City of La Crosse, Wisconsin

City Hall
400 La Crosse Street
La Crosse, WI 54601

Meeting Agenda

Commercial/Multi-Family Design Review Committee

Friday, July 18, 2025 **9:00 AM** **Virtual via Zoom**

The meeting is conducted through video conferencing.
Members of the public will be able to attend the meeting via video conferencing with the link below.

Join Zoom Meeting
Click this link (or typing the URL in your web browser address bar):
https://cityoflacrosse-org.zoom.us/j/82799188943?pwd=pAMS3MbJusyBqR9mjCiK3jH6cAP0rk.1

Meeting ID: 827 9918 8943
Passcode: 212646

Dial by your location
1 312 626 6799

If you wish to speak please provide written comments by emailing acklint@cityoflacrosse.org, using a drop box outside of City Hall or mailing the Department of Planning, Development, and Assessment at 400 La Crosse St, WI 54601

Call to Order

Agenda Items:

1. 25-0762 Review of plans for a new building located at 1801 Losey Blvd. (Central HS Greenhouse)

Attachments: Project Plans 7-18-25
Elevations 7-18-25
Location/Site Plan 7-18-25
Project Specifications 7-18-25
Greenhouse Calculations 7-18-25
Foundation Plans 7-18-25

Adjournment

Notice is further given that members of other governmental bodies may be present at the above scheduled meeting to gather information about a subject over which they have decision-making responsibility.

NOTICE TO PERSONS WITH A DISABILITY
Requests from persons with a disability who need assistance to participate in this meeting should call the City Clerk's office at (608) 789-7510 or send an email to ADAcityclerk@cityoflacrosse.org, with as much advance notice as possible.

City of La Crosse, Wisconsin

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400 La Crosse Street
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Text File

File Number: 25-0762

Agenda Date:

Version: 1

Status: Agenda Ready

In Control: Commercial/Multi-Family Design Review Committee

File Type: Review of Plans

Agenda Number: 1.

STRUCTURAL NOTES

GENERAL REQUIREMENTS

NOTES & DETAILS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER THESE GENERAL NOTES.

ALL MATERIALS AND WORK PERFORMED SHALL CONFORM TO THE REQUIREMENTS OF THE 2018 WISCONSIN COMMERCIAL BUILDING CODE INCLUDING LOCAL ORDINANCES, AMENDMENTS, AND EXCEPTIONS.

ALL MATERIAL SHALL BE FURNISHED AS SHOWN HEREIN UNLESS THE OWNER OR ENGINEER APPROVES EQUAL ALTERNATIVES.

NO CHANGES ARE TO BE MADE TO THESE PLANS WITHOUT THE KNOWLEDGE AND WRITTEN CONSENT OF UNITED GREENHOUSE SYSTEMS, INC. AND THE GREENHOUSE DESIGN ENGINEER.

THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES, INCLUDING, BUT NOT LIMITED TO BRACING AND SHORING. OBSERVATION VISITS TO THE SITE BY THE ENGINEER AND/OR THE ENGINEER'S REPRESENTATIVE(S) SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.

DESIGN LOADS

ROOF:
GROUND SNOW LOAD (Pg) = 40 PSF
SNOW IMPORTANCE FACTOR (Is) = 1.0
SNOW LOAD EXPOSURE FACTOR (Ce) = 1.0
ROOF THERMAL FACTOR (Ct) = 0.85 (CONTINUOUSLY HEATED GREENHOUSE PER ASCE7)
ROOF SLOPE FACTOR (Cs) = 0.67
SLOPED ROOF/FLAT ROOF SNOW (Ps) = 16 PSF
LIVE LOAD = 20 PSF (REDUCIBLE PER ASCE7)
DEAD LOAD (TOP CHORD) = 3 PSF
DEAD MISC. LOAD (BOTTOM CHORD) = 5 PSF
MISC. IS UNIFORMLY DISTRIBUTED ON BOTTOM CHORDS

WIND:
WIND SPEED = 115 MPH ULTIMATE (89.1 MPH NOMINAL)
WIND EXPOSURE = B
WIND RISK CATEGORY = II
ENCLOSURE CLASSIFICATION = ENCLOSED
INTERNAL PRESSURE COEFFICIENT (GCpi) = ±0.18
COMPONENT & CLADDING DESIGN PRESSURE = (SEE CHART CC)

SEISMIC:
SEISMIC RISK CATEGORY = II
SEISMIC SITE CLASS = D
SEISMIC DESIGN CATEGORY = A
SEISMIC IMPORTANCE FACTOR (I) = 1.0
SPECTRA RESPONSE COEFF. Sds = 0.057 Sd1 = 0.058
FORCE RESISTING SYSTEM:
- ORD. MOMENT FRAMES OF STEEL
- STEEL CONC. BRACED FRAMES
DESIGN BASE SHEAR (W x Cs) = W x 0.017 MAX
ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE

CHART CC

COMPONENT & CLADDING DESIGN PRESSURE (PSF)

BUILDING AREA	TRIBUTARY AREA SQ. FT.		
	10	25	50
INTERIOR ROOF	-21.8	-21.0	-20.4
EDGE ROOF	-37.9	-33.9	-30.9
CORNER ROOF	-56.0	-51.2	-47.6
INTERIOR WALL	-25.8	-24.4	-23.3
EDGE WALL	-31.9	-29.0	-26.9
EDGE ZONE STRIP WIDTH (FT)	4.2		

LOADS ARE TO BE APPLIED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 WISCONSIN COMMMERCIAL BUILDING CODE.

DESIGN CRITERIA

THE MINIMUM COMPRESSIVE STRENGTH OF CONCRETE (f'c) AT 28 DAYS SHALL BE:
FOUNDATION f'c = 3,000 PSI

STRUCTURAL STEEL (VALUE SHOWN IS MINIMUM)

TYP. STEEL TUBING U.N.O.	Fy=50,000 PSI (ASTM A500, GRADE C) Fu=65,000 PSI
STEEL TUBING (SQ. 4x4)	Fy=60,000 PSI (PER ALLIED TESTS) Fu=75,000 PSI (PER ALLIED TESTS)
4" HAT TOP CHORDS	Fy=50,000 PSI (ASTM A1011, GRADE 50) Fu=65,000 PSI
3" HAT PURLINS/GIRTS	Fy=55,000 PSI (ASTM A1011, GRADE 55) Fu=70,000 PSI
STRUCTURAL PLATE	Fy=50,000 PSI (ASTM A572, GRADE 50)
WELDING ELECTRODES	E70XX (AWS D1.1)
GRADE 5 BOLTS	Fu=120,000 PSI Fy=92,000 PSI

ALL BOLTS ARE TO BE GRADE 5 OR ASTM A325 (SNUG-TIGHT INSTALLATION).

NOTE: BRACING ASSEMBLIES MUST HAVE A SAFE WORKING LOAD OF HALF THE RESPECTIVE CABLE BREAKING STRENGTHS SHOWN BELOW.
3/16" DIAM. BRACING CABLE-7X19 STRAND BREAKING STR. = 4200 LBS
1/4" DIAM. BRACING CABLE-7X19 STRAND BREAKING STR. = 7000 LBS
3/8" DIAM. BRACING CABLE-7X19 STRAND BREAKING STR. = 14400 LBS
(SEE PLANS FOR BRACE CABLE SIZES AND LOCATIONS)

ALL COLD-FORMED MEMBERS ARE TO BE GALVANIZED SHEET WITH MIN. MATERIAL THICKNESSES OF; 18 GA. = .0516, 16 GA. = .0635, 14 GA. = .0785, 12 GA. = .1084

GREENHOUSE ROOF AND WALL CLADDING (PANEL) IS NOT A DESIGNED ELEMENT. ANY MAINTENANCE MUST BE PERFORMED IN A MANNER THAT DOES NOT SUBJECT CLADDING TO THE CONCENTRATED LOAD OF A MAINTENANCE WORKER.

UNITED GREENHOUSE SYSTEMS, INC. IS A COMPONENT METAL BUILDING/GREENHOUSE MANUFACTURER AND SUPPLIER, AND 4TH DIMENSION DESIGN, INC. IS THE STRUCTURAL ENGINEER FOR THE STEEL STRUCTURE, NEITHER OF WHICH ARE TO BE CONSIDERED THE PROJECT DESIGN PROFESSIONAL OF RECORD. THE DESIGN OF ANY MATERIALS NOT DIRECTLY SUPPLIED BY UNITED GREENHOUSE SYSTEMS, INC. IS NOT PROVIDED UNDER THE SCOPE OF THIS CONTRACT.

UNITED GREENHOUSE SYSTEMS AND 4TH DIMENSION DESIGN TAKE NO RESPONSIBILITY FOR THE EVALUATION OF ANY EXISTING OR ADJACENT STRUCTURES WHOSE CONDITION(S) MAY BE AFFECTED IN ANY WAY BY THE PRESENCE OF THE GREENHOUSE.

DESIGN METHOD

BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)

MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN (AISC 360-10)

COLD FORMED STEEL DESIGN MANUAL (AISI S100-12)

STRUCTURAL STEEL

ALL STRUCTURAL STEEL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF ASTM AND SHALL BE FABRICATED AND ERECTED ACCORDING TO AISC/AISI SPECIFICATIONS.

WELDING SHALL CONFORM TO THE LATEST EDITION OF AWS D1.1. ALL WELDING SHALL BE PERFORMED BY APPROVED CERTIFIED WELDERS.

NO HOLES, OTHER THAN THOSE SPECIFICALLY DETAILED, SHALL BE ALLOWED THROUGH STRUCTURAL STEEL MEMBERS.

ERECTION OF STEEL MEMBERS SHALL NOT COMMENCE UNTIL ALL CONCRETE/MASONRY ELEMENTS HAVE ATTAINED AT LEAST 75% OF THEIR INTENDED MINIMUM COMPRESSIVE STRENGTH.

LA CROSSE CENTRAL HIGH SCHOOL
JOE LEDVINA
807 EAST AVENUE SOUTH
LA CROSSE, WI 54601

GREENHOUSE

DRAWING SCHEDULE

WISCONSIN
JOEL A. NELSON
E-41443
MILWAUKEE, WI
3-25-25
PROFESSIONAL ENGINEER

PAGE
S-0.0
COVER SHEET

4th DIMENSION DESIGN, INC.
817 Venture Court
Waukesha, WI 53189
PHONE: (262) 896-6500
FAX: (262) 896-6505
www.4DD.com

PROJECT: PROJECT "B" 2025

CUSTOMER: LA CROSSE CENTRAL HIGH SCHOOL
JOE LEDVINA
807 EAST AVENUE SOUTH
LA CROSSE, WI 54601

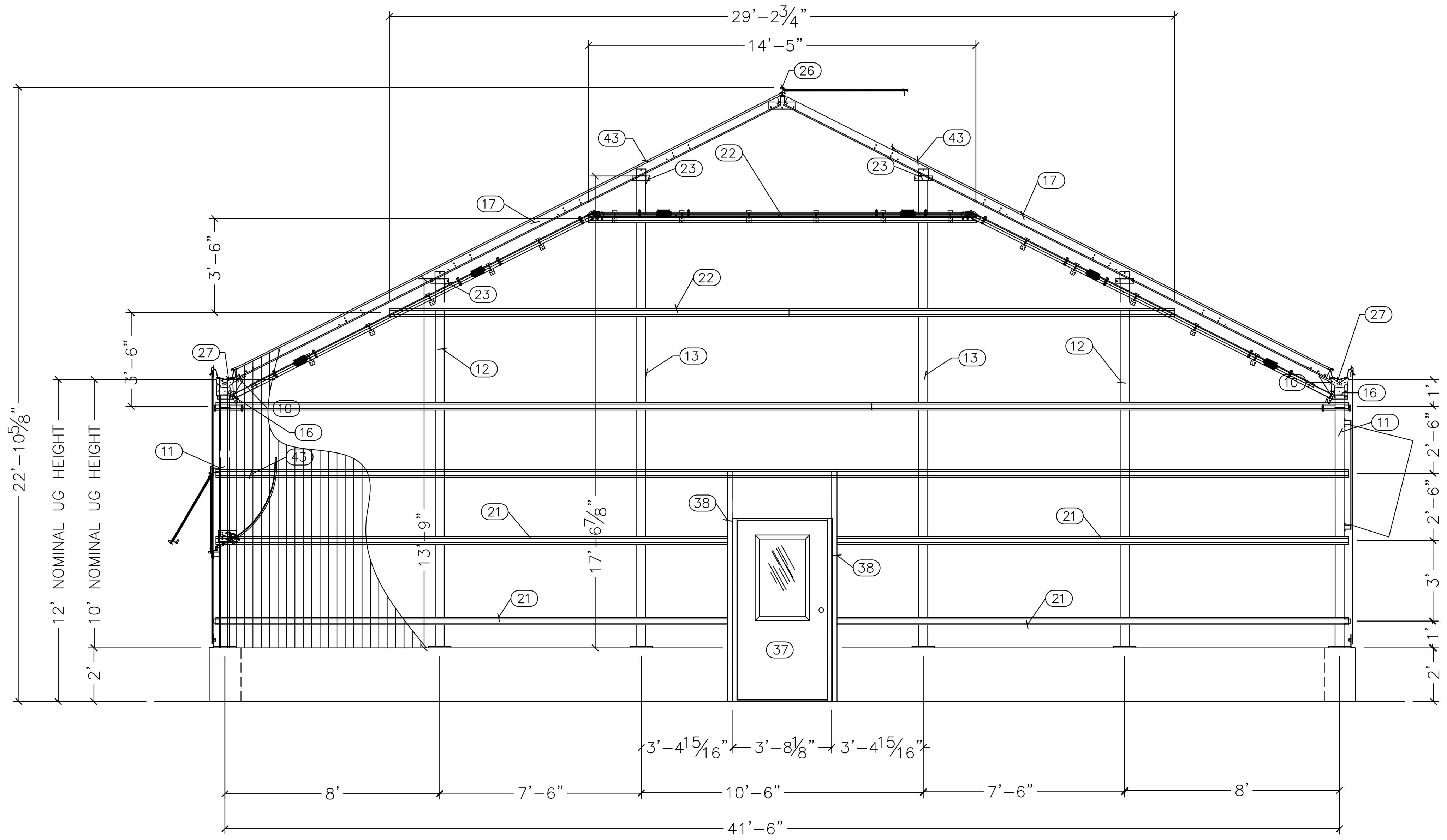
DRAWING BY: DTC

DRAWING TITLE: (1) 41'-6" X 60'-0"
AMBASSADOR CROWN
GREENHOUSE STRUCTURES

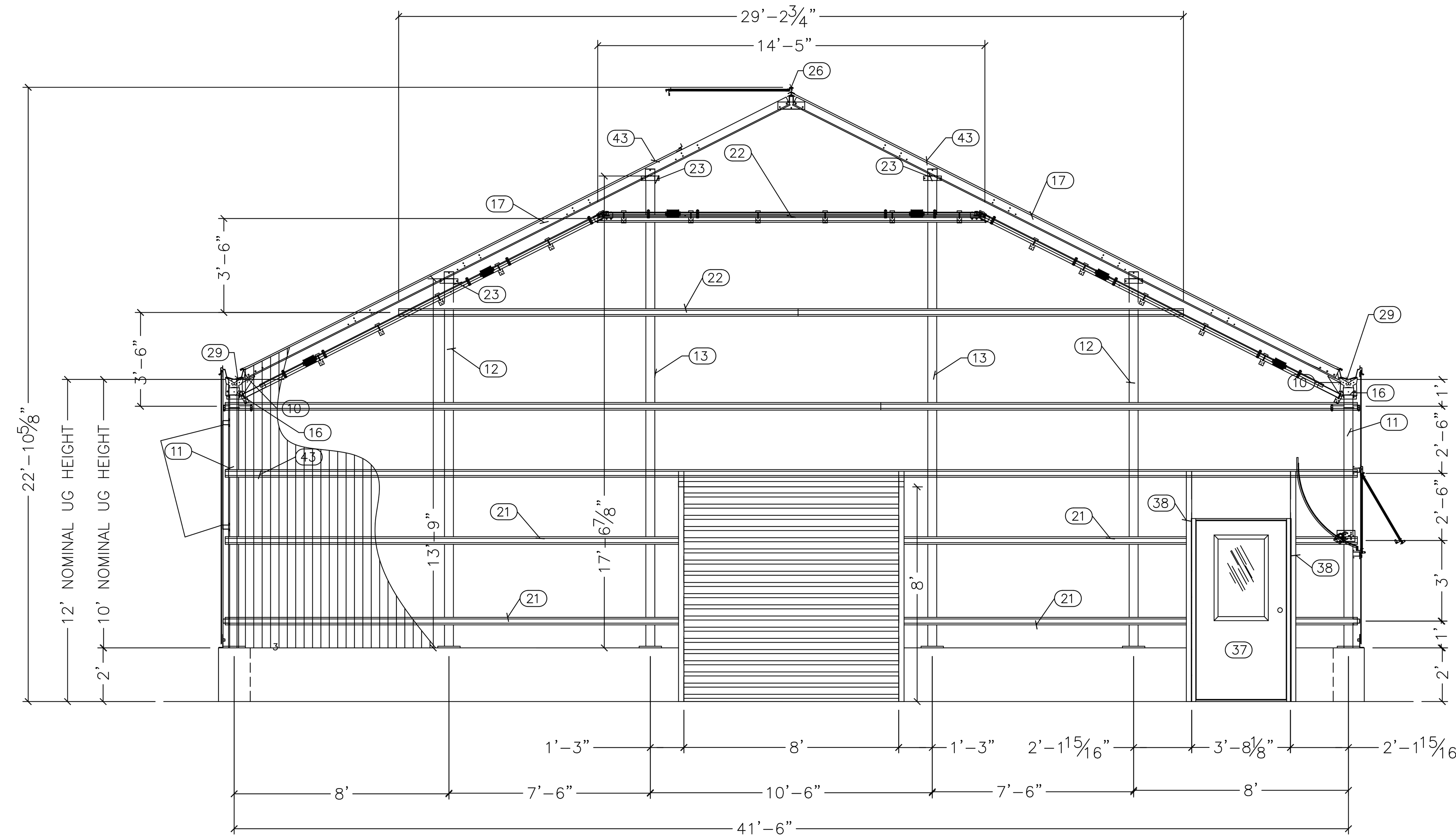
DATE: 2/6/2025

REV.	DATE	DESCRIPTION

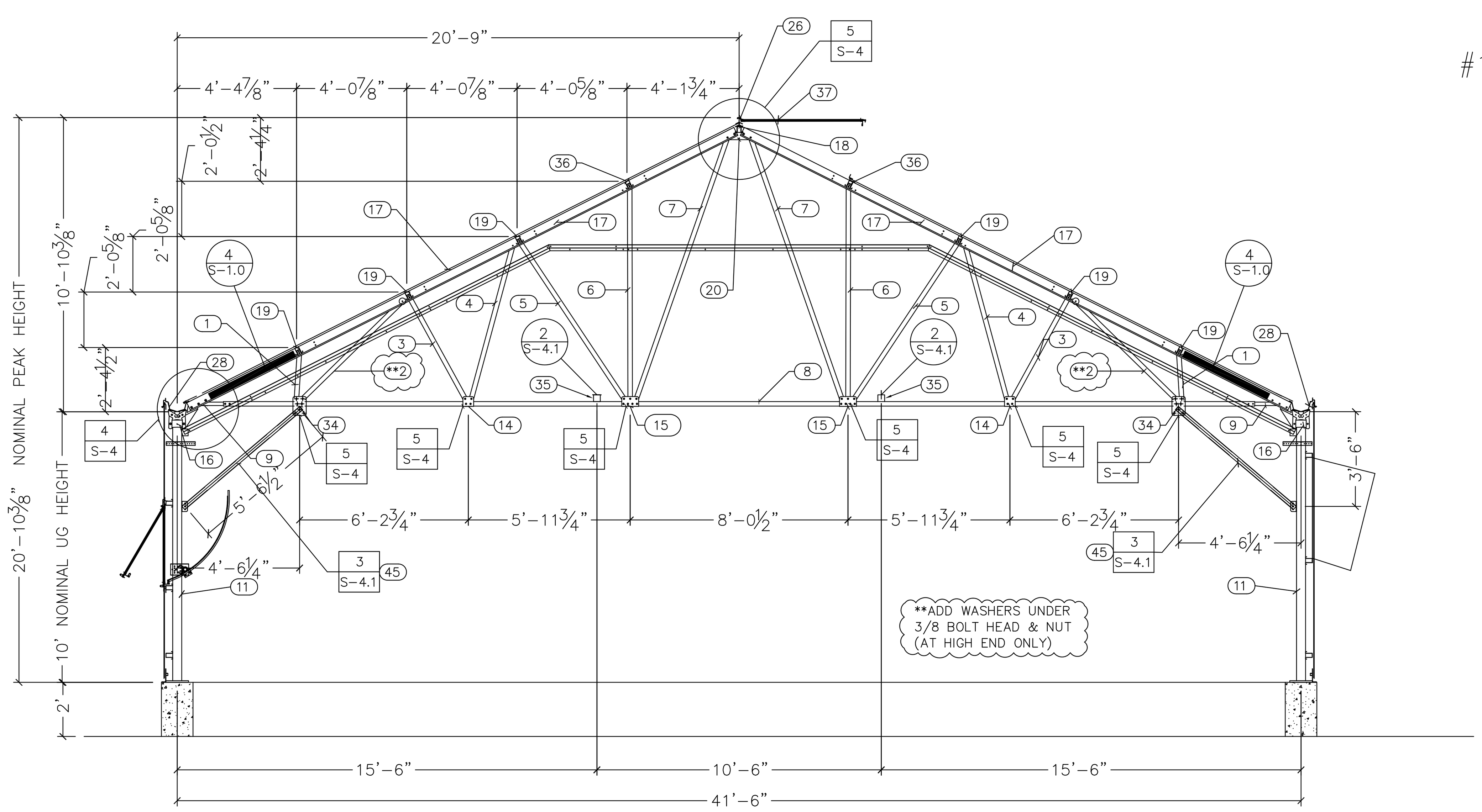
UNITED GREENHOUSE SYSTEMS, INC.
1857 TOWER DRIVE
EDGERTON, WI 53534
PHONE: 1-800-433-6834
1-608-884-8941
FAX: 1-608-884-6137



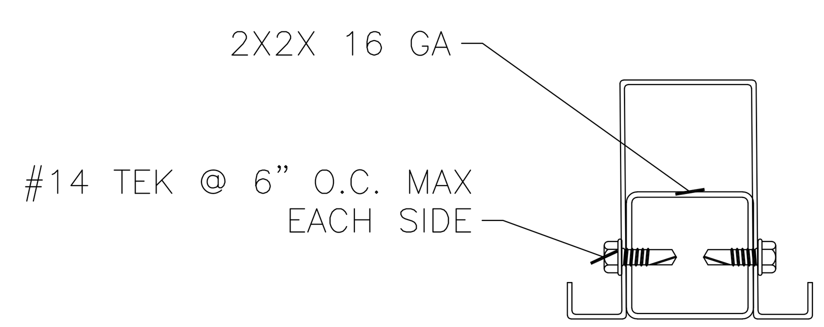
1 S-1.0 SOUTH ENDWALL ELEVATION



2 S-1.0 NORTH ENDWALL ELEVATION



3 S-1.0 TRUSS SECTION



4 S-1.0 REINFORCED TOP CHORD

	DESCRIPTION	PART #
1	FILL TUBE 2" X 16GA. X 20-1/4 HC	F0S3A020.25
2	FILL TUBE 2" X 16GA. X 61-11/16 HC	F0S3A061.87
3	FILL TUBE 2" X 16GA. X 50-3/4 HC	F0S3A050.75
4	FILL TUBE 2" X 16GA. X 70-1/4 HC	F0S3A070.25
5	FILL TUBE 2" X 16GA. X 82-11/16 HC	F0S3A082.87
6	FILL TUBE 2" X 16GA. X 93-3/16 HC	F0S3A093.19
7	FILL TUBE 2" X 12GA. X 122 HC	F4S3A122
8	BOTTOM CHORD 2" X 457" X 12GA	C0S3D457
9	HEEL PL. 10 GA. W/10GA. GUSSET AC	
10	HEEL PL. 10 GA. W/10GA. GUSSET EW	
11	COL TUBE 4" SQ. X 152" X 11GA.	C9542152
12	COL TUBE 4" SQ. X 192" X 13GA.	C9542192
13	COL TUBE 4" SQ. X 244" X 13GA.	C9542244
14	BRACKET LOWER CHORD 2 HOLE	S0001982
15	BRACKET LOWER CHORD 3 HOLE	S0001980
16	GUTTER BRACKET FOR 4" SQ.	C0153215
17	AC 41'6" TOP CHORD X 16GA.	C012D271.5
18	PURLIN RIDGE 9-1/2 X16 GA X 69.375	P009D069.375R
19	PURLIN 9-1/2 X 69.375 X 16 GA	P009D069.375
20	SPLICE CHEVRON ASSY 6/12	S0000120
21	GIRT 9-1/2 X 260 X 18GA.	G0950260
22	GIRT 9-1/2 X 178.5 X 18GA.	G0950178.5
23	4" SQ. COLUMN TO TOP CHORD	B0004000
24		
25		
26	ALUMINUM RIDGE BAR 6/12 (144,151)	A8410144(151)

	DESCRIPTION	PART #
27	GUTTER CR 14GA. START FOR 10'	GCR1412145.75
28	GUTTER CR 14GA. INTER FOR 10'	GCR1412121.75
29	GUTTER CR 14GA. STOP FOR 10'	GCR1412101.75
30	GUTTER OUTLET ASSY 13" W/ UPSET	G0092400
31	CABLE 3/16" W/ EYEBOLT X 140"	C5562140
32	CABLE 3/16" W/ SWAYBRACE LUG	C5563140
33	CABLE 1/4" X 224"	C5581224
34	PLATE ,BOTTOM CHORD KNEE BRACE	S0001982/KR
35	TUBE 1-1/2" SQ. X 16GA. X 288	C9016288
36	PURLIN 9-1/2 X 69.375 X 12 GA	P009D069.375X
37	PLYCO SINGLE SWING DOOR 3'-6" X 6'-8"	DS042X080R
38	DOOR JAMB - 3"	J0030144
39	SCHAEFER 12" HAF FAN	FHVS12
40	COL TUBE 4" SQ. X 264" X 13GA.	C9542264
41	GIRT 9-1/2 X 147 X 18GA.	G0950147
42	GIRT 9-1/2 X 291 X 18GA.	G0950243
43	LEXAN 8MM PCSS CLEAR	LEX86____
44	MODINE UNIT HEATER HSB340	HSB340
45	KNEE BRACE 2" X 16GA. X 66.5"	F2S3C066.5
46		
47		
48		
49		
50		
51		
52		
53		

1/4" = 1'-0"

PAGE
S-1.0
ELEVATIONS & TRUSS SECT.

4th DIMENSION DESIGN, INC.
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PROJECT: PROJECT "B" 2025

CUSTOMER: LA CROSSE CENTRAL HIGH SCHOOL
JOE LEDVINA
807 EAST AVENUE SOUTH
LA CROSSE, WI 54601

DRAWING BY: DTC

DRAWING TITLE: (1) 41'-6" X 60'-0" AMBASSADOR CROWN GREENHOUSE STRUCTURES

DATE: 2/6/2025

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EDGERTON, WI 53534
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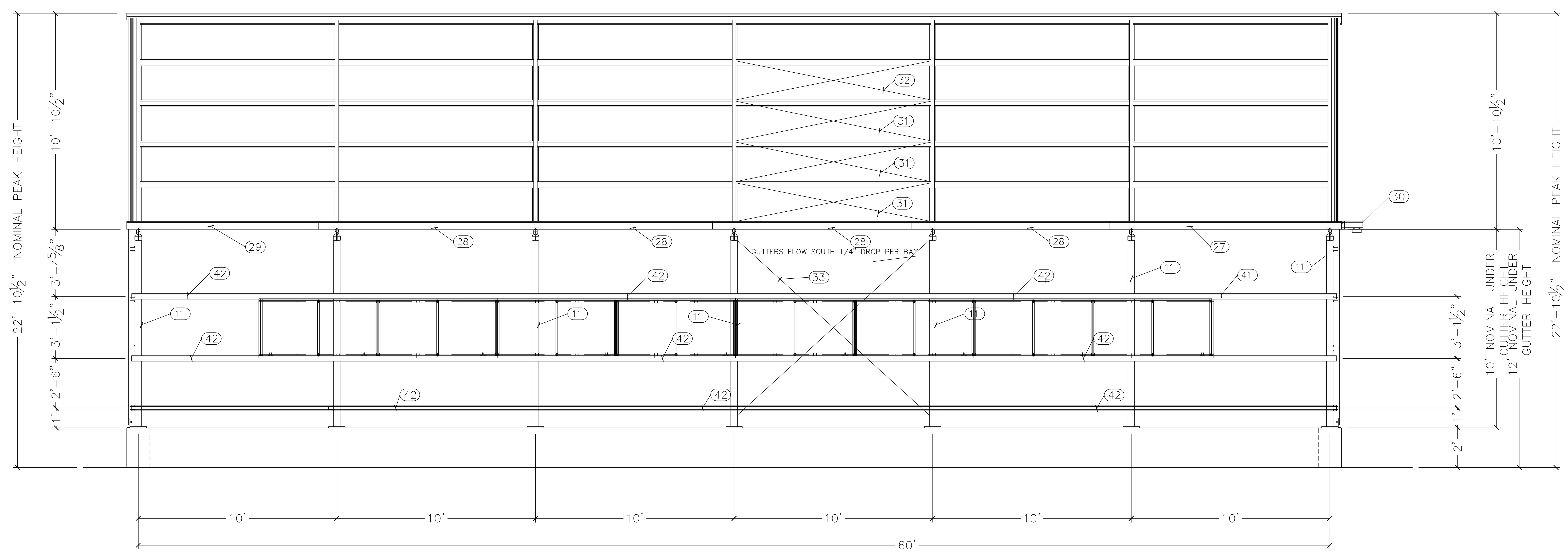
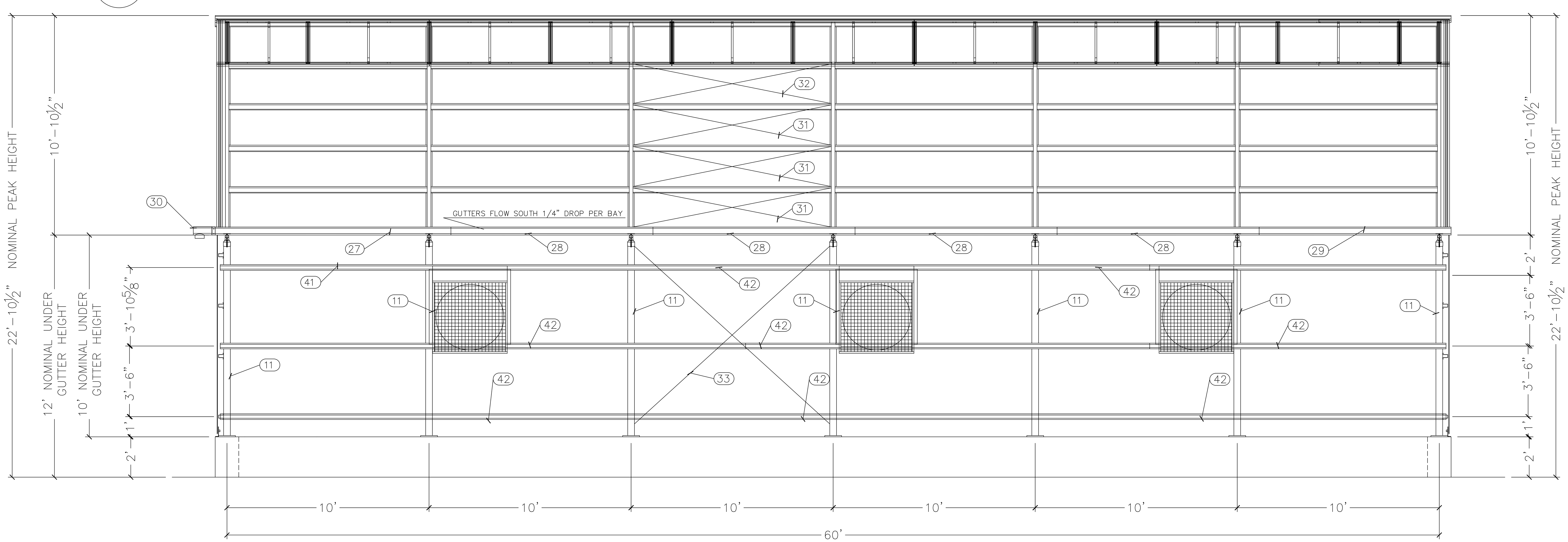


1 S-2.0 WEST SIDEWALL ELEVATION



2 S-2.0 EAST SIDEWALL ELEVATION

3/8" = 1'-0"

PAGE
S-2.0
ELEVATIONS

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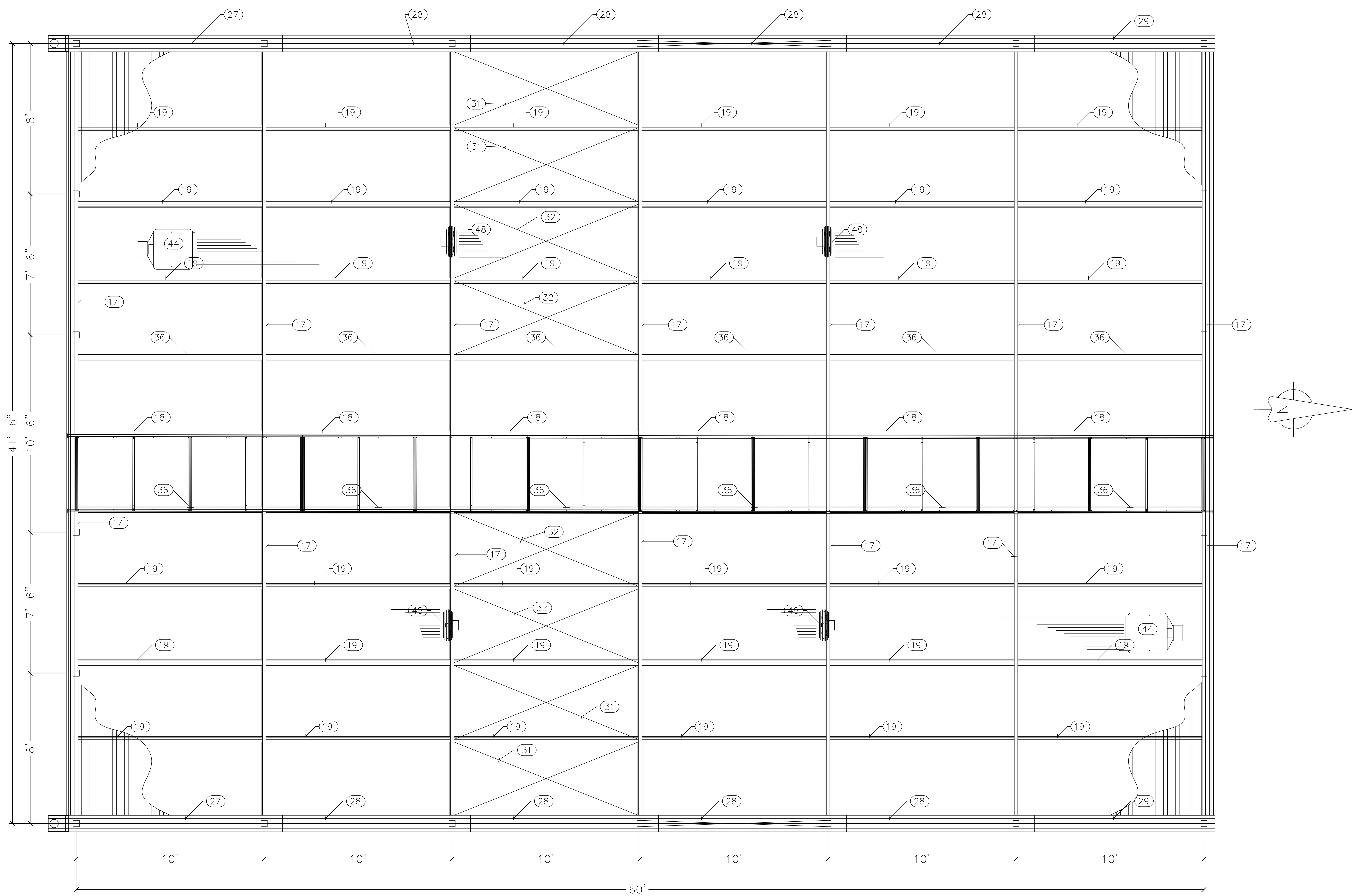
ALL DIMENSIONS GIVEN TO THE
CENTERS OF COLUMNS



1
S-3.0
ROOF FRAMING PLAN

3/8" = 1'-0"

PAGE
S-3.0
ROOF FRAMING PLAN

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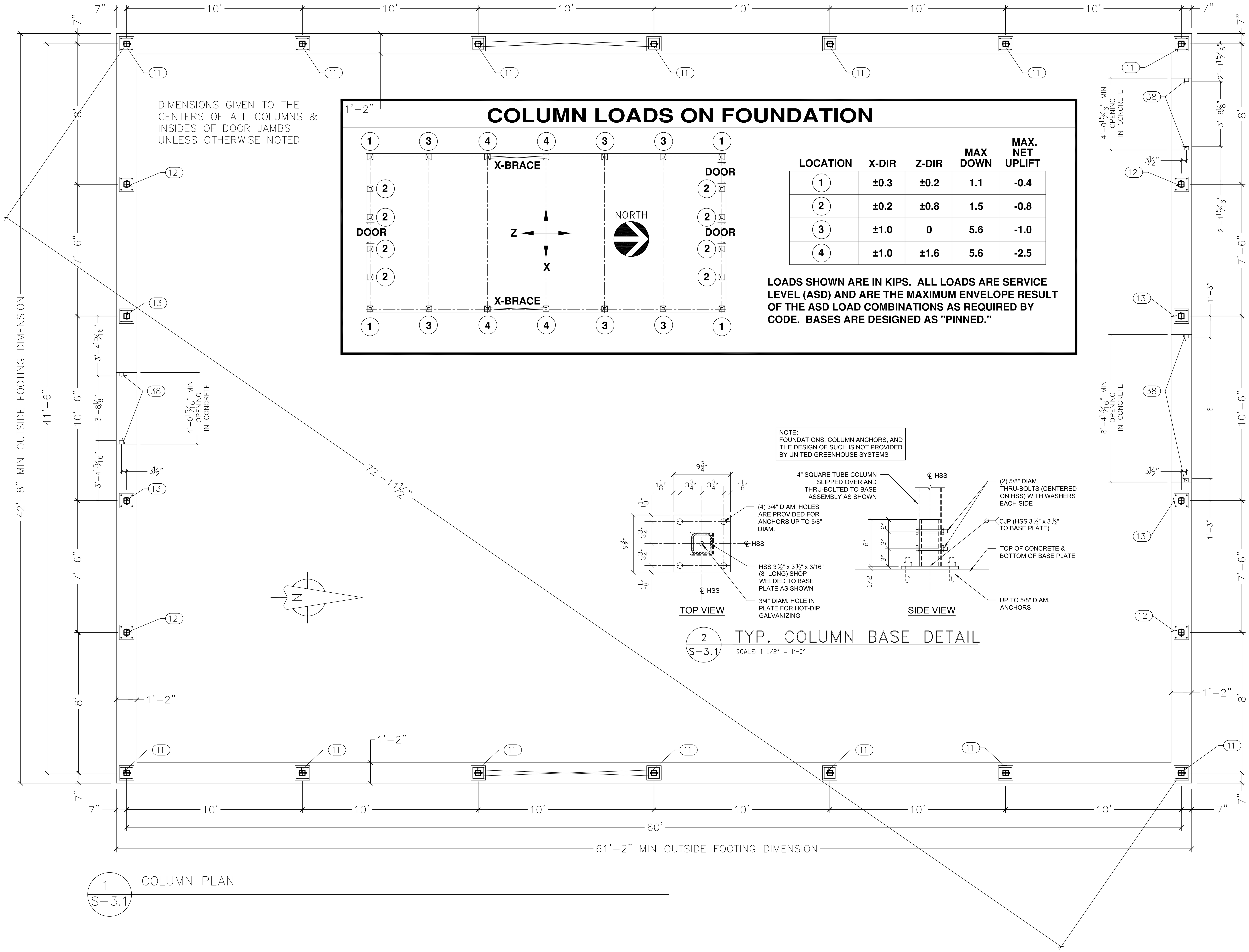
PAGE

S-3.1

COLUMN PLAN



1 S-3.1 COLUMN PLAN

COLUMN LOADS ON FOUNDATION

LOCATION	X-DIR	Z-DIR	MAX DOWN	MAX. NET UPLIFT
1	±0.3	±0.2	1.1	-0.4
2	±0.2	±0.8	1.5	-0.8
3	±1.0	0	5.6	-1.0
4	±1.0	±1.6	5.6	-2.5

LOADS SHOWN ARE IN KIPS. ALL LOADS ARE SERVICE LEVEL (ASD) AND ARE THE MAXIMUM ENVELOPE RESULT OF THE ASD LOAD COMBINATIONS AS REQUIRED BY CODE. BASES ARE DESIGNED AS "PINNED."

NOTE:
FOUNDATIONS, COLUMN ANCHORS, AND THE DESIGN OF SUCH IS NOT PROVIDED BY UNITED GREENHOUSE SYSTEMS

2 S-3.1 TYP. COLUMN BASE DETAIL

SCALE: 1 1/2" = 1'-0"

3/8" = 1'-0"

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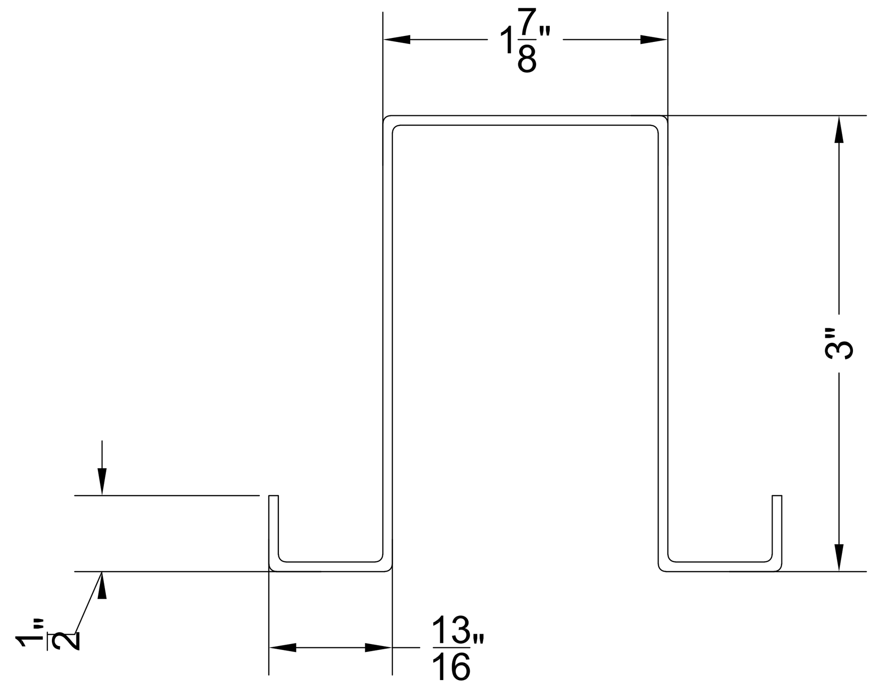
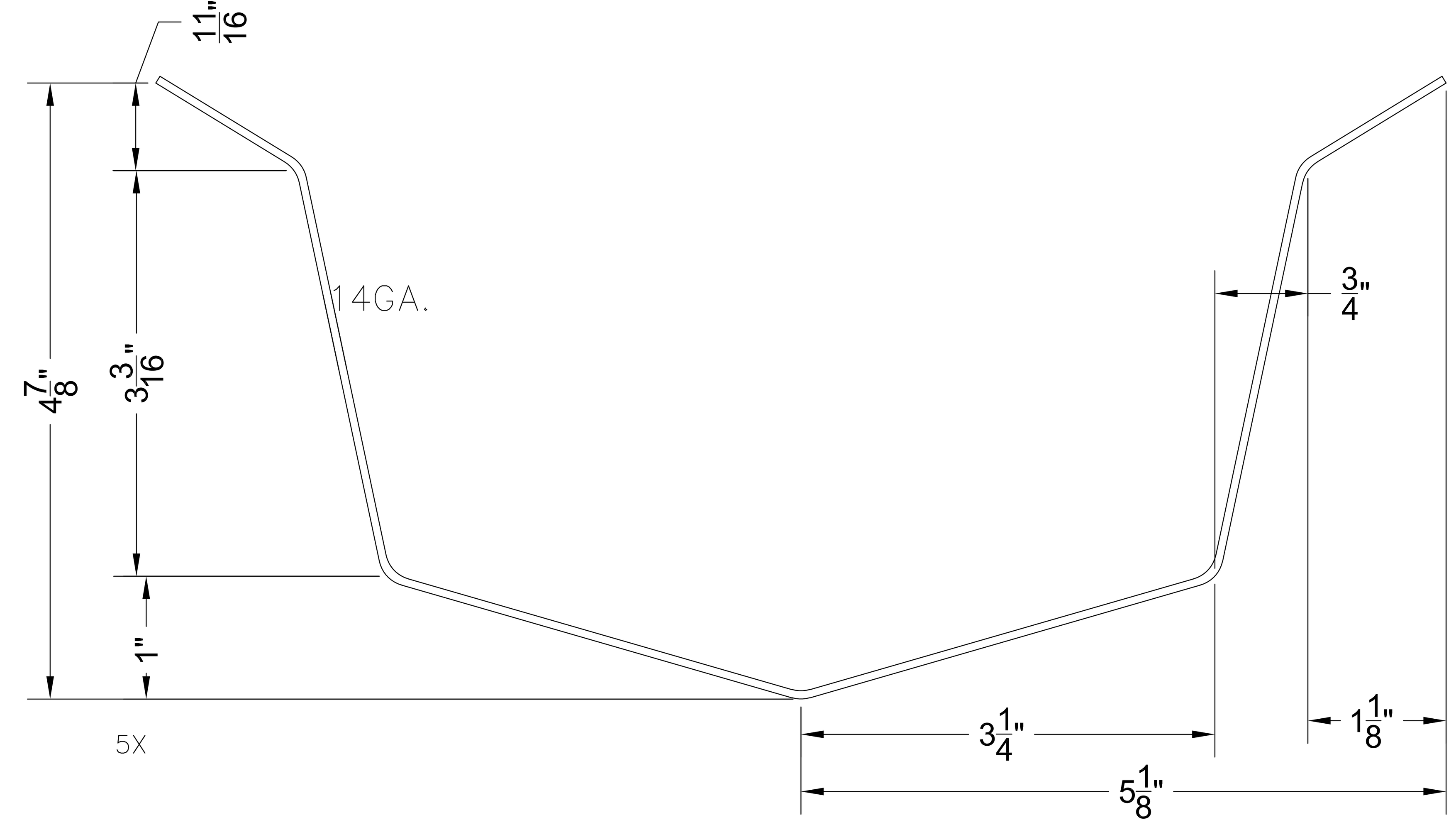


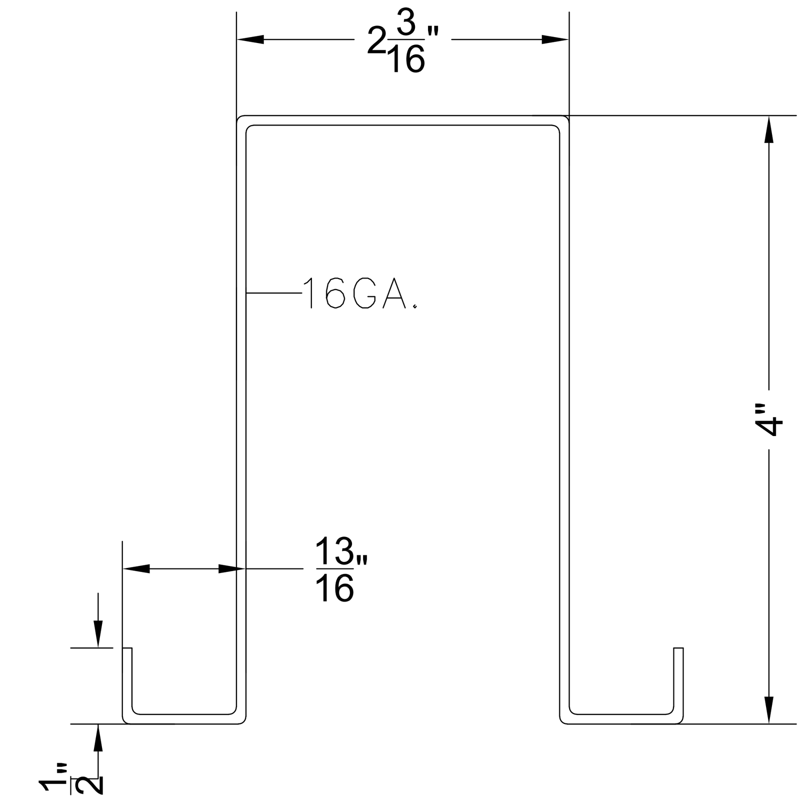
1 S-4 PURLIN / GIRT SECTION

PURLIN PER PLANS
RIDGE PURLIN PER PLANS
GIRT PER PLANS

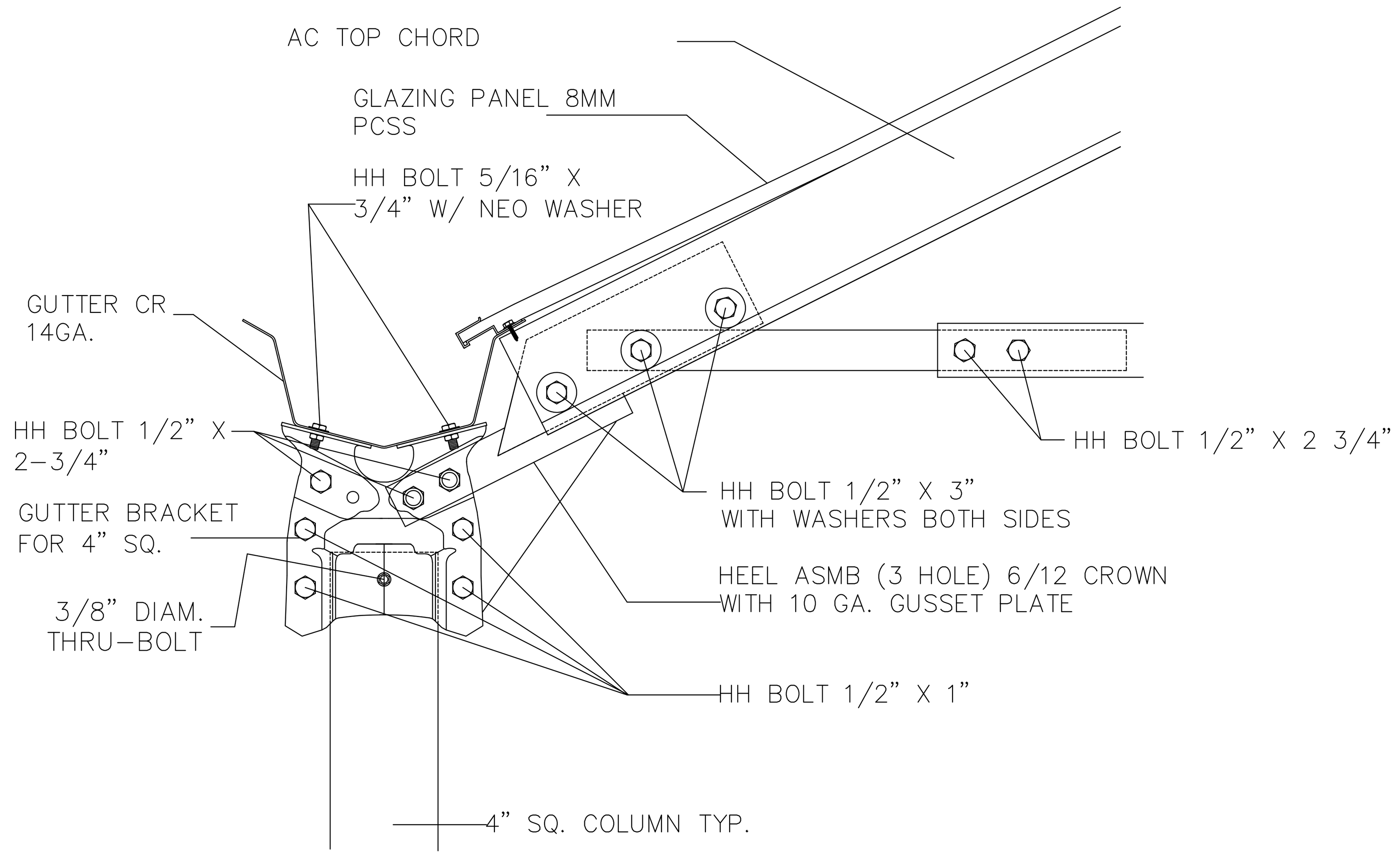


2 S-4 GUTTER SECTION

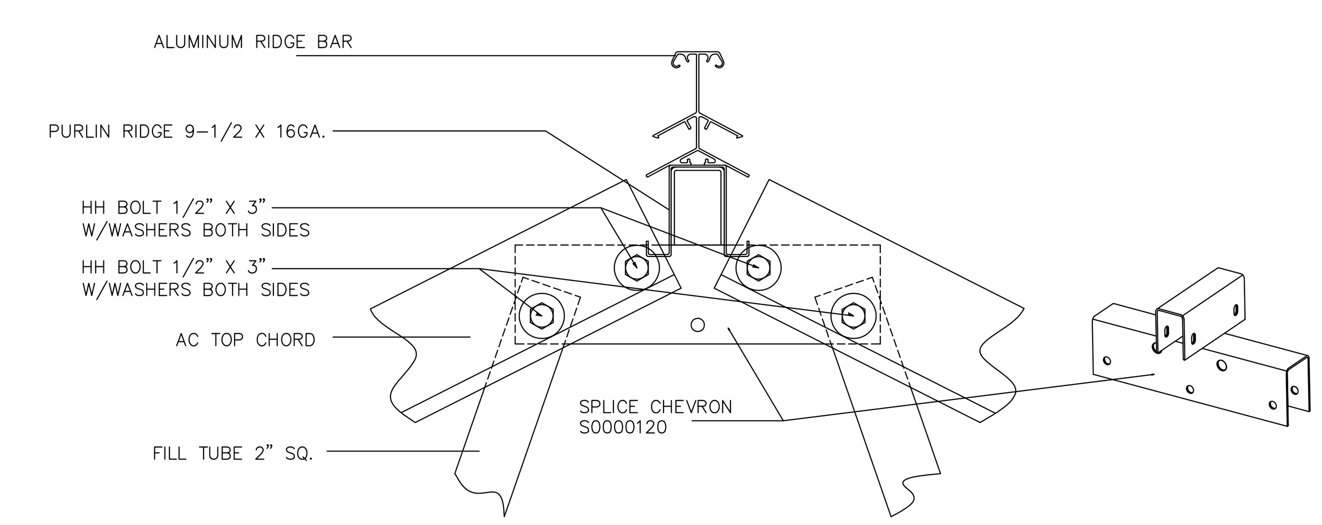
GUTTER LAPS IN DIRECTION OF FLOW



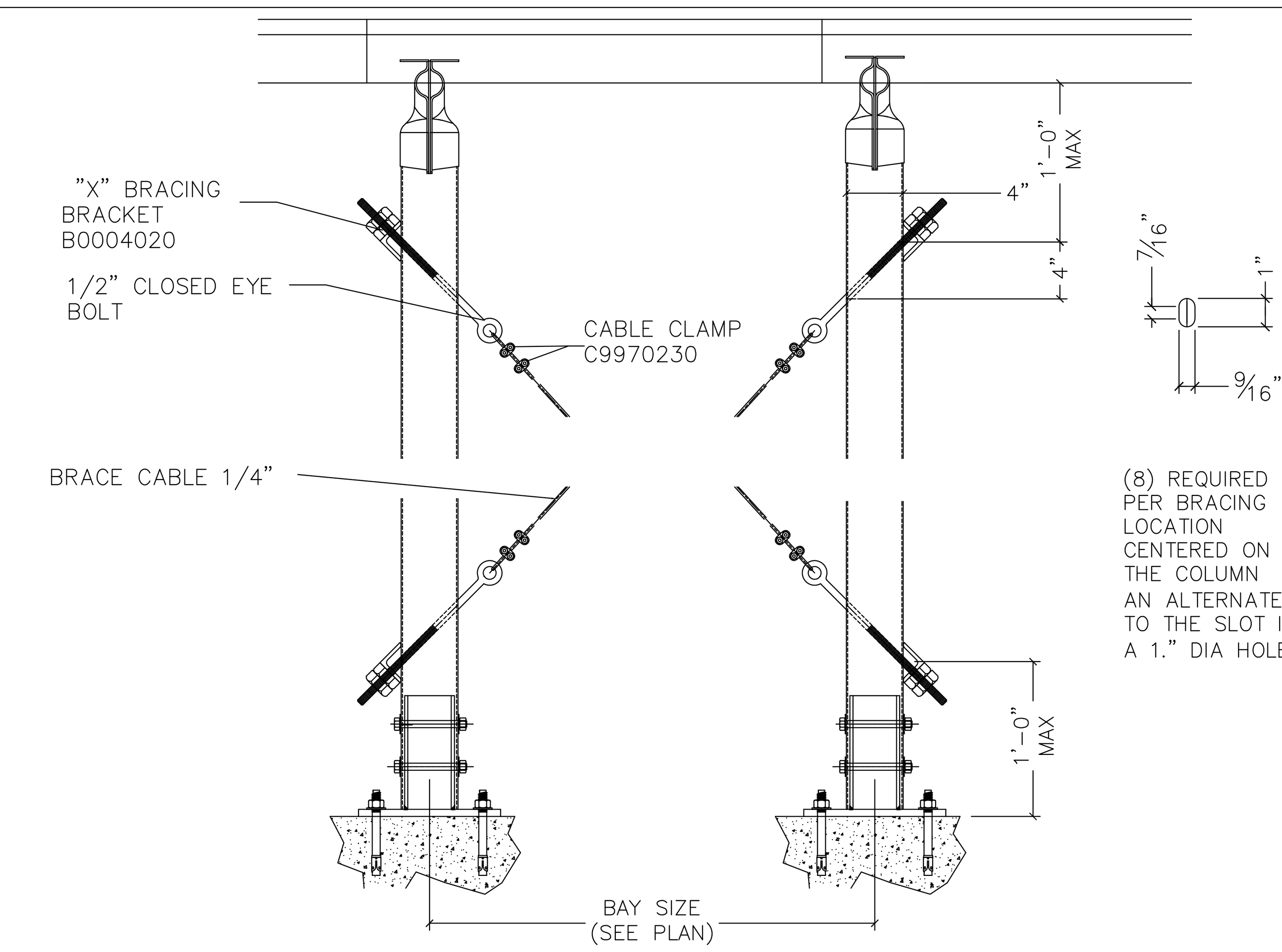
3 S-4 TOP CHORD SECTION



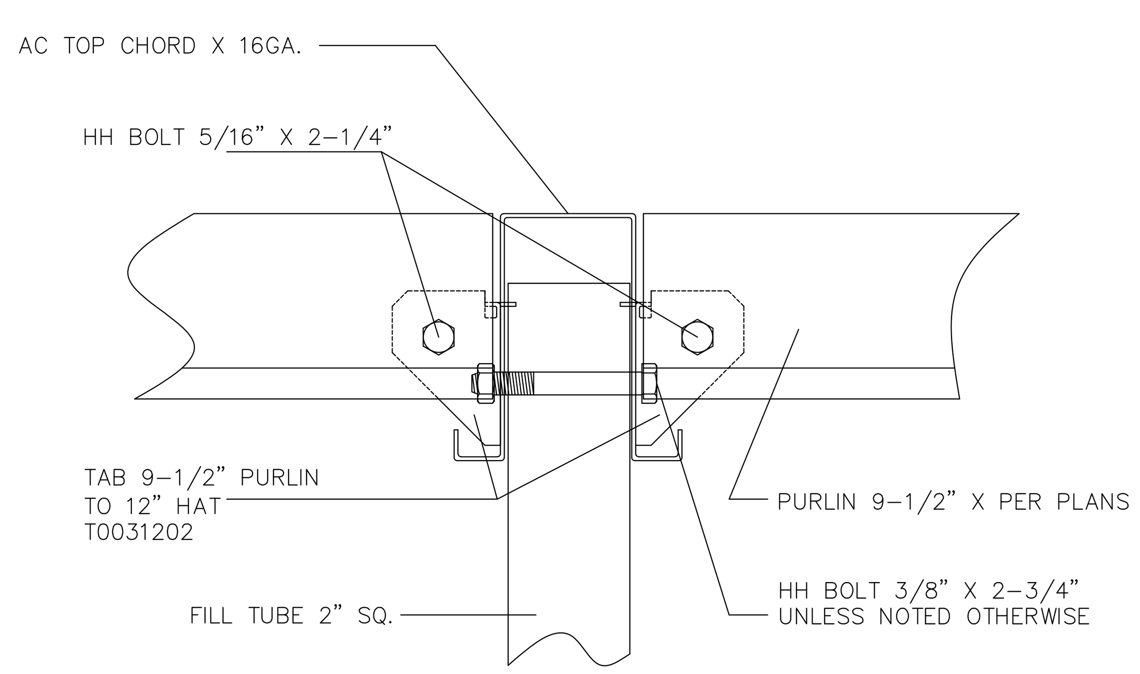
4 S-4 COLUMN TO TRUSS CONNECTION



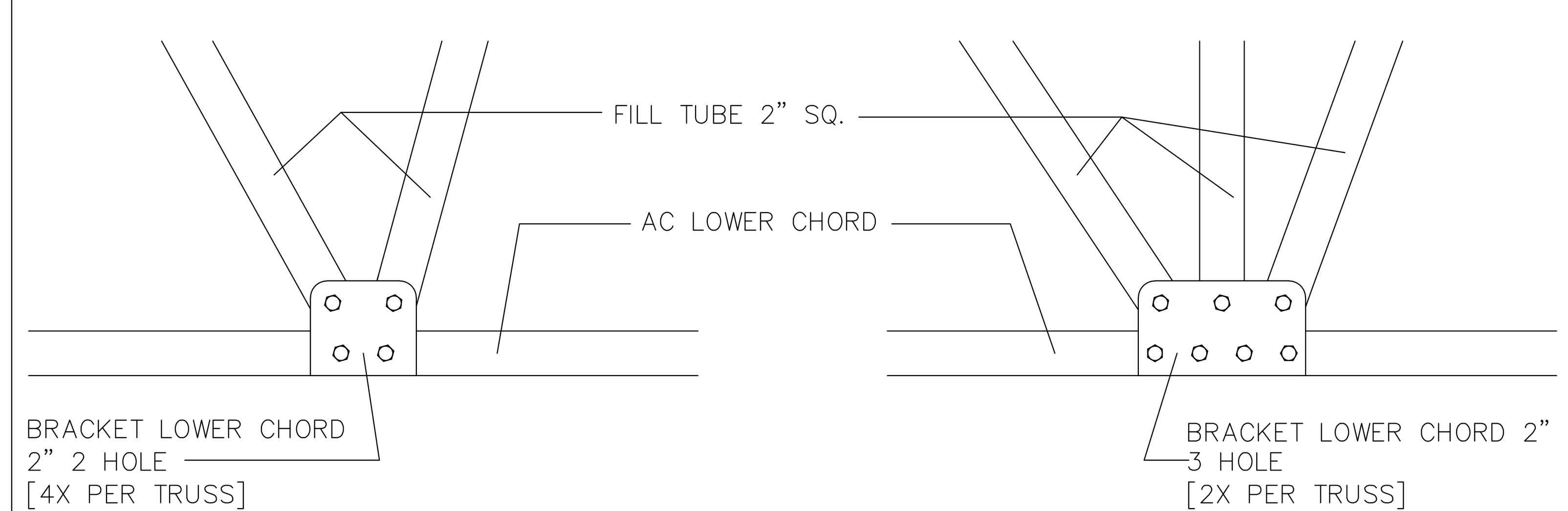
5 S-4 SPLICE CHEVRON CONNECTION



6 S-4 SIDEWALL CABLE BRACING

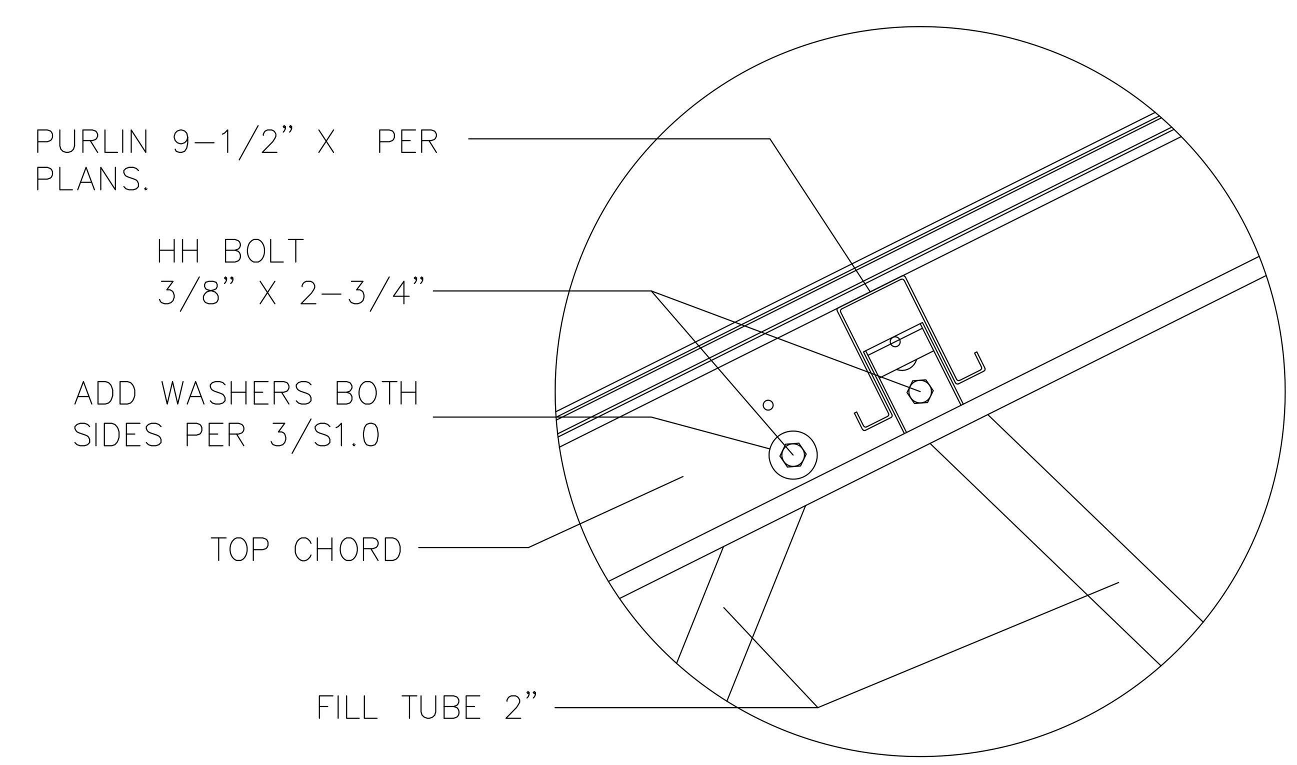


7 S-4 PURLIN TO TRUSS CONNECTION



ALL BOLTS ADDRESSED IN THIS DETAIL: HH BOLT 3/8" X 2-3/4"

8 S-4 BOTTOM CHORD CONNECTIONS



9 S-4 TOP CHORD TO FILL TUBE 41'-6" HOUSES

PAGE S-4.0
2D DETAILS

4th DIMENSION DESIGN, INC.

