65	32-3 1/2
W3	8,620.27	11,190.48	19,085.35	14,735.60	8,698.23	11,402.56	37.69	34-4 1/2
V1S	8,620.27	11,190.48	0.00	0.00	803.40	1,613.05	27.47	37-1
W2	8,786.16	11,417.88	0.00	0.00	15,543.76	11,188.23	43.30	36-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,061.74	2,418.69	26.80

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 10:13:24 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH403/200	J81

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.8173	0.6134	0.3924	1.2964	0.5795	0.3076	1.0000	2021 = 2 x 2 x 0.216
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	548.49	338.88	508.32	17-6 3/4	8-4 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.50	25.00	32.50	28.00
Bending Load	653.88	547.74	403.00	403.00	403.00
Axial Load	12,206.57	11,867.56	40,219.28	11,190.48	11,417.88
fa	7,467.62	7,260.22	24,604.96	6,846.00	6,985.12
Maximum K L/r	71.36	82.82	47.78	82.82	71.36
Fcr	34,457.82	30,279.06	42,312.45	30,279.06	34,457.82
Fa	20,674.69	18,167.44	25,387.47	18,167.44	20,674.69
F'e	137,362.81	101,957.35	306,325.19	101,957.35	137,362.81
Cm	0.9728	0.9644	0.9462	0.9664	0.9746
Panel Point Moment	5,020.16	5,020.16	1,749.13	3,365.75	3,365.75
Mid Panel Moment	3,073.28	2,234.53	874.57	1,747.12	1,803.57
Panel Point fb	11,591.58	11,591.58	4,038.75	7,771.53	7,771.53
Mid Panel fb	2,894.94	2,104.86	823.82	1,645.74	1,698.91
Fillers	0	0	0	0	0
Panel Point Stress	19,059.20	18,851.80	28,643.72	14,617.53	14,756.65
Mid Panel Stress	0.4530	0.4679	0.9959	0.4299	0.3915

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5000**
Max Load Fillers TC: **44,429.31**
Max Load no Fillers TC: **40,500.41**
TC OAL/Ryy: **363.33**
BC OAL/Ryy: **350.67**
BC Stress: **0.93**
BC L/Rz: **134.4297**
TC Shear Stress: **12,957.39**
BC Shear Stress: **16,779.08**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	15,543.76	25,759.23	11,188.23	11,915.38	5.58 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W3	8,698.23	28,621.37	11,402.56	12,303.84	4.10 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	9,599.55	16,730.22	7,495.26	7,601.40	4.09 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W5	5,220.32	16,730.22	7,155.75	7,601.40	3.05 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W6	6,186.83	10,742.43	4,513.47	5,247.23	3.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	3,839.96	14,381.54	5,263.61	6,817.96	2.36 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,386.10	7,826.93	3,199.79	3,504.80	2.90 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,592.96	10,742.43	3,560.40	5,247.23	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	3,560.40	7,826.93	2,485.23	3,504.80	2.35 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	3,560.40	7,826.93	2,485.23	3,504.80	2.35 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,592.96	10,742.43	3,560.40	5,247.23	2.00 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,386.10	7,826.93	3,199.79	3,504.80	2.90 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	3,839.96	14,381.54	5,263.61	6,817.96	2.36 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,186.83	10,742.43	4,513.47	5,247.23	3.23 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	5,220.32	16,730.22	7,155.75	7,601.40	3.05 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W4	9,599.55	16,730.22	7,495.26	7,601.40	4.09 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W3	8,698.23	28,621.37	11,402.56	12,303.84	4.10 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W2	15,543.76	25,759.23	11,188.23	11,915.38	5.58 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
V1	803.40	5,758.64	1,613.05	3,174.95	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,061.74	5,758.64	2,418.69	3,257.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 10:13:24 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH403/200**	**J81**

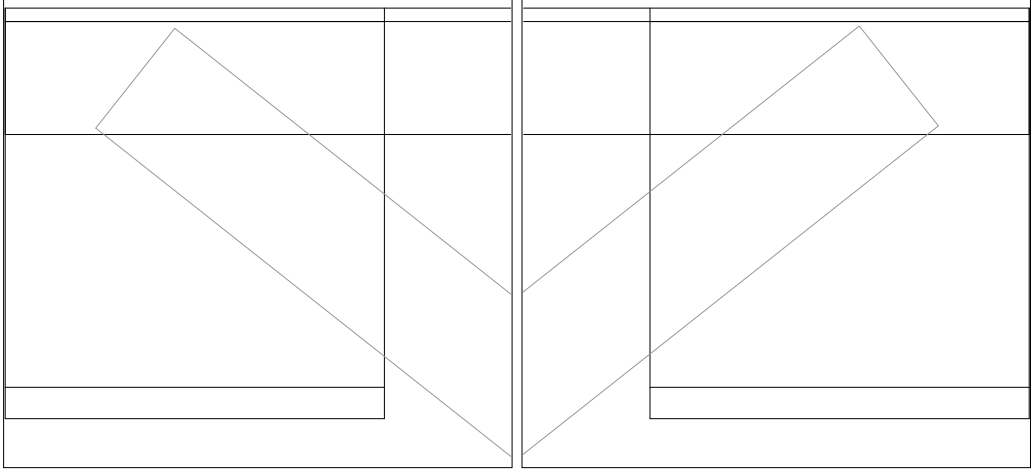
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 1/4
BPL Material: N/A	

Total Load	403.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	

Total Load	403.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000
Seat Type: Bird Cage (BPL Thick = 0.5)	



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 10:13:24 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH403/200	J81

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

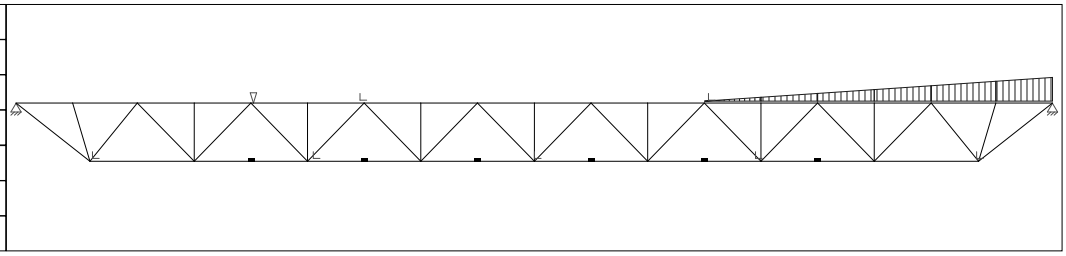
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:50:41 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J82**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
39-11 1/2	**39-7 1/2**	**28.00**	**26.75**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	1-9 3/4
First Diag.	4-9 3/4	4-9 3/4
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	39-11 1/2	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	39-11 1/2	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	9-3	9-3	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	27-11 1/2	39-11 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	9-3	9-3	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**11,859.16**	**11,669.79**	**2,917.45**	**45,053.80**	**44,936.05**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	9,936.42	13,048.80	0.00	0.00	17,321.64	12,643.74	43.26	0-2
V1S	9,732.21	12,767.48	0.00	0.00	1,276.25	2,057.86	27.92	2-4
W3	9,732.21	12,767.48	20,350.04	15,533.38	9,196.33	12,075.90	34.48	3-0
W4	21,804.42	28,499.97	20,350.04	15,533.38	11,754.16	8,998.03	37.31	4-9 3/4
W5	21,804.42	28,499.97	35,797.11	27,456.41	8,109.78	10,530.54	37.31	6-11 3/4
W6	29,714.00	39,466.15	35,797.11	27,456.41	6,549.01	4,956.11	37.31	9-1 3/4
W7	29,714.00	39,466.15	42,142.23	31,212.38	4,067.85	5,558.44	37.31	11-3 3/4
W8	32,091.69	43,965.54	42,142.23	31,212.38	4,618.04	3,352.36	37.31	13-5 3/4
W9	32,091.69	43,965.54	44,936.05	32,351.95	2,836.70	4,068.20	37.31	15-7 3/4
W10	31,993.15	45,053.80	44,936.05	32,351.95	4,068.20	3,642.72	37.31	17-9 3/4
W10	31,993.15	45,053.80	44,318.75	31,015.30	4,068.20	3,642.72	37.31	19-11 3/4
W9	29,418.39	42,730.92	44,318.75	31,015.30	2,836.70	4,068.20	37.31	22-1 3/4
W8	29,418.39	42,730.92	40,290.31	27,202.42	4,618.04	3,352.36	37.31	24-3 3/4
W7	24,367.40	36,975.51	40,290.31	27,202.42	4,067.85	5,558.44	37.31	26-5 3/4
W6	24,367.40	36,975.51	32,636.56	20,913.31	6,549.01	4,956.11	37.31	28-7 3/4
W5	16,840.17	27,102.13	32,636.56	20,913.31	8,109.78	10,530.54	37.31	30-9 3/4
W4	16,840.17	27,102.13	20,200.87	12,147.98	11,754.16	8,998.03	37.31	32-11 3/4
W3	7,667.56	13,042.61	20,200.87	12,147.98	9,196.33	12,075.90	34.48	35-1 3/4
V1S	7,667.56	13,042.61	0.00	0.00	1,276.25	2,057.86	27.92	37-7 1/2
W2	7,871.78	13,612.67	0.00	0.00	17,321.64	12,643.74	43.26	36-11 1/2

