SUNAIR AWNINGS & SCREENS

NOMO PERGOLA UNITS

Engineering Report published revision 1/10/18

CALCULATIONS ENGINEERED BY

Sullaway Engineering

Pergola Engineering Request

Determine what you need from Sunair

Options available:

- You may use the enclosed documents in conjunction with you existing or future efforts to obtain your permit.

- You may have the enclosed document stamped, with your state and project referenced, for a flat fee of $340.00 which you will pay directly to Sullaway Engineering to the contact below. *(price may change, contact Sullaway Eng. directly for costing)*

- If you need a full site specific engineering package done for your project you will need to contact Sullaway Engineering and reference project ID #16017. They will then price your job and you will work directly with them.

    - Sullaway Engineering : Attn Pruthvi (Raji) Chauhan 10815 Rancho Bernardo Rd, Ste 260 San Diego, CA 92198 phone: 858-312-5150

These signed engineering calculations may be utilized by your engineer to certify your Sunair/Pratic Pergola Awning system project. In order to secure your permit this engineering report may also require alterations or recalculations by a local engineer in your state. Any such alterations and costs is the responsibility of the customer. Neither Sunair Awnings or Pratic will be liable for the use of these calculations to certify and secure permits for your project. Sunair or Pratic will not be liable for the performance of subject Pergola structures in the field using any calculations we provide. It is up to each customer to do site specific engineering calculations for each project signed by a local engineer licensed in the state in which the project resides. Sunair is not responsible for any lack of or unsuitability of structure to properly fasten the Pergola to the customer's existing structure, walls, decking, floors or footers. Sunair's current Pergola warranty and current "Sales Terms" also applies to all projects and these engineering calculations. The most recent revisions of engineered drawings apply.

SULLAWAY
ENGINEERING

\ARDO RD., SUITE 260
SAN DIEGO, CA 92198
PROJECTMANAGER@SULLAWAYENG.COM
PHONE: 1-858-312-5150 FAX: 1-858-777-3534

PROJECT: NOMO CANOPY
PROJECT #: 13264A-1
CLIENT: SUNAIR AWNINGS & SOLAR SCREENS

DATE: 01-16-2017
ENGINEER: MV
LAST REVISED: 02-09-2017

GENERAL NOTES

1. DESIGN CODE: IBC 2012
2. DESIGN LOADS: ASCE 7-10
3. WIND VELOCITY 150 MPH EXPOSURE C (WITH SIDES OPEN)
4. WIND VELOCITY 170 MPH EXPOSURE C (WITH SIDES ENCLOSED)
5. BOLT STEEL ASTM A307
6. PLATE STEEL ASTM A36
7. ALUMINUM ELEMENTS 6060-T6 (F_y = 20 KSI MIN.)
8. STAINLESS STEEL FASTENERS GR. A2-70 (F_u = 100 KSI MIN.)
9. PROVIDE PROTECTION AGAINST DISSIMILAR METALS
10. GENERAL CONTRACTOR SHALL VERIFY THAT EXISTING CONDITIONS ARE ADEQUATELY SUPPORTED AND CONNECTED BEFORE SIGN INSTALLATION
11. ALL EXISTING CONDITIONS SHALL BE VERIFIED IN FIELD PRIOR TO INSTALLATION

SULLAWAY
ENGINEERING

10815 RANCHO BERNARDO RD., SUITE 260
SAN DIEGO, CA 92198
PROJECTMANAGER@SULLAWAYENG.COM
PHONE: 1-858-312-5150 FAX: 1-858-777-3534

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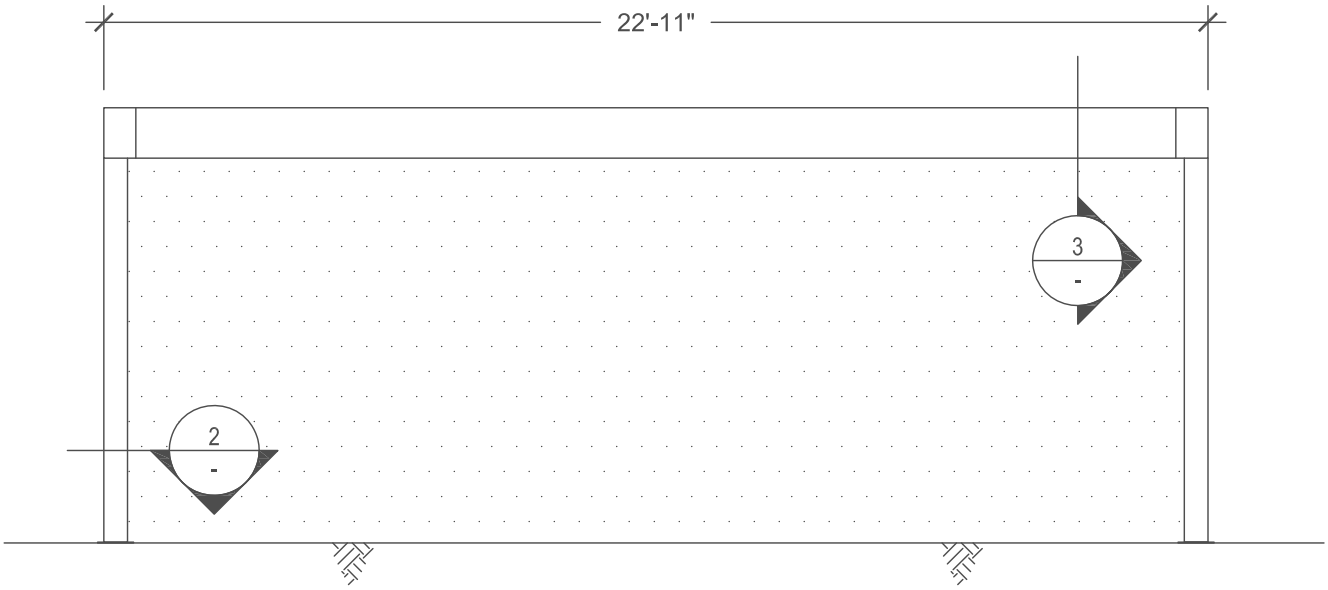
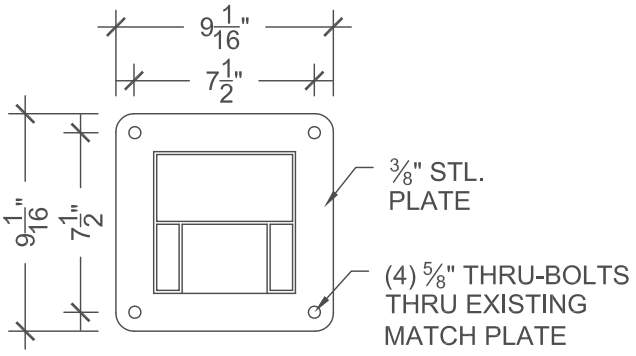
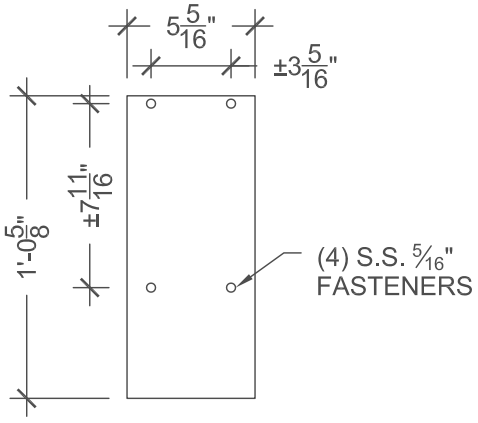


