

**APPLICATION FOR A CERTIFICATE OF APPROPRIATENESS FOR
A SIGN IN A SPECIAL PROVISION SIGN DISTRICT (SPSD)**

DEEP ELLUM/ NEAR EAST SIGN DISTRICT

CASE NUMBER: SIGN-25-000460

DATE FILED: June 26th, 2025

LOCATION: 2700 COMMERCE ST, STE 1500
(S ELEVATION)

SIZE OF REQUEST: 234 sq. ft.

COUNCIL DISTRICT: 2

ZONING: PD-269, TRACT A

APPLICANT: Josephine Gonzales of Pattison ID

OWNER: HW Commerce Office LP

TENANT: WWEX Group

REQUEST: An application for a Certificate of Appropriateness by Josephine Gonzales of Pattison ID, for a 234-square-foot LED illuminated channel letter sign at 2700 COMMERCE ST, STE 1500 (S ELEVATION).

SUMMARY: The applicant proposes to install a 234-square-foot LED illuminated channel sign, Five inch white channel front lit channel letters emit white light from the front, to be mounted to a steel frame that attaches to/ overhangs the parapet.

STAFF RECOMMENDATION: Approval.

SSDAC RECOMMENDATION: Approval.

BACKGROUND:

- The subject site is located in Deep Ellum/ Near East Sign District. This district is zoned PD No. 269, Tract A, Deep Ellum/Near East Side District.
These regulations are established in: [Sec. 51A-7.1300](#) (Specific details included below).
- The applicant proposes to install a 234-square-foot LED illuminated channel sign, Five inch white channel front lit channel letters emit white light from the front, to be mounted to a steel frame that attaches to/ overhangs the parapet.
 - The sign is composed of 5" aluminum channel letters, painted white with white acrylic faces and 1" metal retainers, painted white, mounted to a steel frame that overhangs the parapet. Sign elements are constructed entirely of metal, plastic, and LED lighting. The overall height of the sign is 199.5'.
 - The sign will be back-lit by LED, emitting a white glow through the faces.
- This is the first of two applications under review by this body for this site. This sign is to be located on Clover Street, and is submitted as Sign A.
- Construction of the proposed sign is in accordance with SPSD regulations and meets the requirements of the Dallas City Code per Sec. 51A-7.1300.

51A-7.1302 PURPOSE.

The purpose of this division is to promote signage that is compatible with the architectural character and design guidelines of the Deep Ellum/Near East Side Planned Development District while encouraging artistic, creative, and innovative signs which are reflective of themes that have grown and developed in the Deep Ellum area.

51A-7.1305 SPECIAL PROVISIONS FOR ALL SIGNS.

(b) Except for wallscape signs, painted applied signs, and district identification signs, no sign may exceed 150 square feet unless it is located more than 65 feet above grade, at which point no sign may exceed 300 square feet.

This proposed sign is 234 square-feet and is located between 192.5' - 199.5' above grade.

51A-7.1306 SPECIAL PROVISIONS FOR ATTACHED SIGNS.

(a) Attached signs in general.

(1) No portion of an attached sign may be located:

- (A) more than 10 feet from the facade to which it is attached; or
- (B) less than two feet from the back of a street curb.

The total projection of the proposed sign will not exceed ten-inches.

51A-7.505 PERMIT PROCEDURES FOR SPECIAL PROVISION SIGN DISTRICTS.

(B) **Factors the committee shall consider.** In reviewing an application, the committee shall first consider whether the applicant has submitted sufficient information for the committee to make an informed decision. If the committee finds the proposed sign to be consistent with the special character of the special provision sign district, the committee shall make a recommendation of approval to the city plan commission. **The committee shall consider the proposed sign in terms of its appropriateness to the special provision sign district with particular attention to the effect of the proposed sign upon the economic structure of the special provision sign district and the effect of the sign upon adjacent and surrounding premises without regard to any consideration of the message conveyed by the sign.** After consideration of these factors, the committee shall recommend approval or denial of the application and forward that recommendation to the city plan commission.

(6) Decision by the commission. Upon receipt of a recommendation by the committee, the commission shall hold a public hearing to consider the application. At least 10 days before the hearing, notice of the date, time, and place of the hearing, the name of the applicant, and the location of the proposed sign must be published in the official newspaper of the city and the building official shall serve, by hand-delivery or mail, a written notice to the applicant that contains a reference to this section, and the date, time, and location of this hearing. A notice sent by mail is served by depositing it properly addressed and postage paid in the United States mail. In addition, if the application is for a detached sign or for an attached sign that has more than 100 square feet of effective area, the applicant must post the required number of notification signs in accordance with Section 51A-1.106. **In making its decision, the commission shall consider the same factors that were required to be considered by the committee in making its recommendation.** If the commission approves the application, it shall forward a certificate of appropriateness to the building official within 15 days after its approval. If the commission denies the application, it shall so inform the building official in writing. Upon receipt of the written denial, the building official shall so advise the applicant within five working days of the date of receipt of the written notice.

Property Ownership

HW Commerce Office LP
2700 Commerce Street, Suite #113
Dallas, TX 75226

Officer names: SEE ATTACHED

Tenant Ownership

WWEX Group
2700 Commerce Street, Suite #1500
Dallas, TX 75226

Officer names: SEE ATTACHED

Officer list for the tenant and building owner:

BUILDING OWNER :

Owner: HW Commerce Office LP (2700 Commerce Street, Suite #113, Dallas, TX 75226)

HW COMMERCE OFFICE LP is a partnership between Hines, Westdale, and IvanhoeCambridge.

Contacts for each are below:

Hines

Corbin Eckel, Managing Director

Westdale

Jeff Allen, Executive Vice President, Commercial Division

Rhonda Thompson, Director

IvanhoeCambridge

Marc-Antoine Bedard

TENANT :

-Tenant: WWEX Group

-Tenant Officers:

-Tom Madine, CEO

-Jack Pearlstein, CFO

-Joel Clum, COO

SSDAC Action:

July 15, 2025

MOTION: It was moved to approve:

An application for a Certificate of Appropriateness by Josephine Gonzales of Pattison ID, for a 234-square-foot LED illuminated channel letter sign at 2700 COMMERCE ST, STE 1500 (S ELEVATION).

Maker: Dumas
Second: Hall
Result: Carried: 4 to 0

For: 4 - Peadon, Dumas, Hardin and Hall
Against: 0 - none
Absent: 1 - Webster
Conflict: 0 - none

Speakers: Matt Wilson - Pattison ID

PD-269



41-8





SOUTH ELEVATION - EXISTING
(16 STORIES)



A SOUTH ELEVATION - PROPOSED SIGNAGE

Project ID
0420531AR7

WVEX GROUP
2700 COMMERCE ST
DALLAS, TX.

Date: 03.01.23
Contact: M WILSON
Designer: SDM

Sign Item

SIGN ITEM

Scale: -----

Revision Note

R7 RFF 05.21.25

**Information Required
for Production**

Customer Approval

Signature _____

MM/DD/YYYY _____

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It is the Customer's responsibility to ensure that the sign installation location is suitable to accept and support the installation of the signs being ordered. Notify Pattison ID immediately if further details are required.

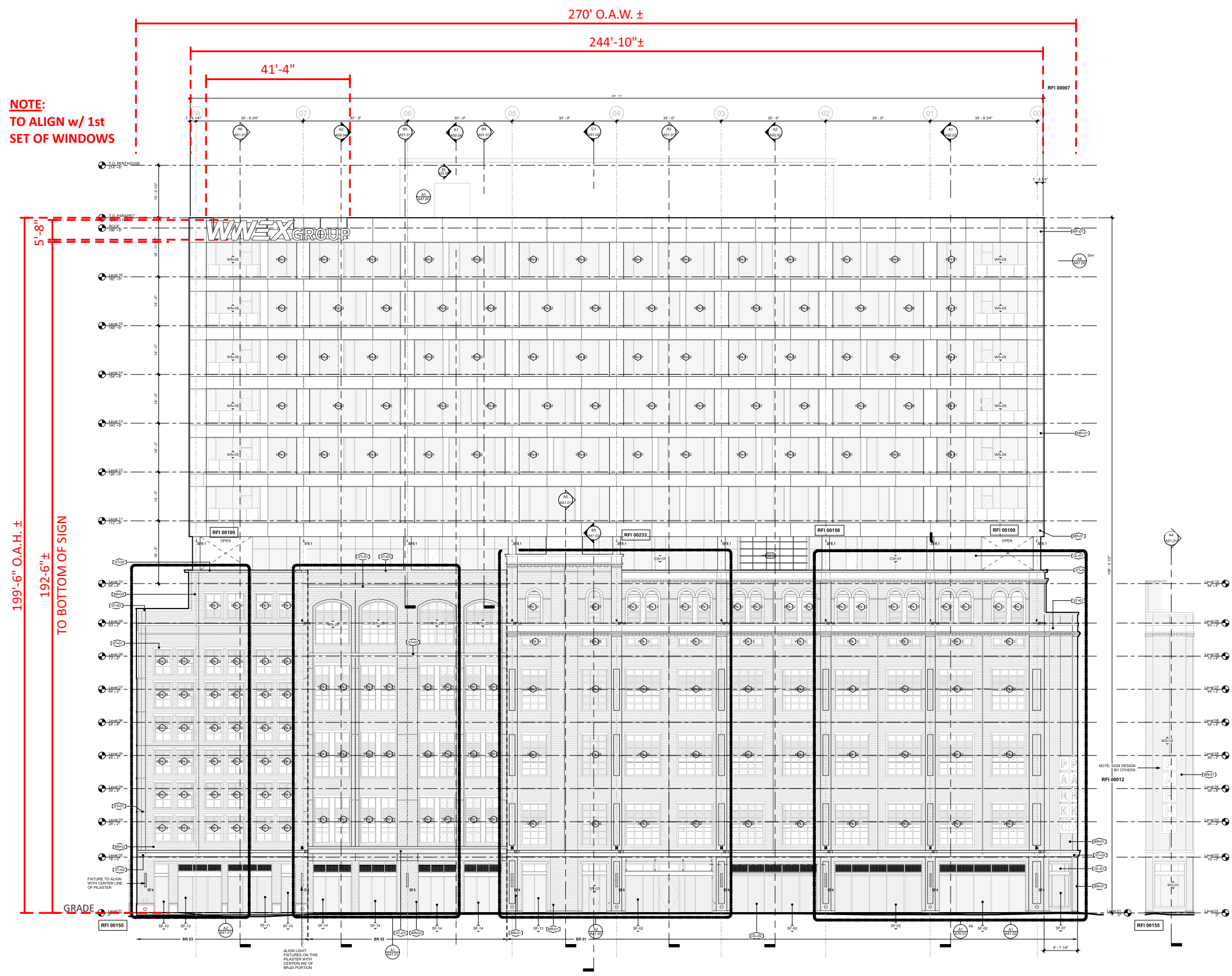
Pattison



1.866.635.1110
pattisonid.com

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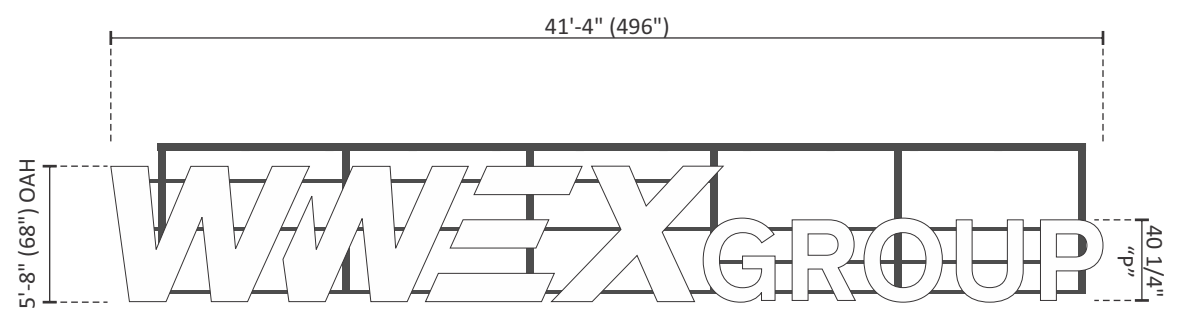
NOTE:
TO ALIGN w/ 1st
SET OF WINDOWS