PROJECT: PROJECT "B" 2025

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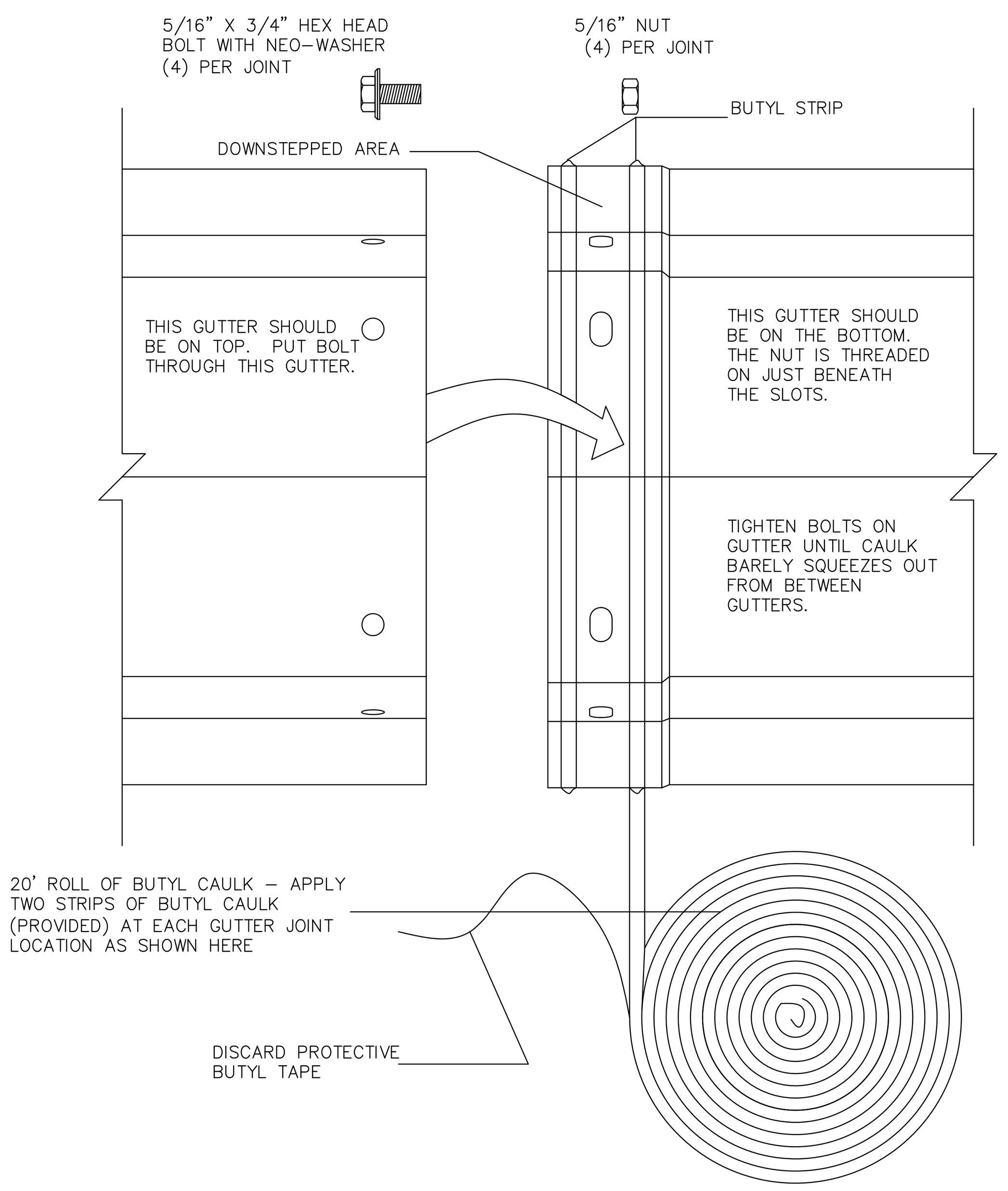
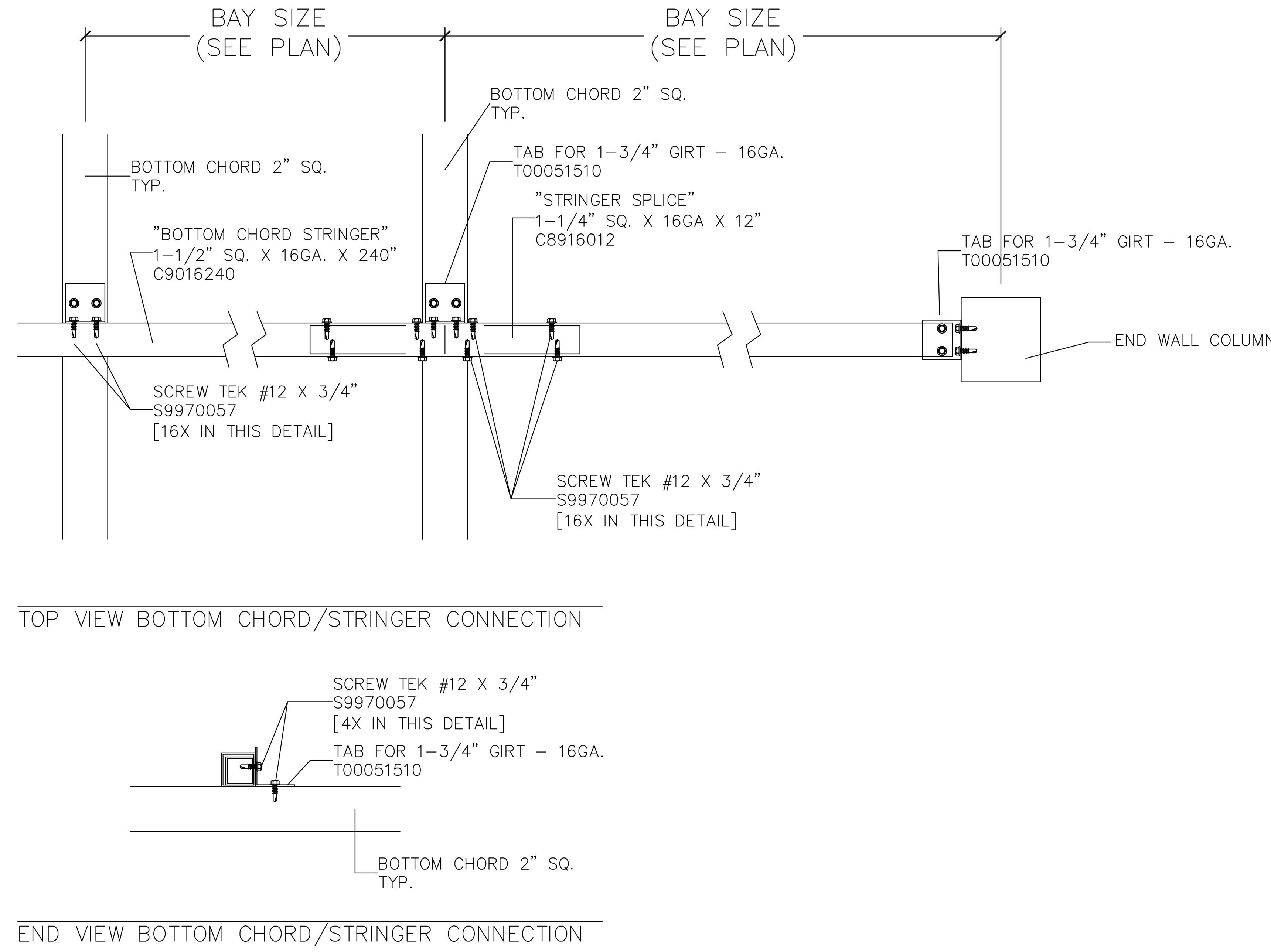
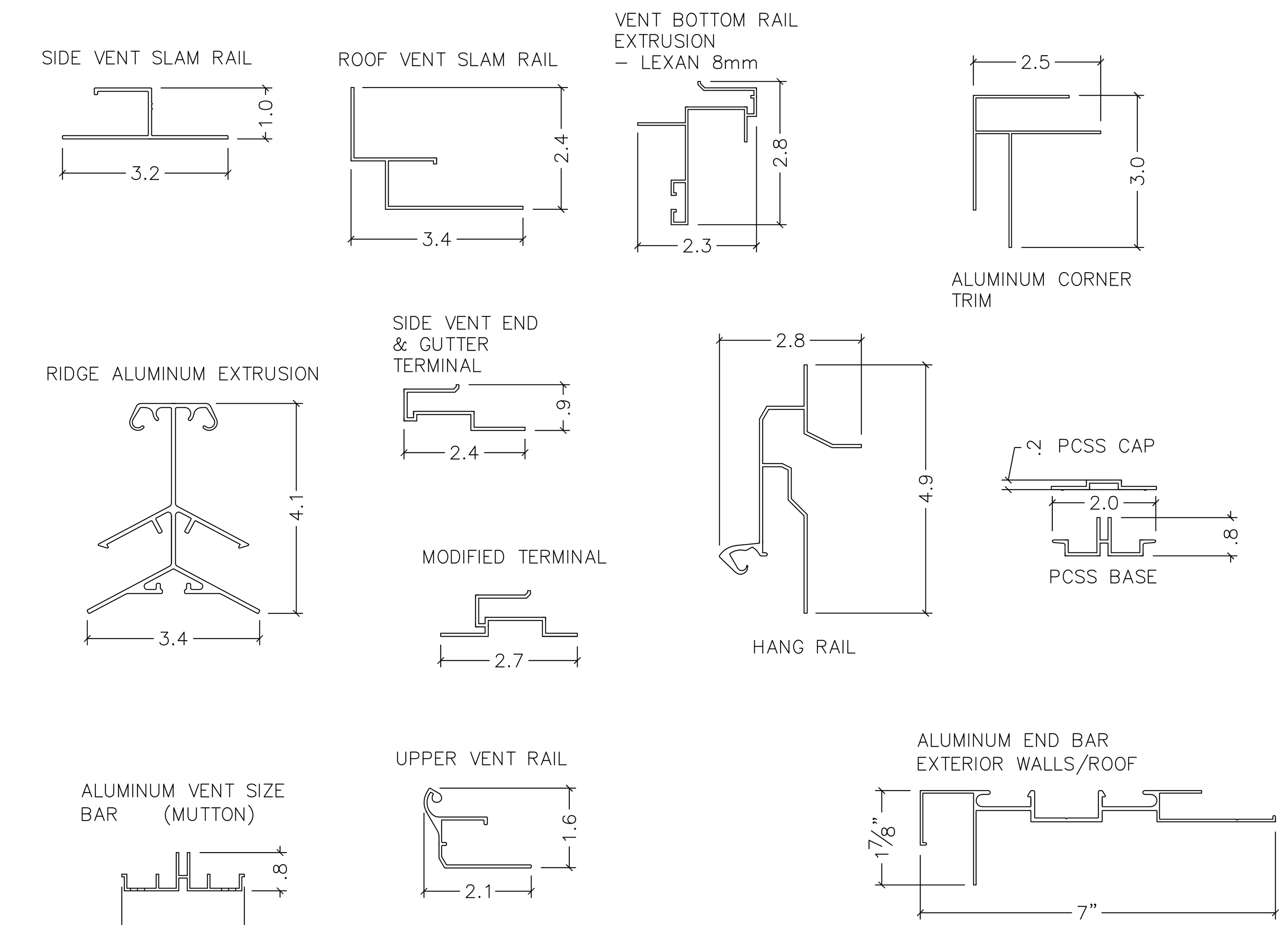


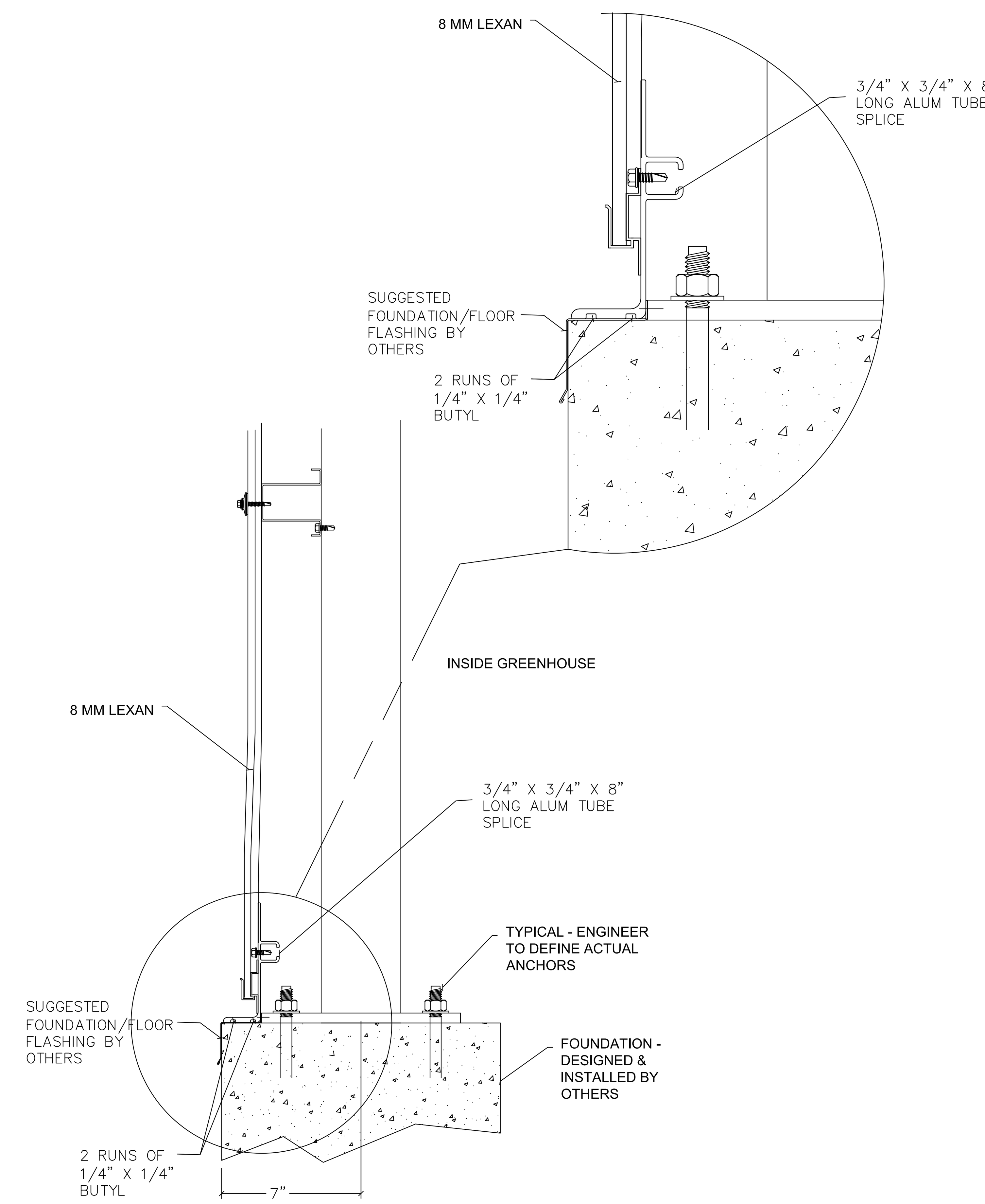
1 S-4.1 GUTTER LAP CONNECTION

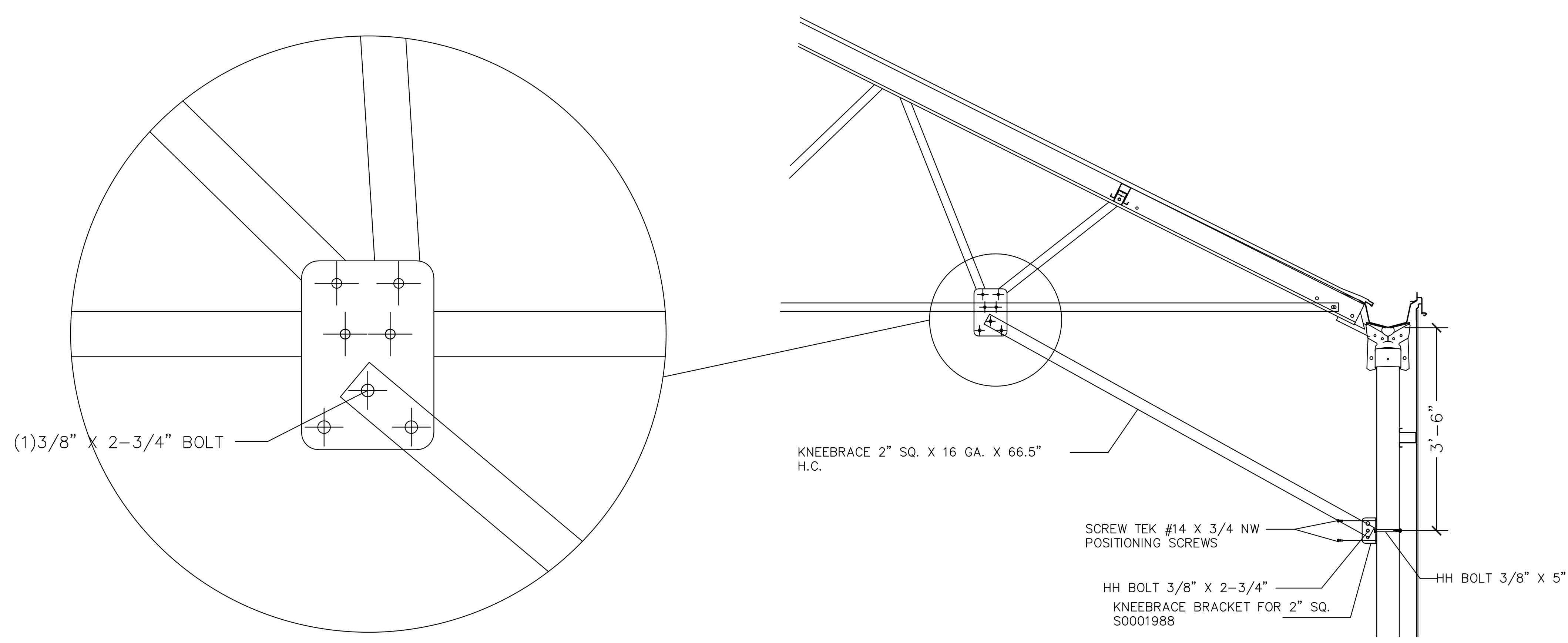


2 S-4.1 STRINGER CONNECTION



ALUMINUM EXTRUSIONS
SCALE 4X





3 S-4.1 KNEEBRACE INSTALLATION AT SIDE WALLS

4 S-4.1 GLAZING TERMINATION AT WALL DETAILS

PAGE S-4.1
2D DETAILS

4th DIMENSION DESIGN, INC.
817 Venture Court
Waukesha, WI 53189
PHONE (262) 896-6500
FAX (262) 896-6505
www.4DD.com

PROJECT: PROJECT "B" 2025

CUSTOMER: LA CROSSE CENTRAL HIGH SCHOOL
JOE LEDVINA
807 EAST AVENUE SOUTH
LA CROSSE, WI 54601

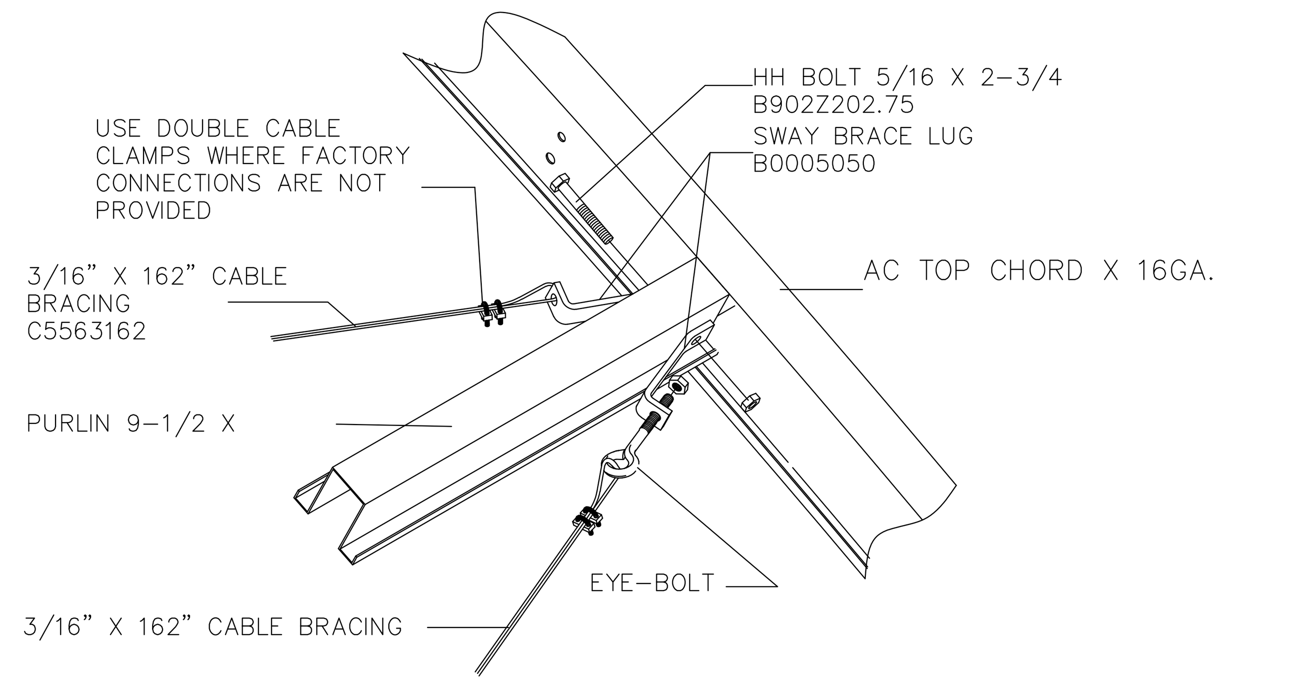
DRAWING BY: DTC

DRAWING TITLE: (1) 41'-6" X 60'-0" AMBASSADOR CROWN GREENHOUSE STRUCTURES

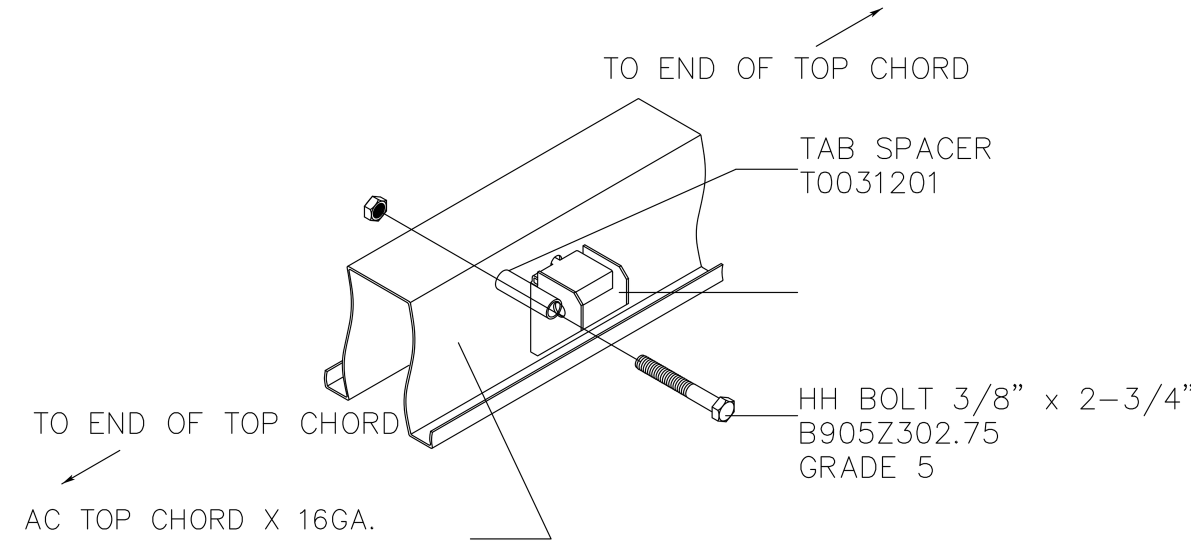
DATE: 2/6/2025

REV.	DATE	DESCRIPTION

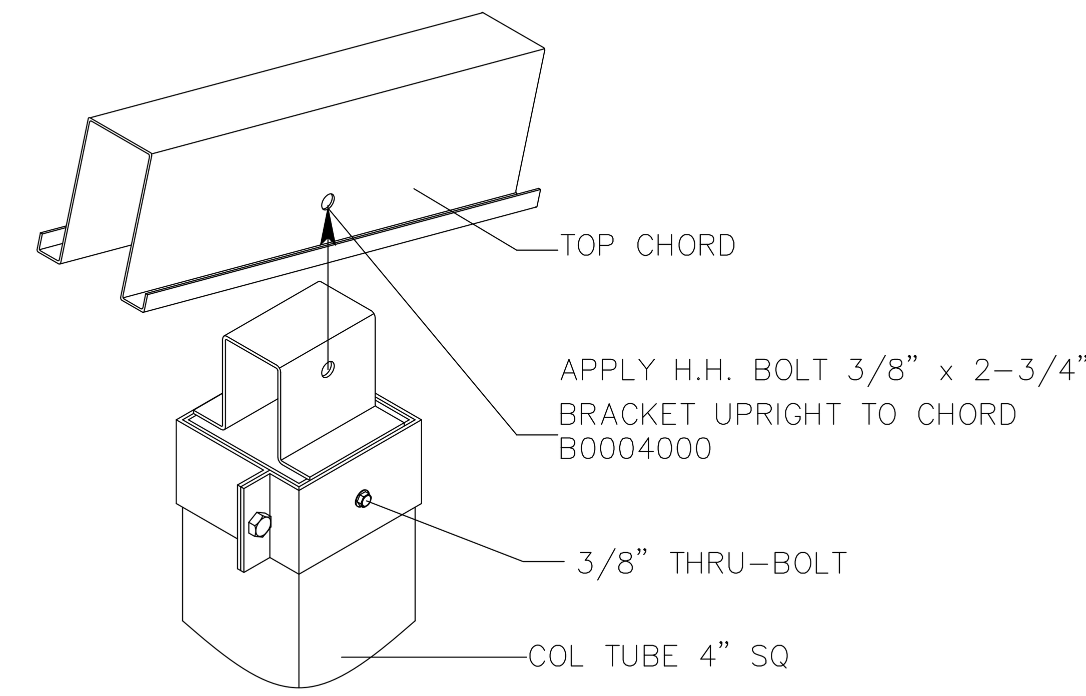
UNITED GREENHOUSE SYSTEMS, INC.
1857 TOWER DRIVE
EDGERTON, WI 53534
PHONE: 1-800-433-6834
1-608-884-8941
FAX: 1-608-884-6137



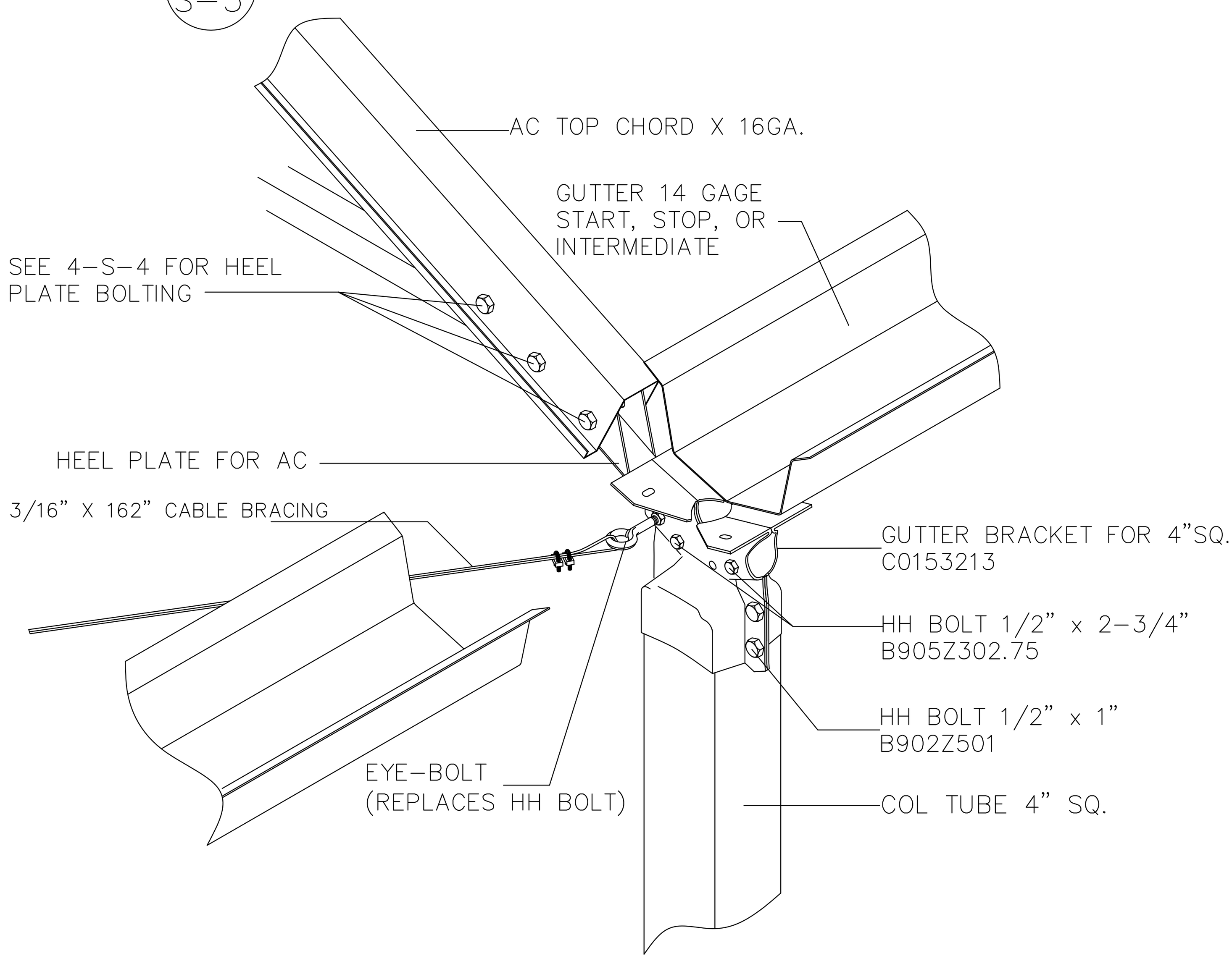
1 S-5 ROOF CABLE BRACING



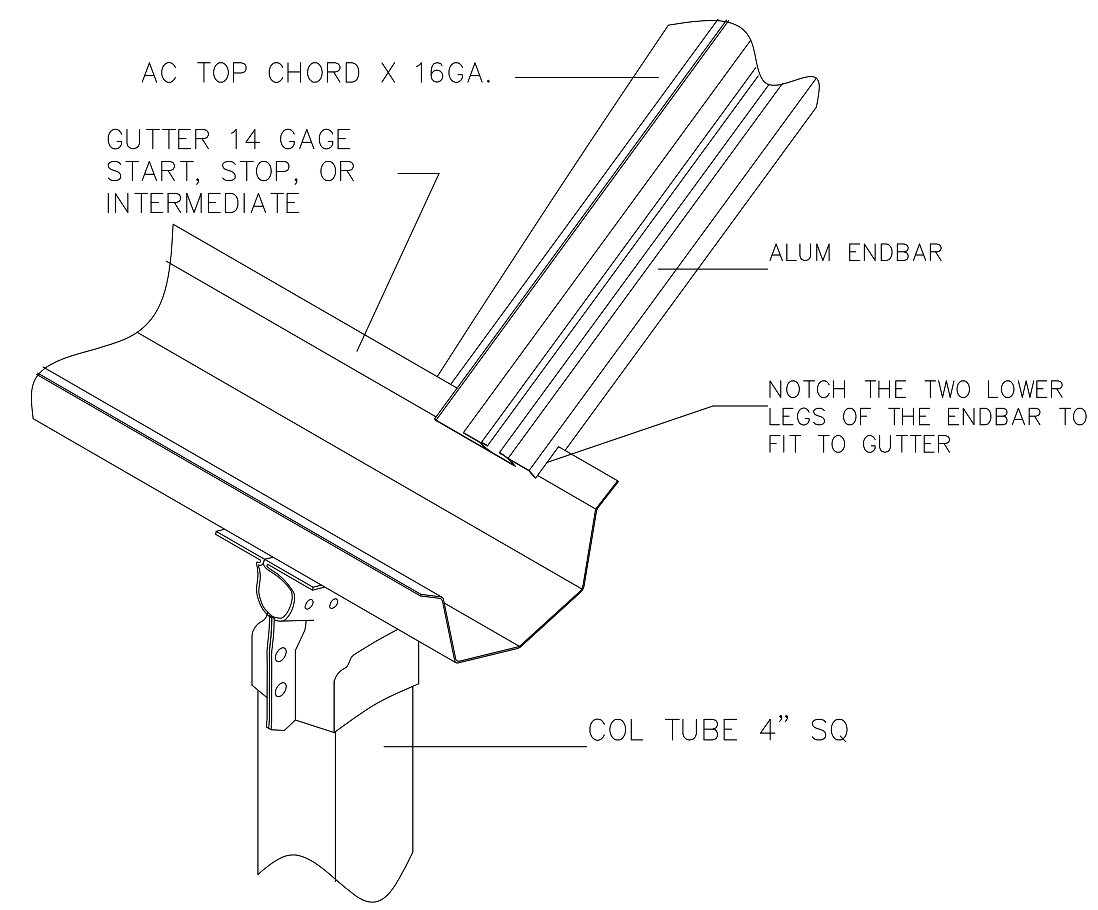
2 S-5 PURLIN TAB ATTACHMENT



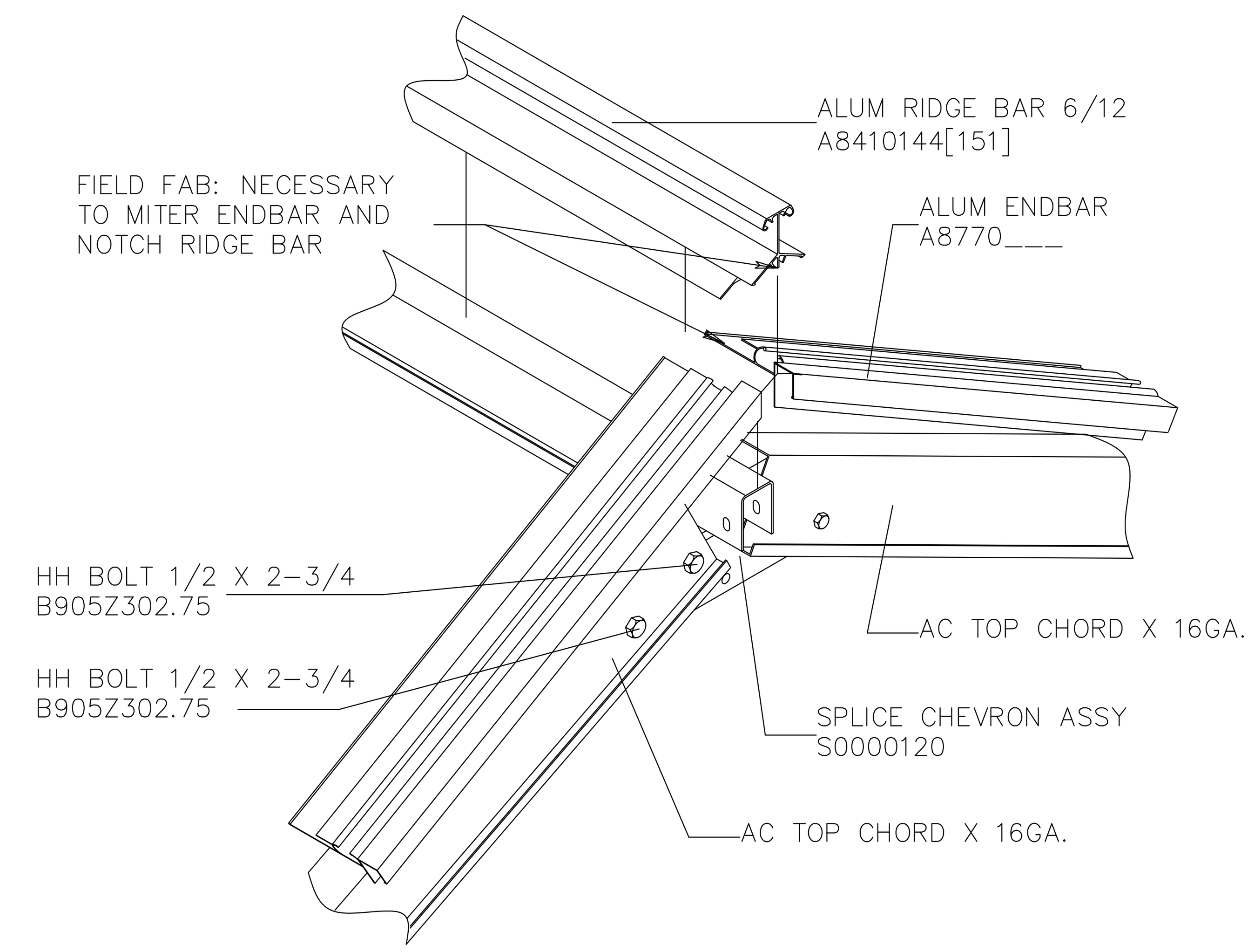
3 S-5 COLUMN TO TOP CHORD ATTACHMENT



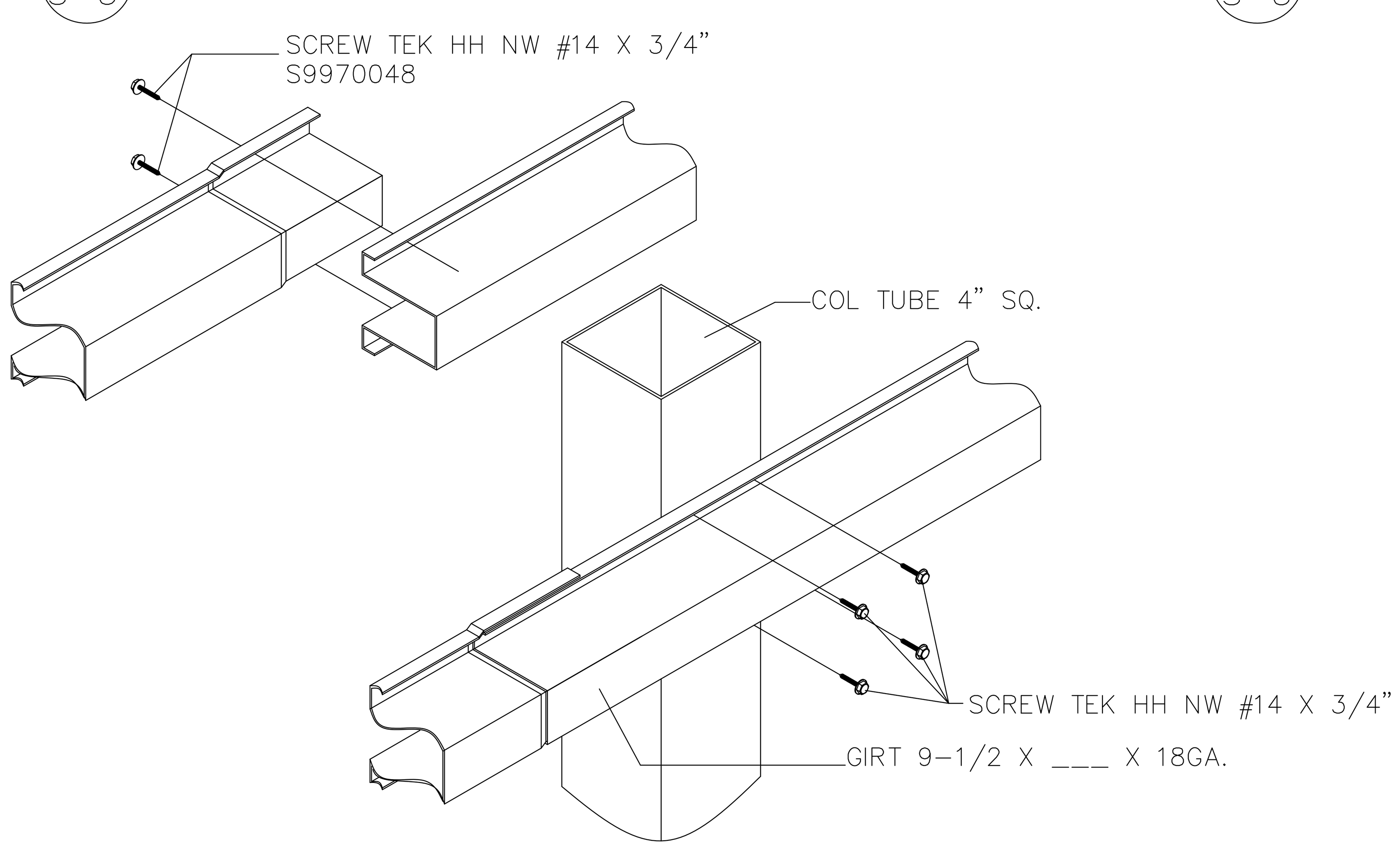
4 S-5 ROOF CABLE BRACING (GUTTER)



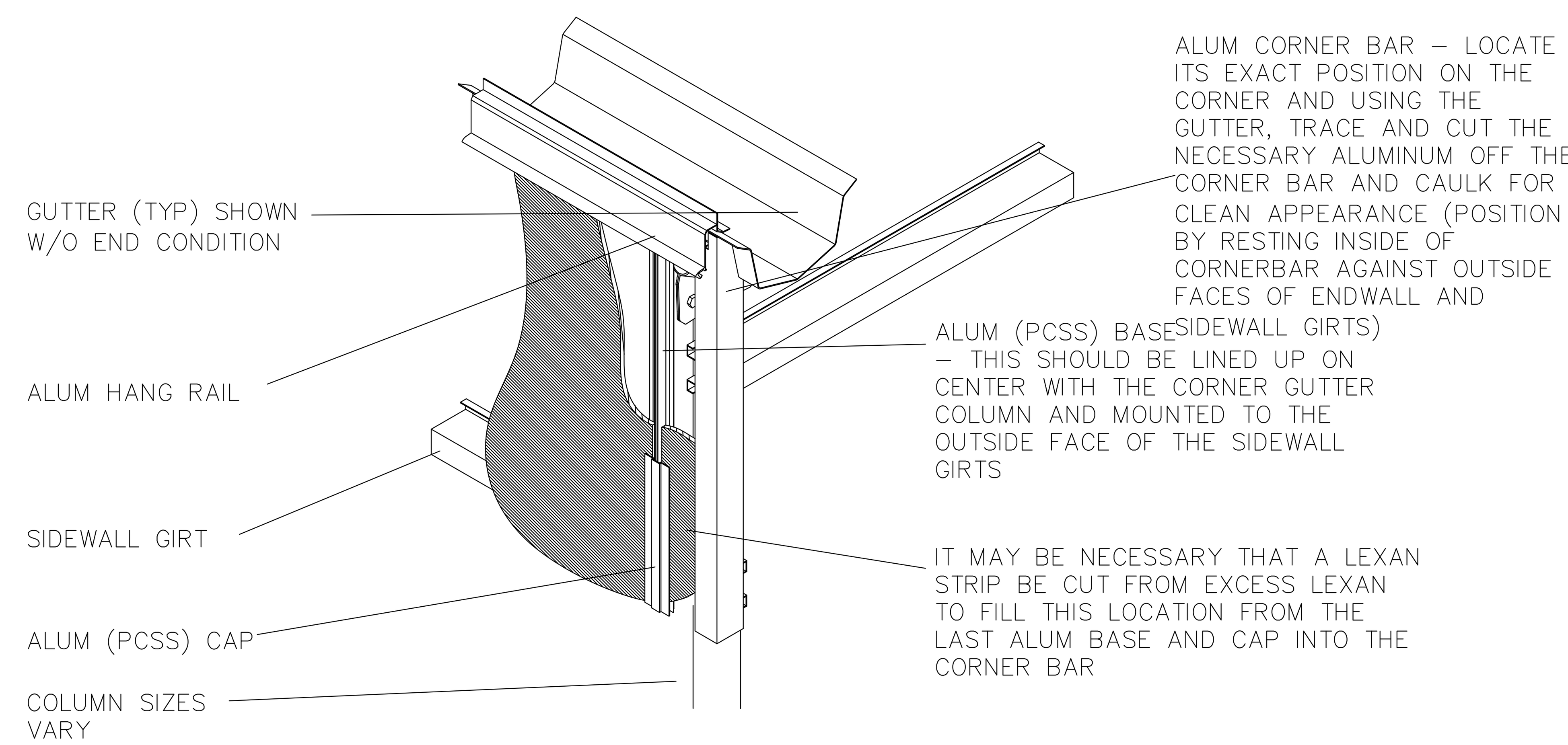
5 S-5 ALUMINUM ENDBAR ATTACHMENT



6 S-5 RIDGE BAR/ENDBAR DETAIL



7 S-5 GIRT SPLICE AND ATTACHMENT



8 S-5 ALUMINUM CORNER BAR ATTACHMENT

SCALE NONE

PAGE S-5.0 3D DETAILS

4th DIMENSION DESIGN, INC.

PROJECT: PROJECT "B" 2025

CUSTOMER: LA CROSSE CENTRAL HIGH SCHOOL JOE LEDVINA 807 EAST AVENUE SOUTH LA CROSSE, WI 54601

DRAWING BY: DTC

DRAWING TITLE: (1) 41'-6" X 60'-0" AMBASSADOR CROWN GREENHOUSE STRUCTURES

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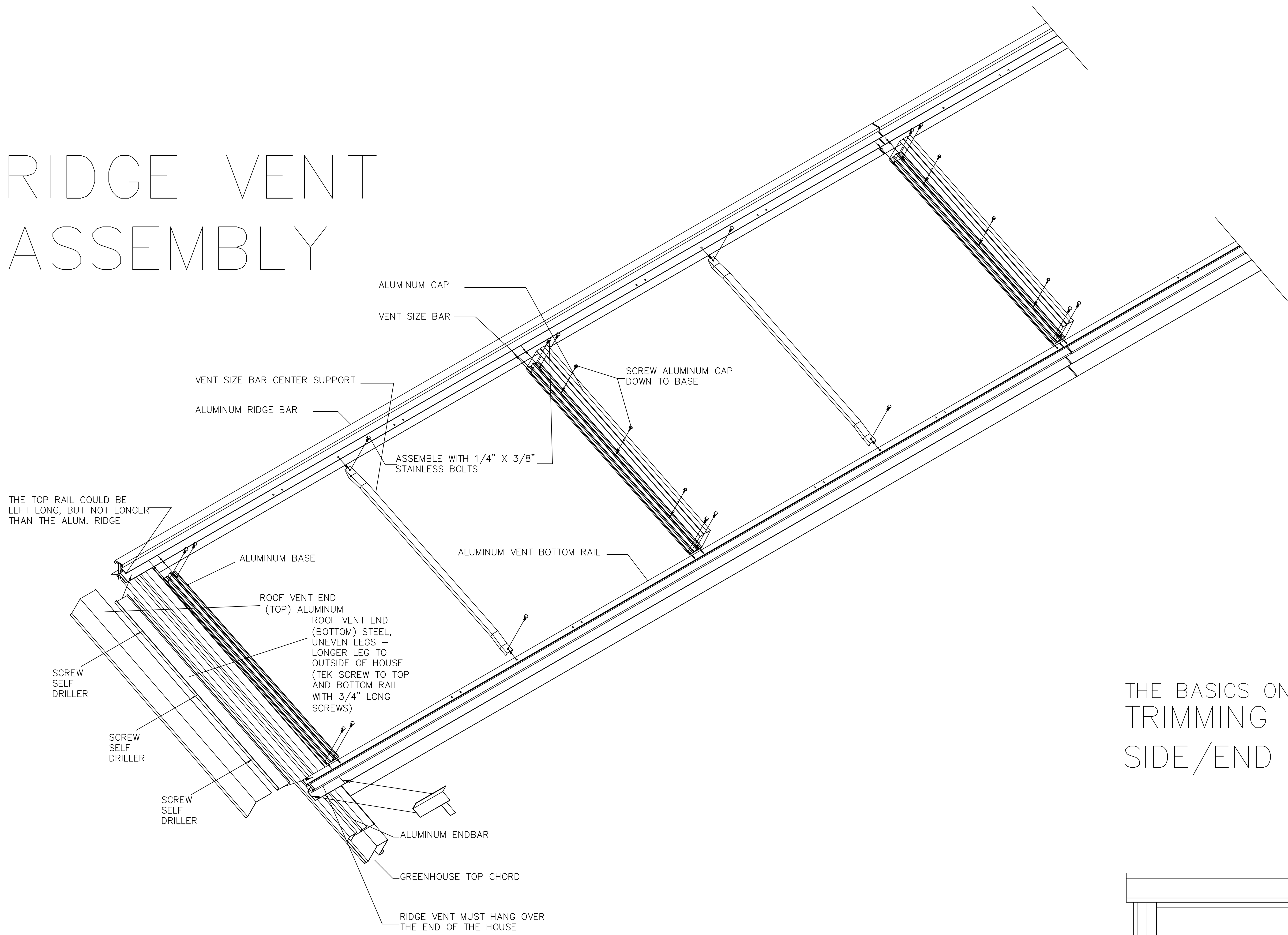
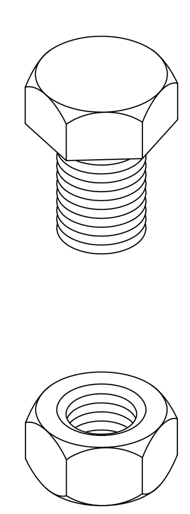
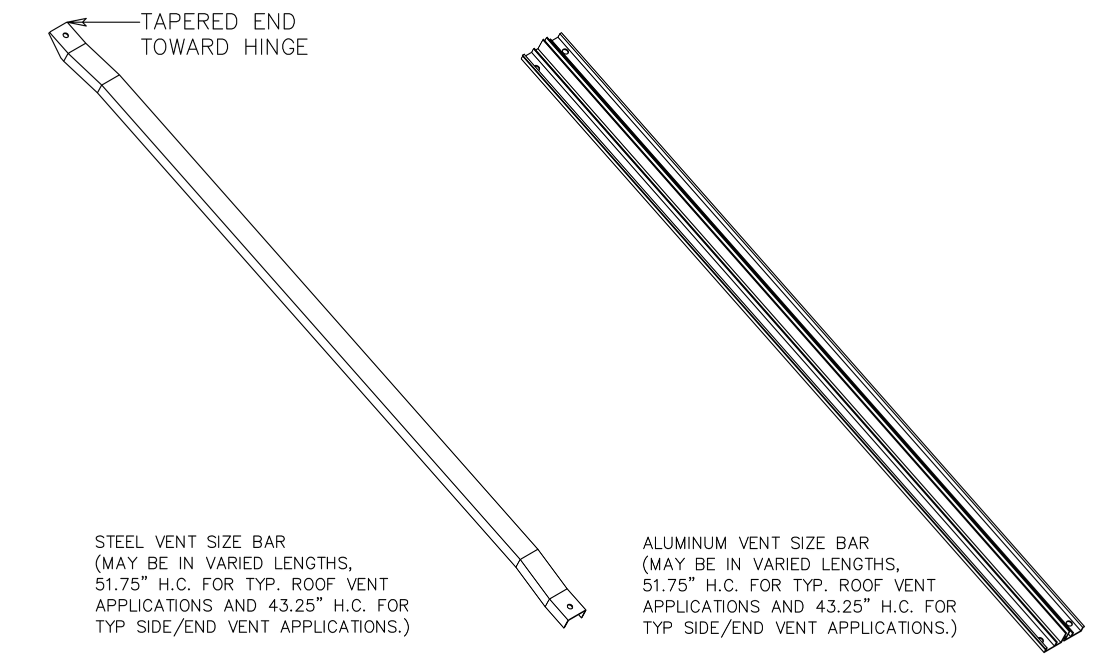
RIDGE VENT ASSEMBLY



1 / S-6.1 VENT FRAMEWORK ASSEMBY INSTRUCTIONS

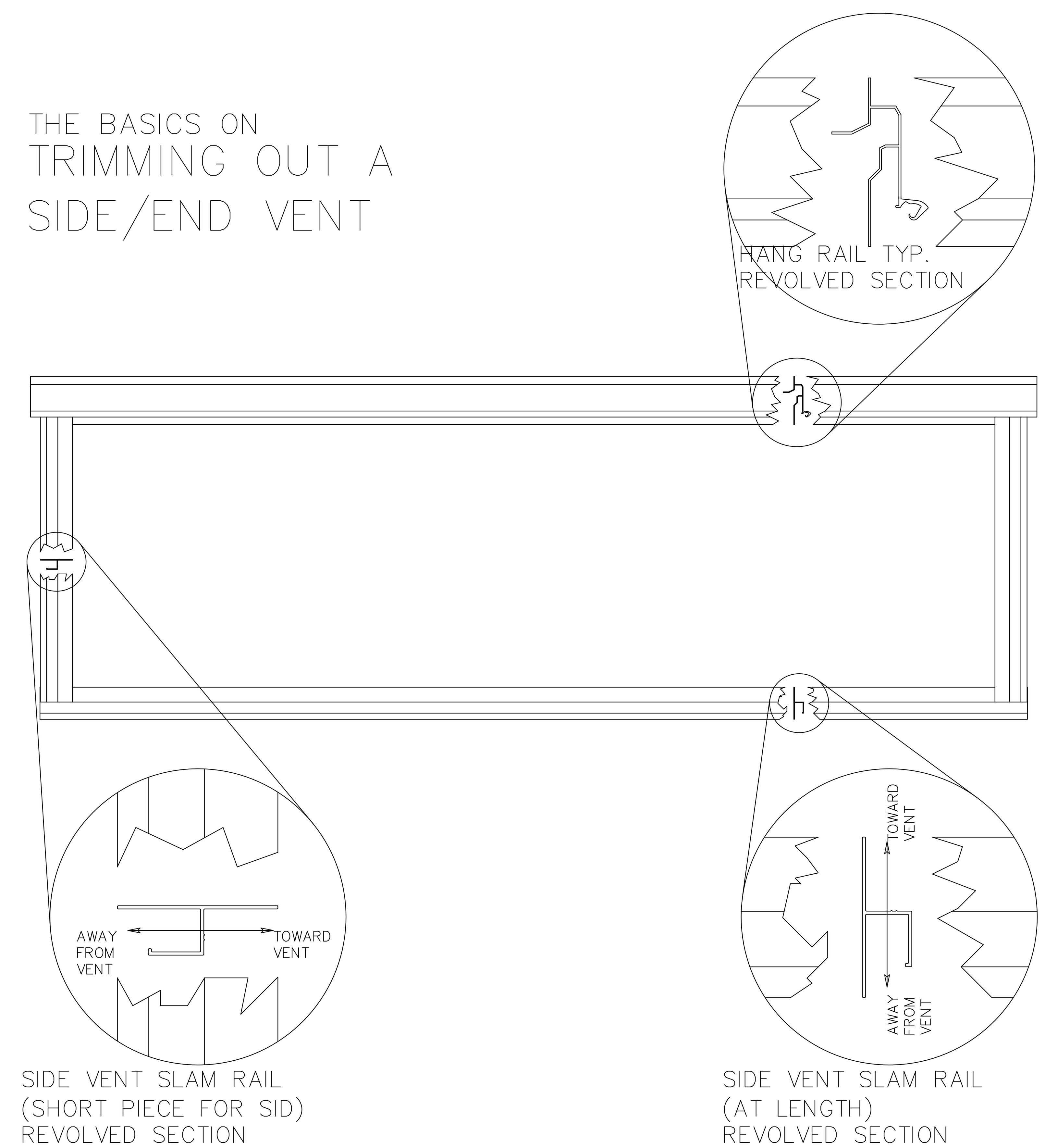


VENTS ARE ALWAYS ASSEMBLED WITH STAINLESS STEEL 1/4" X 3/8" HH BOLTS WITH 1/4" STAINLESS STEEL LOCK NUTS



2 / S-6.1 VENT SIZE BARS & CENTER SUPPTS

THE BASICS ON
TRIMMING OUT A SIDE/END VENT



3 / S-6 ALUMINUM TRIM FOR SW VENT

PAGE: S-6.0 VENT ASSEMBLY DETAILS

4th DIMENSION DESIGN, INC.