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	929.80	1,541.96	26.75

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 2:50:41 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J82

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.9305	0.6092	0.3912	1.3045	0.5910	0.3453	1.0000	2024 = 2 x 2 x 0.248
BC	0.8084	0.6885	0.4106	1.3990	0.6554	0.3832	1.0000	A38B = 2.219 x 2.219 x 0.199

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	620.70	372.71	559.07	17-7 7/8	9-3 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	29.75	26.00
Bending Load	405.00	405.00	405.00	777.07	864.31
Axial Load	13,048.80	12,767.48	45,053.80	13,042.61	13,612.67
fa	3,960.90	6,860.55	24,209.46	7,008.39	7,314.71
Maximum K L/r	66.46	76.05	49.85	76.05	66.46
Fcr	36,199.60	32,758.53	41,693.68	32,758.53	36,199.60
Fa	21,719.76	19,655.12	25,016.21	19,655.12	21,719.76
F'e	511,143.00	120,017.23	279,349.75	120,017.23	157,134.25
Cm	0.9961	0.9714	0.9419	0.9708	0.9767
Panel Point Moment	20,524.44	2,627.44	1,901.25	5,615.93	5,615.92
Mid Panel Moment	15,706.80	1,857.70	950.63	2,396.97	3,537.98
Panel Point fb	8,301.11	5,360.64	3,879.03	11,457.92	11,457.92
Mid Panel fb	6,352.62	1,589.78	813.52	2,051.27	3,027.72
Fillers	0	0	0	0	0
Panel Point Stress	12,262.01	12,221.19	28,088.49	18,466.31	18,772.62
Mid Panel Stress	0.3049	0.3996	0.9943	0.4219	0.4318

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5000**

Max Load Fillers TC: **50,263.56**

Max Load no Fillers TC: **45,446.59**

TC OAL/Ryy: **364.51**

BC OAL/Ryy: **339.88**

BC Stress: **0.93**

BC L/Rz: **126.6439**

TC Shear Stress: **12,913.46**

BC Shear Stress: **16,314.20**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	17,321.64	25,756.52	12,643.74	14,697.95	6.22 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	9,196.33	28,621.37	12,075.90	13,384.37	4.34 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	11,754.16	24,373.24	8,998.03	10,715.86	4.22 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,109.78	24,373.24	10,530.54	10,715.86	3.78 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	6,549.01	10,742.43	4,956.11	5,163.20	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,067.85	14,381.54	5,558.44	6,707.37	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,618.04	7,826.93	3,352.36	3,444.72	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,836.70	10,742.43	4,068.20	5,163.20	2.12 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,068.20	10,742.43	3,642.72	5,163.20	2.12 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,068.20	10,742.43	3,642.72	5,163.20	2.12 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,836.70	10,742.43	4,068.20	5,163.20	2.12 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,618.04	7,826.93	3,352.36	3,444.72	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,067.85	14,381.54	5,558.44	6,707.37	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,549.01	10,742.43	4,956.11	5,163.20	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	8,109.78	24,373.24	10,530.54	10,715.86	3.78 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	11,754.16	24,373.24	8,998.03	10,715.86	4.22 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	9,196.33	28,621.37	12,075.90	13,384.37	4.34 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W2	17,321.64	25,756.52	12,643.74	14,697.95	6.22 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	1,276.25	5,758.64	2,057.86	3,118.25	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	929.80	5,758.64	1,541.96	3,263.87	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:50:41 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J82**

TCX Design

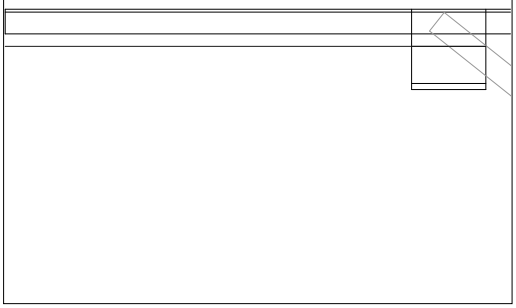
TCX Left	
TCX Length	2-8 7/8
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	5-4 3/4
Clear Bearing	0-7 3/8
BPL Material: 2018 = 2 x 2 x 0.188	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 3/8
BPL Material: N/A	

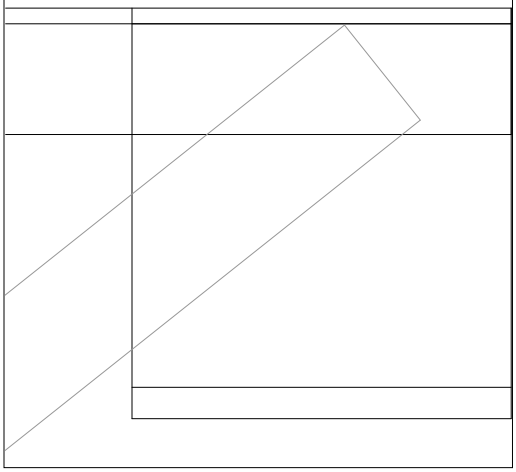
Total Load	405.00
Reqd TL Def L/80	0.41
Live Load	200.00
Reqd LL Def L/120	0.27
Section Modulus	2.4725
Reqd SM	0.6841
Mom of Inertia	3.9771
Reqd MI	0.4936

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 2:50:41 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J82

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

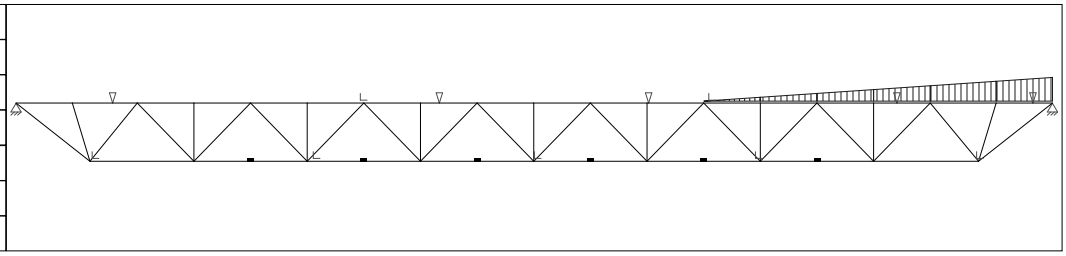
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:25:09 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J84**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
40-0	**39-8**	**28.00**	**26.79**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	1-10 1/4
First Diag.	4-9 3/4	4-10 1/4
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	40-0	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	40-0	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	3-10 1/2	3-10 1/2	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	16-4 1/2	16-4 1/2	L-BL
Conc Load (lbs)	DL (1)	300.00	0.00	TC	+	24-4 1/2	24-4 1/2	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	28-0	40-0	L-BL
Conc w/bending (lbs)	DL (1)	300.00	0.00	TC	+	33-10 1/2	33-10 1/2	L-BL
Conc w/bending (lbs)	DL (1)	500.00	0.00	TC	+	39-1	39-1	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**52.00**	**10,177.97**	**12,078.22**	**3,019.56**	**41,837.60**	**41,801.22**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,995.27	10,896.21	0.00	0.00	17,437.45	8,906.26	43.29	0-2
V1S	6,791.36	10,581.44	0.00	0.00	1,265.07	2,256.20	27.96	2-4
W3	6,791.36	10,581.44	16,696.02	10,711.88	6,466.23	9,757.30	34.51	3-0
W4	14,735.76	22,911.43	16,696.02	10,711.88	9,552.07	6,305.48	37.33	4-9 3/4
W5	14,735.76	22,911.43	28,275.32	18,141.50	5,514.01	7,762.33	37.33	6-11 3/4
W6	20,929.09	32,787.68	28,275.32	18,141.50	6,555.63	4,758.90	37.33	9-1 3/4
W7	20,929.09	32,787.68	36,448.52	23,098.54	4,040.15	5,565.52	37.33	11-3 3/4
W8	24,649.84	39,257.82	36,448.52	23,098.54	4,625.50	3,357.77	37.33	13-5 3/4
W9	24,649.84	39,257.82	41,022.46	25,583.01	2,711.75	4,207.57	37.33	15-7 3/4
W10	25,898.02	41,837.60	41,022.46	25,583.01	4,207.57	4,192.55	37.33	17-9 3/4
W10	25,898.02	41,837.60	41,801.22	25,594.89	4,207.57	4,192.55	37.33	19-11 3/4
W9	24,673.62	40,913.31	41,801.22	25,594.89	2,711.75	4,207.57	37.33	22-1 3/4
W8	24,673.62	40,913.31	38,891.16	23,134.20	4,625.50	3,357.77	37.33	24-3 3/4
W7	20,976.64	35,987.75	38,891.16	23,134.20	4,040.15	5,565.52	37.33	26-5 3/4
W6	20,976.64	35,987.75	32,062.27	18,200.93	6,555.63	4,758.90	37.33	28-7 3/4
W5	14,807.09	26,944.12	32,062.27	18,200.93	5,514.01	7,762.33	37.33	30-9 3/4
W4	14,807.09	26,944.12	20,292.01	10,795.09	9,552.07	6,305.48	37.33	32-11 3/4
W3	6,789.53	13,070.04	20,292.01	10,795.09	6,525.69	11,304.31	34.83	35-1 3/4
V1S	6,789.53	13,070.04	0.00	0.00	1,265.07	2,256.20	27.96	37-8
W2	6,995.27	13,695.95	0.00	0.00	17,437.45	8,906.26	43.29	37-0