199'-6" O.A.H. ±
TO BOTTOM OF SIGN

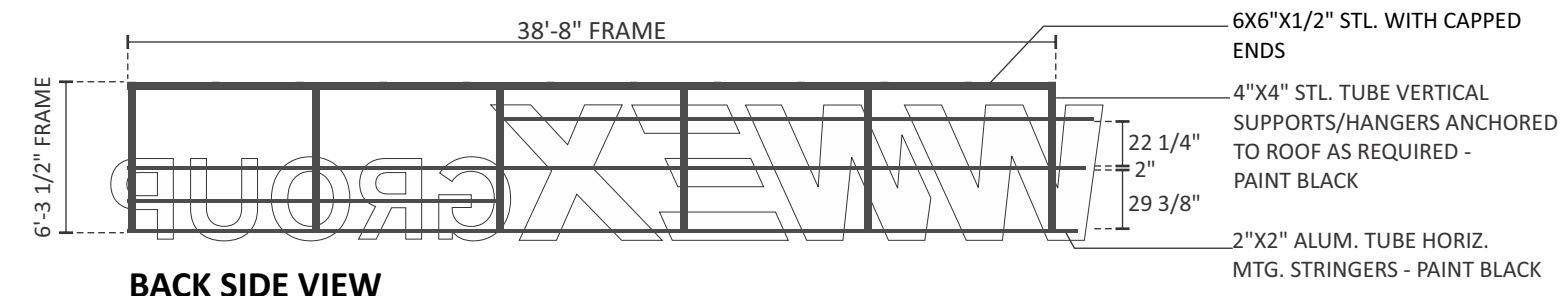
A SOUTH ELEVATION - PROPOSED SIGNAGE
(16 STORIES)

SCALE: 1/32" = 1'-0"

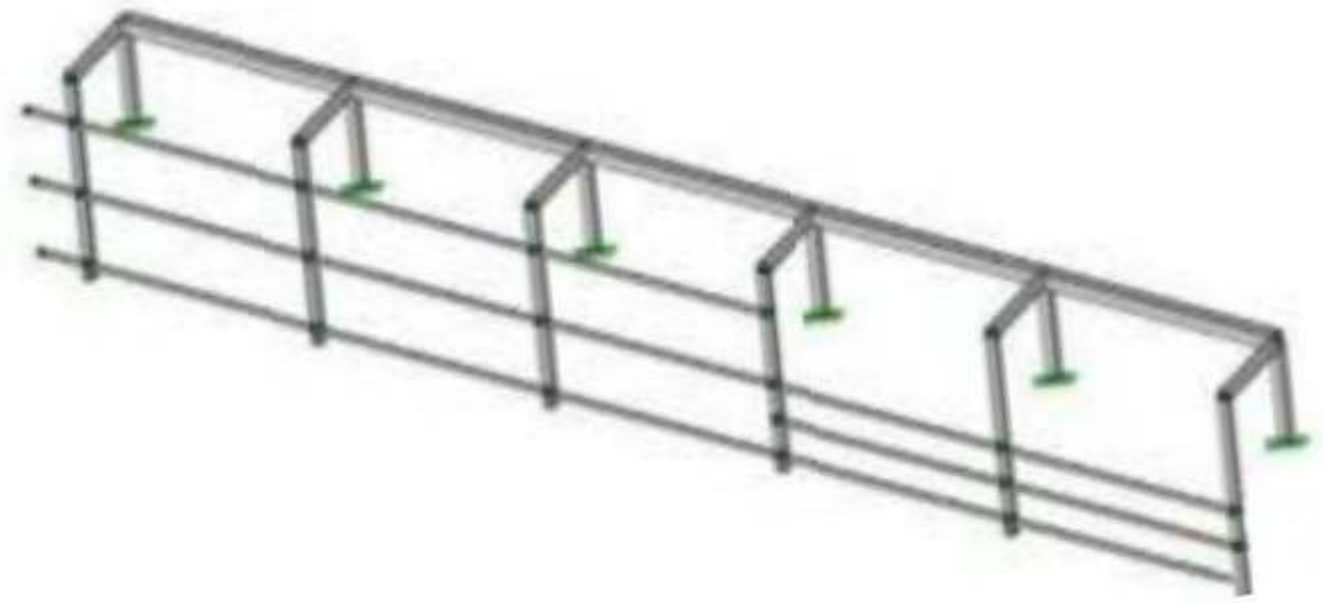
EFFECTIVE AREA OF SOUTH ELEVATION: 53,865 Sq.Ft.



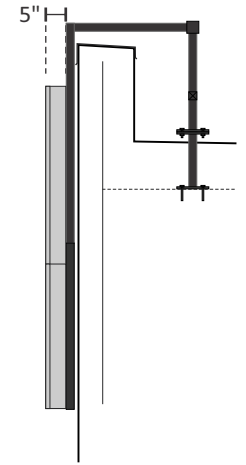
A SOUTH ELEVATION - CHANNEL LETTERS SCALE: 1/8" = 1'-0"
ONE [1] SET REQUIRED - MANUFACTURE & INSTALL 234 SQ.FT.