PROJECT: PROJECT "B" 2025

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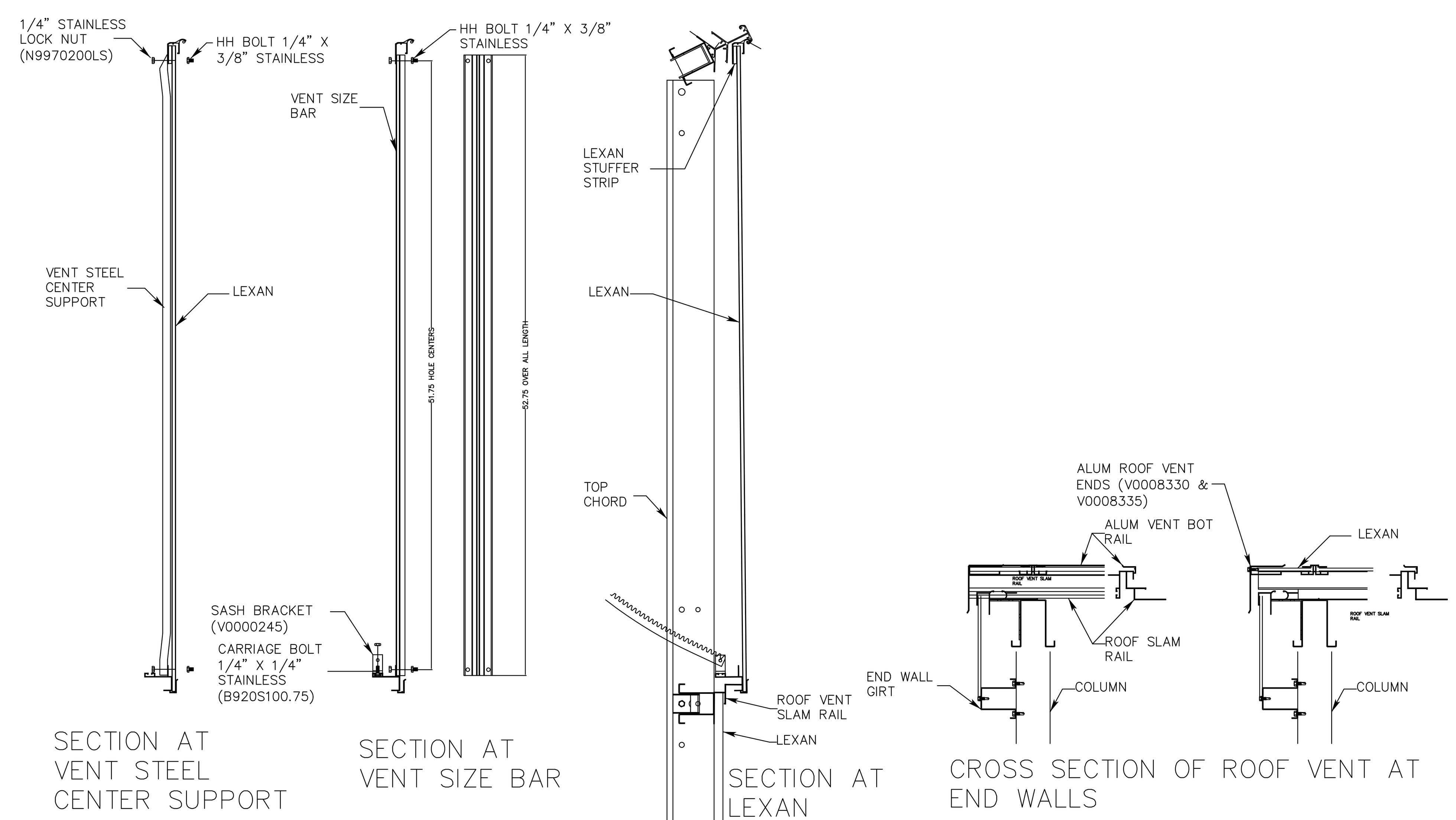
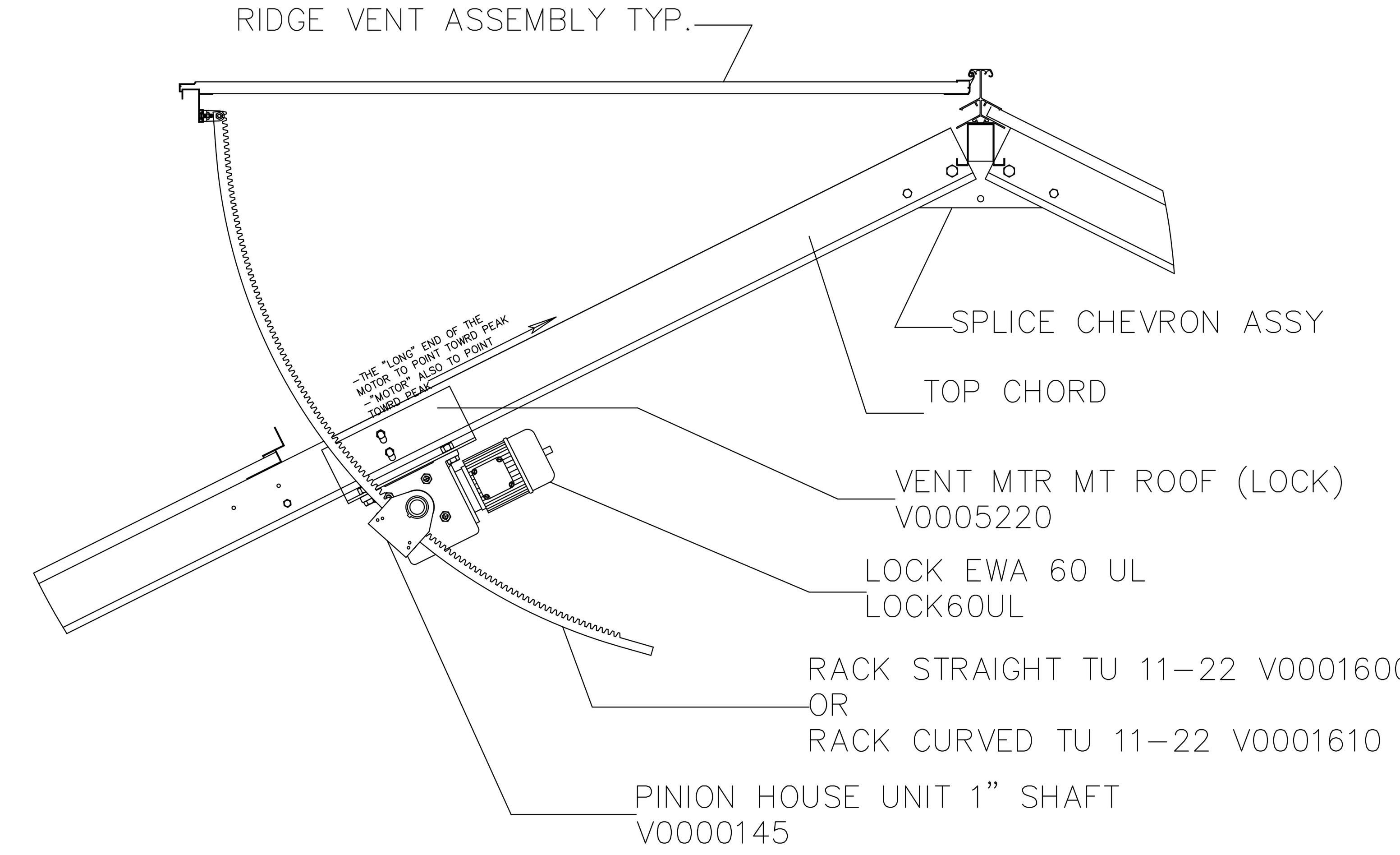
CROSS SECTION ROOF OF VENT



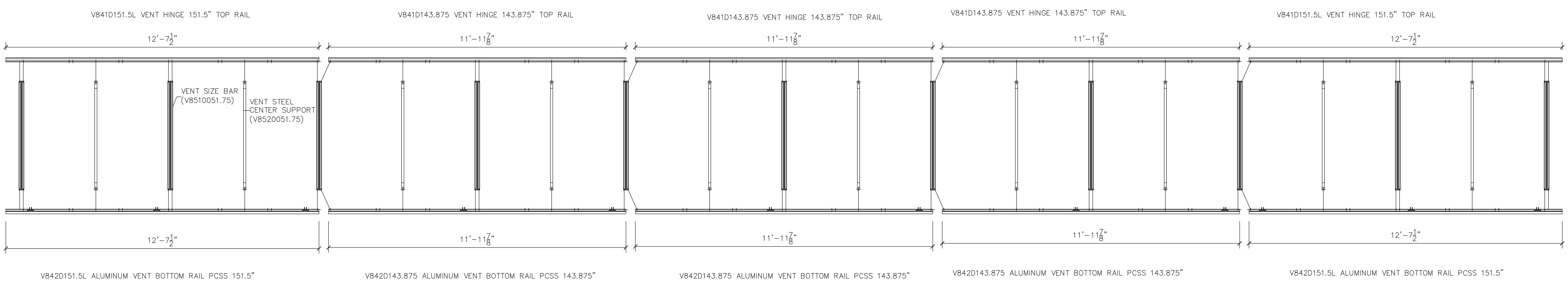
ROOF VENT SECTION

2
S-6.1



ROOF VENT SECTION AT MOTOR

3
S-6.1



60' ROOF VENT

1
S-6.1

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JOE LEDVINA
807 EAST AVENUE SOUTH
LA CROSSE, WI 54601

DRAWING BY: DTC

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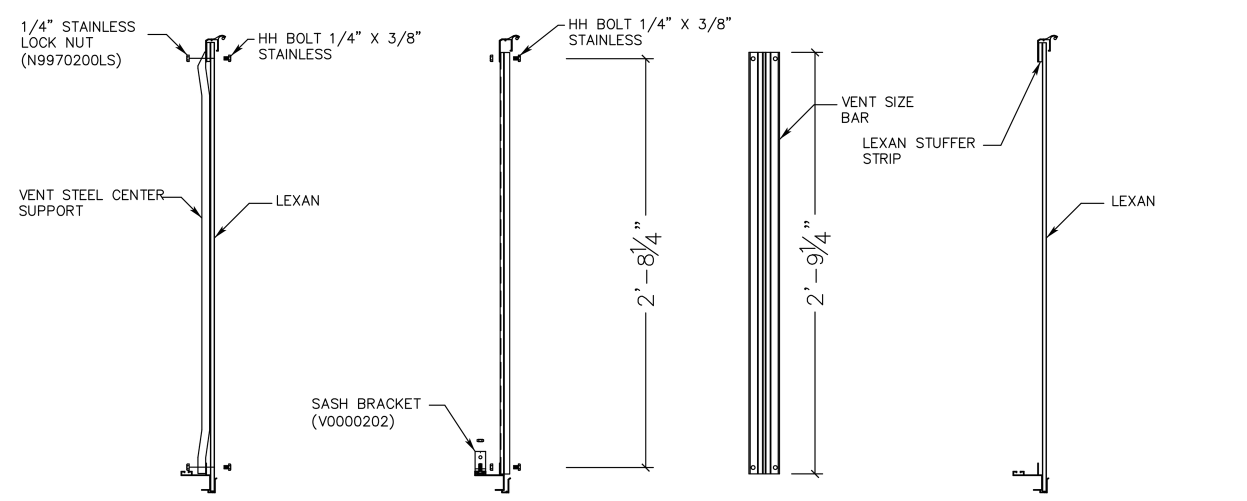
PAGE
S-6.1
60' ROOF VENT ASSEMBLY DETAILS

CROSS SECTION SIDE WALL VENT

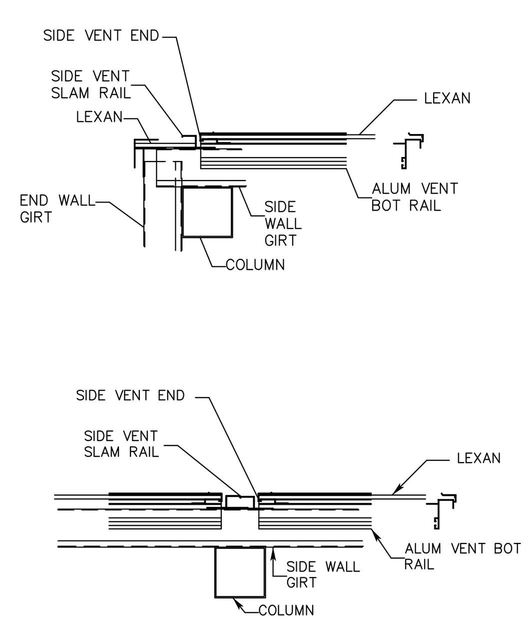
CROSS SECTION OF SIDE WALL VENT



SECTION AT VENT STEEL CENTER SUPPORT

SECTION AT VENT SIZE BAR

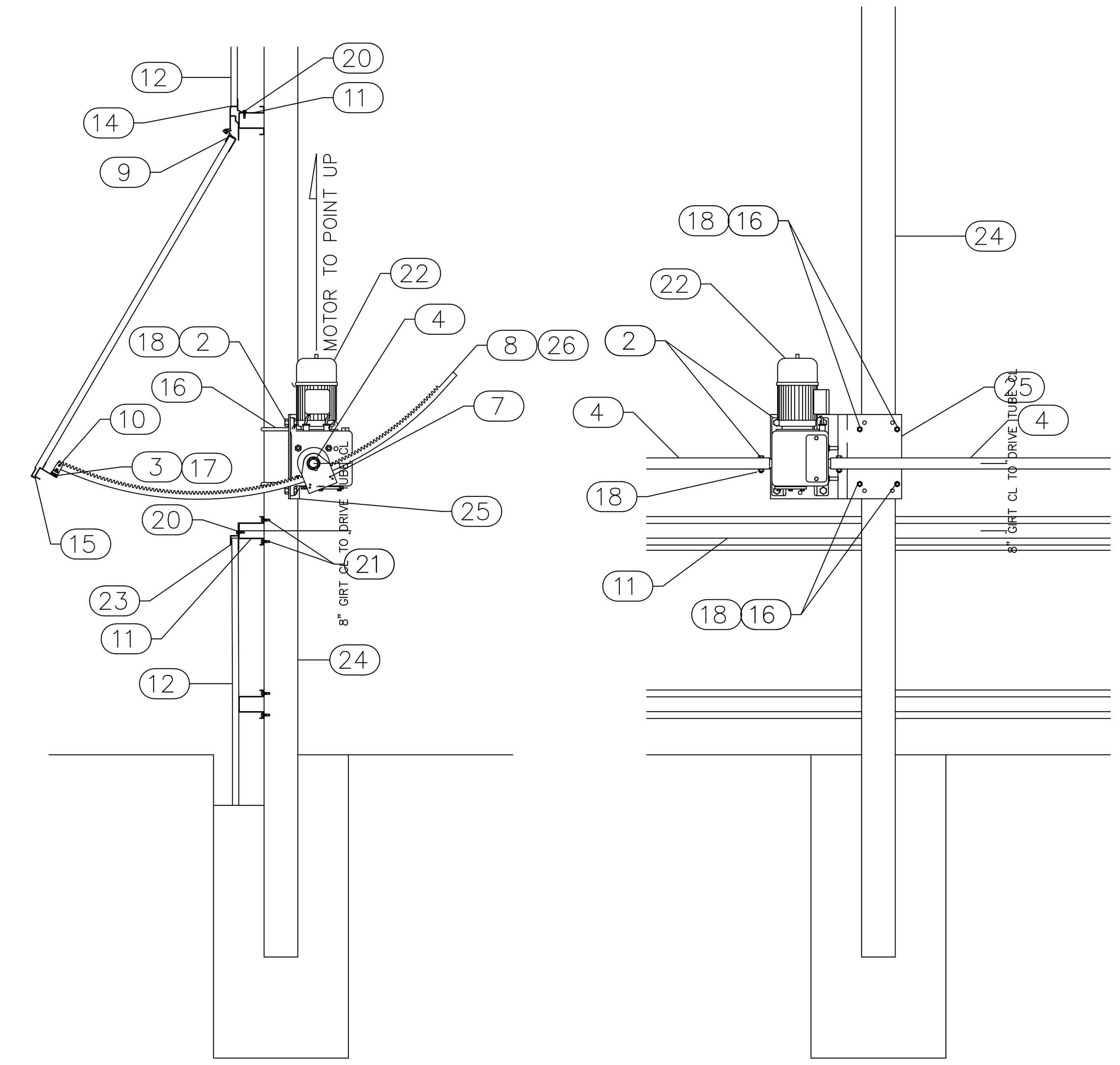
SECTION AT LEXAN



SIDE VENT SECTION

2
S-6.2

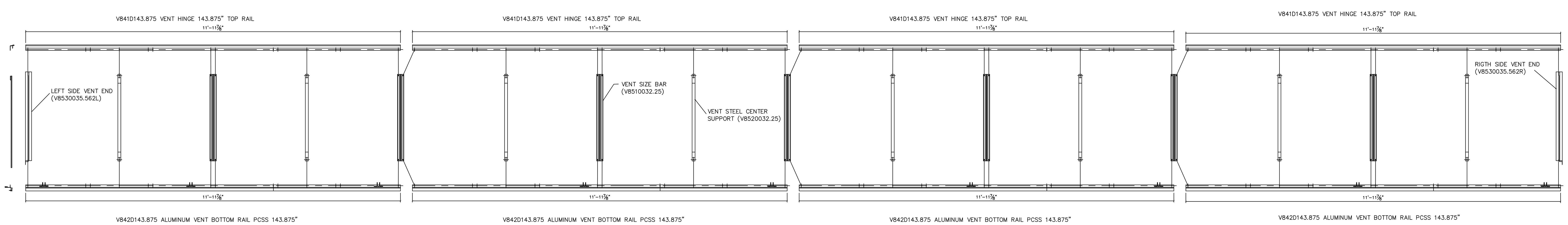
	PART NO.	DESCRIPTION
1	NA	NA
2	B902Z301.75	HH BOLT 3/8" X 1-3/4"
3	B920S100.75	CARRAIGE BOLT 1/4" X 3/4"
4	C6014288	1.315 X 288" X 14GA. [DRIVE TUBE]
5	S9970048	SCREW TEK HH NW #14 X 3/4"
6	S9970057	SCREW TEK HH NW #12 X 3/4"
7	V0000145	PINION HOUSE UNIT
8	V0001610	RACK CURVED TU 11-22 OR ITEM #26
9	V8410143.875	VENT TOP HINGE 143.875"
10	V0000245	WINDOW CONNECTOR ASSEMBLY
11	G0950___	GIRT 9-1/2 X ___ X 16GA. [TYP.]
12	LEX86___	LEXAN 8MM PCSS
13	GCR141____	GUTTER CR 14GA.
14	A8780144[151]	ALUM HANG RAIL 144" [151"]
15	V8420143.875	ALUM VENT BOTTOM RAIL PCSS
16	B313Z4X4.625	SQUARE U-BOLT 3/8" X 4" X 4.625"
17	N910S001	1/4" LOCK NUT
18	N902Z003	3/8" NUT
19	NA	NA
20	NA	NA
21	NA	NA
22	LOCK62 / LOCK60	LOCK EWA 62 OR LOCK EWA 60
23	A8750288	SIDE/END VENT SLAM
24	C8312___	COL TUBE 4" SQ X ___ X 13GA.
25	V0005230	SIDE DRIVE MT.
26	V0001600	RACK STRAIGHT TU 11-22 OR ITEM #8



SIDE VENT SECTION AT MOTOR

3
S-6.2

48' X 3' SIDE WALL VENT



PAGE

S-6.2

48' SIDE VENT ASSEMBLY

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PROJECT: PROJECT "B" 2025

CUSTOMER: LA CROSSE CENTRAL HIGH SCHOOL
JOE LEDVINA
807 EAST AVENUE SOUTH
LA CROSSE, WI 54601

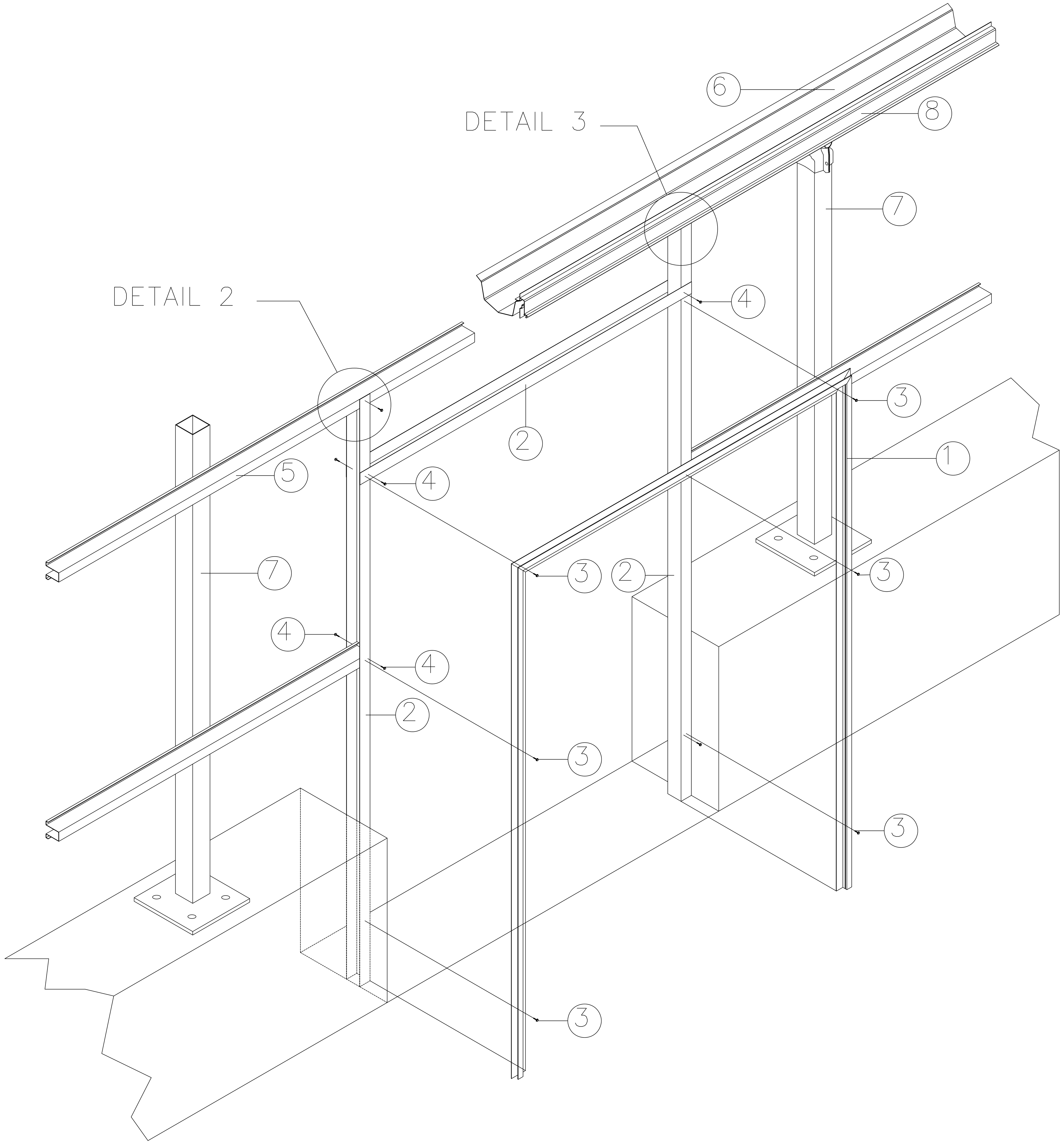
DRAWING BY: DTC

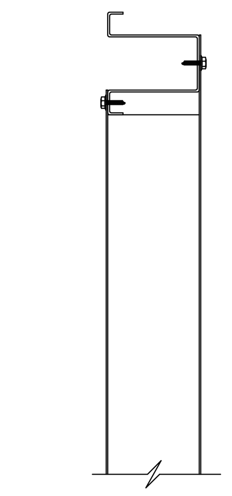
DRAWING TITLE: (1) 41'-6" X 60'-0"
AMBASSADOR CROWN
GREENHOUSE STRUCTURES

DATE: 2/6/2025

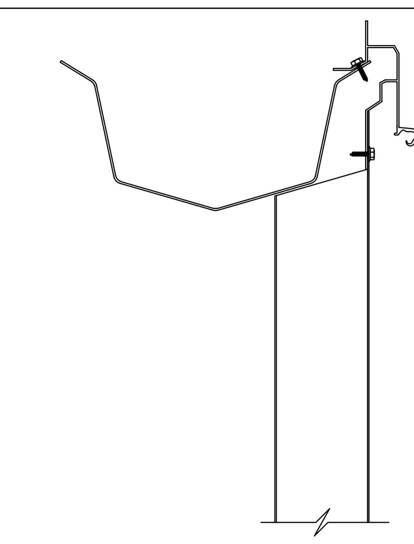
REV.	DATE	DESCRIPTION

UNITED GREENHOUSE
SYSTEMS, INC.
1857 TOWER DRIVE
EDGERTON, WI 53534
PHONE:1-800-433-6834
1-608-884-8941
FAX: 1-608-884-6137





DETAIL 1: WITH HIGHER GUTTER HEIGHTS OR ENDWALLS ALSO USE A RECIPORICATING SAW OR JIG SAW TRIM THE DOOR JAMB (J003144) NEATLY TO FIT AROUND A TYPICAL GIRT AND FASTEN AS SHOWN.



DETAIL 2: IN A LOWER GUTTER HEIGHT CONDITION: USING A RECIPORICATING SAW OR JIG SAW TRIM THE DOOR JAMB (J003144) NEATLY TO FIT UP INTO THE ALUMINUM HANG RAIL. THEN FASTEN AS SHOWN.

	PART DESCRIPTION	PART NUMBER
1	SIDE VENT SLAM RAIL	A8750288
2	JAMB FOR SLIDING DOOR 12'	J003144
3	TEK SCREW #10 X 3/4" NW	S9970010
4	TEK SCREW #14 X 3/4" NW	S9970048
5	TYP. GIRT (3" HAT SECTION X 16GA.)	G0950___ (SIZES VARY)
6	TYP. GUTTER 14GA.	GCR141____ (SIZES VARY)
7	4" SQ. COLUMN X 13GA.	C9413168 (SIZES VARY)
8	TYP. ALUMINUM HANG RAIL	A9970___
9	PLYCO DOUBLE SWING DOOR	DS0_______

PAGE
S-7.0
FRAMED OPENING DETAILS

4th DIMENSION DESIGN, INC.
817 Venture Court
Waukesha, WI 53189
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FAX: (262) 896-6505
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PROJECT: PROJECT "B" 2025

CUSTOMER: LA CROSSE CENTRAL HIGH SCHOOL
JOE LEDVINA
807 EAST AVENUE SOUTH
LA CROSSE, WI 54601

DRAWING BY: DTC

DRAWING TITLE: (1) 41'-6" X 60'-0" AMBASSADOR CROWN GREENHOUSE STRUCTURES

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EDGERTON, WI 53534
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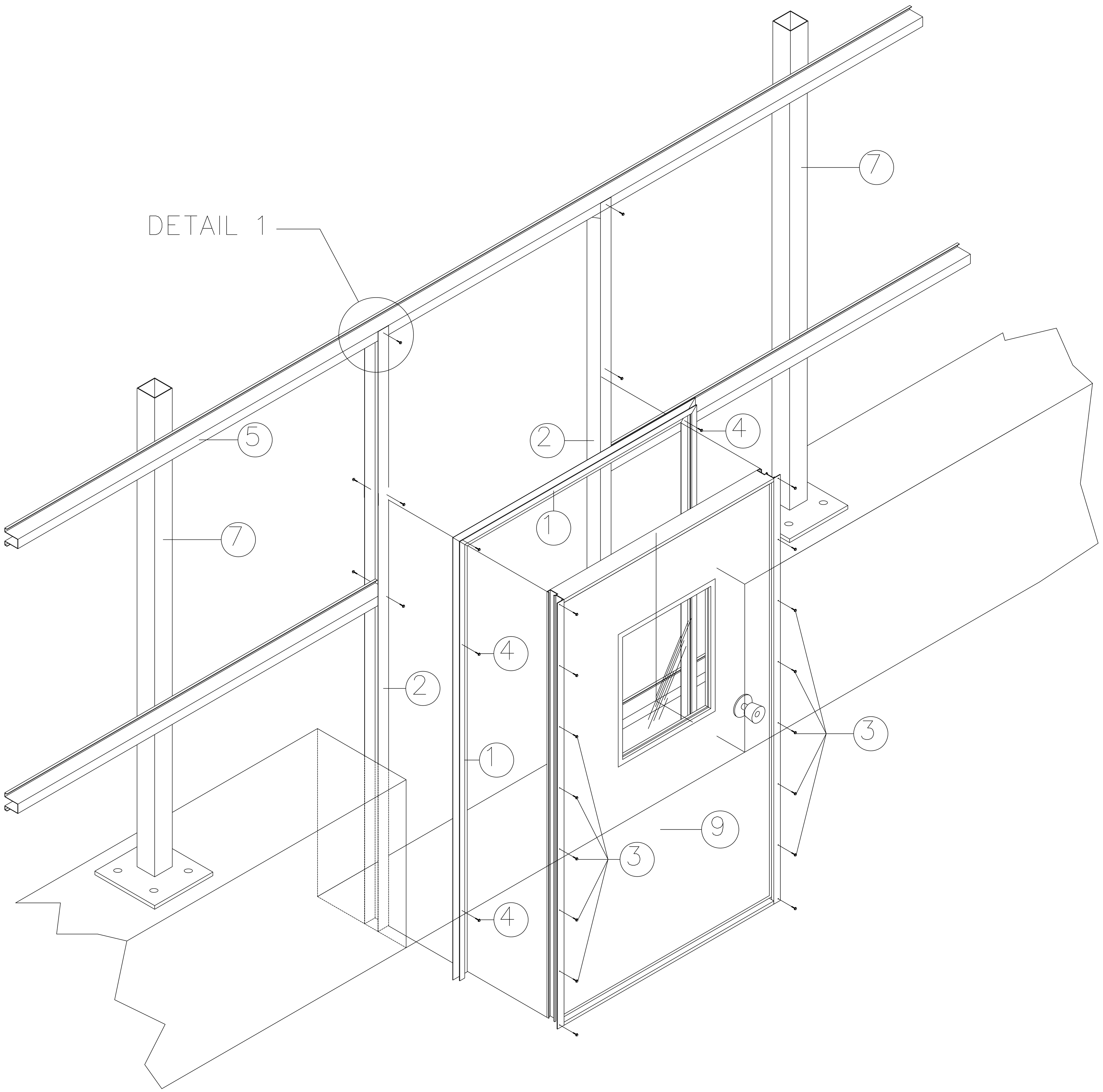
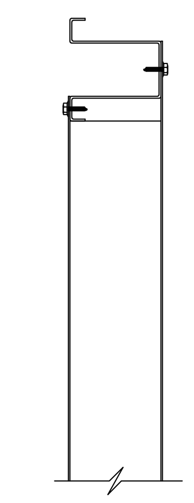
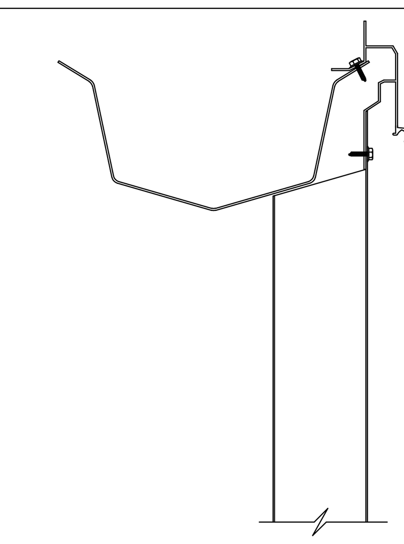
1-608-884-8941
FAX: 1-608-884-6137





DETAIL 1: WITH HIGHER GUTTER HEIGHTS OR ENDWALLS ALSO ~~USE A RECIP~~ORICATING SAW OR JIG SAW TRIM THE DOOR JAMB (J000111) NEATLY TO FIT AROUND A TYPICAL GIRT AND FASTEN AS SHOWN.



DETAIL 2: IN A LOWER GUTTER HEIGHT CONDITION: USING A ~~RECIPORICATI~~NG SAW OR JIG SAW TRIM THE DOOR JAMB (J000111) NEATLY TO FIT UP INTO THE ALUMINUM HANG RAIL. THEN FASTEN AS SHOWN.

	PART DESCRIPTION	PART NUMBER
1	SIDE VENT SLAM RAIL	A8750288
2	JAMB FOR SLIDING DOOR 12'	J0030144
3	TEK SCREW #10 X 3/4" NW	S9970010
4	TEK SCREW #14 X 3/4" NW	S9970048
5	TYP. GIRT (3" HAT SECTION X 16GA.)	G0950___ (SIZES VARY)
6	TYP. GUTTER 14GA.	GCR141____ (SIZES VARY)
7	4" SQ. COLUMN X 13GA.	C9413168 (SIZES VARY)
8	TYP. ALUMINUM HANG RAIL	A9970___
9	PLYCO DOUBLE SWING DOOR	DS0_______

PAGE
S-7.2
PLYCO SINGLE DOOR DETAILS

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FAX: (262) 896-6505
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PROJECT: PROJECT "B" 2025

CUSTOMER: LA CROSSE CENTRAL HIGH SCHOOL
JOE LEDVINA
807 EAST AVENUE SOUTH
LA CROSSE, WI 54601

DRAWING BY: DTC

DRAWING TITLE: (1) 41'-6" X 60'-0" AMBASSADOR CROWN GREENHOUSE STRUCTURES

DATE: 2/6/2025

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EDGERTON, WI 53534
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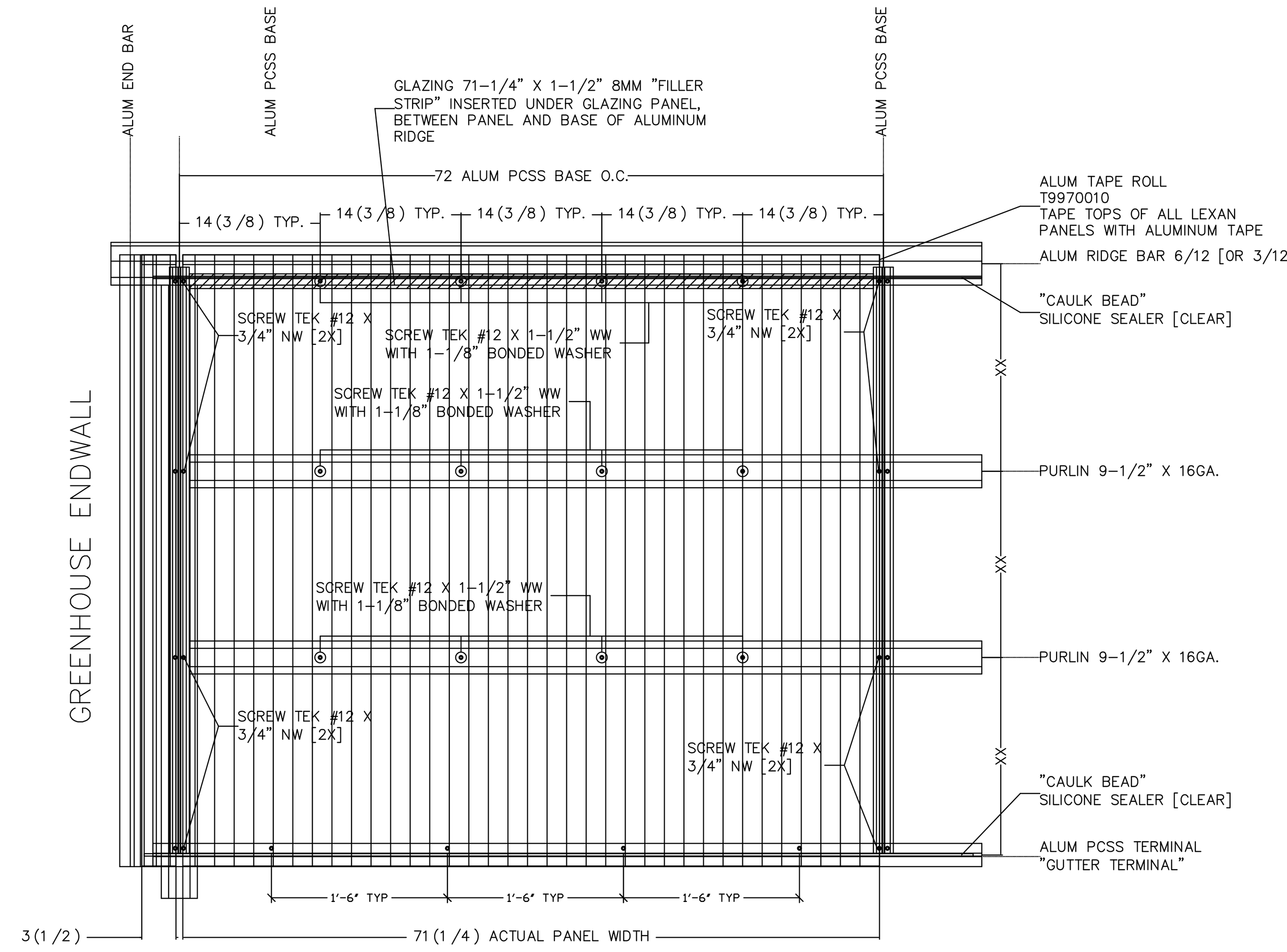
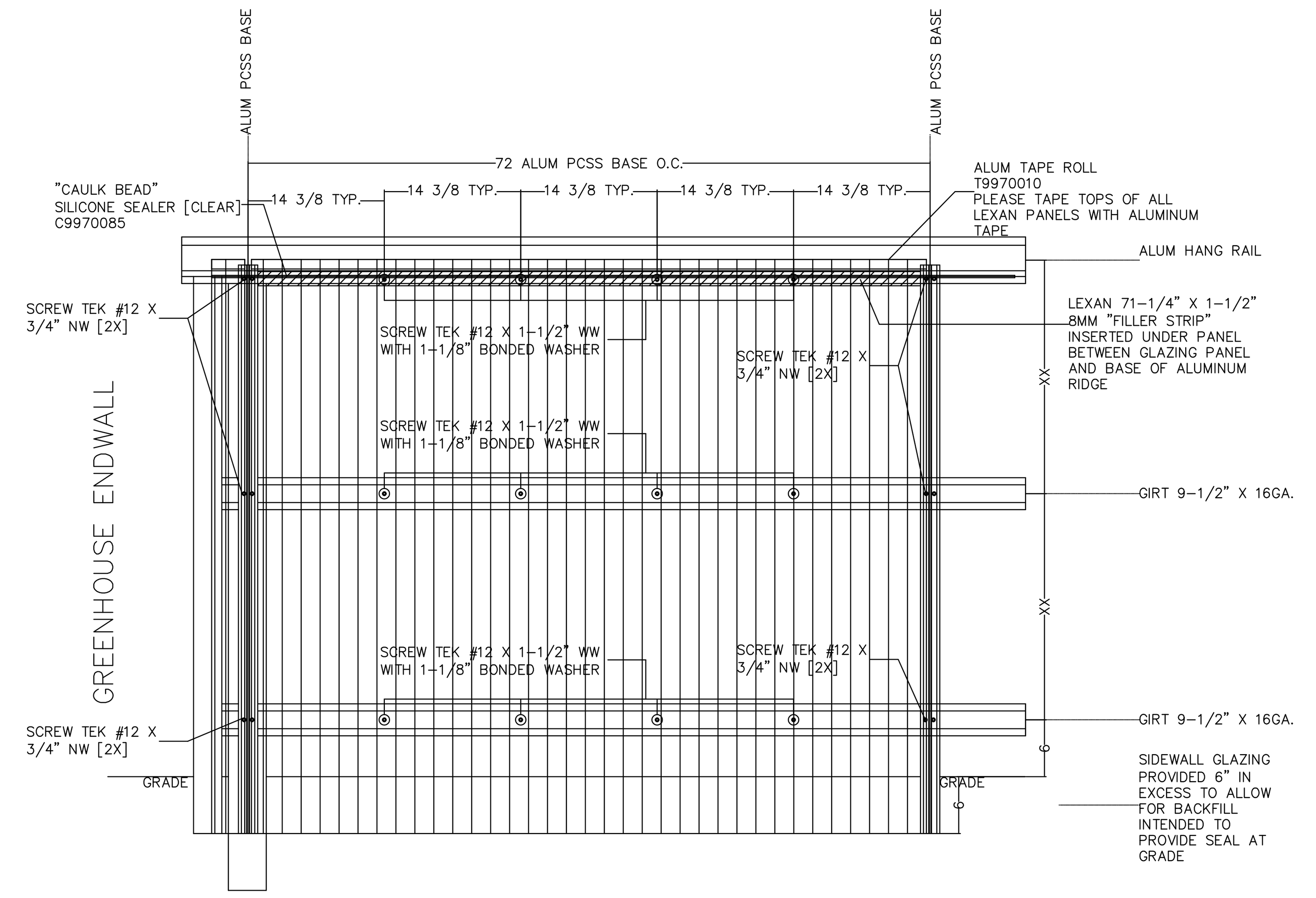
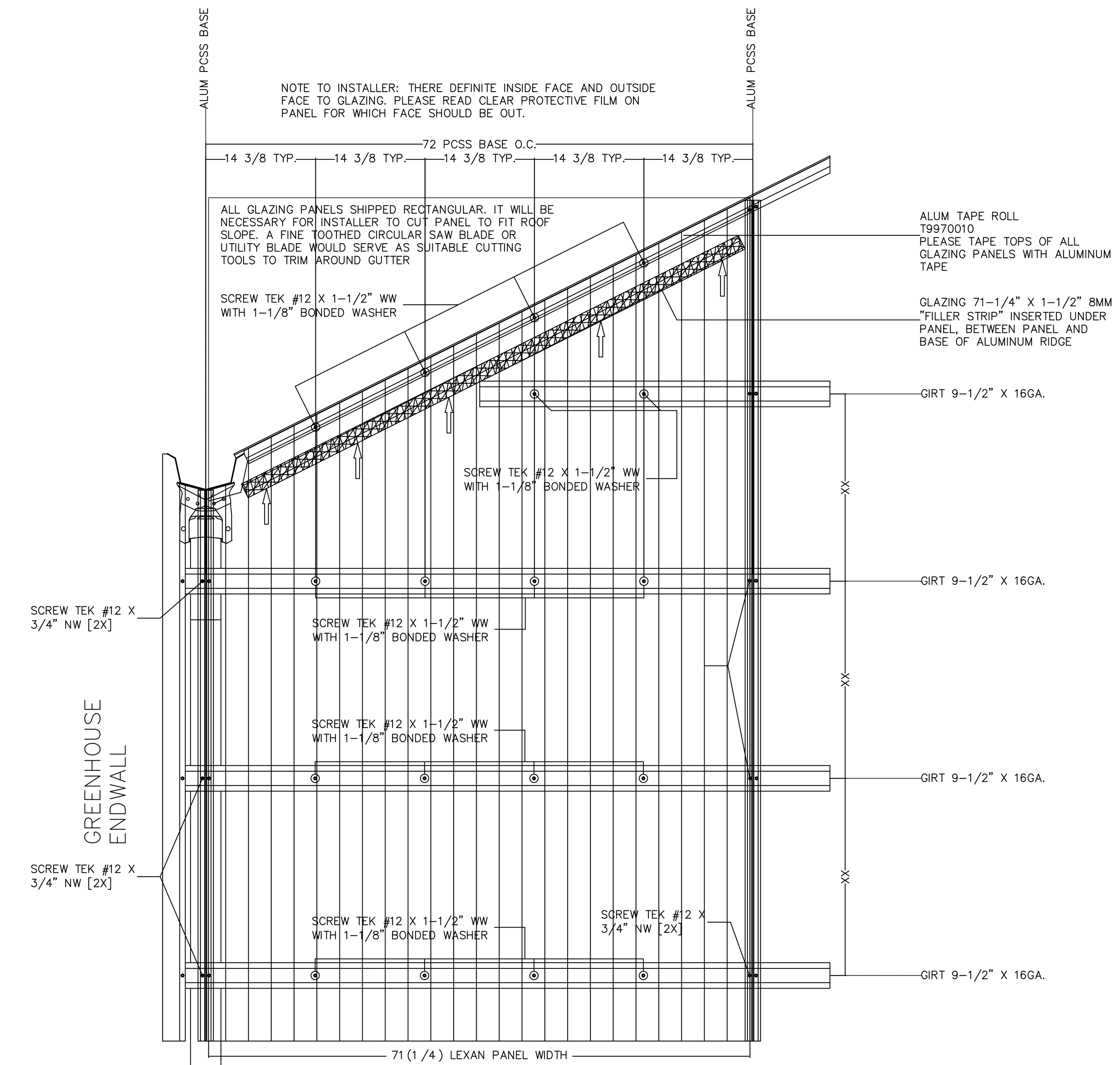


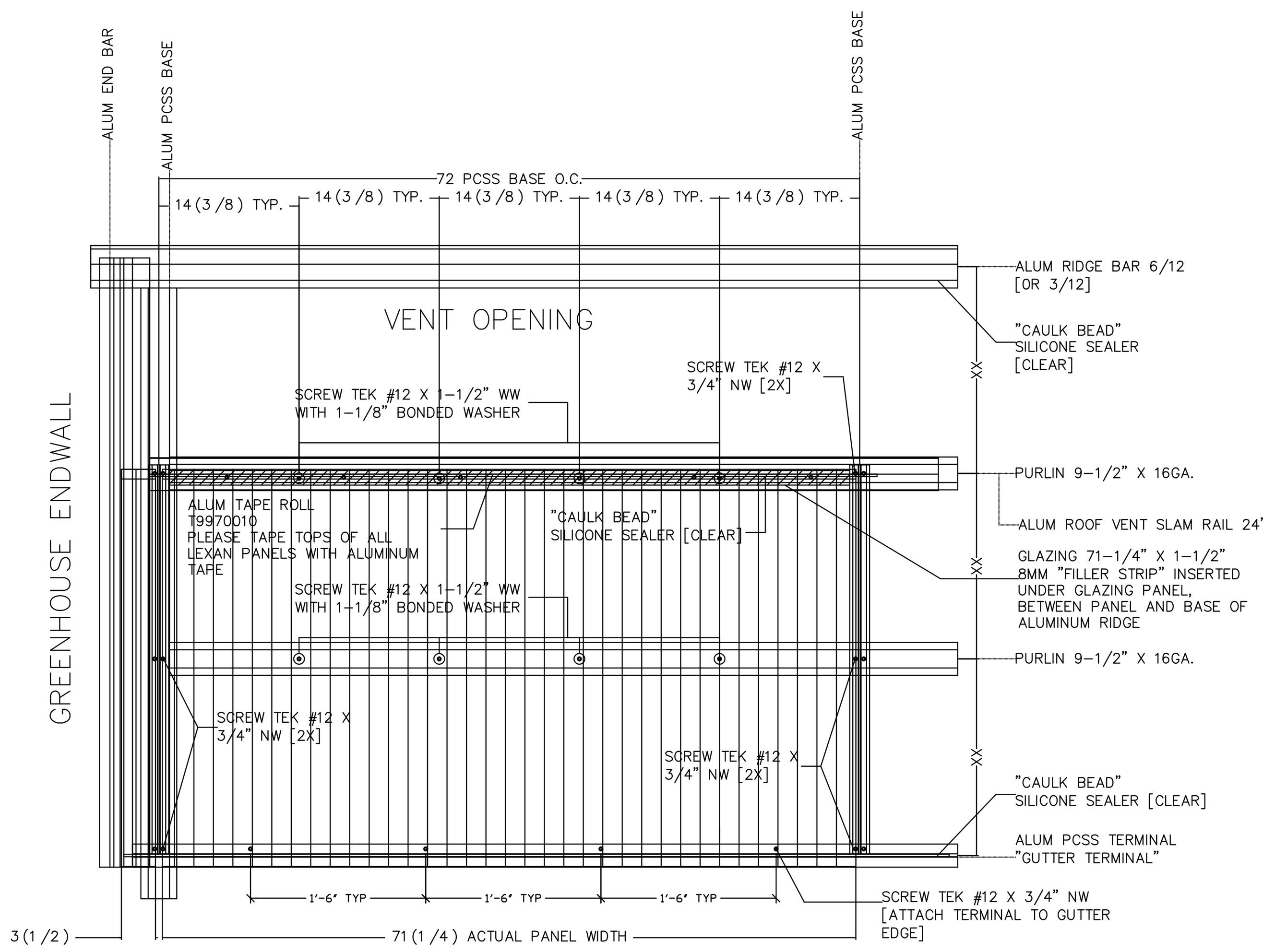
1 S-8 ATTACHMENT OF PCSS 8MM GLAZING SHEET @ ROOF SLOPE W/ NO VENT



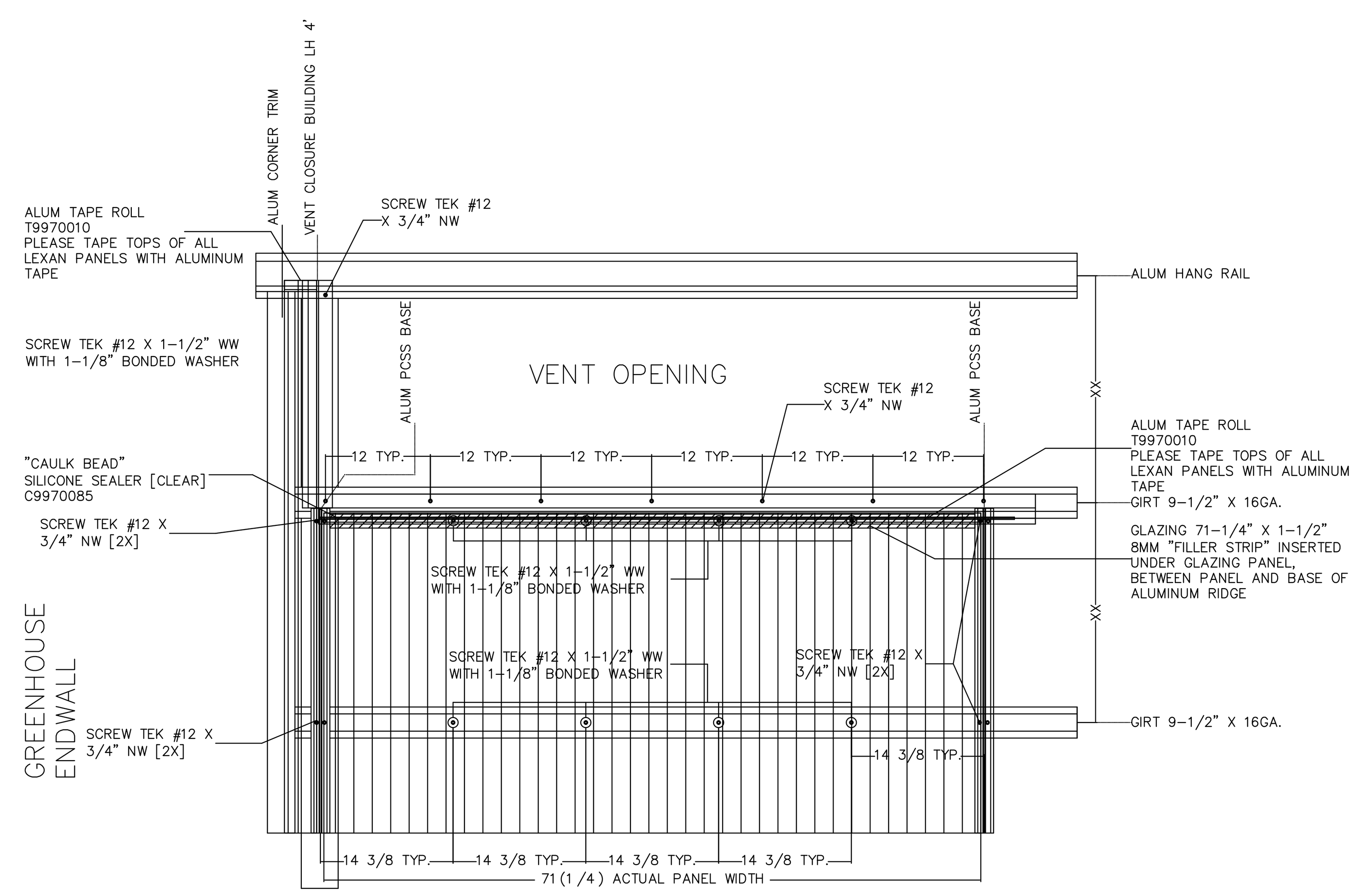
2 S-8 ATTACHMENT OF PCSS 8MM GLAZING SHEET @ SIDEWALLW/ NO VENT



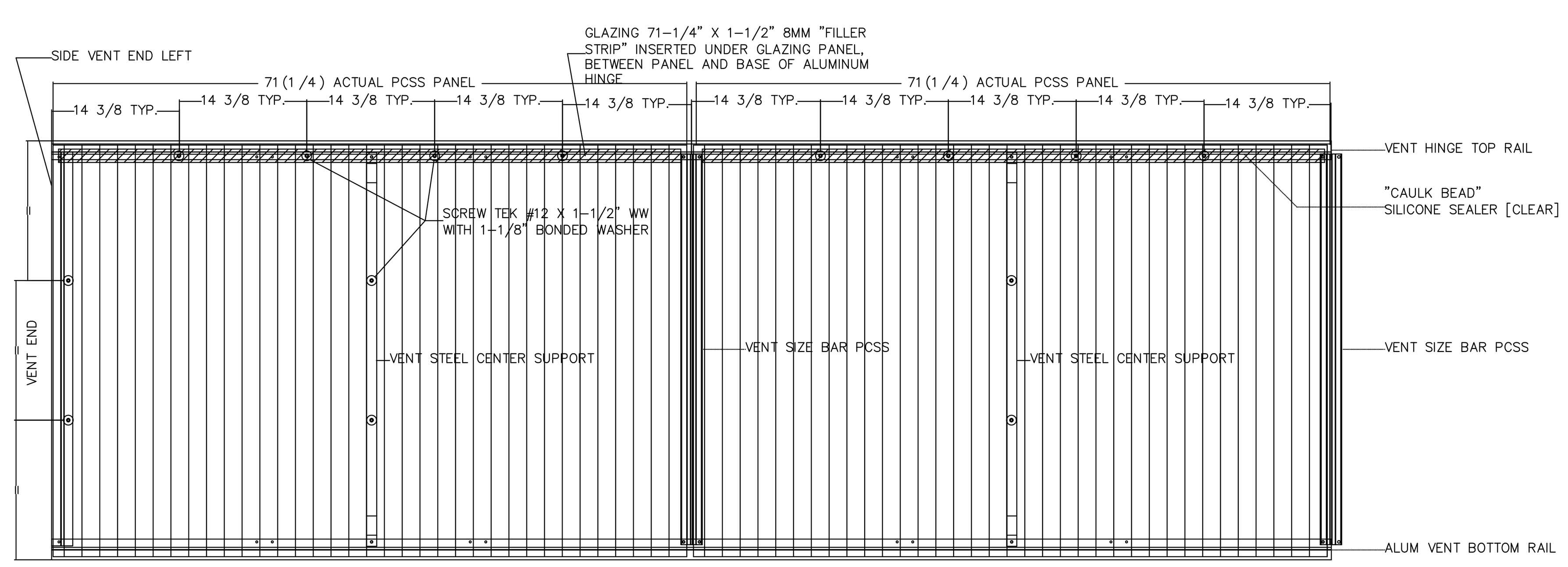
3 S-8 ATTACHMENT OF PCSS 8MM GLAZING SHEET @ SIDEWALLW/ NO VENT
THIS SKETCH IS INTENDED TO SHOW FASTENING TECHNIQUES FOR GLAZING PANELS ON ENDWALLS. REFER TO PARTS LIST TO DETERMINE EXACT LAYOUT OF GLAZING PANELS ON ENDWALL. IT MAY BE NECESSARY TO START AT THE CENTER OF THE ENDWALL AND WORK TOWARD GUTTER.



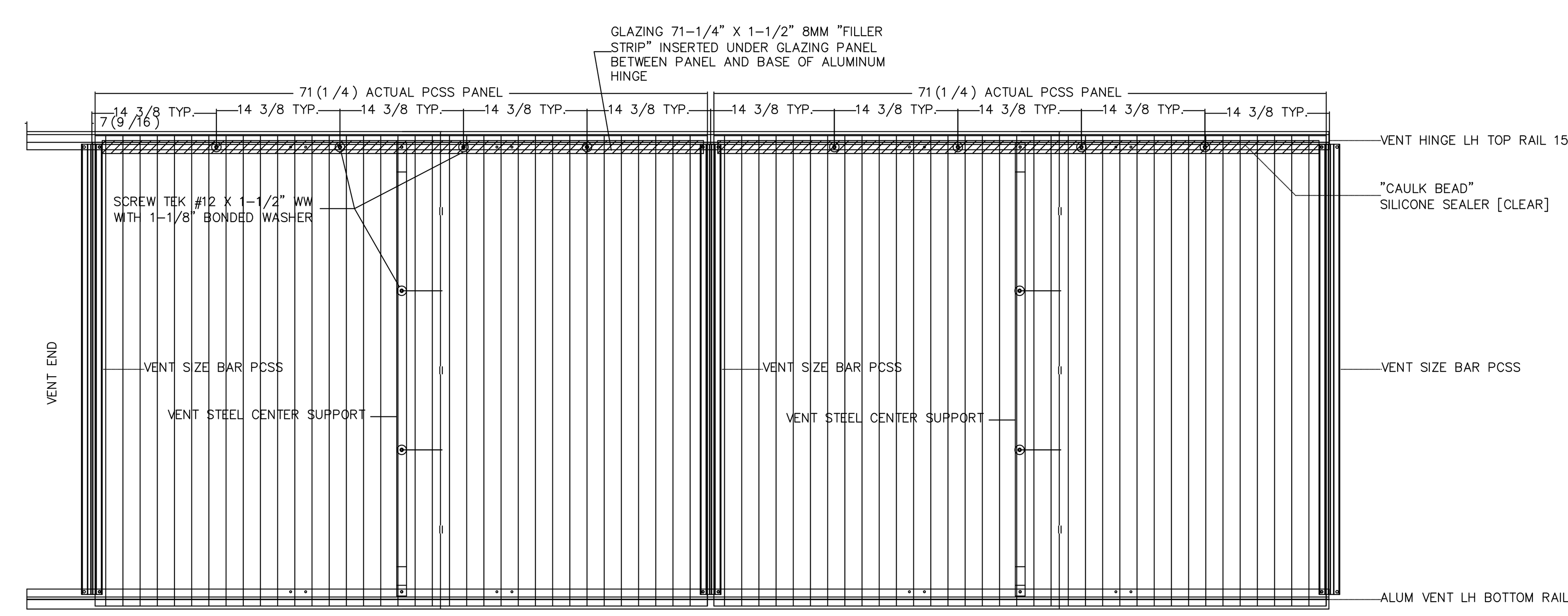
4 S-8 ATTACHMENT OF PCSS 8MM GLAZING SHEET @ ROOF SLOPE W/ VENT



5 S-8 ATTACHMENT OF PCSS 8MM GLAZING SHEET @ SIDEWALL W/ VENT



6 S-8 ATTACHMENT OF PCSS 8MM GLAZING SHEET TO SIDEWALL VENT FRAME



SCALE 1

7 S-8 ATTACHMENT OF PCSS 8MM GLAZING SHEET TO RIDGE VENT FRAME

PAGE
S-8.0
GLAZING FASTENING STANDARDS

4th DIMENSION DESIGN, INC.
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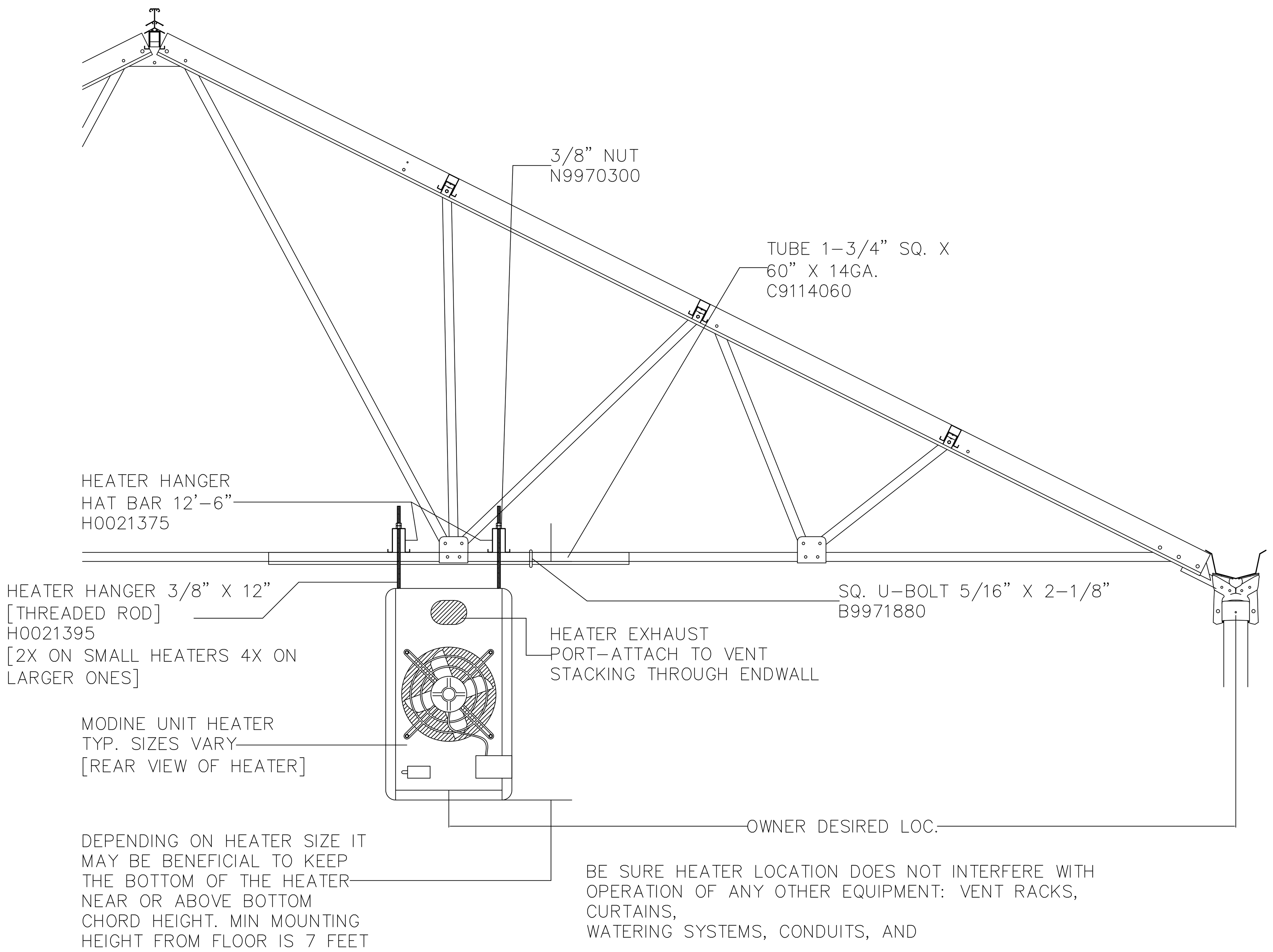
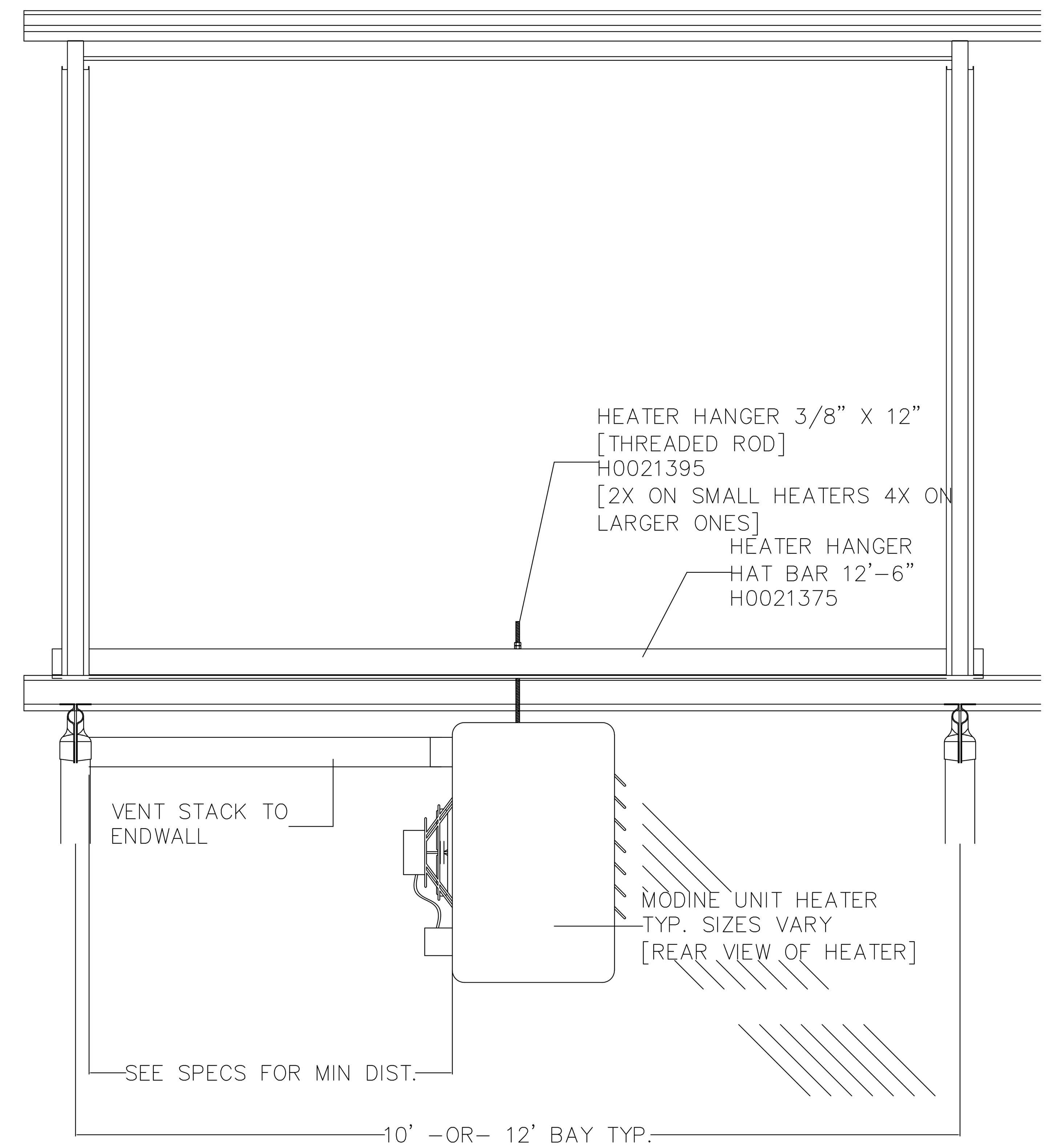


1
S-9.0
HEATER HANGER END VIEW



2
S-9.0
HEATER HANGER SIDE VIEW

PAGE
S-9.0
HEATER
HANGING
DETAILS

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PHONE: (262) 896-6500
FAX: (262) 896-6505
www.4DD.com

PROJECT:
PROJECT "B"
2025

CUSTOMER:
LA CROSSE CENTRAL HIGH SCHOOL
JOE LEDVINA
807 EAST AVENUE SOUTH
LA CROSSE, WI 54601

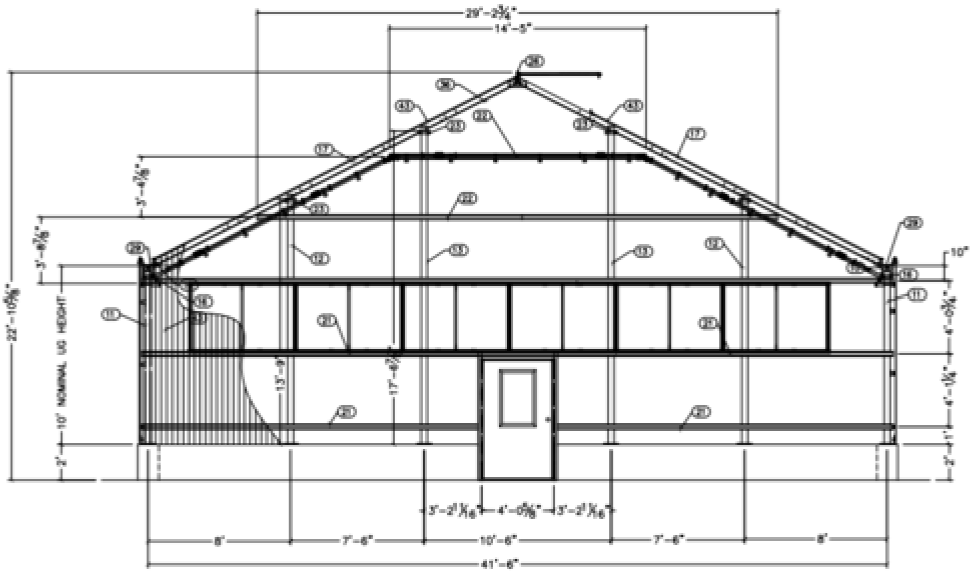
DRAWING BY: DTC

DRAWING TITLE:
(1) 41'-6" X 60'-0"
AMBASSADOR CROWN
GREENHOUSE STRUCTURES

DATE: 2/6/2025

REV.	DATE	DESCRIPTION

UNITED GREENHOUSE
SYSTEMS, INC.
1857 TOWER DRIVE
EDGERTON, WI 53534
PHONE: 1-800-433-6834
1-608-884-8941
FAX: 1-608-884-6137


29'-2 3/4"
14'-5"
22'-10 5/8"
3'-4 7/8"
3'-6 7/8"
10" NOMINAL U/G HEIGHT
2'
10"
4'-0 3/4"
4'-1 1/4"
1'
2'
3'-2 13/16"
4'-0 5/8"
3'-2 13/16"
8'
7'-6"
10'-6"
7'-6"
8'
41'-6"


17-50299-070
SCHOOL DISTRICT
OF LACROSSE
Greenhouse
10 feet to
property line
17-50115-020
JOANN D
DECLUTE
17-50115-025
RICHARD C
STOKKE KERRY
Strong Ave
17-50116-30
17-50116-40
17-50116-50

UNITED GREENHOUSE SYSTEMS, INC.
1857 TOWER DRIVE
EDGERTON, WI 53534
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DESIGN LOADS FOR:

LA CROSSE CENTRAL HIGH SCHOOL GREENHOUSE

LA CROSSE, WI

GROUND SNOW LOAD OF 40 PSF, WIND EXPOSURE B, RISK CAT. II, SINGLE HOUSE

GREENHOUSE LOADING IS BASED ON THE 2018 WISCONSIN COMMERCIAL BUILDING CODE (BASED ON THE 2015 INTERNATIONAL BUILDING CODE). THE GREENHOUSE WILL BE DESIGNED USING THE LOADS AS INDICATED BELOW UNLESS OTHERWISE STATED IN THE UNITED GREENHOUSE SYSTEMS, INC. PROPOSAL, IN LOAD COMBINATIONS PER ASCE7-10. THE PURCHASER IS TO VERIFY THESE LOADS WITH THE DESIGN PROFESSIONAL OF RECORD AND THE AUTHORITY HAVING JURISDICTION FOR THE BUILDING SITE. IF THE PURCHASER OF THE GREENHOUSE HAS DOCUMENTS OR KNOWLEDGE OF LOADING REQUIREMENTS THAT VARY FROM THAT SHOWN BELOW, THIS SHEET MUST BE MARKED WITH CORRECTIONS AND RETURNED TO UNITED GREENHOUSE SYSTEMS, INC. FOR REVISION OF PROPOSAL AND ASSOCIATED COSTS.

DESIGN LOADS

ROOF:

GROUND SNOW LOAD (Pg) = 40 PSF
RISK CATEGORY = II
SNOW IMPORTANCE FACTOR (Is) = 1.0
SNOW LOAD EXPOSURE FACTOR (Ce) = 1.0
ROOF THERMAL FACTOR (Ct) = 0.85 (CONT. HEATED PER ASCE7)
ROOF SLOPE FACTOR (Cs) = 0.67
ROOF SNOW = 0.7 x (Ce) x (Ct) x (Cs) x (Is) x (Pg) = 16 PSF
LIVE LOAD = 20 PSF (REDUCIBLE PER ASCE7)
DEAD LOAD = GREENHOUSE SELF-WEIGHT
COLLATERAL LOAD = 5 PSF
- UNIFORMLY DIST. ON TRUSS BOTTOM CHORDS

WIND:

WIND SPEED = 115 MPH ULTIMATE (89.1 MPH NOMINAL)
WIND EXPOSURE = B
WIND RISK CATEGORY = II
ENCLOSURE CLASSIFICATION = ENCLOSED
COMPONENT & CLADDING DESIGN PRESSURE = PER ASCE7-10

SEISMIC:

SEISMIC RISK CATEGORY (IF APPLICABLE) = II
SEISMIC IMPORTANCE FACTOR (I) = 1.0
SEISMIC SITE CLASS = D (ASSUMED)
SEISMIC DESIGN CATEGORY = A
SPECTRA RESPONSE COEFFICIENTS PER ASCE7
FORCE RESISTING SYSTEM (MAY VARY):
- ORDINARY MOMENT FRAMES OF STEEL
- STEEL CONCENTRICALLY BRACED FRAMES

DESIGN BASE SHEAR = BUILDING DEAD WEIGHT x 0.017
ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE

ADDITIONAL INFO

- GREENHOUSE SIZE: 41'-6" WIDE x 60' LONG x 12' UNDER GUTTER HEIGHT
- LOADING ASSUMES THIS TO BE A SINGLE HOUSE ONLY, WITHOUT ADDITIONAL GUTTER CONNECTED HOUSES.
- ADJACENT BUILDINGS WOULD NOT REQUIRE A SNOW DRIFT LOAD TO BE APPLIED TO THE GREENHOUSE.
- BOTTOM OF TRUSS BOTTOM CHORD IS AT APPROX. 12'-0" ABOVE FINISH FLOOR.
- KNEEBRACES AT APPROX. 8'-6" (+/- 1'-0") ABOVE FINISH FLOOR.
- ASSUMED BUILDING LOCATION:
  1801 LOSEY BLVD S,
  LA CROSSE, WI 54601

CONCRETE FOUNDATION, ANCHOR BOLTS, AND ENGINEERING OF SUCH BY OTHERS. f'_c = 3000 PSI WILL BE ASSUMED FOR BASE PLATE DESIGN AND REACTIONS WILL BE PROVIDED IN THE DESIGN CALCULATION. UNITED GREENHOUSE SYSTEMS, INC. IS A COMPONENT METAL BUILDING/GREENHOUSE MANUFACTURER AND SUPPLIER. THEIR GREENHOUSE STEEL STRUCTURAL ENGINEERING REPRESENTATIVE IS NOT TO BE CONSIDERED THE PROJECT DESIGN PROFESSIONAL OF RECORD. THE DESIGN OF ANY MATERIALS NOT DIRECTLY SUPPLIED BY UNITED GREENHOUSE SYSTEMS, INC. IS NOT PROVIDED UNDER THE SCOPE OF THIS PROPOSAL. GREENHOUSE GLAZING/COVERING IS NOT A DESIGNED ELEMENT - ANY MAINTENANCE WORK MUST BE PERFORMED IN A WAY THAT DOES NOT PUT THE LOAD OF A WORKER(S) ON THE ROOF GLAZING/COVERING. UNITED GREENHOUSE SYSTEMS, INC. TAKES NO RESPONSIBILITY FOR THE EVALUATION OF ANY EXISTING OR ADJACENT STRUCTURES WHOSE CONDITION(S) MAY BE AFFECTED IN ANY WAY BY THE PRESENCE OF THE GREENHOUSE.

PROJECT NOTES

• Stamped structural engineering is included

• (1) Micro Grow Procom™ environmental control system provided for control of (1) curtain, (1) ridge vent, (1) side vent, (3) exhaust fans, (2) heaters, & (4) HAF's. All electrical BY OTHERS.