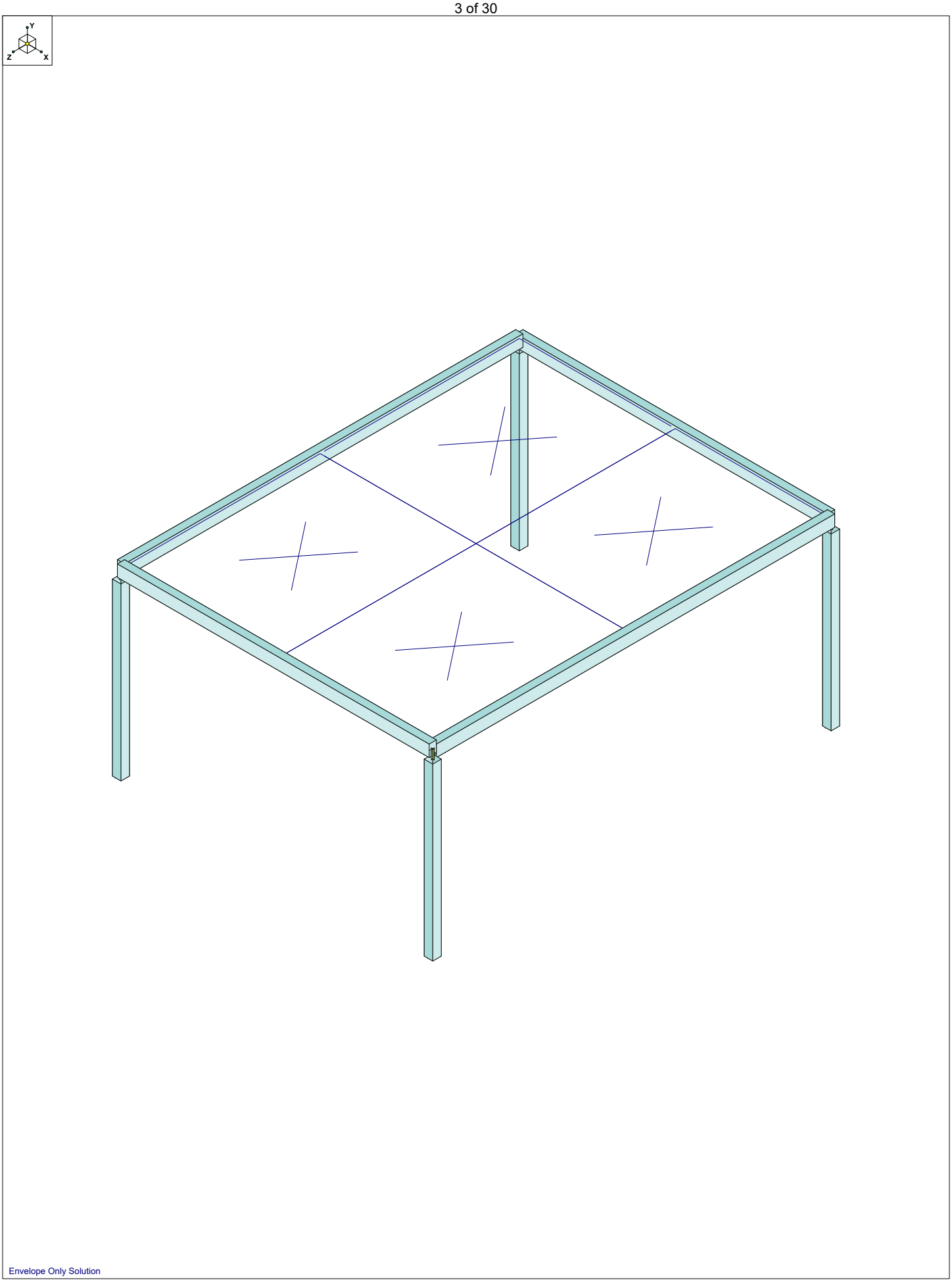
1 - SIDE ELEVATION



2 - BASE PLATE DETAIL



3 - GUIDE-CROSSBAR CONNECTION



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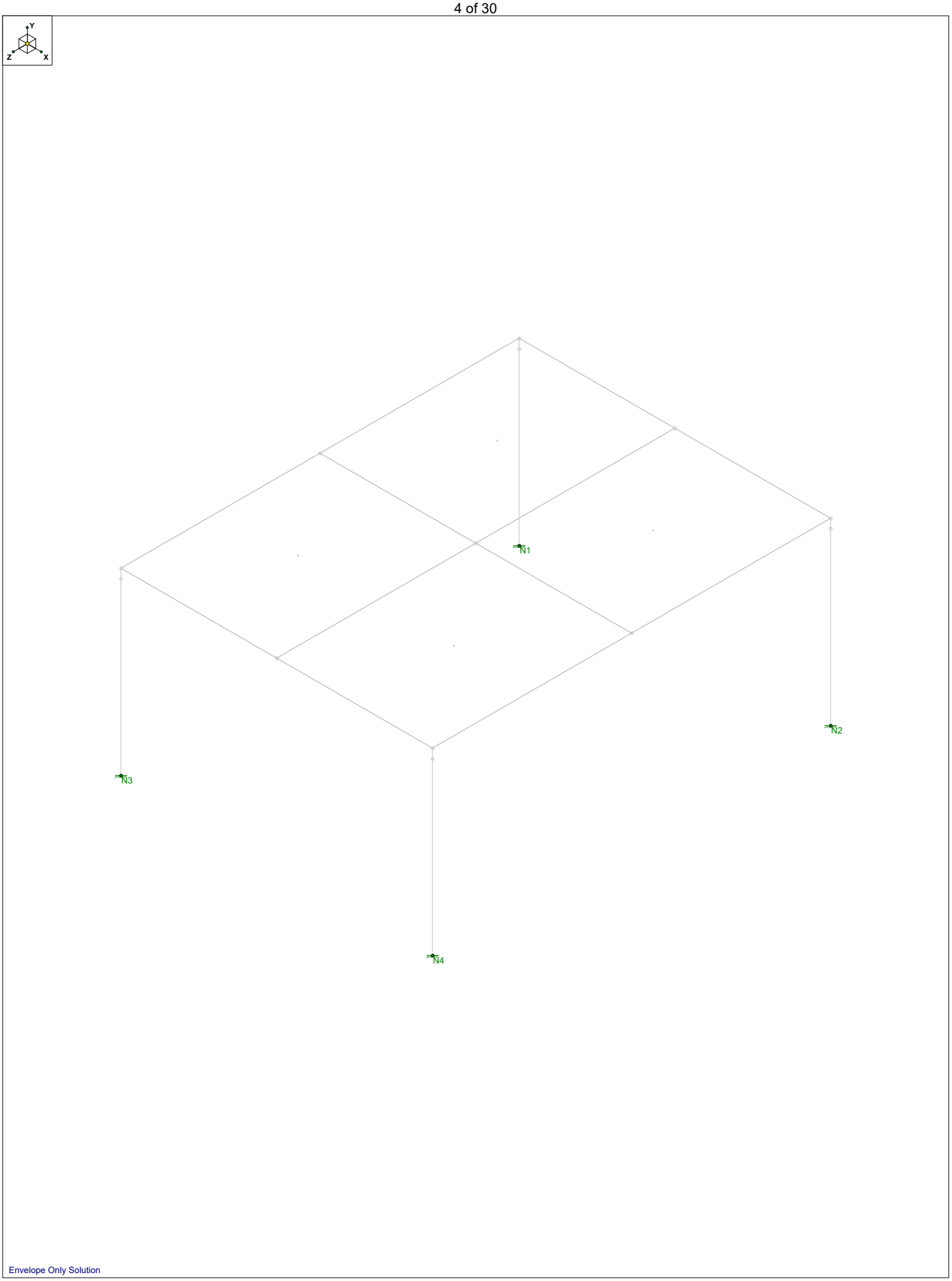

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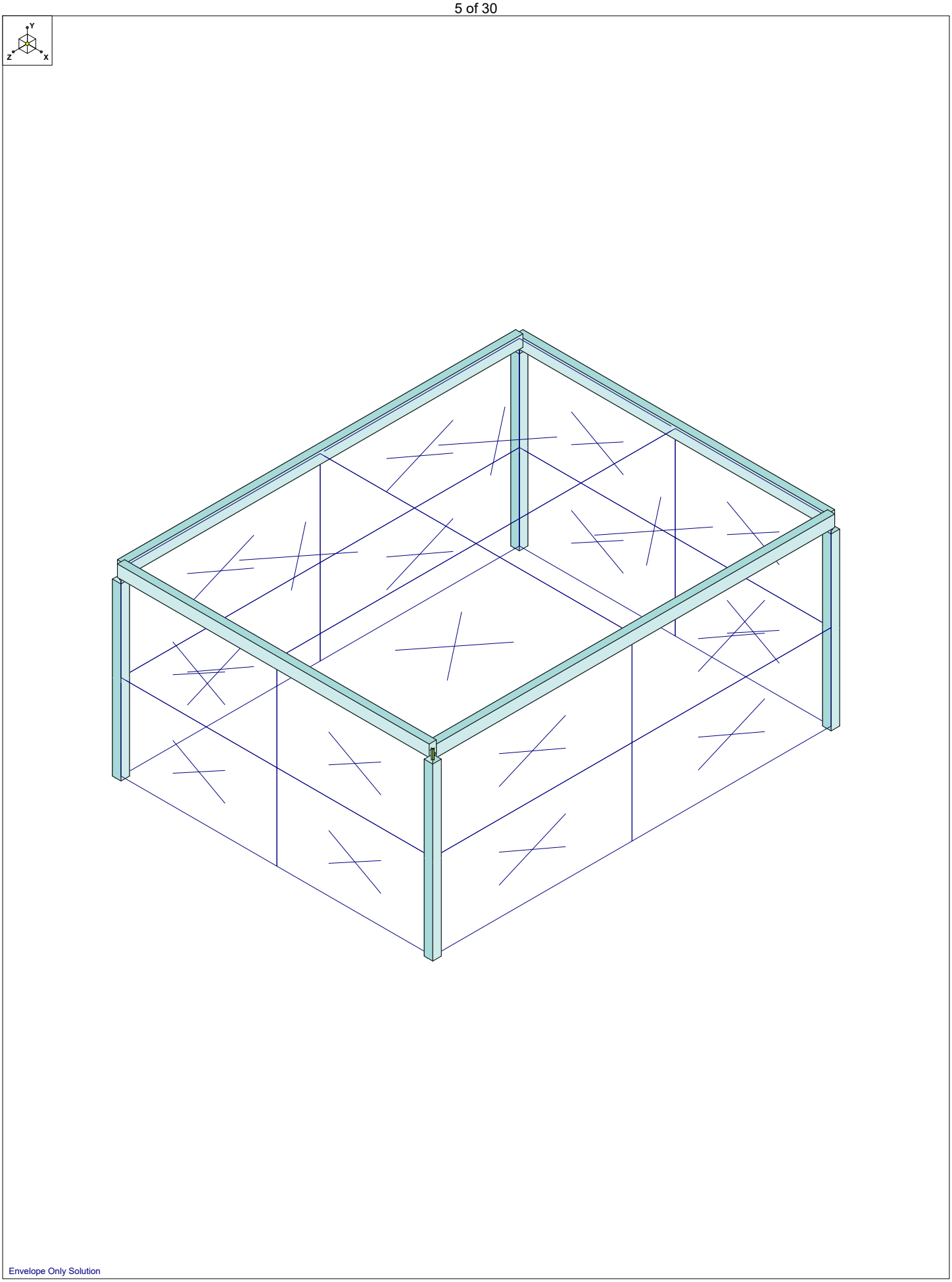

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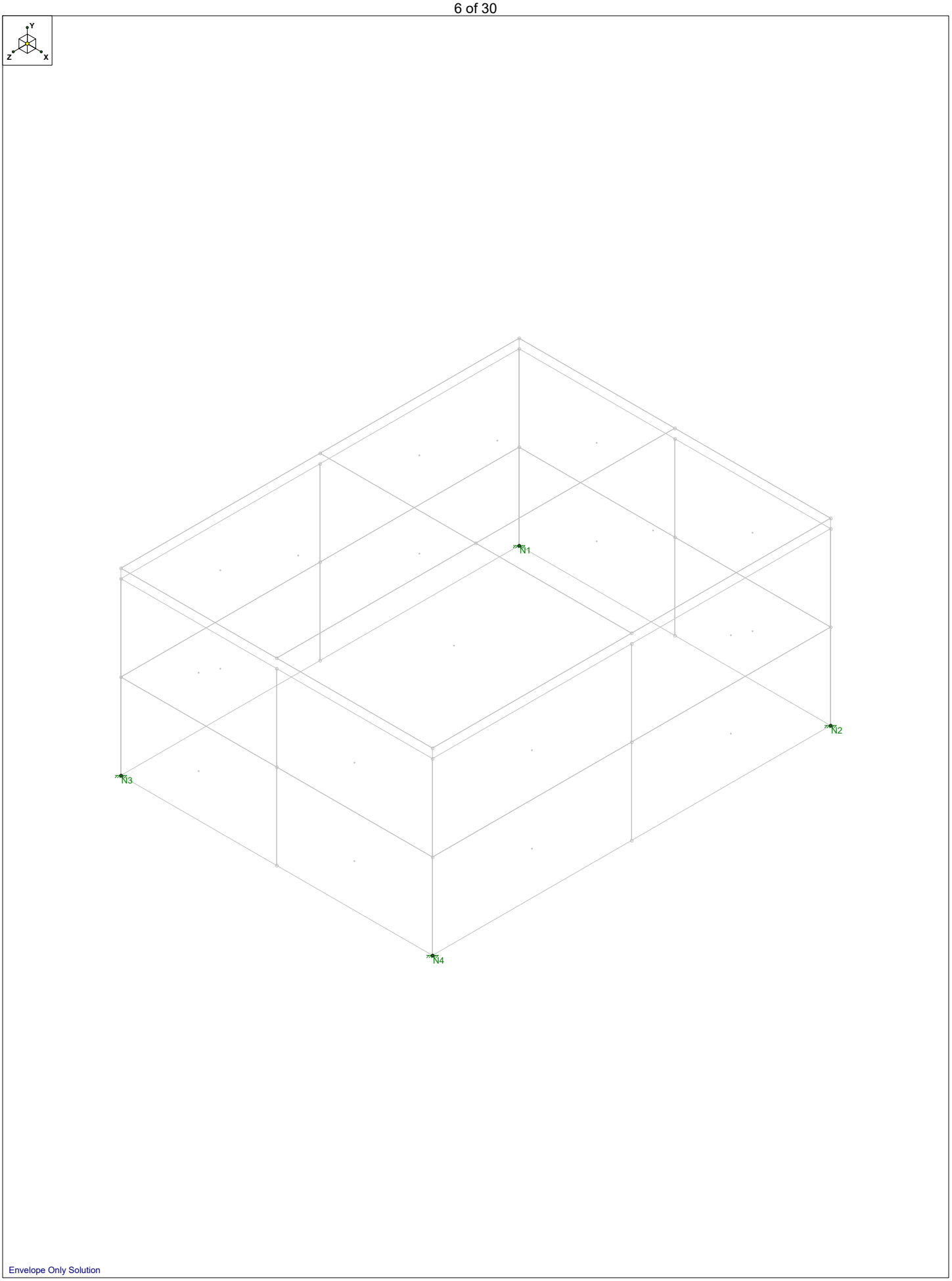

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SULLAWAY ENGINEERING
10815 Rancho Bernardo RD., SD, CA 92127
projectmanager@sullawayeng.com
Phone: 858-312-5150 Fax: 858-777-3534

PROJECT: NOMO CANOPY
PROJ. NO.: 13264A
CLIENT: SUNAIR AWNINGS
DATE: 1/16/2017
ENGINEER: MV

building code; CBC 2013
units; pounds, feet unless noted otherwise

Applied Wind Loads; from ASCE 7-10

$qz = 0.00256\ KzKztKdV^2$ (ASCE eq'n. 27.3-1)

qz = 41.62 psf

$p = qzGC_p$

Valence Pressure = 28.30 psf

Kd =	0.85		(sec. 26.6)
Kz =	0.85		(Table 27.3-1)
Kzt =	1		(sec. 26.8)
V =	150	mph	
θ =	0.00	°	
Cp =	0.80		(Table 26.11)
G =	0.85		(Sec. 26.9)

Roof: Mono

γ = 0° wind: clr

	C_{NW} =	p =	C_{NL} =	p =
Case A	1.20	42.45	0.30	10.61
Case B	-1.10	-38.91	-0.10	-3.54

γ = 180° wind: clr

	C_{NW} =	p =	C_{NL} =	p =
Case A	1.20	42.45	0.30	10.61
Case B	-1.10	-38.91	-0.10	-3.54

γ = 90°

		C_N =	p =
≤ h	Case A	-0.8	-28.30
	Case B	0.8	28.30
<h, ≤ 2h	Case A	-0.6	-21.22
	Case B	0.5	17.69
> 2h	Case A	-0.3	-10.61
	Case B	0.3	10.61