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NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:25:09 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J84**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	766.49	1,715.48	26.79

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:25:09 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J84

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.9305	0.6092	0.3912	1.3045	0.5910	0.3453	1.0000	2024 = 2 x 2 x 0.248
BC	0.7132	0.6446	0.3831	1.3432	0.6159	0.2963	1.0000	A36B = 2.078 x 2.078 x 0.188

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	580.95	347.75	521.62	17-7 3/4	10-0 3/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	30.25	26.00
Bending Load	405.00	405.00	405.00	776.68	864.44
Axial Load	10,896.21	10,581.44	41,837.60	13,070.04	13,695.95
fa	3,307.50	5,685.89	22,481.25	7,023.13	7,359.46
Maximum K L/r	66.46	76.05	49.85	77.33	66.46
Fcr	36,199.60	32,758.53	41,693.68	32,292.35	36,199.60
Fa	21,719.76	19,655.12	25,016.21	19,375.41	21,719.76
F'e	511,143.00	120,017.23	279,349.75	116,082.51	157,134.25
Cm	0.9968	0.9763	0.9461	0.9697	0.9766
Panel Point Moment	20,524.47	3,428.84	1,901.25	6,695.47	6,695.47
Mid Panel Moment	15,888.06	2,600.81	950.63	1,924.94	6,012.25
Panel Point fb	8,301.12	6,995.71	3,879.03	13,660.46	13,660.46
Mid Panel fb	6,425.93	2,225.71	813.52	1,647.32	5,145.15
Fillers	0	0	0	0	0
Panel Point Stress	11,608.62	12,681.60	26,360.28	20,683.58	21,019.92
Mid Panel Stress	0.2920	0.3592	0.9250	0.4151	0.5003

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5000**

Max Load Fillers TC: **50,263.56**

Max Load no Fillers TC: **45,446.59**

TC OAL/Ryy: **364.90**

BC OAL/Ryy: **354.39**

BC Stress: **0.98**

BC L/Rz: **135.7348**

TC Shear Stress: **12,166.48**

BC Shear Stress: **18,818.81**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	17,437.45	21,935.91	8,906.26	10,272.94	6.26 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	6,466.23	24,373.24	9,757.30	11,519.74	3.50 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W4	9,552.07	14,381.54	6,305.48	6,702.58	4.29 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	5,514.01	18,714.09	7,762.33	8,602.94	2.97 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	6,555.63	10,742.43	4,758.90	5,159.56	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,040.15	14,381.54	5,565.52	6,702.58	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,625.50	7,826.93	3,357.77	3,442.12	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,711.75	10,742.43	4,207.57	5,159.56	2.20 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,207.57	10,742.43	4,192.55	5,159.56	2.20 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,207.57	10,742.43	4,192.55	5,159.56	2.20 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	2,711.75	10,742.43	4,207.57	5,159.56	2.20 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,625.50	7,826.93	3,357.77	3,442.12	3.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,040.15	14,381.54	5,565.52	6,702.58	2.50 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,555.63	10,742.43	4,758.90	5,159.56	3.42 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	5,514.01	18,714.09	7,762.33	8,602.94	2.97 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W4	9,552.07	14,381.54	6,305.48	6,702.58	4.29 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	6,525.69	24,373.24	11,304.31	11,427.68	4.06 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W2	17,437.45	21,935.91	8,906.26	10,272.94	6.26 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V1	1,265.07	5,758.64	2,256.20	3,113.55	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	766.49	5,758.64	1,715.48	3,258.95	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 7:25:09 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J84**

TCX Design

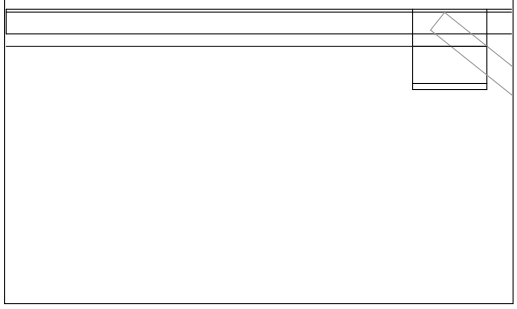
TCX Left	
TCX Length	2-8 7/8
TCX Type	R, Rnfd.
TCX Depth	6 1/2
BPL Length	5-6
Clear Bearing	0-7 1/2
BPL Material: 2018 = 2 x 2 x 0.188	

TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-2
Clear Bearing	0-7 1/2
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

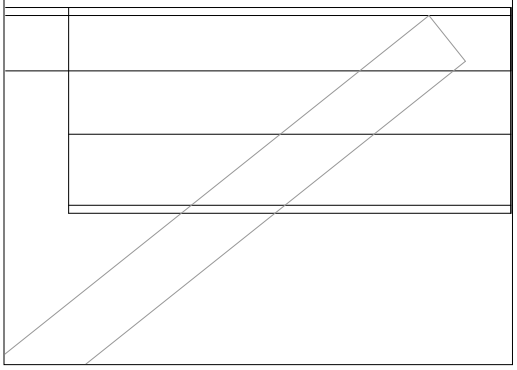
Total Load	405.00
Reqd TL Def L/80	0.41
Live Load	200.00
Reqd LL Def L/120	0.27
Section Modulus	2.4725
Reqd SM	0.6841
Mom of Inertia	3.9771
Reqd MI	0.4936

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (Reinforced) (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 7:25:09 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J84

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

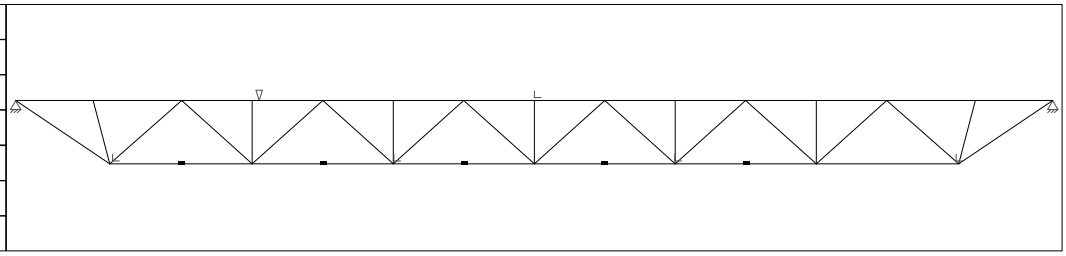
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:59:29 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J85**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
31-7	**31-3**	**24.00**	**22.85**	**6 @ 4-3**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-6	2-6
First Half	2-2	2-2
First Diag.	5-2	5-2
Depth	24.00	24.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	205.00	205.00	TC	+	0-0	31-7	L-BL
Uniform (plf)	DL (1)	200.00	200.00	TC	+	0-0	31-7	L-BL
Conc w/bending (lbs)	CL (1)	1,500.00	0.00	TC	+	7-6	7-6	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	7-6	7-6	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.50	**51.50**	**7,476.13**	**6,680.13**	**1,869.03**	**28,846.16**	**28,758.78**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,031.60	10,419.14	0.00	0.00	12,554.25	9,677.46	40.97	0-2
V1S	7,838.64	10,153.33	0.00	0.00	800.07	1,098.91	23.63	2-6
W3	7,838.64	10,153.33	16,969.05	13,144.30	7,064.03	9,074.56	34.62	3-0
W4	17,562.01	22,571.07	16,969.05	13,144.30	7,522.71	5,932.35	34.24	5-2
W5	17,562.01	22,571.07	25,703.28	19,773.08	4,012.61	5,527.58	34.24	7-3 1/2
W6	21,123.01	27,711.16	25,703.28	19,773.08	4,491.48	3,260.48	34.24	9-5
W7	21,123.01	27,711.16	28,758.78	21,775.87	2,556.09	3,521.15	34.24	11-6 1/2
W8	21,731.66	28,846.16	28,758.78	21,775.87	2,800.38	2,150.72	34.24	13-8
W8	21,731.66	28,846.16	27,973.29	20,990.38	2,800.38	2,150.72	34.24	15-9 1/2
W7	19,552.03	26,140.17	27,973.29	20,990.38	2,556.09	3,521.15	34.24	17-11
W6	19,552.03	26,140.17	23,346.80	17,416.60	4,491.48	3,260.48	34.24	20-0 1/2
W5	14,584.11	19,593.17	23,346.80	17,416.60	4,012.61	5,527.58	34.24	22-2
W4	14,584.11	19,593.17	14,879.30	11,054.55	7,522.71	5,932.35	34.24	24-3 1/2
W3	6,654.45	8,969.14	14,879.30	11,054.55	7,064.03	9,074.56	34.62	26-5
V1S	6,654.45	8,969.14	0.00	0.00	800.07	1,098.91	23.63	29-1
W2	6,847.41	9,234.95	0.00	0.00	12,554.25	9,677.46	40.97	28-7

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	2,065.50	2,403.89	22.85

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:59:29 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J85**

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	0.7167	0.6172	0.3938	1.2891	0.5693	0.2730	1.0000	2018 = 2 x 2 x 0.188
BC	0.6209	0.6011	0.3559	1.2877	0.5763	0.2243	1.0000	A34A = 1.938 x 1.938 x 0.176