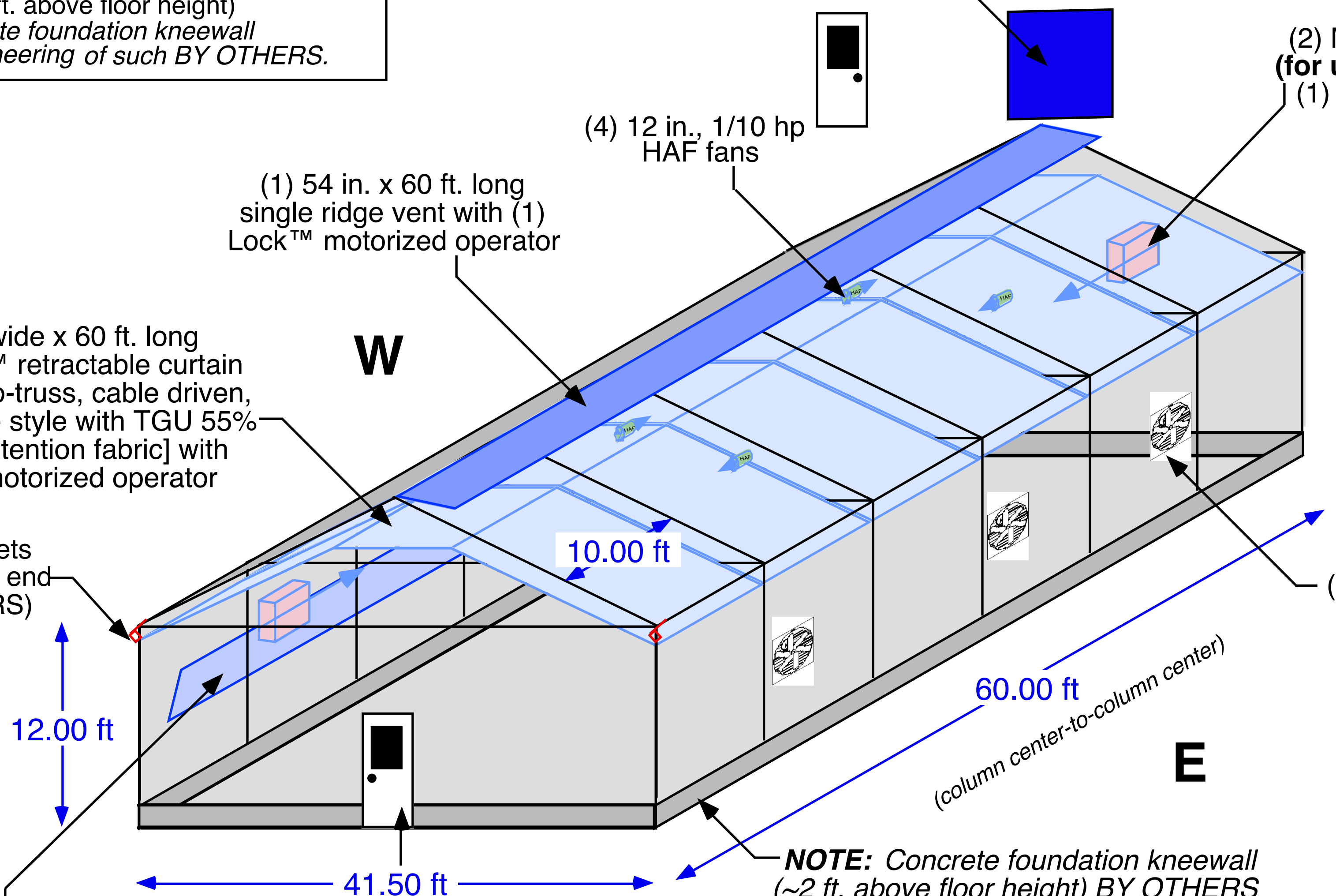
• All columns to be mounted on boots with plates for tabbing to concrete foundation kneewall. (nominally 2 ft. above floor height)
NOTE: *Concrete foundation kneewall anchor bolts & engineering of such BY OTHERS.*

OPTION # 2: *To add benching system (detail / pricing - TBD)*
OPTION # 3: *To add Micro Grow On-Site Start-Up Training Package*
OPTION # 4: *To add (1) Micro Grow WeatherMaster (for wind speed/direction & rain detection)*
OPTION # 5: *To add (1) Micro Grow GrowLink Package (for remote monitoring capability)*
OPTION # 6: *To add (1) Micro Grow Irrigation Controller (modle / need / pricing - TBD)*

COVERINGS

Clear 8mm **twinwall** polycarbonate for:
• (1) Roof
• (2) Sidewalls
• (2) Gable endwalls

OPTION # 1:
To upgrade all new glazing panels from clear 8mm twinwall polycarbonate panels to clear 8mm triplewall polycarbonate panels



United Greenhouse Systems, Inc.
PO Box 249
Edgerton, Wisconsin 53534-1150
1-800-433-6834

JB.lrb

LACROSSE CENTRAL HIGH SCHOOL
LaCrosse, WI

Ambassador Crown™ Greenhouse
(1) 41 ft.-6 in. x 60 ft. x 12 ft. ug x 10 ft. bay
Free-Standing

Concept Sketch Project
B-Revised
1/13/25

4th DIMENSION DESIGN, INC.

A STRUCTURAL ENGINEERING FIRM

DESIGN CALCULATIONS

LACROSSE CENTRAL HS GREENHOUSE
LACROSSE, WI

UNITED GREENHOUSE SYSTEMS, INC.

GREENHOUSE STRUCTURAL COMPONENT DESIGN

MARCH 25, 2025

Pages 1 thru 100

WISCONSIN
JOEL A.
NELSON
E-41443
MILWAUKEE,
WI
3-25-25
PROFESSIONAL ENGINEER

Prepared by:

4th DIMENSION DESIGN, INC.

817 Venture Court

Waukesha, Wisconsin 53189

262-896-6500

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LA CROSSE, WI

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4th Dimension Design, Inc.
817 Venture Ct
Waukesha, WI 53189
262.896.6500
andrea.kohl@4dd.com

JOB TITLE LA CROSSE CENTRAL HIGH SCHOOL
JOB NO. 14677 **SHEET NO.**
CALCULATED BY **DATE**
CHECKED BY **DATE**

Code Search

Code: International Building Code 2015

Occupancy:

Occupancy Group = U Utility & Miscellaneous

Risk Category & Importance Factors:

Risk Category =	II
Wind factor =	1.00
Snow factor =	1.00
Seismic factor =	1.00

Type of Construction:

Fire Rating:

Roof =	0.0 hr
Floor =	0.0 hr

Building Geometry:

Roof angle (θ)	6.00 / 12	26.6 deg
Building length (L)	60.0 ft	
Least width (B)	41.5 ft	
Mean Roof Ht (h)	17.2 ft	
Parapet ht above grd	0.0 ft	
Minimum parapet ht	0.0 ft	

Live Loads:

Roof

0 to 200 sf:	18 psf
200 to 600 sf:	21.6 - 0.018Area, but not less than 12 psf
over 600 sf:	12 psf

Floor:

Typical Floor		N/A
Partitions		N/A
Partitions	N/A	
Partitions		N/A
Partitions	N/A	

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Wind Loads : ASCE 7- 10

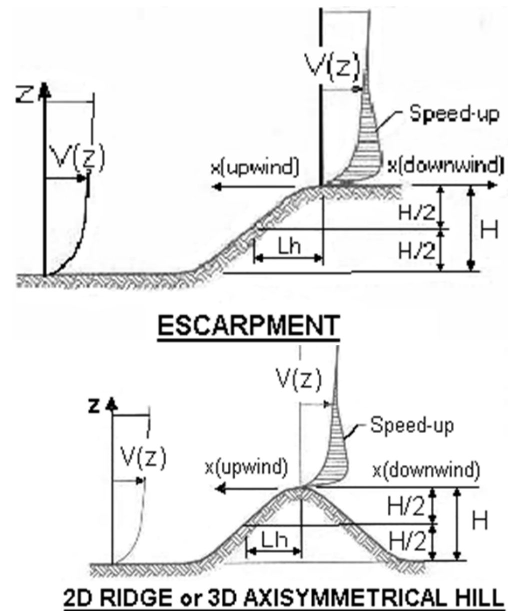
Ultimate Wind Speed	115 mph
Nominal Wind Speed	89.1 mph
Risk Category	II
Exposure Category	B
Enclosure Classif.	Enclosed Building
Internal pressure	+/-0.18
Directionality (Kd)	0.85
Kh case 1	0.701
Kh case 2	0.598
Type of roof	Gable

Topographic Factor (Kzt)

Topography	Flat
Hill Height (H)	80.0 ft
Half Hill Length (Lh)	100.0 ft
Actual H/Lh =	0.80
Use H/Lh =	0.50
Modified Lh =	160.0 ft
From top of crest: x =	50.0 ft
Bldg up/down wind?	downwind

H/Lh= 0.50	K_1 = 0.000
x/Lh = 0.31	K_2 = 0.792
z/Lh = 0.11	K_3 = 1.000

At Mean Roof Ht:
$Kzt = (1+K_1K_2K_3)^2$ = 1.00



Gust Effect Factor

h =	17.2 ft
B =	41.5 ft
/z (0.6h) =	30.0 ft

Flexible structure if natural frequency < 1 Hz (T > 1 second).
However, if building h/B < 4 then probably rigid structure (rule of thumb).
h/B = 0.41 Rigid structure

G = 0.85 Using rigid structure default

Rigid Structure

ē =	0.33
ℓ =	320 ft
z_{min} =	30 ft
c =	0.30
g_Q, g_v =	3.4
L_z =	310.0 ft
Q =	0.91
I_z =	0.30
G =	0.87 use G = 0.85

Flexible or Dynamically Sensitive Structure

Natural Frequency (η_1) =	0.0 Hz				
Damping ratio (β) =	0				
/b =	0.45				
/α =	0.25				
Vz =	74.1				
N_1 =	0.00				
R_n =	0.000				
R_h =	28.282	η =	0.000	h =	17.2 ft
R_B =	28.282	η =	0.000		
R_L =	28.282	η =	0.000		
g_R =	0.000				
R =	0.000				
G =	0.000				

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JOB NO. 14677 **SHEET NO.**

CALCULATED BY **DATE**

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Wind Loads - MWFRS h≤60' (Low-rise Buildings) Enclosed/partially enclosed only

Kz = Kh (case 1) =	0.70	Edge Strip (a) =	4.2 ft
Base pressure (qh) =	**20.2 psf**	End Zone (2a) =	8.3 ft
GCpi =	+/-0.18	Zone 2 length =	20.8 ft

Wind Pressure Coefficients

	CASE A				CASE B		
		θ = 26.6 deg					
Surface	GCpf	w/-GCpi	w/+GCpi		GCpf	w/-GCpi	w/+GCpi
1	0.55	0.73	0.37		-0.45	-0.27	-0.63
2	-0.10	0.08	-0.28		-0.69	-0.51	-0.87
3	-0.45	-0.27	-0.63		-0.37	-0.19	-0.55
4	-0.39	-0.21	-0.57		-0.45	-0.27	-0.63
5					0.40	0.58	0.22
6					-0.29	-0.11	-0.47
1E	0.73	0.91	0.55		-0.48	-0.30	-0.66
2E	-0.19	-0.01	-0.37		-1.07	-0.89	-1.25
3E	-0.58	-0.40	-0.76		-0.53	-0.35	-0.71
4E	-0.53	-0.35	-0.71		-0.48	-0.30	-0.66
5E					0.61	0.79	0.43
6E					-0.43	-0.25	-0.61

Ultimate Wind Surface Pressures (psf)

1		14.7	7.5			-5.4	-12.7
2		1.6	-5.6			-10.3	-17.5
3		-5.4	-12.6			-3.8	-11.1
4		-4.2	-11.5			-5.4	-12.7
5						11.7	4.4
6						-2.2	-9.5
1E		18.3	11.0			-6.0	-13.3
2E		-0.2	-7.5			-17.9	-25.2
3E		-8.2	-15.4			-7.1	-14.3
4E		-7.2	-14.4			-6.0	-13.3
5E						15.9	8.7
6E						-5.0	-12.3

Parapet

Windward parapet = 0.0 psf (GCpn = +1.5)
Leeward parapet = 0.0 psf (GCpn = -1.0)

Windward roof overhangs = 14.1 psf (upward) add to windward roof pressure

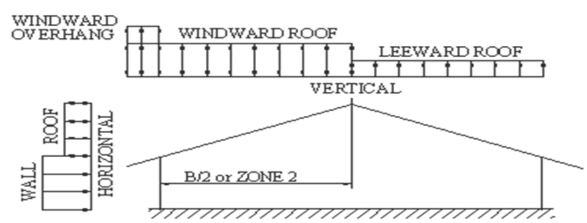
Horizontal MWFRS Simple Diaphragm Pressures (psf)

Transverse direction (normal to L)

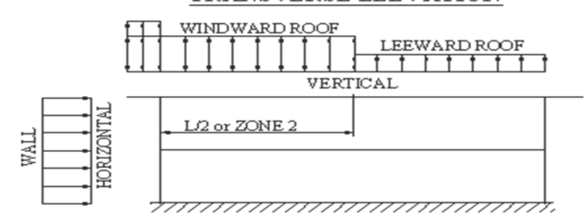
Interior Zone:	Wall	19.0	psf
	Roof	7.0	psf
End Zone:	Wall	25.5	psf
	Roof	8.0	psf

Longitudinal direction (parallel to L)

Interior Zone:	Wall	13.9	psf
End Zone:	Wall	21.0	psf



TRANSVERSE ELEVATION



LONGITUDINAL ELEVATION

The code requires the MWFRS be designed for a min ultimate force of 16 psf multiplied by the wall area plus an 8 psf force applied to the vertical projection of the roof.

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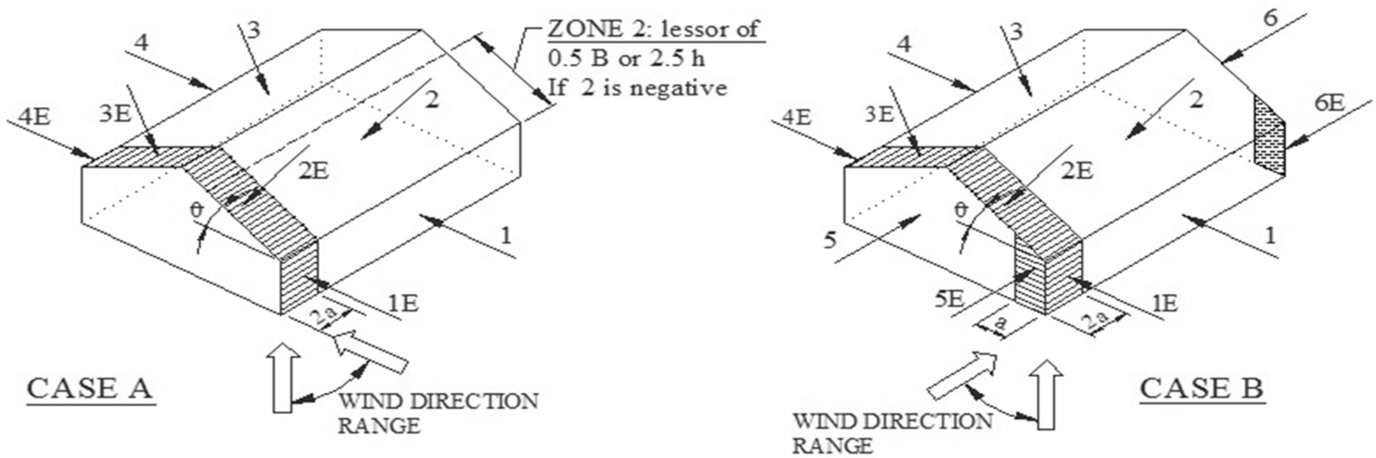
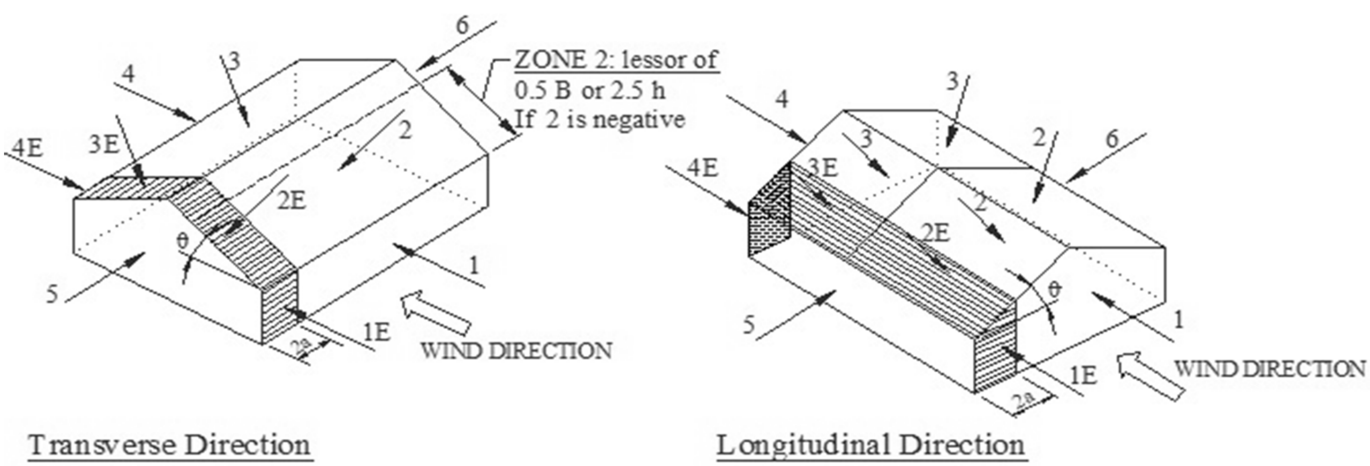
Location of MWFRS Wind Pressure Zones



NOTE: Torsional loads are 25% of zones 1 - 6. See code for loading diagram.

ASCE 7 -99 and ASCE 7-10 (& later)



NOTE: Torsional loads are 25% of zones 1 - 4. See code for loading diagram.

~~ASCE 7 -02 and ASCE 7-05~~

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JOB TITLE LA CROSSE CENTRAL HIGH SCHOOL

JOB NO. 14677 SHEET NO.
CALCULATED BY DATE
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Ultimate Wind Pressures

Wind Loads - Components & Cladding : h <= 60'

Kh (case 1) =	0.70	h =	17.2 ft
Base pressure (qh) =	**20.2 psf**	a =	4.2 ft
Minimum parapet ht =	0.0 ft	GCpi =	+/-0.18
Roof Angle (θ) =	26.6 deg		
Type of roof =	Gable		

Roof

	GCp +/- GCpi			Surface Pressure (psf)			**User input**	
Area	10 sf	50 sf	100 sf	10 sf	50 sf	100 sf	30 sf	40 sf
Negative Zone 1	-1.08	-1.01	-0.98	-21.8	-20.4	-19.8	-20.8	-20.6
Negative Zone 2	-1.88	-1.53	-1.38	-37.9	-30.9	-27.8	-33.1	-31.8
Negative Zone 3	-2.78	-2.36	-2.18	-56.0	-47.6	-44.0	-50.3	-48.8
Positive All Zones	0.68	0.54	0.48	16.0	16.0	16.0	16.0	16.0
Overhang Zone 2	-2.20	-2.20	-2.20	-44.4	-44.4	-44.4	-44.4	-44.4
Overhang Zone 3	-3.70	-2.86	-2.50	-74.6	-57.7	-50.4	-63.1	-60.0

Overhang pressures in the table above assume an internal pressure coefficient (Gcpi) of 0.0
Overhang soffit pressure equals adj wall pressure (which includes internal pressure of 3.6 psf)

Parapet

qp = 0.0 psf

CASE A = pressure towards building (pos)
CASE B = pressure away from bldg (neg)

	Surface Pressure (psf)			**User input**
Solid Parapet Pressure	10 sf	100 sf	500 sf	20 sf
CASE A : Interior zone:	0.0	0.0	0.0	0.0
Corner zone:	0.0	0.0	0.0	0.0
CASE B : Interior zone:	0.0	0.0	0.0	0.0
Corner zone:	0.0	0.0	0.0	0.0

Walls

	GCp +/- GCpi			Surface Pressure (psf)			**User input**	
Area	10 sf	100 sf	500 sf	10 sf	100 sf	500 sf	30 sf	50 sf
Negative Zone 4	-1.28	-1.10	-0.98	-25.8	-22.2	-19.8	-24.1	-23.3
Negative Zone 5	-1.58	-1.23	-0.98	-31.9	-24.7	-19.8	-28.5	-26.9
Positive Zone 4 & 5	1.18	1.00	0.88	23.8	20.2	17.7	22.1	21.3

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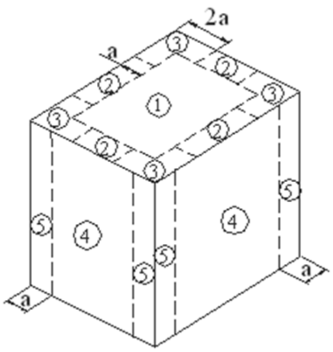
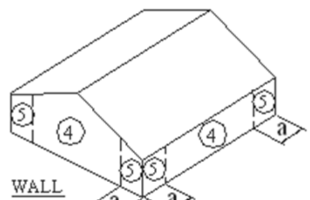
Ultimate Wind Pressures

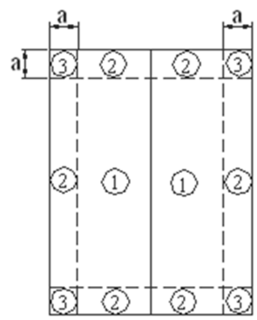
Location of C&C Wind Pressure Zones



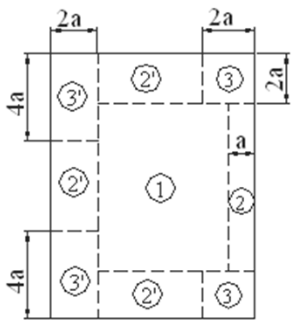
Roofs w/ θ ≤ 10°
and all walls
h > 60'



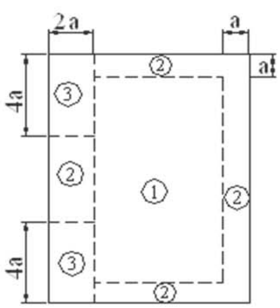
Walls h ≤ 60'
& alt design h<90'



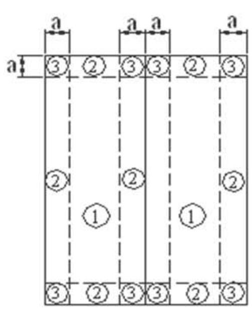
Gable, Sawtooth and
Multispan Gable θ ≤ 7 degrees &
Monoslope ≤ 3 degrees
h ≤ 60' & alt design h<90'



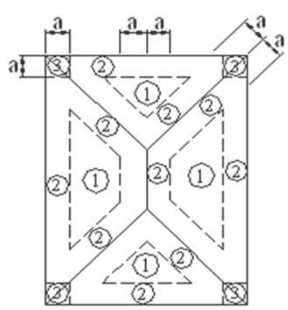
Monoslope roofs
3° < θ ≤ 10°
h ≤ 60' & alt design h<90'



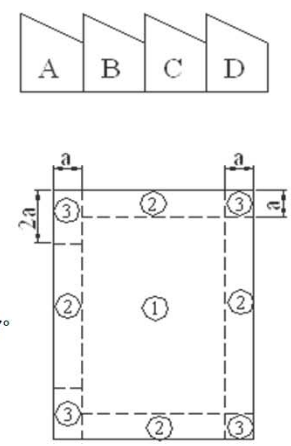
Monoslope roofs
10° < θ ≤ 30°
h ≤ 60' & alt design h<90'



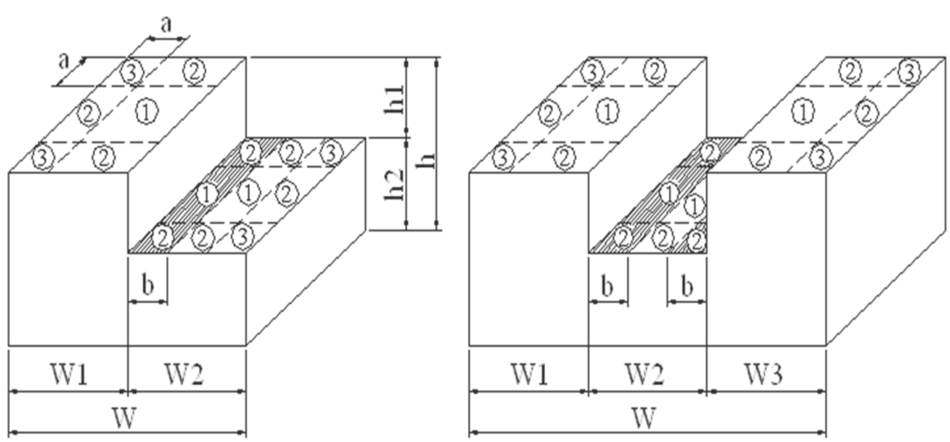
Multispan Gable &
Gable 7° < θ ≤ 45°



Hip 7° < θ ≤ 27°



Sawtooth 10° < θ ≤ 45°
h ≤ 60' & alt design h<90'



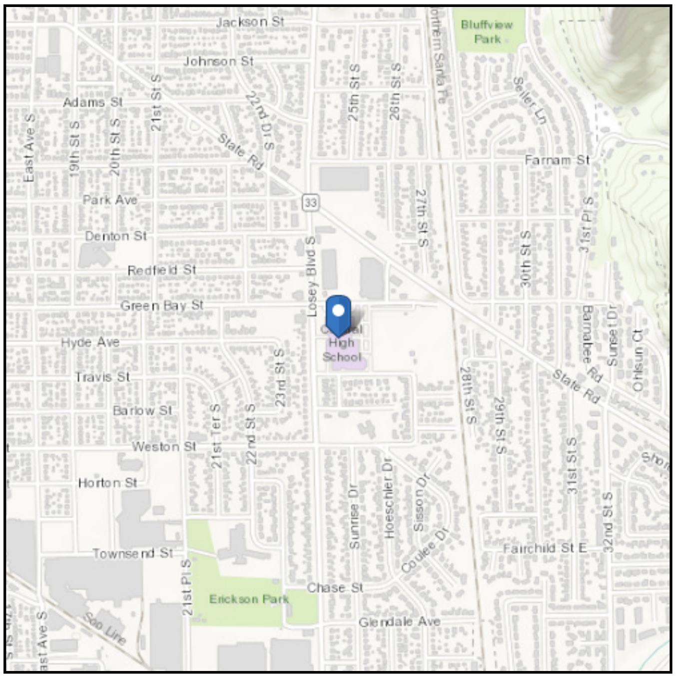
Stepped roofs θ ≤ 3°
h ≤ 60' & alt design h<90'

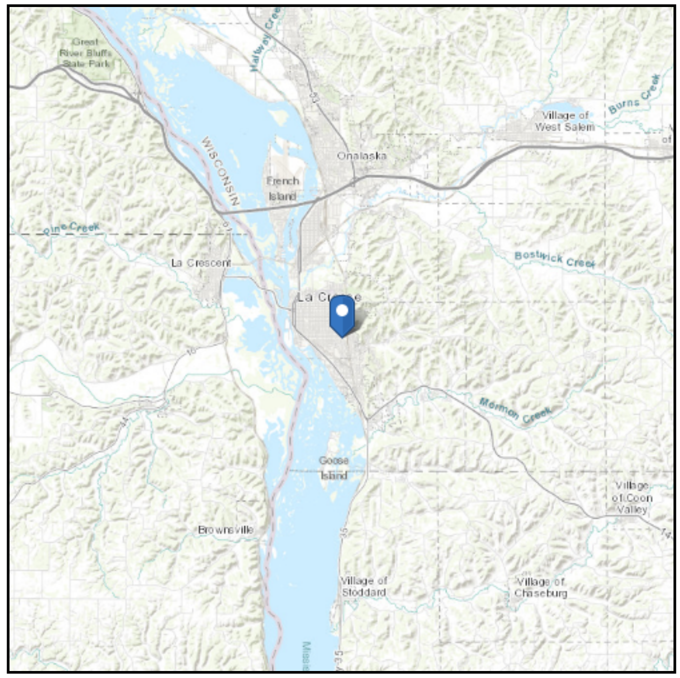
ASCE Hazards Report

Address:
1801 Losey Blvd S
La Crosse, Wisconsin
54601

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Latitude: 43.793385
Longitude: -91.218917
Elevation: 664.9313411071986 ft (NAVD 88)





Wind

Results:

Wind Speed	115 Vmph
10-year MRI	76 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Date Accessed: Mon Feb 17 2025

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2.

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JOB TITLE LA CROSSE CENTRAL HIGH SCHOOL
JOB NO. 14677 SHEET NO.
CALCULATED BY DATE
CHECKED BY DATE

Snow Loads : ASCE 7-10

Nominal Snow Forces

Roof slope	=	26.6 deg
Horiz. eave to ridge dist (W)	=	20.8 ft
Roof length parallel to ridge (L)	=	60.0 ft

Type of Roof			Hip and gable w/ trussed systems	
Ground Snow Load	Pg	=	40.0 psf	
Risk Category		=	II	
Importance Factor	I	=	1.0	
Thermal Factor	Ct	=	0.85	
Exposure Factor	Ce	=	1.0	
Pf = 0.7*Ce*Ct*I*Pg		=	23.8 psf	
Unobstructed Slippery Surface			yes	
Sloped-roof Factor	Cs	=	0.67	use 0.67
Balanced Snow Load	**Ps**	**=**	**16.0 psf**	
Rain on Snow Surcharge Angle			0.42 deg	
Code Maximum Rain Surcharge			5.0 psf	
Rain on Snow Surcharge		=	0.0 psf	
Ps plus rain surcharge		=	16.0 psf	
Minimum Snow Load	Pm	=	0.0 psf	
Uniform Roof Design Snow Load		=	**16.0 psf**	

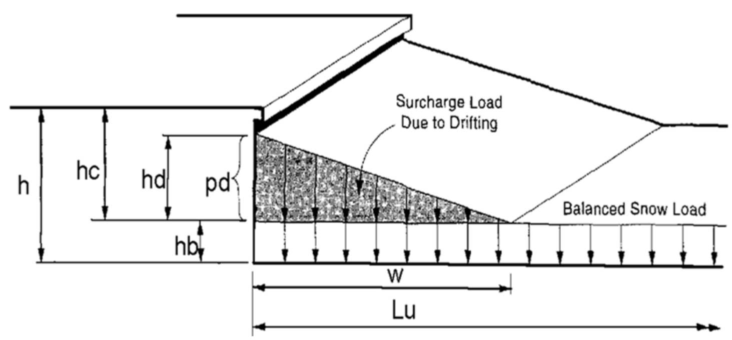
NOTE: Alternate spans of continuous beams and other areas shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code.

Unbalanced Snow Loads - for Hip & Gable roofs only

Required if slope is between 7 on 12 =	30.26 deg	
and 2.38 deg =	2.38 deg	**Unbalanced snow loads must be applied**
Windward snow load =	4.8 psf	= 0.3Ps
Leeward snow load from ridge to 6.19' =	38.3 psf	= hdγ / √S + Ps
Leeward snow load from 6.19' to the eave =	16.0 psf	= Ps

Windward Snow Drifts 1 - Against walls, parapets, etc

Upwind fetch	lu	=	0.0 ft
Projection height	h	=	0.0 ft
Snow density	g	=	19.2 pcf
Balanced snow height	hb	=	0.83 ft
	hd	=	1.20 ft
	hc	=	-0.83 ft
hc/hb <0.2 = -1.0	**lu<15', drift not req'd**		
Drift height (hc)		=	0.00 ft
Drift width	w	=	-6.96 ft
Surcharge load:	pd = γ*hd	=	**0.0 psf**
Balanced Snow load:		=	16.0 psf
			16.0 psf



Windward Snow Drifts 2 - Against walls, parapets, etc

Upwind fetch	lu	=	0.0 ft
Projection height	h	=	0.0 ft
Snow density	g	=	19.2 pcf
Balanced snow height	hb	=	0.83 ft
	hd	=	1.20 ft
	hc	=	-0.83 ft
hc/hb <0.2 = -1.0	**lu<15', drift not req'd**		
Drift height (hc)		=	0.00 ft
Drift width	w	=	-6.96 ft
Surcharge load:	pd = γ*hd	=	**0.0 psf**
Balanced Snow load:		=	16.0 psf
			16.0 psf

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Snow

Results:

Ground Snow Load, p_g :	40 lb/ft^2
Mapped Elevation:	664.9 ft
Data Source:	ASCE/SEI 7-10, Fig. 7-1.
Date Accessed:	Mon Feb 17 2025

Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported ‘elevation’ and ‘mapped elevation’ differ significantly from each other.

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JOB TITLE LA CROSSE CENTRAL HIGH SCHOOL
JOB NO. 14677 **SHEET NO.**
CALCULATED BY **DATE**
CHECKED BY **DATE**

Seismic Loads: IBC 2015 Strength Level Forces

Risk Category : II
Importance Factor (I) : 1.00
Site Class : D

Ss (0.2 sec) = 5.30 %g
S1 (1.0 sec) = 3.60 %g

Fa =	1.600	Sms =	0.085	S_{DS} =	0.057	Design Category =	A
Fv =	2.400	Sm1 =	0.086	S_{D1} =	0.058	Design Category =	A

Seismic Design Category = **A** ASCE7 Section 11.4.1 Exception Applies
Number of Stories: 1
Structure Type: All other building systems
Horizontal Struct Irregularities: No plan Irregularity
Vertical Structural Irregularities: No vertical Irregularity
Flexible Diaphragms: Yes
Building System: **Building Frame Systems**
Seismic resisting system: **Steel ordinary concentrically braced frames**
System Structural Height Limit: **Height not limited**
Actual Structural Height (hn) = 22.4 ft

DESIGN COEFFICIENTS AND FACTORS

Response Modification Coefficient (R) = 3.25
Over-Strength Factor (Ωo) = 2
Deflection Amplification Factor (Cd) = 3.25
S_{DS} = 0.057
S_{D1} = 0.058

Seismic Load Effect (E) = $\rho\ Q_E$ +/- $0.2S_{DS}$ D = $\rho\ Q_E$ +/- 0.011D
Special Seismic Load Effect (Em) = $\Omega o\ Q_E$ +/- $0.2S_{DS}$ D = 2.0 Q_E +/- 0.011D

ρ = redundancy coefficient
Q_E = horizontal seismic force
D = dead load

PERMITTED ANALYTICAL PROCEDURES

Index Force Analysis (Seismic Category A only) - Minimum lateral force Fx = 0.01Wx at each floor level

Simplified Analysis - Use Equivalent Lateral Force Analysis

Equivalent Lateral-Force Analysis - Permitted
Building period coef. (C_T) = 0.020 Cu = 1.70
Approx fundamental period (Ta) = $C_T h_n^x$ = 0.206 sec x= 0.75 Tmax = CuTa = 0.350
User calculated fundamental period (T) = sec Use T = 0.206
Long Period Transition Period (TL) = ASCE7 map = 12
Seismic response coef. (Cs) = $S_{DS}I/R$ = 0.017
need not exceed Cs = Sd1 I /RT = 0.086
but not less than Cs = 0.010
USE Cs = 0.017
Design Base Shear V = 0.017W

Model & Seismic Response Analysis - Permitted (see code for procedure)

ALLOWABLE STORY DRIFT

Structure Type: Non- masonry, 4 story or less designed to accommodate the story drift
Allowable story drift = 0.025hsx no limit if single story is designed to accommodate the story drift

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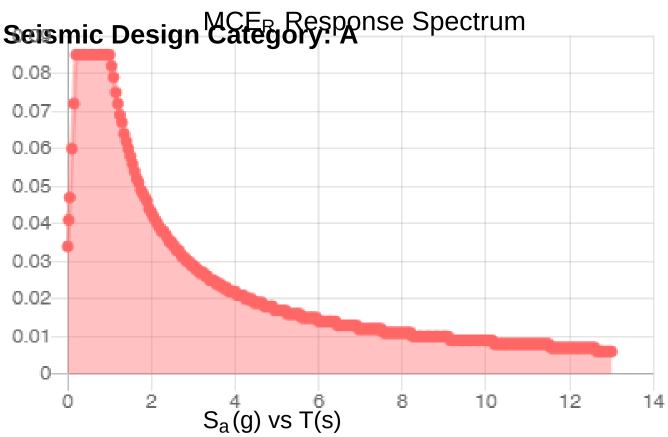
Seismic

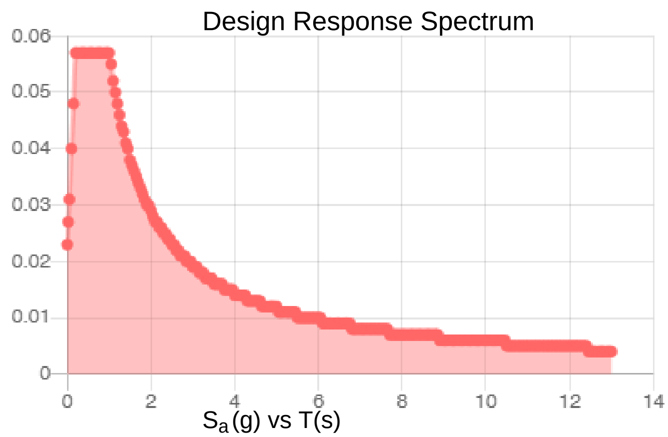
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.053	S_{D1} :	0.058
S_1 :	0.036	T_L :	12
F_a :	1.6	PGA :	0.025
F_v :	2.4	PGA_M :	0.04
S_{MS} :	0.085	F_{PGA} :	1.6
S_{M1} :	0.087	I_e :	1
S_{DS} :	0.057		

Seismic Design Category: A





Data Accessed: **Mon Feb 17 2025**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

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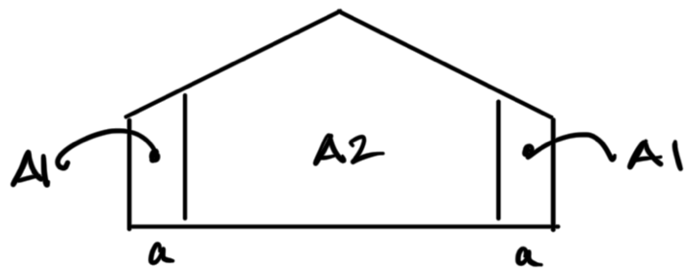
BRACING

PAGE 14677

DATE 03.18.25

X-BRACES IN SIDE WALLS & ROOF



$a = 4.2'$

$A1 = 47\ SF \times 2 \times 21\ PSF = 1{,}974\ \#$

$A2 = 538\ SF \times 13.9\ PSF = 7{,}479\ \#$

FORCE TO BRACE: $\left[\dfrac{1{,}974 + 7{,}479}{632\ SF}\right] = 14.95\ PSF$ ULT

USE 16 PSF ULT

$0.6W = 0.6(16\ PSF) = 9.6\ PSF\ (ASD)$

BY AK

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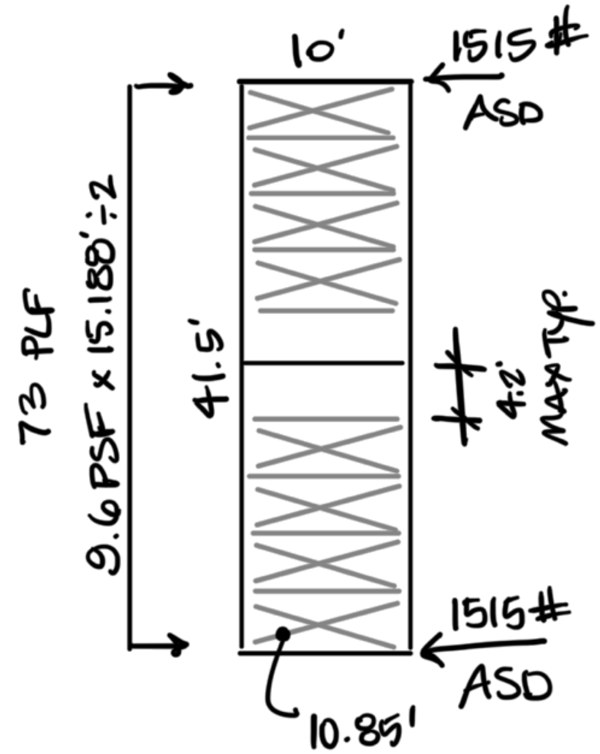
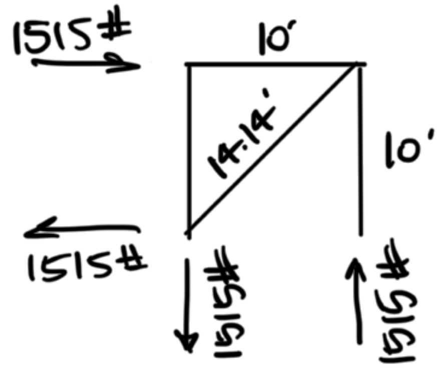
BRACING

PAGE 14677

DATE 03.18.25



ROOF



WALL

$T = 1515\# \times \frac{14.14'}{10'}$

$T = 2{,}143\#$

∾ 1/4" CABLE = 3.5K

$T = \frac{10.85'}{10'} \times 1{,}515\#$

$T = 1{,}644\#$ ASD

∾ 3/16" CABLE = 2.1K

CHECK SEISMIC $(C_S = 0.017)$

$E = 41.6' \times 60' \times 10\,PSF \times 0.017 = 425\#$

$0.7E = 0.7(425\#) = 298\# < 1{,}515\#$ WIND CONTROLS.

BY AK

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PURLINS & GIRTS 14677

03.18.25

4th DIMEN

PURLINS

DL = 3PSF LL = 18PSF SL = 16 PSF

USL ~ see sketch

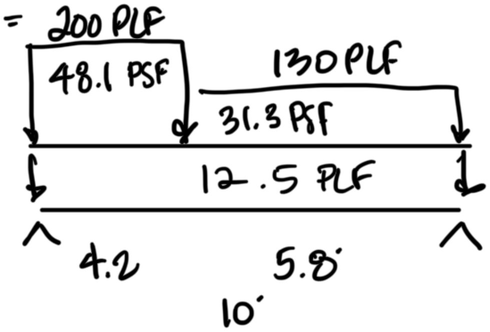
P1 (RIDGE) trib = 4.146'

$$DL + LL = \frac{(87.1\ PLF)(9'\text{-}8")^2}{8} = 1.02\ K\text{-}FT$$

$$DL + SL = \frac{(78.8\ PLF)(9'\text{-}8")^2}{8} = 0.92\ K\text{-}FT$$

$$DL + USL = \frac{(101.8\ PLF)(9'\text{-}8")^2}{8} = 1.19\ K\text{-}FT$$

0.6DL + 0.6WL = 200 PLF = 1.016 KFT



∴ 3" 16 GA PURLIN = 1.4 KFT > 1.02 KFT

AK

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Project Title: UGS | LA CROSSE CENTRAL HIGH SCHOOL
Engineer:
Project ID: 14677
Project Descr:

Printed: 18 MAR 2025, 8:30PM

General Beam

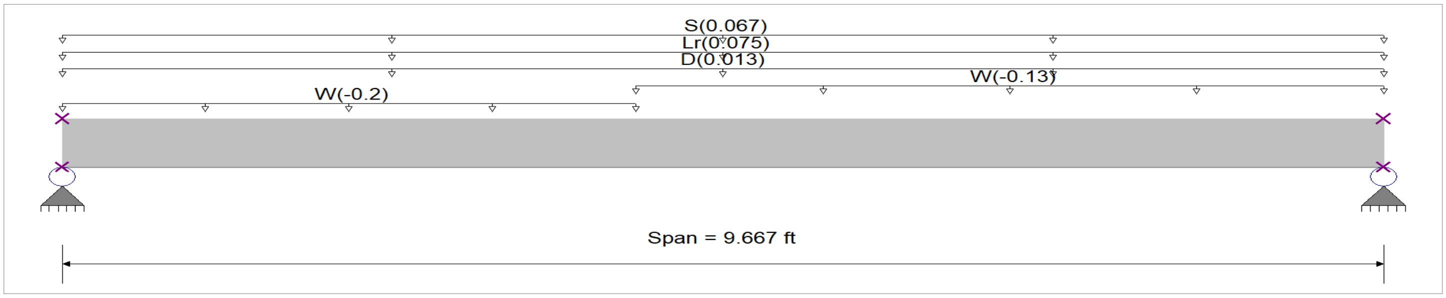
File: 14677.ec6

Lic. # : KW-06003674 4TH DIMENSION DESIGN

DESCRIPTION: P1 RIDGE

General Beam Properties

Elastic Modulus 29,000.0 ksi
Span #1 Span Length = 9.667 ft Area = 10.0 in^2 Moment of Inertia = 100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Load for Span Number 1

Uniform Load : W = -0.20 k/ft, Extent = 0.0 -->> 4.20 ft, Tributary Width = 1.0 ft, (WL CC Z3)

Uniform Load : W = -0.130 k/ft, Extent = 4.20 -->> 9.667 ft, Tributary Width = 1.0 ft, (WL Z2)

Uniform Load : D = 0.0130 k/ft, Tributary Width = 1.0 ft, (DL)

Uniform Load : Lr = 0.0750 k/ft, Tributary Width = 1.0 ft, (Lr)

Uniform Load : S = 0.0670 k/ft, Tributary Width = 1.0 ft, (SL)

DESIGN SUMMARY

Maximum Bending =	1.028 k-ft	**Maximum Shear =**	0.4774 k
Load Combination	+D+Lr+H	Load Combination	+0.60D+0.60W+0.60H
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	4.834 ft	Location of maximum on span	0.000 ft

Maximum Deflection

Max Downward Transient Deflection	0.005 in	22646
Max Upward Transient Deflection	-0.011 in	10762
Max Downward Total Deflection	0.006 in	19300
Max Upward Total Deflection	-0.006 in	19546

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	-0.858	-0.692
Overall MINimum	-0.858	-0.692
+D+H	0.063	0.063
+D+L+H	0.063	0.063
+D+Lr+H	0.425	0.425
+D+S+H	0.387	0.387
+D+0.750Lr+0.750L+H	0.335	0.335
+D+0.750L+0.750S+H	0.306	0.306
+D+0.60W+H	-0.452	-0.352
+D+0.70E+H	0.063	0.063
+D+0.750Lr+0.750L+0.450W+H	-0.052	0.023
+D+0.750L+0.750S+0.450W+H	-0.081	-0.006
+D+0.750L+0.750S+0.5250E+H	0.306	0.306
+0.60D+0.60W+0.60H	-0.477	-0.378
+0.60D+0.70E+0.60H	0.038	0.038
D Only	0.063	0.063
Lr Only	0.363	0.363
L Only		
S Only	0.324	0.324
W Only	-0.858	-0.692

PURLINS & GIRTS 14677

03.18.25

PURLINS

DL = 3PSF LL = 18PSF SL = 16 PSF

USL = 38.3 PSF

P2 trib = 4.099'

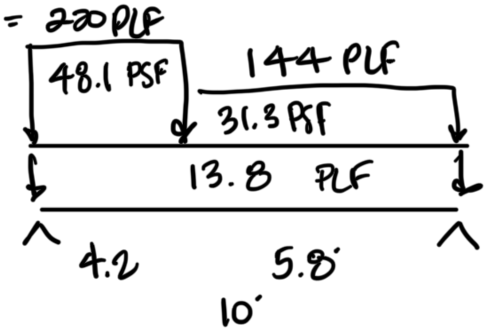
$$DL + LL = \frac{(85.1\ PLF)(9'\text{-}8'')^2}{8} = 1.00\ K\text{-}FT$$

$$DL + SL = \frac{(77\ PLF)(9'\text{-}8'')^2}{8} = 0.91\ K\text{-}FT$$

$$DL + USL = \frac{(155.2\ PLF)(9'\text{-}8'')^2}{8} = 1.98\ K\text{-}FT$$

0.6DL + 0.6WL = 220 PLF = 1.13 KFT

trib = 4.583'



∴ 3" 12GA PURLIN = 2.205 KFT > 1.98 KFT

AK

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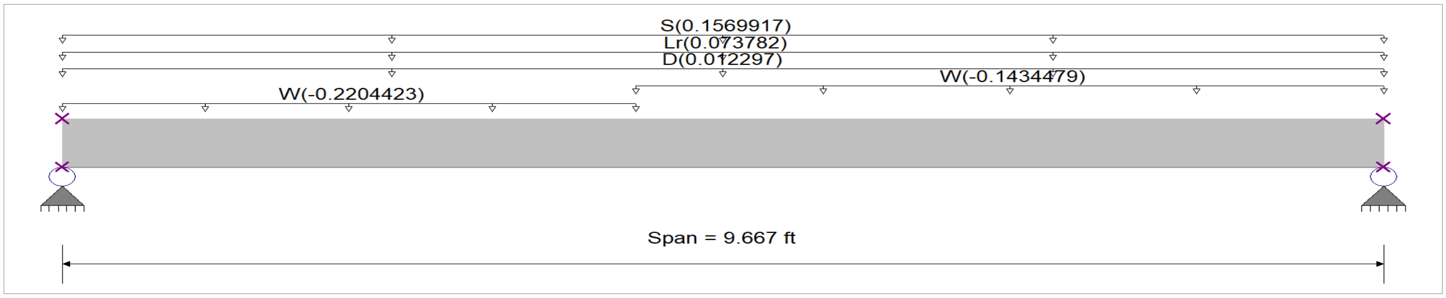
General Beam

DESCRIPTION: P2

General Beam Properties

Elastic Modulus 29,000.0 ksi

Span #1 Span Length = 9.667 ft Area = 10.0 in^2 Moment of Inertia = 100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Load for Span Number 1

Uniform Load : W = -0.04810 ksf, Extent = 0.0 -->> 4.20 ft, Tributary Width = 4.583 ft, (WL CC Z3)

Uniform Load : W = -0.03130 ksf, Extent = 4.20 -->> 9.667 ft, Tributary Width = 4.583 ft, (WL Z2)

Uniform Load : D = 0.0030 ksf, Tributary Width = 4.099 ft, (DL)

Uniform Load : Lr = 0.0180 ksf, Tributary Width = 4.099 ft, (Lr)

Uniform Load : S = 0.03830 ksf, Tributary Width = 4.099 ft, (USL)

DESIGN SUMMARY

Maximum Bending =	1.978 k-ft	**Maximum Shear =**	0.8183 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	4.834 ft	Location of maximum on span	0.000 ft

Maximum Deflection

Max Downward Transient Deflection	0.011 in	10818
Max Upward Transient Deflection	-0.012 in	9758
Max Downward Total Deflection	0.012 in	10033
Max Upward Total Deflection	-0.007 in	17500

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	-0.946	0.818
Overall MINimum	-0.946	-0.764
+D+H	0.059	0.059
+D+L+H	0.059	0.059
+D+Lr+H	0.416	0.416
+D+S+H	0.818	0.818
+D+0.750Lr+0.750L+H	0.327	0.327
+D+0.750L+0.750S+H	0.629	0.629
+D+0.60W+H	-0.508	-0.399
+D+0.70E+H	0.059	0.059
+D+0.750Lr+0.750L+0.450W+H	-0.099	-0.017
+D+0.750L+0.750S+0.450W+H	0.203	0.285
+D+0.750L+0.750S+0.5250E+H	0.629	0.629
+0.60D+0.60W+0.60H	-0.532	-0.422
+0.60D+0.70E+0.60H	0.036	0.036
D Only	0.059	0.059
Lr Only	0.357	0.357
L Only		
S Only	0.759	0.759
W Only	-0.946	-0.764

PURLINS & GIRTS 14677

03.18.25

PURLINS

DL = 3PSF LL = 18PSF SL = 16 PSF

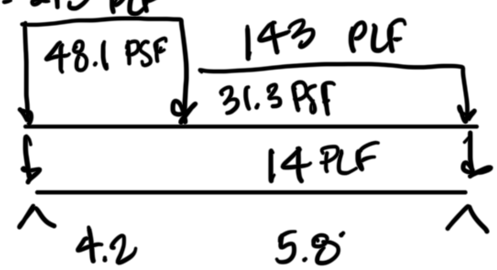
P3 trib = 4.063'

$$DL + LL = \frac{(85.4\ PLF)(9'\text{-}8")^2}{8} = 1.00\ K\text{-}FT$$

$$DL + SL = \frac{(77.2\ PLF)(9'\text{-}8")^2}{8} = 0.91\ K\text{-}FT$$

0.6DL + 0.6WL = 219 PLF = 1.13 kFT

trib = 4.542'



∴ 3" 16GA PURLIN = 1.4 KFT > 1.13 KFT

AK

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Project Title: UGS | LA CROSSE CENTRAL HIGH SCHOOL
Engineer:
Project ID: 14677
Project Descr:

Printed: 18 MAR 2025, 8:52PM

General Beam

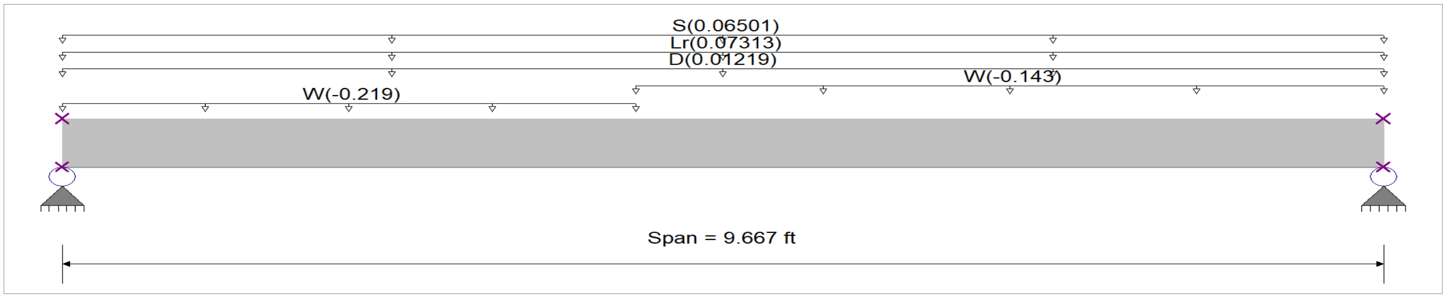
File: 14677.ec6

Lic. # : KW-06003674 **4TH DIMENSION DESIGN**

DESCRIPTION: P3

General Beam Properties

Elastic Modulus 29,000.0 ksi
Span #1 Span Length = 9.667 ft Area = 10.0 in^2 Moment of Inertia = 100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Load for Span Number 1

Uniform Load : W = -0.2190 k/ft, Extent = 0.0 -->> 4.20 ft, Tributary Width = 1.0 ft, (WL CC Z3)

Uniform Load : W = -0.1430 k/ft, Extent = 4.20 -->> 9.667 ft, Tributary Width = 1.0 ft, (WL Z2)

Uniform Load : D = 0.01219 k/ft, Tributary Width = 1.0 ft, (DL)

Uniform Load : Lr = 0.07313 k/ft, Tributary Width = 1.0 ft, (Lr)

Uniform Load : S = 0.06501 k/ft, Tributary Width = 1.0 ft, (USL)

DESIGN SUMMARY

Maximum Bending =	1.129 k-ft	Maximum Shear =	0.5293 k
Load Combination	+0.60D+0.60W+0.60H	Load Combination	+0.60D+0.60W+0.60H
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	4.302 ft	Location of maximum on span	0.000 ft

Maximum Deflection

Max Downward Transient Deflection	0.005 in	23225
Max Upward Transient Deflection	-0.012 in	9806
Max Downward Total Deflection	0.006 in	19907
Max Upward Total Deflection	-0.007 in	17580

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	-0.941	-0.761
Overall MINimum	-0.941	-0.761
+D+H	0.059	0.059
+D+L+H	0.059	0.059
+D+Lr+H	0.412	0.412
+D+S+H	0.373	0.373
+D+0.750Lr+0.750L+H	0.324	0.324
+D+0.750L+0.750S+H	0.295	0.295
+D+0.60W+H	-0.506	-0.397
+D+0.70E+H	0.059	0.059
+D+0.750Lr+0.750L+0.450W+H	-0.099	-0.018
+D+0.750L+0.750S+0.450W+H	-0.129	-0.048
+D+0.750L+0.750S+0.5250E+H	0.295	0.295
+0.60D+0.60W+0.60H	-0.529	-0.421
+0.60D+0.70E+0.60H	0.035	0.035
D Only	0.059	0.059
Lr Only	0.353	0.353
L Only		
S Only	0.314	0.314
W Only	-0.941	-0.761

4th DIMENSION DESIGN, INC.

PURLINS & GIRTS

14677
PAGE

03.18.25
DATE

PURLINS

DL = 3PSF LL = 18PSF SL = 16 PSF

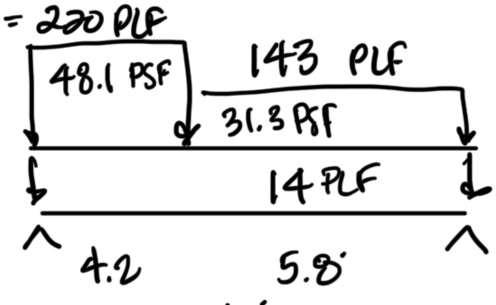
P4 trib = 4.073'

$$DL + LL = \frac{(85.6\,PLF)(9'\text{-}8")^2}{8} = 1.00 \text{ K-FT}$$

$$DL + SL = \frac{(77.4\,PLF)(9'\text{-}8")^2}{8} = 0.91 \text{ K-FT}$$

0.6DL + 0.6WL = 220 PLF = 1.13 KFT

trib = 4.554'



∴ 3" 16GA PURLIN = 1.4 KFT > 1.13 KFT

BY AK

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4th Dimension Design, Inc.
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andrea.kohl@4dd.com

Project Title: UGS | LA CROSSE CENTRAL HIGH SCHOOL
Engineer:
Project ID: 14677
Project Descr:

Printed: 18 MAR 2025, 9:14PM

General Beam

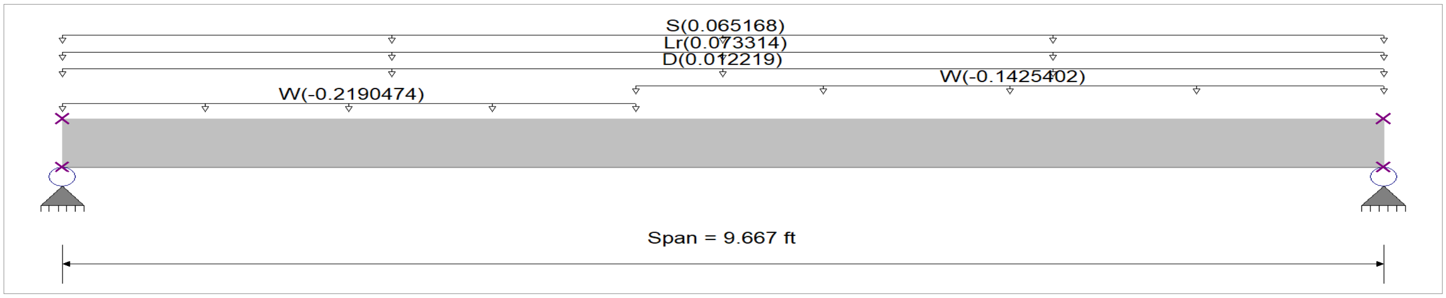
File: 14677.ec6

Lic. # : KW-06003674 4TH DIMENSION DESIGN

DESCRIPTION: P4

General Beam Properties

Elastic Modulus 29,000.0 ksi
Span #1 Span Length = 9.667 ft Area = 10.0 in^2 Moment of Inertia = 100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Load for Span Number 1
Uniform Load : W = -0.04810 ksf, Extent = 0.0 -->> 4.20 ft, Tributary Width = 4.554 ft, (WL CC Z3)

Uniform Load : W = -0.03130 ksf, Extent = 4.20 -->> 9.667 ft, Tributary Width = 4.554 ft, (WL Z2)

Uniform Load : D = 0.0030 ksf, Tributary Width = 4.073 ft, (DL)

Uniform Load : Lr = 0.0180 ksf, Tributary Width = 4.073 ft, (Lr)

Uniform Load : S = 0.0160 ksf, Tributary Width = 4.073 ft, (USL)

DESIGN SUMMARY

Maximum Bending =	1.127 k-ft	Maximum Shear =	0.5289 k
Load Combination	+0.60D+0.60W+0.60H	Load Combination	+0.60D+0.60W+0.60H
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	4.302 ft	Location of maximum on span	0.000 ft

Maximum Deflection

Max Downward Transient Deflection	0.005 in	23167
Max Upward Transient Deflection	-0.012 in	9820
Max Downward Total Deflection	0.006 in	19857
Max Upward Total Deflection	-0.007 in	17612

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	-0.940	-0.759
Overall MINimum	-0.940	-0.759
+D+H	0.059	0.059
+D+L+H	0.059	0.059
+D+Lr+H	0.413	0.413
+D+S+H	0.374	0.374
+D+0.750Lr+0.750L+H	0.325	0.325
+D+0.750L+0.750S+H	0.295	0.295
+D+0.60W+H	-0.505	-0.396
+D+0.70E+H	0.059	0.059
+D+0.750Lr+0.750L+0.450W+H	-0.098	-0.017
+D+0.750L+0.750S+0.450W+H	-0.128	-0.046
+D+0.750L+0.750S+0.5250E+H	0.295	0.295
+0.60D+0.60W+0.60H	-0.529	-0.420
+0.60D+0.70E+0.60H	0.035	0.035
D Only	0.059	0.059
Lr Only	0.354	0.354
L Only		
S Only	0.315	0.315
W Only	-0.940	-0.759

4th DIM

PURLINS & GIRTS

14677

03.18.25

PURLINS

DL = 3 PSF LL = 18 PSF SL = 16 PSF

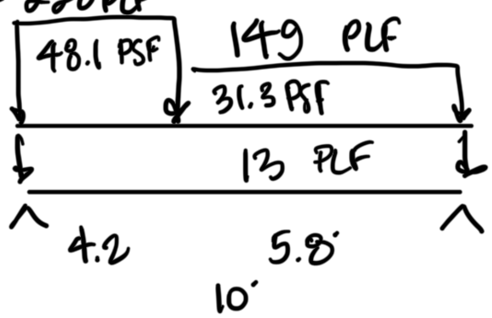
P5 trib = 4.24'

$$DL + LL = \frac{(89.1\ PLF)(9'\text{-}8")^2}{8} = 1.04\ K\text{-}FT$$

$$DL + SL = \frac{(80.6\ PLF)(9'\text{-}8")^2}{8} = 0.95\ K\text{-}FT$$

0.6DL + 0.6WL = 228 PLF = 1.173 KFT

trib = 4.74'



∴ 3" 16GA PURLIN = 1.4 KFT > 1.173 KFT

817 Ventu

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Project Title: UGS | LA CROSSE CENTRAL HIGH SCHOOL
Engineer:
Project ID: 14677
Project Descr:

Printed: 18 MAR 2025, 9:17PM

General Beam

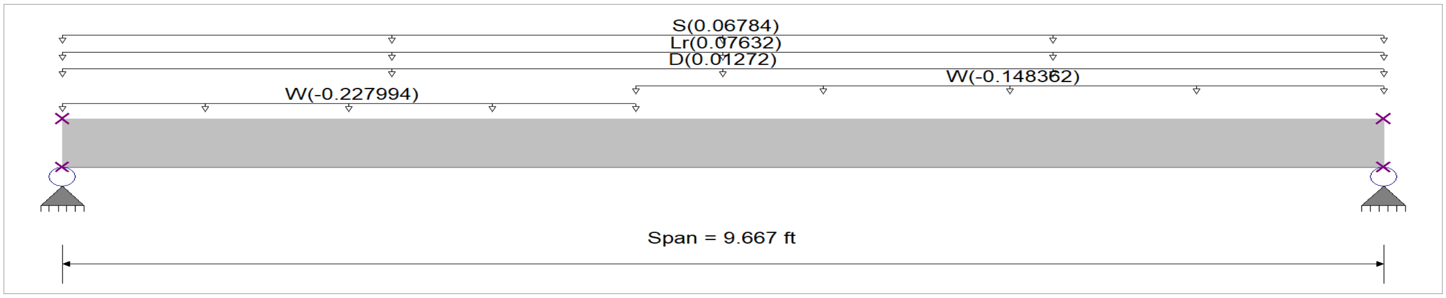
File: 14677.ec6

Lic. # : KW-06003674 **4TH DIMENSION DESIGN**

DESCRIPTION: P5

General Beam Properties

Elastic Modulus	29,000.0 ksi		
Span #1	Span Length = 9.667 ft	Area = 10.0 in^2	Moment of Inertia = 100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Load for Span Number 1

Uniform Load : W = -0.04810 ksf, Extent = 0.0 -->> 4.20 ft, Tributary Width = 4.740 ft, (WL CC Z3)

Uniform Load : W = -0.03130 ksf, Extent = 4.20 -->> 9.667 ft, Tributary Width = 4.740 ft, (WL Z2)

Uniform Load : D = 0.0030 ksf, Tributary Width = 4.240 ft, (DL)

Uniform Load : Lr = 0.0180 ksf, Tributary Width = 4.240 ft, (Lr)

Uniform Load : S = 0.0160 ksf, Tributary Width = 4.240 ft, (USL)

DESIGN SUMMARY

Maximum Bending =	1.173 k-ft	**Maximum Shear =**	0.5505 k
Load Combination	+0.60D+0.60W+0.60H	Load Combination	+0.60D+0.60W+0.60H
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	4.302 ft	Location of maximum on span	0.000 ft

Maximum Deflection

Max Downward Transient Deflection	0.005 in	22254
Max Upward Transient Deflection	-0.012 in	9435
Max Downward Total Deflection	0.006 in	19075
Max Upward Total Deflection	-0.007 in	16921

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	-0.979	-0.790
Overall MINimum	-0.979	-0.790
+D+H	0.061	0.061
+D+L+H	0.061	0.061
+D+Lr+H	0.430	0.430
+D+S+H	0.389	0.389
+D+0.750Lr+0.750L+H	0.338	0.338
+D+0.750L+0.750S+H	0.307	0.307
+D+0.60W+H	-0.526	-0.412
+D+0.70E+H	0.061	0.061
+D+0.750Lr+0.750L+0.450W+H	-0.102	-0.017
+D+0.750L+0.750S+0.450W+H	-0.133	-0.048
+D+0.750L+0.750S+0.5250E+H	0.307	0.307
+0.60D+0.60W+0.60H	-0.550	-0.437
+0.60D+0.70E+0.60H	0.037	0.037
D Only	0.061	0.061
Lr Only	0.369	0.369
L Only		
S Only	0.328	0.328
W Only	-0.979	-0.790

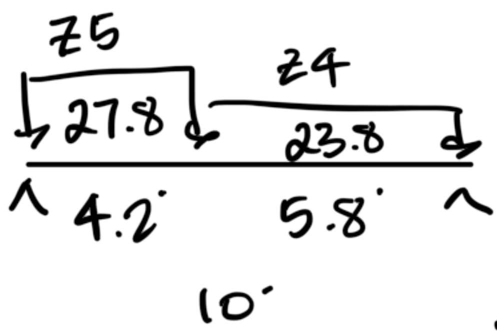
4th DIMENSION DESIGN, INC.

GIRTS

14677
PAGE

03.18.25
DATE

G1

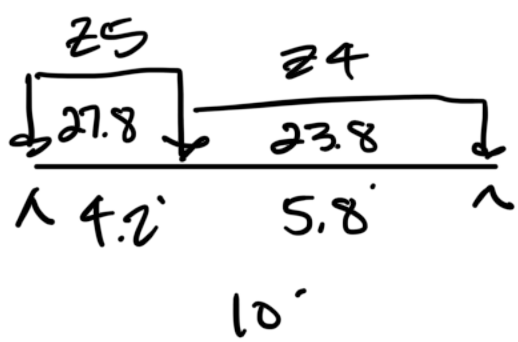


trib = 3.75'

M_{max} = 0.710 K·FT

∴ 3" 18GA

G2

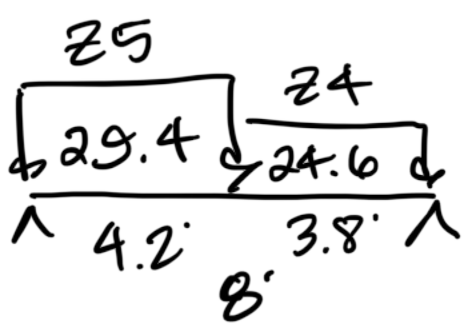


trib = 3.26'

M_{max} = 0.617 K·FT

∴ 3" 18GA.