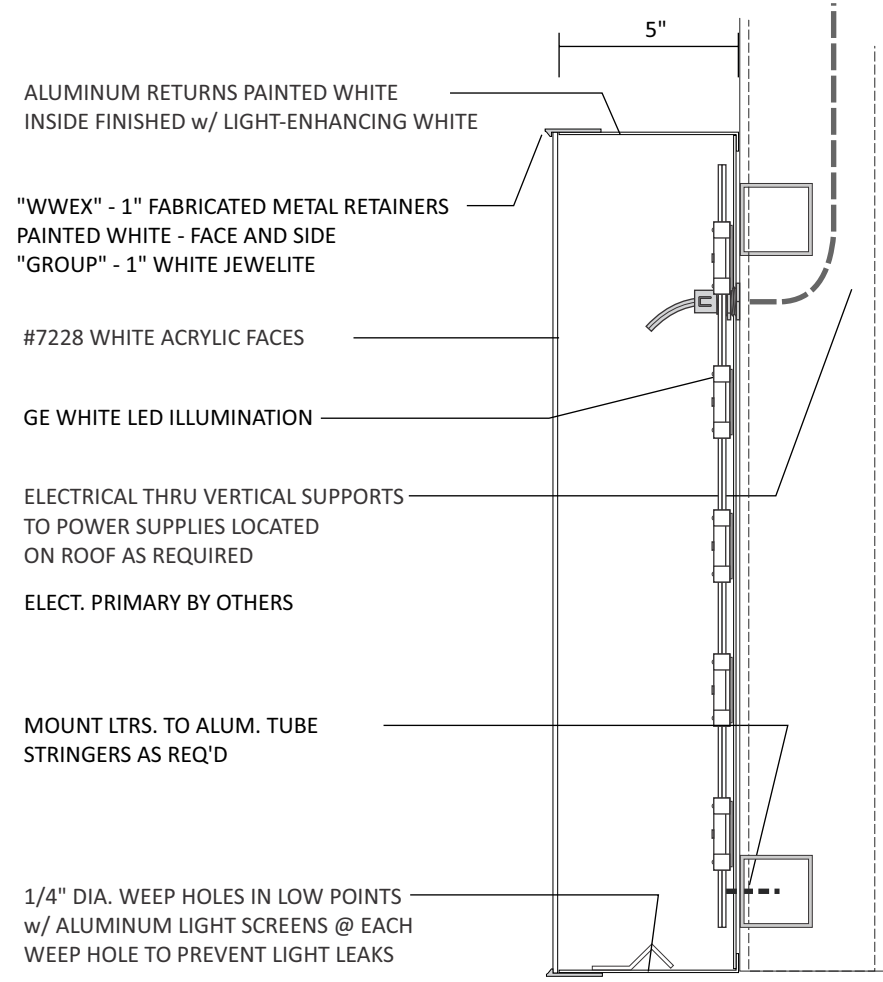
BACK SIDE VIEW



NIGHT VIEW



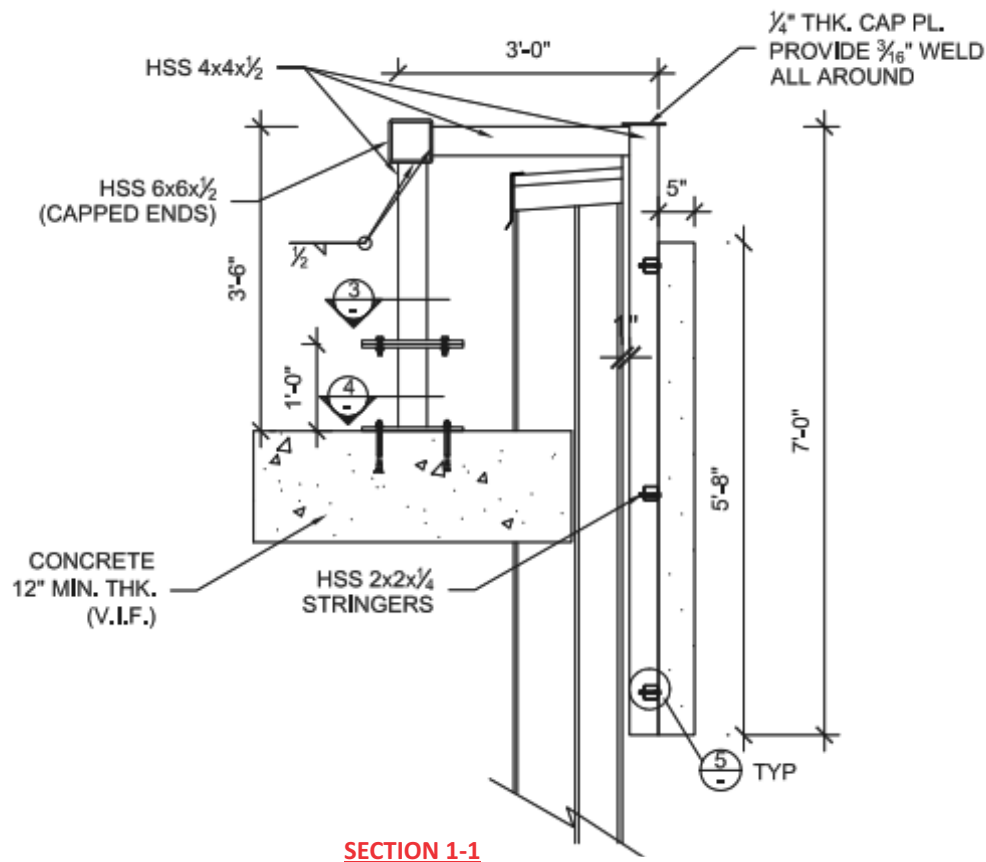
SIDE VIEW



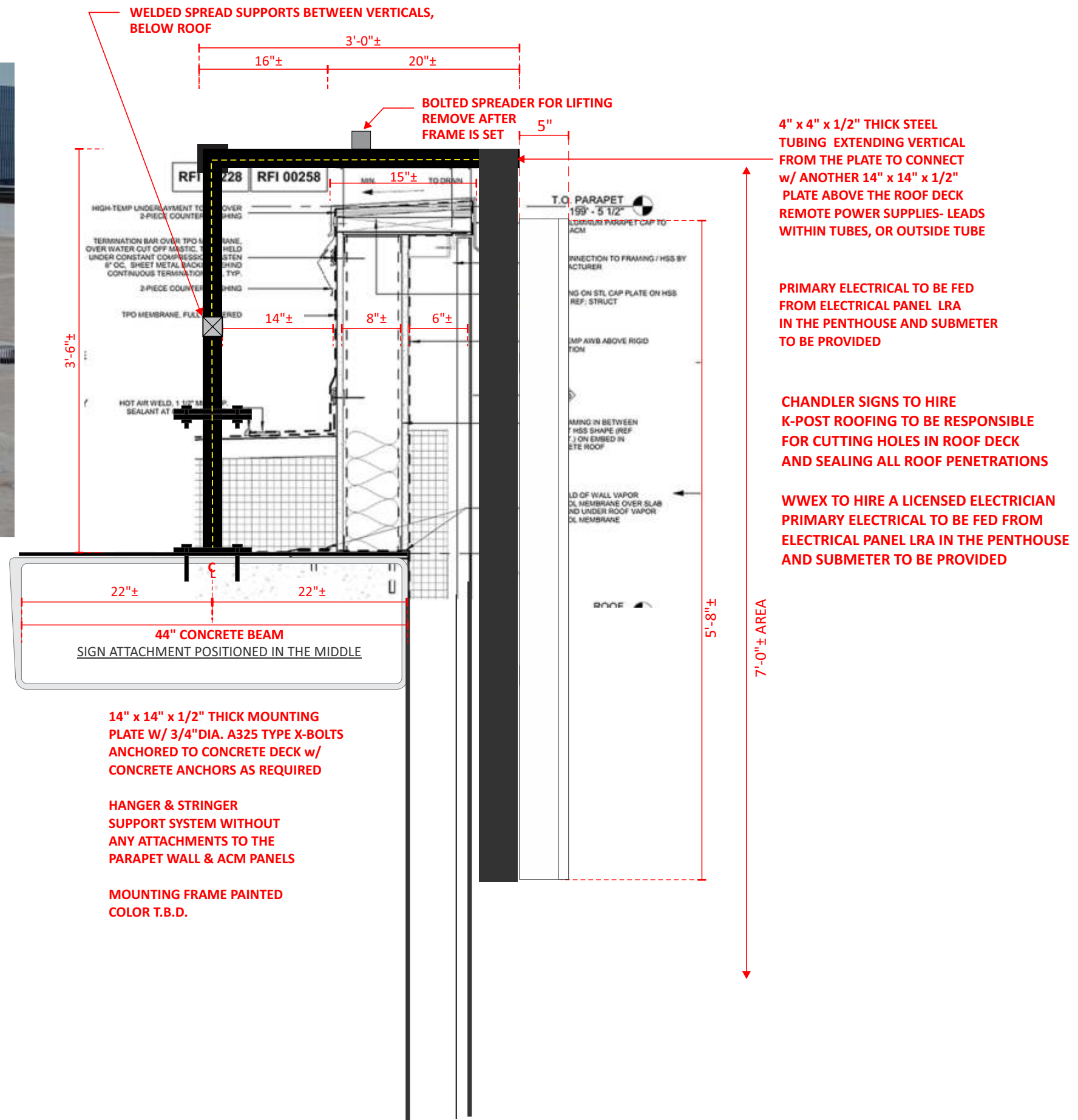
LETTER SECTION DETAIL 3/16"=1"



PARAPET/ROOF DETAIL



SECTION 1-1



A WALL SECTION/SIGNAGE MOUNTING DETAIL

SCALE: 1" = 1'-0"

Project ID
0420531AR7

WWEX GROUP
2700 COMMERCE ST
DALLAS, TX.

Date: 03.01.23
Contact: M WILSON
Designer: SDM

Sign Item
SIGN ITEM

Scale:

Revision Note

R7 RFF 05.21.25

**Information Required
for Production**

Customer Approval

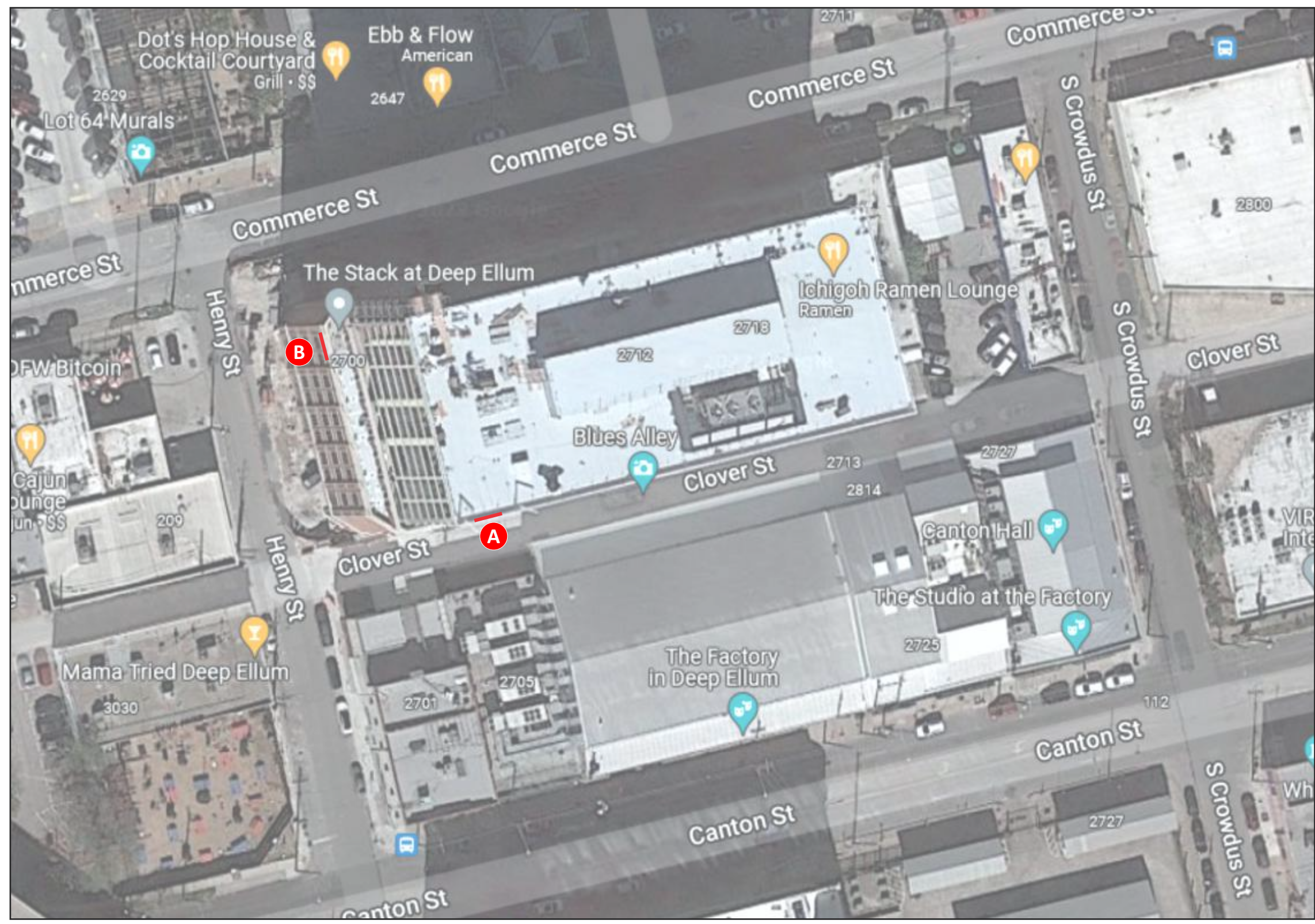
Signature

MM/DD/YYYY

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Pattison
id 1.866.635.1110
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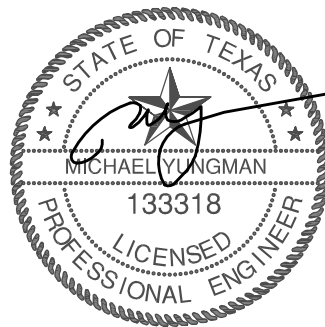
AERIAL SITE VIEW - SIGN LOCATIONS

CALCULATIONS FOR:

WWEX GROUP
2700 COMMERCE ST.,
DALLAS, TX

PREPARED FOR:
CHANDLER SIGNS
by

YUNGMAN ENGINEERING
PROJECT #3151A-2
DATE: 2-10-24



PROJECT:	WWEX GROUP, 2700 COMMERCE ST., DALLAS, TX	DATE: 2/10/2024
PROJ. NO.:	3151	ENGINEER: MTY
CLIENT:	CHANDLER SIGNS	
building code:	IBC 2021	

Applied Wind Loads; from ASCE 7-16, Ch. 30 - part 3 (h > 60 ft)

Width=	5	ft	Height=	5	ft	A=	25	s.f.
Kz=	1.46							(per Table 26.10-1)
Kzt=	1							(per Section 26.8.2)
Kd=	0.85							(per Table 26.6-1)
V=	105	mph						
Exp.=	C							
q=	.00256*Kz*Kzt*Kd*V^2 =		35.03	psf				(per EQ. 26.10-1)
Gcp=	0.90	-1.80						(per Figure 30.5-1)
Gcpi=	0	0						(per Table 26.13-1)
P=	31.52	31.52	P= q(GCp) - qi(GCpi)					(per eq. 30.5-1)
P=	-63.05	-63.05	P= q(GCp) - qi(GCpi)					(per eq. 30.5-1)

Check Conn: Use 3/4" Dia. Thru-Bolts @ Match Plates:

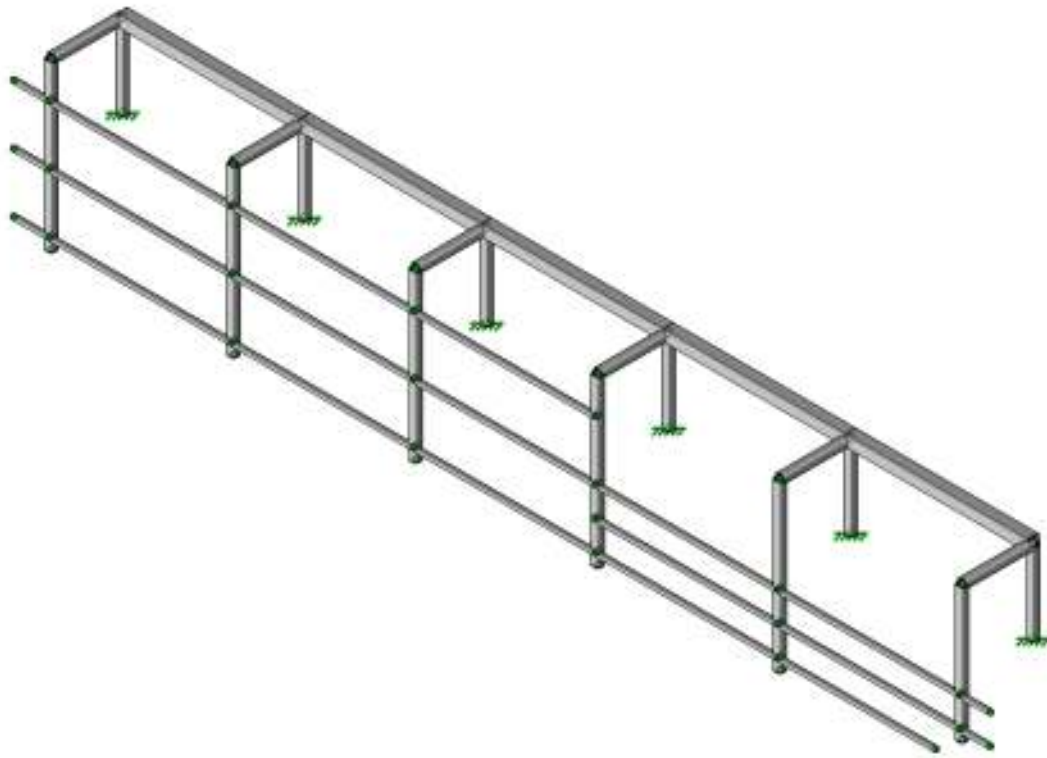
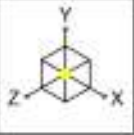
Tu=	2301	#	(assume conservative loads @ Hilti Locations)	
Tc=	29800	#		
Vu=	181	#	(assume conservative loads @ Hilti Locations)	
Vc=	15900	#		
T/Tc+V/Vc=	0.09	<	1	ok