Check column to guide connection - (4) 1/4" screws

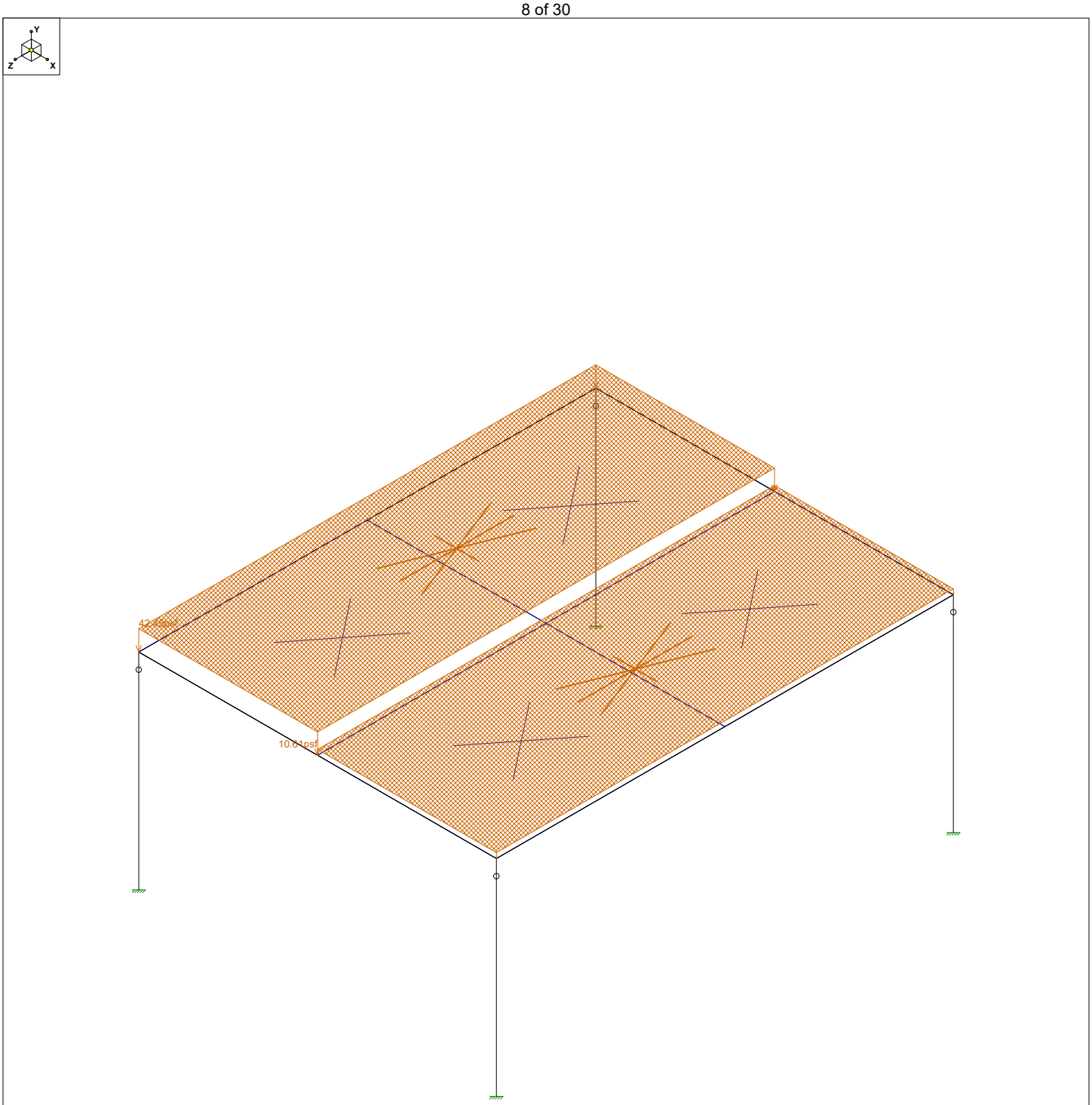
FY =	2843.6 lbs	d =	0.25 in
FZ =	283.4 lbs	Fu =	100 ksi
FX =	280.4 lbs	Fnt =	75 ksi
		Fnv =	45 ksi
T = FY / 4 =	710.9 lbs	A =	0.05 in^2
$V = (FZ^2 + FX^2)^{1/2} / 4$ =	99.67 lbs	ϕ =	0.75

Tcap = ϕ Fnt A = 2761 lbs OK
Vcap = ϕ Fnv A = 1657 lbs OK

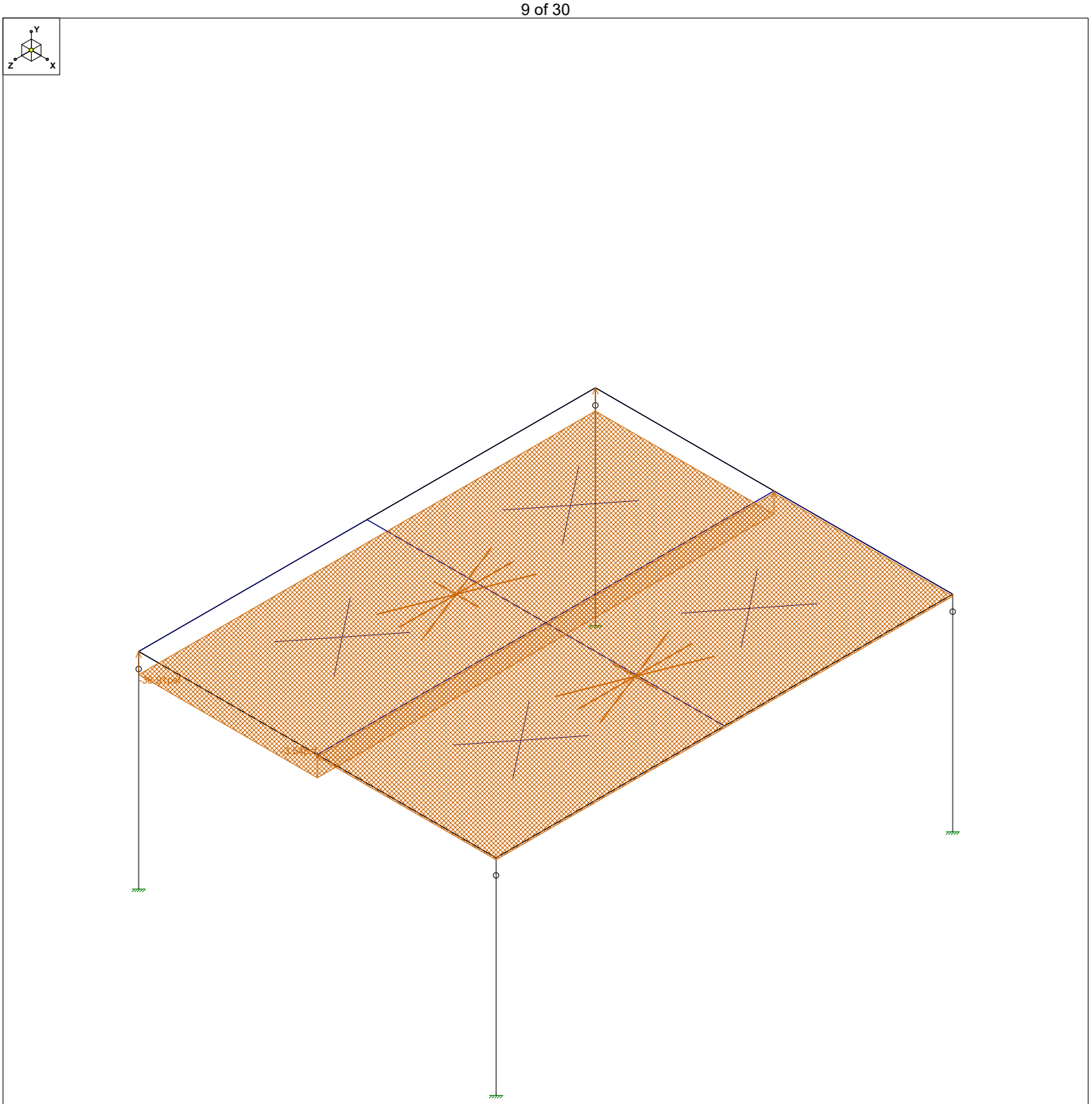
Check guide to crossbar - (4) 5/16" screws

FX =	126.7 lbs	d =	0.31 in
FY =	1321 lbs	A =	0.08 in^2
FZ =	32 lbs	s =	7.625 in
Mz =	4.2 k-ft	Fu =	100 ksi
		Fnt =	75 ksi
		Fnv =	45 ksi
		ϕ =	0.75
$T = FX / 4 + Mz / s / 2$ =	3337 lbs		
$V = (FZ^2 + FY^2)^{1/2} / 4$ =	330 lbs		

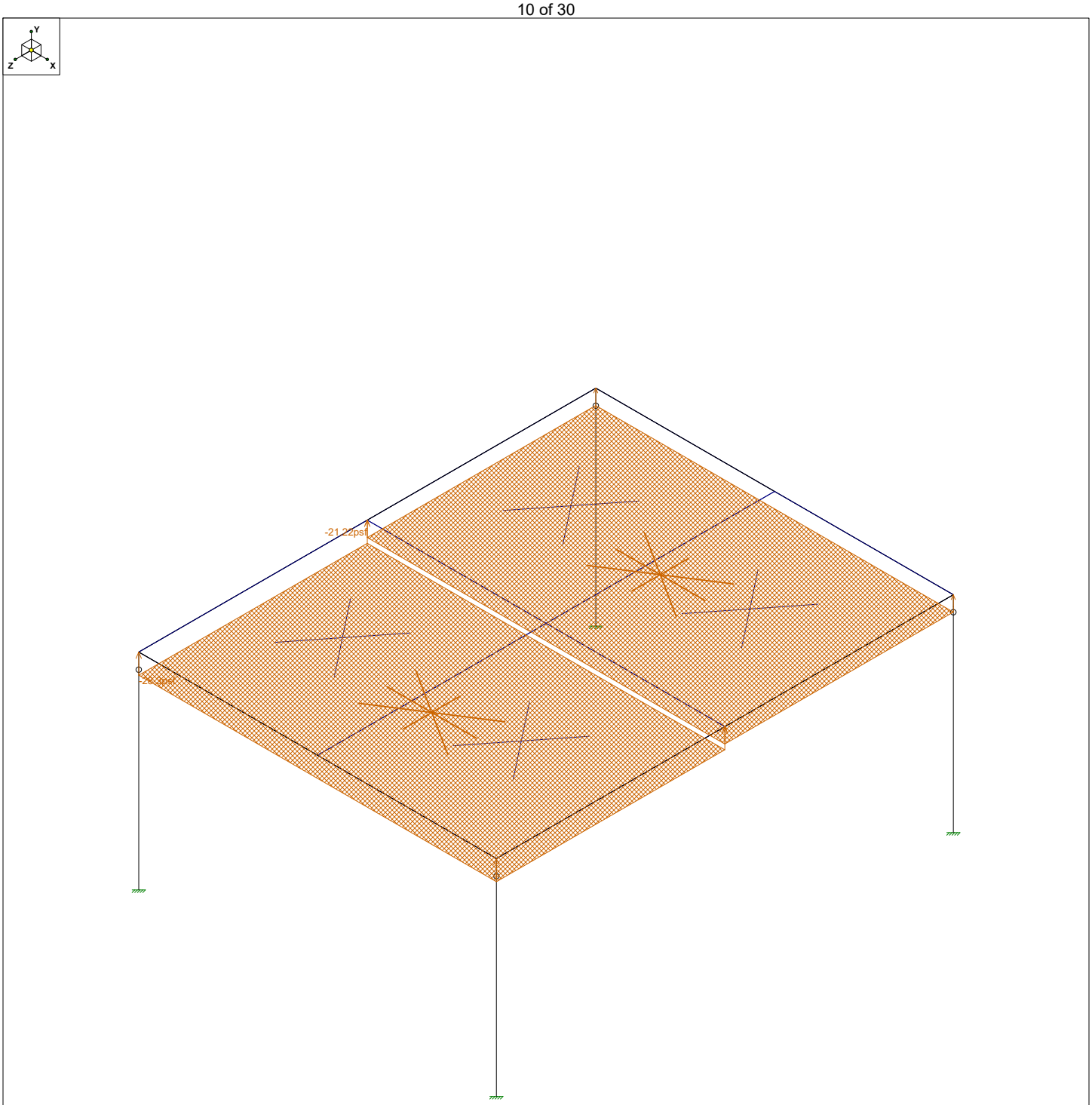
Tcap = ϕ Fnt A = 4314 lbs OK
Vcap = ϕ Fnv A = 2589 lbs OK