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	**50,000.00**	**30,000.00**	**348.53**	**426.67**	**640.01**	**17-4**	**9-9 7/8**

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	28.00	32.00	25.50	32.00	28.00
Bending Load	405.00	405.00	405.00	405.00	405.00
Axial Load	10,419.14	10,153.33	28,846.16	8,969.14	9,234.95
fa	7,268.83	7,083.39	15,746.52	6,257.25	6,442.69
Maximum K L/r	71.10	81.26	48.57	81.26	71.10
Fcr	34,548.98	30,852.62	42,079.88	30,852.62	34,548.98
Fa	20,729.39	18,511.57	25,247.93	18,511.57	20,729.39
F'e	139,070.03	106,475.49	298,089.53	106,475.49	139,070.03
Cm	0.9739	0.9667	0.9646	0.9706	0.9768
Panel Point Moment	3,322.68	3,322.68	5,316.08	3,220.22	3,220.21
Mid Panel Moment	1,832.44	1,674.62	1,598.19	1,533.73	1,866.60
Panel Point fb	8,706.52	8,706.53	13,929.88	8,438.03	8,438.02
Mid Panel fb	1,910.64	1,746.09	1,666.39	1,599.18	1,946.25
Fillers	0	0	0	0	0
Panel Point Stress	15,975.35	15,789.91	29,676.40	14,695.27	14,880.71
Mid Panel Stress	0.4111	0.4389	0.6759	0.3890	0.3719

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5000**

Max Load Fillers TC: **37,676.60**

Max Load no Fillers TC: **34,245.96**

TC OAL/Ryy: **290.89**

BC OAL/Ryy: **291.22**

BC Stress: **0.77**

BC L/Rz: **144.7036**

TC Shear Stress: **10,686.70**

BC Shear Stress: **14,353.34**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	12,554.25	21,935.91	9,677.46	10,842.65	4.51 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	7,064.03	18,714.09	9,074.56	9,209.37	3.47 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W4	7,522.71	14,381.54	5,932.35	7,229.69	3.38 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	4,012.61	10,742.43	5,527.58	5,559.06	2.89 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W6	4,491.48	7,826.93	3,260.48	3,730.28	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	2,556.09	7,826.93	3,521.15	3,730.28	2.32 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W8	2,800.38	5,758.64	2,150.72	2,356.36	2.10 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	2,800.38	5,758.64	2,150.72	2,356.36	2.10 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	2,556.09	7,826.93	3,521.15	3,730.28	2.32 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W6	4,491.48	7,826.93	3,260.48	3,730.28	2.97 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W5	4,012.61	10,742.43	5,527.58	5,559.06	2.89 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W4	7,522.71	14,381.54	5,932.35	7,229.69	3.38 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W3	7,064.03	18,714.09	9,074.56	9,209.37	3.47 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W2	12,554.25	21,935.91	9,677.46	10,842.65	4.51 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V1	800.07	5,758.64	1,098.91	3,640.70	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	2,065.50	5,758.64	2,403.89	3,701.52	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 9:59:29 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 24LH405/205**	**J85**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 3/8
BPL Material: N/A	

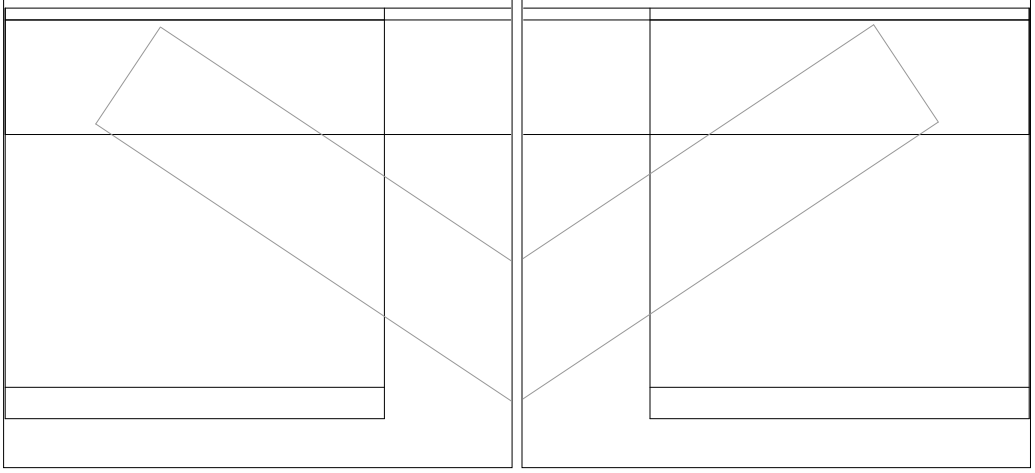
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-8 1/2
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 9:59:29 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 24LH405/205	J85

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

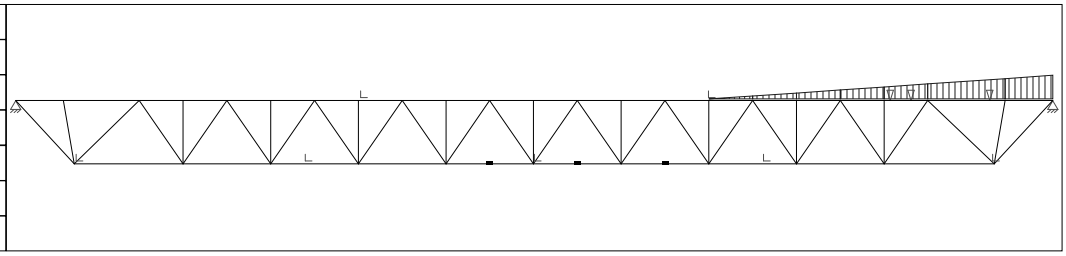
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:48:23 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J89**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
47-8	**47-4**	**36.00**	**34.59**	**10 @ 4-0**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-10	2-10
TC Panel	2-4	2-4
First Half	2-11 5/8	3-0 3/8
First Diag.	5-9 5/8	5-10 3/8
Depth	36.00	36.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	LL (1)	205.00	205.00	TC	+	0-0	47-8	L-BL
Uniform (plf)	DL (1)	200.00	200.00	TC	+	0-0	47-8	L-BL
Uniform (plf)	LL (1)	0.00	600.00	TC	+	33-8	47-8	L-BL
Conc Load (lbs)	DL (1)	1,500.00	0.00	TC	+	40-1	40-1	L-BL
Conc w/bending (lbs)	CL (1)	500.00	0.00	TC	+	41-0 1/2	41-0 1/2	L-BL
Conc w/bending (lbs)	CL (1)	500.00	0.00	TC	+	44-7 1/2	44-7 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	40-1	40-1	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
24.00	**60.38**	**10,436.07**	**15,943.30**	**3,985.83**	**46,395.19**	**46,638.88**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	6,358.91	9,247.47	0.00	0.00	20,265.57	10,767.54	47.13	0-2
V1S	6,215.23	9,049.55	0.00	0.00	886.66	3,103.27	35.11	2-4
W3	6,215.23	9,049.55	18,169.43	12,441.41	8,886.09	12,712.34	49.66	2-10
W4	16,078.18	23,545.08	18,169.43	12,441.41	11,012.64	7,354.62	42.10	5-9 5/8
V2	16,078.18	23,545.08	18,169.43	12,441.41	668.39	927.73	34.59	7-9 5/8
W5	16,078.18	23,545.08	28,358.79	19,307.03	5,901.60	8,444.99	42.10	7-9 5/8
W6	22,127.95	32,610.57	28,358.79	19,307.03	7,459.15	5,283.87	42.10	9-9 5/8
V3	22,127.95	32,610.57	28,358.79	19,307.03	698.64	973.05	34.59	11-9 5/8
W7	22,127.95	32,610.57	36,300.41	24,540.95	4,688.83	6,473.32	42.10	11-9 5/8
W8	26,546.04	39,428.32	36,300.41	24,540.95	5,670.64	4,116.47	42.10	13-9 5/8
V4	26,546.04	39,428.32	36,300.41	24,540.95	720.73	1,007.14	34.59	15-9 5/8
W9	26,546.04	39,428.32	41,994.30	28,143.19	3,566.78	4,913.42	42.10	15-9 5/8
W10	29,332.43	43,998.35	41,994.30	28,143.19	4,851.07	3,039.77	42.10	17-9 5/8
V5	29,332.43	43,998.35	41,994.30	28,143.19	734.66	1,029.99	34.59	19-9 5/8
W11	29,332.43	43,998.35	45,440.46	30,113.74	2,535.44	4,851.07	42.10	19-9 5/8
W12	30,487.13	46,320.64	45,440.46	30,113.74	4,851.07	4,851.07	42.10	21-9 5/8
V6	30,487.13	46,320.64	45,440.46	30,113.74	740.44	1,041.60	34.59	23-9 5/8
W12	30,487.13	46,320.64	46,638.88	30,452.60	4,851.07	4,851.07	42.10	23-9 5/8
W11	30,010.14	46,395.19	46,638.88	30,452.60	2,535.44	4,851.07	42.10	25-9 5/8
V7	30,010.14	46,395.19	46,638.88	30,452.60	738.05	1,041.98	34.59	27-9 5/8
W10	30,010.14	46,395.19	45,589.55	29,159.76	4,851.07	3,039.77	42.10	27-9 5/8