Check 14"x14" Match Plates: Fy= 36000 psi t= 0.75 " φ= 0.9

Tu=	2301	#		
Mu=	11620	in #		
Bending Width, b=	9.13	in		
Z= bt^2/4	1.28	in		
φMn= φ*Fy*Z	41576	>	11620	ok

Check Conn: Use 3/8" Dia. Thru-Bolts @ Letters: n= 9

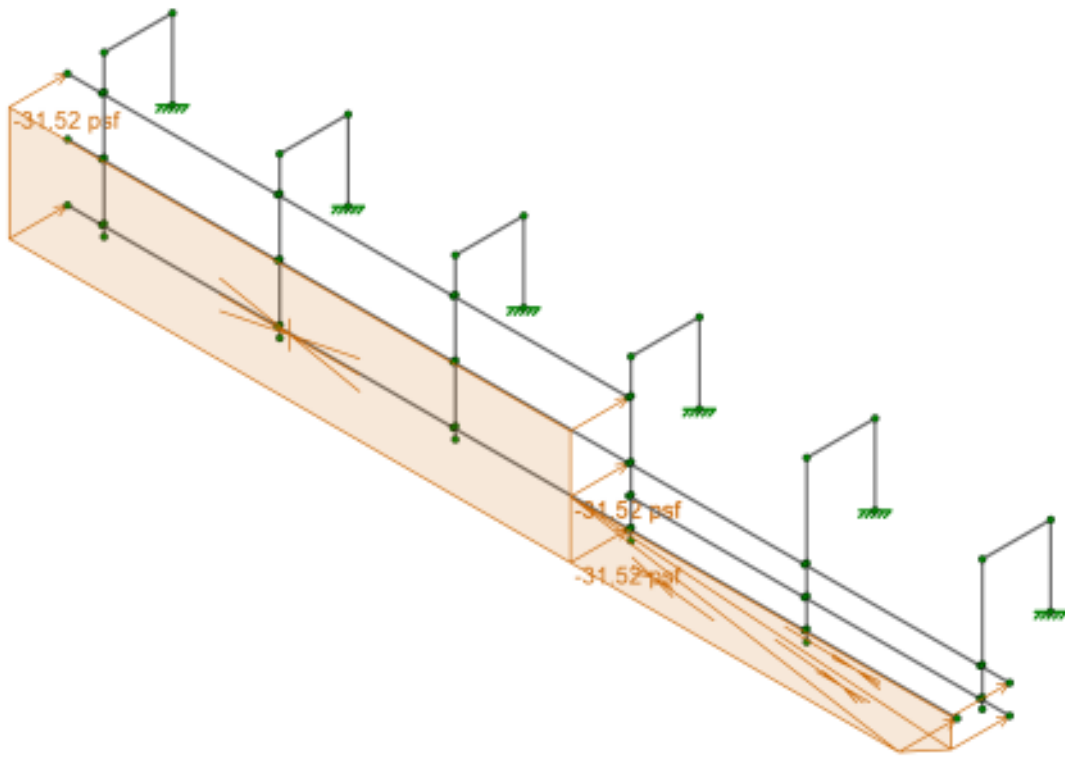
A=	27	sf	(max Letter Size W)	
WL=	1697	#		
DL=	135	#		
Tu=	189	#		
Tc=	3718	#		
Vu=	15	#		
Vc=	1911	#		
T/Tc+V/Vc=	0.06	<	1	ok