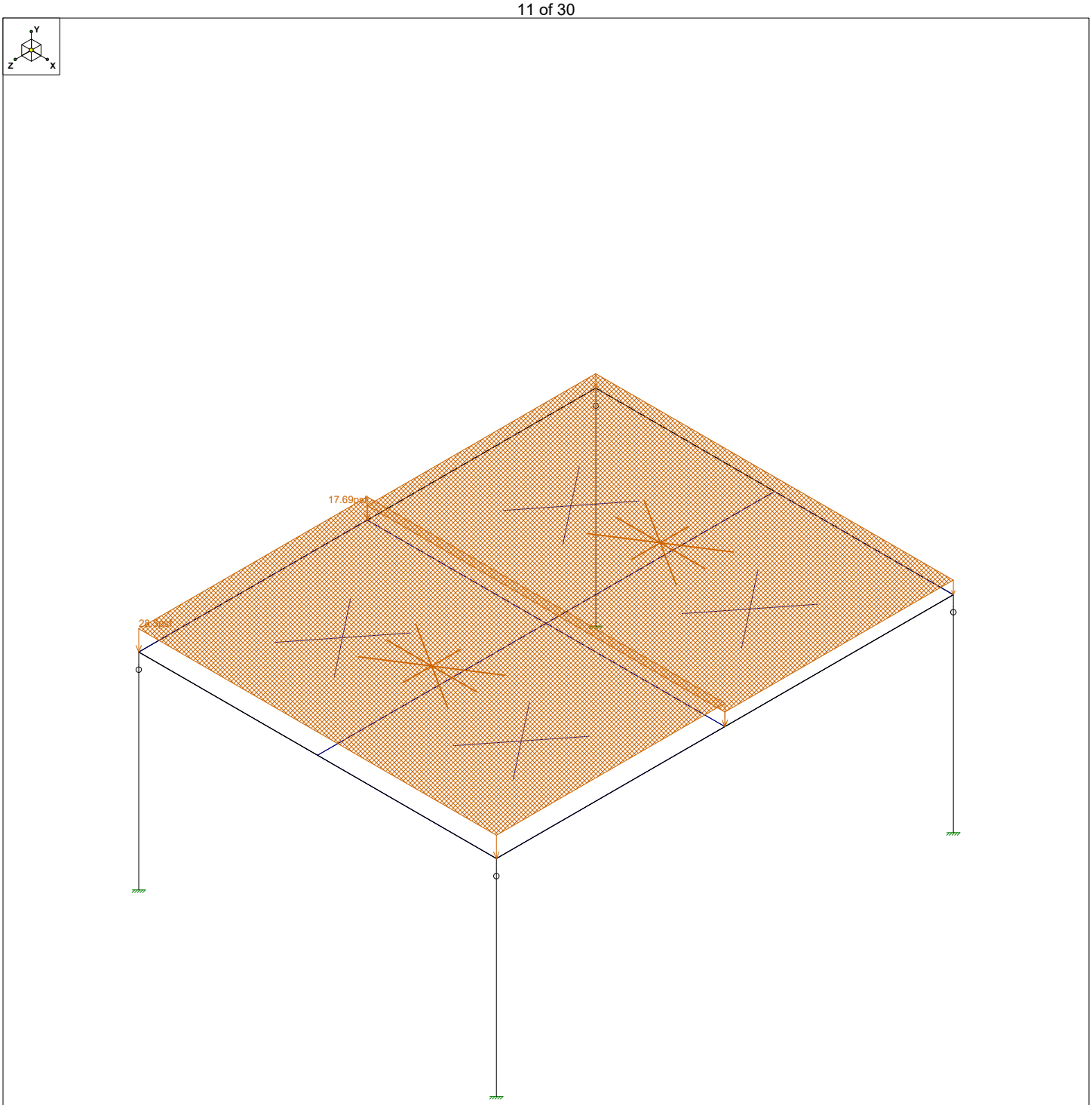
Loads: BLC 2, W1
Envelope Only Solution



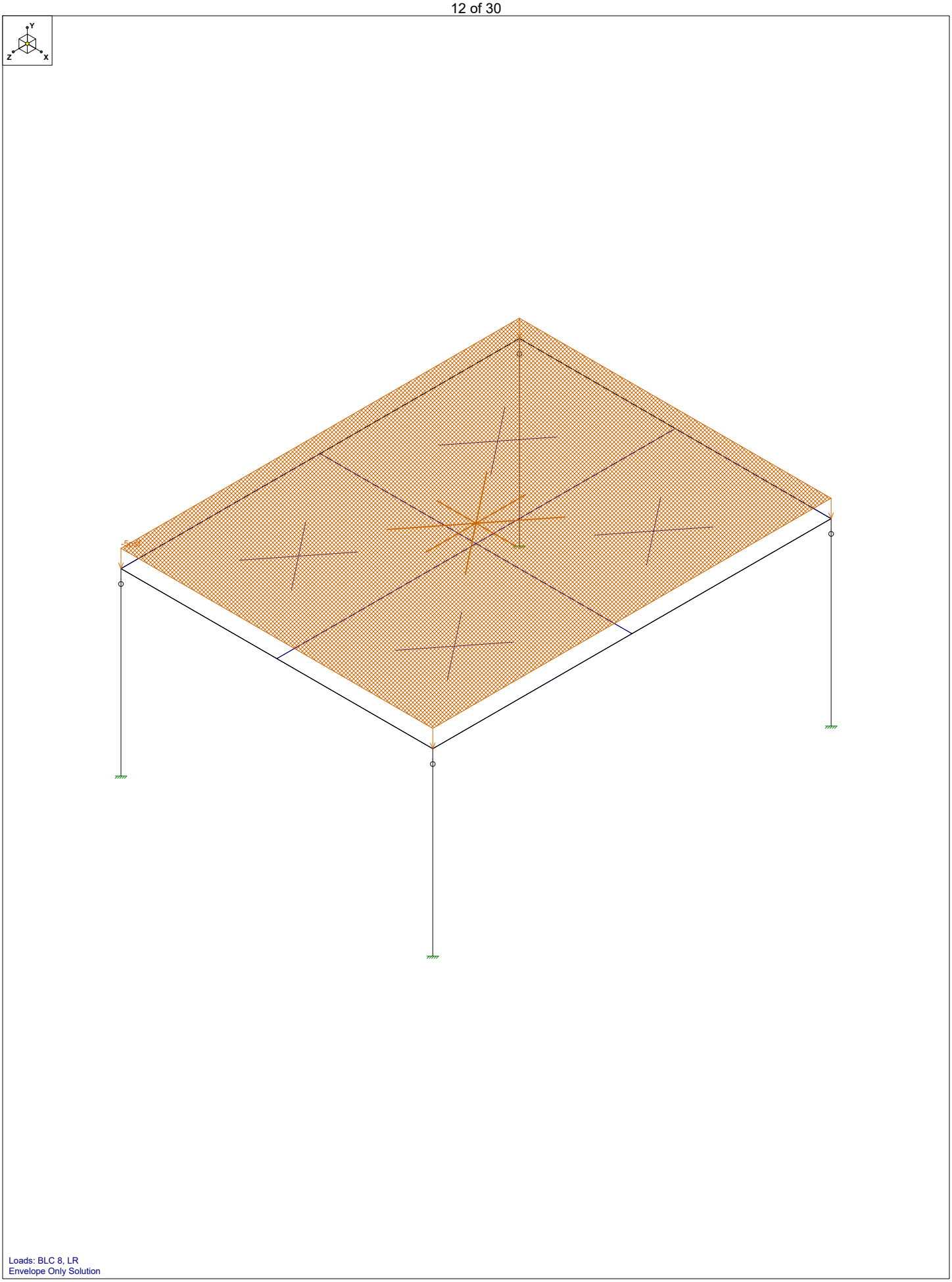
Loads: BLC 3, W2
Envelope Only Solution



Loads: BLC 4, W3
Envelope Only Solution



Loads: BLC 5, W4
Envelope Only Solution



Loads: BLC 8, LR
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SULLAWAY ENGINEERING
10815 Rancho Bernardo RD., SD, CA 92127
projectmanager@sullawayeng.com
Phone: 858-312-5150 Fax: 858-777-3534

PROJECT: RIALTO CANOPY DATE: 1/16/2017
PROJ. NO.: 13264B ENGINEER: MV
CLIENT: SUNAIR AWNINGS

building code; CBC 2013 units; pounds, feet unless noted otherwise

Applied Wind Loads; from ASCE 7-10

$qz = 0.00256\ KzKztKdV^2$ (ASCE eq'n. 27.3-1)

qz = 53.45 psf
24.46

P = qGCp - q(GCpi)

(GCpi) = 0.18 -0.18

Kd =	0.85	(sec. 26.6)
Kz =	0.85	(Table 27.3-1)
Kzt =	1	(sec. 26.8)
V =	170 mph	
θ =	0.00 °	
Cp =	0.80	(Table 26.11)
G =	0.85	(Sec. 26.9)

γ = 0°, 90°		C_p =	+ GCpi	- GCpi
≤ h	Case A	-0.9	-31.27	-50.51
	Case B	-0.18	1.44	-17.80
<h, ≤ 2h	Case A	-0.5	-13.10	-32.34
	Case B	-0.18	1.44	-17.80
> 2h	Case A	-0.3	-4.01	-23.25
	Case B	-0.18	1.44	-17.80

	Cp	+ GCpi	- GCpi
Windward	0.8	45.97	26.73
Leeward	-0.5	-13.10	-32.34
Sides	-0.7	-22.18	-41.43

Check column to guide connection - (4) 5/16" screws

FY = 4835 lbs
FZ = 4881 lbs
FX = 4076 lbs

T = FY / 4 = 1208.8 lbs
$V = (FZ^2 + FX^2)^{1/2} / 4$ = 1589.8 lbs

Tcap = ϕ Fnt A = 2959 lbs OK
Vcap = ϕ Fnv A = 2589 lbs OK

d = 0.31 in
Fu = 100 ksi
Fnt = 51.4 ksi
Fnv = 45 ksi
A = 0.08 in^2
ϕ = 0.75

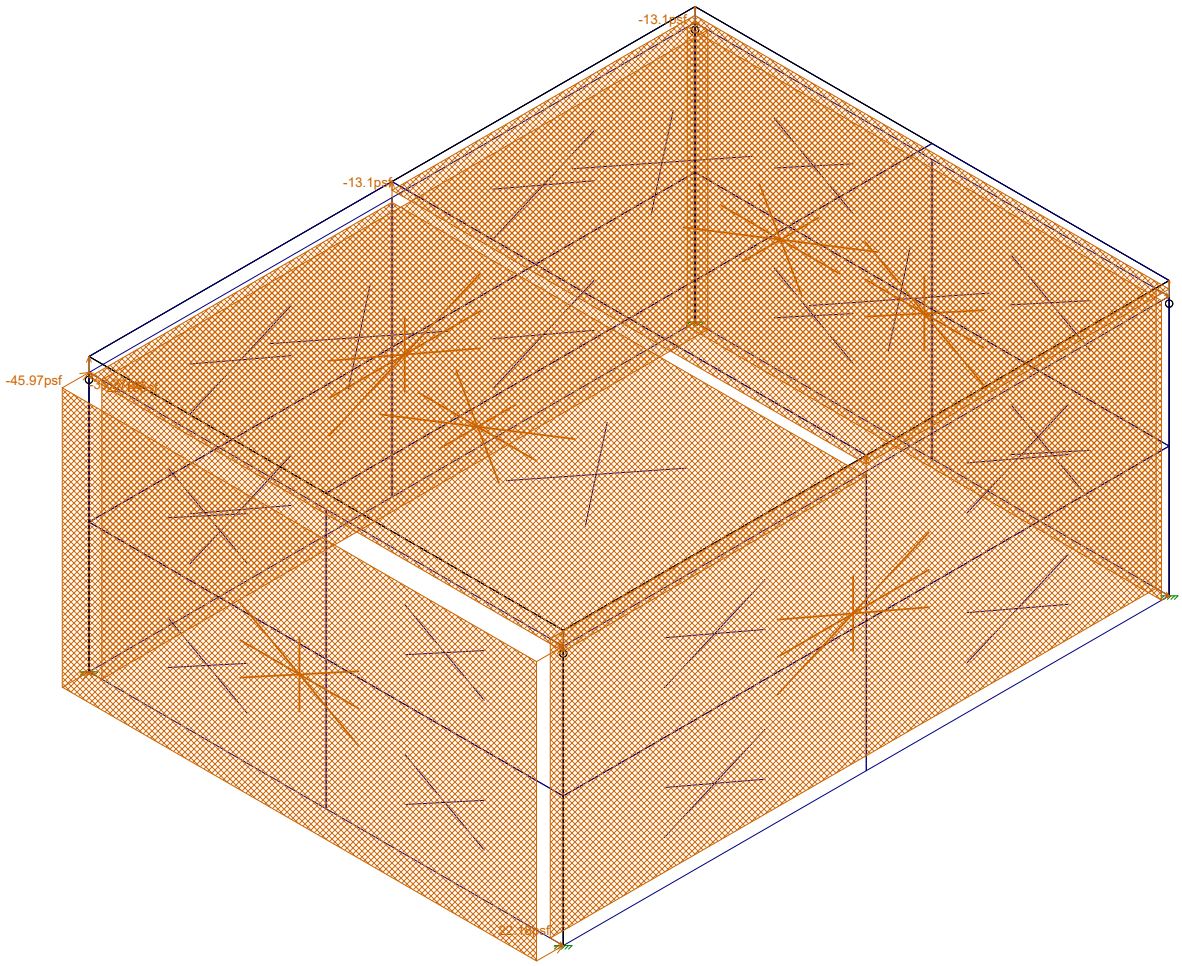
Check guide to crossbar - (4) 1/4" screws