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STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:48:23 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J89**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W9	27,901.46	44,222.00	45,589.55	29,159.76	3,566.78	4,913.42	42.10	29-9 5/8
V8	27,901.46	44,222.00	45,589.55	29,159.76	727.51	1,050.22	34.59	31-9 5/8
W8	27,901.46	44,222.00	42,279.24	26,235.24	5,670.64	4,116.47	42.10	31-9 5/8
W7	24,161.09	39,668.48	42,279.24	26,235.24	4,688.83	6,473.32	42.10	33-9 5/8
V9	24,161.09	39,668.48	42,279.24	26,235.24	708.81	1,314.12	34.59	35-9 5/8
W6	24,161.09	39,668.48	36,283.67	21,679.03	7,459.15	5,283.87	42.10	35-9 5/8
W5	18,789.04	32,018.73	36,283.67	21,679.03	5,901.60	8,444.99	42.10	37-9 5/8
V10	18,789.04	32,018.73	36,283.67	21,679.03	1,971.01	3,060.81	34.59	39-9 5/8
W4	18,789.04	32,018.73	25,741.43	14,596.84	11,012.64	7,354.62	42.10	39-9 5/8
W3	7,166.32	13,242.58	25,741.43	14,596.84	10,254.43	17,248.93	50.20	41-9 5/8
V1S	7,166.32	13,242.58	0.00	0.00	886.66	3,103.27	35.11	45-4
W2	7,311.59	13,761.13	0.00	0.00	20,265.57	10,767.54	47.13	44-10

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 2:48:23 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/205	J89

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	1,175.91	414.26	621.39	20-11 1/4	12-0 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	41.63	24.00	42.38	26.00
Bending Load	405.00	405.00	405.00	854.70	963.59
Axial Load	9,247.47	9,049.55	46,395.19	13,242.58	13,761.13
fa	4,554.96	4,457.47	22,852.52	6,522.80	6,778.21
Maximum K L/r	52.70	84.36	36.48	85.88	52.70
Fcr	39,759.50	29,244.46	44,043.28	28,713.76	39,759.50
Fa	23,855.70	17,546.68	26,425.97	17,228.26	23,855.70
F'e	254,173.50	99,167.30	530,312.63	95,688.02	254,173.50
Cm	0.9910	0.9775	0.9711	0.9659	0.9867
Panel Point Moment	4,375.90	4,375.90	1,620.00	11,484.88	11,484.88
Mid Panel Moment	2,062.21	3,139.89	810.00	7,256.85	5,801.12
Panel Point fb	6,451.81	6,451.81	2,388.52	16,933.27	16,933.27
Mid Panel fb	3,040.51	1,812.15	467.48	4,188.20	8,553.15
Fillers	0	0	0	0	0
Panel Point Stress	11,006.77	10,909.28	25,241.04	23,456.06	23,711.48
Mid Panel Stress	0.2024	0.3127	0.8798	0.5184	0.5545

Gap Between Chords:	1.1250
Min Weld Len 2X:	0.5000
Max Load Fillers TC:	55,869.97
Max Load no Fillers TC:	53,023.27
TC OAL/Ryy:	382.73
BC OAL/Ryy:	388.22
BC Stress:	0.82
BC L/Rz:	137.1224
TC Shear Stress:	14,034.89
BC Shear Stress:	18,851.29

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	20,265.57	28,621.37	10,767.54	10,835.26	6.26 x 0.218	1	C40BA = 1.125 x 2.014 x 0.218
V1S	886.66	7,826.93	3,103.27	3,648.40	2.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W3	8,886.09	28,597.25	12,712.34	13,878.40	4.57 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	11,012.64	18,714.09	7,354.62	7,562.33	4.21 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
V2	668.39	5,758.64	927.73	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W5	5,901.60	24,373.24	8,444.99	9,378.44	3.03 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W6	7,459.15	14,381.54	5,283.87	5,907.57	3.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V3	698.64	5,758.64	973.05	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W7	4,688.83	16,730.22	6,473.32	6,573.54	2.76 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
W8	5,670.64	10,742.43	4,116.47	4,552.72	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V4	720.73	5,758.64	1,007.14	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W9	3,566.78	14,381.54	4,913.42	5,907.57	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	4,851.07	10,742.43	3,039.77	4,552.72	2.53 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
V5	734.66	5,758.64	1,029.99	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W11	2,535.44	14,381.54	4,851.07	5,907.57	2.18 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W12	4,851.07	14,381.54	4,851.07	5,907.57	2.18 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V6	740.44	5,758.64	1,041.60	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W12	4,851.07	14,381.54	4,851.07	5,907.57	2.18 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W11	2,535.44	14,381.54	4,851.07	5,907.57	2.18 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:48:23 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J89**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
V7	738.05	5,758.64	1,041.98	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W10	4,851.07	10,742.43	3,039.77	4,552.72	2.53 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,566.78	14,381.54	4,913.42	5,907.57	2.21 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
V8	727.51	5,758.64	1,050.22	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W8	5,670.64	10,742.43	4,116.47	4,552.72	2.96 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,688.83	16,730.22	6,473.32	6,573.54	2.76 x 0.158	1	C32BA = 1.125 x 1.520 x 0.158
V9	708.81	5,758.64	1,314.12	2,316.00	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
W6	7,459.15	14,381.54	5,283.87	5,907.57	3.35 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	5,901.60	24,373.24	8,444.99	9,378.44	3.03 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
V10	1,971.01	7,826.93	3,060.81	3,697.01	2.02 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W4	11,012.64	18,714.09	7,354.62	7,562.33	4.21 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W3	10,254.43	29,969.07	17,248.93	17,516.11	3.35 x 0.245	1	WR112015 = Wrapped R112 with 2015
V1S	886.66	7,826.93	3,103.27	3,648.40	2.05 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W2	20,265.57	28,621.37	10,767.54	10,835.26	6.26 x 0.218	1	C40BA = 1.125 x 2.014 x 0.218

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 2:48:23 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 36LH405/205**	**J89**

TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

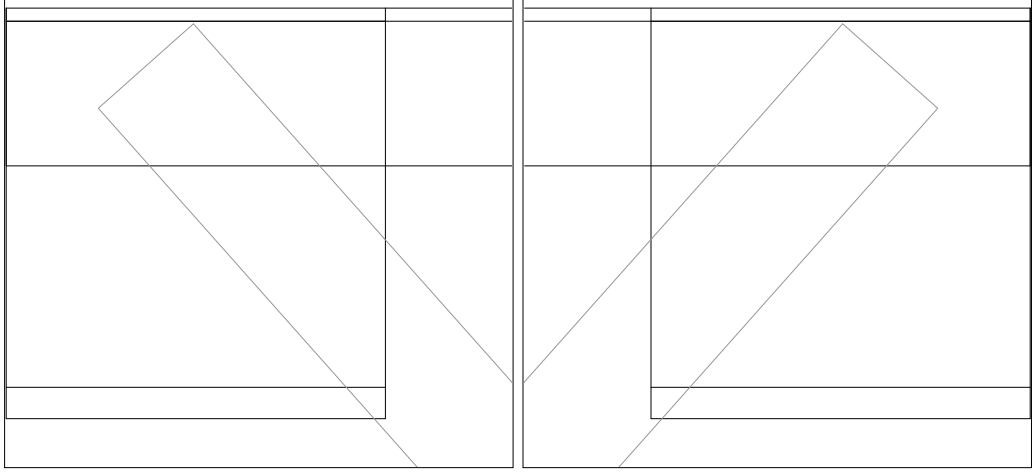
TCX Right	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)

Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	205.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 2:48:23 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 36LH405/205	J89