Yungman Engineering
MTY

SK-1

3151A-1.r3d

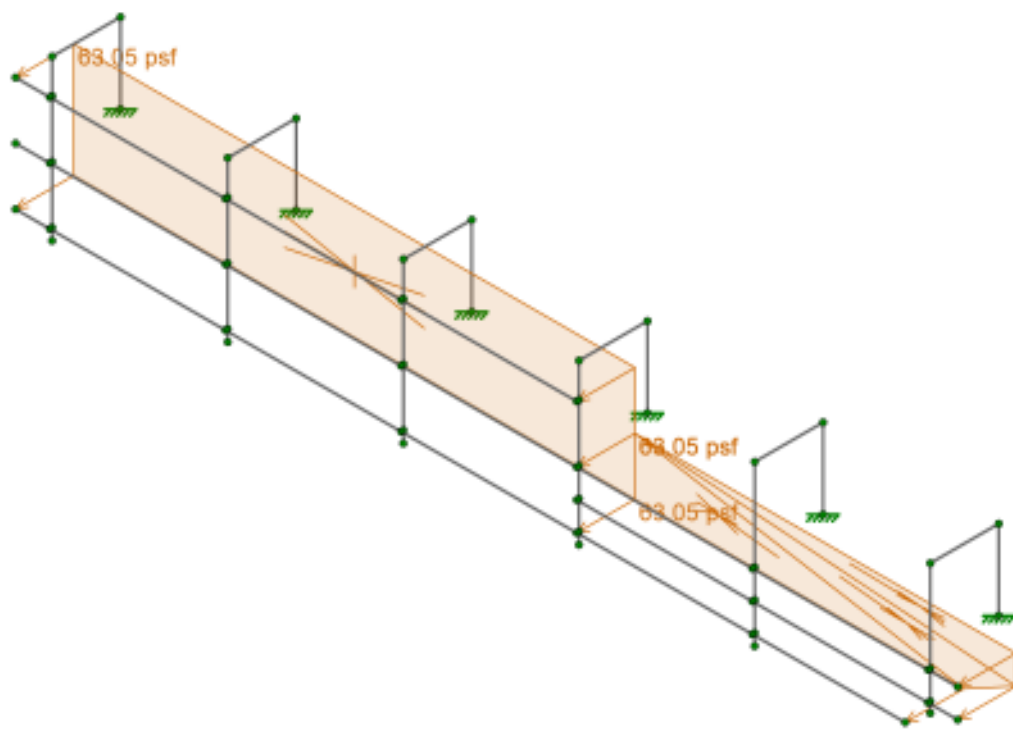


Loads: BLC 4, WL1
Envelope Only Solution



Yungman Engineering
MTY

SK-3
3151A-1.r3d

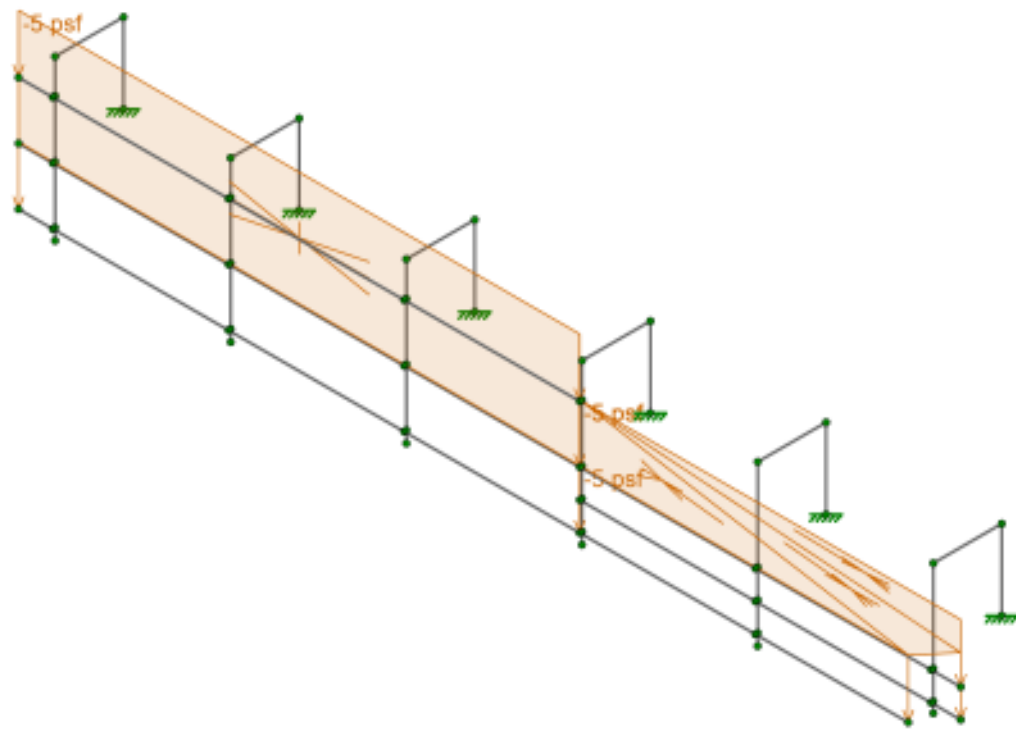


Loads: BLC 5, WL2
Envelope Only Solution



Yungman Engineering
MTY

SK-2
3151A-1.r3d



Loads: BLC 1, DL
Envelope Only Solution

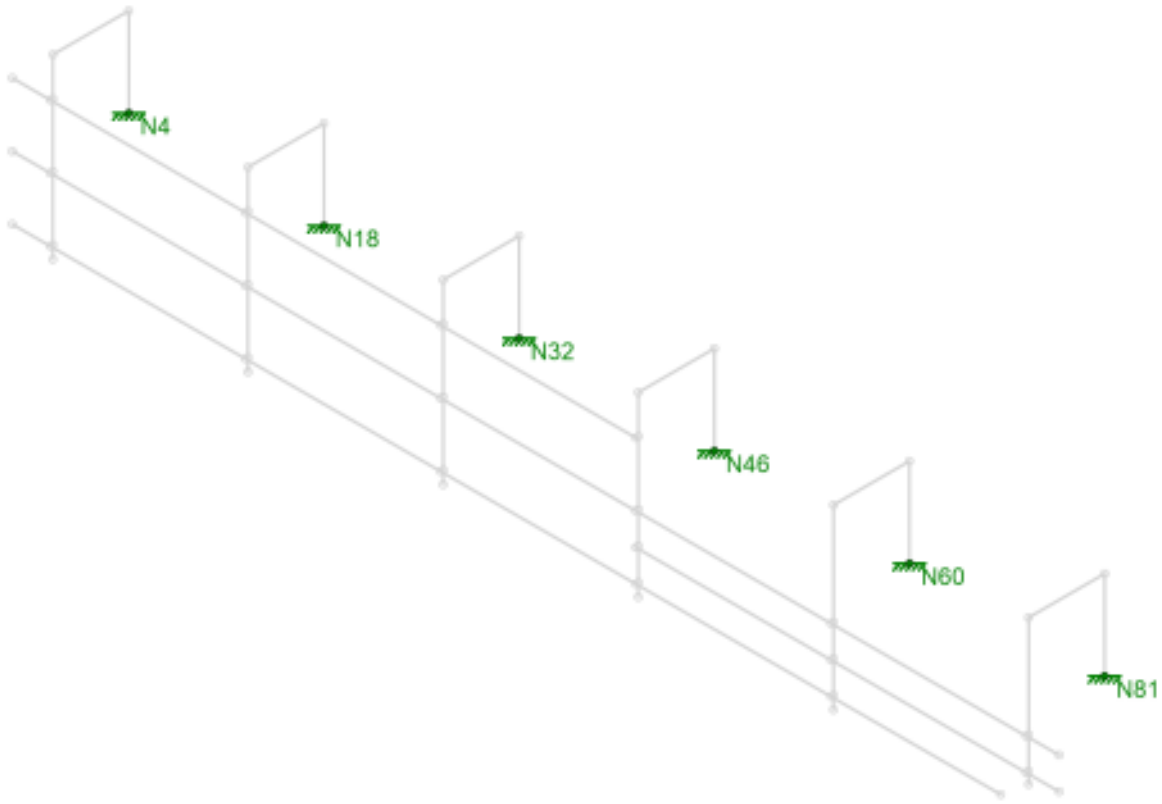


Yungman Engineering
MTY


SK-4
3151A-1.r3d



Section Sets	
■	HSS 4x4x.500
■	HSS 2x2x0.250
■	RIGID

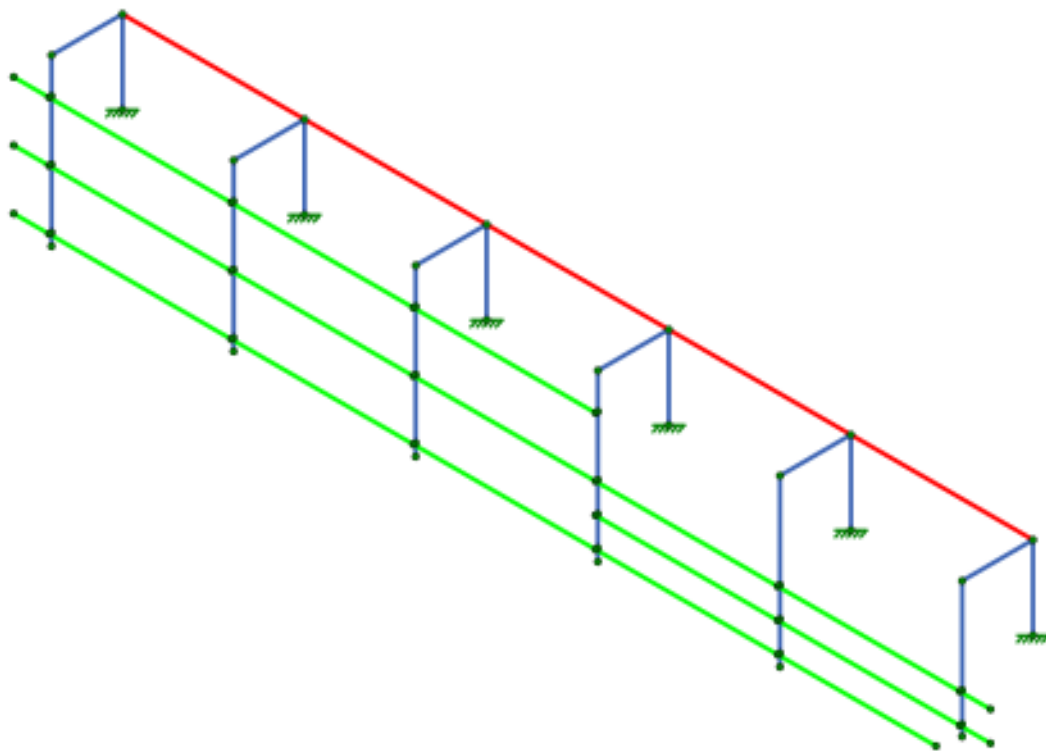


Envelope Only Solution

	Yungman Engineering	SK-6
	MTY	3151A-1.r3d



Section Sets	
■	HSS 4x4x.500
■	HSS 2x2x0.250
■	HSS 6x6x.5
■	RIGID



Yungman Engineering
MTY

SK-2
3151A-1.r3d

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Distributed	Area(Member)
1	DL	DL		-1			4
2	SL	SL					
3	LL	LL					
4	WL1	WL					4
5	WL2	WL					4
6	WL3	WL					
7	WL4	WL					
8	WL5	WL					
9	WL6	WL					
10	ELF-X	ELX	0.35				
11	ELF-Z	ELZ			0.35		
12	BLC 1 Transient Area Loads	None				71	
13	BLC 4 Transient Area Loads	None				71	
14	BLC 5 Transient Area Loads	None				71	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4DL	Yes	Y	1	1.4				
2	0.9DL+ WL1	Yes	Y	1	0.9	4	1		
3	0.9DL+ WL2	Yes	Y	1	0.9	5	1		
4	0.9DL+ WL3	Yes	Y	1	0.9	6	1		
5	0.9DL+ WL4	Yes	Y	1	0.9	7	1		
6	0.9DL+ WL5	Yes	Y	1	0.9	8	1		
7	0.9DL+ WL6	Yes	Y	1	0.9	9	1		
8	1.2DL+WL1+.5Lr	Yes	Y	1	1.2	4	1	3	0.5
9	1.2DL+WL2+.5Lr	Yes	Y	1	1.2	5	1	3	0.5
10	1.2DL+WL3+.5Lr	Yes	Y	1	1.2	6	1	3	0.5
11	1.2DL+WL4+.5Lr	Yes	Y	1	1.2	7	1	3	0.5
12	1.2DL+WL5+.5Lr	Yes	Y	1	1.2	8	1	3	0.5
13	1.2DL+WL6+.5Lr	Yes	Y	1	1.2	9	1	3	0.5
14	1.2DL+.5WL1+1.6LL	Yes	Y	1	1.2	4	0.5	3	1.6
15	1.2DL+.5WL2+1.6LL	Yes	Y	1	1.2	5	0.5	3	1.6
16	1.2DL+.5WL3+1.6LL	Yes	Y	1	1.2	6	0.5	3	1.6
17	1.2DL+.5WL4+1.6LL	Yes	Y	1	1.2	7	0.5	3	1.6
18	1.2DL+.5WL5+1.6LL	Yes	Y	1	1.2	8	0.5	3	1.6
19	1.2DL+.5WL6+1.6LL	Yes	Y	1	1.2	9	0.5	3	1.6
20	1.2DL+WL1+.5SL	Yes	Y	1	1.2	4	1	2	0.5
21	1.2DL+WL2+.5SL	Yes	Y	1	1.2	5	1	2	0.5
22	1.2DL+WL3+.5SL	Yes	Y	1	1.2	6	1	2	0.5
23	1.2DL+WL4+.5SL	Yes	Y	1	1.2	7	1	2	0.5
24	1.2DL+WL5+.5SL	Yes	Y	1	1.2	8	1	2	0.5
25	1.2DL+WL6+.5SL	Yes	Y	1	1.2	9	1	2	0.5
26	1.2DL+.5WL1+1.6SL	Yes	Y	1	1.2	4	0.5	2	1.6
27	1.2DL+.5WL2+1.6SL	Yes	Y	1	1.2	5	0.5	2	1.6
28	1.2DL+.5WL3+1.6SL	Yes	Y	1	1.2	6	0.5	2	1.6
29	1.2DL+.5WL4+1.6SL	Yes	Y	1	1.2	7	0.5	2	1.6
30	1.2DL+.5WL5+1.6SL	Yes	Y	1	1.2	8	0.5	2	1.6
31	1.2DL+.5WL6+1.6SL	Yes	Y	1	1.2	9	0.5	2	1.6
32	1.2DL+WL1+.5Lr	Yes	Y	1	1.2	4	1	3	0.5
33	1.2DL+WL2+.5Lr	Yes	Y	1	1.2	5	1	3	0.5
34	1.2DL+WL3+.5Lr	Yes	Y	1	1.2	6	1	3	0.5
35	1.2DL+WL4+.5Lr	Yes	Y	1	1.2	7	1	3	0.5
36	1.2DL+WL5+.5Lr	Yes	Y	1	1.2	8	1	3	0.5
37	1.2DL+WL6+.5Lr	Yes	Y	1	1.2	9	1	3	0.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
38	1.2DL+.5WL1+1.6LL	Yes	Y	1	1.2	4	0.5	3	1.6
39	1.2DL+.5WL2+1.6LL	Yes	Y	1	1.2	5	0.5	3	1.6
40	1.2DL+.5WL3+1.6LL	Yes	Y	1	1.2	6	0.5	3	1.6
41	1.2DL+.5WL4+1.6LL	Yes	Y	1	1.2	7	0.5	3	1.6
42	1.2DL+.5WL5+1.6LL	Yes	Y	1	1.2	8	0.5	3	1.6
43	1.2DL+.5WL6+1.6LL	Yes	Y	1	1.2	9	0.5	3	1.6
44	1.2DL+WL1+.5SL	Yes	Y	1	1.2	4	1	2	0.5
45	1.2DL+WL2+.5SL	Yes	Y	1	1.2	5	1	2	0.5
46	1.2DL+WL3+.5SL	Yes	Y	1	1.2	6	1	2	0.5
47	1.2DL+WL4+.5SL	Yes	Y	1	1.2	7	1	2	0.5
48	1.2DL+WL5+.5SL	Yes	Y	1	1.2	8	1	2	0.5
49	1.2DL+WL6+.5SL	Yes	Y	1	1.2	9	1	2	0.5
50	1.2DL+.5WL1+1.6SL	Yes	Y	1	1.2	4	0.5	2	1.6
51	1.2DL+.5WL2+1.6SL	Yes	Y	1	1.2	5	0.5	2	1.6
52	1.2DL+.5WL3+1.6SL	Yes	Y	1	1.2	6	0.5	2	1.6
53	1.2DL+.5WL4+1.6SL	Yes	Y	1	1.2	7	0.5	2	1.6
54	1.2DL+1.0ELX+0.2SL		Y	1	1.2	10	1	2	0.2
55	1.2DL+1.0ELZ+0.2SL		Y	1	1.2	11	1	2	0.2
56	0.9DL+1.0ELX		Y	1	0.9	10	1		
57	0.9DL+1.0ELZ		Y	1	0.9	11	1		

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e ⁶ F ⁻¹]	Density [k/ft ³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A363	29000	11154	0.3	0.65	0.49	103	1.1	58	1.2
3	A500 Gr.42	29000	11154	0.3	0.65	0.49	42	1.3	58	1.1
4	A500 Gr.46	29000	11154	0.3	0.65	0.49	46	1.2	58	1.1
5	a53 GR B	29000	11154	0.3	0.65	0.49	35	1.5	58	1.2
6	ASTM A513	29000	11154	0.3	0.65	0.49	72	1.5	45	1.2
7	ASTM A992	29000	11154	0.3	0.65	0.49	50	1.5	58	1.2