FX = 4026 lbs
FY = 1414 lbs
FZ = 1346 lbs
Mz = 1.2 k-ft

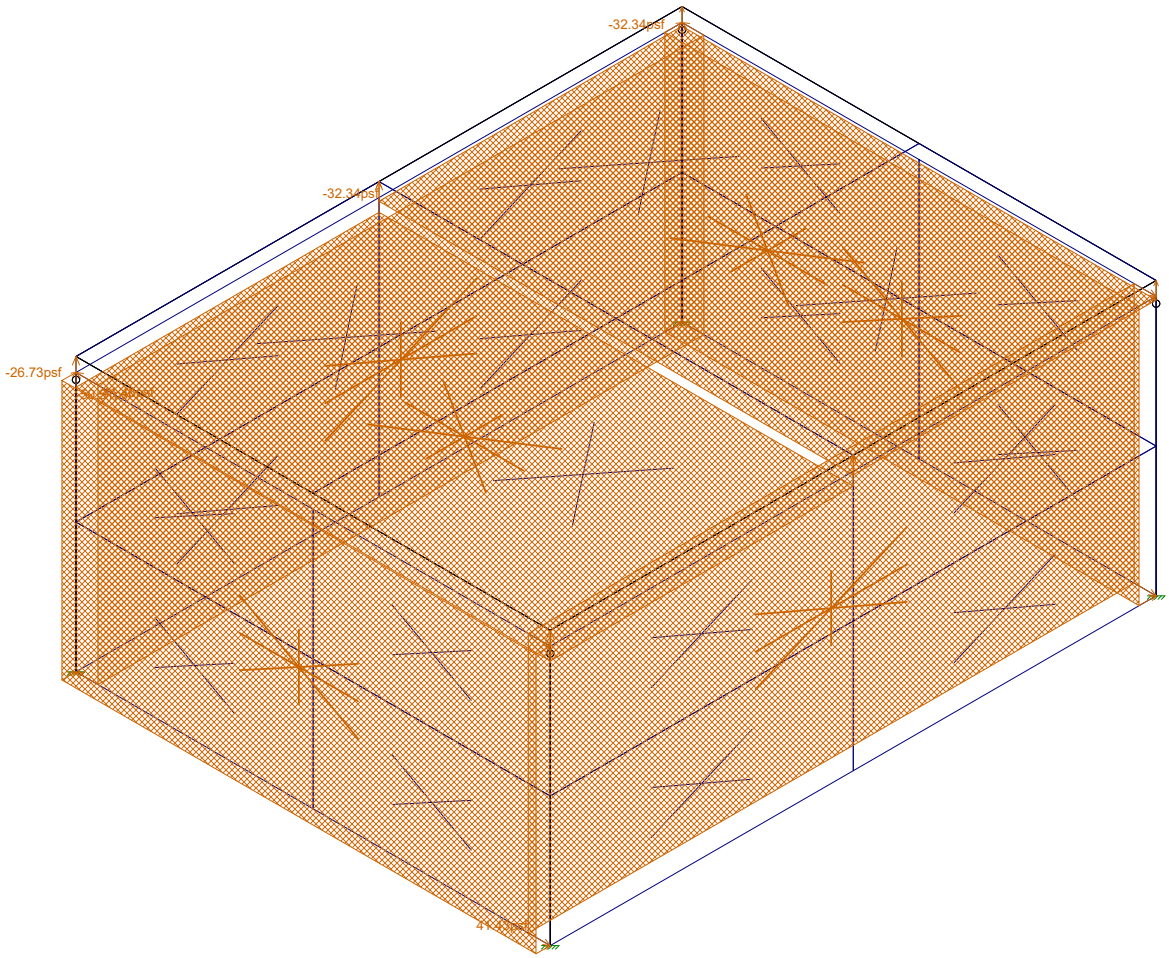
T = FX / 4 + Mz / s / 2 = 1951 lbs
$V = (FZ^2 + FY^2)^{1/2} / 4$ = 488 lbs

Tcap = ϕ Fnt A = 2391 lbs OK
Vcap = ϕ Fnv A = 1479 lbs OK

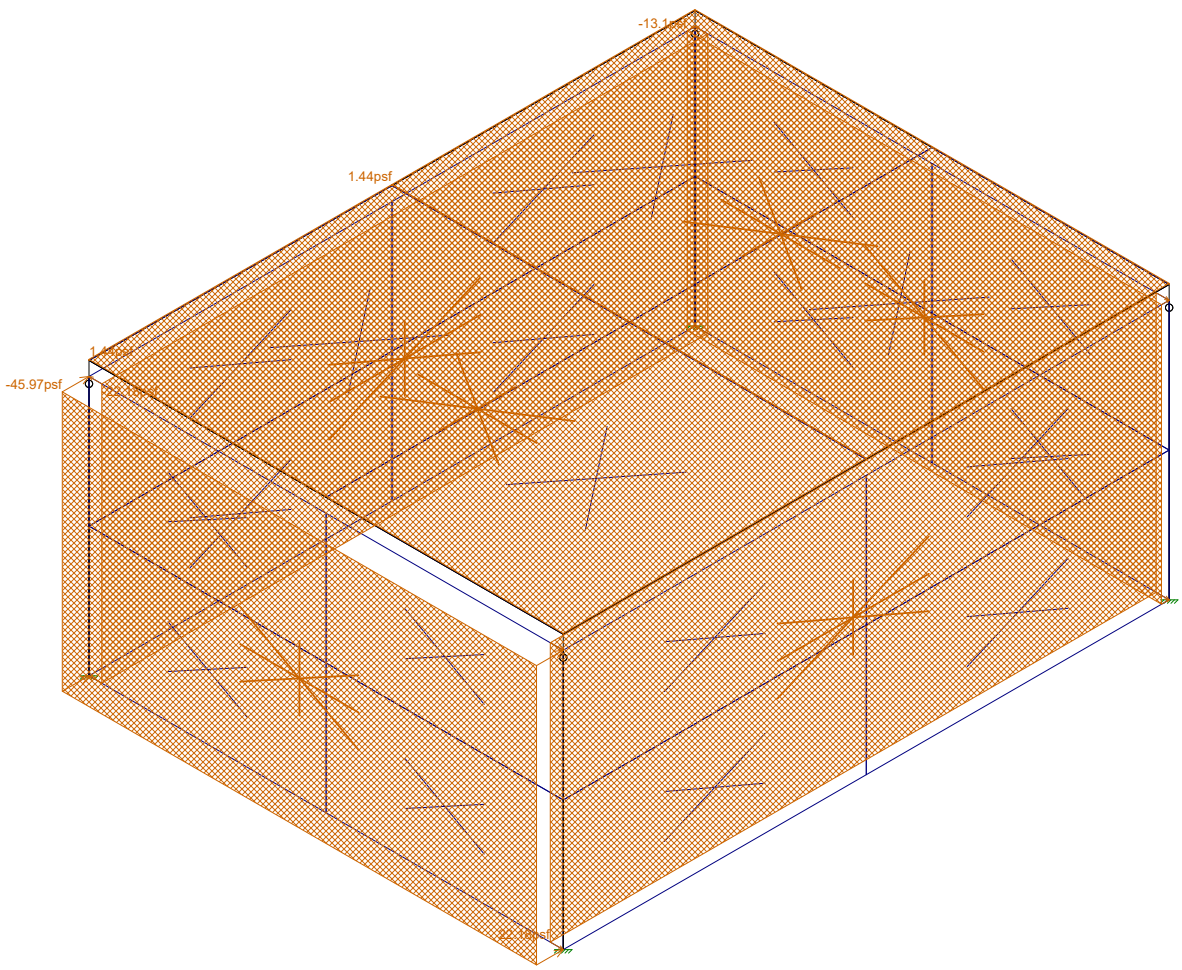
d = 0.24 in
A = 0.04 in^2
s = 7.625 in
Fu = 100 ksi
Fnt = 72.75 ksi
Fnv = 45 ksi
ϕ = 0.75