G3

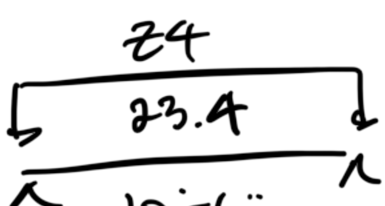


trib = 2.75'

M_{max} = 0.34 KFT

∴ 3" 18GA.

G4



trib = 4.5'

M_{max} = 0.882 KFT

∴ 3" 18GA

BY AK

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4th Dimension Design, Inc.
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Project Title: UGS | LA CROSSE CENTRAL HIGH SCHOOL
Engineer:
Project ID: 14677
Project Descr:

Printed: 20 MAR 2025, 1:40PM

General Beam

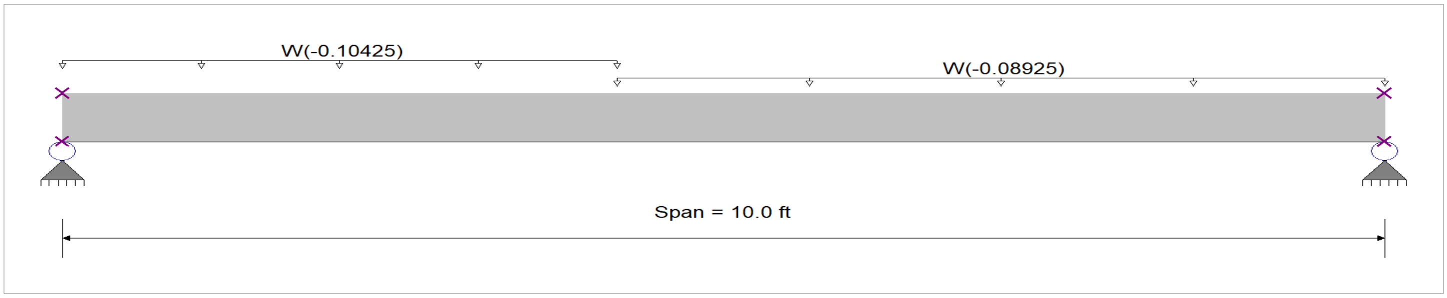
File: 14677.ec6

Lic. # : KW-06003674 **4TH DIMENSION DESIGN**

DESCRIPTION: G1

General Beam Properties

Elastic Modulus 29,000.0 ksi
Span #1 Span Length = 10.0 ft Area = 10.0 in^2 Moment of Inertia = 100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Load for Span Number 1
Uniform Load : W = -0.02380 ksf, Extent = 4.20 -->> 10.0 ft, Tributary Width = 3.750 ft, (WL Z4)

Uniform Load : W = -0.02780 ksf, Extent = 0.0 -->> 4.20 ft, Tributary Width = 3.750 ft, (WL CC Z5)

DESIGN SUMMARY

Maximum Bending =	0.710 k-ft	**Maximum Shear =**	0.2976 k
Load Combination	+D+0.60W+H	Load Combination	+D+0.60W+H
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	4.850 ft	Location of maximum on span	0.000 ft

Maximum Deflection

Max Downward Transient Deflection	0.000 in	0
Max Upward Transient Deflection	-0.007 in	16173
Max Downward Total Deflection	0.000 in	0
Max Upward Total Deflection	-0.004 in	26956

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	-0.496	-0.459
Overall MINimum	-0.496	-0.459
+D+H		
+D+L+H		
+D+Lr+H		
+D+S+H		
+D+0.750Lr+0.750L+H		
+D+0.750L+0.750S+H		
+D+0.60W+H	-0.298	-0.276
+D+0.70E+H		
+D+0.750Lr+0.750L+0.450W+H	-0.223	-0.207
+D+0.750L+0.750S+0.450W+H	-0.223	-0.207
+D+0.750L+0.750S+0.5250E+H		
+0.60D+0.60W+0.60H	-0.298	-0.276
+0.60D+0.70E+0.60H		
D Only		
Lr Only		
L Only		
S Only		
W Only	-0.496	-0.459
E Only		
H Only		

4th Dimension Design, Inc.
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Project Title: UGS | LA CROSSE CENTRAL HIGH SCHOOL
Engineer:
Project ID: 14677
Project Descr:

Printed: 20 MAR 2025, 1:40PM

General Beam

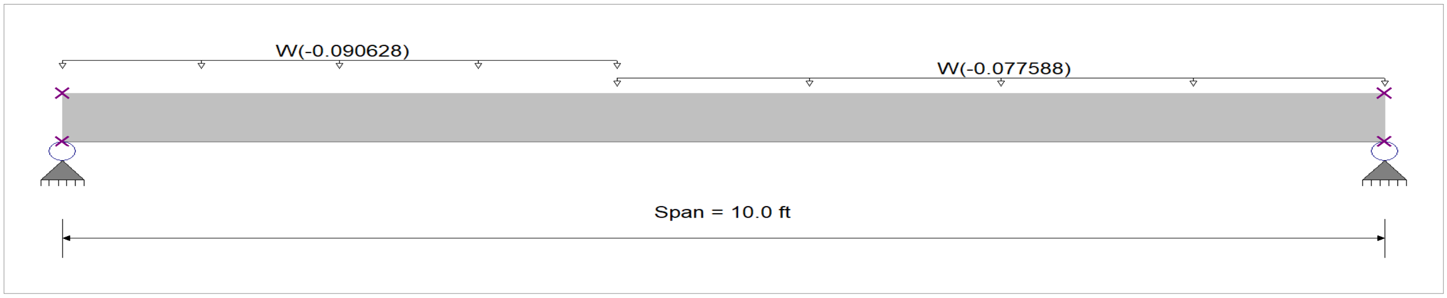
File: 14677.ec6

Lic. # : KW-06003674 4TH DIMENSION DESIGN

DESCRIPTION: G2

General Beam Properties

Elastic Modulus	29,000.0 ksi				
Span #1	Span Length = 10.0 ft	Area =	10.0 in^2	Moment of Inertia =	100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Load for Span Number 1
Uniform Load : W = -0.02380 ksf, Extent = 4.20 -->> 10.0 ft, Tributary Width = 3.260 ft, (WL Z4)

Uniform Load : W = -0.02780 ksf, Extent = 0.0 -->> 4.20 ft, Tributary Width = 3.260 ft, (WL CC Z5)

DESIGN SUMMARY

Maximum Bending =	0.617 k-ft	**Maximum Shear =**	0.2587 k
Load Combination	+D+0.60W+H	Load Combination	+D+0.60W+H
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	4.850 ft	Location of maximum on span	0.000 ft

Maximum Deflection

Max Downward Transient Deflection	0.000 in	0
Max Upward Transient Deflection	-0.006 in	18604
Max Downward Total Deflection	0.000 in	0
Max Upward Total Deflection	-0.004 in	31008

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	-0.431	-0.399
Overall MINimum	-0.431	-0.399
+D+H		
+D+L+H		
+D+Lr+H		
+D+S+H		
+D+0.750Lr+0.750L+H		
+D+0.750L+0.750S+H		
+D+0.60W+H	-0.259	-0.240
+D+0.70E+H		
+D+0.750Lr+0.750L+0.450W+H	-0.194	-0.180
+D+0.750L+0.750S+0.450W+H	-0.194	-0.180
+D+0.750L+0.750S+0.5250E+H		
+0.60D+0.60W+0.60H	-0.259	-0.240
+0.60D+0.70E+0.60H		
D Only		
Lr Only		
L Only		
S Only		
W Only	-0.431	-0.399
E Only		
H Only		

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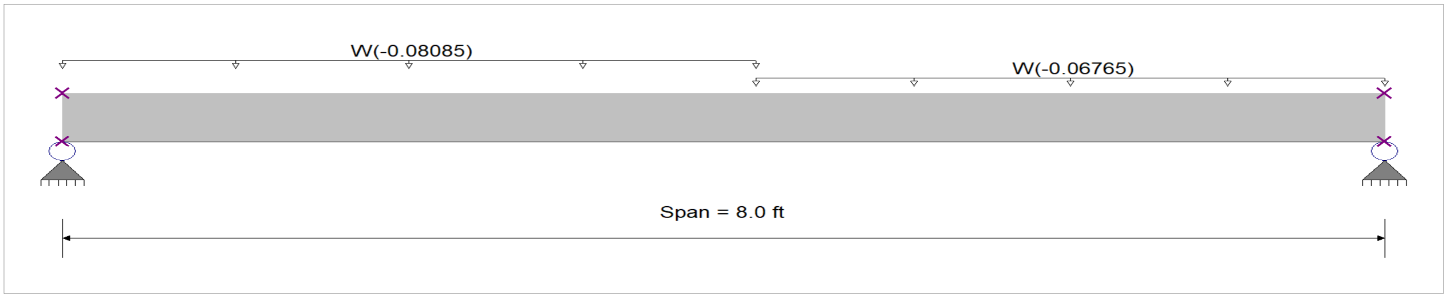
General Beam

Lic. # : KW-06003674 **4TH DIMENSION DESIGN**

DESCRIPTION: G3

General Beam Properties

Elastic Modulus	29,000.0 ksi				
Span #1	Span Length = 8.0 ft	Area =	10.0 in^2	Moment of Inertia =	100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Load for Span Number 1

Uniform Load : W = -0.02460 ksf, Extent = 4.20 -->> 8.0 ft, Tributary Width = 2.750 ft, (WL Z4)

Uniform Load : W = -0.02940 ksf, Extent = 0.0 -->> 4.20 ft, Tributary Width = 2.750 ft, (WL CC Z5)

DESIGN SUMMARY

Maximum Bending =	0.360 k-ft	**Maximum Shear =**	0.1869 k
Load Combination	+D+0.60W+H	Load Combination	+D+0.60W+H
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	3.840 ft	Location of maximum on span	0.000 ft

Maximum Deflection

Max Downward Transient Deflection	0.000 in	0
Max Upward Transient Deflection	-0.002 in	40070
Max Downward Total Deflection	0.000 in	0
Max Upward Total Deflection	-0.001 in	66783

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	-0.311	-0.285
Overall MINimum	-0.311	-0.285
+D+H		
+D+L+H		
+D+Lr+H		
+D+S+H		
+D+0.750Lr+0.750L+H		
+D+0.750L+0.750S+H		
+D+0.60W+H	-0.187	-0.171
+D+0.70E+H		
+D+0.750Lr+0.750L+0.450W+H	-0.140	-0.128
+D+0.750L+0.750S+0.450W+H	-0.140	-0.128
+D+0.750L+0.750S+0.5250E+H		
+0.60D+0.60W+0.60H	-0.187	-0.171
+0.60D+0.70E+0.60H		
D Only		
Lr Only		
L Only		
S Only		
W Only	-0.311	-0.285
E Only		
H Only		

4th Dimension Design, Inc.
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Project Title: UGS | LA CROSSE CENTRAL HIGH SCHOOL
Engineer:
Project ID: 14677
Project Descr:

Printed: 20 MAR 2025, 1:42PM

General Beam

File: 14677.ec6

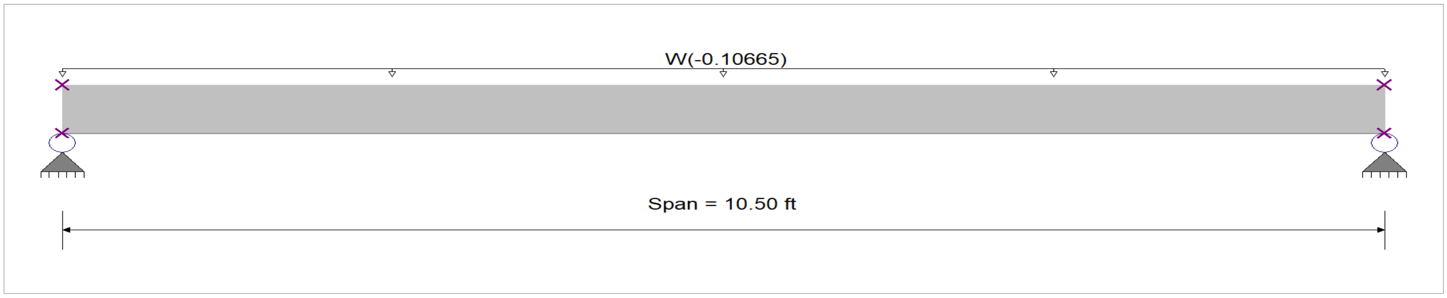
Lic. # : KW-06003674 4TH DIMENSION DESIGN

DESCRIPTION: G4

General Beam Properties

Elastic Modulus 29,000.0 ksi

Span #1 Span Length = 10.50 ft Area = 10.0 in^2 Moment of Inertia = 100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : W = -0.02370 ksf, Tributary Width = 4.50 ft, (WL Z4)

DESIGN SUMMARY

Maximum Bending =	0.882 k-ft	**Maximum Shear =**	0.3359 k
Load Combination	+D+0.60W+H	Load Combination	+D+0.60W+H
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	5.250 ft	Location of maximum on span	0.000 ft

Maximum Deflection

Max Downward Transient Deflection	0.000 in	0
Max Upward Transient Deflection	-0.010 in	12428
Max Downward Total Deflection	0.000 in	0
Max Upward Total Deflection	-0.006 in	20713

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

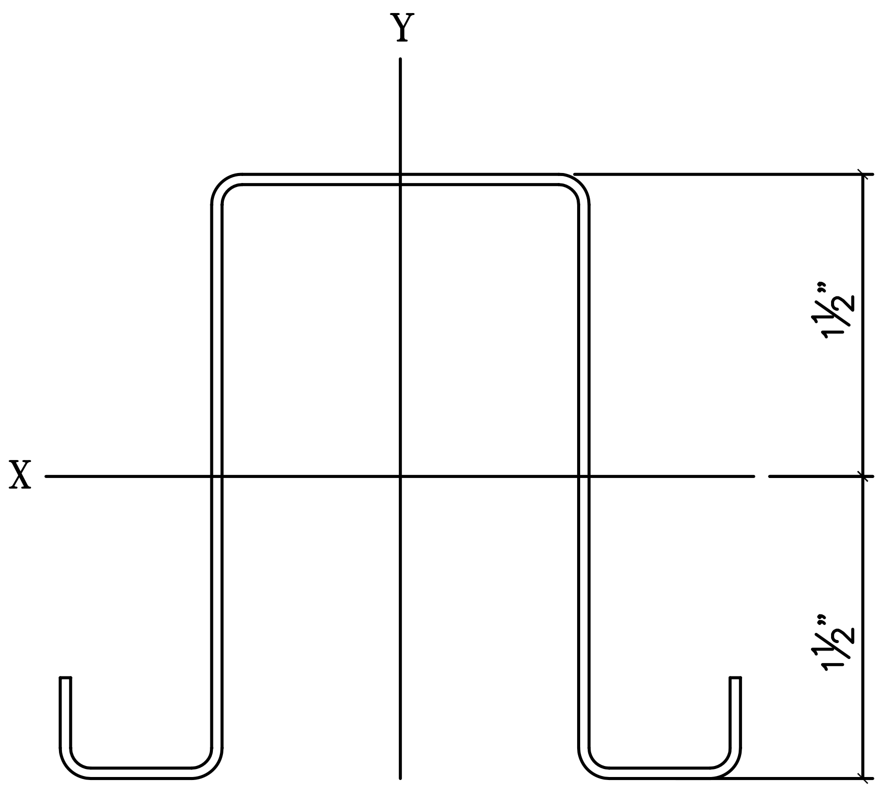
Load Combination	Support 1	Support 2
Overall MAXimum	-0.560	-0.560
Overall MINimum	-0.560	-0.560
+D+H		
+D+L+H		
+D+Lr+H		
+D+S+H		
+D+0.750Lr+0.750L+H		
+D+0.750L+0.750S+H		
+D+0.60W+H	-0.336	-0.336
+D+0.70E+H		
+D+0.750Lr+0.750L+0.450W+H	-0.252	-0.252
+D+0.750L+0.750S+0.450W+H	-0.252	-0.252
+D+0.750L+0.750S+0.5250E+H		
+0.60D+0.60W+0.60H	-0.336	-0.336
+0.60D+0.70E+0.60H		
D Only		
Lr Only		
L Only		
S Only		
W Only	-0.560	-0.560
E Only		
H Only		

4th DIMENSION DESIGN, INC.

3"HAT x 18GA

PAGE

DATE



3" HAT - 18 GA. (0.0516)

Area:		0.5082
Moments of inertia:	X:	0.6308
	Y:	0.5221
Radii of gyration:	X:	1.1141
	Y:	1.0135

Fy = 55 KSI

ASD

$$Sx = \frac{0.6308}{1.5} = 0.4205 \text{ IN}^3$$

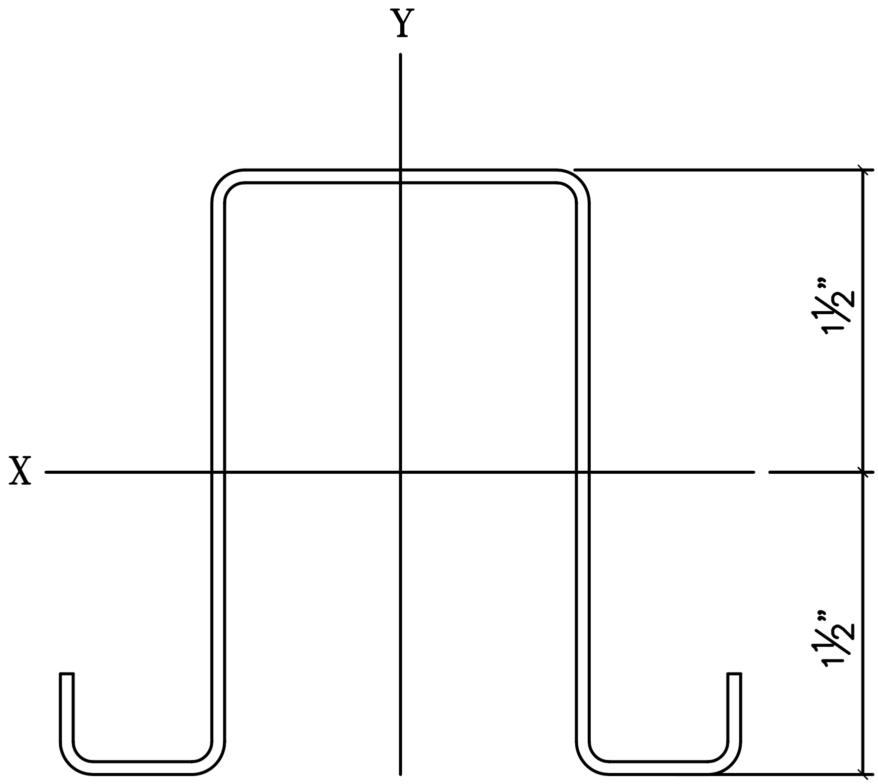
$$\text{ALLOW. MOMENT}\left(\frac{Mn}{\Omega}\right) = \left(\frac{0.4205(55)}{1.67}\right)/12 = 1.154 \text{ K-FT}$$

4th DIMENSION DESIGN, INC.

3"HAT x 16GA

PAGE

DATE



3" HAT - 16 GA. (0.0635)

Area:		0.6215
Moments of inertia:	X:	0.7644
	Y:	0.6308
Radii of gyration:	X:	1.1091
	Y:	1.0075

Fy = 55 KSI

ASD

$$Sx = \frac{0.7644}{1.5} = 0.5096 \text{ IN}^3$$

$$\text{ALLOW. MOMENT}\left(\frac{Mn}{\Omega}\right) = \left(\frac{0.5096(55)}{1.67}\right)/12 = 1.400 \text{ K-FT}$$

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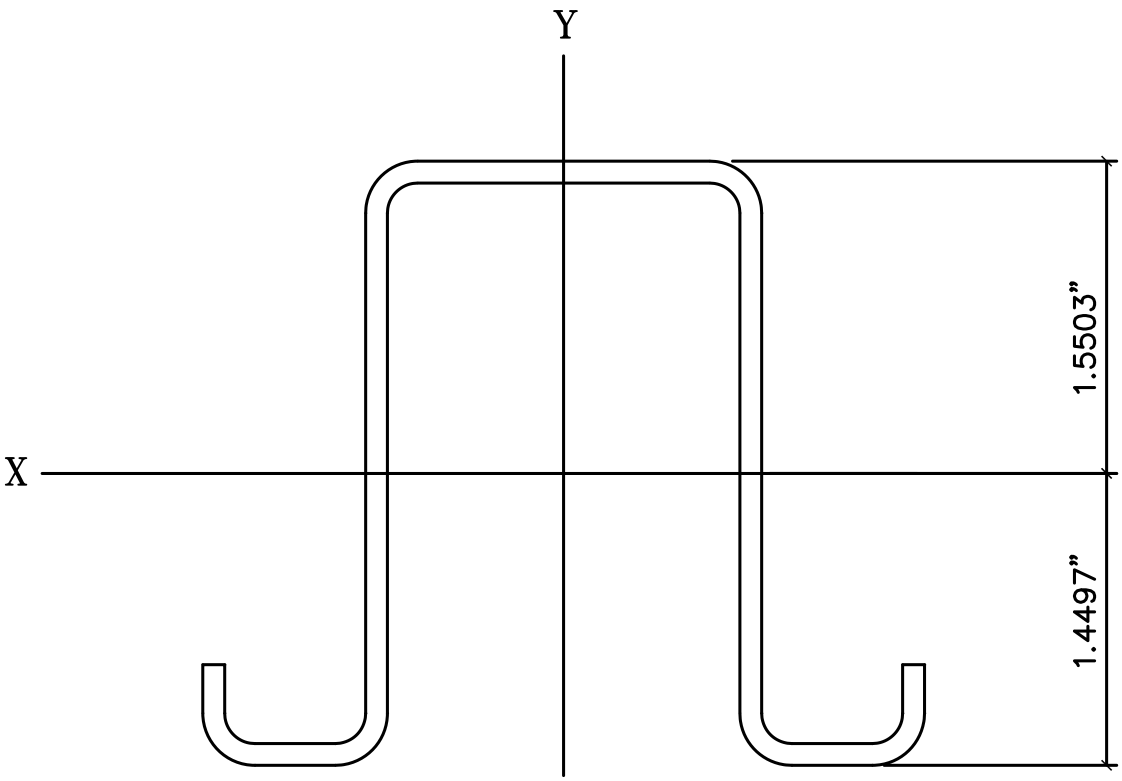
4th DIMENSION DESIGN, INC.

3"HAT x 12GA PURLINS

PAGE

DATE



3" HAT - 12 GA. (0.1084)

Area: 1.0433
Moments of inertia: X: 1.2453
Y: 1.1213
Radii of gyration: X: 1.0926
Y: 1.0367
Fy = 55 KSI

ASD

$$Sx = \frac{1.2453}{1.5503} = 0.8033 \text{ IN}^3$$

$$\text{ALLOW. MOMENT}\left(\frac{Mn}{\Omega}\right) = \left(\frac{0.8033(55)}{1.67}\right)/12 = 2.205 \text{ K-FT}$$

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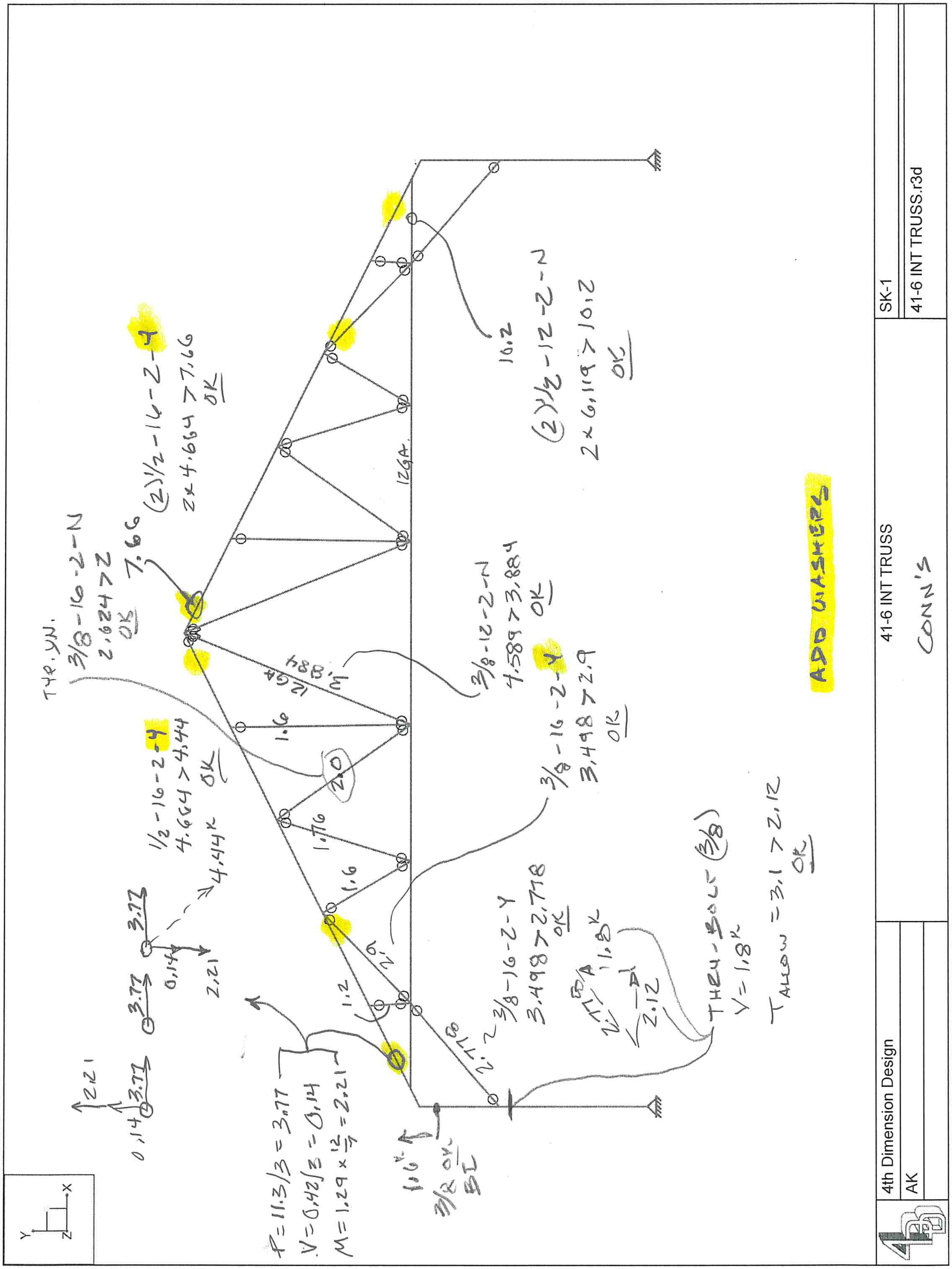

4th Dimension Design
AK
41-6 INT TRUSS
CONN'S
SK-1
41-6 INT TRUSS.r3d
ADD WASHERS
12GA.
(2) 1/2-16-2-Y
2×4.664 > 7.66
OK
(2) 1/2-12-2-N
2×6.119 > 10.2
OK
10.2
7.66
3/8-16-2-N
2.624 > 2
OK
3/8-12-2-N
4.589 > 3.884
OK
3/8-16-2-Y
3.498 > 2.9
OK
1/2-16-2-Y
4.664 > 4.44
OK
3/8-16-2-Y
3.498 > 2.778
OK
THRU-BOLT (3/8)
V = 1.8K
OK
P = 11.3/3 = 3.77
V = 0.42/3 = 0.14
M = 1.29 × 12/7 = 2.21

GRADE 5/A325 CONNECTION ALLOWABLE LOADS (KIPS PER BOLT)
1/2" DIAM. BOLTED CONNECTIONS

BOLT DIAM(IN)	BOLT AREA(IN^2)	MAT. GAGE	MAT. THICK(IN)	SHEAR PLANES	WASHER OR OUTSIDE MEMB.	WASHER FACTOR	BRG. ALLOW (KIPS)	SHEAR ALLOW(KIPS)	CONN. ALLOW (KIPS PER BOLT)	CASE
1/2	0.196	8	0.1644	2	N	0.750	9.617	9.425	9.425	1/2 - 8 - 2 - N
1/2	0.196	8	0.1644	2	Y	1.000	12.823	9.425	9.425	1/2 - 8 - 2 - Y
1/2	0.196	8	0.1644	1	N	0.750	4.809	4.712	4.712	1/2 - 8 - 1 - N
1/2	0.196	8	0.1644	1	Y	1.000	6.412	4.712	4.712	1/2 - 8 - 1 - Y
1/2	0.196	10	0.1345	2	N	0.750	7.868	9.425	7.868	1/2 - 10 - 2 - N
1/2	0.196	10	0.1345	2	Y	1.000	10.491	9.425	9.425	1/2 - 10 - 2 - Y
1/2	0.196	10	0.1345	1	N	0.750	3.934	4.712	3.934	1/2 - 10 - 1 - N
1/2	0.196	10	0.1345	1	Y	1.000	5.246	4.712	4.712	1/2 - 10 - 1 - Y
1/2	0.196	11	0.1196	2	N	0.750	6.997	9.425	6.997	1/2 - 11 - 2 - N
1/2	0.196	11	0.1196	2	Y	1.000	9.329	9.425	9.329	1/2 - 11 - 2 - Y
1/2	0.196	11	0.1196	1	N	0.750	3.498	4.712	3.498	1/2 - 11 - 1 - N
1/2	0.196	11	0.1196	1	Y	1.000	4.664	4.712	4.664	1/2 - 11 - 1 - Y
1/2	0.196	12	0.1046	2	N	0.750	6.119	9.425	6.119	1/2 - 12 - 2 - N
1/2	0.196	12	0.1046	2	Y	1.000	8.159	9.425	8.159	1/2 - 12 - 2 - Y
1/2	0.196	12	0.1046	1	N	0.750	3.060	4.712	3.060	1/2 - 12 - 1 - N
1/2	0.196	12	0.1046	1	Y	1.000	4.079	4.712	4.079	1/2 - 12 - 1 - Y
1/2	0.196	13	0.0897	2	N	0.750	5.247	9.425	5.247	1/2 - 13 - 2 - N
1/2	0.196	13	0.0897	2	Y	1.000	6.997	9.425	6.997	1/2 - 13 - 2 - Y
1/2	0.196	13	0.0897	1	N	0.750	2.624	4.712	2.624	1/2 - 13 - 1 - N
1/2	0.196	13	0.0897	1	Y	1.000	3.498	4.712	3.498	1/2 - 13 - 1 - Y
1/2	0.196	14	0.0747	2	N	0.750	4.370	9.425	4.370	1/2 - 14 - 2 - N
1/2	0.196	14	0.0747	2	Y	1.000	5.827	9.425	5.827	1/2 - 14 - 2 - Y
1/2	0.196	14	0.0747	1	N	0.750	2.185	4.712	2.185	1/2 - 14 - 1 - N
1/2	0.196	14	0.0747	1	Y	1.000	2.913	4.712	2.913	1/2 - 14 - 1 - Y
1/2	0.196	16	0.0598	2	N	0.750	3.498	9.425	3.498	1/2 - 16 - 2 - N
1/2	0.196	16	0.0598	2	Y	1.000	4.664	9.425	4.664	1/2 - 16 - 2 - Y
1/2	0.196	16	0.0598	1	N	0.750	1.749	4.712	1.749	1/2 - 16 - 1 - N
1/2	0.196	16	0.0598	1	Y	1.000	2.332	4.712	2.332	1/2 - 16 - 1 - Y
1/2	0.196	18	0.0478	2	N	0.750	2.796	9.425	2.796	1/2 - 18 - 2 - N
1/2	0.196	18	0.0478	2	Y	1.000	3.728	9.425	3.728	1/2 - 18 - 2 - Y
1/2	0.196	18	0.0478	1	N	0.750	1.398	4.712	1.398	1/2 - 18 - 1 - N
1/2	0.196	18	0.0478	1	Y	1.000	1.864	4.712	1.864	1/2 - 18 - 1 - Y

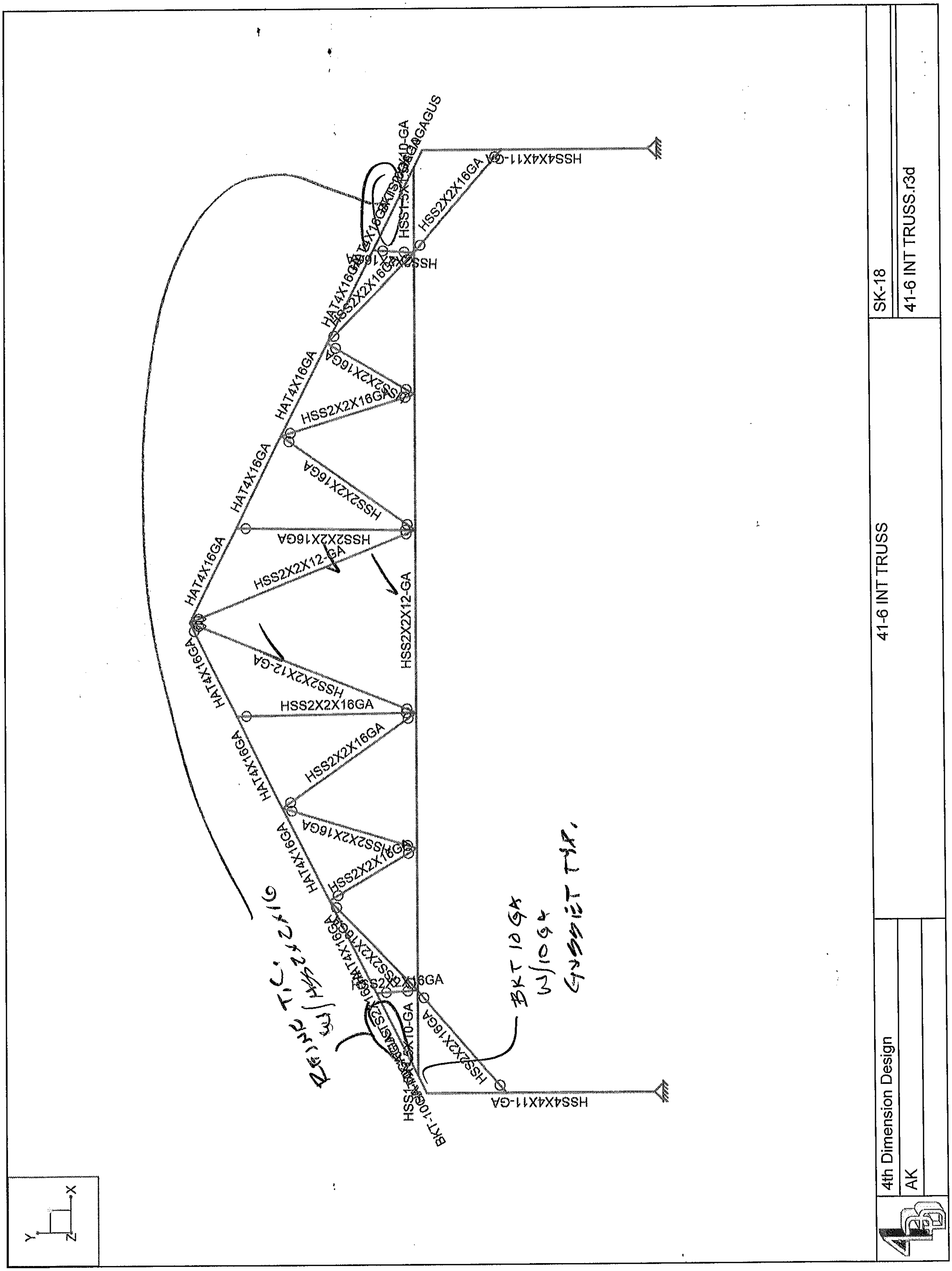
3/8 "DIAM. A325/GRADE 5 COMBINED SHEAR & TENSION
AISC 360-05

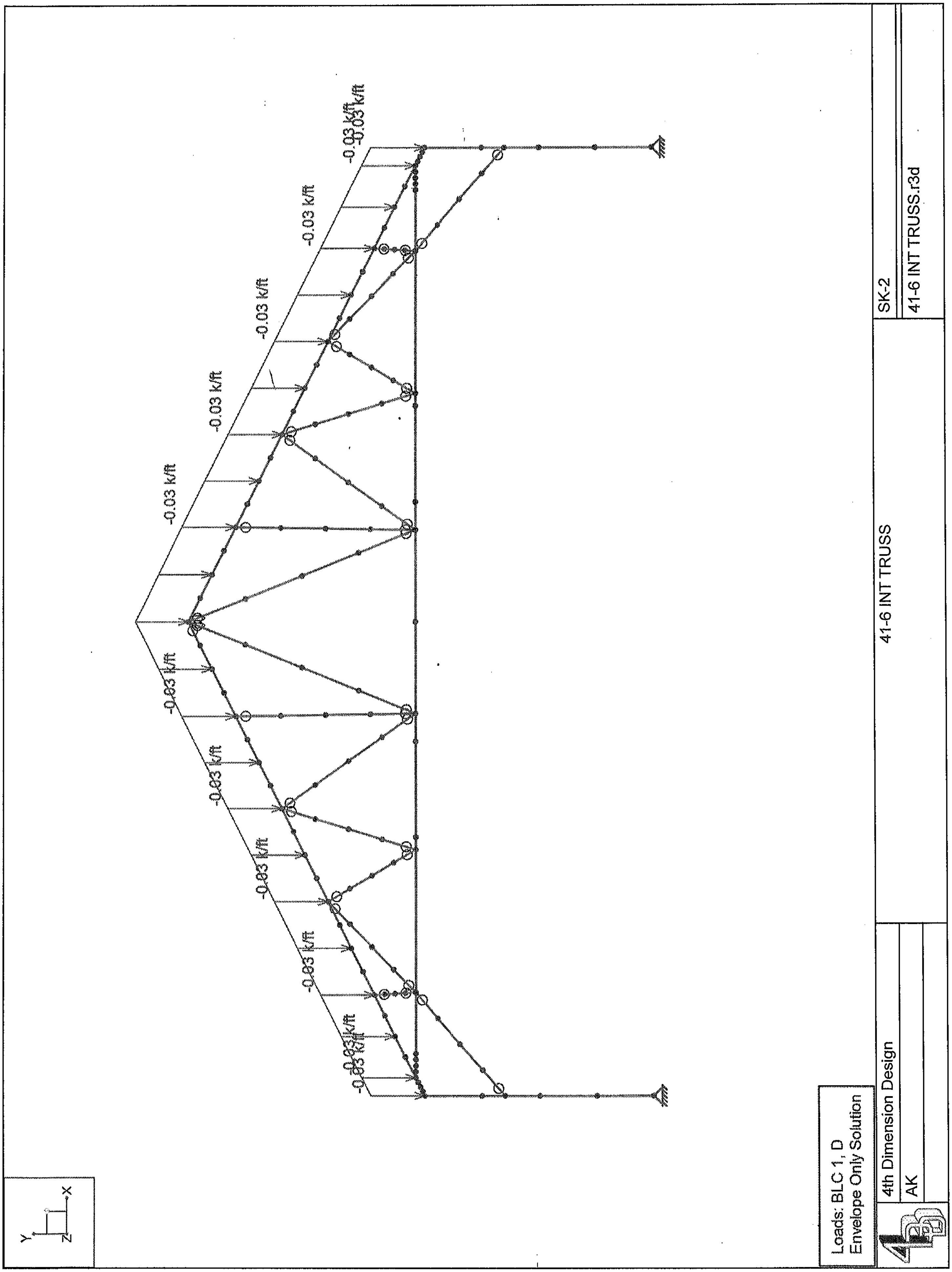
Fnt (ksi) = 90
Fnv (ksi - threads included in shear plane) = 48
ASD Safety factor (omega) = 2

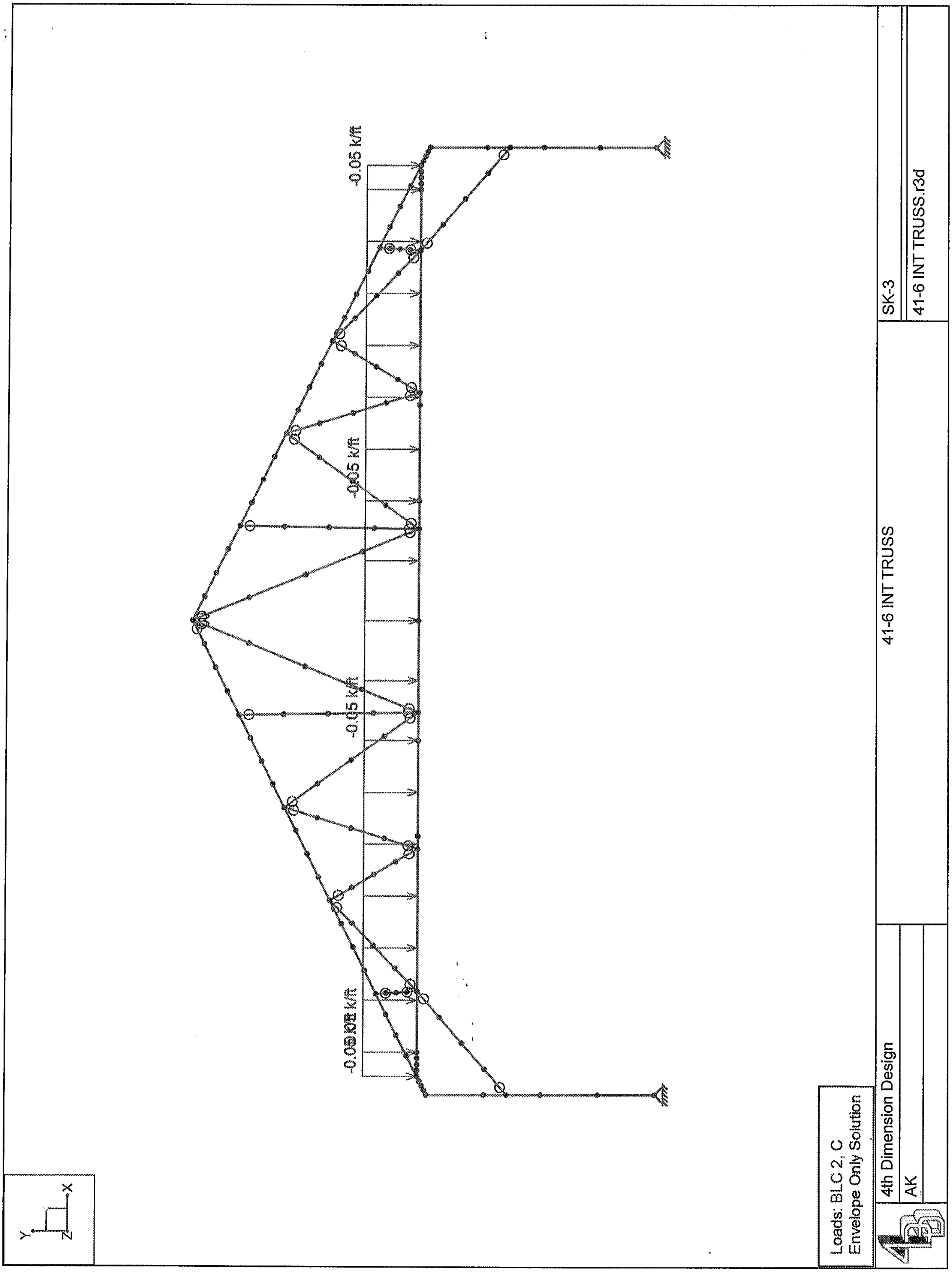
BOLT DIAM. (IN)	BOLT AREA (SQ IN)	SHEAR (KIPS)	SHEAR STRESS (KIPS/SQ IN)	ALLOW TENSILE STRESS (KIPS/SQ IN)	ALLOW TENSION (KIPS)
3/8	0.1104	0.000	0.000	45.000	5.0
3/8	0.1104	0.795	7.198	45.000	5.0
3/8	0.1104	0.800	7.243	44.919	5.0
3/8	0.1104	0.900	8.149	43.221	4.8
3/8	0.1104	1.000	9.054	41.523	4.6
3/8	0.1104	1.100	9.960	39.826	4.4
3/8	0.1104	1.200	10.865	38.128	4.2
3/8	0.1104	1.300	11.770	36.431	4.0
3/8	0.1104	1.400	12.676	34.733	3.8
3/8	0.1104	1.500	13.581	33.035	3.6
3/8	0.1104	1.600	14.487	31.338	3.5
3/8	0.1104	1.700	15.392	29.640	3.3
3/8	0.1104	1.800	16.297	27.942	3.1
3/8	0.1104	1.900	17.203	26.245	2.9
3/8	0.1104	2.000	18.108	24.547	2.7
3/8	0.1104	2.100	19.014	22.849	2.5
3/8	0.1104	2.200	19.919	21.152	2.3
3/8	0.1104	2.300	20.825	19.454	2.1
3/8	0.1104	2.400	21.730	17.756	2.0
3/8	0.1104	2.500	22.635	16.059	1.8
3/8	0.1104	2.600	23.541	14.361	1.6
3/8	0.1104	2.651	24.000	13.500	1.5

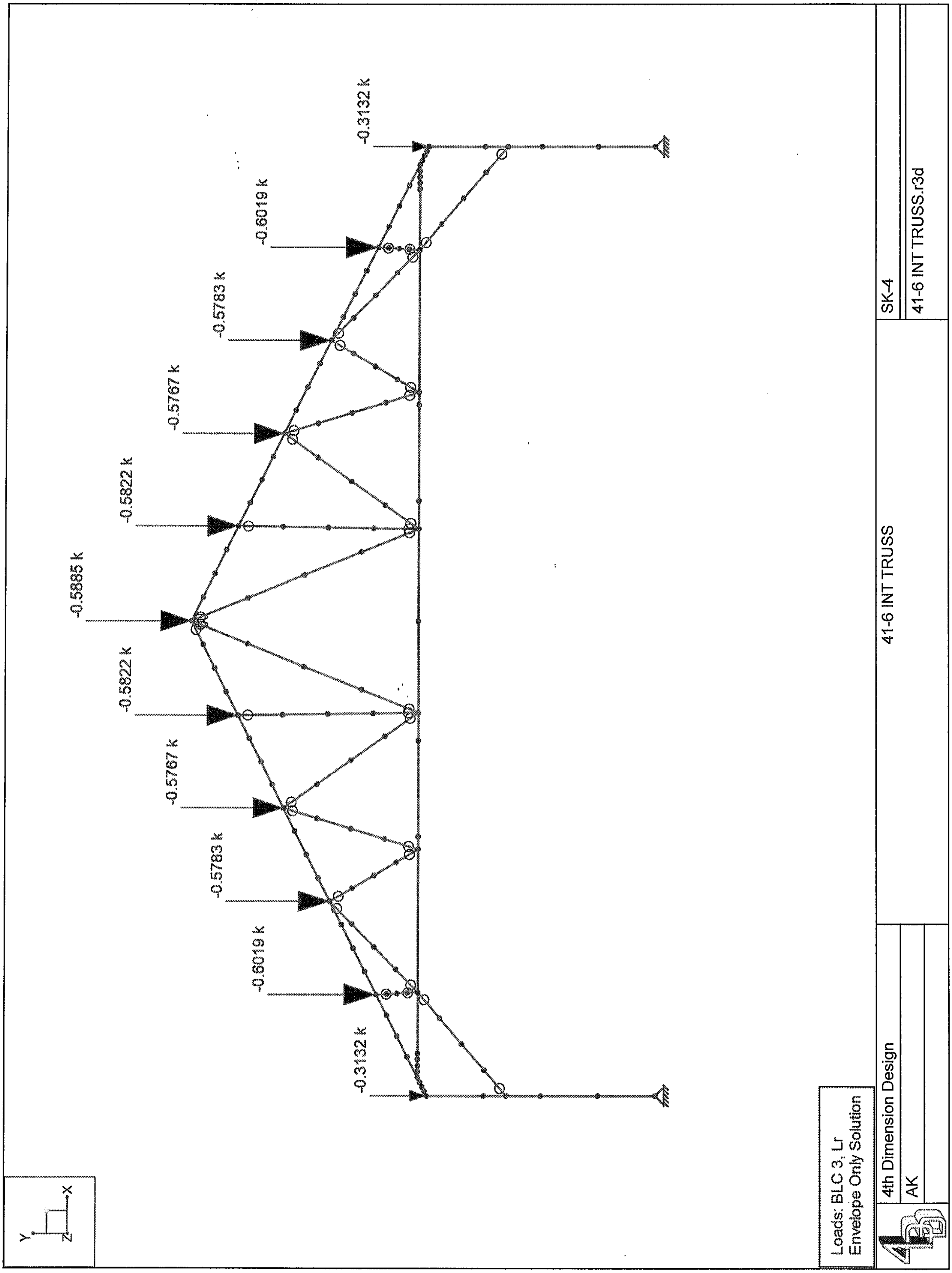
A325/GRADE 5 CONNECTION ALLOWABLE LOADS (KIPS PER BOLT)
3/8" DIAM. BOLTED CONNECTIONS

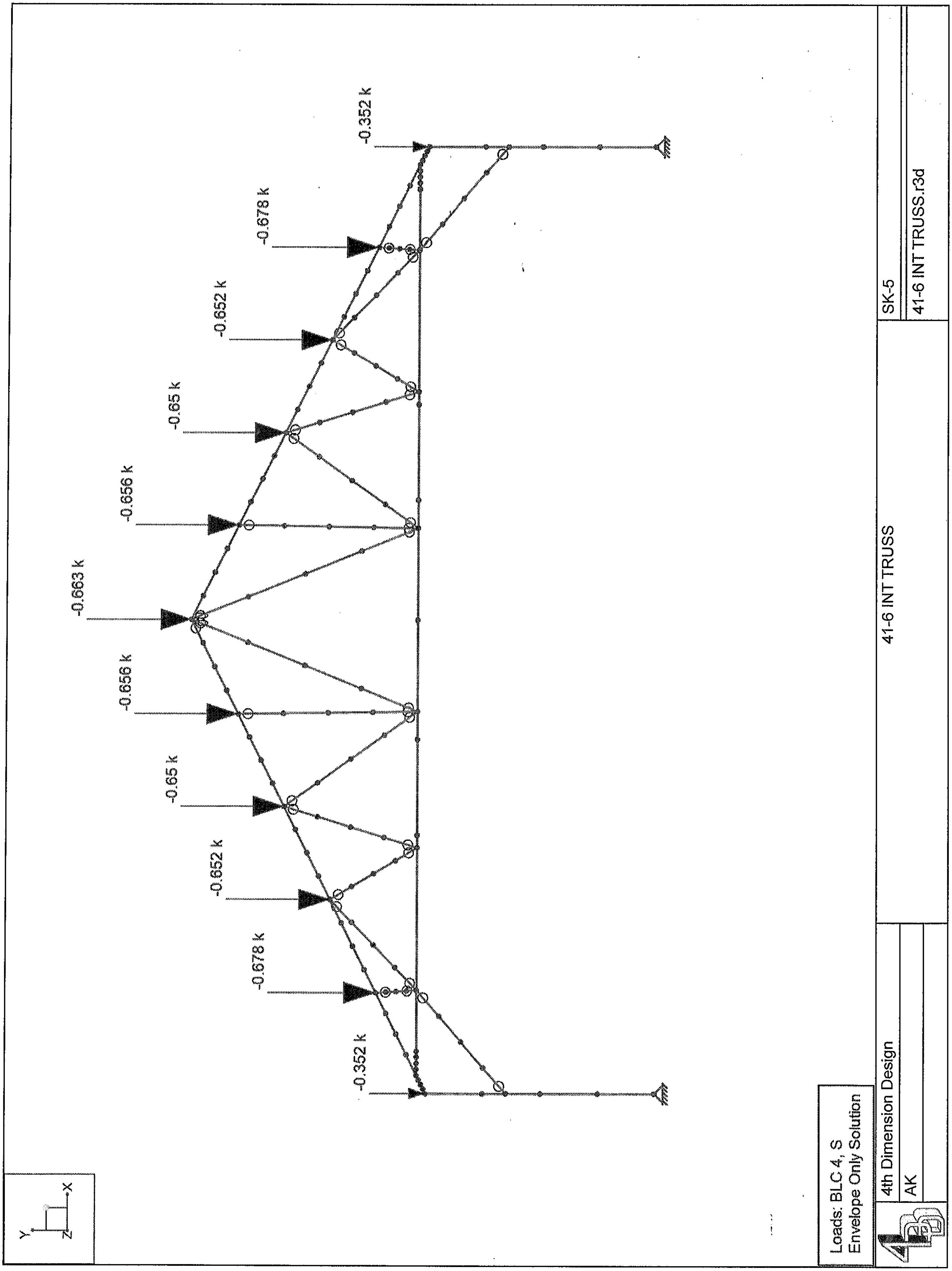
BOLT DIAM(IN)	BOLT AREA(IN^2)	MAT. GAGE	MAT. THICK(IN)	SHEAR PLANES	WASHER OR OUTSIDE MEMB.	WASHER FACTOR	BRG. ALLOW (KIPS)	SHEAR ALLOW(KIPS)	CONN. ALLOW (KIPS PER BOLT)	CASE
3/8	0.110	8	0.1644	2	N	0.750	7.213	5.301	5.301	3/8 - 8 - 2 - N
3/8	0.110	8	0.1644	2	Y	1.000	9.617	5.301	5.301	3/8 - 8 - 2 - Y
3/8	0.110	8	0.1644	1	N	0.750	3.607	2.651	2.651	3/8 - 8 - 1 - N
3/8	0.110	8	0.1644	1	Y	1.000	4.809	2.651	2.651	3/8 - 8 - 1 - Y
3/8	0.110	10	0.1345	2	N	0.750	5.901	5.301	5.301	3/8 - 10 - 2 - N
3/8	0.110	10	0.1345	2	Y	1.000	7.868	5.301	5.301	3/8 - 10 - 2 - Y
3/8	0.110	10	0.1345	1	N	0.750	2.951	2.651	2.651	3/8 - 10 - 1 - N
3/8	0.110	10	0.1345	1	Y	1.000	3.934	2.651	2.651	3/8 - 10 - 1 - Y
3/8	0.110	11	0.1196	2	N	0.750	5.247	5.301	5.247	3/8 - 11 - 2 - N
3/8	0.110	11	0.1196	2	Y	1.000	6.997	5.301	5.301	3/8 - 11 - 2 - Y
3/8	0.110	11	0.1196	1	N	0.750	2.624	2.651	2.624	3/8 - 11 - 1 - N
3/8	0.110	11	0.1196	1	Y	1.000	3.498	2.651	2.651	3/8 - 11 - 1 - Y
3/8	0.110	12	0.1046	2	N	0.750	4.589	5.301	4.589	3/8 - 12 - 2 - N
3/8	0.110	12	0.1046	2	Y	1.000	6.119	5.301	5.301	3/8 - 12 - 2 - Y
3/8	0.110	12	0.1046	1	N	0.750	2.295	2.651	2.295	3/8 - 12 - 1 - N
3/8	0.110	12	0.1046	1	Y	1.000	3.060	2.651	2.651	3/8 - 12 - 1 - Y
3/8	0.110	13	0.0897	2	N	0.750	3.936	5.301	3.936	3/8 - 13 - 2 - N
3/8	0.110	13	0.0897	2	Y	1.000	5.247	5.301	5.247	3/8 - 13 - 2 - Y
3/8	0.110	13	0.0897	1	N	0.750	1.968	2.651	1.968	3/8 - 13 - 1 - N
3/8	0.110	13	0.0897	1	Y	1.000	2.624	2.651	2.624	3/8 - 13 - 1 - Y
3/8	0.110	14	0.0747	2	N	0.750	3.277	5.301	3.277	3/8 - 14 - 2 - N
3/8	0.110	14	0.0747	2	Y	1.000	4.370	5.301	4.370	3/8 - 14 - 2 - Y
3/8	0.110	14	0.0747	1	N	0.750	1.639	2.651	1.639	3/8 - 14 - 1 - N
3/8	0.110	14	0.0747	1	Y	1.000	2.185	2.651	2.185	3/8 - 14 - 1 - Y
3/8	0.110	16	0.0598	2	N	0.750	2.624	5.301	2.624	3/8 - 16 - 2 - N
3/8	0.110	16	0.0598	2	Y	1.000	3.498	5.301	3.498	3/8 - 16 - 2 - Y
3/8	0.110	16	0.0598	1	N	0.750	1.312	2.651	1.312	3/8 - 16 - 1 - N
3/8	0.110	16	0.0598	1	Y	1.000	1.749	2.651	1.749	3/8 - 16 - 1 - Y
3/8	0.110	18	0.0478	2	N	0.750	2.097	5.301	2.097	3/8 - 18 - 2 - N
3/8	0.110	18	0.0478	2	Y	1.000	2.796	5.301	2.796	3/8 - 18 - 2 - Y
3/8	0.110	18	0.0478	1	N	0.750	1.049	2.651	1.049	3/8 - 18 - 1 - N
3/8	0.110	18	0.0478	1	Y	1.000	1.398	2.651	1.398	3/8 - 18 - 1 - Y

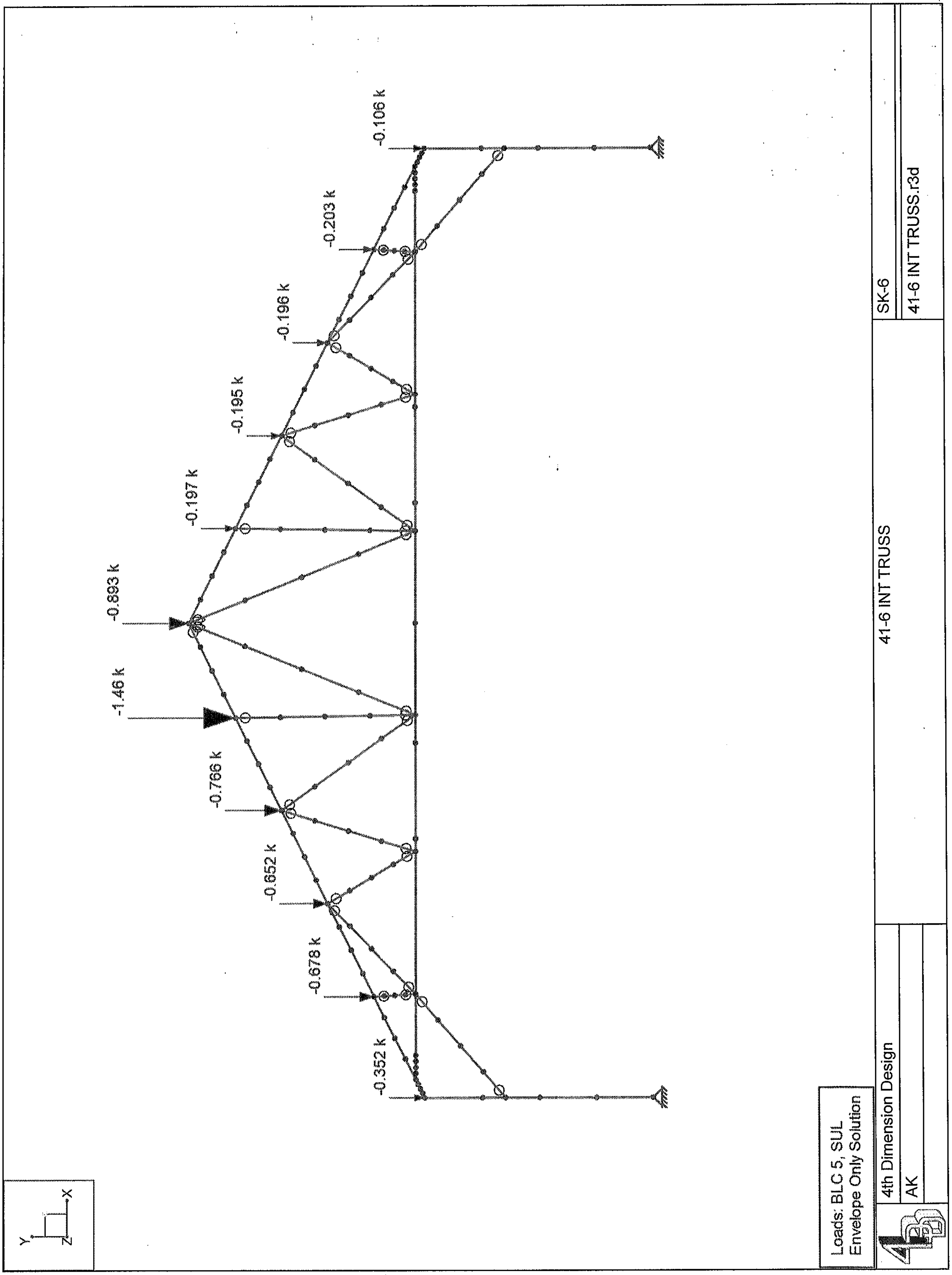

HAT4X16GA
HSS2X2X16GA
HSS2X2X12-GA
HSS4X4X11-GA
REINF T.C. W/ HSS 2x2x16
BKT 10GA W/10GA GUSSET TYP.
SK-18
41-6 INT TRUSS.r3d
41-6 INT TRUSS
4th Dimension Design
AK

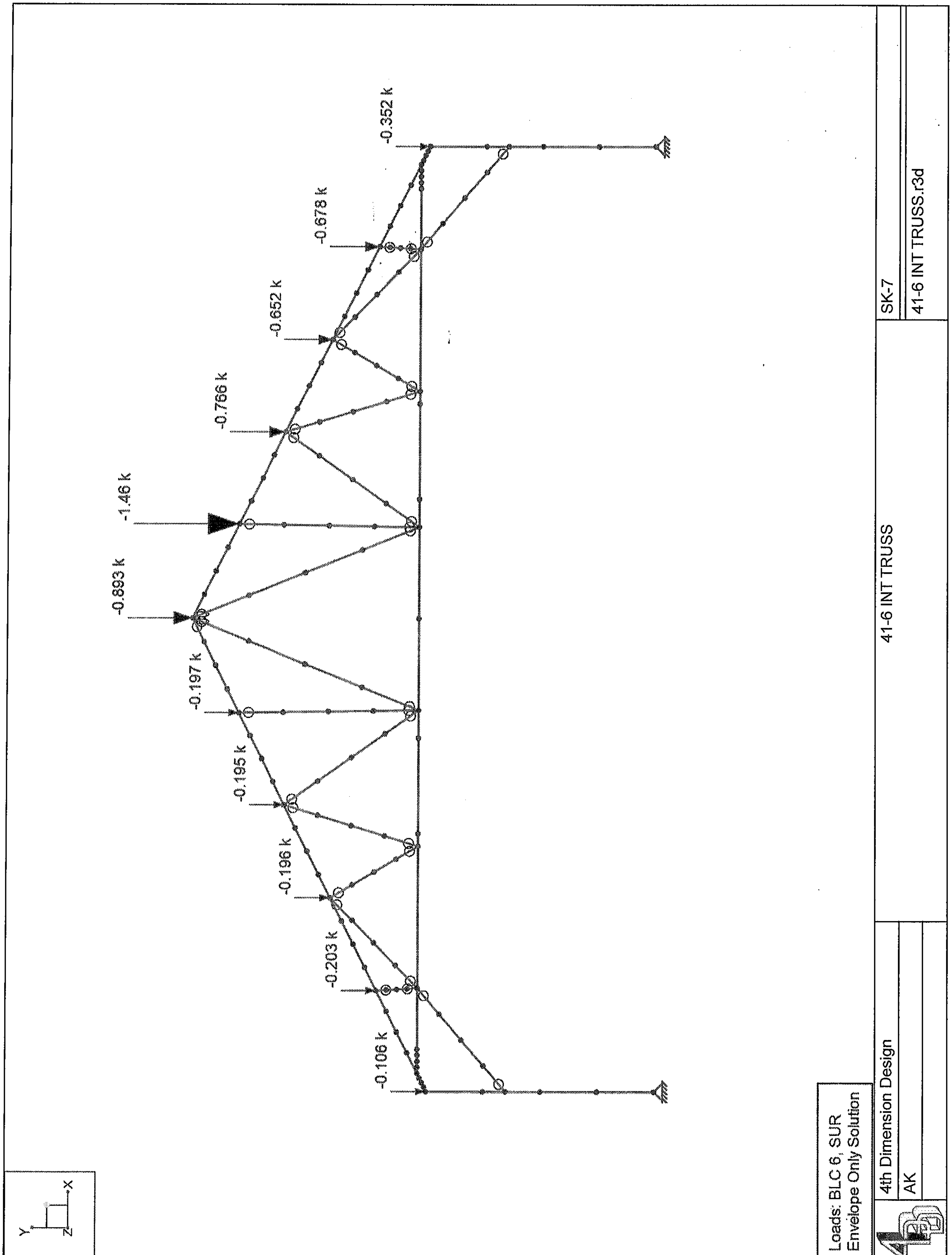

-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
-0.03 k/ft
Loads: BLC 1, D
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-2
41-6 INT TRUSS.r3d
Y
X
Z