Aluminum Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e ⁶ F ⁻¹]	Density [k/ft ³]	Table B.4	kt	Ftu [ksi]	Fty [ksi]	Fcy [ksi]	Fsu [ksi]	Ct
1	3003-H14	10100	3787.5	0.33	1.3	0.173	Table B.4-1	1	19	16	13	12	141
2	6061-T6	10100	3787.5	0.33	1.3	0.173	Table B.4-2	1	19	17.5	17.5	12	141
3	6063-T5	10100	3787.5	0.33	1.3	0.173	Table B.4-2	1	22	16	16	13	141
4	6063-T6	10100	3787.5	0.33	1.3	0.173	Table B.4-2	1	30	25	25	19	141
5	5052-H34	10200	3787.5	0.33	1.3	0.173	Table B.4-1	1	34	26	24	20	141
6	6061-T6 W	10100	3787.5	0.33	1.3	0.173	Table B.4-1	1	24	15	15	15	141
7	6063-T6W	10100	3787.5	0.33	1.3	0.173	Table B.4-1	1	17	8	8	11	141
8	6061-T6 1	10100	3787.5	0.33	1.3	0.173	Table B.4-2	1	38	35	35	24	141

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	HSS 4x4x.500	HSS4X4X8	Beam	Tube	A500 Gr.46	Typical	6.02	11.9	11.9	21
2	HSS 2x2x0.250	HSS2X2X4	Beam	Tube	A500 Gr.46	Typical	1.51	0.747	0.747	1.31
3	HSS 6x6x.5	HSS6X6X8	Beam	Tube	A500 Gr.46	Typical	9.74	48.3	48.3	81.1



Company : Yungman Engineering
 Designer : MTY
 Job Number :
 Model Name :

Checked By : _____

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	Alum. 1	RT1X1X0.125	Beam	Rectangular Tubes	6061-T6 W	Typical	0.438	0.057	0.057	0.084

Envelope Node Reactions

Node Label	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC		
0	N4	max	0.051	44	0.842	1	0.855	2	0.222	3	0.03	45	0.039	3
1		min	-0.023	3	0.509	3	-1.742	9	-2.36	8	-0.009	2	-0.063	8
2	N18	max	-0.001	2	1.208	1	1.193	44	-0.711	3	0.03	45	0.024	45
3		min	-0.014	9	0.766	2	-2.358	3	-1.93	8	-0.009	2	-0.002	2
4	N32	max	0.002	44	1.173	1	1.198	44	-0.726	3	-0.001	2	0.004	3
5		min	-0.001	3	0.742	2	-2.371	3	-1.911	8	-0.023	9	-0.003	8
6	N46	max	0.018	3	1.101	1	0.92	2	0.035	3	-0.012	3	0.013	44
7		min	-0.011	8	0.704	2	-1.842	9	-2.186	8	-0.02	1	-0.021	3
8	N60	max	0.009	44	1.111	1	0.686	44	0.623	3	0.001	3	-0.002	3
9		min	-0.001	3	0.713	2	-1.352	3	-2.284	8	-0.038	8	-0.01	8
10	N81	max	0.02	3	0.655	1	0.303	2	1.471	3	0.004	2	0.055	44
11		min	-0.048	8	0.401	3	-0.638	9	-2.515	8	-0.064	9	-0.026	3
12	Totals:	max	0	44	6.09	1	5.148	44						
13		min	0	3	3.915	2	-10.297	3						

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

Member	Shape	Code Check	Loc [ft]	LC	Shear Check	Loc [ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn	
0	M93	HSS2X2X4	0.392	0	45	0.019	0	z	45	25.956	62.514	3.326	3.326	2.272	H1-1b
1	M8	HSS4X4X8	0.361	0	3	0.013	3	y	45	238.475	249.228	26.565	26.565	1.069	H1-1b
2	M14	HSS4X4X8	0.361	0	3	0.014	3	y	45	238.475	249.228	26.565	26.565	1.067	H1-1b
3	M13	HSS4X4X8	0.354	0	3	0.045	1.361	z	3	196.028	249.228	26.565	26.565	1.498	H1-1b
4	M7	HSS4X4X8	0.352	0	3	0.047	1.361	z	3	196.028	249.228	26.565	26.565	1.59	H1-1b
5	M20	HSS4X4X8	0.33	0	3	0.017	3	y	45	238.475	249.228	26.565	26.565	1.064	H1-1b
6	M2	HSS4X4X8	0.311	0	3	0.017	3	y	45	238.475	249.228	26.565	26.565	1.055	H1-1b
7	M19	HSS4X4X8	0.303	0	3	0.064	1.361	z	3	196.028	249.228	26.565	26.565	1.722	H1-1b
8	M15	HSS4X4X8	0.286	0	3	0.04	3.5	z	45	234.707	249.228	26.565	26.565	1.751	H1-1b
9	M9	HSS4X4X8	0.286	0	3	0.04	3.5	z	45	234.707	249.228	26.565	26.565	2.27	H1-1b
10	M1	HSS4X4X8	0.273	0	3	0.076	1.361	z	3	196.028	249.228	26.565	26.565	1.656	H1-1b
11	M58	HSS2X2X4	0.272	7.7	45	0.065	7.7	z	3	19.766	62.514	3.326	3.326	2.523	H1-1b
12	M59	HSS2X2X4	0.266	7.7	45	0.041	7.7	z	3	19.766	62.514	3.326	3.326	2.685	H1-1b
13	M60	HSS2X2X4	0.262	0	45	0.056	7.7	z	3	19.766	62.514	3.326	3.326	2.632	H1-1b
14	M26	HSS4X4X8	0.259	0	3	0.011	3	y	45	238.475	249.228	26.565	26.565	1.076	H1-1b
15	M25	HSS4X4X8	0.257	0	3	0.043	5.25	z	45	196.028	249.228	26.565	26.565	1.282	H1-1b
16	M21	HSS4X4X8	0.247	0	3	0.031	3.5	z	45	234.707	249.228	26.565	26.565	2.18	H1-1b
17	M3	HSS4X4X8	0.24	0	3	0.03	3.5	z	45	234.707	249.228	26.565	26.565	2.252	H1-1b
18	M27	HSS4X4X8	0.203	0	3	0.023	3.5	z	45	234.707	249.228	26.565	26.565	1.291	H1-1b
19	M98	HSS2X2X4	0.201	0	3	0.067	0	z	3	19.766	62.514	3.326	3.326	2.456	H1-1b
20	M35	HSS4X4X8	0.171	0	3	0.016	3	y	45	238.475	249.228	26.565	26.565	1.062	H1-1b
21	M52	HSS2X2X4	0.161	7.7	45	0.041	7.7	z	3	19.766	62.514	3.326	3.326	2.631	H1-1b
22	M66	HSS2X2X4	0.158	7.7	45	0.037	7.7	z	3	19.766	62.514	3.326	3.326	2.673	H1-1b
23	M64	HSS2X2X4	0.156	0	3	0.046	0	z	3	19.766	62.514	3.326	3.326	2.424	H1-1b
24	M99	HSS2X2X4	0.155	0	45	0.032	0	z	3	19.766	62.514	3.326	3.326	2.624	H1-1b
25	M54	HSS2X2X4	0.152	0	45	0.034	0	z	3	19.766	62.514	3.326	3.326	2.63	H1-1b
26	M34	HSS4X4X8	0.147	0	3	0.047	3.958	z	3	212.546	249.228	26.565	26.565	1.663	H1-1b
27	M53	HSS2X2X4	0.144	7.7	45	0.021	7.7	z	3	19.766	62.514	3.326	3.326	2.866	H1-1b
28	M36	HSS4X4X8	0.141	0	3	0.013	3.5	z	45	234.707	249.228	26.565	26.565	2.192	H1-1b
29	M65	HSS2X2X4	0.14	7.7	45	0.021	7.7	z	3	19.766	62.514	3.326	3.326	2.813	H1-1b
30	M92	HSS2X2X4	0.14	7.7	45	0.024	7.7	z	3	19.766	62.514	3.326	3.326	2.923	H1-1b



Company : Yungman Engineering
 Designer : MTY
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 Model Name :

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Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
31	M69	HSS2X2X4	0.108	0	3	0.052	0	z	3		19.766	62.514	3.326	3.326	2.501	H1-1b
32	M73	HSS2X2X4	0.105	7.7	45	0.023	7.7	z	3		19.766	62.514	3.326	3.326	2.769	H1-1b
33	M108	HSS2X2X4	0.061	0	45	0.016	0	z	45		59.82	62.514	3.326	3.326	2.326	H1-1b
34	M107	HSS2X2X4	0.032	0	45	0.008	0	z	3		59.82	62.514	3.326	3.326	2.326	H1-1b
35	M109	HSS2X2X4	0.032	0	45	0.008	0	z	45		59.82	62.514	3.326	3.326	2.326	H1-1b
36	M97	HSS2X2X4	0.017	0	45	0.006	0	z	45		60.479	62.514	3.326	3.326	2.387	H1-1b
37	M111	HSS2X2X4	0.012	0	45	0.003	0	z	3		60.479	62.514	3.326	3.326	2.327	H1-1b
38	M72	HSS6X6X8	0.009	7.7	3	0.013	0	y	44		359.138	403.236	68.31	68.31	3	H1-1b
39	M68	HSS6X6X8	0.008	7.7	45	0.007	0	y	44		359.138	403.236	68.31	68.31	2.813	H1-1b
40	M61	HSS6X6X8	0.007	7.7	45	0.006	7.7	y	44		359.138	403.236	68.31	68.31	2.234	H1-1b
41	M67	HSS6X6X8	0.006	0	45	0.002	0	y	1		359.138	403.236	68.31	68.31	2.593	H1-1b
42	M70	HSS6X6X8	0.004	0	44	0.009	0	y	44		359.138	403.236	68.31	68.31	3	H1-1b

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 Date: 2/10/2024

Specifier's comments:

1 Anchor Design

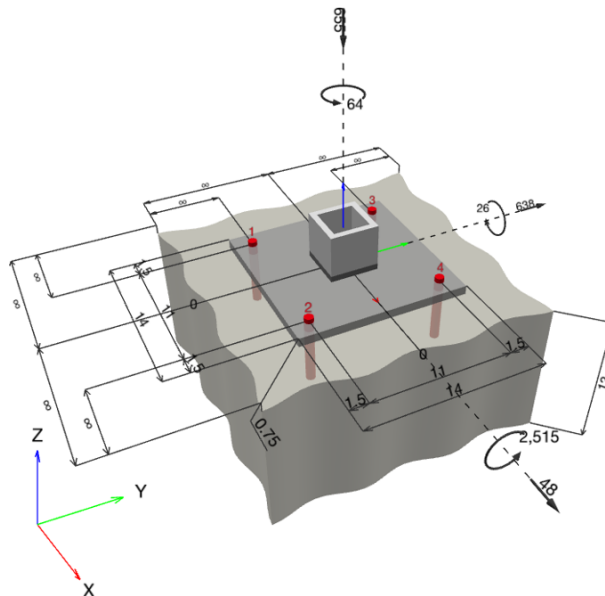
1.1 Input data

Anchor type and diameter:	Kwik Bolt TZ2 - SS 304 3/4 (4 3/4) hnom3
Item number:	2210288 KB-TZ2 3/4x7 SS304
Effective embedment depth:	$h_{ef,act} = 4.750$ in., $h_{nom} = 5.500$ in.
Material:	AISI 304
Evaluation Service Report:	ESR-4266
Issued Valid:	12/17/2021 12/1/2023
Proof:	Design Method ACI 318-19 / Mech
Stand-off installation:	$e_b = 0.000$ in. (no stand-off); $t = 0.750$ in.
Anchor plate ^{CBFEM} :	$I_x \times I_y \times t = 14.000$ in. x 14.000 in. x 0.750 in.;
Profile:	Square HSS (AISC), HSS4X4X.500; (L x W x T) = 4.000 in. x 4.000 in. x 0.500 in.
Base material:	cracked concrete, 2500, $f'_c = 2,500$ psi; $h = 12.000$ in.
Installation:	hammer drilled hole, Installation condition: Dry
Reinforcement:	tension: present, shear: present; no supplemental splitting reinforcement present edge reinforcement: > No. 4 bar