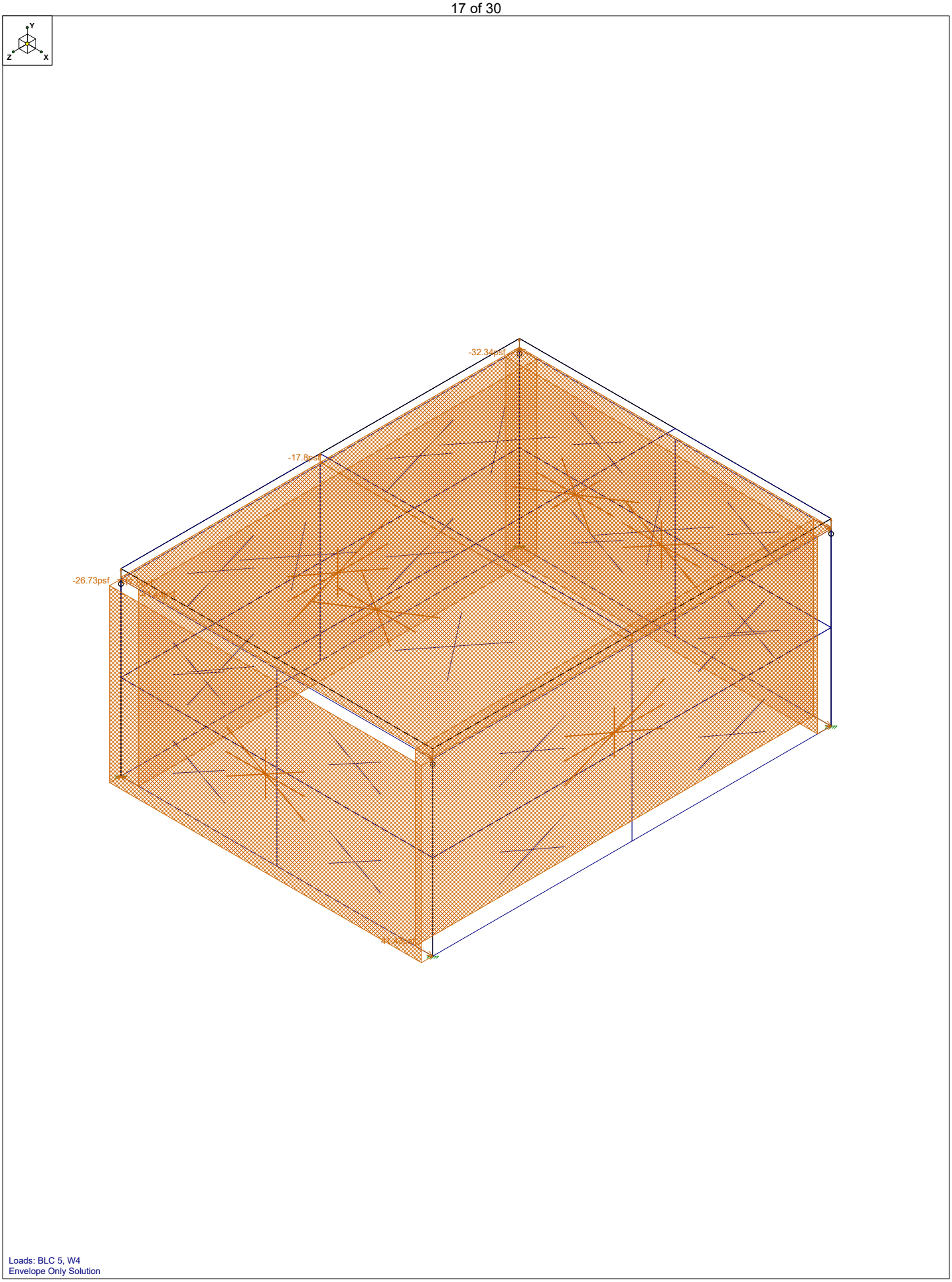
Loads: BLC 2, W1
Envelope Only Solution



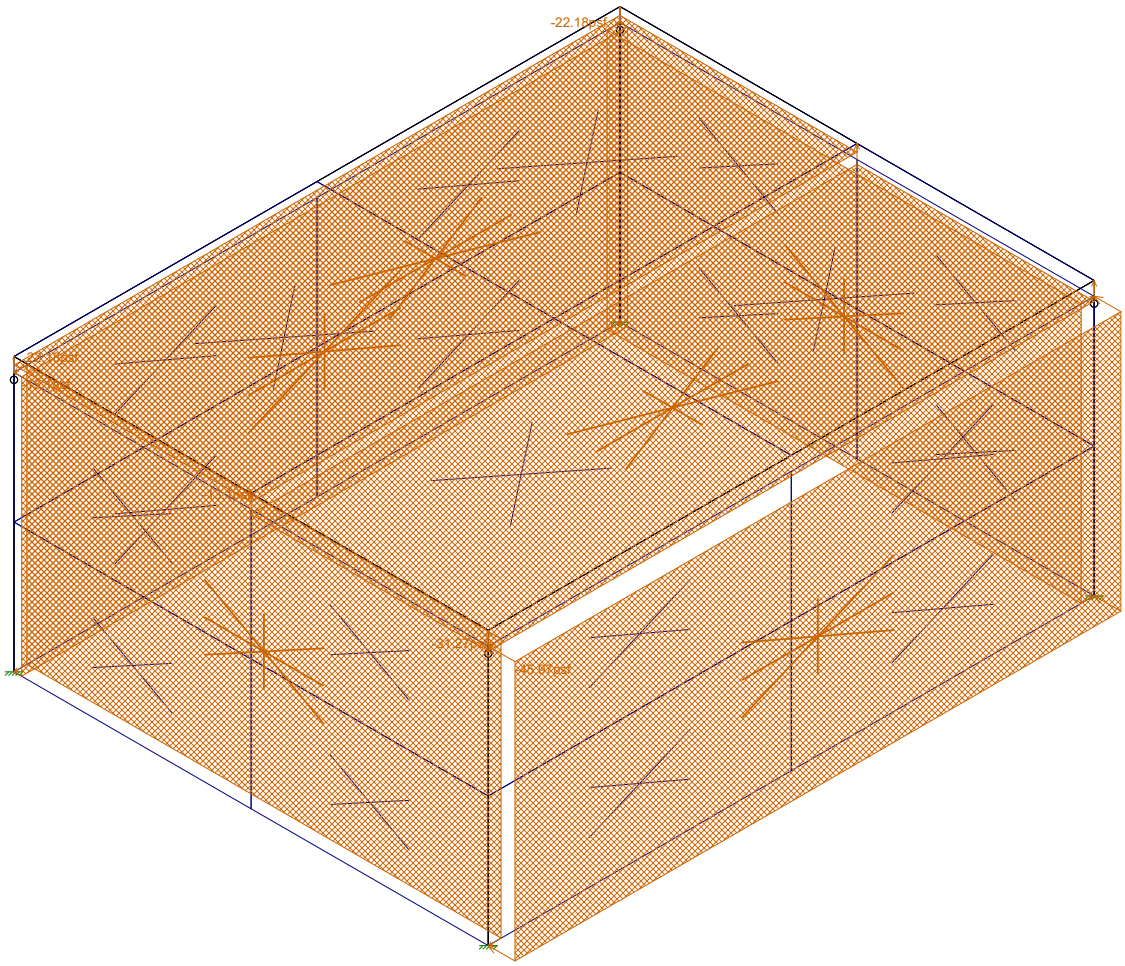
Loads: BLC 3, W2
Envelope Only Solution



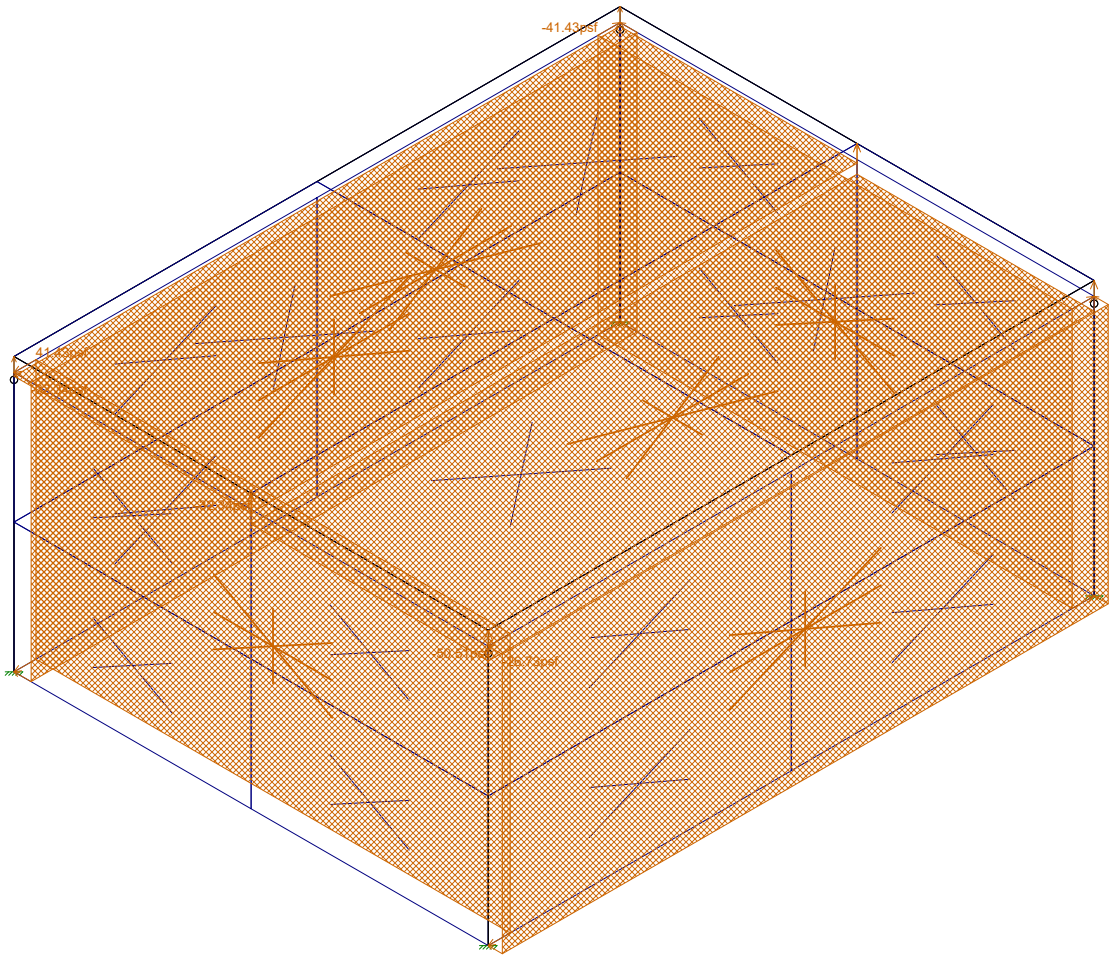
Loads: BLC 4, W3
Envelope Only Solution



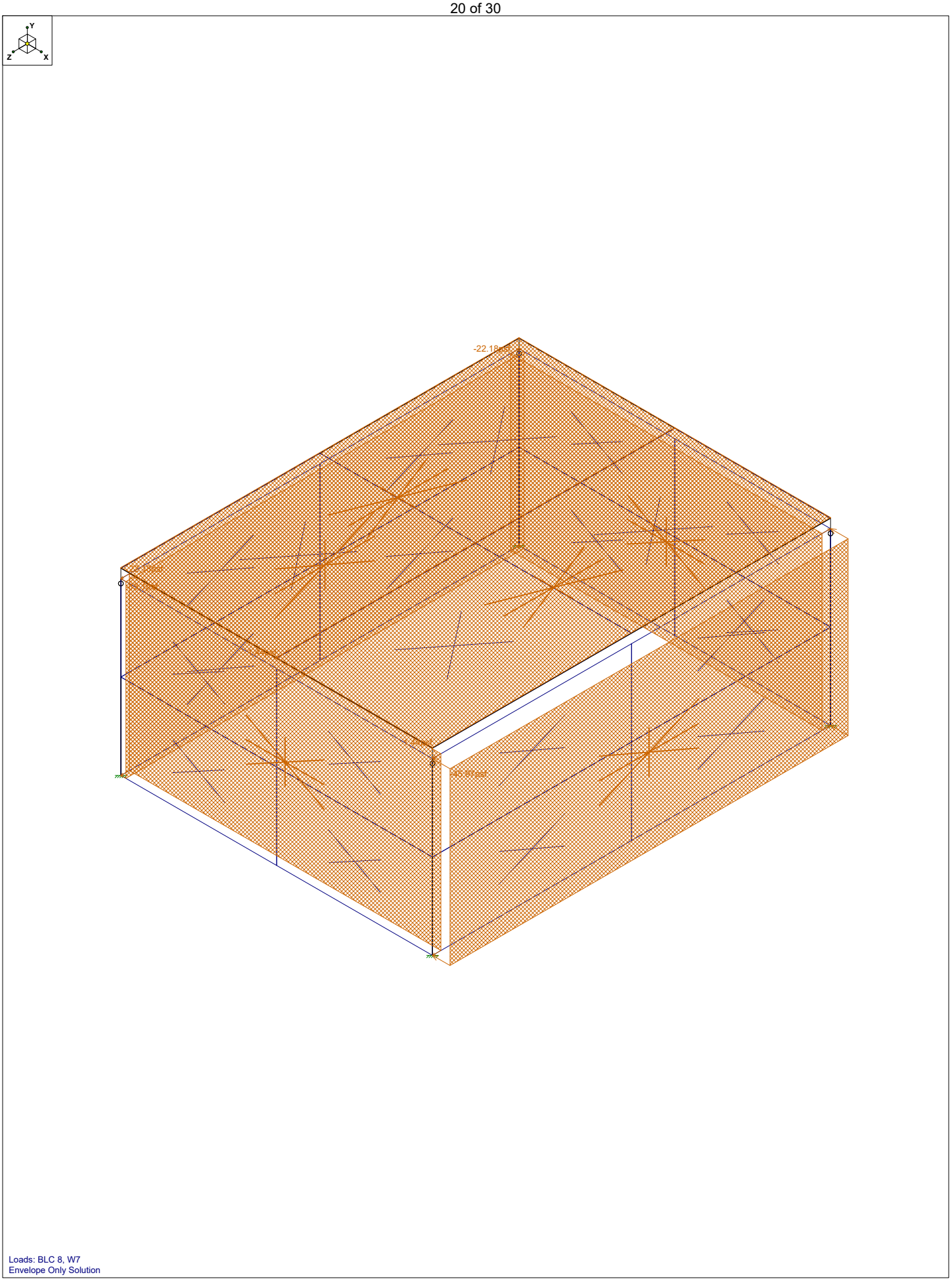
Loads: BLC 5, W4
Envelope Only Solution



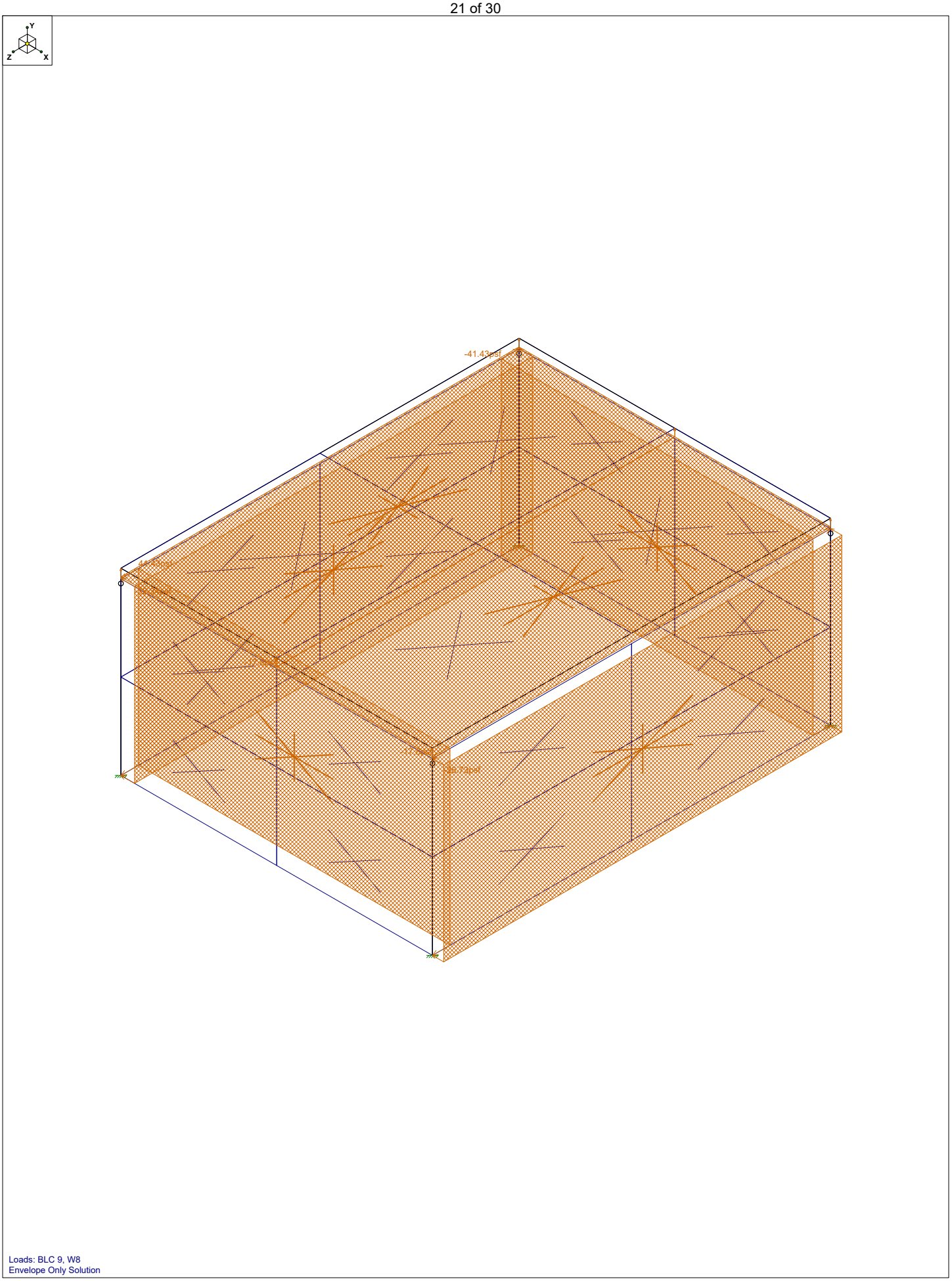
Loads: BLC 6, W5
Envelope Only Solution



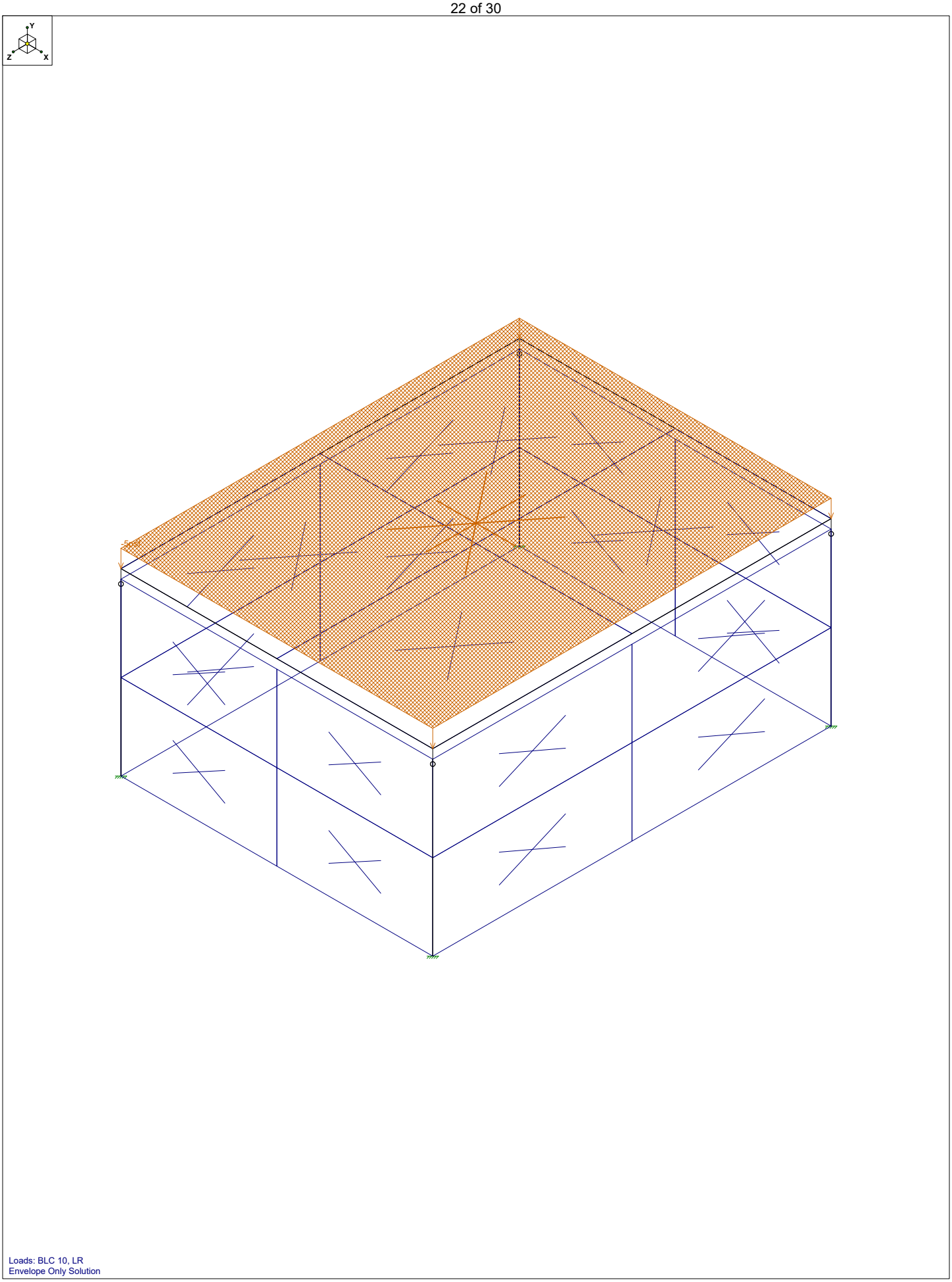
Loads: BLC 7, W6
Envelope Only Solution



Loads: BLC 8, W7
Envelope Only Solution



Loads: BLC 9, W8
Envelope Only Solution



Loads: BLC 10, LR
Envelope Only Solution

SULLAWAY ENGINEERING
10815 Rancho Bernardo RD., SD, CA 92127
projectmanager@sullawayeng.com
Phone: 858-312-5150 Fax: 858-777-3534

PROJECT: NOMO CANOPY | DATE: 1/16/2017
PROJ. NO.: 13264A | ENGINEER: MV
CLIENT: SUNAIR AWNINGS

building code; CBC 2013 | units; pounds, feet unless noted otherwise

Check 5/8" thru-bolts

RX =	601.00 LBS	MX =	9.63 K-FT	s =	7.48 in
RY =	5832.0 LBS	MZ =	5.94 K-FT	ϕ =	0.75
RZ =	3557 LBS	(from different load combos)		F_{nt} =	45 ksi
				F'_{nt} =	45 ksi
$T = RY / 4 + MX / s / 2$ =		9.18 k		F_{nv} =	27 ksi
$V = (RX^2 + RZ^2)^{1/2} / 4$ =		0.9 k		d_b =	0.625 in
				A_b =	0.307 in^2
$T_{cap} = \varphi F'_{nt} A_{bolt}$ =		10.4 k	OK		
$V_{cap} = \varphi F_{nv} A_{bolt}$ =		6.21 k	OK		

Check 9"x9"x0.375" base plate

Mp = 2 * T * arm =	6.89 k-in	arm =	0.375 in	
$Z = bt^2/4$ =	0.26 in^3	b =	7.5 in	
$\phi Mn = \phi Fy Z$ =	8.54 k-in	t =	0.375 in	
		ϕ =	0.9	
		Fy =	36 ksi	

Aluminum Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\..	Density[lb/ft^3]	Table B.4	kt	Ftu[psi]	Fty[psi]	Fcy[psi]	Fsu[psi]	Ct
1	3003-H14	10100	3787.5	.33	1.3	172.8	Table B.4-1	1	19000	16000	13000	12000	141
2	6061-T6	10100	3787.5	.33	1.3	172.8	Table B.4-2	1	38000	35000	35000	24000	141
3	6063-T5	10100	3787.5	.33	1.3	172.8	Table B.4-2	1	22000	16000	16000	13000	141
4	6063-T6	10100	3787.5	.33	1.3	172.8	Table B.4-2	1	30000	25000	25000	19000	141
5	5052-H34	10200	3787.5	.33	1.3	172.8	Table B.4-1	1	34000	26000	24000	20000	141
6	6061-T6 W	10100	3787.5	.33	1.3	172.8	Table B.4-1	1	24000	15000	15000	15000	141
7	6060-T6	10100	3787.5	.33	1.3	172.8	Table B.4-1	1	25000	20000	20000	15000	141

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Column	nomo column	Column	A-N Wide Flange	6060-T6	Typical	3.842	14.269	19.837	24.075
2	Guide / Crossbar	nomo crossb..	Beam	Rectangular Tubes	6060-T6	Typical	5.506	14	46.109	29.534

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Member)	Surface...
1	D	DL		-1						
2	W1	WL							2	
3	W2	WL							2	
4	W3	WL							2	
5	W4	WL							2	
6	W5	WL								
7	W6	WL								
8	LR	RLL							1	
9	SL	SL								
10	Ex	EL	1.24							
11	Ez	EL			1.24					
12	BLC 8 Transient A...	None						76		
13	BLC 2 Transient A...	None						88		
14	BLC 3 Transient A...	None						88		
15	BLC 4 Transient A...	None						80		
16	BLC 5 Transient A...	None						80		

Load Combinations

	Description	Sol...	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4D	Yes	Y		1	1.4														
2	1.2D+0.5Lr	Yes	Y		1	1.2	8	.5												
3	1.2D+0.5S	Yes	Y		1	1.2	9	.5												
4	1.2D+1.6Lr+0.5W1	Yes	Y		1	1.2	8	1.6	2	.5										
5	1.2D+1.6Lr+0.5W2	Yes	Y		1	1.2	8	1.6	3	.5										
6	1.2D+1.6Lr+0.5W3	Yes	Y		1	1.2	8	1.6	4	.5										
7	1.2D+1.6Lr+0.5W4	Yes	Y		1	1.2	8	1.6	5	.5										
8	1.2D+1.6Lr+0.5W5	Yes	Y		1	1.2	8	1.6	6	.5										
9	1.2D+1.6Lr+0.5W6	Yes	Y		1	1.2	8	1.6	7	.5										
10	1.2D+1.6SL+0.5W1	Yes	Y		1	1.2	9	1.6	2	.5										
11	1.2D+1.6SL+0.5W2	Yes	Y		1	1.2	9	1.6	3	.5										
12	1.2D+1.6SL+0.5W3	Yes	Y		1	1.2	9	1.6	4	.5										
13	1.2D+1.6SL+0.5W4	Yes	Y		1	1.2	9	1.6	5	.5										
14	1.2D+1.6SL+0.5W5	Yes	Y		1	1.2	9	1.6	6	.5										
15	1.2D+1.6SL+0.5W6	Yes	Y		1	1.2	9	1.6	7	.5										