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

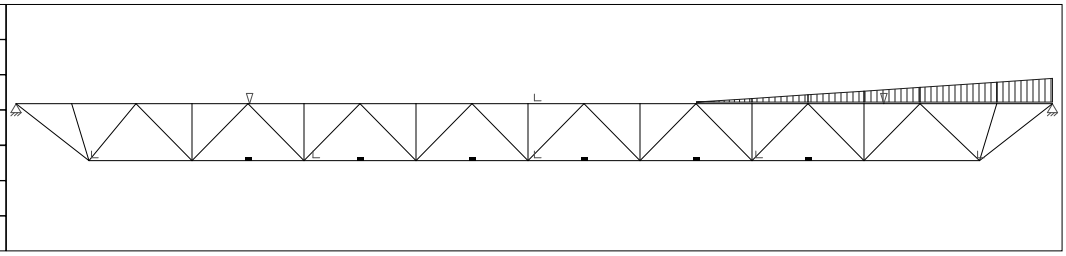
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:26:03 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J9**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
40-5 3/8	**40-1 3/8**	**28.00**	**26.46**	**8 @ 4-4**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	3-0	3-0
TC Panel	2-4	2-4
First Half	1-9 3/4	2-3 5/8
First Diag.	4-9 3/4	5-3 5/8
Depth	28.00	28.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	40-5 3/8	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	40-5 3/8	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	9-2 1/2	9-2 1/2	L-BL
Uniform (plf)	LL (1)	0.00	500.00	TC	+	28-5 3/8	40-5 3/8	L-BL
Conc w/bending (lbs)	DL (1)	1,500.00	0.00	TC	+	33-9	33-9	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	9-2 1/2	9-2 1/2	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	33-9	33-9	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
26.00	**53.63**	**12,254.11**	**13,133.95**	**3,278.21**	**48,882.39**	**48,510.30**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	10,466.14	13,676.68	0.00	0.00	19,787.05	13,262.86	43.09	0-2
V1S	10,259.69	13,392.29	0.00	0.00	1,299.76	2,275.67	27.65	2-4
W3	10,259.69	13,392.29	21,368.14	16,393.65	9,660.66	12,618.02	34.26	3-0
W4	23,055.25	29,978.22	21,368.14	16,393.65	12,346.79	9,505.37	37.10	4-9 3/4
W5	23,055.25	29,978.22	37,726.18	29,091.01	8,612.38	11,116.66	37.10	6-11 3/4
W6	31,638.58	41,749.66	37,726.18	29,091.01	6,717.60	4,876.48	37.10	9-1 3/4
W7	31,638.58	41,749.66	44,826.01	33,475.30	4,151.49	5,718.89	37.10	11-3 3/4
W8	34,686.19	47,040.25	44,826.01	33,475.30	4,770.01	3,462.67	37.10	13-5 3/4
W9	34,686.19	47,040.25	48,392.37	35,271.24	2,966.66	4,595.62	37.10	15-7 3/4
W10	35,230.47	48,882.39	48,392.37	35,271.24	4,595.62	2,966.66	37.10	17-9 3/4
W10	35,230.47	48,882.39	48,510.30	34,563.88	4,595.62	2,966.66	37.10	19-11 3/4
W9	33,271.45	47,276.09	48,510.30	34,563.88	2,966.66	4,595.62	37.10	22-1 3/4
W8	33,271.45	47,276.09	45,179.77	31,353.19	4,770.01	3,462.67	37.10	24-3 3/4
W7	28,809.11	42,200.46	45,179.77	31,353.19	4,151.49	5,718.89	37.10	26-5 3/4
W6	28,809.11	42,200.46	38,191.96	25,639.19	6,717.60	4,876.48	37.10	28-7 3/4
W5	21,843.45	32,987.18	38,191.96	25,639.19	8,612.38	11,116.66	37.10	30-9 3/4
W4	21,843.45	32,987.18	25,469.65	16,472.48	12,346.79	9,505.37	37.10	32-11 3/4
W3	9,420.74	14,978.67	25,469.65	16,472.48	9,765.38	14,528.09	38.26	35-1 3/4
V1S	9,420.74	14,978.67	0.00	0.00	1,299.76	2,275.67	27.65	38-1 3/8
W2	9,648.94	15,614.57	0.00	0.00	19,787.05	13,262.86	43.09	37-5 3/8

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,712.56	2,518.97	26.46

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 8:26:03 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J9

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.3105	0.9336	0.5937	1.6798	0.8340	1.1423	0.9229	3022 = 3 x 3 x 0.227
BC	0.9485	0.7361	0.4403	1.4631	0.7019	0.5140	1.0000	A40B = 2.375 x 2.375 x 0.218

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	774.04	447.98	671.97	22-8 3/8	10-6 1/2

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	26.00	29.75	26.00	35.63	26.00
Bending Load	405.00	405.00	405.00	772.74	865.75
Axial Load	13,676.68	13,392.29	48,882.39	14,978.67	15,614.57
fa	5,218.12	5,109.61	18,650.28	5,714.87	5,957.49
Maximum K L/r	43.79	50.11	32.84	60.01	43.79
Fcr	40,545.05	38,954.27	42,907.04	36,192.63	40,545.05
Fa	24,327.03	23,372.56	25,744.22	21,715.58	24,327.03
F'e	369,039.41	281,867.81	656,070.13	196,566.58	369,039.41
Cm	0.9929	0.9909	0.9810	0.9855	0.9919
Panel Point Moment	21,117.21	3,688.15	1,901.25	7,661.04	6,238.81
Mid Panel Moment	15,582.35	3,813.42	950.63	3,265.81	3,261.85
Panel Point fb	20,020.96	3,496.69	1,802.55	7,263.33	5,914.94
Mid Panel fb	14,773.43	1,392.10	347.03	1,192.19	1,190.75
Fillers	0	0	0	0	0
Panel Point Stress	25,239.08	8,606.30	20,452.83	12,978.20	11,872.42
Mid Panel Stress	0.6968	0.2643	0.7359	0.3028	0.2839

Gap Between Chords: **1.1250**

Min Weld Len 2X: **0.5267**

Max Load Fillers TC: **69,704.45**

Max Load no Fillers TC: **66,942.45**

TC OAL/Ryy: **286.56**

BC OAL/Ryy: **329.01**

BC Stress: **0.85**

BC L/Rz: **121.7920**

TC Shear Stress: **9,929.26**

BC Shear Stress: **15,663.11**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,787.05	28,618.35	13,262.86	14,730.39	7.11 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	9,660.66	28,621.37	12,618.02	13,460.73	4.53 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	12,346.79	24,373.24	9,505.37	10,774.80	4.43 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	8,612.38	28,621.37	11,116.66	12,501.37	3.99 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W6	6,717.60	10,742.43	4,876.48	5,189.84	3.51 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	4,151.49	14,381.54	5,718.89	6,742.42	2.57 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	4,770.01	7,826.93	3,462.67	3,463.74	3.15 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,966.66	10,742.43	4,595.62	5,189.84	2.40 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,595.62	7,826.93	2,966.66	3,463.74	3.03 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W10	4,595.62	7,826.93	2,966.66	3,463.74	3.03 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W9	2,966.66	10,742.43	4,595.62	5,189.84	2.40 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W8	4,770.01	7,826.93	3,462.67	3,463.74	3.15 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W7	4,151.49	14,381.54	5,718.89	6,742.42	2.57 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W6	6,717.60	10,742.43	4,876.48	5,189.84	3.51 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W5	8,612.38	28,621.37	11,116.66	12,501.37	3.99 x 0.188	1	C40BA = 1.125 x 2.014 x 0.218
W4	12,346.79	24,373.24	9,505.37	10,774.80	4.43 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	9,765.38	28,618.35	14,528.09	14,920.93	5.22 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W2	19,787.05	28,618.35	13,262.86	14,730.39	7.11 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	1,299.76	5,758.64	2,275.67	3,152.70	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,712.56	5,758.64	2,518.97	3,299.93	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 8:26:03 AM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 28LH405/200**	**J9**

TCX Design

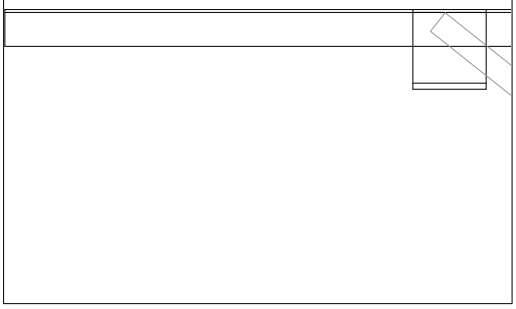
TCX Left	
TCX Length	2-9 3/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-7 3/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 5/8
TCX Type	R
TCX Depth	6 1/2
BPL Length	1-2 1/2
Clear Bearing	0-8
BPL Material: 2525 = 2 1/2 x 2 1/2 x 0.250	

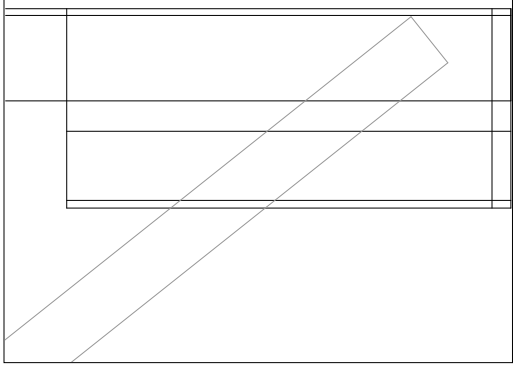
Total Load	405.00
Reqd TL Def L/80	0.42
Live Load	200.00
Reqd LL Def L/120	0.28
Section Modulus	1.0548
Reqd SM	0.7039
Mom of Inertia	2.2846
Reqd MI	0.5152

Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.01
Section Modulus	1.0548
Reqd SM	0.0039
Mom of Inertia	2.2846
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Seat Type: Pegged or Butted



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 8:26:03 AM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 28LH405/200	J9

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)

STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

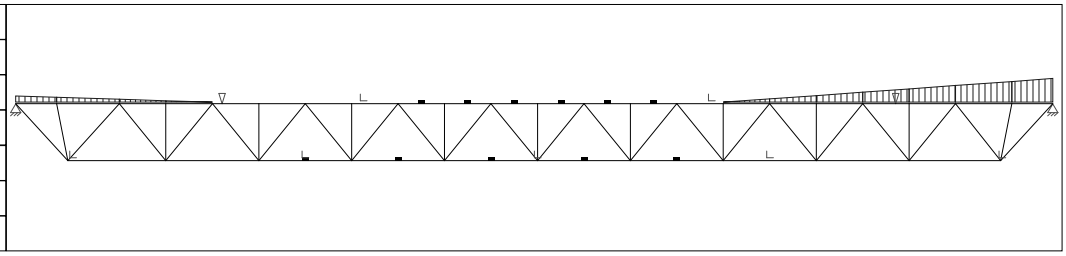
Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:57:40 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J90**