CBFEM - The anchor calculation is based on a component-based Finite Element Method (CBFEM)

Geometry [in.] & Loading [lb, ft.lb]



Input data and results must be checked for conformity with the existing conditions and for plausibility!
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1.1.1 Design results

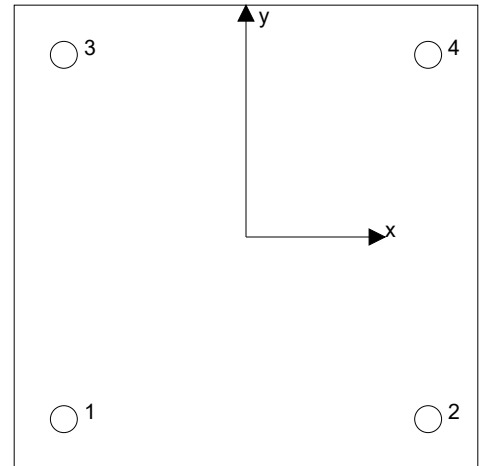
Case	Description	Forces [lb] / Moments [ft.lb]	Seismic	Max. Util. Anchor [%]
1	Load case: Design loads	N = -655; V _x = 48; V _y = 638; M _x = 2,515.000; M _y = 26.000; M _z = 64.000;	no	41

1.2 Load case/Resulting anchor forces

Anchor reactions [lb]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	0	147	29	144
2	0	181	30	179
3	2,301	140	7	140
4	2,277	176	-18	175



resulting tension force in (x/y)=(0.000/0.000): 0 [lb]
 resulting compression force in (x/y)=(0.000/0.000): 0 [lb]

Anchor forces are calculated based on a component-based Finite Element Method (CBFEM)

1.3 Tension load

	Load N _{ua} [lb]	Capacity ϕ N _n [lb]	Utilization $\beta_N = N_{ua} / \phi N_n$	Status
Steel Strength*	2,301	18,041	13	OK
Pullout Strength*	2,301	5,719	41	OK
Concrete Breakout Failure**	4,578	14,386	32	OK

* highest loaded anchor **anchor group (anchors in tension)



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1.3.1 Steel Strength

N_{sa} = ESR value refer to ICC-ES ESR-4266
 $\phi N_{sa} \geq N_{ua}$ ACI 318-19 Table 17.5.2

Variables

$A_{se,N}$ [in. ²]	f_{uta} [psi]
0.24	100,504

Calculations

N_{sa} [lb]
24,055

Results

N_{sa} [lb]	ϕ_{steel}	ϕN_{sa} [lb]	N_{ua} [lb]
24,055	0.750	18,041	2,301

1.3.2 Pullout Strength

$N_{pn,f_c} = N_{p,2500} \lambda_a (f_c'/2500)^{0.5}$ refer to ICC-ES ESR-4266
 $\phi N_{pn,f_c} \geq N_{ua}$ ACI 318-19 Table 17.5.2

Variables

f_c' [psi]	λ_a	$N_{p,2500}$ [lb]
2,500	1.000	8,799

Calculations

$(f_c'/2500)^{0.5}$
1.000

Results

N_{pn,f_c} [lb]	$\phi_{concrete}$	$\phi N_{pn,f_c}$ [lb]	N_{ua} [lb]
8,799	0.650	5,719	2,301

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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1.3.3 Concrete Breakout Failure

$$N_{cbg} = \left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \quad \text{ACI 318-19 Eq. (17.6.2.1b)}$$

$$\phi N_{cbg} \geq N_{ua} \quad \text{ACI 318-19 Table 17.5.2}$$

$$A_{Nc} \text{ see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)}$$

$$A_{Nc0} = 9 h_{ef}^2 \quad \text{ACI 318-19 Eq. (17.6.2.1.4)}$$

$$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e_N}{3 h_{ef}}} \right) \leq 1.0 \quad \text{ACI 318-19 Eq. (17.6.2.3.1)}$$

$$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-19 Eq. (17.6.2.4.1b)}$$

$$\psi_{cp,N} = \text{MAX} \left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0 \quad \text{ACI 318-19 Eq. (17.6.2.6.1b)}$$

$$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5} \quad \text{ACI 318-19 Eq. (17.6.2.2.1)}$$

Variables

h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
4.750	0.030	0.000	∞	1.000
c_{ac} [in.]	k_c	λ_a	f'_c [psi]	
10.000	21	1.000	2,500	

Calculations

A_{Nc} [in. ²]	A_{Nc0} [in. ²]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
359.81	203.06	0.996	1.000	1.000	1.000	10,870

Results

N_{cbg} [lb]	$\phi_{concrete}$	ϕN_{cbg} [lb]	N_{ua} [lb]
19,181	0.750	14,386	4,578

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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1.4 Shear load

	Load V_{ua} [lb]	Capacity ϕV_n [lb]	Utilization $\beta_v = V_{ua} / \phi V_n$	Status
Steel Strength*	181	10,768	2	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	640	40,397	2	OK
Concrete edge failure in direction **	N/A	N/A	N/A	N/A

* highest loaded anchor **anchor group (relevant anchors)

1.4.1 Steel Strength

V_{sa} = ESR value refer to ICC-ES ESR-4266
 $\phi V_{steel} \geq V_{ua}$ ACI 318-19 Table 17.5.2

Variables

$A_{se,V}$ [in. ²]	f_{uta} [psi]
0.24	100,504

Calculations

V_{sa} [lb]
16,567

Results

V_{sa} [lb]	ϕ_{steel}	ϕV_{sa} [lb]	V_{ua} [lb]
16,567	0.650	10,768	181

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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1.4.2 Pryout Strength

$$V_{cp,g} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right] \quad \text{ACI 318-19 Eq. (17.7.3.1b)}$$

$$\phi V_{cp,g} \geq V_{ua} \quad \text{ACI 318-19 Table 17.5.2}$$

$$A_{Nc} \text{ see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)}$$

$$A_{Nc0} = 9 h_{ef}^2 \quad \text{ACI 318-19 Eq. (17.6.2.1.4)}$$

$$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e_N}{3 h_{ef}}} \right) \leq 1.0 \quad \text{ACI 318-19 Eq. (17.6.2.3.1)}$$

$$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0 \quad \text{ACI 318-19 Eq. (17.6.2.4.1b)}$$

$$\psi_{cp,N} = \text{MAX} \left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0 \quad \text{ACI 318-19 Eq. (17.6.2.6.1b)}$$

$$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5} \quad \text{ACI 318-19 Eq. (17.6.2.2.1)}$$

Variables

k_{cp}	h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]
2	4.750	1.197	0.090	∞
$\psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f'_c [psi]
1.000	10.000	21	1.000	2,500

Calculations

A_{Nc} [in. ²]	A_{Nc0} [in. ²]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
637.56	203.06	0.856	0.987	1.000	1.000	10,870

Results

$V_{cp,g}$ [lb]	$\phi_{concrete}$	$\phi V_{cp,g}$ [lb]	V_{ua} [lb]
57,711	0.700	40,397	640

1.5 Combined tension and shear loads, per ACI 318-19 section 17.8

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.402	0.017	5/3	23	OK

$$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} \leq 1$$

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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1.6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates as per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- Refer to the manufacturer's product literature for cleaning and installation instructions.
- For additional information about ACI 318 strength design provisions, please go to <https://submittals.us.hilti.com/PROFISAnchorDesignGuide/>
- Hilti post-installed anchors shall be installed in accordance with the Hilti Manufacturer's Printed Installation Instructions (MPII). Reference ACI 318-19, Section 26.7.
- The anchor design methods in PROFIS Engineering require rigid anchor plates, as per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means that the anchor plate should be sufficiently rigid to prevent load re-distribution to the anchors due to elastic/plastic displacements. The user accepts that the anchor plate is considered close to rigid by engineering judgment."

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1.7 Installation data

Profile: Square HSS (AISC), HSS4X4X.500; (L x W x T) = 4.000 in. x 4.000 in. x 0.500 in.

Hole diameter in the fixture: $d_f = 0.812$ in.

Plate thickness (input): 0.750 in.

Drilling method: Hammer drilled

Cleaning: Manual cleaning of the drilled hole according to instructions for use is required.

Anchor type and diameter: Kwik Bolt TZ2 - SS 304 3/4 (4 3/4) hnom3

Item number: 2210288 KB-TZ2 3/4x7 SS304

Maximum installation torque: 125.386 ft.lb

Hole diameter in the base material: 0.750 in.

Hole depth in the base material: 5.750 in.

Minimum thickness of the base material: 8.000 in.

Hilti KB-TZ2 stud anchor with 5.5 in embedment, 3/4 (4 3/4) hnom3, Stainless steel, installation per ESR-4266

1.7.1 Recommended accessories

Drilling

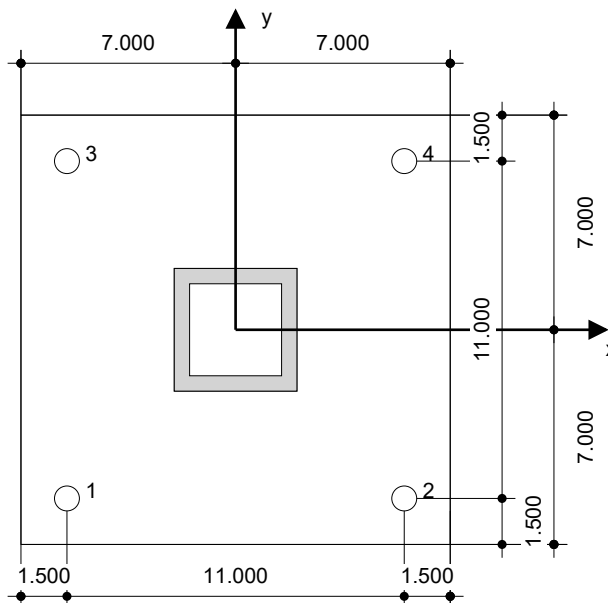
- Suitable Rotary Hammer
- Properly sized drill bit

Cleaning

- Manual blow-out pump

Setting

- Torque wrench
- Hammer



Coordinates Anchor [in.]

Anchor	x	y	C _{-x}	C _{+x}	C _{-y}	C _{+y}
1	-5.500	-5.500	-	-	-	-
2	5.500	-5.500	-	-	-	-
3	-5.500	5.500	-	-	-	-
4	5.500	5.500	-	-	-	-

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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2 Anchor plate design

2.1 Input data

Anchor plate:	Shape: Rectangular $l_x \times l_y \times t = 14.000 \text{ in} \times 14.000 \text{ in} \times 0.750 \text{ in}$ Calculation: CBFEM Material: ASTM A36; $F_y = 36,000 \text{ psi}$; $\epsilon_{lim} = 5.00\%$
Anchor type and size:	Kwik Bolt TZ2 - SS 304 3/4 (4 3/4) hnom3, $h_{ef} = 4.750 \text{ in}$
Anchor stiffness:	The anchor is modeled considering stiffness values determined from load displacement curves tested in an independent laboratory. Please note that no simple replacement of the anchor is possible as the anchor stiffness has a major impact on the load distribution results.
Design method:	AISC and LRFD-based design using component-based FEM
Stand-off installation:	$e_b = 0.000 \text{ in}$ (No stand-off); $t = 0.750 \text{ in}$
Profile:	HSS4X4X.500; (L x W x T x FT) = 4.000 in x 4.000 in x 0.500 in x - Material: ASTM A500 Gr.B Rect; $F_y = 46,000 \text{ psi}$; $\epsilon_{lim} = 5.00\%$ Eccentricity x: 0.000 in Eccentricity y: 0.000 in
Base material:	Cracked concrete; 2500; $f_{c,cyl} = 2,500 \text{ psi}$; $h = 12.000 \text{ in}$
Welds (profile to anchor plate):	Type of redistribution: Plastic Material: E70xx
Mesh size:	Number of elements on edge: 8 Min. size of element: 0.394 in Max. size of element: 1.969 in

2.2 Summary

	Profile		Anchor plate		Concrete [%]	
	σ_{Ed} [psi]	ϵ_{PI} [%]	σ_{Ed} [psi]	ϵ_{PI} [%]	Hole bearing [%]	
1	14,046	0.00	9,197	0.00	1	3

2.3 Anchor plate classification

Anchor tension forces	Equivalent rigid anchor plate (CBFEM)	Component-based Finite Element Method (CBFEM) anchor plate design
Anchor 1	0 lb	0 lb
Anchor 2	0 lb	0 lb
Anchor 3	1,630 lb	2,301 lb
Anchor 4	1,581 lb	2,277 lb

User accepted to consider the selected anchor plate as rigid by his/her engineering judgement. This means the anchor design guidelines can be applied.