16	1.2D+1.0W1+0.5Lr	Yes	Y		1	1.2	2	1	8	.5										
17	1.2D+1.0W2+0.5Lr	Yes	Y		1	1.2	3	1	8	.5										
18	1.2D+1.0W3+0.5Lr	Yes	Y		1	1.2	4	1	8	.5										
19	1.2D+1.0W4+0.5Lr	Yes	Y		1	1.2	5	1	8	.5										
20	1.2D+1.0W5+0.5Lr	Yes	Y		1	1.2	6	1	8	.5										

Load Combinations (Continued)

	Description	Sol...	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
21	1.2D+1.0W6+0.5Lr	Yes	Y		1	1.2	7	1	8	.5										
22	1.2D+1.0W1+0.5SL	Yes	Y		1	1.2	2	1	9	.5										
23	1.2D+1.0W2+0.5SL	Yes	Y		1	1.2	3	1	9	.5										
24	1.2D+1.0W3+0.5SL	Yes	Y		1	1.2	4	1	9	.5										
25	1.2D+1.0W4+0.5SL	Yes	Y		1	1.2	5	1	9	.5										
26	1.2D+1.0W5+0.5SL	Yes	Y		1	1.2	6	1	9	.5										
27	1.2D+1.0W6+0.5SL	Yes	Y		1	1.2	7	1	9	.5										
28	1.2D+0.2S	Yes	Y		1	1.2	9	.2												
29	0.9D+1.0W1	Yes	Y		1	.9	2	1												
30	0.9D+1.0W2	Yes	Y		1	.9	3	1												
31	0.9D+1.0W3	Yes	Y		1	.9	4	1												
32	0.9D+1.0W4	Yes	Y		1	.9	5	1												
33	0.9D+1.0W5	Yes	Y		1	.9	6	1												
34	0.9D+1.0W6	Yes	Y		1	.9	7	1												
35	1.2D + 1.0Ex	Yes	Y		1	1.2	10	1												
36	1.2D - 1.0Ex	Yes	Y		1	1.2	10	-1												
37	1.2D + 1.0Ez	Yes	Y		1	1.2	11	1												
38	1.2D - 1.0Ez	Yes	Y		1	1.2	11	-1												

Member Area Loads (BLC 2 : W1)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N7	N5	N12	N10	z	Two Way	42.45
2	N10	N12	N6	N8	z	Two Way	10.61

Member Area Loads (BLC 3 : W2)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N7	N5	N12	N10	z	Two Way	-38.91
2	N10	N12	N6	N8	z	Two Way	-3.54

Member Area Loads (BLC 4 : W3)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N7	N9	N11	N8	z	Two Way	-28.3
2	N9	N5	N6	N11	z	Two Way	-21.22

Member Area Loads (BLC 5 : W4)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N7	N9	N11	N8	z	Two Way	28.3
2	N9	N5	N6	N11	z	Two Way	17.69

Member Area Loads (BLC 8 : LR)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N7	N5	N6	N8	V	Two Way	-5

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N3	max	337.0848	36	4521.1571	16	330.0525	38	2.996	38	.01	35	3.038	35
2		min	-333.3638	35	-3280.274	30	-340.3986	37	-3.1009	37	-.01	36	-3.0791	36
3	N1	max	337.0848	36	4521.1572	16	340.3986	38	3.1009	38	.01	36	3.038	35
4		min	-333.3638	35	-3280.274	30	-330.0525	37	-2.996	37	-.01	35	-3.0791	36
5	N2	max	333.3638	36	2628.8625	19	340.3986	38	3.1009	38	.01	36	3.0791	35
6		min	-337.0848	35	-2095.5103	31	-330.0525	37	-2.996	37	-.01	35	-3.038	36
7	N4	max	333.3638	36	3297.4198	19	330.0525	38	2.996	38	.01	35	3.0791	35
8		min	-337.0848	35	-2543.1965	31	-340.3986	37	-3.1009	37	-.01	36	-3.038	36
9	Totals:	max	1340.8973	36	13316.0544	16	1340.9023	38						

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
10		min	-1340.8973	35	-9277.4136	31	-1340.9022	37						

Envelope AA ADM1-10: LRFD - Building Aluminum Code Checks

	Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc...	phi*Pnt[...	phi*Mn...	phi*Mn...	phi*Vny...	phi*Vnz...	Cb	Eqn
1	M1	nomo col...	.593	0	36	.025	0	z	36	43148....	69147.54	5.3249	7.4027	14717....	14717....	1....	H.1-1
2	M2	nomo col...	.593	0	36	.025	0	z	36	43148....	69147.54	5.3249	7.4027	14717....	14717....	1....	H.1-1
3	M3	nomo col...	.593	0	35	.025	0	z	35	43148....	69147.54	5.3249	7.4027	14717....	14717....	1....	H.1-1
4	M4	nomo col...	.593	0	35	.025	0	z	35	43148....	69147.54	5.3249	7.4027	14717....	14717....	1....	H.1-1
5	M5	nomo cro...	.984	198.3...	16	.114	138	y	16	14014....	99102.78	4.45	14.1842	17498....	12487.5	1....	H.1-1
6	M6	nomo cro...	.454	60.75	16	.271	108	y	16	22882....	99102.78	4.45	14.1842	17498....	12487.5	1....	H.1-1
7	M7	nomo cro...	.672	77.625	19	.105	138	y	19	14014....	99102.78	4.45	14.1842	17498....	12487.5	1....	H.1-1
8	M8	nomo cro...	.454	155.25	16	.271	108	y	16	22882....	99102.78	4.45	14.1842	17498....	12487.5	1....	H.1-1