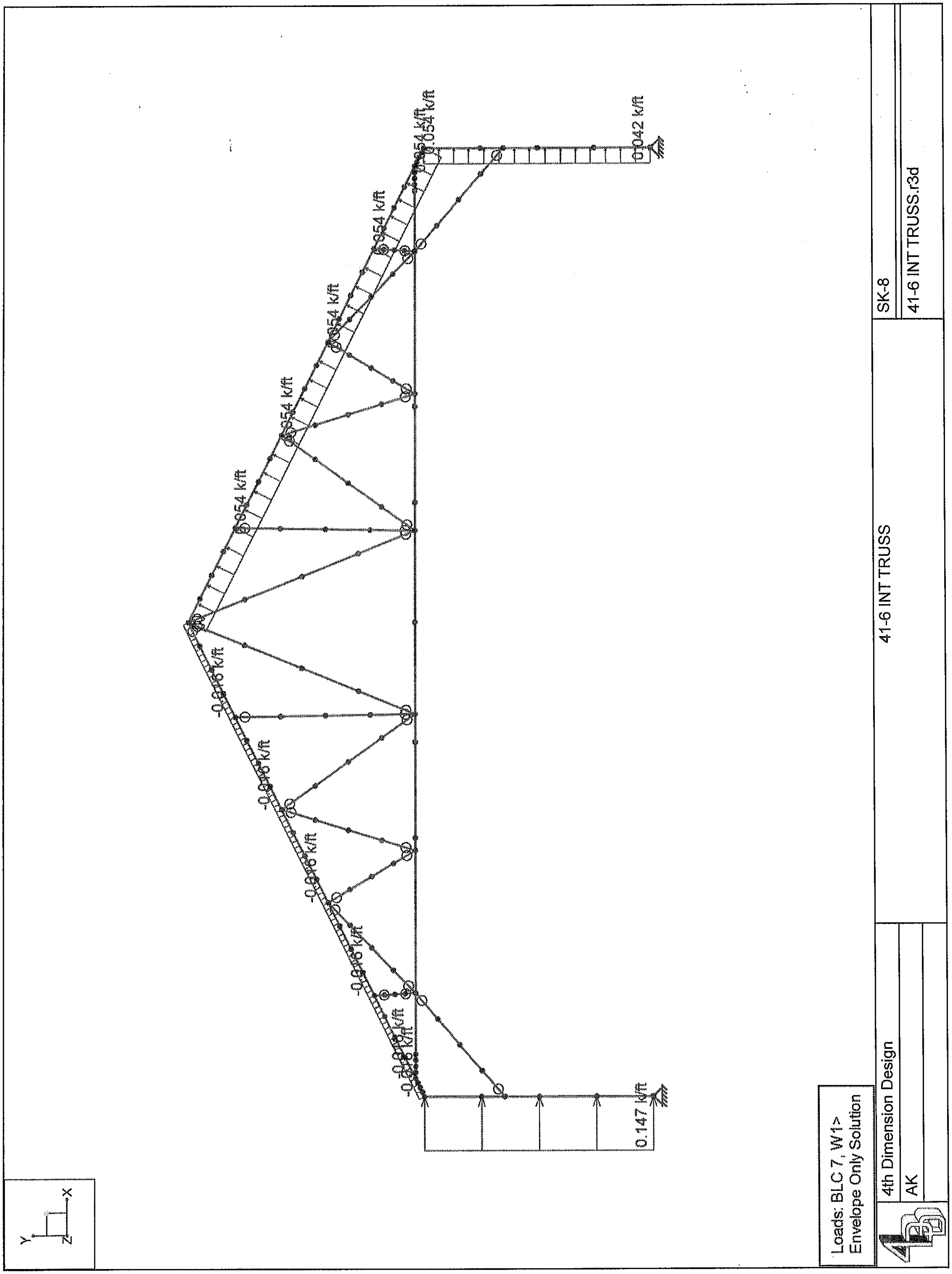

-0.05 k/ft
-0.05 k/ft
-0.05 k/ft
-0.05 k/ft
Loads: BLC 2, C
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-3
41-6 INT TRUSS.r3d

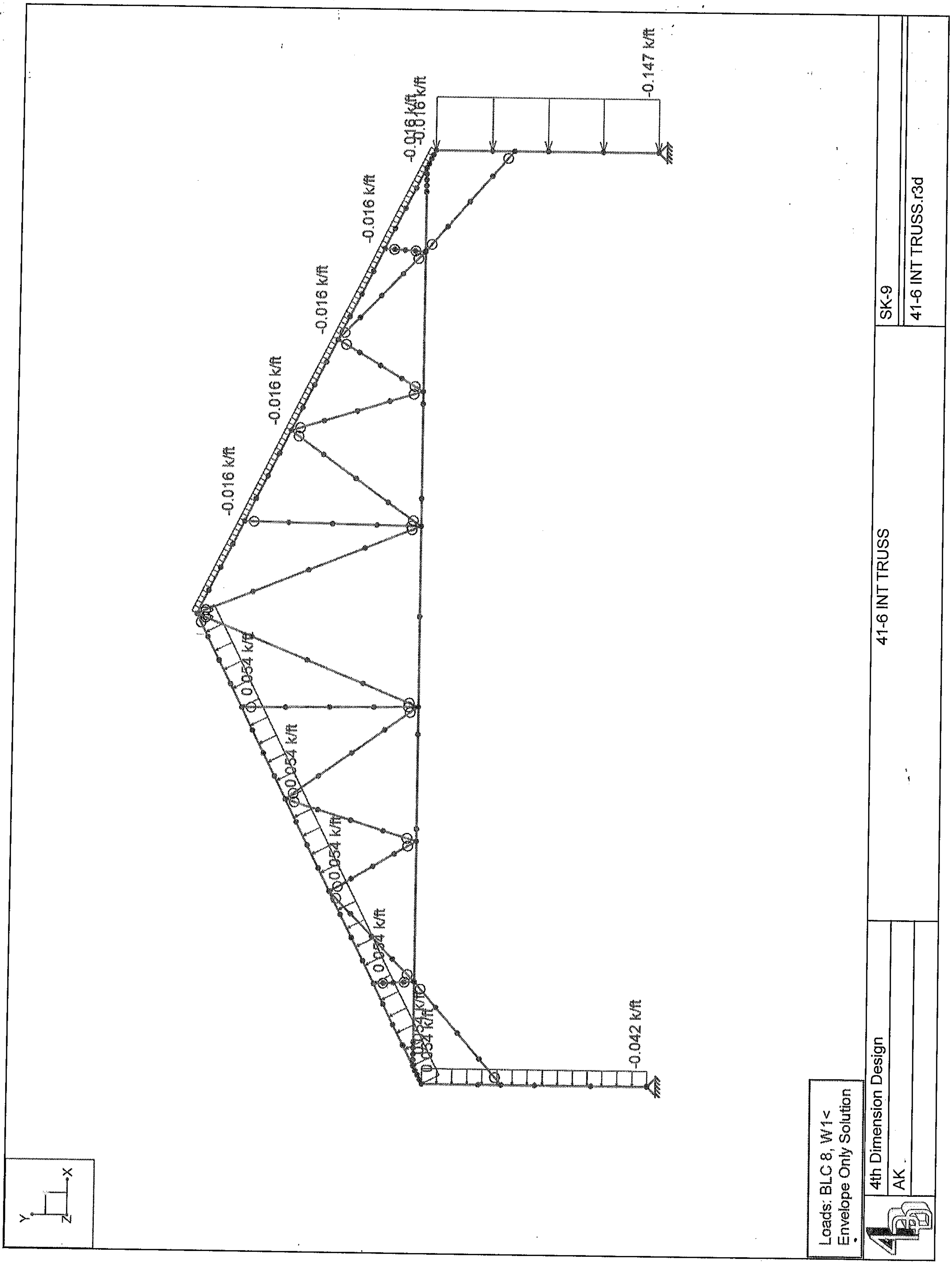

-0.3132 k
-0.6019 k
-0.5783 k
-0.5767 k
-0.5822 k
-0.5885 k
-0.5822 k
-0.5767 k
-0.5783 k
-0.6019 k
-0.3132 k
Y
X
Z
Loads: BLC 3, Lr
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-4
41-6 INT TRUSS.r3d

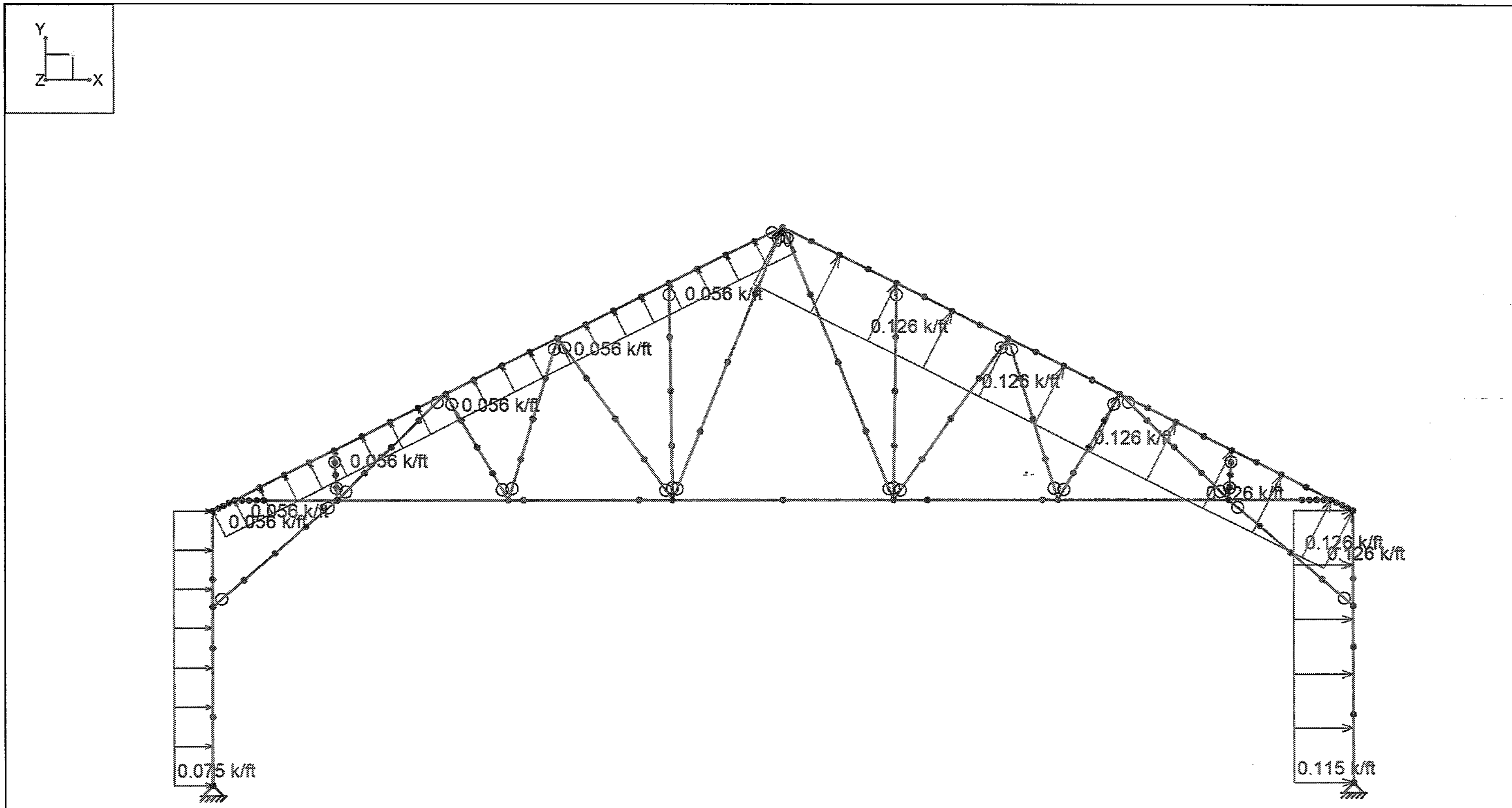

-0.352 k
-0.678 k
-0.652 k
-0.65 k
-0.656 k
-0.663 k
-0.656 k
-0.65 k
-0.652 k
-0.678 k
-0.352 k
Loads: BLC 4, S
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-5
41-6 INT TRUSS.r3d


-0.106 k
-0.203 k
-0.196 k
-0.195 k
-0.197 k
-0.893 k
-1.46 k
-0.766 k
-0.652 k
-0.678 k
-0.352 k
Y
X
Z
Loads: BLC 5, SUL
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-6
41-6 INT TRUSS.r3d


-0.352 k
-0.678 k
-0.652 k
-0.766 k
-1.46 k
-0.893 k
-0.197 k
-0.195 k
-0.196 k
-0.203 k
-0.106 k
Y
X
Z
Loads: BLC 6, SUR
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-7
41-6 INT TRUSS.r3d

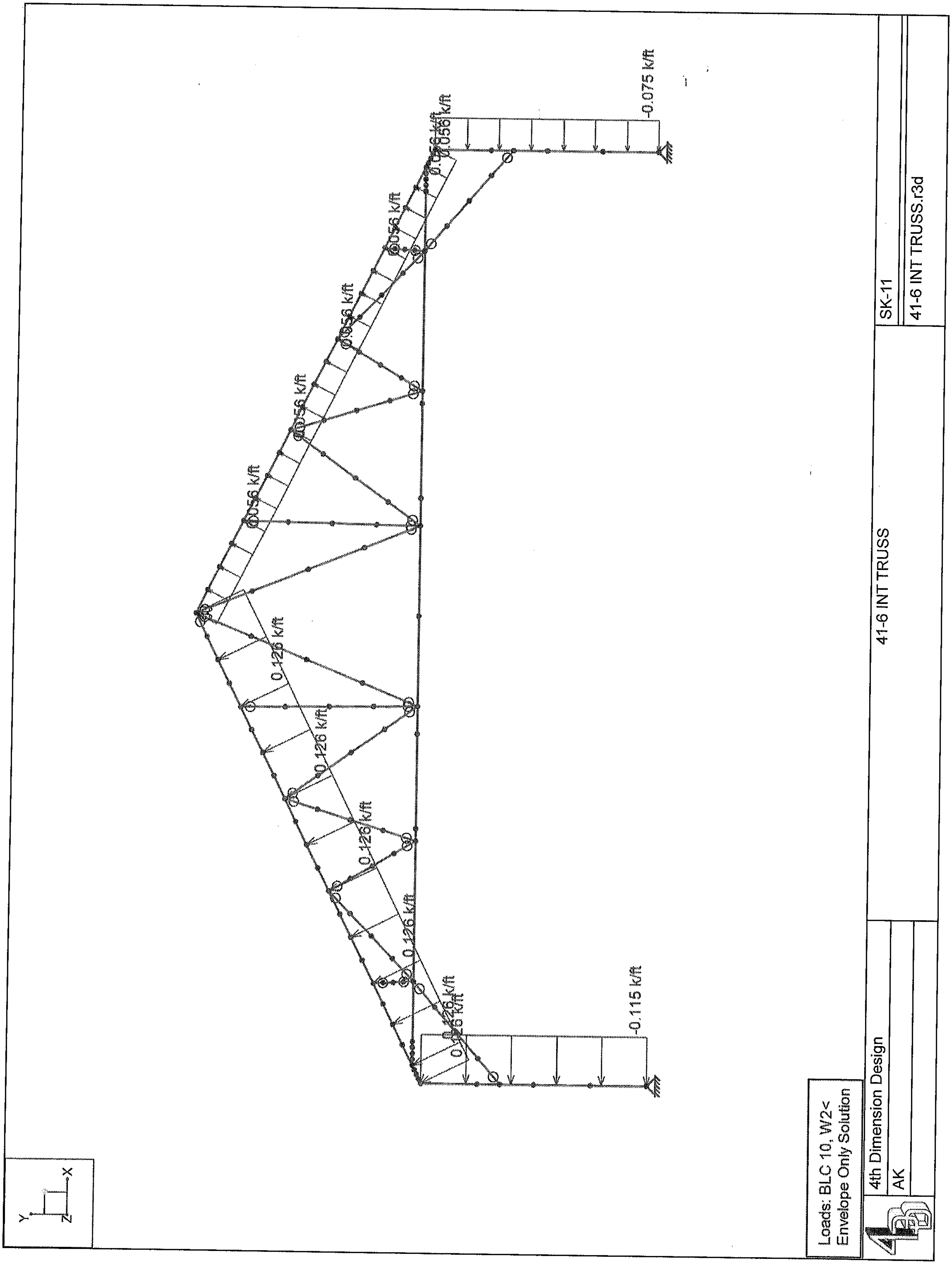

0.054 k/ft
0.042 k/ft
-0.046 k/ft
0.147 k/ft
Loads: BLC 7, W1>
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-8
41-6 INT TRUSS.r3d

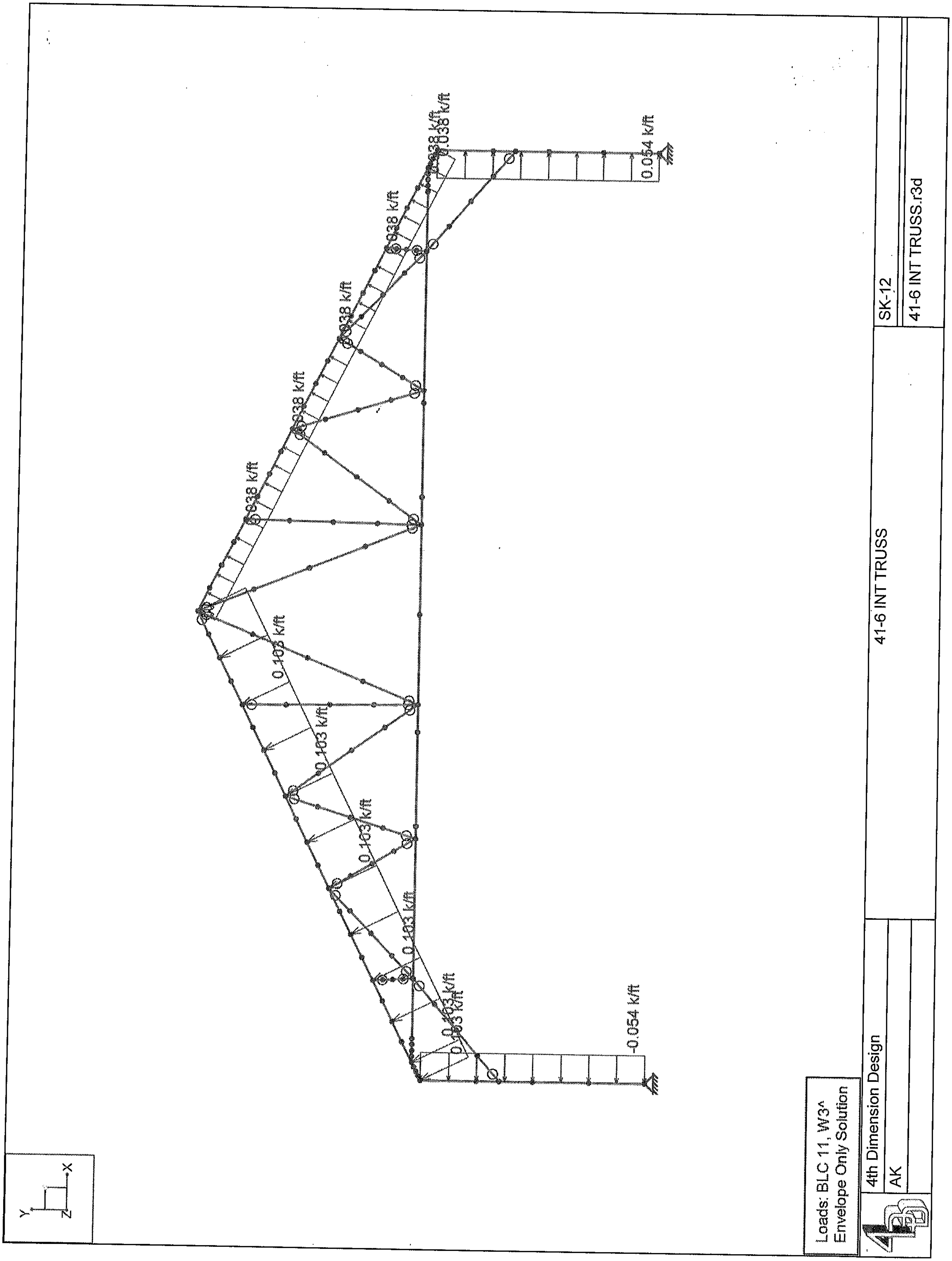

-0.147 k/ft
-0.016 k/ft
-0.016 k/ft
-0.016 k/ft
-0.016 k/ft
-0.016 k/ft
-0.016 k/ft
0.054 k/ft
0.054 k/ft
0.054 k/ft
0.054 k/ft
0.054 k/ft
-0.042 k/ft
Loads: BLC 8, W1<
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-9
41-6 INT TRUSS.r3d

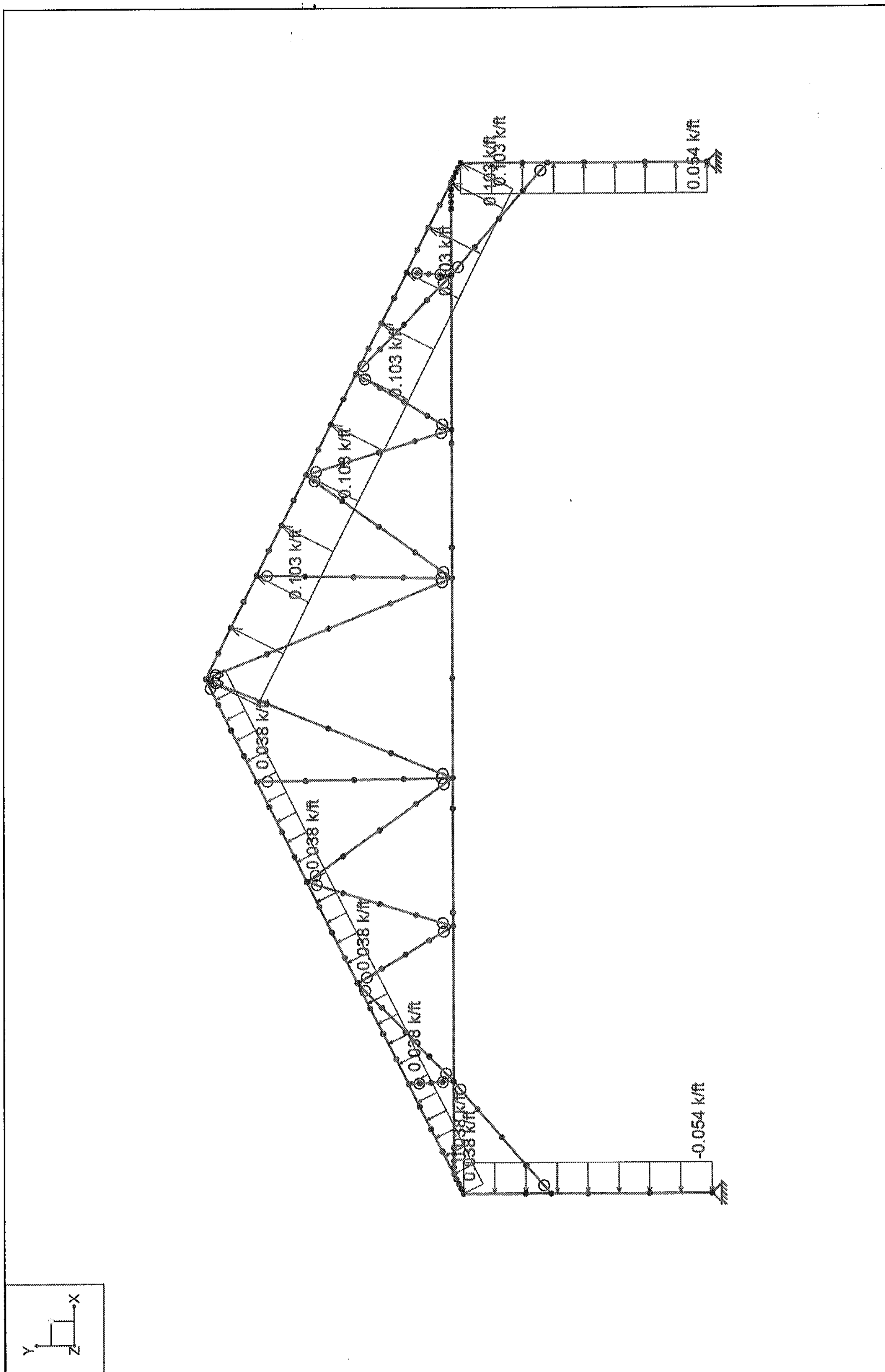


Loads: BLC 9, W2>
Envelope Only Solution

4th Dimension Design	41-6 INT TRUSS	SK-10
AK		41-6 INT TRUSS.r3d


-0.075 k/ft
0.056 k/ft
0.056 k/ft
0.056 k/ft
0.056 k/ft
0.056 k/ft
0.126 k/ft
0.126 k/ft
0.126 k/ft
0.126 k/ft
-0.115 k/ft
Loads: BLC 10, W2<
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-11
41-6 INT TRUSS.r3d
Y
X
Z


0.038 k/ft
0.103 k/ft
0.054 k/ft
-0.054 k/ft
Loads: BLC 11, W3^
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-12
41-6 INT TRUSS.r3d



Loads: BLC 12, W3v
Envelope Only Solution

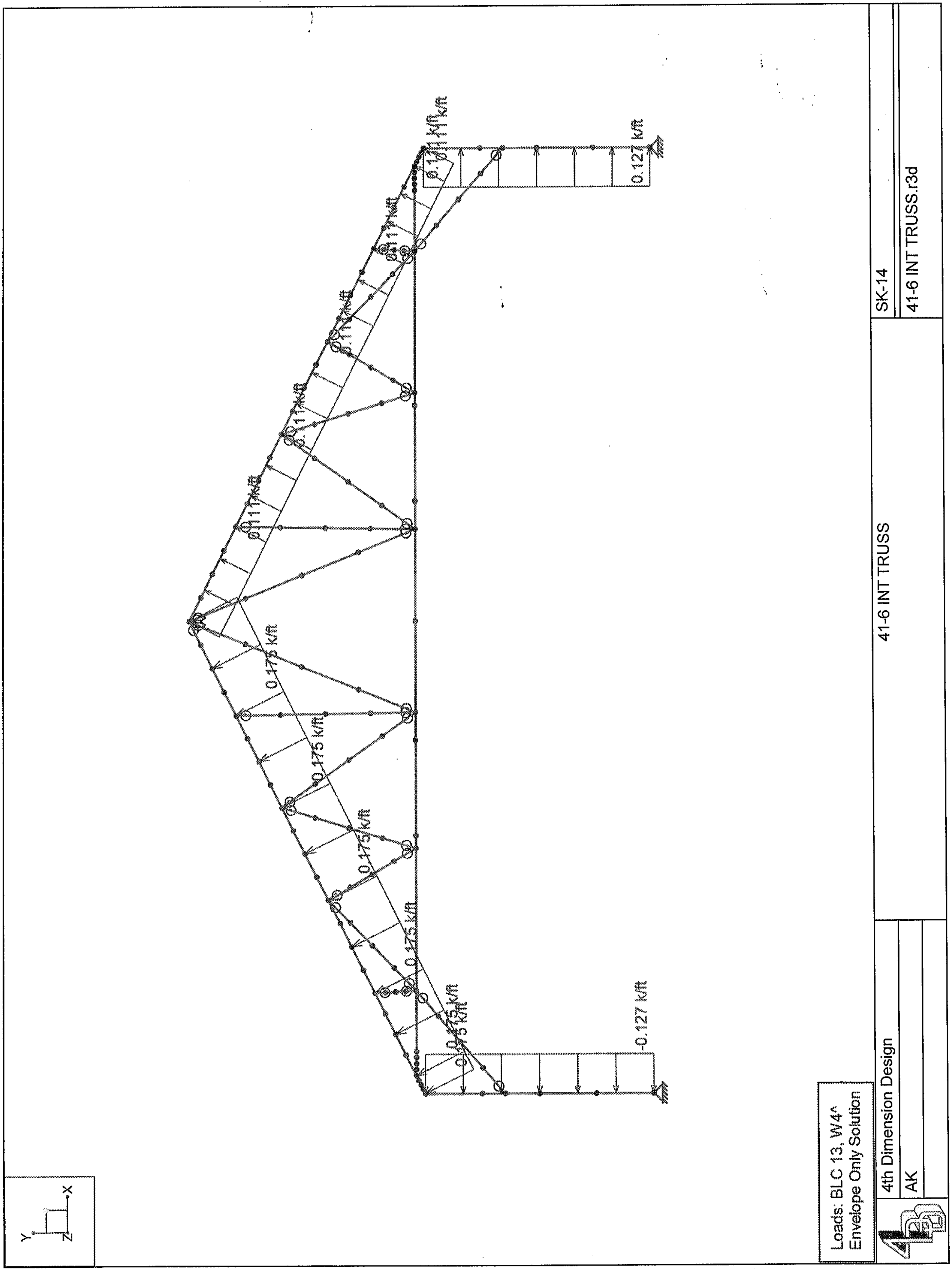
4th Dimension Design

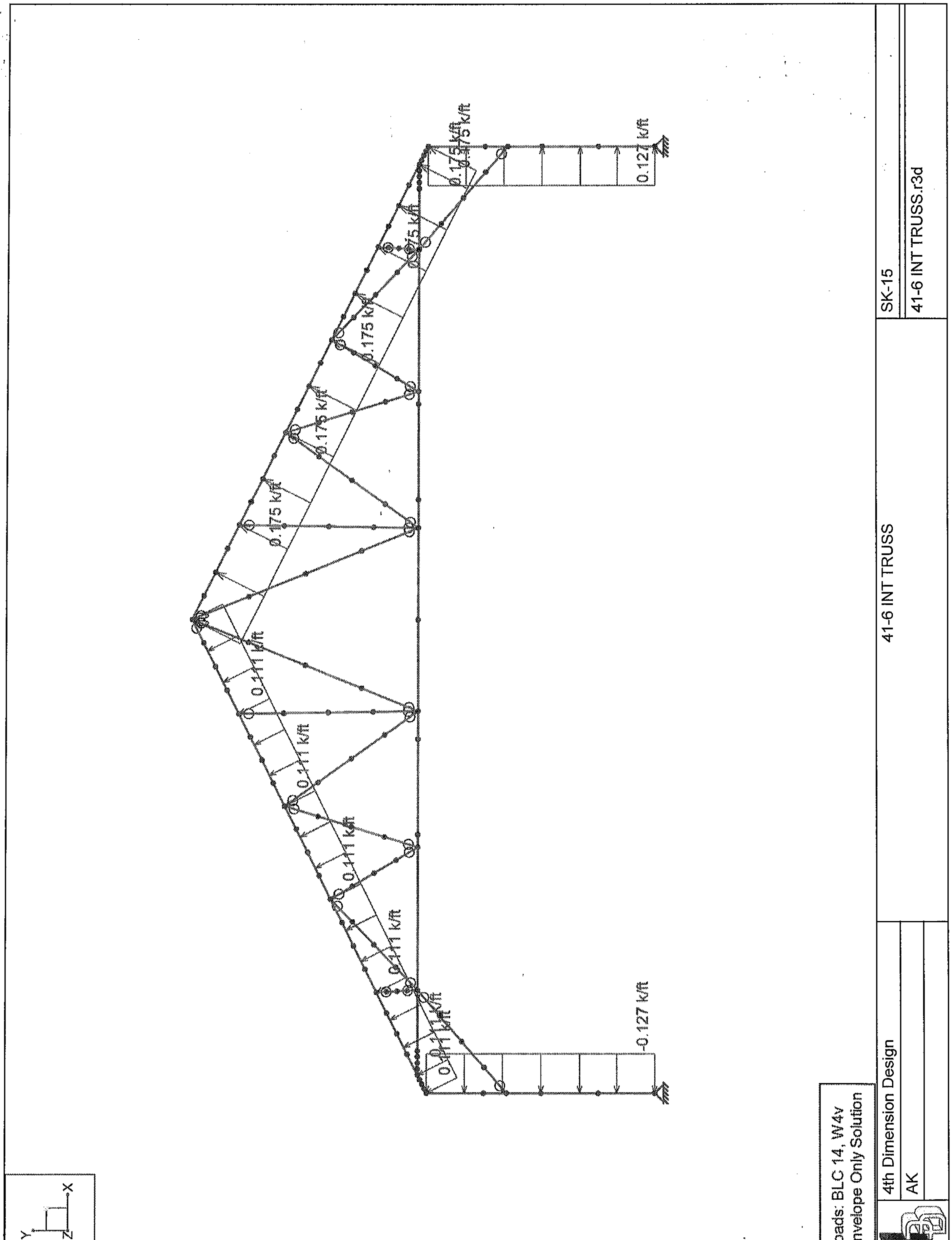
AK

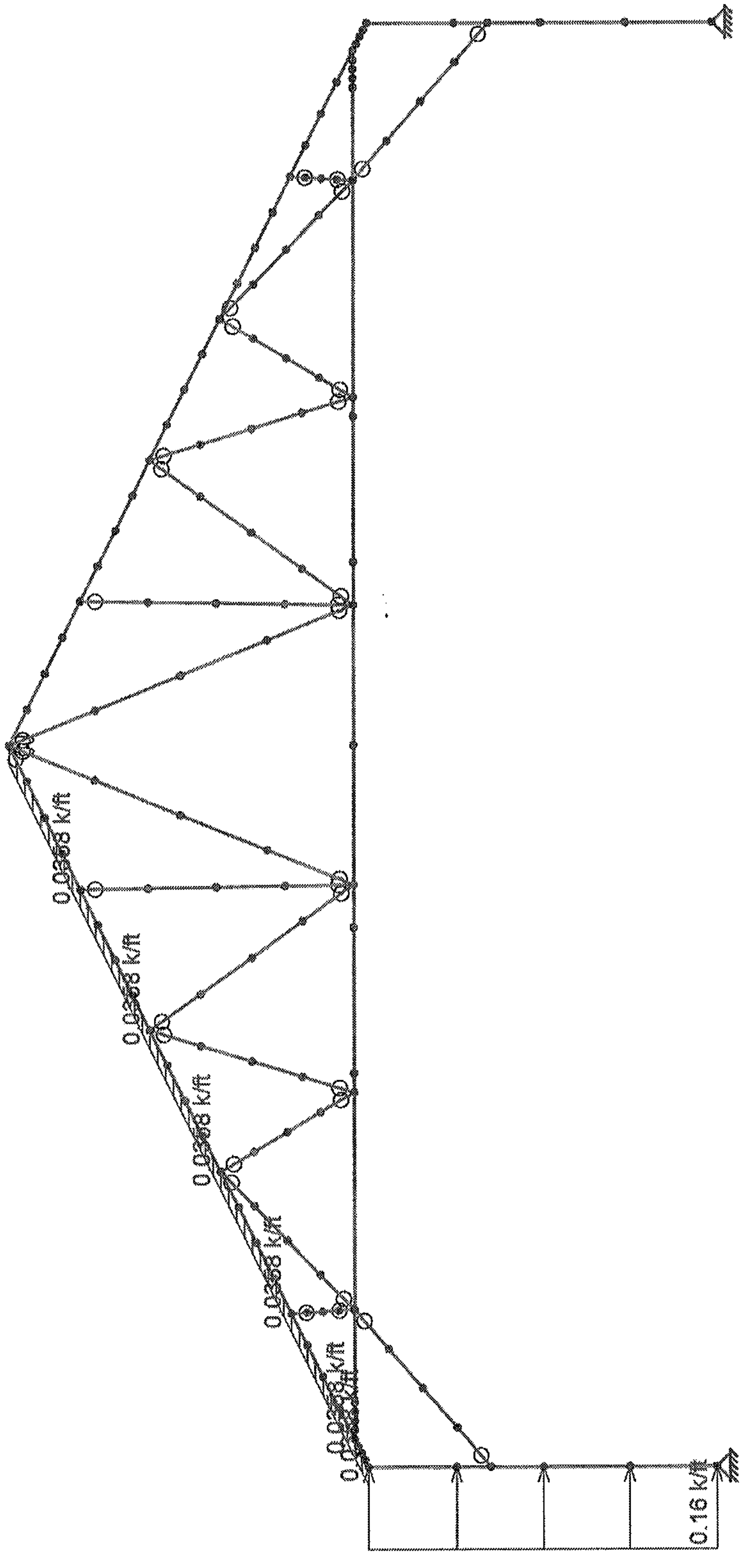
41-6 INT TRUSS

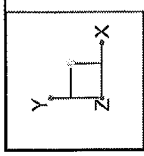
SK-13

41-6 INT TRUSS.r3d


0.175 k/ft
0.111 k/ft
0.127 k/ft
-0.127 k/ft
Loads: BLC 13, W4^
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-14
41-6 INT TRUSS.r3d


0.175 k/ft
0.111 k/ft
0.127 k/ft
-0.127 k/ft
Loads: BLC 14, W4v
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-15
41-6 INT TRUSS.r3d
Y
X
Z





Loads: BLC 15, WMIN>
Envelope Only Solution

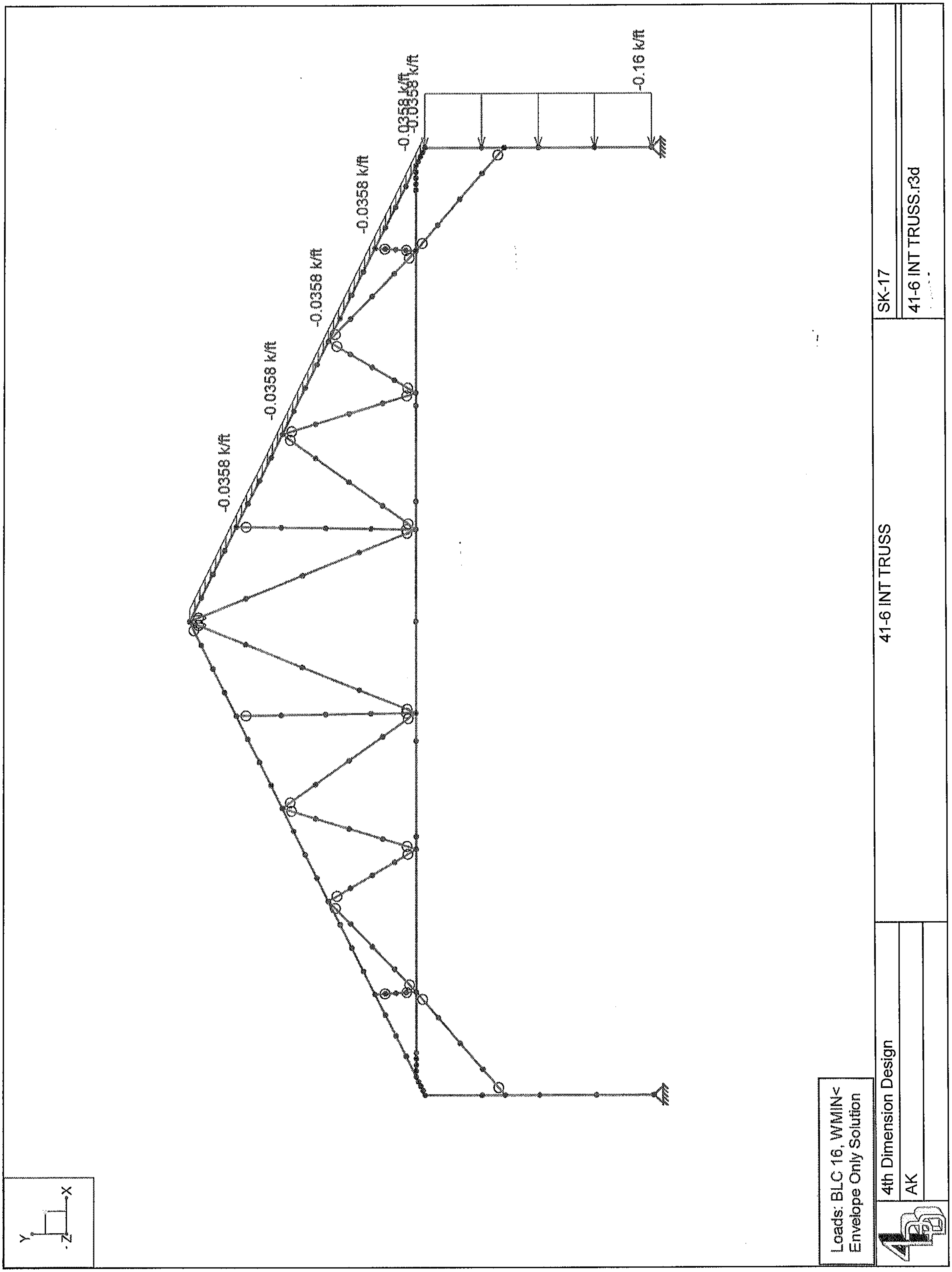
4th Dimension Design

AK

41-6 INT TRUSS

SK-16

41-6 INT TRUSS.r3d


-0.16 k/ft
-0.0358 k/ft
-0.0358 k/ft
-0.0358 k/ft
-0.0358 k/ft
-0.0358 k/ft
-0.0358 k/ft
-0.0358 k/ft
Y
X
Z
Loads: BLC 16, WMIN<
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-17
41-6 INT TRUSS.r3d

Company : 4th Dimension Design
Designer : AK
Job Number :
Model Name : 41-6 INT TRUSS

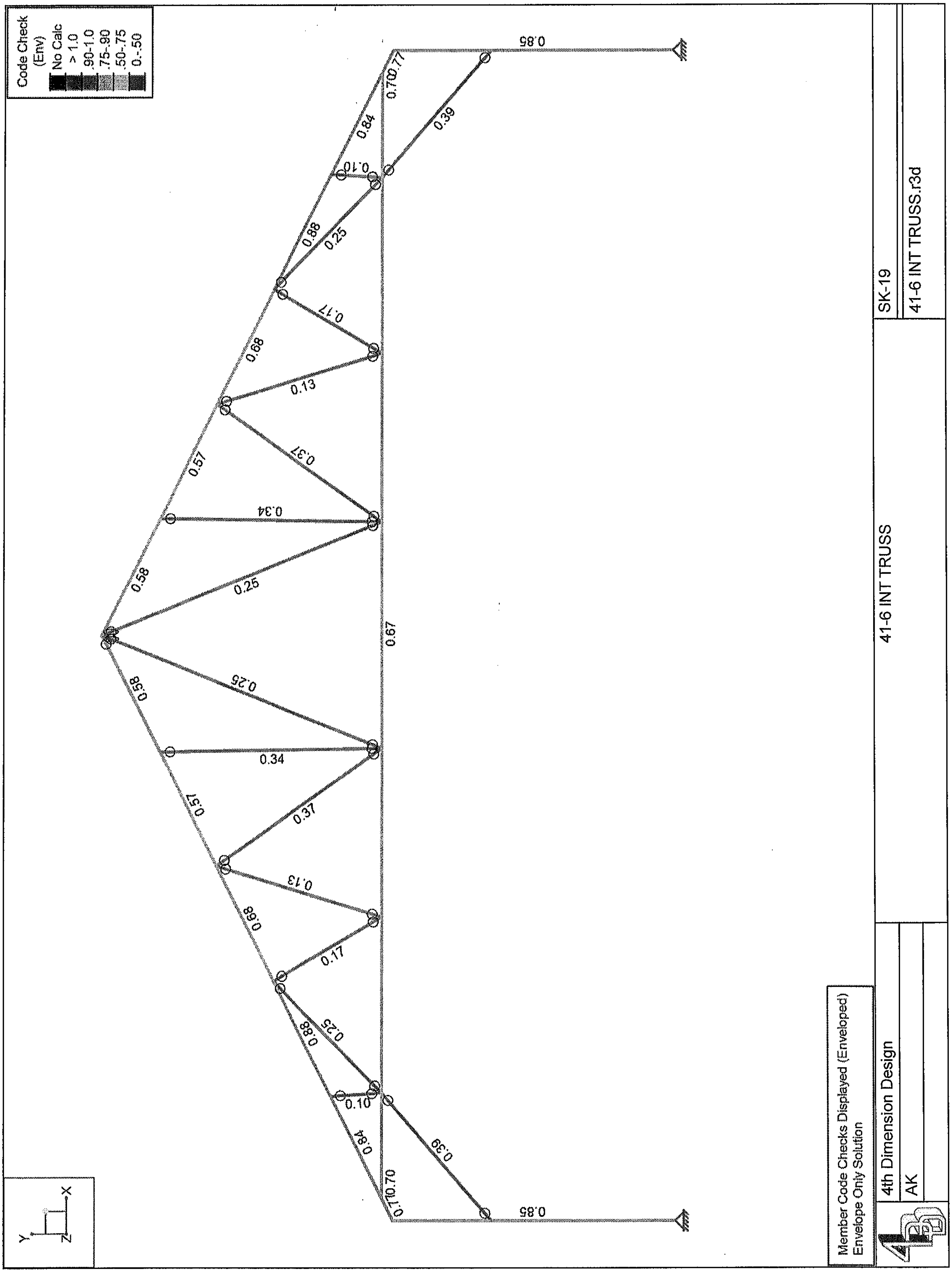
Checked By : JN

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	D+C+Lr	Yes	Y	1	1	2	1	3	1		
2	D+C+S	Yes	Y	1	1	2	1	4	1		
3	D+C+SUL	Yes	Y	1	1	2	1	5	1		
4	D+C+SUR	Yes	Y	1	1	2	1	6	1		
5	D+C+0.6W1>	Yes	Y	1	1	2	1	7	0.6		
6	D+C+0.6W1<	Yes	Y	1	1	2	1	8	0.6		
7	D+C+0.6W2>	Yes	Y	1	1	2	1	9	0.6		
8	D+C+0.6W2<	Yes	Y	1	1	2	1	10	0.6		
9	D+C+0.6W3^	Yes	Y	1	1	2	1	11	0.6		
10	D+C+0.6W3v	Yes	Y	1	1	2	1	12	0.6		
11	D+C+0.6W4^	Yes	Y	1	1	2	1	13	0.6		
12	D+C+0.6W4v	Yes	Y	1	1	2	1	14	0.6		
13	D+C+0.6WMIN>	Yes	Y	1	1	2	1	15	0.6		
14	D+C+0.6WMIN<	Yes	Y	1	1	2	1	16	0.6		
15	D+C+.75Lr+.45W1>	Yes	Y	1	1	2	1	3	0.75	7	0.45
16	D+C+.75Lr+.45W1<	Yes	Y	1	1	2	1	3	0.75	8	0.45
17	D+C+.75Lr+.45W2>	Yes	Y	1	1	2	1	3	0.75	9	0.45
18	D+C+.75Lr+.45W2<	Yes	Y	1	1	2	1	3	0.75	10	0.45
19	D+C+.75Lr+.45W3^	Yes	Y	1	1	2	1	3	0.75	11	0.45
20	D+C+.75Lr+.45W3v	Yes	Y	1	1	2	1	3	0.75	12	0.45
21	D+C+.75Lr+.45W4^	Yes	Y	1	1	2	1	3	0.75	13	0.45
22	D+C+.75Lr+.45W4v	Yes	Y	1	1	2	1	3	0.75	14	0.45
23	D+C+.75Lr+.45WMIN>	Yes	Y	1	1	2	1	3	0.75	15	0.45
24	D+C+.75Lr+.45WMIN<	Yes	Y	1	1	2	1	3	0.75	16	0.45
25	D+C+.75S+.45W1>	Yes	Y	1	1	2	1	4	0.75	7	0.45
26	D+C+.75S+.45W1<	Yes	Y	1	1	2	1	4	0.75	8	0.45
27	D+C+.75S+.45W2>	Yes	Y	1	1	2	1	4	0.75	9	0.45
28	D+C+.75S+.45W2<	Yes	Y	1	1	2	1	4	0.75	10	0.45
29	D+C+.75S+.45W3^	Yes	Y	1	1	2	1	4	0.75	11	0.45
30	D+C+.75S+.45W3v	Yes	Y	1	1	2	1	4	0.75	12	0.45
31	D+C+.75S+.45W4^	Yes	Y	1	1	2	1	4	0.75	13	0.45
32	D+C+.75S+.45W4v	Yes	Y	1	1	2	1	4	0.75	14	0.45
33	D+C+.75S+.45WMIN>	Yes	Y	1	1	2	1	4	0.75	15	0.45
34	D+C+.75S+.45WMIN<	Yes	Y	1	1	2	1	4	0.75	16	0.45
35	0.6D+0.3C+0.6W1>	Yes	Y	1	0.6	2	0.3	7	0.6		
36	0.6D+0.3C+0.6W1<	Yes	Y	1	0.6	2	0.3	8	0.6		
37	0.6D+0.3C+0.6W2>	Yes	Y	1	0.6	2	0.3	9	0.6		
38	0.6D+0.3C+0.6W2<	Yes	Y	1	0.6	2	0.3	10	0.6		
39	0.6D+0.3C+0.6W3^	Yes	Y	1	0.6	2	0.3	11	0.6		
40	0.6D+0.3C+0.6W3v	Yes	Y	1	0.6	2	0.3	12	0.6		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
41	0.6D+0.3C+0.6W4^	Yes	Y	1	0.6	2	0.3	13	0.6		
42	0.6D+0.3C+0.6W4v	Yes	Y	1	0.6	2	0.3	14	0.6		
43	0.6D+0.3C+0.6WMIN>	Yes	Y	1	0.6	2	0.3	15	0.6		
44	0.6D+0.3C+0.6WMIN<	Yes	Y	1	0.6	2	0.3	16	0.6		

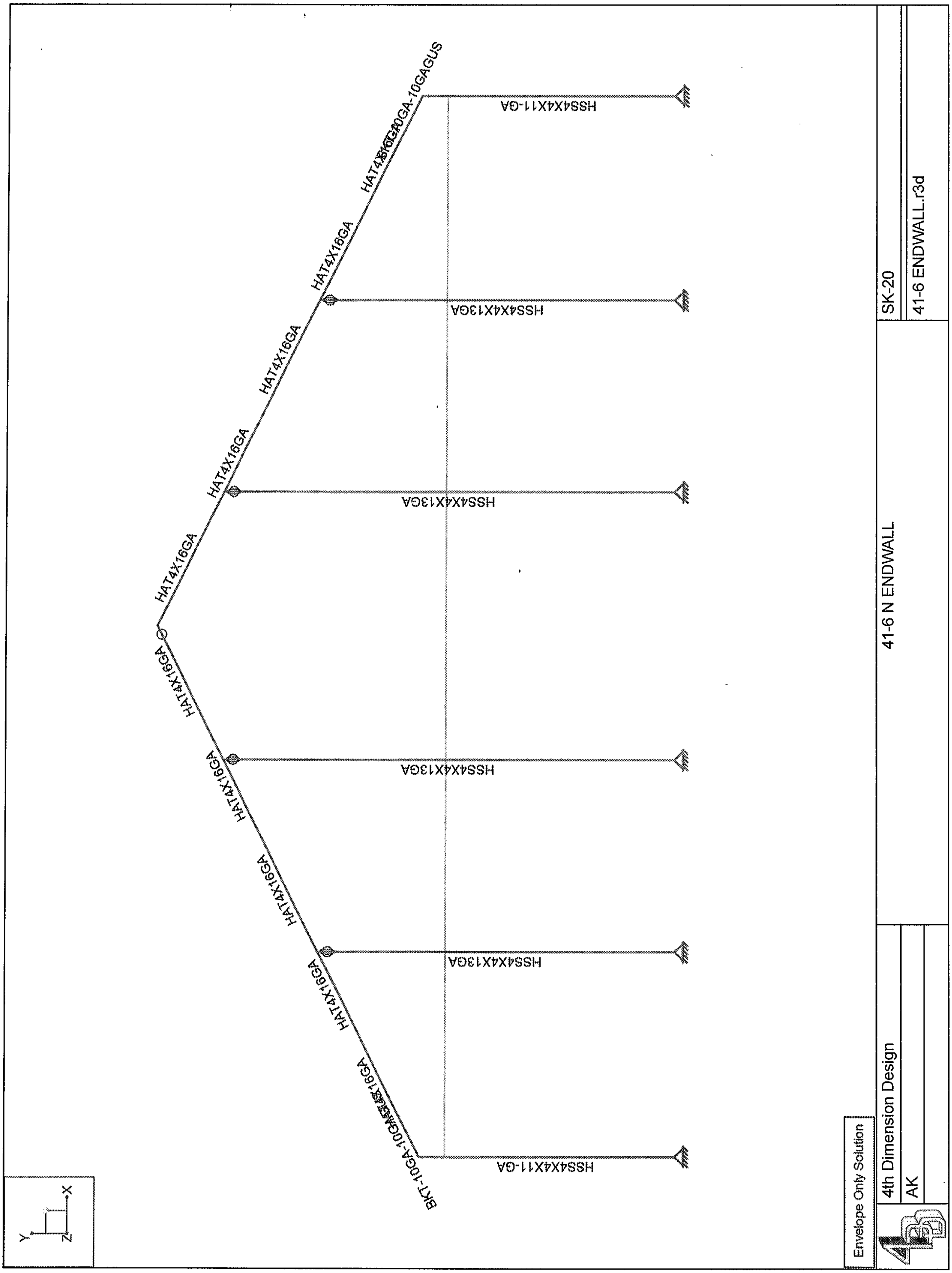

Code Check
(Env)
No Calc
> 1.0
.90-1.0
.75-.90
.50-.75
0.-.50
Member Code Checks Displayed (Enveloped)
Envelope Only Solution
4th Dimension Design
AK
41-6 INT TRUSS
SK-19
41-6 INT TRUSS.r3d

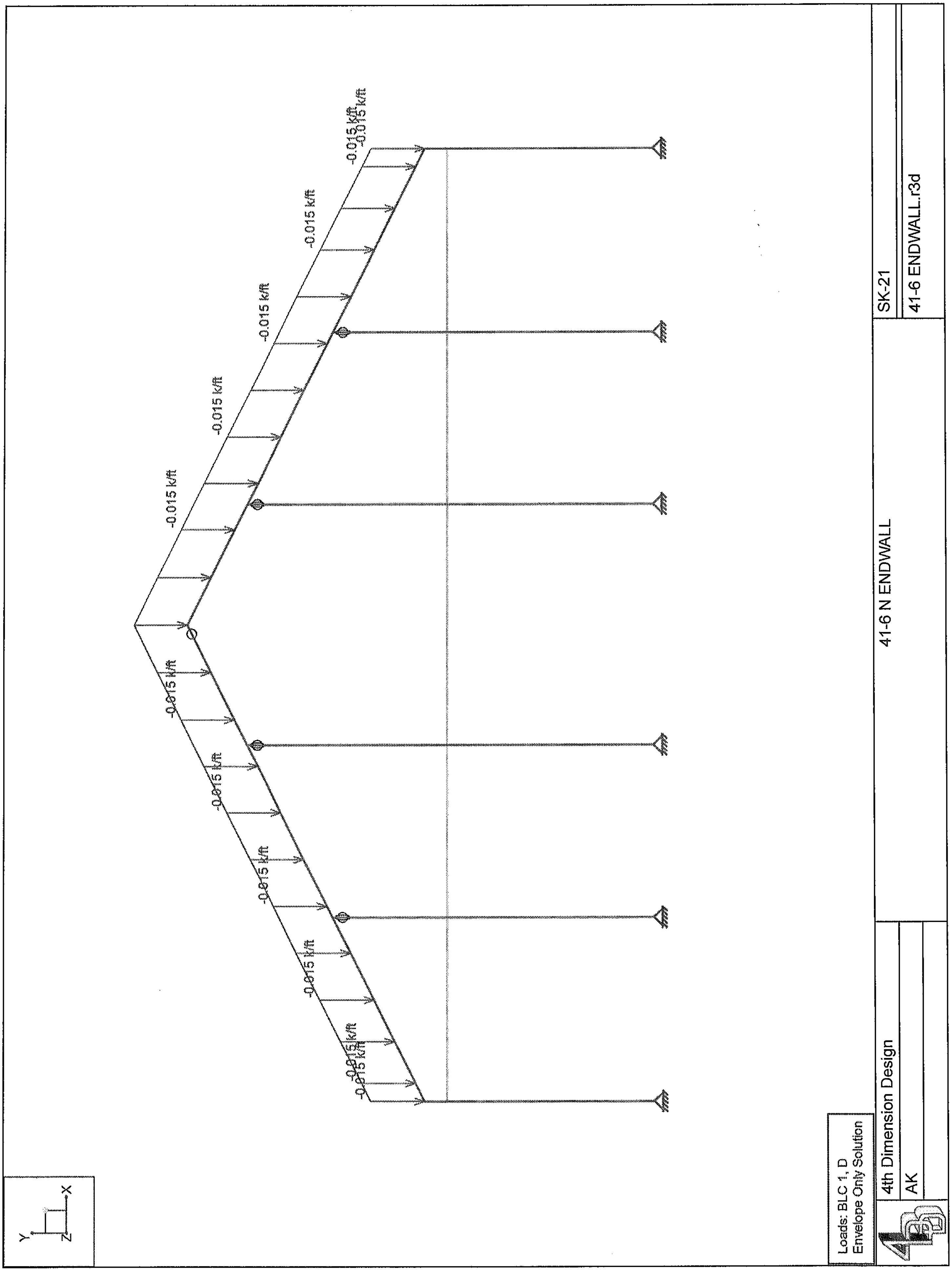
Company : 4th Dimension Design
Designer : AK
Job Number :
Model Name : 41-6 INT TRUSS

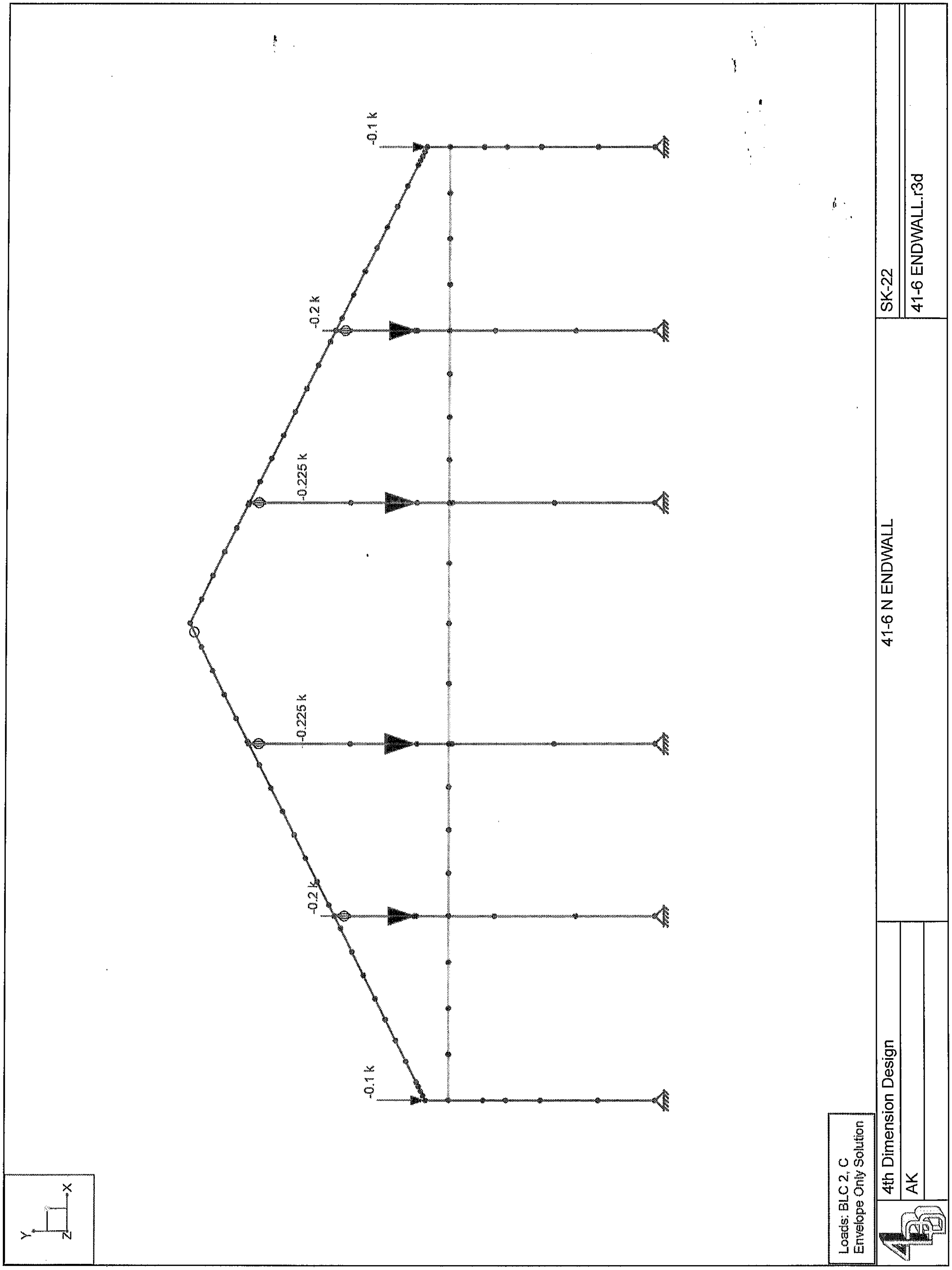
Checked By : JN

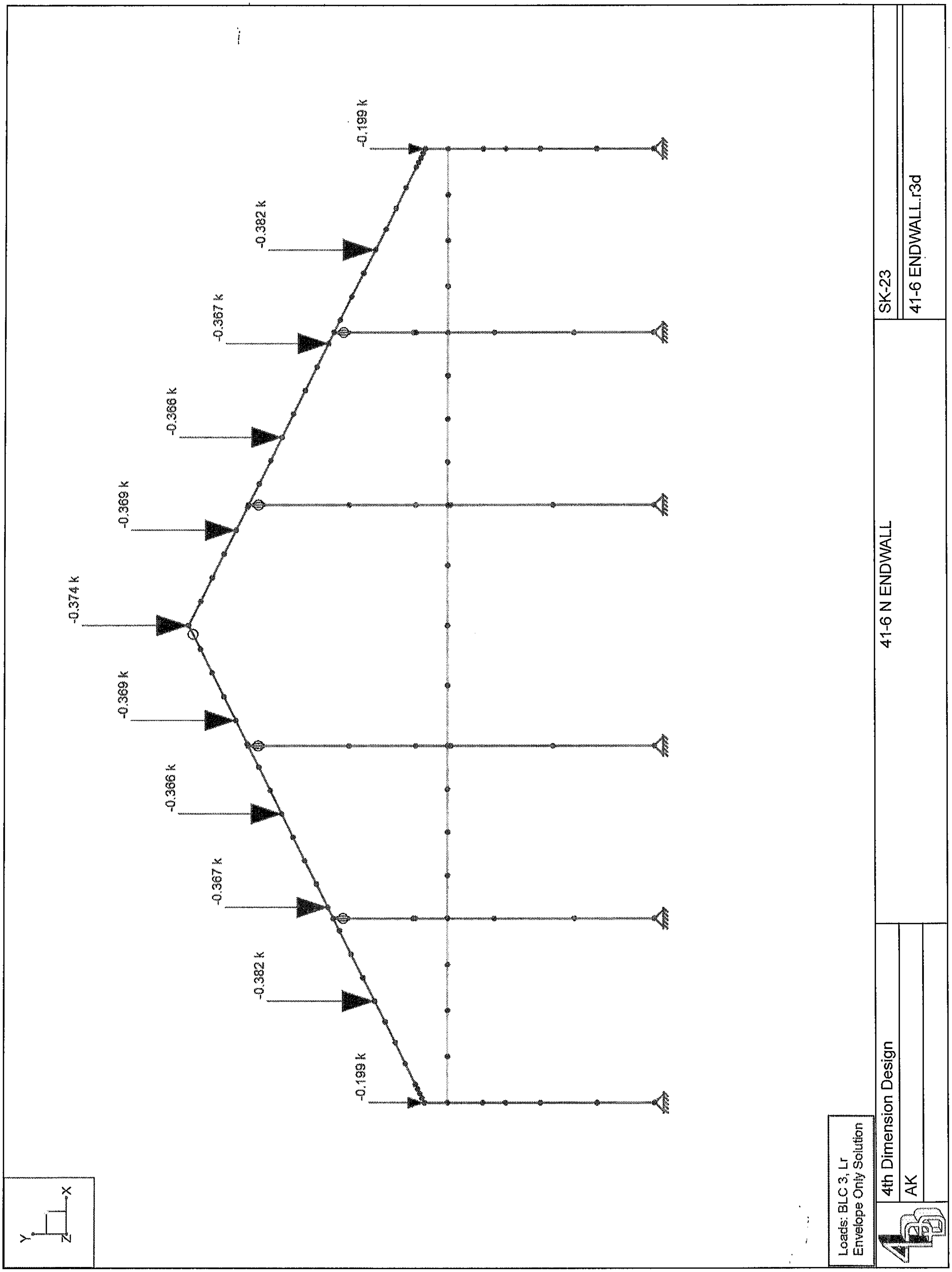
Envelope AISC 14th (360-10): ASD Steel Code Checks