2.4 Profile/Stiffeners/Plate

Profile and stiffeners are verified at the level of the steel to concrete connection. The connection design does not replace the steel design for critical cross sections, which should be performed outside of PROFIS Engineering.

2.4.1 Equivalent stress and plastic strain

Part	Material	f_y [psi]	ϵ_{lim} [%]	σ_{Ed} [psi]	ϵ_{PI} [%]	Status
Plate	ASTM A36	36,000	5.00	9,197	0.00	OK
Profile	ASTM A500 Gr.B Rect	46,000	5.00	14,046	0.00	OK
Profile	ASTM A500 Gr.B	46,000	5.00	13,738	0.00	OK

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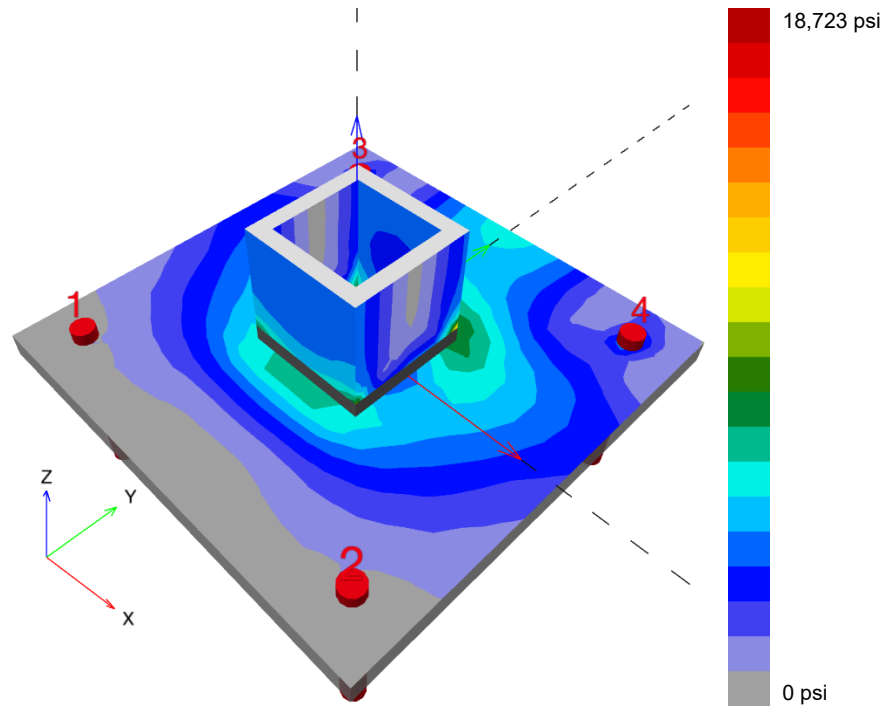
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Part	Material	f_y [psi]	ϵ_{lim} [%]	σ_{Ed} [psi]	ϵ_{Pl} [%]	Status
Profile	Rect ASTM A500 Gr.B	46,000	5.00	8,968	0.00	OK
Profile	Rect ASTM A500 Gr.B	46,000	5.00	8,252	0.00	OK

2.4.1.1 Equivalent stress



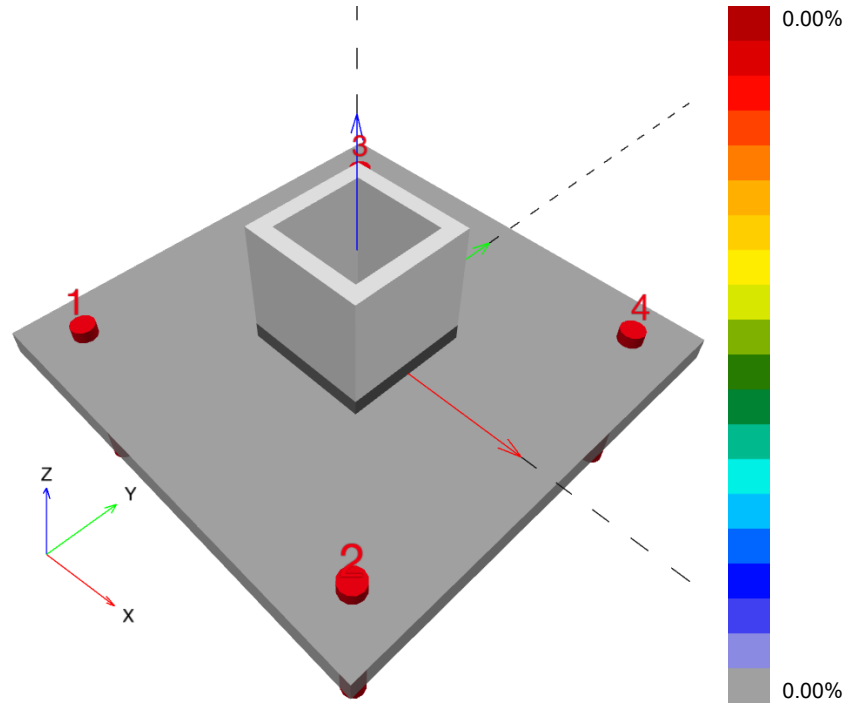
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2.4.1.2 Plastic strain



2.4.2 Plate hole bearing resistance, AISC 360-16 Section J3

Equations

$$R_n = \min(1.2 l_c t F_u, 2.4 d t F_u) \quad (\text{AISC 360-16 J3-6a, c})$$

$$\Phi R_n = 0.75 R_n$$

$$V \leq \Phi R_n$$

Variables

	l_c [in]	t [in]	F_u [psi]	d [in]	R_n [lb]
Anchor 1	1.124	0.750	58,000	0.750	58,681
Anchor 2	1.115	0.750	58,000	0.750	58,177
Anchor 3	10.188	0.750	58,000	0.750	78,300
Anchor 4	12.159	0.750	58,000	0.750	78,300

Results

	V [lb]	ΦR_n [lb]	Utilization [%]	Status
Anchor 1	147	44,010	1	OK
Anchor 2	181	43,633	1	OK
Anchor 3	140	58,725	1	OK
Anchor 4	176	58,725	1	OK

2.5 Concrete

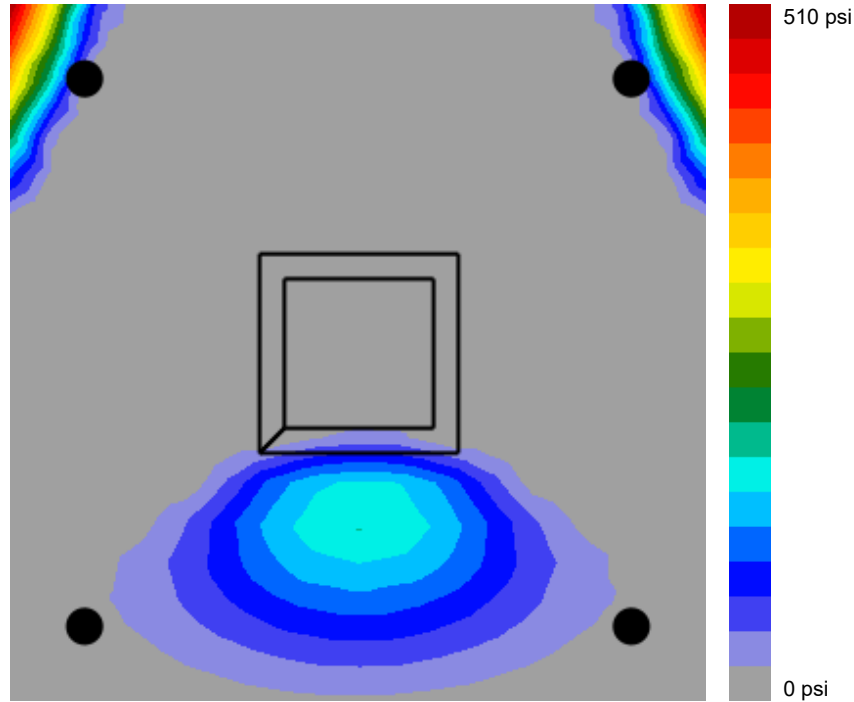
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2.5.1 Compression in concrete under the anchor plate



2.5.2 Concrete block compressive strength resistance check, AISC 360-16 Section J8

Equations

$$F_p = \Phi f_{p,max}$$

$$f_{p,max} = 0.85 f'_c \sqrt{\left(\frac{A_2}{A_1}\right)} \leq 1.7 f'_c; \sqrt{\left(\frac{A_2}{A_1}\right)} \leq 2$$

$$\sigma = \frac{N}{A_1}$$

$$\text{Utilization} = \frac{\sigma}{F_p}$$

Variables

N [lb]	f' _c [psi]	Φ	A ₁ [in ²]	A ₂ [in ²]
5,428	2,500	0.65	85.18	3,435.47

Results

Load combination	F _p [psi]	σ [psi]	Utilization [%]	Status
	2,762	64	3	OK

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2.6 Symbol explanation

A_1	Loaded area of concrete
A_2	Supporting area
d	Nominal diameter of the bolt
ϵ_{lim}	Limit plastic strain
ϵ_{pl}	Plastic strain from CBFEM results
f_c	Concrete compressive strength
f'_c	Concrete compressive strength
F_u	Specified minimum tensile strength of the connected material
F_p	Concrete block design bearing strength
$f_{p,max}$	Concrete block design bearing strength maximum
f_y	Yield strength
l_c	Clear distance, in the direction of the force, between the edge of the hole and the edge of the adjacent hole or edge of the material
N	Resulting compression force
σ	Average stress in concrete
σ_{Ed}	Equivalent stress
Φ	Resistance factor
ΦR_n	Factored resistance
t	Thickness of the anchor plate
V	Resultant of shear forces V_y, V_z in bolt.

2.7 Warnings

- By using the CBFEM calculation functionality of PROFIS Engineering you may act outside the applicable design codes and your specified anchor plate may not behave rigid. Please, validate the results with a professional designer and/or structural engineer to ensure suitability and adequacy for your specific jurisdiction and project requirements.
- The anchor is modeled considering stiffness values determined from load displacement curves tested in an independent laboratory. Please note that no simple replacement of the anchor is possible as the anchor stiffness has a major impact on the load distribution results.



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3 Summary of results

Design of the anchor plate, anchors, welds and other elements are based on CBFEM (component based finite element method) and AISC.

	Max. utilization	Status
Anchors	41%	OK
Anchor plate	26%	OK
Concrete	3%	OK
Profile	31%	OK

Fastening meets the design criteria!



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