Geometry

Base Length:	Working Length:	Joist Depth:	Effective Depth:	BC Panel Length:	SDS Value:	Shape:	TC Slope:
46-10	**46-6**	**32.00**	**30.54**	**10 @ 4-2**	**1.0220**	**Parallel Chords**	**0.0000**

Variable	Left End	Right End
BC Panel	2-6	2-6
TC Panel	2-0	2-0
First Half	2-3 3/4	2-0 1/4
First Diag.	4-9 3/4	4-6 1/4
Depth	32.00	32.00
Trib Width	0-0	0-0



Loads

Load Type	Category	Load1	Load2	Position	Direction	Loc/Begin	Sp/End	Reference
Uniform (plf)	DL (1)	205.00	205.00	TC	+	0-0	46-10	L-BL
Uniform (plf)	LL (1)	200.00	200.00	TC	+	0-0	46-10	L-BL
Uniform (plf)	LL (1)	150.00	0.00	TC	+	0-0	7-0	L-BL
Conc Load (lbs)	DL (1)	3,000.00	0.00	TC	+	9-5	9-5	L-BL
Uniform (plf)	LL (1)	0.00	570.00	TC	+	32-10	46-10	L-BL
Conc w/bending (lbs)	CL (1)	1,500.00	0.00	TC	+	39-7 1/2	39-7 1/2	L-BL
Net Uplift (plf)	WL (2)	294.00	294.00	TC	-	0-0	200-0	L-BL
Conc Load (lbs)	WL (2)	3,000.00	0.00	TC	-	9-5	9-5	L-BL
Conc Load (lbs)	WL (2)	1,500.00	0.00	TC	-	39-7 1/2	39-7 1/2	L-BL

Stress Analysis Summary

Int. Panel TC:	Max Panel BC:	Reaction LE:	Reaction RE:	Minimum Shear:	Max TC Comp.:	Max BC Tension
25.00	**52.75**	**13,109.93**	**15,110.26**	**3,773.35**	**54,970.95**	**54,647.11**

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W2	8,432.54	11,561.10	0.00	0.00	19,287.15	12,477.22	41.43	0-2
V1S	8,298.35	11,323.93	0.00	0.00	738.16	2,056.73	31.12	2-0
W3	8,298.35	11,323.93	21,684.90	16,034.98	11,503.65	15,405.80	41.26	2-6
W4	22,415.70	30,059.08	21,684.90	16,034.98	13,433.36	10,072.55	39.46	4-9 3/4
W5	22,415.70	30,059.08	37,682.00	28,294.98	9,280.96	12,033.47	39.46	6-10 3/4
W6	31,732.49	42,666.28	37,682.00	28,294.98	8,015.97	5,819.00	39.46	8-11 3/4
W7	31,732.49	42,666.28	46,444.00	34,152.77	5,149.50	7,093.70	39.46	11-0 3/4
W8	36,071.59	49,530.94	46,444.00	34,152.77	6,208.08	4,506.60	39.46	13-1 3/4
W9	36,071.59	49,530.94	51,927.11	37,488.96	3,890.30	5,359.09	39.46	15-2 3/4
W10	38,404.88	53,632.50	51,927.11	37,488.96	4,876.63	3,300.60	39.46	17-3 3/4
W11	38,404.88	53,632.50	54,647.11	38,819.34	3,058.40	4,876.63	39.46	19-4 3/4
W12	38,732.36	54,970.95	54,647.11	38,819.34	4,876.63	3,058.40	39.46	21-5 3/4
W12	38,732.36	54,970.95	54,604.02	38,143.92	4,876.63	3,058.40	39.46	23-6 3/4
W11	37,054.03	53,546.31	54,604.02	38,143.92	3,058.40	4,876.63	39.46	25-7 3/4
W10	37,054.03	53,546.31	51,797.81	35,462.69	4,876.63	3,300.60	39.46	27-8 3/4
W9	33,369.89	49,358.55	51,797.81	35,462.69	3,890.30	5,359.09	39.46	29-9 3/4
W8	33,369.89	49,358.55	46,211.38	30,775.64	6,208.08	4,506.60	39.46	31-10 3/4
W7	27,679.95	42,236.29	46,211.38	30,775.64	5,149.50	7,093.70	39.46	33-11 3/4
W6	27,679.95	42,236.29	37,296.19	24,082.79	8,015.97	5,819.00	39.46	36-0 3/4
W5	19,628.05	30,897.80	37,296.19	24,082.79	9,280.96	12,033.47	39.46	38-1 3/4

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STRESS ANALYSIS - PAGE 1

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:57:40 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J90**

Stress Analysis Summary, Continued...

Member	TC Tension	TC Compression	BC Tension	BC Compression	Web Tension	Web Comp.	Web Length	PP Dist.
W4	19,628.05	30,897.80	22,388.24	13,799.95	13,433.36	10,072.55	39.46	40-2 3/4
W3	7,609.21	12,650.95	22,388.24	13,799.95	9,954.70	15,657.77	38.99	42-3 3/4
V1S	7,609.21	12,650.95	0.00	0.00	738.16	2,056.73	31.12	44-10
W2	7,734.97	13,034.93	0.00	0.00	19,287.15	12,477.22	41.43	44-4

Standard Verticals

Member	Position	Max Tension	Max Comp.	Length
V2	Interior	1,775.64	2,733.20	30.54

STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:57:40 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J90

Chord Properties

Chord	Area	Rx	Rz	Ryy	Y	Ix	Q	Material
TC	1.0151	0.7748	0.4934	1.4841	0.7033	0.6093	0.9679	2521 = 2 1/2 x 2 1/2 x 0.212
BC	1.0162	0.8183	0.4925	1.5555	0.7604	0.6804	0.9652	A42A = 2.625 x 2.625 x 0.209

Axial and Bending Analysis

K:	Fy:	Fb:	Mom of Inertia:	LL 360:	LL 240:	Max Bridg TC:	Max Bridg BC:
0.75	50,000.00	30,000.00	949.64	352.86	529.29	20-4 1/4	10-7 7/8

Top Chord Check	End Panel LE	First Panel LE	Interior Panel	First Panel RE	End Panel RE
Length	22.00	33.75	25.00	30.25	22.00
Bending Load	539.40	499.86	405.00	855.61	939.63
Axial Load	11,561.10	11,323.93	54,970.95	12,650.95	13,034.93
fa	5,694.56	5,577.74	27,076.62	6,231.38	6,420.51
Maximum K L/r	44.59	68.40	25.33	61.31	44.59
Fcr	42,041.70	34,752.08	46,244.23	37,090.28	42,041.70
Fa	25,225.02	20,851.25	27,746.54	22,254.17	25,225.02
F'e	355,002.66	150,844.48	488,736.13	187,770.00	355,002.66
Cm	0.9920	0.9815	0.9629	0.9834	0.9910
Panel Point Moment	3,666.71	3,666.71	1,757.81	5,561.49	5,561.49
Mid Panel Moment	1,544.78	2,450.81	878.91	3,418.52	2,286.79
Panel Point fb	5,406.18	5,406.18	2,591.71	8,199.85	8,199.84
Mid Panel fb	2,277.61	1,414.46	507.25	1,972.95	1,319.79
Fillers	0	0	6	0	0
Panel Point Stress	11,100.74	10,983.92	29,668.33	14,431.23	14,620.36
Mid Panel Stress	0.2968	0.3128	0.9923	0.3429	0.2958

Gap Between Chords: **1.1250**
Min Weld Len 2X: **0.5923**
Max Load Fillers TC: **55,588.59**
Max Load no Fillers TC: **52,522.33**
TC OAL/Ryy: **375.99**
BC OAL/Ryy: **358.72**
BC Stress: **0.90**
BC L/Rz: **107.1066**
TC Shear Stress: **14,415.90**
BC Shear Stress: **16,482.65**

Web Design

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W2	19,287.15	28,618.35	12,477.22	15,031.62	6.93 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W3	11,503.65	28,597.25	15,405.80	15,544.21	5.53 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W4	13,433.36	24,373.24	10,072.55	10,107.27	4.82 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W5	9,280.96	28,618.35	12,033.47	14,664.05	4.32 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
W6	8,015.97	14,381.54	5,819.00	6,344.49	3.60 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W7	5,149.50	18,714.09	7,093.70	8,134.03	2.71 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W8	6,208.08	10,742.43	4,506.60	4,886.78	3.24 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,890.30	14,381.54	5,359.09	6,344.49	2.41 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W10	4,876.63	10,742.43	3,300.60	4,886.78	2.55 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W11	3,058.40	10,742.43	4,876.63	4,886.78	2.55 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W12	4,876.63	7,826.93	3,058.40	3,248.87	3.22 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W12	4,876.63	7,826.93	3,058.40	3,248.87	3.22 x 0.102	1	C16BB = 1.125 x 1.025 x 0.102
W11	3,058.40	10,742.43	4,876.63	4,886.78	2.55 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W10	4,876.63	10,742.43	3,300.60	4,886.78	2.55 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W9	3,890.30	14,381.54	5,359.09	6,344.49	2.41 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W8	6,208.08	10,742.43	4,506.60	4,886.78	3.24 x 0.129	1	C22BB = 1.125 x 1.110 x 0.129
W7	5,149.50	18,714.09	7,093.70	8,134.03	2.71 x 0.176	1	C34AA = 1.125 x 1.549 x 0.176
W6	8,015.97	14,381.54	5,819.00	6,344.49	3.60 x 0.150	1	C28BB = 1.125 x 1.344 x 0.150
W5	9,280.96	28,618.35	12,033.47	14,664.05	4.32 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218

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STRESS ANALYSIS - PAGE 2

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:57:40 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J90**

Web Design, Continued...