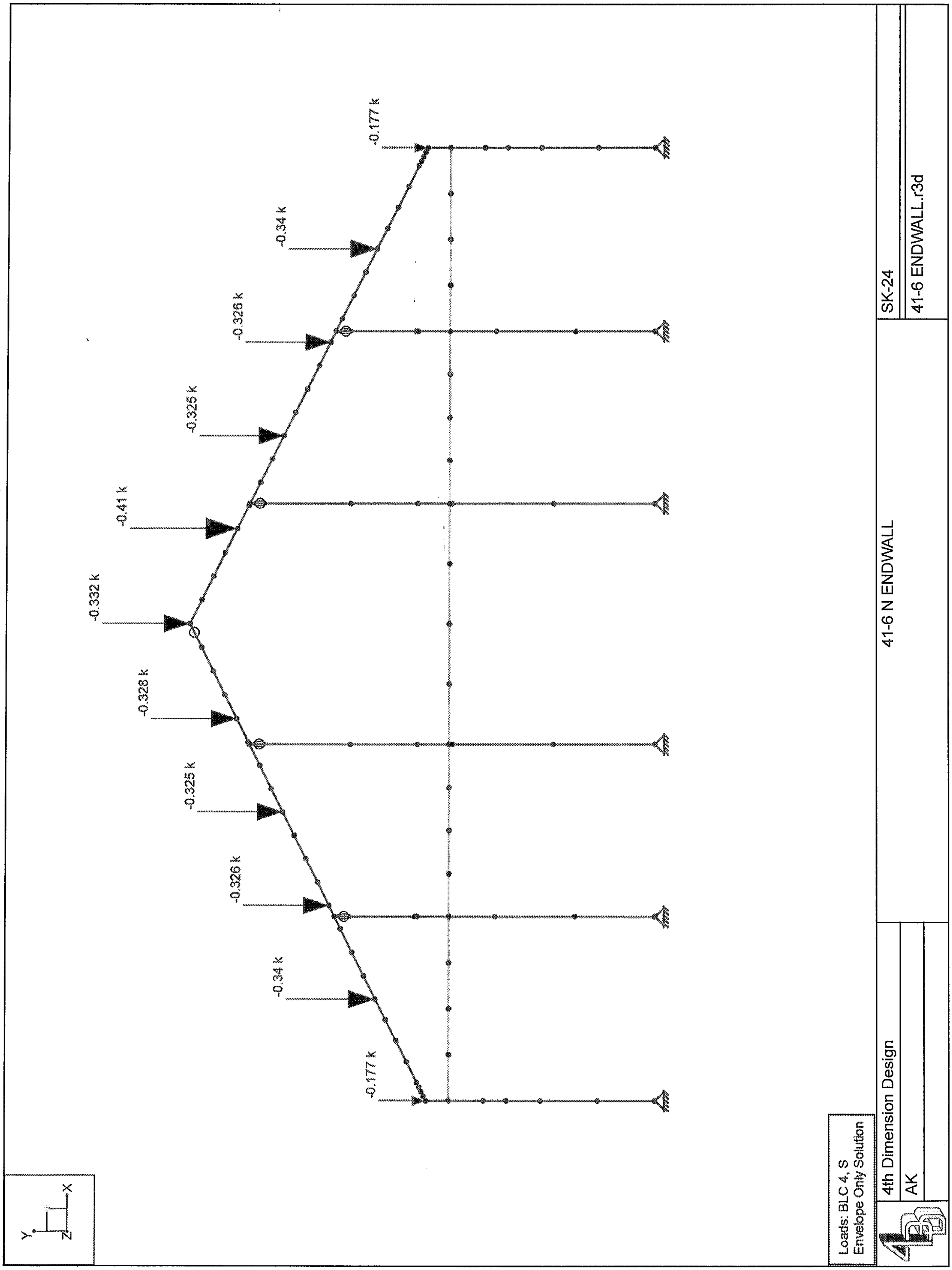
	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
1	M29	BKT-10GA-10GAGUS	0.769	0	25	0.366	0	y	3	21.535	34.461	0.344	3.463	2.133	H1-1b
2	M16	HAT4X16GA-TS2X16GA	0.838	0	3	0.032	4.041	y	3	30.933	37.725	1.739	2.425	1.394	H1-1a
3	M5	HAT4X16GA	0.878	1.518	3	0.028	4.554	y	41	14.105	21.347	1.213	1.861	1.132	H1-1a
4	M18	HAT4X16GA	0.675	1.932	3	0.026	0	y	41	14.105	21.347	1.213	1.861	1.288	H1-1a
5	M1	HAT4X16GA	0.569	2.929	3	0.026	4.53	y	41	14.124	21.347	1.213	1.861	1.229	H1-1a
6	M2	HAT4X16GA	0.584	1.92	3	0.031	0	y	41	14.036	21.347	1.213	1.861	1.114	H1-1a
7	M24	BKT-10GA-10GAGUS	0.769	0	26	0.366	0	y	4	21.535	34.461	0.344	3.463	2.133	H1-1b
8	M15	HAT4X16GA-TS2X16GA	0.838	0	4	0.032	4.041	y	4	30.933	37.725	1.739	2.425	1.394	H1-1a
9	M32	HAT4X16GA	0.878	1.518	4	0.028	4.554	y	42	14.105	21.347	1.213	1.861	1.131	H1-1a
10	M31	HAT4X16GA	0.675	1.932	4	0.026	0	y	42	14.105	21.347	1.213	1.861	1.288	H1-1a
11	M30	HAT4X16GA	0.569	2.929	4	0.026	4.53	y	42	14.124	21.347	1.213	1.861	1.229	H1-1a
12	M6	HAT4X16GA	0.584	1.92	4	0.031	0	y	42	14.036	21.347	1.213	1.861	1.114	H1-1a
13	M3	HSS1.5X1.5X10-GA	0.7	0	3	0.017	0.258	y	3	9.264	21.329	0.916	0.916	1	H1-1a
14	M23	HSS1.5X1.5X10-GA	0.7	1.063	4	0.017	0.805	y	4	9.264	21.329	0.916	0.916	1	H1-1a
15	M28	HSS2X2X16GA	0.389	2.954	14	0.001	0	y	6	7.313	13.263	0.723	0.723	1.148	H1-1a
16	M7	HSS2X2X16GA	0.389	2.954	13	0.001	0	y	5	7.313	13.263	0.723	0.723	1.148	H1-1a
17	M17	HSS2X2X16GA	0.095	0	3	0	1.811	y	8	12.556	13.263	0.723	0.723	1.14	H1-1b*
18	M22	HSS2X2X16GA	0.095	0	4	0	1.811	y	7	12.556	13.263	0.723	0.723	1.14	H1-1b*
19	M19	HSS2X2X16GA	0.253	2.731	36	0.001	0	y	6	7.973	13.263	0.723	0.723	1.145	H1-1a
20	M4	HSS2X2X16GA	0.253	2.731	35	0.001	0	y	5	7.973	13.263	0.723	0.723	1.145	H1-1a
21	M11	HSS2X2X16GA	0.166	0	25	0	0	y	25	9.505	13.263	0.723	0.723	1.142	H1-1b*
22	M10	HSS2X2X16GA	0.166	0	26	0	0	y	26	9.505	13.263	0.723	0.723	1.142	H1-1b*
23	M14	HSS2X2X16GA	0.133	6.15	25	0	0	y	8	7.047	13.263	0.723	0.723	1.136	H1-1b*
24	M13	HSS2X2X16GA	0.133	6.15	26	0	0	y	7	7.047	13.263	0.723	0.723	1.136	H1-1b*
25	M27	HSS2X2X16GA	0.367	3.57	3	0.001	0	y	3	5.558	13.263	0.723	0.723	1.149	H1-1a
26	M21	HSS2X2X16GA	0.367	3.57	4	0.001	0	y	4	5.558	13.263	0.723	0.723	1.149	H1-1a
27	M26	HSS2X2X16GA	0.342	0	3	0	0	y	3	4.658	13.263	0.723	0.723	1.148	H1-1a*
28	M20	HSS2X2X16GA	0.342	0	4	0	0	y	4	4.658	13.263	0.723	0.723	1.148	H1-1a*
29	M8	HSS4X4X11-GA	0.854	6.465	26	0.084	10	y	5	40.46	66.913	7.085	7.085	1.345	H1-1b
30	M33	HSS4X4X11-GA	0.854	6.465	25	0.084	10	y	6	40.46	66.913	7.085	7.085	1.345	H1-1b
31	M12	HSS2X2X12-GA	0.25	4.999	42	0.001	0	y	12	4.135	22.754	1.352	1.352	1.146	H1-1a
32	M25	HSS2X2X12-GA	0.25	4.999	41	0.001	0	y	11	4.135	22.754	1.352	1.352	1.146	H1-1a
33	M46	HSS2X2X12-GA	0.67	2.672	38	0.034	14.888	y	8	2.127	22.754	1.352	1.352	1.774	H1-1a

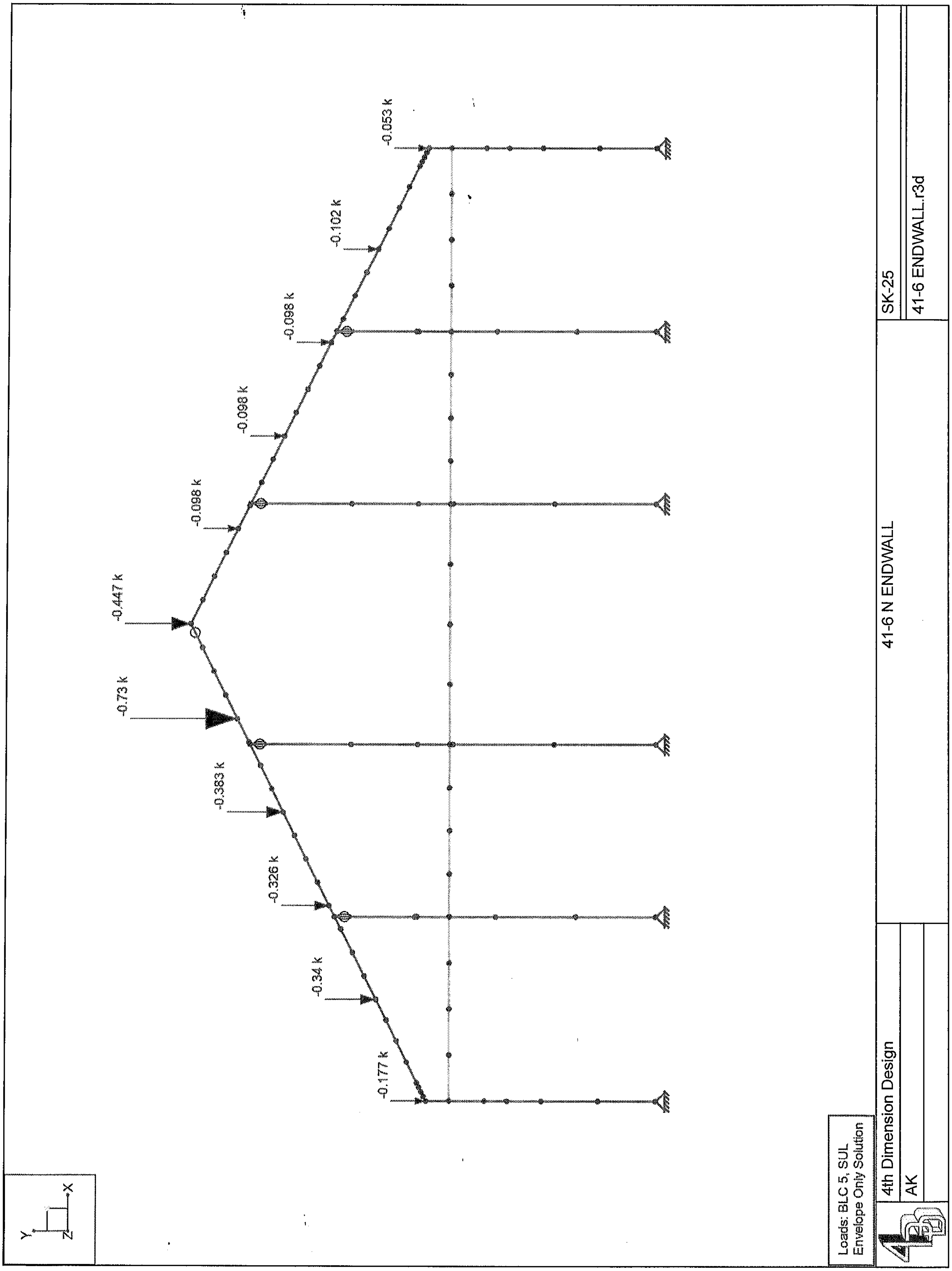

HAT4X16GA
HSS4X4X11-GA
HSS4X4X13GA
BKT-10GA-10GAGUS
41-6 N ENDWALL
SK-20
41-6 ENDWALL.r3d
4th Dimension Design
AK
Envelope Only Solution
X
Y
Z

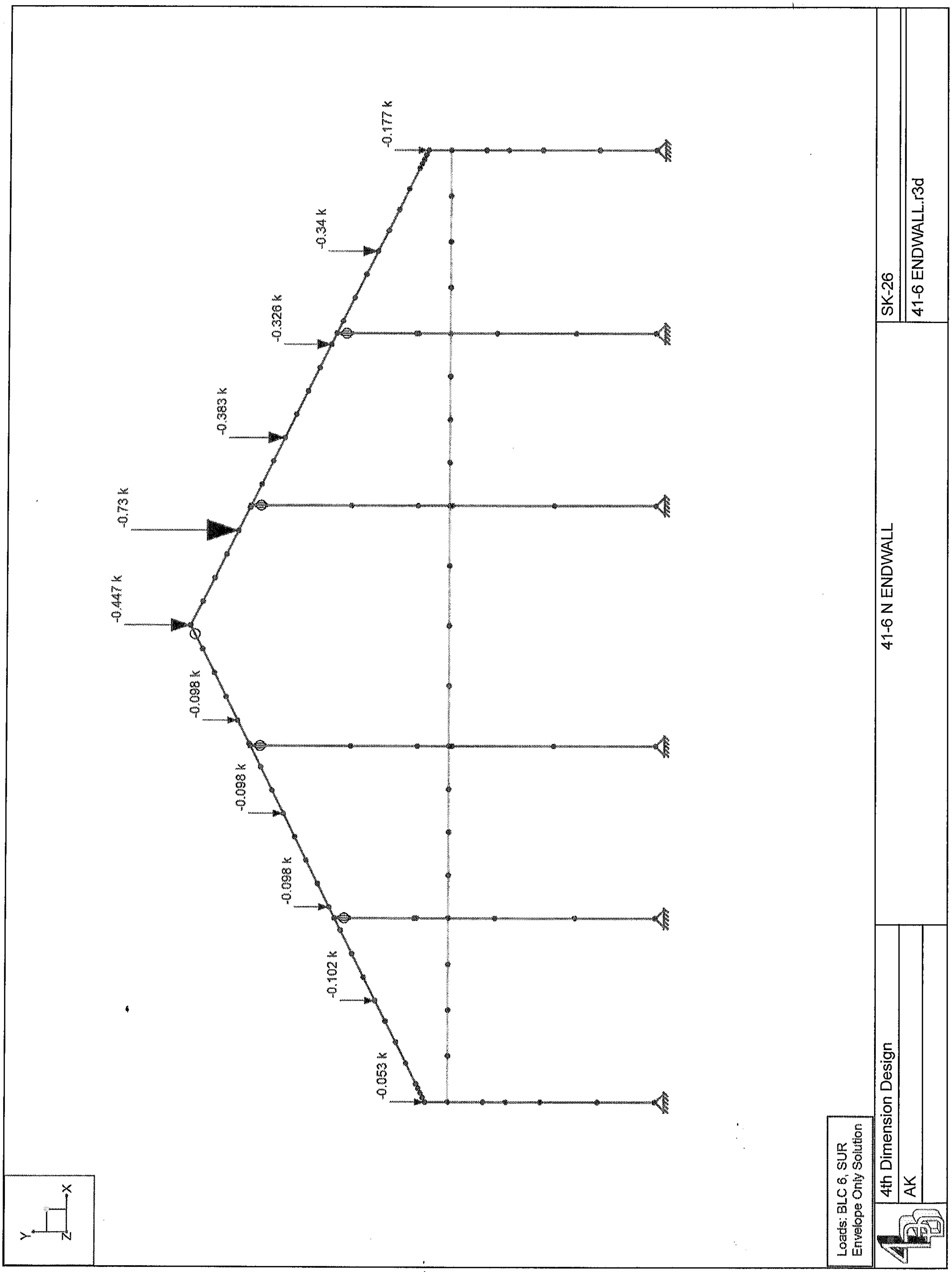

-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
-0.015 k/ft
Y
X
Z
Loads: BLC 1, D
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-21
41-6 ENDWALL.r3d

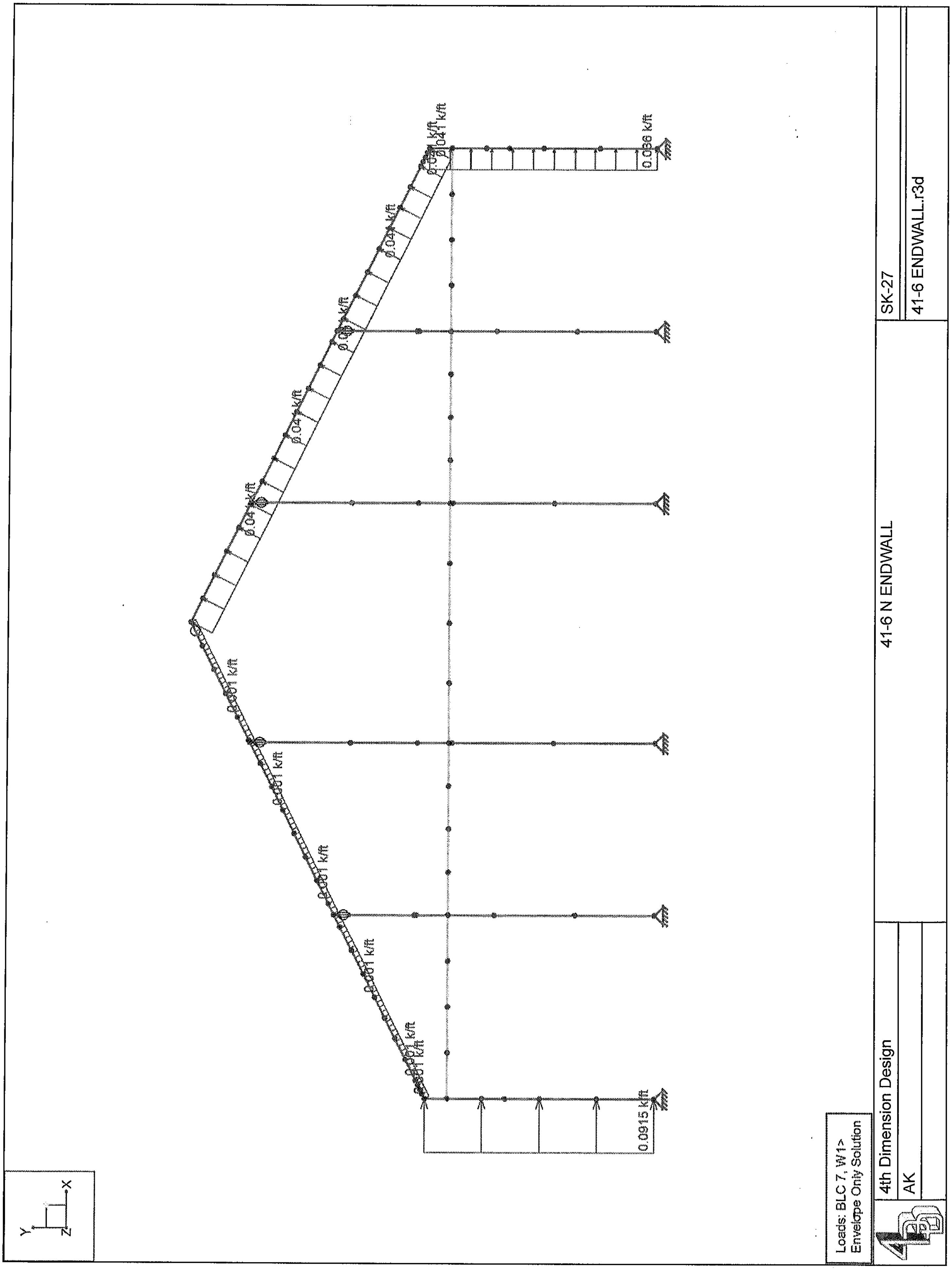

-0.1 k
-0.2 k
-0.225 k
-0.225 k
-0.2 k
-0.1 k
Y
X
Z
Loads: BLC 2, C
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-22
41-6 ENDWALL.r3d

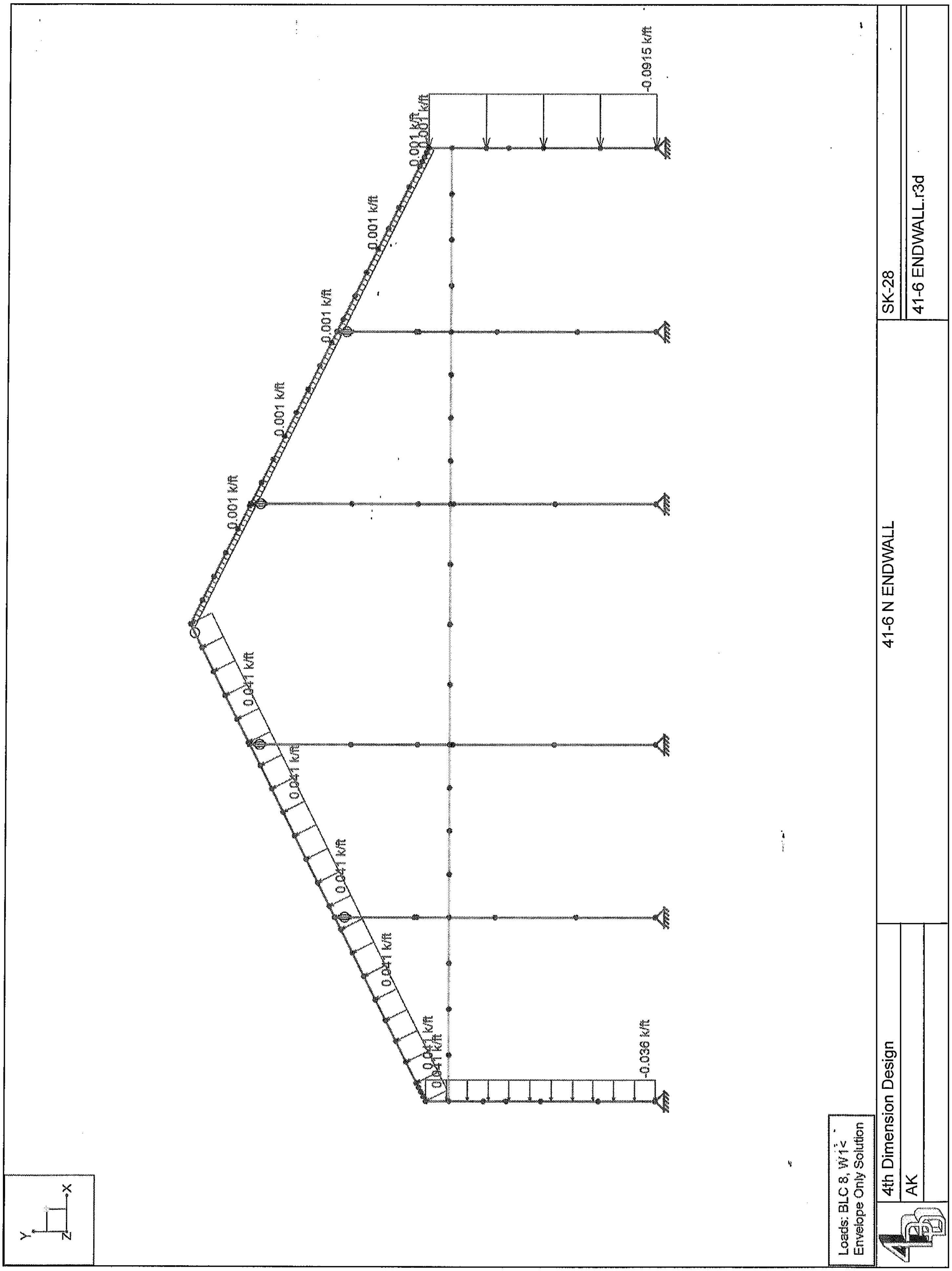

-0.199 k
-0.382 k
-0.367 k
-0.366 k
-0.369 k
-0.374 k
-0.369 k
-0.366 k
-0.367 k
-0.382 k
-0.199 k
Y
X
Z
Loads: BLC 3, Lr
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-23
41-6 ENDWALL.r3d

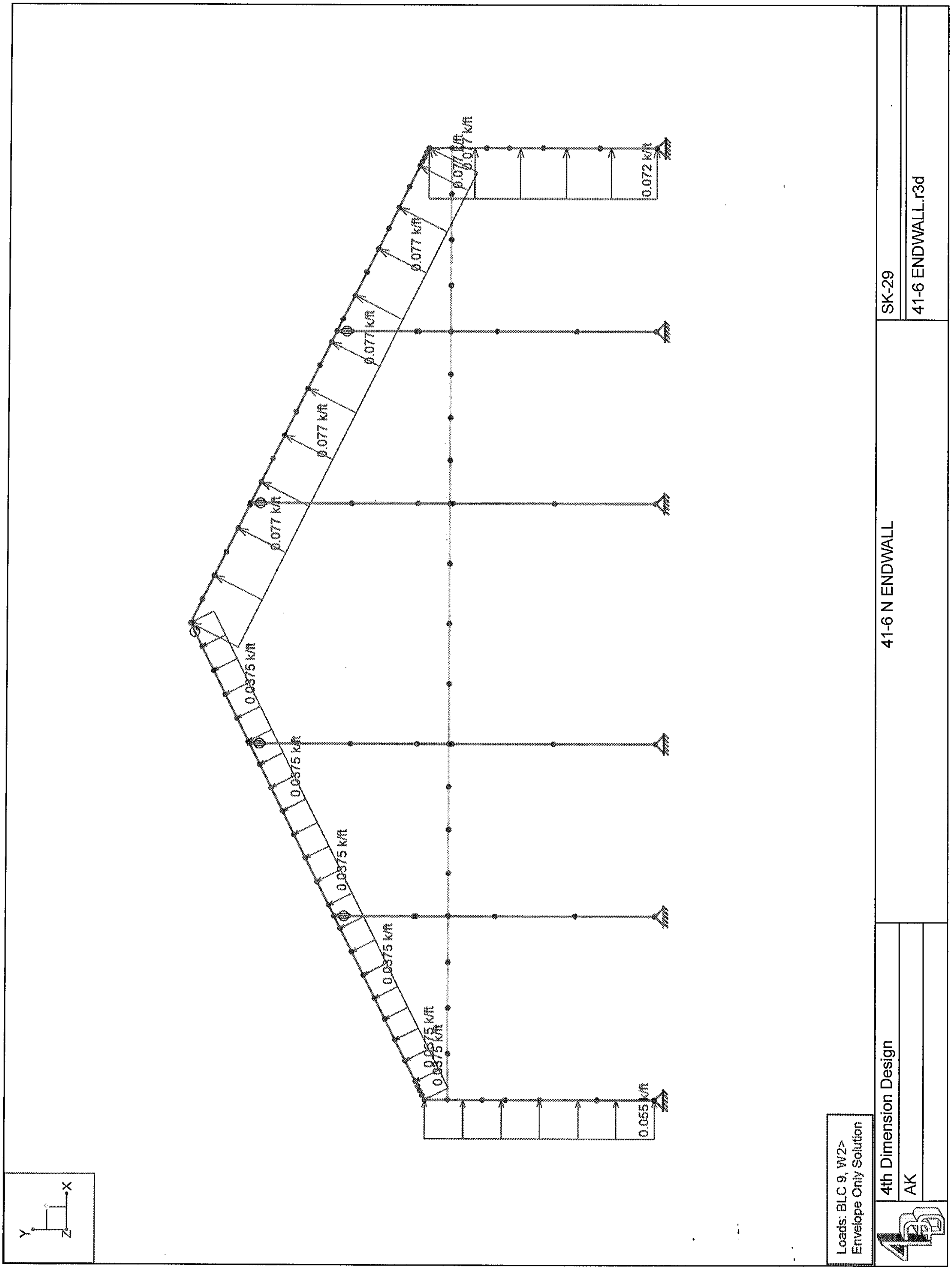

-0.177 k
-0.34 k
-0.326 k
-0.325 k
-0.41 k
-0.332 k
-0.328 k
-0.325 k
-0.326 k
-0.34 k
-0.177 k
Y
X
Z
Loads: BLC 4, S
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-24
41-6 ENDWALL.r3d

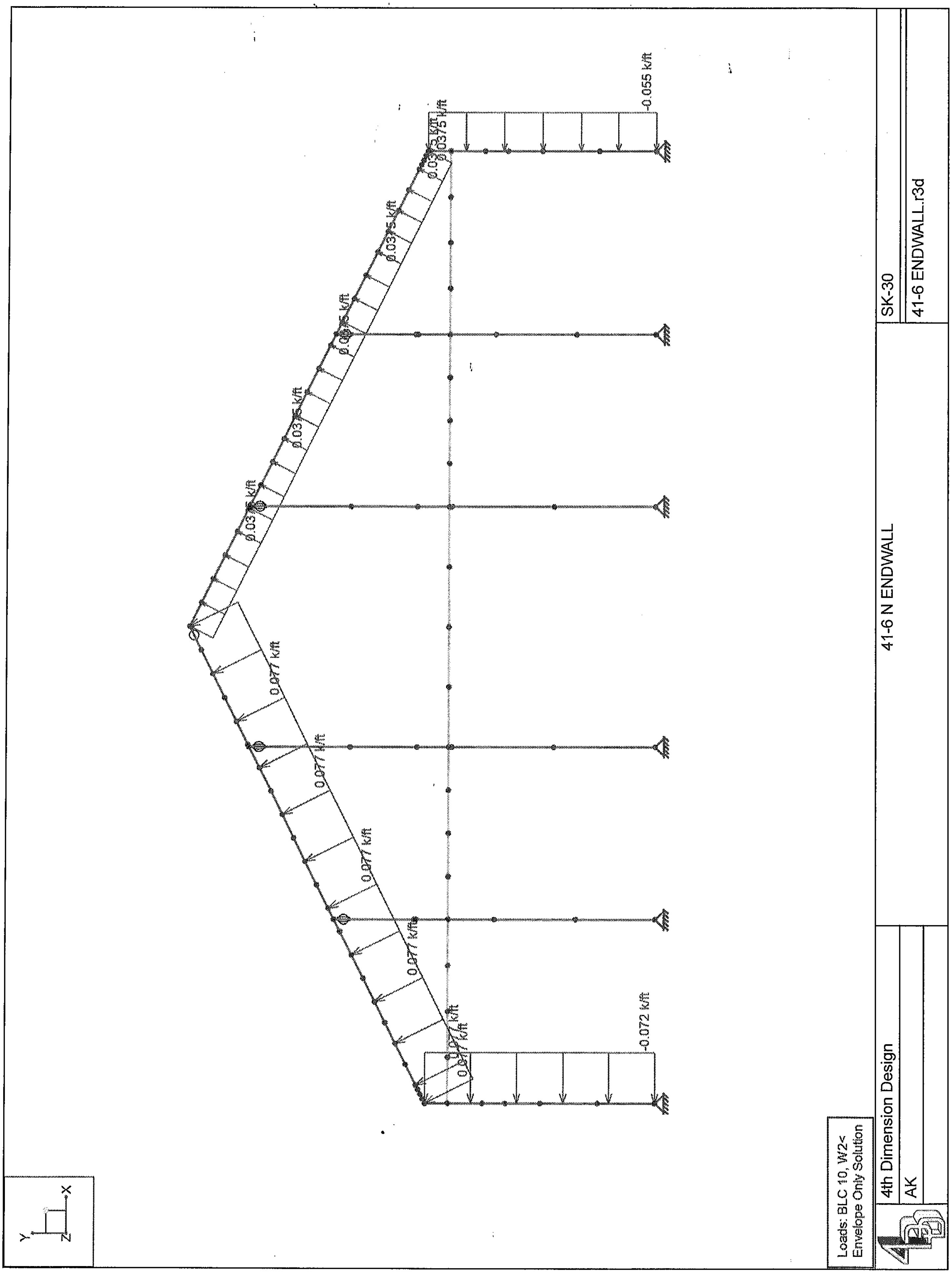

-0.053 k
-0.102 k
-0.098 k
-0.098 k
-0.098 k
-0.447 k
-0.73 k
-0.383 k
-0.326 k
-0.34 k
-0.177 k
Loads: BLC 5, SUL
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-25
41-6 ENDWALL.r3d

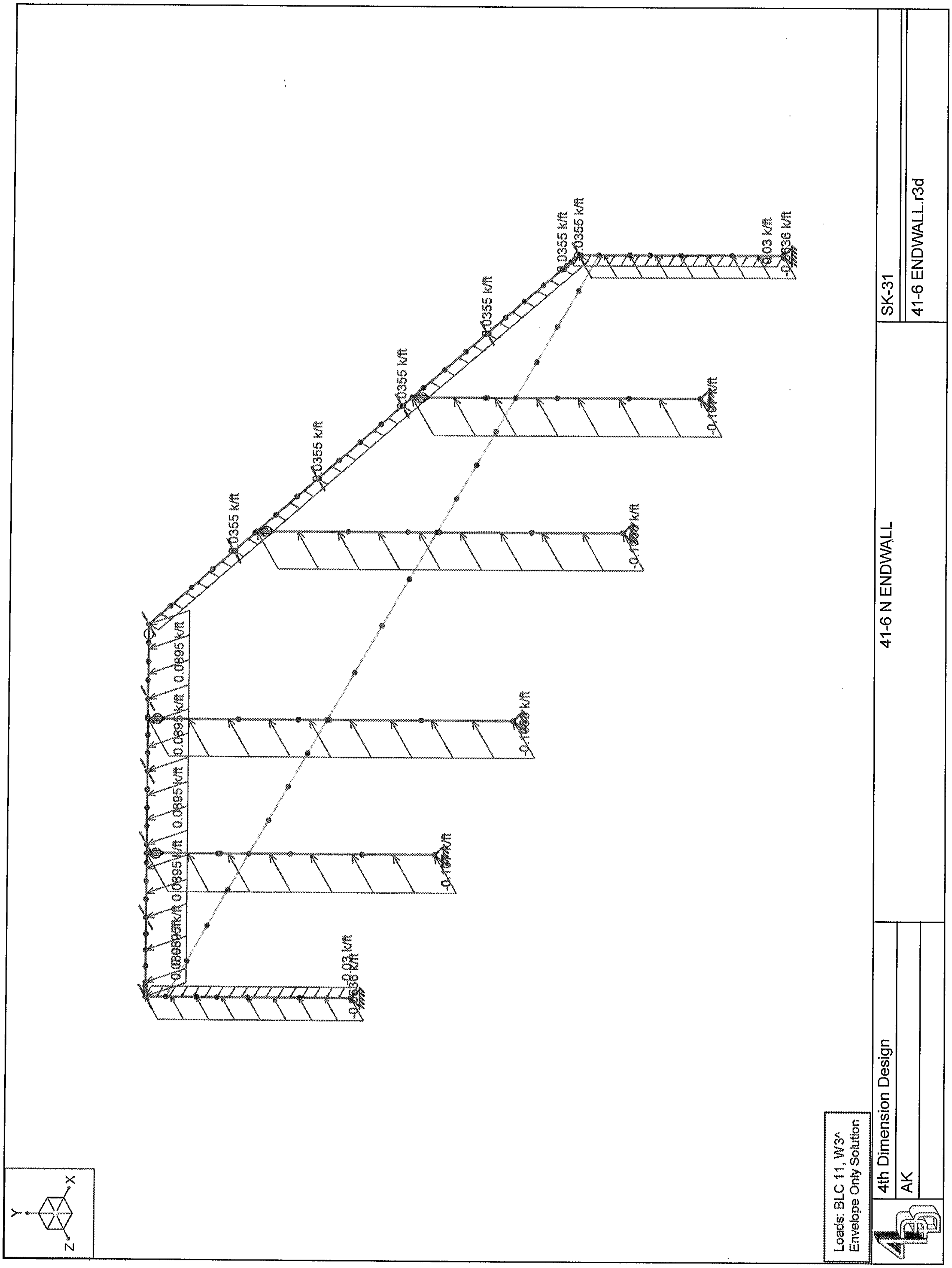

-0.177 k
-0.34 k
-0.326 k
-0.383 k
-0.73 k
-0.447 k
-0.098 k
-0.098 k
-0.098 k
-0.102 k
-0.053 k
Y
X
Z
Loads: BLC 6, SUR
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-26
41-6 ENDWALL.r3d

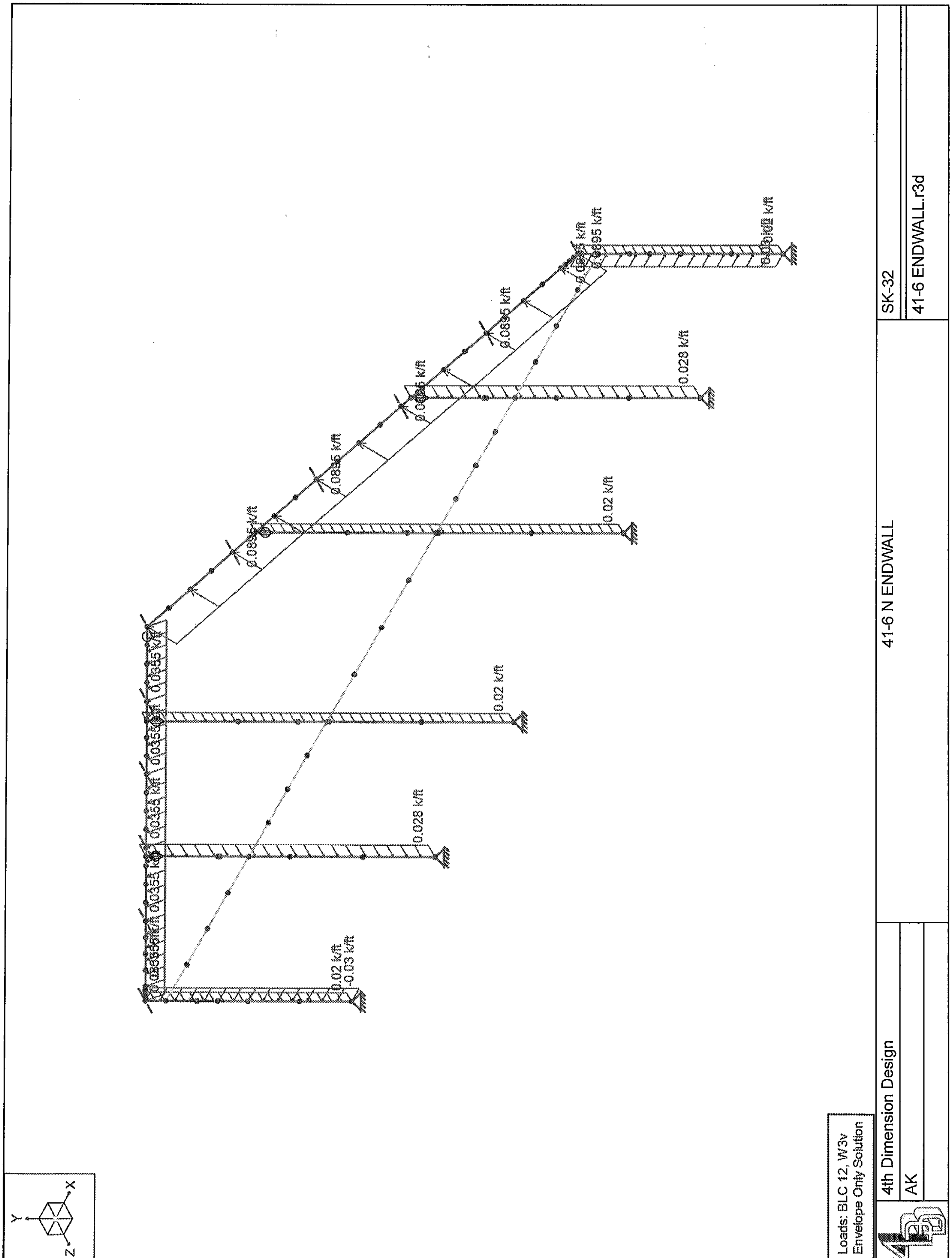

0.036 k/ft
0.0915 k/ft
Loads: BLC 7, W1>
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-27
41-6 ENDWALL.r3d

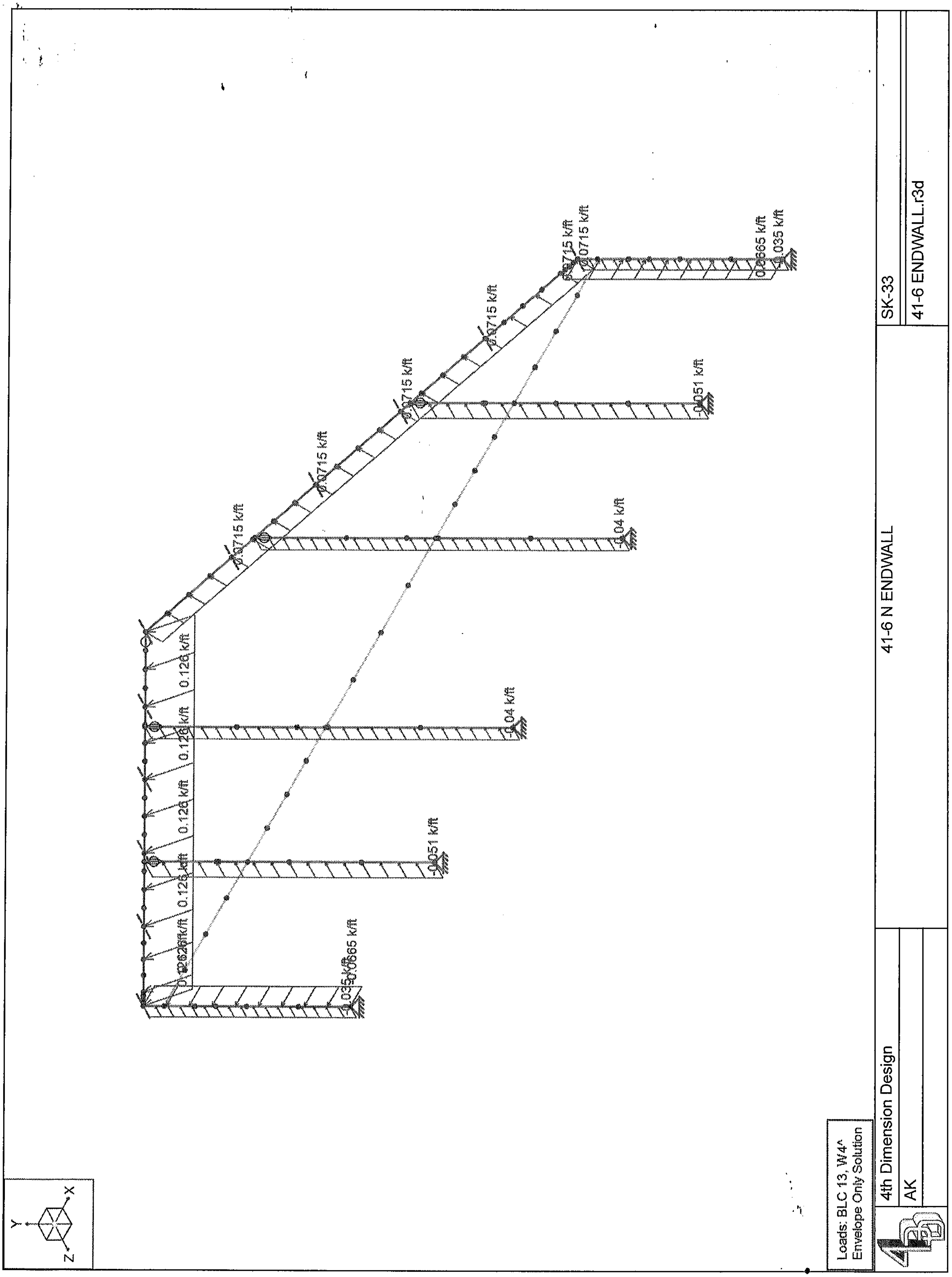

-0.0915 k/ft
0.001 k/ft
0.001 k/ft
0.001 k/ft
0.001 k/ft
0.001 k/ft
0.001 k/ft
0.041 k/ft
0.041 k/ft
0.041 k/ft
0.041 k/ft
0.041 k/ft
0.041 k/ft
-0.036 k/ft
Loads: BLC 8, W1<
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-28
41-6 ENDWALL.r3d


0.072 k/ft
0.077 k/ft
0.0375 k/ft
0.055 k/ft
Loads: BLC 9, W2>
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-29
41-6 ENDWALL.r3d

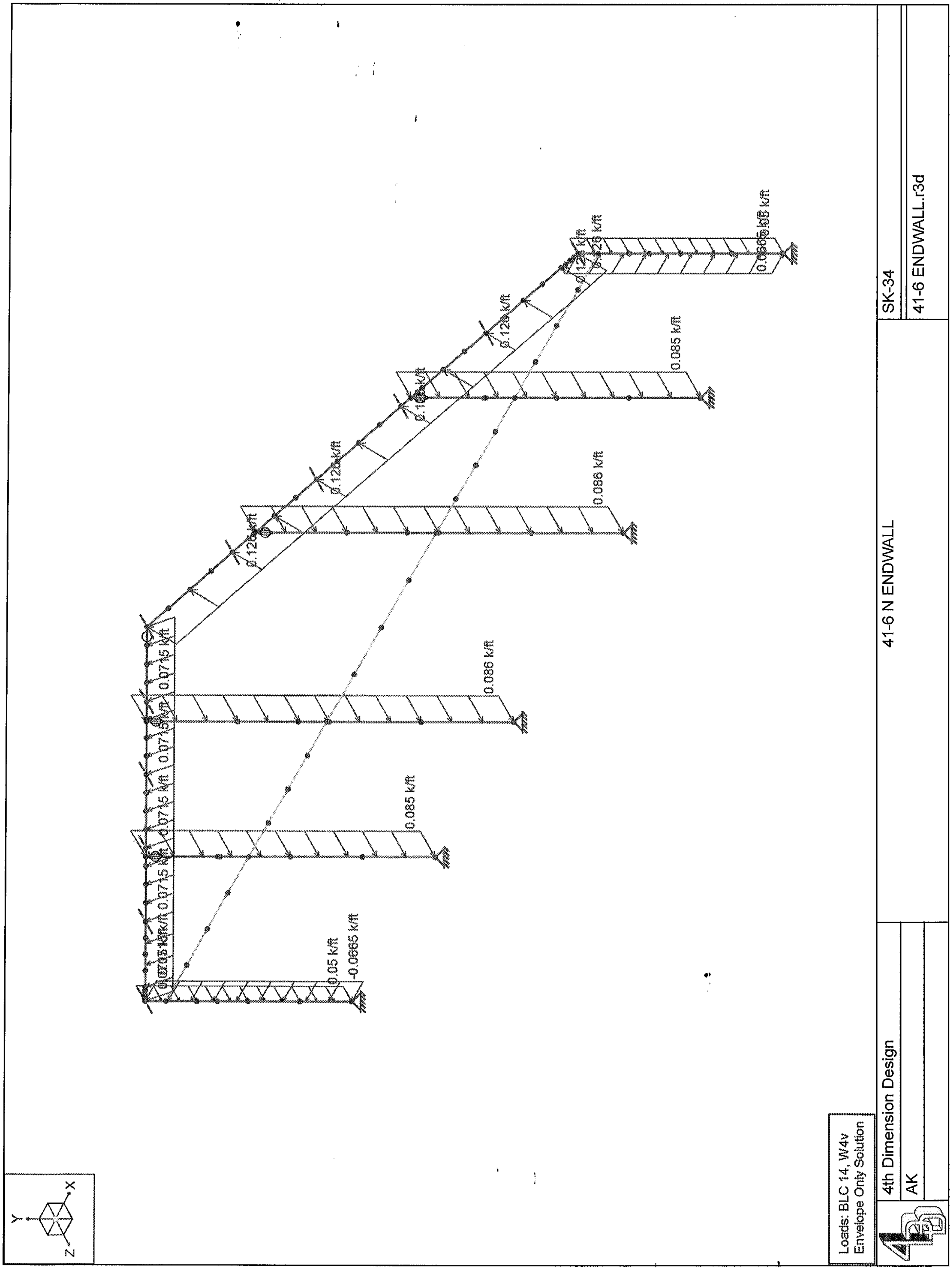

-0.055 k/ft
0.0375 k/ft
0.0375 k/ft
0.0375 k/ft
0.0375 k/ft
0.0375 k/ft
0.077 k/ft
0.077 k/ft
0.077 k/ft
0.077 k/ft
-0.072 k/ft
Loads: BLC 10, W2<
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-30
41-6 ENDWALL.r3d

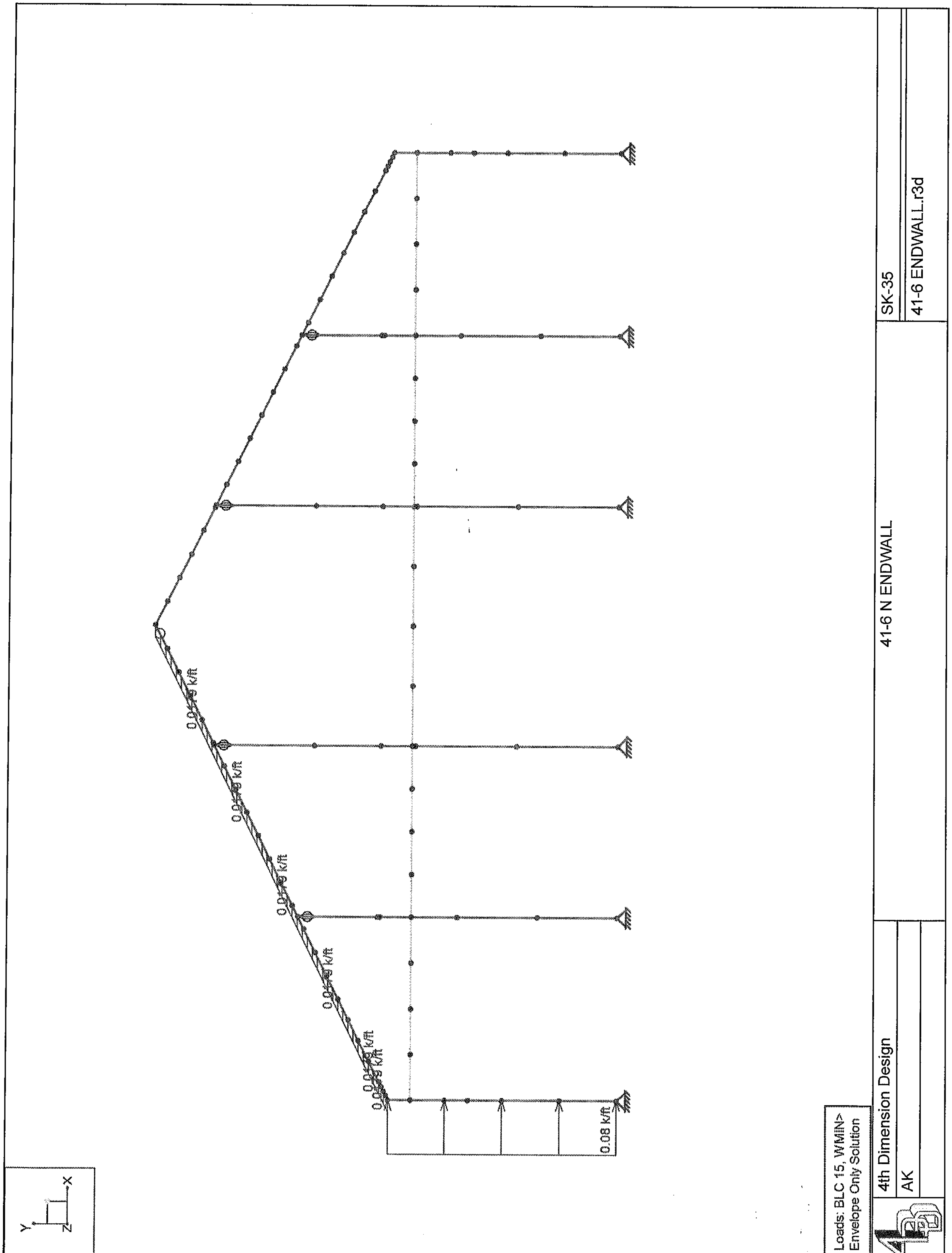

Loads: BLC 11, W3^
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-31
41-6 ENDWALL.r3d
0.0355 k/ft
0.0895 k/ft
0.03 k/ft

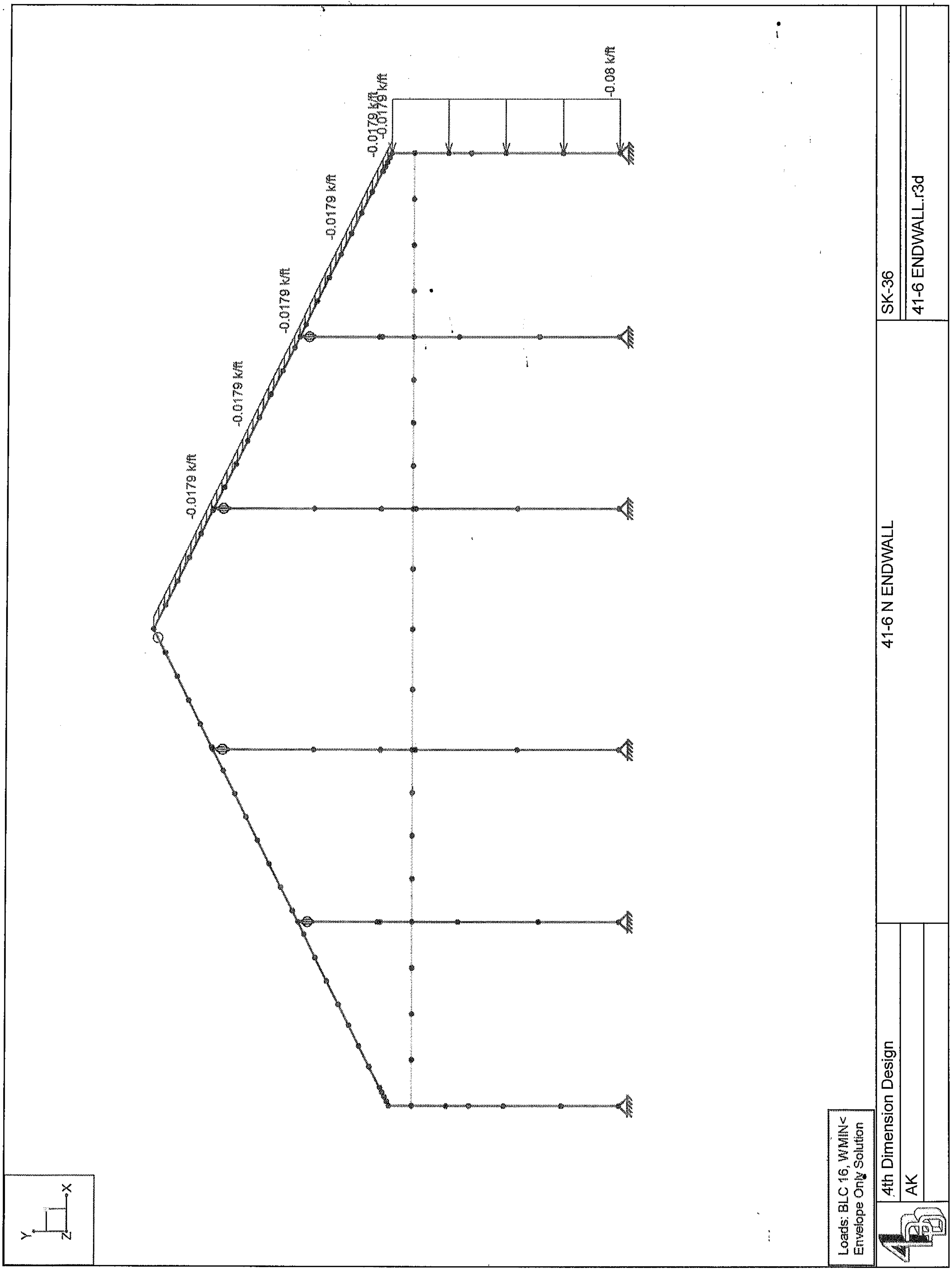

0.02 k/ft
-0.03 k/ft
0.028 k/ft
0.02 k/ft
0.0355 k/ft
0.02 k/ft
0.0895 k/ft
0.0895 k/ft
0.028 k/ft
0.0895 k/ft
Loads: BLC 12, W3v
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-32
41-6 ENDWALL.r3d
X
Y
Z



0.0715 k/ft
0.126 k/ft
-0.051 k/ft
-0.04 k/ft
-0.0665 k/ft
-0.035 k/ft
Loads: BLC 13, W4^
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-33
41-6 ENDWALL.r3d


Loads: BLC 14, W4v
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-34
41-6 ENDWALL.r3d
0.05 k/ft
-0.0665 k/ft
0.085 k/ft
0.086 k/ft
0.086 k/ft
0.085 k/ft
0.0715 k/ft
0.126 k/ft
0.126 k/ft
0.126 k/ft
0.126 k/ft
X
Y
Z


0.08 k/ft
41-6 N ENDWALL
SK-35
41-6 ENDWALL.r3d
4th Dimension Design
AK
Loads: BLC 15, WMIN>
Envelope Only Solution


-0.0179 k/ft
-0.0179 k/ft
-0.0179 k/ft
-0.0179 k/ft
-0.0179 k/ft
-0.0179 k/ft
-0.0179 k/ft
-0.08 k/ft
Loads: BLC 16, WMIN<
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-36
41-6 ENDWALL.r3d
Y
Z
X

Company : 4th Dimension Design
Designer : AK
Job Number :
Model Name : 41-6 N ENDWALL

Checked By : JN

Load Combinations

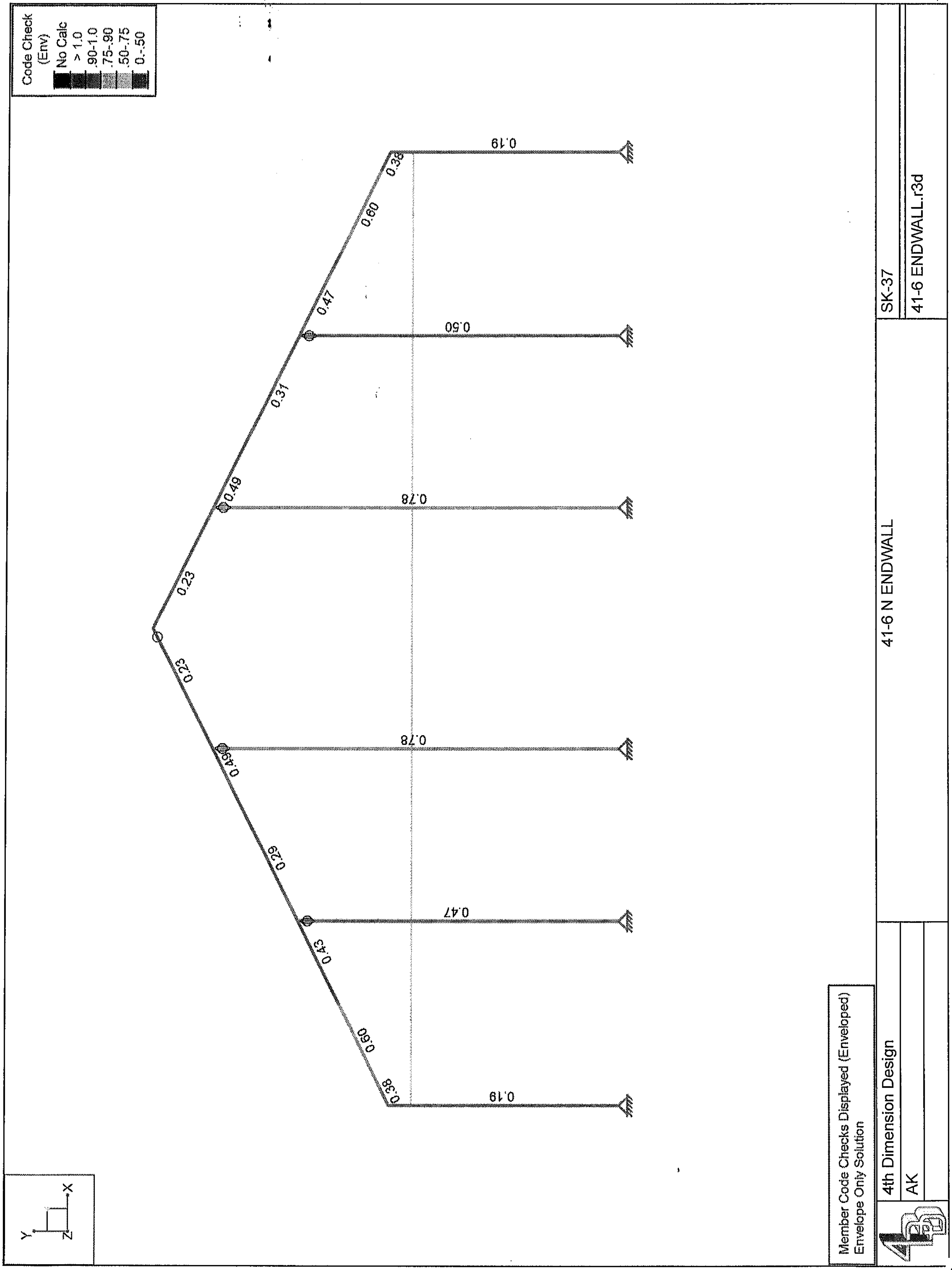
	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	D+C+Lr	Yes	Y	1	1	2	1	3	1		
2	D+C+S	Yes	Y	1	1	2	1	4	1		
3	D+C+SU(L)	Yes	Y	1	1	2	1	5	1		
4	D+C+SUR	Yes	Y	1	1	2	1	6	1		
5	D+C+0.6W1>	Yes	Y	1	1	2	1	7	0.6		
6	D+C+0.6W1<	Yes	Y	1	1	2	1	8	0.6		
7	D+C+0.6W2>	Yes	Y	1	1	2	1	9	0.6		
8	D+C+0.6W2<	Yes	Y	1	1	2	1	10	0.6		
9	D+C+0.6W3^	Yes	Y	1	1	2	1	11	0.6		
10	D+C+0.6W3v	Yes	Y	1	1	2	1	12	0.6		
11	D+C+0.6W4^	Yes	Y	1	1	2	1	13	0.6		
12	D+C+0.6W4v	Yes	Y	1	1	2	1	14	0.6		
13	D+C+0.6WMIN>	Yes	Y	1	1	2	1	15	0.6		
14	D+C+0.6WMIN<	Yes	Y	1	1	2	1	16	0.6		
15	D+C+0.6WMIN^	Yes	Y	1	1	2	1	17	0.6		
16	D+C+.75Lr+.45W1>	Yes	Y	1	1	2	1	3	0.75	7	0.45
17	D+C+.75Lr+.45W1<	Yes	Y	1	1	2	1	3	0.75	8	0.45
18	D+C+.75Lr+.45W2>	Yes	Y	1	1	2	1	3	0.75	9	0.45
19	D+C+.75Lr+.45W2<	Yes	Y	1	1	2	1	3	0.75	10	0.45
20	D+C+.75Lr+.45W3^	Yes	Y	1	1	2	1	3	0.75	11	0.45
21	D+C+.75Lr+.45W3v	Yes	Y	1	1	2	1	3	0.75	12	0.45
22	D+C+.75Lr+.45W4^	Yes	Y	1	1	2	1	3	0.75	13	0.45
23	D+C+.75Lr+.45W4v	Yes	Y	1	1	2	1	3	0.75	14	0.45
24	D+C+.75Lr+.45WMIN>	Yes	Y	1	1	2	1	3	0.75	15	0.45
25	D+C+.75Lr+.45WMIN<	Yes	Y	1	1	2	1	3	0.75	16	0.45
26	D+C+.75Lr+.45WMIN^	Yes	Y	1	1	2	1	3	0.75	17	0.45
27	D+C+.75S+.45W1>	Yes	Y	1	1	2	1	4	0.75	7	0.45
28	D+C+.75S+.45W1<	Yes	Y	1	1	2	1	4	0.75	8	0.45
29	D+C+.75S+.45W2>	Yes	Y	1	1	2	1	4	0.75	9	0.45
30	D+C+.75S+.45W2<	Yes	Y	1	1	2	1	4	0.75	10	0.45
31	D+C+.75S+.45W3^	Yes	Y	1	1	2	1	4	0.75	11	0.45
32	D+C+.75S+.45W3v	Yes	Y	1	1	2	1	4	0.75	12	0.45
33	D+C+.75S+.45W4^	Yes	Y	1	1	2	1	4	0.75	13	0.45
34	D+C+.75S+.45W4v	Yes	Y	1	1	2	1	4	0.75	14	0.45
35	D+C+.75S+.45WMIN>	Yes	Y	1	1	2	1	4	0.75	15	0.45
36	D+C+.75S+.45WMIN<	Yes	Y	1	1	2	1	4	0.75	16	0.45
37	D+C+.75S+.45WMIN^	Yes	Y	1	1	2	1	4	0.75	17	0.45
38	0.6D+0.3C+0.6W1>	Yes	Y	1	0.6	2	0.3	7	0.6		
39	0.6D+0.3C+0.6W1<	Yes	Y	1	0.6	2	0.3	8	0.6		
40	0.6D+0.3C+0.6W2>	Yes	Y	1	0.6	2	0.3	9	0.6		

Company : 4th Dimension Design
Designer : AK
Job Number :
Model Name : 41-6 N ENDWALL

Checked By : JN

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
41	0.6D+0.3C+0.6W2<	Yes	Y	1	0.6	2	0.3	10	0.6		
42	0.6D+0.3C+0.6W3^	Yes	Y	1	0.6	2	0.3	11	0.6		
43	0.6D+0.3C+0.6W3v	Yes	Y	1	0.6	2	0.3	12	0.6		
44	0.6D+0.3C+0.6W4^	Yes	Y	1	0.6	2	0.3	13	0.6		
45	0.6D+0.3C+0.6W4v	Yes	Y	1	0.6	2	0.3	14	0.6		
46	0.6D+0.3C+0.6WMIN>	Yes	Y	1	0.6	2	0.3	15	0.6		
47	0.6D+0.3C+0.6WMIN<	Yes	Y	1	0.6	2	0.3	16	0.6		
48	0.6D+0.3C+0.6WMIN^	Yes	Y	1	0.6	2	0.3	17	0.6		


Code Check
(Env)
No Calc
> 1.0
.90-1.0
.75-.90
.50-.75
0.-.50
0.19
0.38
0.60
0.47
0.50
0.31
0.49
0.78
0.23
0.23
0.49
0.78
0.29
0.47
0.43
0.60
0.38
0.19
Y
Z
X
Member Code Checks Displayed (Enveloped)
Envelope Only Solution
4th Dimension Design
AK
41-6 N ENDWALL
SK-37
41-6 ENDWALL.r3d

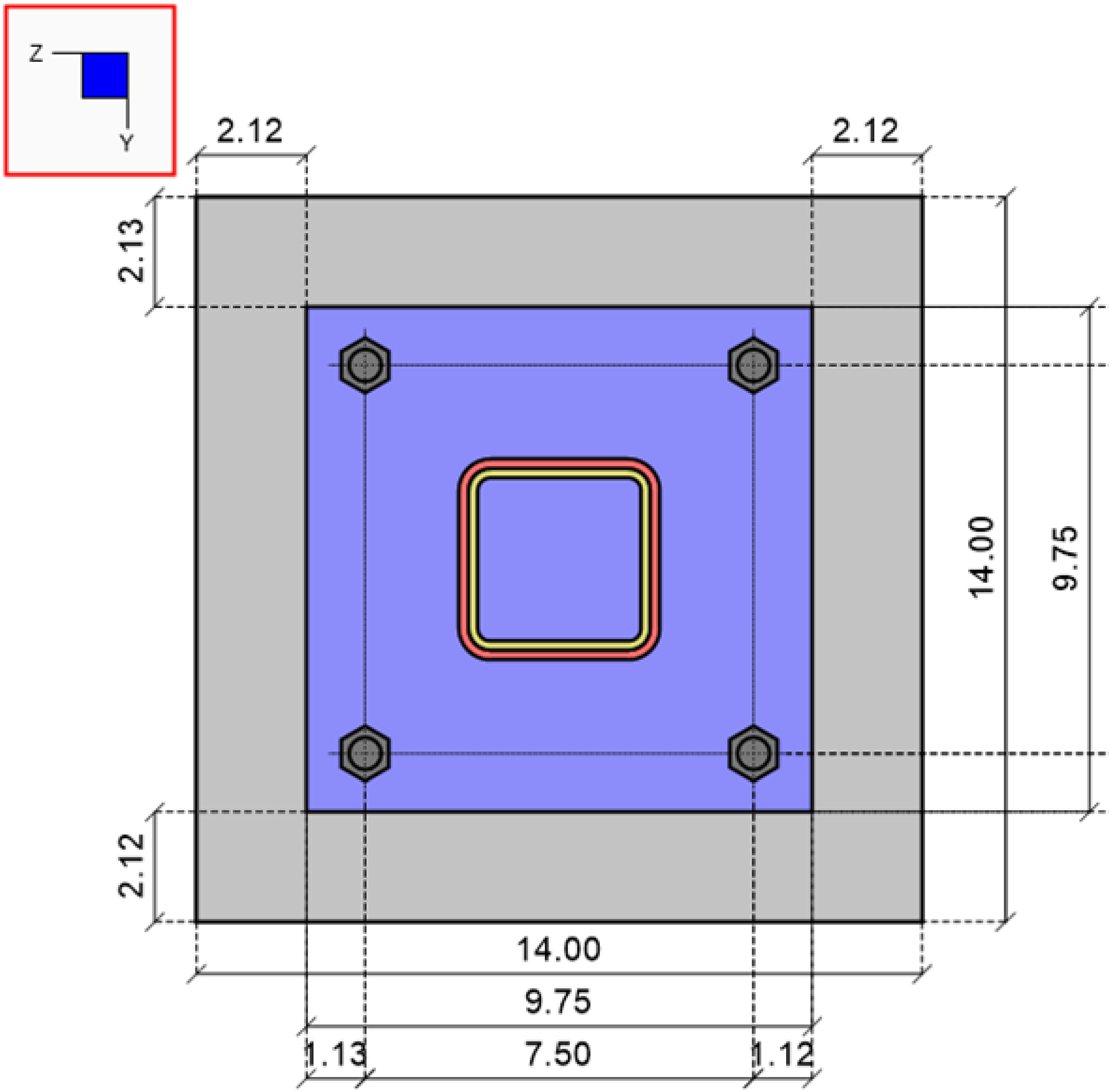
Envelope AISC 14th (360-10): ASD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
1	M29	BKT-10GA-10GAGUS	0.384	0	17	0.023	0	y	25	21.535	34.461	0.344	3.463	1.068	H1-1b
2	M16	HAT4X16GA	0.596	0	17	0.035	0	y	25	14.518	21.347	1.213	1.861	1.588	H1-1b
3	M5	HAT4X16GA	0.425	4.002	44	0.107	4.554	z	15	14.105	21.347	1.213	1.861	2.143	H1-1b
4	M18	HAT4X16GA	0.293	0	44	0.038	0	y	44	14.105	21.347	1.213	1.861	2.693	H1-1b
5	M1	HAT4X16GA	0.494	3.295	26	0.135	4.53	z	15	14.124	21.347	1.213	1.861	1.66	H1-1b
6	M2	HAT4X16GA	0.228	0	15	0.02	4.635	y	44	14.036	21.347	1.213	1.861	1.199	H1-1b
7	M24	BKT-10GA-10GAGUS	0.384	0	16	0.023	0	y	24	21.535	34.461	0.344	3.463	1.068	H1-1b
8	M15	HAT4X16GA	0.596	0	16	0.035	0	y	24	14.518	21.347	1.213	1.861	1.588	H1-1b
9	M32	HAT4X16GA	0.467	4.002	45	0.107	4.554	z	15	14.105	21.347	1.213	1.861	2.143	H1-1b
10	M31	HAT4X16GA	0.308	0	45	0.038	0	y	45	14.105	21.347	1.213	1.861	2.693	H1-1b
11	M30	HAT4X16GA	0.494	3.295	26	0.135	4.53	z	15	14.124	21.347	1.213	1.861	1.66	H1-1b
12	M6	HAT4X16GA	0.228	0	15	0.02	4.635	y	45	14.036	21.347	1.213	1.861	1.199	H1-1b
13	M8	HSS4X4X11-GA	0.187	10	17	0.052	9.091	y	19	40.46	66.913	7.085	7.085	2.42	H1-1b
14	M33	HSS4X4X11-GA	0.187	10	16	0.052	9.091	y	18	40.46	66.913	7.085	7.085	2.42	H1-1b
15	M25	HSS4X4X13GA	0.502	8.202	9	0.038	0	z	15	18.087	49.089	4.602	4.602	1.399	H1-1b
16	M26	HSS4X4X13GA	0.777	8.785	15	0.056	0	z	15	11.556	49.089	4.602	4.602	1.326	H1-1b
17	M27	HSS4X4X13GA	0.777	8.785	15	0.056	0	z	15	11.556	49.089	4.602	4.602	1.326	H1-1b
18	M28	HSS4X4X13GA	0.47	8.343	9	0.038	0	z	15	18.087	49.089	4.602	4.602	1.41	H1-1b

MAX GRAVITY: 2D Views Report

Single Column Base Plate Connection

Top view



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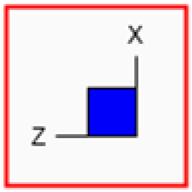
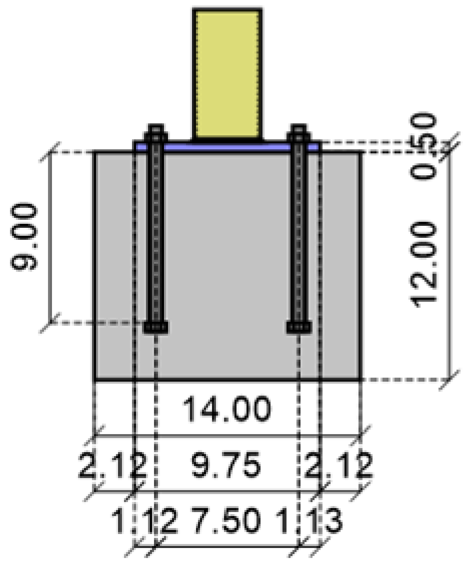
MAX GRAVITY: 2D Views Report (continued):

Side view





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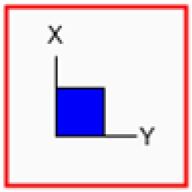
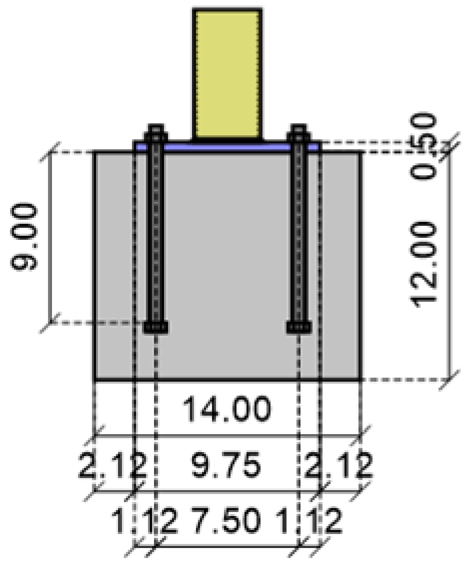
MAX GRAVITY: 2D Views Report (continued):

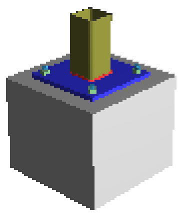
Left view





MAX GRAVITY: Summary Report

Single Column Base Plate Connection



Material Properties:				
Column	HSS3.5X3.5X3	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Base Plate	P0.50x9.75x9.75	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

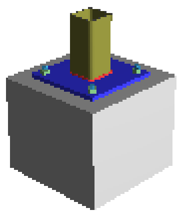
Input Data:		
Axial	5.60 kips	*Axial load on the column*
Strong Axis Shear	1.00 kips	*Shear load on the column that causes strong axis bending*
Weak Axis Shear	1.60 kips	*Shear load on the column that causes weak axis bending*
Strong Axis Moment	0.00 kips-ft	*Column moment about the strong axis*
Weak Axis Moment	0.00 kips-ft	*Column moment about the weak axis*

Connection	Required	Max Unity Check	Result
Column/Base Plate connection	Anchor Bolt Shear	**0.24**	**PASS**

ASD

MAX GRAVITY: Base Plate Report

Single Column Base Plate Connection



Material Properties:				
Column	HSS3.5X3.5X3	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Base Plate	P0.50x9.75x9.75	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Axial	5.60 kips	*Axial load on the column*
Strong Axis Shear	1.00 kips	*Shear load on the column that causes strong axis bending*
Weak Axis Shear	1.60 kips	*Shear load on the column that causes weak axis bending*
Strong Axis Moment	0.00 kips-ft	*Column moment about the strong axis*
Weak Axis Moment	0.00 kips-ft	*Column moment about the weak axis*

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
Geometry Restrictions				**PASS**
Check Min Bolt Spacing	Pass	*Condition: S_{min} >= $(2+2/3)d_{bolt}$ (J3.3)*		
S_{min}	7.50 in	*Min bolt spacing*		
d_{bolt}	0.62 in	*Anchor bolt diameter*		
Check Min Edge Distance	Pass	*Condition: $\min(e_z, e_y) >= ED_{allow}$ (J3.4)*		
e_y	1.12 in	*Min edge distance y*		
e_z	1.12 in	*Min edge distance z*		
ED_{allow}	0.88 in	*Minimum allowed edge distance*		
Check Max Edge Distance	Pass	*Condition: Condition: $\max(d_z, d_y) <= \min(6.00 in, 12*t)$ (J3.5)*		
d_y	1.12 in	*Max edge distance y*		
d_z	1.12 in	*Max edge distance z*		
ED_{allow}	6.00 in	*Maximum allowed edge distance*		
t	0.50 in	*Thickness of base plate*		
Check Anchor Bolt Encroachment on Column	Pass			
Concrete Bearing	0.06 ksi	1.59 ksi	**0.04**	**PASS**
$R_n = 0.85 * f'_c * \alpha$		**Ω = 2.31**	(ACI 318-19 (22) Table 22.8.3.2)	
f'_c	3.00 ksi	*Concrete compressive strength*		
P_u	5.60 kips	*Axial load on the column*		
N	9.75 in	*Plate length*		
B	9.75 in	*Plate width*		
A_1	95.06 in^2	*Plate area = B*N*		
L	14.00 in	*Concrete support length*		
W	14.00 in	*Concrete support width*		
L'	14.00 in	*Effective concrete support length*		
W'	14.00 in	*Effective concrete support width*		
A_2	196.00 in^2	*Effective concrete support area = L' * W'*		
α	1.44	*Bearing stress increase factor = $\min(2, (A_2 / A_1)^{0.5})$*		
R_n / Ω	1.59 ksi	*Allowable bearing stress*		

continued on next page...