Aluminum Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\..	Density[lb/ft^3]	Table B.4	kt	Ftu[psi]	Fty[psi]	Fcy[psi]	Fsu[psi]	Ct
1	3003-H14	10100	3787.5	.33	1.3	172.8	Table B.4-1	1	19000	16000	13000	12000	141
2	6061-T6	10100	3787.5	.33	1.3	172.8	Table B.4-2	1	38000	35000	35000	24000	141
3	6063-T5	10100	3787.5	.33	1.3	172.8	Table B.4-2	1	22000	16000	16000	13000	141
4	6063-T6	10100	3787.5	.33	1.3	172.8	Table B.4-2	1	30000	25000	25000	19000	141
5	5052-H34	10200	3787.5	.33	1.3	172.8	Table B.4-1	1	34000	26000	24000	20000	141
6	6061-T6 W	10100	3787.5	.33	1.3	172.8	Table B.4-1	1	24000	15000	15000	15000	141
7	6060-T6	10100	3787.5	.33	1.3	172.8	Table B.4-1	1	25000	20000	20000	15000	141

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Column	nomo column	Column	A-N Wide Flange	6060-T6	Typical	3.842	14.269	19.837	24.075
2	Guide / Crossbar	nomo crossb..	Beam	Rectangular Tubes	6060-T6	Typical	5.506	14	46.109	29.534

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Member)	Surface...
1	D	DL		-1						
2	W1	WL							6	
3	W2	WL							6	
4	W3	WL							6	
5	W4	WL							6	
6	W5	WL							6	
7	W6	WL							6	
8	W7	WL							6	
9	W8	WL							6	
10	LR	RLL							1	
11	SL	SL							1	
12	Ex	EL	1.24							
13	Ez	EL			1.24					
14	BLC 10 Transient ...	None						76		
15	BLC 11 Transient ...	None						76		
16	BLC 2 Transient A...	None						236		
17	BLC 3 Transient A...	None						236		
18	BLC 4 Transient A...	None						236		
19	BLC 5 Transient A...	None						236		
20	BLC 6 Transient A...	None						244		
21	BLC 7 Transient A...	None						244		
22	BLC 8 Transient A...	None						244		
23	BLC 9 Transient A...	None						244		

Load Combinations

	Description	Sol...	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4D	Yes	Y		1	1.4														
2	1.2D+0.5Lr	Yes	Y		1	1.2	10	.5												
3	1.2D+0.5S	Yes	Y		1	1.2	11	.5												
4	1.2D+1.6Lr+0.5W1	Yes	Y		1	1.2	10	1.6	2	.5										
5	1.2D+1.6Lr+0.5W2	Yes	Y		1	1.2	10	1.6	3	.5										
6	1.2D+1.6Lr+0.5W3	Yes	Y		1	1.2	10	1.6	4	.5										
7	1.2D+1.6Lr+0.5W4	Yes	Y		1	1.2	10	1.6	5	.5										
8	1.2D+1.6Lr+0.5W5	Yes	Y		1	1.2	10	1.6	6	.5										
9	1.2D+1.6Lr+0.5W6	Yes	Y		1	1.2	10	1.6	7	.5										
10	1.2D+1.6Lr+0.5W7	Yes	Y		1	1.2	10	1.6	8	.5										
11	1.2D+1.6Lr+0.5W8	Yes	Y		1	1.2	10	1.6	9	.5										
12	1.2D+1.6SL+0.5W1	Yes	Y		1	1.2	11	1.6	2	.5										
13	1.2D+1.6SL+0.5W2	Yes	Y		1	1.2	11	1.6	3	.5										

Load Combinations (Continued)

	Description	Sol...	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
14	1.2D+1.6SL+0.5W3	Yes	Y		1	1.2	11	1.6	4	.5												
15	1.2D+1.6SL+0.5W4	Yes	Y		1	1.2	11	1.6	5	.5												
16	1.2D+1.6SL+0.5W5	Yes	Y		1	1.2	11	1.6	6	.5												
17	1.2D+1.6SL+0.5W6	Yes	Y		1	1.2	11	1.6	7	.5												
18	1.2D+1.6SL+0.5W7	Yes	Y		1	1.2	11	1.6	8	.5												
19	1.2D+1.6SL+0.5W8	Yes	Y		1	1.2	11	1.6	9	.5												
20	1.2D+1.0W1+0.5Lr	Yes	Y		1	1.2	2	1	10	.5												
21	1.2D+1.0W2+0.5Lr	Yes	Y		1	1.2	3	1	10	.5												
22	1.2D+1.0W3+0.5Lr	Yes	Y		1	1.2	4	1	10	.5												
23	1.2D+1.0W4+0.5Lr	Yes	Y		1	1.2	5	1	10	.5												
24	1.2D+1.0W5+0.5Lr	Yes	Y		1	1.2	6	1	10	.5												
25	1.2D+1.0W6+0.5Lr	Yes	Y		1	1.2	7	1	10	.5												
26	1.2D+1.0W7+0.5Lr	Yes	Y		1	1.2	8	1	10	.5												
27	1.2D+1.0W8+0.5Lr	Yes	Y		1	1.2	9	1	10	.5												
28	1.2D+1.0W1+0.5SL	Yes	Y		1	1.2	2	1	11	.5												
29	1.2D+1.0W2+0.5SL	Yes	Y		1	1.2	3	1	11	.5												
30	1.2D+1.0W3+0.5SL	Yes	Y		1	1.2	4	1	11	.5												
31	1.2D+1.0W4+0.5SL	Yes	Y		1	1.2	5	1	11	.5												
32	1.2D+1.0W5+0.5SL	Yes	Y		1	1.2	6	1	11	.5												
33	1.2D+1.0W6+0.5SL	Yes	Y		1	1.2	7	1	11	.5												
34	1.2D+1.0W7+0.5SL	Yes	Y		1	1.2	8	1	11	.5												
35	1.2D+1.0W8+0.5SL	Yes	Y		1	1.2	9	1	11	.5												
36	1.2D+0.2S	Yes	Y		1	1.2	11	.2														
37	0.9D+1.0W1	Yes	Y		1	.9	2	1														
38	0.9D+1.0W2	Yes	Y		1	.9	3	1														
39	0.9D+1.0W3	Yes	Y		1	.9	4	1														
40	0.9D+1.0W4	Yes	Y		1	.9	5	1														
41	0.9D+1.0W5	Yes	Y		1	.9	6	1														
42	0.9D+1.0W6	Yes	Y		1	.9	7	1														
43	0.9D+1.0W7	Yes	Y		1	.9	8	1														
44	0.9D+1.0W8	Yes	Y		1	.9	9	1														
45	1.2D + 1.0Ex	Yes	Y		1	1.2	12	1														
46	1.2D - 1.0Ex	Yes	Y		1	1.2	12	-1														
47	1.2D + 1.0Ez	Yes	Y		1	1.2	13	1														
48	1.2D - 1.0Ez	Yes	Y		1	1.2	13	-1														

Member Area Loads (BLC 2 : W1)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N14	N3	N4	N17	H	Two Way	-45.97
2	N15	N1	N2	N16	H	Two Way	-13.1
3	N14	N3	N1	N15	L	Two Way	-22.18
4	N4	N17	N16	N2	L	Two Way	22.18
5	N7	N9	N11	N8	z	Two Way	-31.27
6	N9	N5	N6	N11	z	Two Way	-13.1

Member Area Loads (BLC 3 : W2)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N14	N3	N4	N17	H	Two Way	-26.73
2	N15	N1	N2	N16	H	Two Way	-32.34
3	N14	N3	N1	N15	L	Two Way	-41.43
4	N4	N17	N16	N2	L	Two Way	41.43
5	N7	N9	N11	N8	z	Two Way	-50.51
6	N9	N5	N6	N11	z	Two Way	-32.34

Member Area Loads (BLC 4 : W3)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N14	N3	N4	N17	H	Two Way	-45.97

Member Area Loads (BLC 4 : W3) (Continued)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
2	N15	N1	N2	N16	H	Two Way	-13.1
3	N14	N3	N1	N15	L	Two Way	-22.18
4	N4	N17	N16	N2	L	Two Way	22.18
5	N7	N9	N11	N8	z	Two Way	1.44
6	N9	N5	N6	N11	z	Two Way	1.44

Member Area Loads (BLC 5 : W4)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N14	N3	N4	N17	H	Two Way	-26.73
2	N15	N1	N2	N16	H	Two Way	-32.34
3	N14	N3	N1	N15	L	Two Way	-41.43
4	N4	N17	N16	N2	L	Two Way	41.43
5	N7	N9	N11	N8	z	Two Way	-17.8
6	N9	N5	N6	N11	z	Two Way	-17.8

Member Area Loads (BLC 6 : W5)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N17	N4	N2	N16	L	Two Way	-45.97
2	N14	N3	N1	N15	L	Two Way	-13.1
3	N15	N1	N2	N16	H	Two Way	-22.18
4	N14	N3	N4	N17	H	Two Way	22.18
5	N8	N10	N12	N6	z	Two Way	-31.27
6	N10	N7	N5	N12	z	Two Way	-13.1

Member Area Loads (BLC 7 : W6)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N17	N4	N2	N16	L	Two Way	-26.73
2	N14	N3	N1	N15	L	Two Way	-32.34
3	N15	N1	N2	N16	H	Two Way	-41.43
4	N14	N3	N4	N17	H	Two Way	41.43
5	N8	N10	N12	N6	z	Two Way	-50.51
6	N10	N7	N5	N12	z	Two Way	-32.34

Member Area Loads (BLC 8 : W7)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N17	N4	N2	N16	L	Two Way	-45.97
2	N14	N3	N1	N15	L	Two Way	-13.1
3	N15	N1	N2	N16	H	Two Way	-22.18
4	N14	N3	N4	N17	H	Two Way	22.18
5	N8	N10	N12	N6	z	Two Way	1.44
6	N10	N7	N5	N12	z	Two Way	1.44

Member Area Loads (BLC 9 : W8)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N17	N4	N2	N16	L	Two Way	-26.73
2	N14	N3	N1	N15	L	Two Way	-32.34
3	N15	N1	N2	N16	H	Two Way	-41.43
4	N14	N3	N4	N17	H	Two Way	41.43
5	N8	N10	N12	N6	z	Two Way	-17.8
6	N10	N7	N5	N12	z	Two Way	-17.8

Member Area Loads (BLC 10 : LR)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N7	N5	N6	N8	V	Two Way	-5

Member Area Loads (BLC 11 : SL)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N7	N5	N6	N8	V	Two Way	-16.8

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N3	max	4570.5086	42	4643.0876	18	3557.2917	30	6.3953	14	.2035	45	2.6599	14
2		min	-601.1003	45	-5832.1252	38	-2502.762	42	-6.6134	38	-.2486	38	-5.9388	38
3	N1	max	4570.5086	42	4643.0876	18	4333.1234	38	7.7792	38	.2033	46	2.6629	14
4		min	-601.1003	45	-1942.0774	38	-879.3331	18	-5.3539	18	-.2035	45	-5.3345	42
5	N2	max	4089.5093	34	4048.9183	14	4333.1234	38	9.6269	42	.2718	34	3.9966	38
6		min	-1998.3284	38	-7112.5471	42	-932.5157	18	-5.3829	18	-.2033	45	-3.8267	18
7	N4	max	4089.5093	34	2731.9779	14	3557.2917	30	6.3953	14	.2486	38	5.9388	38
8		min	-2479.0812	38	-7112.5471	42	-3134.8013	42	-9.6269	42	-.2718	34	-3.8267	18
9	Totals:	max	13372.1418	42	13561.7923	14	10465.1542	38						
10		min	-2206.5724	45	-15548.4051	42	-2206.5723	47						

Envelope AA ADM1-10: LRFD - Building Aluminum Code Checks

	Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc...	phi*Pnt[...	phi*Mn...	phi*Mn...	phi*Vny...	phi*Vnz...	Cb	Eqn
1	M1	nomo col...	.374	59.05...	38	.103	0	z	38	43148....	69147.54	5.3249	7.4027	14717....	14717....	1....	H.1-1
2	M2	nomo col...	.302	59.05...	38	.086	0	y	42	43148....	69147.54	5.3249	7.4027	14717....	14717....	1....	H.1-1
3	M3	nomo col...	.388	59.05...	42	.113	0	y	42	43148....	69147.54	5.3249	7.4027	14717....	14717....	1....	H.1-1
4	M4	nomo col...	.388	59.05...	42	.113	0	y	42	43148....	69147.54	5.3249	7.4027	14717....	14717....	1....	H.1-1
5	M5	nomo cro...	.950	138	38	.167	138	z	21	14014....	99102.78	4.45	14.1842	17498....	12487.5	1....	H.1-1
6	M6	nomo cro...	.503	108	37	.117	108	z	30	22882....	99102.78	4.45	14.1842	17498....	12487.5	1....	H.1-1
7	M7	nomo cro...	.978	138	41	.181	138	z	24	14014....	99102.78	4.45	14.1842	17498....	12487.5	1....	H.1-1
8	M8	nomo cro...	.451	108	42	.107	108	z	33	22882....	99102.78	4.45	14.1842	17498....	12487.5	1....	H.1-1