Member	Web Tension	Allow Tension	Web Comp	Allow Comp	Weld	Qty	Material
W4	13,433.36	24,373.24	10,072.55	10,107.27	4.82 x 0.188	1	C38BA = 1.125 x 1.845 x 0.199
W3	9,954.70	28,597.25	15,657.77	15,970.00	5.62 x 0.188	1	A40B = 2.375 x 2.375 x 0.218
W2	19,287.15	28,618.35	12,477.22	15,031.62	6.93 x 0.188	1	CW40BA = 1.500 x 1.921 x 0.218
V1	738.16	5,758.64	2,056.73	2,725.59	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090
V2	1,775.64	5,758.64	2,733.20	2,796.48	2.00 x 0.090	1	C12BB = 1.125 x 0.799 x 0.090

STRESS ANALYSIS - PAGE 3

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	**PSE TRAINING CENTER - SHOPORDERS**	**10/4/2024 3:57:40 PM**

Location:	Joist Description:	Mark:
PUYALLUP, WA	**Long Span 32LH405/200**	**J90**

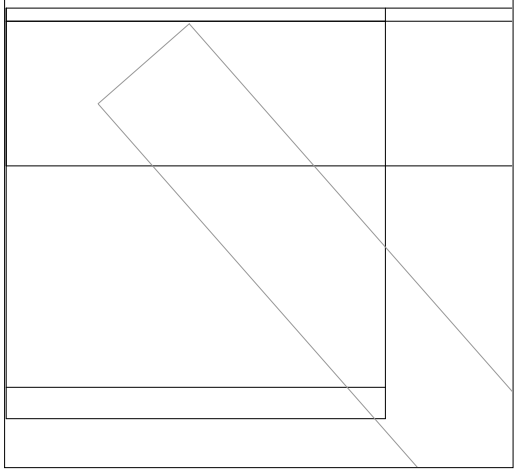
TCX Design

TCX Left	
TCX Length	0-0
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

TCX Right	
TCX Length	0-0 1/2
TCX Type	R
TCX Depth	6 1/2
BPL Length	0-6
Clear Bearing	0-5 7/8
BPL Material: N/A	

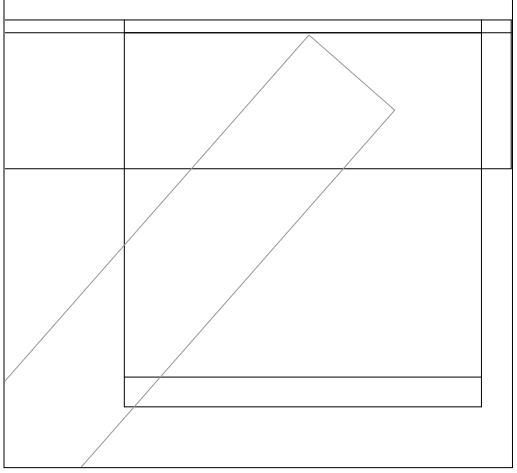
Total Load	405.00
Reqd TL Def L/80	0.00
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.0000
Reqd SM	0.0000
Mom of Inertia	0.0000
Reqd MI	0.0000

Seat Type: Bird Cage (BPL Thick = 0.5)



Total Load	405.00
Reqd TL Def L/80	0.01
Live Load	200.00
Reqd LL Def L/120	0.00
Section Modulus	0.6782
Reqd SM	0.0035
Mom of Inertia	1.2186
Reqd MI	0.0002

Seat Type: Bird Cage (BPL Thick = 0.5)



Load Combinations

Case 1: DL
Case 2a: LL
Case 2b: SL
Case 3a: DL+CL+TL+LL
Case 3b: DL+CL+TL+SL
Case 3c: DL+CL+TL+LL+FEM
Case 3d: DL+CL+TL+SL+FEM
Case 3e: DL+CL+TL+LL
Case 3f: DL+CL+TL+SL
Case 4a: DL+WL+AX+M
Case 4a_mr: DL+WL+AX-M
Case 4b: DL+WL-AX-M
Case 4b_mr: DL+WL-AX+M
Case 4c: DL+WL+AX+IP+M
Case 4c_mr: DL+WL+AX+IP-M
Case 4d: DL+WL-AX+IP-M
Case 4d_mr: DL+WL-AX+IP+M
Case 4e: (1+0.14(SDS))DL+SM+AX+M
Case 4e_mr: (1+0.14(SDS))DL+SM+AX-M
Case 4f: (1+0.14(SDS))DL+SM-AX-M
Case 4f_mr: (1+0.14(SDS))DL+SM-AX+M
Case 5a: 0.6(DL)+WL+AX+M
Case 5a_mr: 0.6(DL)+WL+AX-M
Case 5b: 0.6(DL)+WL-AX-M
Case 5b_mr: 0.6(DL)+WL-AX+M
Case 5c: 0.6(DL)+WL+AX+IP+M
Case 5c_mr: 0.6(DL)+WL+AX+IP-M
Case 5d: 0.6(DL)+WL-AX+IP-M
Case 5d_mr: 0.6(DL)+WL-AX+IP+M
Case 5e: (0.6-0.14(SDS))DL+AX+SM+M
Case 5e_mr: (0.6-0.14(SDS))DL+AX+SM-M
Case 5f: (0.6-0.14(SDS))DL-AX+SM-M
Case 5f_mr: (0.6-0.14(SDS))DL-AX+SM+M
Case 6a: DL+CL+0.85(TL)+WL+AX+M
Case 6a_mr: DL+CL+0.85(TL)+WL+AX-M
Case 6b: DL+CL+0.85(TL)+WL-AX-M
Case 6b_mr: DL+CL+0.85(TL)+WL-AX+M
Case 6c: DL+CL+0.85(TL)+WL+C+AX+IP+M
Case 6c_mr: DL+CL+0.85(TL)+WL+C+AX+IP-M
Case 6d: DL+CL+0.85(TL)+WL+C-AX+IP-M
Case 6d_mr: DL+CL+0.85(TL)+WL+C-AX+IP+M
Case 6e: DL+CL+0.85(TL)+WL+AX+IP+M
Case 6e_mr: DL+CL+0.85(TL)+WL+AX+IP-M
Case 6f: DL+CL+0.85(TL)+WL-AX+IP-M
Case 6f_mr: DL+CL+0.85(TL)+WL-AX+IP+M
Case 6g: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX+M
Case 6g_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM+AX-M
Case 6h: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX-M
Case 6h_mr: (1+0.14(SDS))DL+(1+0.14(SDS))CL+(0.85+0.056(SDS))TL+SM-AX+M
Case 7a: DL+CL+0.85(TL)+0.75(WL+AX+LL+M)
Case 7a_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL-M)
Case 7b: DL+CL+0.85(TL)+0.75(WL-AX+LL-M)

NEW MILLENNIUM
A Steel Dynamics Company

Job Number:	Job Name:	Date Run:
5823-0052	PSE TRAINING CENTER - SHOPORDERS	10/4/2024 3:57:40 PM

Location:	Joist Description:	Mark:
PUYALLUP, WA	Long Span 32LH405/200	J90

Load Combinations Continued

Case 7b_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+M)
Case 7c: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP+M)
Case 7c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+LL+IP-M)
Case 7d: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP-M)
Case 7d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+LL+IP+M)
Case 7e: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP+M)
Case 7e_mr: DL+CL+0.85(TL)+0.75(WL+AX+LL+IP-M)
Case 7f: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP-M)
Case 7f_mr: DL+CL+0.85(TL)+0.75(WL-AX+LL+IP+M)
Case 7g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL+M)
Case 7g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM+AX+LL-M)
Case 7h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL-M)
Case 7h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SM-AX+LL+M)
Case 8a: DL+CL+0.85(TL)+0.75(WL+AX+SL+M)
Case 8a_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL-M)
Case 8b: DL+CL+0.85(TL)+0.75(WL-AX+SL-M)
Case 8b_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+M)
Case 8c: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP+M)
Case 8c_mr: DL+CL+0.85(TL)+0.75(WL+C+AX+SL+IP-M)
Case 8d: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP-M)
Case 8d_mr: DL+CL+0.85(TL)+0.75(WL+C-AX+SL+IP+M)
Case 8e: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP+M)
Case 8e_mr: DL+CL+0.85(TL)+0.75(WL+AX+SL+IP-M)
Case 8f: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP-M)
Case 8f_mr: DL+CL+0.85(TL)+0.75(WL-AX+SL+IP+M)
Case 8g: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX+M)
Case 8g_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM+AX-M)
Case 8h: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX-M)
Case 8h_mr: (1+0.105(SDS))DL+(1+0.105(SDS))CL+(0.85+0.042(SDS))TL+0.75(SL+SM-AX+M)