MAX GRAVITY: Base Plate Report (continued):

Limit State	Required	Available	Unity Check	Result
f_p	0.06 ksi	*Required bearing stress = P_u / A_1*		
Plate Flexural Yielding(Compression)	0.03 kips-ft/in	0.11 kips-ft/in	**0.23**	**PASS**
$M_n = F_y * t_p^2 / 4$		**Ω = 1.67**	(AISC DG1 (3.3.13))	
F_y	36.00 ksi	*Minimum yield strength of base plate*		
t_p	0.50 in	*Thickness of base plate*		
M_n/Ω	0.11 kips-ft/in	*Base plate bending capacity per unit width*		
N	9.75 in	*Base plate length*		
B	9.75 in	*Base plate width*		
d	3.50 in	*Column depth*		
b	3.50 in	*Column width*		
m	3.21 in	*m = (N - 0.95*d)/2 (per AISC DG1, sect. 3.1.3)*		
n	3.21 in	*n = (B - 0.95*b)/2 (per AISC DG1, sect. 3.1.3)*		
l	3.21 in	*Critical cantilever dimension l = MAX(m, n)*		
f_p	0.06 ksi	*Required bearing stress (see 'Concrete Bearing' check)*		
M_{pl}	0.03 kips-ft/in	*Required bending moment per unit width, $M_{pl}=f_p * l^2 / 2$ (per AISC DG1, sect. 3.1.2)*		
Anchor Bolt Shear	1.89 kips	8.01 kips	**0.24**	**PASS**
$R_n = F_{nv} * A_b * N_{bolt}$		**Ω = 2.00**	(J3-1)	
V_{uy}	1.00 kips	*Strong axis shear*		
V_{uz}	1.60 kips	*Weak axis shear*		
$V_u = (V_{uy}^2 + V_{uz}^2)^{0.5}$	1.89 kips	*Resultant shear force*		
F_{nv}	26.10 ksi	*Shear stress N type*		
A_b	0.31 in^2	*Area of bolt*		
N_{bolt}	2	*Number of bolts (per AISC DG1, Section 3.5.3)*		
R_n/Ω	8.01 kips	*Bolt shear rupture strength*		
Anchor Bolt Bearing on Base Plate	1.89 kips	8.01 kips	**0.24**	**PASS**
$R_n = N_{bolt} * \min(1.2*L_c*t_p*F_u, 2.4*d_b*t_p*F_u, R_{n\text{-}bolt})$		**Ω = 2.00**	(J3-6a)	
V_u	1.89 kips	*Resultant shear force, see 'Anchor Bolt Shear' check*		
N_{bolt}	2	*Number of bolts (per AISC DG1, Section 3.5.3)*		
Θ	32.01 degrees	*Angle between the resultant shear force and z-axis*		
e_y	1.12 in	*Edge distance y*		
e_z	1.12 in	*Edge distance z*		
d_c	0.34 in	*Distance from center of bolt to the edge of hole*		
L_c	0.98 in	*Minimum clear distance for the weakest bolt, $L_c = \min(e_y / \lvert\sin(\Theta)\rvert, e_z / \lvert\cos(\Theta)\rvert) - d_c$*		
t_p	0.50 in	*Thickness of base plate*		
d_b	0.62 in	*Bolt diameter*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
$R_{n\text{-}bolt}$	8.01 kips	*Bolt shear strength, $R_{n\text{-}bolt}=F_{nv}*A_{bolt}$*		
F_{nv}	26.10 ksi	*Nominal shear stress of bolt*		
A_{bolt}	0.31 in^2	*Area of bolt*		
Rn/Ω	8.01 kips	*Bolt bearing strength*		
Column Weld Limitations				**PASS**
Weld Min Size			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.19 in	*Weld size*		
D_{min}	0.12 in	*Min size allowed per Table J2.4*		

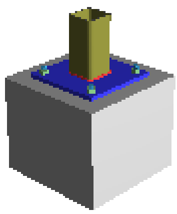
continued on next page...

MAX GRAVITY: Base Plate Report (continued):

Limit State	Required	Available	Unity Check	Result
t_{min}	0.17 in	*Controlling member thickness*		
Column Flange Weld Strength	0.29 kips/in	2.78 kips/in	**0.10**	**PASS**
$Rn/\Omega = C_1 * \alpha * 0.928 * D_{16}$				
Single Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 14th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 14th table 8-3)*		
t	0.17 in	*Base material thickness (column)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 14th Eqn 9-2)*		
D_{16}	3.00	*Weld fillet size in sixteenths of an inch*		
r_u	0.29 kips/in	*Required strength of the weld for in-plane force*		
r_0	-0.00 kips/in	*Required strength of the weld for out-of-plane force (tensile)*		
r_{3d}	0.29 kips/in	*Resultant force $r_{3d} = (r_u^2 + r_0^2)^{0.5}$*		
Rn/Ω	2.78 kips/in	*Weld strength*		
Column Web Weld Strength	0.18 kips/in	2.78 kips/in	**0.06**	**PASS**
$Rn/\Omega = C_1 * \alpha * 0.928 * D_{16}$				
Single Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 14th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 14th table 8-3)*		
t	0.17 in	*Base material thickness (column)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 14th Eqn 9-2)*		
D_{16}	3.00	*Weld fillet size in sixteenths of an inch*		
r_u	0.18 kips/in	*Required strength of the weld for in-plane force*		
r_0	-0.00 kips/in	*Required strength of the weld for out-of-plane force (tensile)*		
r_{3d}	0.18 kips/in	*Resultant force $r_{3d} = (r_u^2 + r_0^2)^{0.5}$*		
Rn/Ω	2.78 kips/in	*Weld strength*		

MAX GRAVITY: Anchorage Design Report

Single Column Base Plate Connection



Material Properties:				
Column	HSS3.5X3.5X3	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Base Plate	P0.50x9.75x9.75	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Axial	5.60 kips	*Axial load on the column*
Strong Axis Shear	1.00 kips	*Shear load on the column that causes strong axis bending*
Weak Axis Shear	1.60 kips	*Shear load on the column that causes weak axis bending*
Strong Axis Moment	0.00 kips-ft	*Column moment about the strong axis*
Weak Axis Moment	0.00 kips-ft	*Column moment about the weak axis*

Note: Unless specified, all code references are from ACI 318-19 (22)

Limit State	Required	Available	Unity Check	Result
Anchorage design is toggled off in the Connection Properties.				**No Calc**

MAX GRAVITY: Members Report

Single Column Base Plate Connection

Column	***HSS3.5X3.5X3***	
Material		
Name	A500 Gr.B Rect	*Material name*
F_y	46.00 ksi	*Minimum yield stress of material*
F_u	58.00 ksi	*Minimum tensile stress of material*
E	29000.00 ksi	*Modulus of elasticity*
Member Properties		
d	3.50 in	*Depth*
b	3.50 in	*Width*
a	2.24 in^2	*Area*
t_{des}	0.17 in	*Wall Thickness*
Base Plate	***P0.50x9.75x9.75***	
Material		
Name	A36	*Material name*
F_y	36.00 ksi	*Minimum yield stress of material*
F_u	58.00 ksi	*Minimum tensile stress of material*
E	29000.00 ksi	*Modulus of elasticity*
Member Properties		
L	9.75 in	*Length*
W	9.75 in	*Width*
t	0.50 in	*Thickness*
μ	0.55	*Static Friction Coefficient*
Hole		
Hole type	Standard	
D_x	0.69 in	*Hole width*
D_y	0.69 in	*Hole height*
R	2	*Number of rows of holes*
C	2	*Number of holes per row*
R_s	7.50 in	*Row Spacing*
C_s	7.50 in	*Column Spacing*
Concrete Support	***C14.00x14.00x12.00***	

MAX GRAVITY: Connection Properties Report

Single Column Base Plate Connection

Connection	
Connection Title	MAX GRAVITY
Connection Type	Single Column Base Plate Connection
Anchorage	
Anchorage Type	Cast-in-place
Perform Anchorage Calc	No
Connection Category	
Bolt Layout	Four
Plate Washers	No
Loading (ASD)	
Axial	5.60 kips
Strong Axis Shear	1.00 kips
Weak Axis Shear	1.60 kips
Strong Axis Moment	0.00 kips-ft
Weak Axis Moment	0.00 kips-ft
Components	
Column Section	HSS3.5X3.5X3
Material	A500 Gr.B Rect
Fy	46.00 ksi
Fu	58.00 ksi
E	29000.00 ksi
Lib	aiscdb32
A	2.24 in^2
D	3.50 in
B	3.50 in
Tdes	0.17 in
Base Plate	P0.50x9.75x9.75
Material	A36
Fy	36.00 ksi
Fu	58.00 ksi
E	29000.00 ksi
Length	9.75 in
Width	9.75 in
Thickness	0.50 in
Static Friction Coefficient	0.55 Coeff
Hole Type	STD
Concrete Support	C14.00x14.00x12.00
Length	14.00 in
Width	14.00 in
Thickness	12.00 in
Compressive Strength (f'c)	3.00 ksi
Concrete Weight	Normal Weight
Cracked Concrete	Yes
Edge Reinforcement	None or < no. 4 bar
Anchor Bolts	5/8" F1554 Gr.36-N
Material	F1554 Gr.36-N
Head Type	Hex Bolt
Torque Type	Untorqued Anchor
Diameter, in.	5/8"
Embedment depth	9.00 in
Bolt Spacing y	7.50 in
Bolt Spacing z	7.50 in
Column Weld	E70
Type	Fillet
Fillet Size	3.00 Sixteenths

continued on next page...

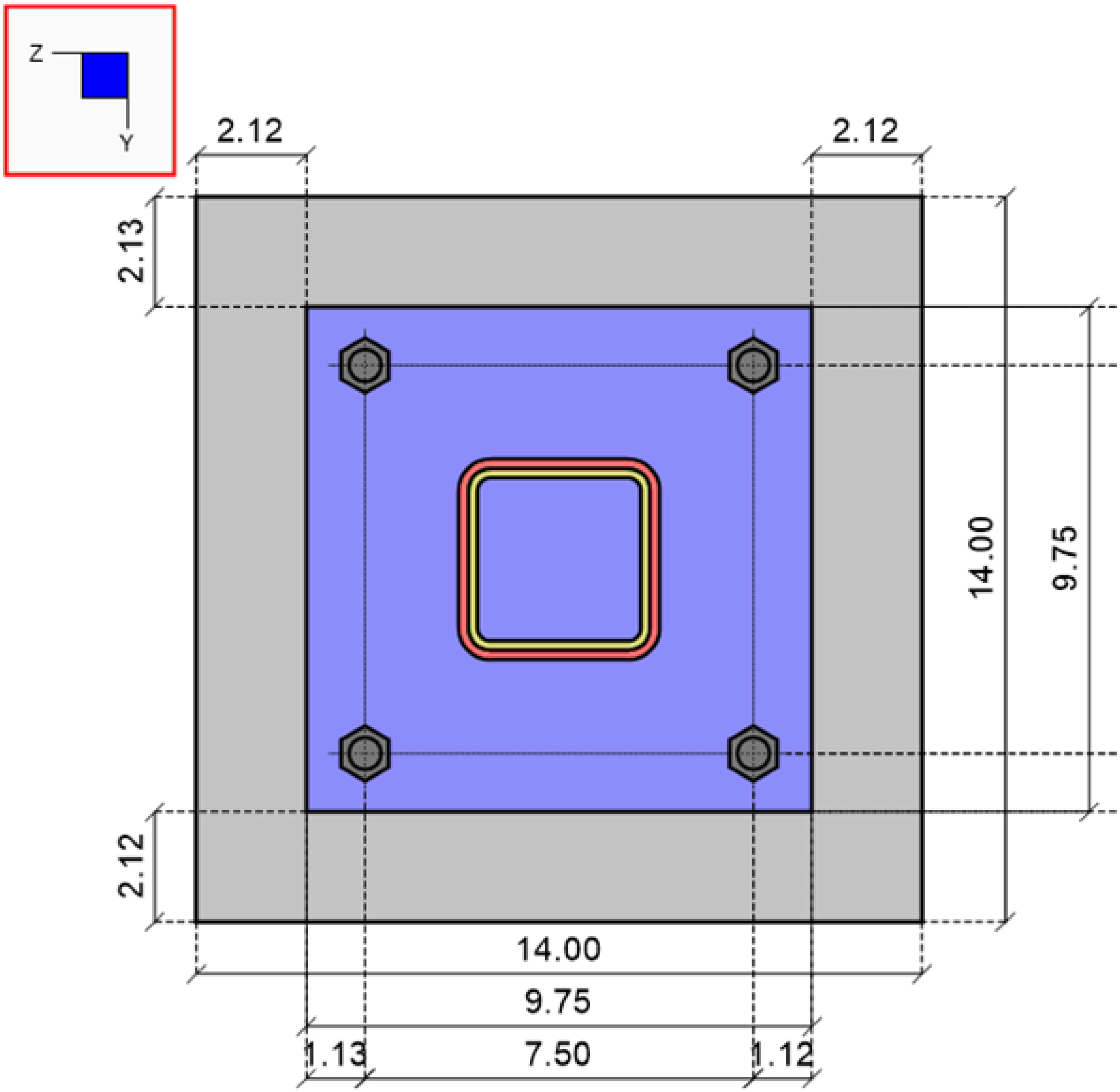
MAX GRAVITY: Connection Properties Report (continued):

Fw	70.00 ksi
Assembly	
Edge Distance y	1.13 in
Edge Distance z	1.13 in
Edge Distance +y	2.13 in
Edge Distance -y	2.13 in
Edge Distance +z	2.13 in
Edge Distance -z	2.13 in

MAX UPLIFT: 2D Views Report

Single Column Base Plate Connection

Top view



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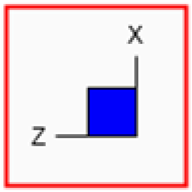
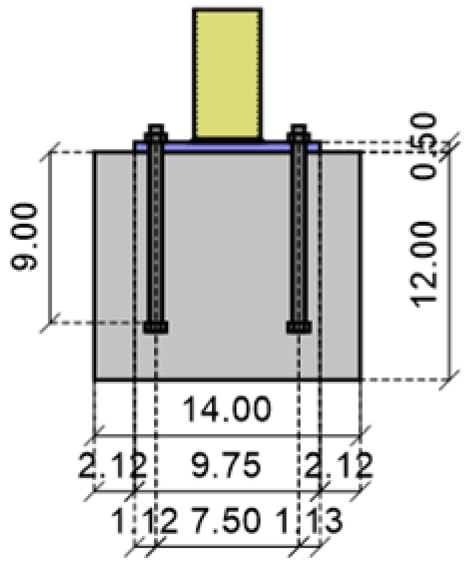
MAX UPLIFT: 2D Views Report (continued):

Side view





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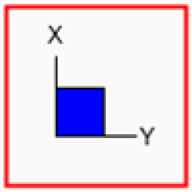
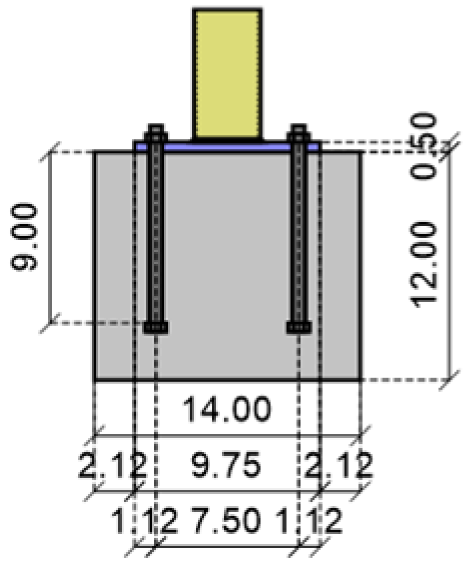
MAX UPLIFT: 2D Views Report (continued):

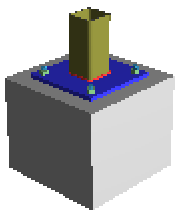
Left view





MAX UPLIFT: Summary Report

Single Column Base Plate Connection



Material Properties:				
Column	HSS3.5X3.5X3	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Base Plate	P0.50x9.75x9.75	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

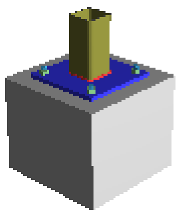
Input Data:		
Axial	-2.50 kips	*Axial load on the column*
Strong Axis Shear	1.00 kips	*Shear load on the column that causes strong axis bending*
Weak Axis Shear	1.60 kips	*Shear load on the column that causes weak axis bending*
Strong Axis Moment	0.00 kips-ft	*Column moment about the strong axis*
Weak Axis Moment	0.00 kips-ft	*Column moment about the weak axis*

Connection	Required	Max Unity Check	Result
Column/Base Plate connection	Plate Flexural Yielding(Tension)	**0.30**	**PASS**

ASD

MAX UPLIFT: Base Plate Report

Single Column Base Plate Connection



Material Properties:				
Column	HSS3.5X3.5X3	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Base Plate	P0.50x9.75x9.75	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Axial	-2.50 kips	*Axial load on the column*
Strong Axis Shear	1.00 kips	*Shear load on the column that causes strong axis bending*
Weak Axis Shear	1.60 kips	*Shear load on the column that causes weak axis bending*
Strong Axis Moment	0.00 kips-ft	*Column moment about the strong axis*
Weak Axis Moment	0.00 kips-ft	*Column moment about the weak axis*

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
Geometry Restrictions				**PASS**
Check Min Bolt Spacing	**Pass**	*Condition: S_{min} >= (2+2/3)d_{bolt} (J3.3)*		
S_{min}	7.50 in	*Min bolt spacing*		
d_{bolt}	0.62 in	*Anchor bolt diameter*		
Check Min Edge Distance	**Pass**	*Condition: min(e_z , e_y) >= ED_{allow} (J3.4)*		
e_y	1.12 in	*Min edge distance y*		
e_z	1.12 in	*Min edge distance z*		
ED_{allow}	0.88 in	*Minimum allowed edge distance*		
Check Max Edge Distance	**Pass**	*Condition: Condition: max(d_z , d_y) <= min(6.00 in, 12*t) (J3.5)*		
d_y	1.12 in	*Max edge distance y*		
d_z	1.12 in	*Max edge distance z*		
ED_{allow}	6.00 in	*Maximum allowed edge distance*		
t	0.50 in	*Thickness of base plate*		
Check Anchor Bolt Encroachment on Column	**Pass**			
Plate Flexural Yielding(Tension)	0.11 kips-ft	0.36 kips-ft	**0.30**	**PASS**
$M_n = b_e*F_y*t_p^2 / 4$		**Ω = 1.67**	(AISC DG1 (3.3.13))	
b_e	3.21 in	*Effective width of plate section (corner bolt)*		
F_y	36.00 ksi	*Minimum yield strength of base plate*		
t_p	0.50 in	*Thickness of base plate*		
M_n/Ω	0.36 kips-ft	*Base plate bending strength*		
T	0.62 kips	*Tension force in anchor bolt*		
x	2.09 in	*Moment arm for anchor bolt*		
M_{pl}	0.11 kips-ft	*Bending moment caused by tension at bolt, M_{pl}=T*x*		
Anchor Bolt Tension	0.62 kips	6.67 kips	**0.09**	**PASS**
$R_n = F_{nt} * A_b$		**Ω = 2.00**	(J3-2)	
Prying effects are ignored				
Check User Note Limit:	**Pass**	**Condition: (f_{rt}/F_{nt} ≤ 0.3) or (f_{rv}/F_{nv} ≤ 0.3)**		

continued on next page...

MAX UPLIFT: Base Plate Report (continued):

Limit State	Required	Available	Unity Check	Result
f_{rt}	2.04 ksi	*Required tensile stress, $f_{rt} = T_{bolt} / A_b$*		
F_{nt}	43.50 ksi	*Available tensile stress, per Table J3.2*		
f_{rv}	3.07 ksi	*Required shear stress: $f_{rv} = (V_u / N_{bolt}) / A_b$*		
F_{nv}	26.10 ksi	*Available shear stress, per Table J3.2*		
Because $f_{rt}/F_{nt} \le 0.3$ and $f_{rv}/F_{nv} \le 0.3$, effects of combined tension and shear stress need not be investigated				
T_{bolt}	0.62 kips	*Tension at bolts*		
V_u	1.89 kips	*Resultant shear force, see 'Anchor Bolt Shear' check*		
N_{bolt}	2	*Number of bolts (DG-1, Section 3.5.3)*		
A_b	0.31 in^2	*Bolt cross sectional area*		
R_n/Ω	6.67 kips	*Bolt tensile strength*		
Anchor Bolt Shear	1.89 kips	8.01 kips	**0.24**	**PASS**
$R_n = F_{nv} * A_b * N_{bolt}$		**Ω = 2.00**	(J3-1)	
V_{uy}	1.00 kips	*Strong axis shear*		
V_{uz}	1.60 kips	*Weak axis shear*		
$V_u = (V_{uy}^2 + V_{uz}^2)^{0.5}$	1.89 kips	*Resultant shear force*		
F_{nv}	26.10 ksi	*Shear stress N type*		
A_b	0.31 in^2	*Area of bolt*		
N_{bolt}	2	*Number of bolts (per AISC DG1, Section 3.5.3)*		
R_n/Ω	8.01 kips	*Bolt shear rupture strength*		
Anchor Bolt Bearing on Base Plate	1.89 kips	8.01 kips	**0.24**	**PASS**
$R_n = N_{bolt} * \min(1.2*L_c*t_p*F_u, 2.4*d_b*t_p*F_u, R_{n\text{-}bolt})$		**Ω = 2.00**	(J3-6a)	
V_u	1.89 kips	*Resultant shear force, see 'Anchor Bolt Shear' check*		
N_{bolt}	2	*Number of bolts (per AISC DG1, Section 3.5.3)*		
Θ	32.01 degrees	*Angle between the resultant shear force and z-axis*		
e_y	1.12 in	*Edge distance y*		
e_z	1.12 in	*Edge distance z*		
d_c	0.34 in	*Distance from center of bolt to the edge of hole*		
L_c	0.98 in	*Minimum clear distance for the weakest bolt, $L_c = \min(e_y / \lvert\sin(\Theta)\rvert, e_z / \lvert\cos(\Theta)\rvert) - d_c$*		
t_p	0.50 in	*Thickness of base plate*		
d_b	0.62 in	*Bolt diameter*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
$R_{n\text{-}bolt}$	8.01 kips	*Bolt shear strength, $R_{n\text{-}bolt} = F_{nv} * A_{bolt}$*		
F_{nv}	26.10 ksi	*Nominal shear stress of bolt*		
A_{bolt}	0.31 in^2	*Area of bolt*		
Rn/Ω	8.01 kips	*Bolt bearing strength*		
Column Weld Limitations				**PASS**
Weld Min Size			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.19 in	*Weld size*		
D_{min}	0.12 in	*Min size allowed per Table J2.4*		
t_{min}	0.17 in	*Controlling member thickness*		

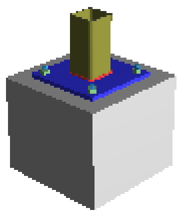
continued on next page...

MAX UPLIFT: Base Plate Report (continued):

Limit State	Required	Available	Unity Check	Result
Column Flange Weld Strength	0.36 kips/in	2.78 kips/in	**0.13**	**PASS**
$Rn/\Omega = C_1 * \alpha * 0.928 * D_{16}$				
Single Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 14th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 14th table 8-3)*		
t	0.17 in	*Base material thickness (column)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 14th Eqn 9-2)*		
D_{16}	3.00	*Weld fillet size in sixteenths of an inch*		
r_u	0.29 kips/in	*Required strength of the weld for in-plane force*		
r_0	-0.22 kips/in	*Required strength of the weld for out-of-plane force (tensile)*		
r_{3d}	0.36 kips/in	*Resultant force $r_{3d} = (r_u^2 + r_0^2)^{0.5}$*		
Rn/Ω	2.78 kips/in	*Weld strength*		
Column Web Weld Strength	0.29 kips/in	2.78 kips/in	**0.10**	**PASS**
$Rn/\Omega = C_1 * \alpha * 0.928 * D_{16}$				
Single Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 14th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 14th table 8-3)*		
t	0.17 in	*Base material thickness (column)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 14th Eqn 9-2)*		
D_{16}	3.00	*Weld fillet size in sixteenths of an inch*		
r_u	0.18 kips/in	*Required strength of the weld for in-plane force*		
r_0	-0.22 kips/in	*Required strength of the weld for out-of-plane force (tensile)*		
r_{3d}	0.29 kips/in	*Resultant force $r_{3d} = (r_u^2 + r_0^2)^{0.5}$*		
Rn/Ω	2.78 kips/in	*Weld strength*		

MAX UPLIFT: Anchorage Design Report

Single Column Base Plate Connection



Material Properties:				
Column	HSS3.5X3.5X3	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Base Plate	P0.50x9.75x9.75	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Axial	-2.50 kips	*Axial load on the column*
Strong Axis Shear	1.00 kips	*Shear load on the column that causes strong axis bending*
Weak Axis Shear	1.60 kips	*Shear load on the column that causes weak axis bending*
Strong Axis Moment	0.00 kips-ft	*Column moment about the strong axis*
Weak Axis Moment	0.00 kips-ft	*Column moment about the weak axis*

Note: Unless specified, all code references are from ACI 318-19 (22)

Limit State	Required	Available	Unity Check	Result
Anchorage design is toggled off in the Connection Properties.				**No Calc**

MAX UPLIFT: Members Report

Single Column Base Plate Connection

Column	***HSS3.5X3.5X3***	
Material		
Name	A500 Gr.B Rect	*Material name*
F_y	46.00 ksi	*Minimum yield stress of material*
F_u	58.00 ksi	*Minimum tensile stress of material*
E	29000.00 ksi	*Modulus of elasticity*
Member Properties		
d	3.50 in	*Depth*
b	3.50 in	*Width*
a	2.24 in^2	*Area*
t_{des}	0.17 in	*Wall Thickness*
Base Plate	***P0.50x9.75x9.75***	
Material		
Name	A36	*Material name*
F_y	36.00 ksi	*Minimum yield stress of material*
F_u	58.00 ksi	*Minimum tensile stress of material*
E	29000.00 ksi	*Modulus of elasticity*
Member Properties		
L	9.75 in	*Length*
W	9.75 in	*Width*
t	0.50 in	*Thickness*
μ	0.55	*Static Friction Coefficient*
Hole		
Hole type	Standard	
D_x	0.69 in	*Hole width*
D_y	0.69 in	*Hole height*
R	2	*Number of rows of holes*
C	2	*Number of holes per row*
R_s	7.50 in	*Row Spacing*
C_s	7.50 in	*Column Spacing*
Concrete Support	***C14.00x14.00x12.00***	

MAX UPLIFT: Connection Properties Report

Single Column Base Plate Connection

Connection	
Connection Title	MAX UPLIFT
Connection Type	Single Column Base Plate Connection
Anchorage	
Anchorage Type	Cast-in-place
Perform Anchorage Calc	No
Connection Category	
Bolt Layout	Four
Plate Washers	No
Loading (ASD)	
Axial	-2.50 kips
Strong Axis Shear	1.00 kips
Weak Axis Shear	1.60 kips
Strong Axis Moment	0.00 kips-ft
Weak Axis Moment	0.00 kips-ft
Components	
Column Section	HSS3.5X3.5X3
Material	A500 Gr.B Rect
Fy	46.00 ksi
Fu	58.00 ksi
E	29000.00 ksi
Lib	aiscdb32
A	2.24 in^2
D	3.50 in
B	3.50 in
Tdes	0.17 in
Base Plate	P0.50x9.75x9.75
Material	A36
Fy	36.00 ksi
Fu	58.00 ksi
E	29000.00 ksi
Length	9.75 in
Width	9.75 in
Thickness	0.50 in
Static Friction Coefficient	0.55 Coeff
Hole Type	STD
Concrete Support	C14.00x14.00x12.00
Length	14.00 in
Width	14.00 in
Thickness	12.00 in
Compressive Strength (f'c)	3.00 ksi
Concrete Weight	Normal Weight
Cracked Concrete	Yes
Edge Reinforcement	None or < no. 4 bar
Anchor Bolts	5/8" F1554 Gr.36-N
Material	F1554 Gr.36-N
Head Type	Hex Bolt
Torque Type	Untorqued Anchor
Diameter, in.	5/8"
Embedment depth	9.00 in
Bolt Spacing y	7.50 in
Bolt Spacing z	7.50 in
Column Weld	E70
Type	Fillet
Fillet Size	3.00 Sixteenths

continued on next page...

MAX UPLIFT: Connection Properties Report (continued):

Fw	70.00 ksi
Assembly	
Edge Distance y	1.13 in
Edge Distance z	1.13 in
Edge Distance +y	2.13 in
Edge Distance -y	2.13 in
Edge Distance +z	2.13 in
Edge Distance -z	2.13 in

GENERAL NOTES

1.1 GENERAL:

1.1.1 SCOPE: THE FOLLOWING GENERAL AND SPECIFIC NOTES SHALL APPLY EQUALLY TO ALL CONTRACTORS AND SUPPLIERS ENGAGED IN EXECUTION OF THE WORK SHOWN ON THE CONTRACT DOCUMENTS. THESE NOTES SUPPLEMENT AND ARE MADE A PART OF THE PLANS AND SPECIFICATIONS.

1.1.2 REFERENCES: ALL CONSTRUCTION SHALL BE EXECUTED IN CONFORMANCE WITH THE FOLLOWING:
- PLANS AND SPECIFICATIONS
- GOVERNING LOCAL AND MUNICIPAL CODES
- 2018 WISCONSIN COMMERCIAL BUILDING CODE
- 2015 INTERNATIONAL BUILDING CODE (IBC)
- ASCE 7-10
- ASTM INTERNATIONAL (ASTM)
- OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

CONCRETE CONSTRUCTION:
- AMERICAN CONCRETE INSTITUTE (ACI)
- CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
- PRECAST/PRESTRESSED CONCRETE INSTITUTE (PCI)
MASONRY CONSTRUCTION:
- AMERICAN CONCRETE INSTITUTE (ACI)
- THE MASONRY SOCIETY (TMS)
- STRUCTURAL ENGINEERING INSTITUTE (SEI)
STRUCTURAL AND MISCELLANEOUS STEEL WORK:
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
STEEL JOIST, STEEL DECK, AND ACCESSORIES:
- STEEL JOIST INSTITUTE (SJI)
- STEEL DECK INSTITUTE (SDI)
COLD-FORMED STEEL FRAMING & TRUSSES:
- AMERICAN IRON AND STEEL INSTITUTE (AISI)
- COLD-FORMED STEEL ENGINEERS INSTITUTE (CFSEI)
WOOD CONSTRUCTION & TRUSSES:
- NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION
- AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC)
- APA - THE ENGINEERED WOOD ASSOCIATION (APA)
- TRUSS PLATE INSTITUTE (TPI)

CONTRACTOR SHALL ENSURE FAMILIARITY WITH THE ABOVE ITEMS. INSPECTIONS AND OBSERVATIONS WILL BE IN CONFORMANCE WITH THE ABOVE.

1.1.3 DESIGN DATA

RISK CATEGORY	II

SNOW LOADS (S):	
GROUND SNOW LOAD, P_g	40 PSF
EXPOSURE FACTOR, C_e	1.0
THERMAL FACTOR, C_t	0.85
IMPORTANCE FACTOR, I_s	1.0
FLAT ROOF SNOW LOAD, P_f	16.0 PSF
ROOF SLOPE FACTOR, C_s	0.67
DESIGN ROOF SNOW LOAD, P_s	16.0 PSF + DRIFT

WIND LOAD (W)(ASCE 7-10 MWFRS DIRECTIONAL PROCEDURE, PART 1, ALL H):	
BASIC WIND SPEED, V_{ult}	115 MPH
EXPOSURE CATEGORY	B
ENCLOSURE CLASSIFICATION	ENCLOSED
INTERNAL PRESSURE COEFFICIENT, G_{cpi}	+/- 0.18

COMPONENTS AND CLADDING DESIGN PRESSURES: (ASCE 7-10 CHAPTER 30)

COMPONENTS AND CLADDING PRESSURES			
ROOF ZONE	EFFECTIVE WIND AREAS (ULTIMATE LOADS)		
	10 SF	25 SF	50 SF
INTERIOR ROOF	-21.8 PSF	-21.0 PSF	-20.4 PSF
EDGE ROOF	-37.9 PSF	-33.9 PSF	-30.9 PSF
CORNER ROOF	-56.0 PSF	-51.2 PSF	-47.6 PSF
INTERIOR WALL	25.8 PSF	24.4 PSF	23.3 PSF
EDGE WALL	31.9 PSF	29.0 PSF	26.9 PSF
EDGE ZONE STRIP WIDTH	4.2 FT		

*NOTES:
- REFER TO ASCE 7-10, FOR ZONE DIAGRAMS.
- PLUS AND MINUS SIGNS INDICATE PRESSURES ACTING TOWARD OR AWAY FROM BUILDING SURFACES RESPECTIVELY.
- PRESSURES MAY BE INTERPOLATED BETWEEN THE EFFECTIVE WIND AREAS.
- SEE DRAWINGS FOR NET UPLIFT ON JOISTS AND JOIST GIRDERS.

SEISMIC (E):	
IMPORTANCE FACTOR, I_e	1.0
0.2_s MAPPED SPECTRAL RESPONSE ACCELERATION, S_s	5.30%g
1.0_s MAPPED SPECTRAL RESPONSE ACCELERATION, S_1	3.60%g
SITE CLASS	D
0.2_s SPECTRAL RESPONSE COEFFICIENT, S_{DS}	0.057
1.0_s SPECTRAL RESPONSE COEFFICIENT, S_{D1}	0.058
SEISMIC DESIGN CATEGORY	A
STRUCTUTRAL SYSTEM	LIGHT FRAME
SEISMIC RESISTING SYSTEM	STEEL ECCENTRICALLY BRACED FRAME
RESPONSE MODIFICATION COEFFICIENT, R	6.0
SYSTEM OVERSTRENGTH FACTOR, OMEGA	2.0
DEFLECTION AMPLIFICATION FACTOR, C_d	5.0
SEISMIC RESPONSE COEFFICIENT, C_s	0.010
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE ANALYSIS

RAIN INTENSITY	
100 YR, 1 HR RAINFALL (INCHES)	3.3"

1.1.4 DESIGN CRITERIA:

SOIL BEARING CAPACITY . . . . 2000 PSF (ASSUMED)

CONCRETE (NORMAL WEIGHT):	
FOOTINGS AND SUB SLABS	f'_c = 3000 PSI
CAST-IN-PLACE WALLS	f'_c = 4000 PSI
INTERIOR SLABS-ON-GRADE	f'_c = 4000 PSI
EXTERIOR REINFORCED SLABS	f'_c = 5000 PSI

REINFORCING STEEL:	
#3 BARS & LARGER, ASTM A615 GRADE 60	F_y = 60000 PSI

FASTENERS:	
EXPANSION ANCHORS (CARBON STEEL)	KWIK-BOLT TZ2 BY HILTI, INC.

1.1.5 EXECUTION: CONTRACTOR TO CROSS CHECK DIMENSIONS, ELEVATIONS, SECTIONS, AND DETAILS BETWEEN ARCHITECTURAL, MECHANICAL, AND STRUCTURAL PLANS. AMBROSE ENGINEERING IS TO BE NOTIFIED OF ANY VARIANCE THAT WILL AFFECT THE STRUCTURAL FRAMING BEFORE CONTRACTOR BEGINS WORK. ALL EQUIPMENT SUPPORTS AND ANCHORAGES TO BE CROSS CHECKED WITH MANUFACTURER'S DRAWINGS. CONTRACTORS SHALL VERIFY ALL PROFILES, HEIGHTS, AND DIMENSIONS AT PROJECT SITE PRIOR TO FABRICATION OF ANY MATERIAL AND INFORM THE ENGINEER OF RECORD OF ANY DISCREPANCIES OR FRAMING INTERFERENCES.

1.1.6 PROJECT CONDITIONS: ALL EXISTING BUILDING DIMENSIONS AND CONDITIONS MUST BE FIELD VERIFIED PRIOR TO FABRICATION. AMBROSE ENGINEERING SHALL NOT BE RESPONSIBLE FOR ANY EXISTING INFORMATION SUPPLIED BY THE OWNER/ARCHITECT NOR BE LIABLE FOR THOSE EXISTING CONDITIONS THAT VARY FROM THE PREVIOUSLY GIVEN INFORMATION. ARCHITECT/ENGINEER APPROVAL OF SHOP DRAWINGS DOES NOT RELIEVE CONTRACTOR OF THIS RESPONSIBILITY.

1.1.7 SHOP DRAWINGS/SUBMITTALS: SHALL BE SUBMITTED BY THE GENERAL CONTRACTOR TO THE ARCHITECT/ENGINEER FOR APPROVAL BEFORE FABRICATION MAY PROCEED.
SHOP DRAWINGS/SUBMITTALS SHALL BE PROVIDED FOR THE FOLLOWING COMPONENTS:
CONCRETE DESIGN MIXES, REINFORCING STEEL.
SEE SPECIFIC MATERIALS SECTIONS FOR ADDITIONAL INFORMATION.

NOTES:
- GENERAL CONTRACTOR SHALL REVIEW AND STAMP SHOP DRAWINGS BEFORE SUBMITTING TO ARCHITECT/ENGINEER. TRANSFERENCE OF ELECTRONIC FILES BY THE GENERAL CONTRACTOR TO REVIEWERS SHALL INDICATE REVIEW OF AND ACCEPTANCE OF SHOP DRAWINGS AS DELIVERED, REGARDLESS OF APPLICATION OF REVIEW STAMP OR NOT.
- PROVIDE ELECTRONIC SHOP DRAWINGS IN PDF FORMAT FOR REVIEW.
- ALL SHOP DRAWINGS SHALL CONTAIN THE ISSUE DATE INDICATED ON THE CONSTRUCTION DOCUMENTS, ALONG WITH ANY ADDENDUMS OR REVISION DATES.
- COPIES OF THE STRUCTURAL DRAWINGS SUBMITTED AS SHOP DRAWINGS WILL BE REJECTED.
- ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS SHALL BE NOTED (CLOUD, NOTE, ETC.) ON THE SHOP DRAWINGS SUBMITTED FOR APPROVAL.
- ANY CHANGES ON RESUBMITTED SHOP DRAWINGS SHALL BE CLOUDED.
- STANDARD SHOP DRAWING REVIEW TIME IS 10 WORKING DAYS FROM THE DAY THE SHOP DRAWINGS HAVE BEEN RECEIVED. MULTIPLE SIMULTANEOUS SUBMISSIONS MAY ALTER REVIEW TIMES.
- AMBROSE ENGINEERING WILL NOT BE RESPONSIBLE FOR DELAYS CAUSED BY THE REJECTION OF INADEQUATE OR INCORRECT SHOP DRAWINGS.

1.1.8 DEFERRED COMPONENT SUBMITTALS: SHALL BE SUBMITTED BY THE GENERAL CONTRACTOR TO THE ARCHITECT/ENGINEER PRIOR TO CONSTRUCTION. DEFERRED SUBMITTALS SHALL BE PROVIDED FOR THE FOLLOWING COMPONENTS: GREENHOUSE FRAMING.

NOTES:
- GENERAL CONTRACTOR SHALL REVIEW AND STAMP SHOP DRAWINGS BEFORE SUBMITTING TO ARCHITECT/ENGINEER. TRANSFERENCE OF ELECTRONIC FILES BY THE GENERAL CONTRACTOR TO REVIEWERS SHALL INDICATE REVIEW OF AND ACCEPTANCE OF SHOP DRAWINGS AS DELIVERED, REGARDLESS OF APPLICATION OF REVIEW STAMP OR NOT.
- PROVIDE ELECTRONIC SHOP DRAWINGS IN PDF FORMAT FOR REVIEW.
- ALL COMPONENT SUBMITTALS SHALL BEAR AN ORIGINAL SEAL AND SIGNATURE OF THE COMPONENT DESIGNER.
- ALL SUBMITTED COPIES MUST BE THE FINAL "FIELD USE" SETS WHICH INCLUDE ALL CORRECTIONS MADE DUE TO SHOP DRAWING REVIEW COMMENTS.

1.1.9 SPECIAL INSPECTIONS: AN INSPECTION & TESTING COMPANY SHALL BE RETAINED IN ACCORDANCE WITH THE IBC FOR THE FOLLOWING:
- SOILS AND EARTHWORK SUPPORTING FOUNDATIONS AND SLABS.
- CONCRETE TEST CYLINDERS AND STRENGTH TESTING.
- CONCRETE REINFORCING.
- POST INSTALLED EXPANSION AND EPOXY ANCHORS.

1.1.10 CONSTRUCTION LOADS: PLACEMENT OF CONSTRUCTION EQUIPMENT, MATERIALS, AND PERSONNEL SHALL NOT EXCEED THE DESIGN LIVE LOAD OF THE STRUCTURE. CONCRETE SHALL CURE A MINIMUM OF 7 DAYS BEFORE THE APPLICATION OF CONSTRUCTION LOADS AND ACHIEVE AT LEAST 85% OF THE 28 DAY COMPRESSIVE STRENGTH AS PROVEN BY CYLINDER BREAKS. IN ADDITION, EQUIPMENT PLACED ON SLAB -ON-GRADE FLOORS SHALL ALSO COMPLY WITH THE FOLLOWING:

FORKLIFT SPACING BETWEEN WHEELS ON AXLE IS NOT LESS THAN 38" OC OR SCISSOR LIFT SPACING BETWEEN WHEELS ON AXLE IS NOT LESS THAN 25" OC.

SLAB-ON-GRADE: ALLOWABLE EQUIPMENT AXLE LOADS

SLAB DEPTH	FORKLIFT	SCISSOR/PLATFORM LIFTS
4"	NONE	5,400 LBS
5"	8,600 LBS	6,800 LBS
>=6"	11,400 LBS	9,200 LBS

MODULUS OF SUBGRADE, k (MINIMUM) . . . . 100 PCI

WHEN AXLE LOADS EXCEED THE VALUES LISTED ABOVE, OR WHEN WHEEL SPACING IS LESS THAN OC SPACING, CONTACT ENGINEER PRIOR TO OPERATING UNAUTHORIZED EQUIPMENT.

1.1.11 FIELD MODIFICATIONS: MODIFICATIONS OF STRUCTURAL MEMBERS DUE TO MISLOCATION, MISFIT, MECHANICAL INTERFERENCE, OR ANY OTHER CONSTRUCTION ISSUE SHALL NOT BE MADE WITHOUT THE PRIOR APPROVAL OF ENGINEER. NO OPENING SHALL BE PLACED IN ANY STRUCTURAL MEMBER UNLESS SHOWN ON THE CONTRACT STRUCTURAL DRAWINGS OR THE APPROVED SHOP DRAWINGS.

1.1.12 PERMANENT EQUIPMENT: SHALL BE LOCATED ONLY ON THE STRUCTURAL MEMBERS INTENDED TO SUPPORT THIS EQUIPMENT AS SHOWN ON THE CONTRACT DRAWINGS OR THE APPROVED SHOP DRAWINGS. IF STRUCTURAL SUPPORT IS NOT CLEAR, OR A QUESTION ARISES, CONTACT STRUCTURAL ENGINEER OF RECORD PRIOR TO EQUIPMENT INSTALLATION.

2.1 EARTHWORK:

2.1.1 THE CONTRACTOR SHALL READ THE GEOTECHNICAL REPORT AND BE THOROUGHLY FAMILIAR WITH THE SITE AND THE SUBGRADE INFORMATION GIVEN THEREIN. ALL SUBGRADE PREPARATIONS, FILL, FILL PLACEMENT, AND FOUNDATION CONSTRUCTION SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE STRUCTURAL DOCUMENTS AND THE GEOTECHNICAL REPORT AND SHALL BE OBSERVED, TESTED, AND APPROVED BY THE PROJECT'S GEOTECHNICAL ENGINEER OF RECORD PRIOR TO PROCEEDING WITH FOUNDATION CONSTRUCTION.

2.1.2 EXCAVATIONS: ALL UNSUITABLE EXISTING FILL AND TOPSOIL SHALL BE EXCAVATED BELOW FOOTING BEARING AND REPLACED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT RECOMMENDATIONS. IF EXCAVATIONS SHOULD INDICATE A SAFE SOIL BEARING CAPACITY LESS THAN THE DESIGN CRITERIA SOIL BEARING CAPACITY LISTED, THE ENGINEER OF RECORD SHALL BE NOTIFIED IMMEDIATELY AND THE FOUNDATION REVISED TO MEET THIS CONDITION.

2.1.3 SITE PREPARATION: ALL UNSUITABLE EXISTING FILL AND TOPSOIL SHALL BE EXCAVATED WITHIN THE BUILDING FOOTPRINT AND REPLACED TO FINISHED PAD ELEVATION IN ACCORDANCE WITH THE GEOTECHNICAL REPORT RECOMMENDATIONS. PROVIDE COMPACTED AGGREGATE SUBBASE AND VAPOR RETARDER ABOVE PAD AND BELOW SLAB PER SPECIFICATIONS AND GEOTECHNICAL REPORT RECOMMENDATIONS.

2.1.4 BACKFILLING: BACKFILL EACH SIDE OF FOUNDATION WALLS IN EQUAL LIFTS. WHERE FINAL GRADES CREATE AN UNBALANCED CONDITION, BACKFILL AS FOLLOWS: AT FOUNDATIONS WALLS STRUCTURALLY CONNECTED TO SLABS (SUCH AS DOCK WALLS), BRACE TOP OF WALL UNTIL SLAB IS IN PLACE AND CURED 7 DAYS MINIMUM. AT BASEMENT WALLS, DO NOT BACKFILL UNTIL FIRST FLOOR CONSTRUCTION IS COMPLETE OR TOP OF WALLS ARE BRACED. WHERE WALLS ARE NOT STRUCTURALLY CONNECTED AT THE TOP (SUCH AS RETAINING WALLS), BRACING IS NOT REQUIRED.

2.1.5 THE CONSTRUCTION DRAWINGS AND THE PROJECT SPECIFICATIONS SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW AND COMMENT BY THE GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION TO ENSURE CONFORMANCE BETWEEN THE FOUNDATION DESIGN AND THE INTERPRETATION OF THE GEOTECHNICAL RECOMMENDATIONS.

2.1.6 IN THE ABSENSE OF THE GEOTECHNICAL REPORT, A GEOTECHNICAL ENGINEER SHALL BE RETAINED FOR SERVICES DURING EXCAVATION TO ASSURE SUITABLE BEARING CONDITIONS MEETING BEARING CRITERIA LISTED IN THESE NOTES IS MET.

3.1 CONCRETE:

3.1.1 REFERENCES: CONCRETE CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING STANDARDS AND AS MODIFIED HEREIN:

ACI 117	"SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS"
ACI 301	"SPECIFICATIONS FOR STRUCTURAL CONCRETE"
ACI SP-66	"ACI DETAILING MANUAL"
ACI 318	"BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
ACI 347	"GUIDE TO FORMWORK FOR CONCRETE"
ACI 360	"GUIDE TO DESIGN OF SLABS-ON-GROUND"
CRSI	"MANUAL OF STANDARD PRACTICE"
CRSI	"PLACING REINFORCING BARS"

3.1.2 MATERIALS: PROPORTION CONCRETE MATERIALS TO ATTAIN 28 DAY CONCRETE MIX DESIGN STRENGTHS INDICATED IN THE DESIGN CRITERIA. SEE SPECIFICATIONS FOR ADDITIONAL MATERIAL REQUIREMENTS.

3.1.3 SHOP DRAWINGS/SUBMITTALS: SUBMIT CONCRETE MIX DESIGNS, COMPRESSIVE STRENGTH TEST HISTORY, CEMENT, FLY ASH, AGGREGATE TEST REPORTS, ADMIXTURES, FIBER REINFORCING, REBAR PLACEMENT AND FABRICATION PLANS, LAP LENGTHS, REBAR BENDING DIAGRAMS, AND ALL DETAILS AS REQUIRED TO COMPLETE INSTALLATION.

3.1.4 ACCESSORIES: ALL CONCRETE ACCESSORIES SUCH AS CHAIRS, TIES, ETC., THAT COME IN CONTACT WITH FORMWORK OR EXPOSED CONCRETE SHALL BE GALVANIZED OR PLASTIC COATED. CONCRETE BLOCK OR CLAY MASONRY SHALL NOT BE USED AS CHAIRS FOR SUPPORT OF SLAB-ON-GRADE REINFORCING.

3.1.5 WELDED WIRE REINFORCING: PROVIDE WELDED WIRE REINFORCING IN ACCORDANCE WITH THE DESIGN CRITERIA. WELDED WIRE REINFORCING SHALL BE FLAT SHEETS ONLY, LAPPED 6" MINIMUM AND POSITIONED AT MID-HEIGHT OF THE SLAB THICKNESS, UNLESS NOTED OTHERWISE.

3.1.6 SYNTHETIC FIBER REINFORCING: PROVIDE SYNTHETIC FIBER REINFORCING IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AT THE DOSAGE RATE INDICATED ON THE PLANS.

3.1.7 BAR REINFORCING: PROVIDE BAR REINFORCING IN ACCORDANCE WITH THE DESIGN CRITERIA. WHEN BAR REINFORCING IS CALLED FOR IN A CERTAIN PORTION OF THE BUILDING, IT SHALL BE DUPLICATED IN SIMILAR PORTIONS OF THE BUILDING, UNLESS NOTED OTHERWISE.

3.1.8 MINIMUM COVER: INSTALL BAR REINFORCING WITH THE FOLLOWING MINIMUM COVER UNLESS A GREATER COVER IS REQUIRED DUE TO FIRE PROTECTION:

POSITION	DISTANCE
CONCRETE CAST AGAINST AND PERMANENTLY IN CONTACT WITH EARTH	3"
CONCRETE EXPOSED TO EARTH AND WEATHER	
#5 BAR AND SMALLER	1 1/2"
#6 BAR AND LARGER	2"
CONCRETE NOT EXPOSED TO EARTH AND WEATHER OR IN CONTACT WITH GROUND:	
SLABS, WALLS, AND JOISTS	
#11 BAR AND SMALLER	3/4"
BEAMS AND COLUMNS	
#11 BAR AND SMALLER	1 1/2"

3.1.9 DEVELOPMENT: THE MINIMUM DEVELOPMENT LENGTH OF NON-CONTINUOUS BAR REINFORCING SHALL BE DETERMINED BY CURRENT ACI-318 EQUATIONS WITH CORRESPONDING VARIABLES APPLICABLE TO THE PROJECT CONDITIONS. TERMINATE BARS WITH A STANDARD HOOK IN ACCORDANCE WITH ACI-318 IF REQUIRED DEVELOPMENT LENGTH CAN NOT BE OBTAINED.

3.1.10 MINIMUM LAP SPLICE LENGTH OF CONTINUOUS BAR REINFORCING SHALL BE DETERMINED BY CURRENT ACI-318 EQUATIONS WITH CORRESPONDING VARIABLES APPLICABLE TO THE PROJECT CONDITIONS. IN GROUPS OF PARALLEL BARS, LAP SPLICES SHALL BE STAGGERED. MECHANICAL COUPLERS MAY BE USED WITH APPROVAL. PRODUCT DATA, INCLUDING CURRENT ICC REPORT FOR MECHANICAL COUPLERS, SHALL BE SUBMITTED FOR APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. COUPLERS MUST BE CAPABLE OF DEVELOPING 125% OF THE YIELD STRENGTH OF THE SPLICED BARS.

3.1.11 HOT WEATHER CONCRETING: FOLLOW ACI 305 "GUIDE TO HOT WEATHER CONCRETING" WHEN MAXIMUM DAILY TEMPERATURE EXCEEDS 85°F, OR RAPID DRYING CONDITIONS EXIST; EVAPORATION RATE GREATER THAN OR EQUAL TO 0.2 LB/SF/HR.

3.1.12 COLD WEATHER CONCRETING: FOLLOW ACI 306 "GUIDE TO COLD WEATHER CONCRETING" WHEN FREEZING CONDITIONS OR MEAN DAILY TEMPERATURE FALLS BELOW 40°F.

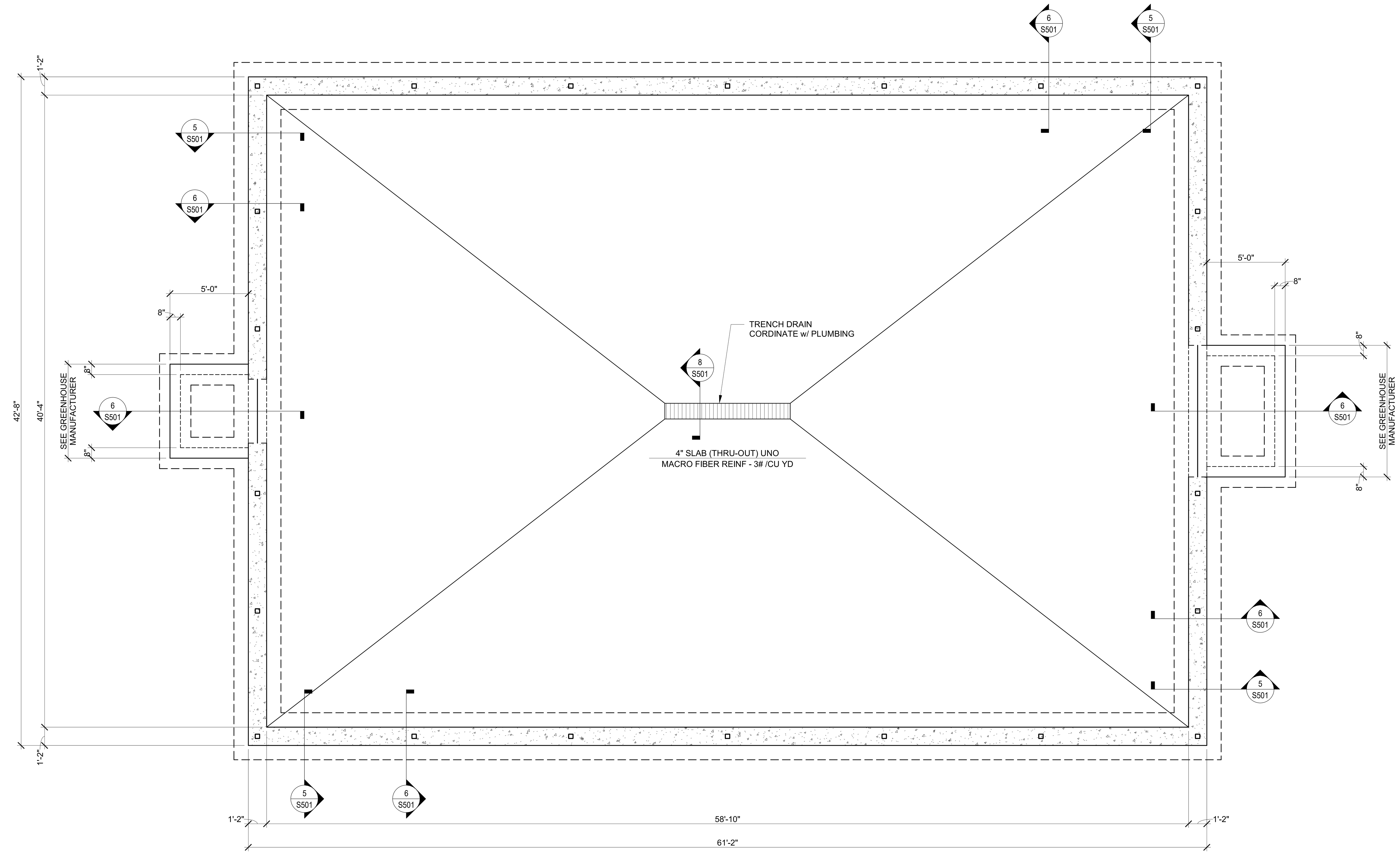
3.1.13 SLABS-ON-GRADE: MAY BE POURED AS A CONTINUOUS SCREEDED POUR WITH SAW CUT CONTROL JOINTS IN BOTH DIRECTIONS. SAW CUTS TO BE MADE WITHIN 8 HOURS OF POUR AND SHALL BE SPACED NO FURTHER APART THAN DETAILED ON THESE DRAWINGS. COORDINATE JOINT LAYOUT AND CONDITIONS WITH ARCHITECT PRIOR TO SLAB POURS.

3.1.14 WALLS: MAXIMUM POUR LENGTH 100 FT BETWEEN FORMED CONSTRUCTION JOINTS. FOR WALLS EXPOSED TO VIEW, PROVIDE INTERMEDIATE CONTROL JOINTS NO GREATER THAN 30 FT ON CENTER. JOINTS SHOULD ALIGN WITH BUILDING CONTROL JOINTS WHEN PRESENT AND COORDINATED WITH ARCHITECTURAL DRAWINGS.

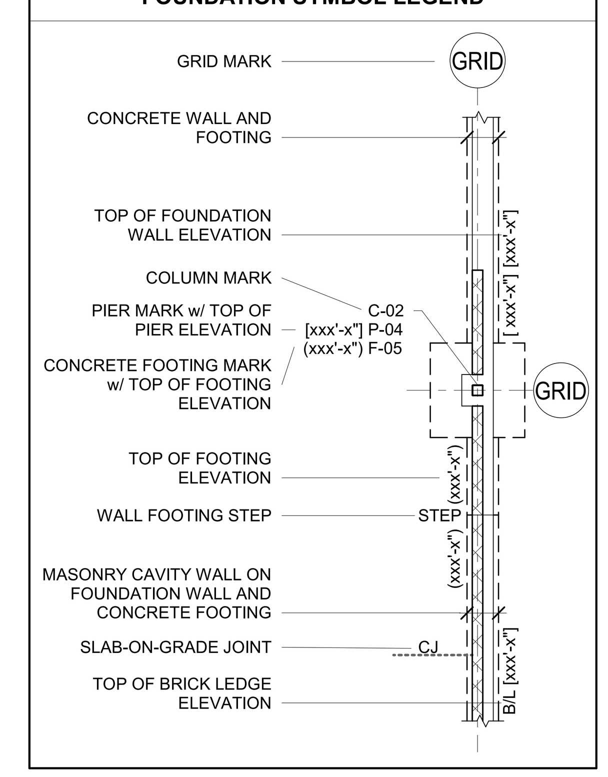
3.1.15 OPENINGS: CONTRACTOR TO PROVIDE AND COORDINATE WITH ALL OTHER TRADES FOR SIZE AND LOCATIONS OF ANY AND ALL OPENINGS, SLEEVES, ETC. OCCURRING IN WALLS, FOOTINGS, AND FLOORS. SLEEVE LAYOUTS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.

3.1.16 BOND BREAKER: PROVIDE BOND BREAKER MATERIAL WHERE SLABS ABUT WALLS, COLUMNS, AND OTHER VERTICAL SURFACES.

3.1.17 PROVIDE DIAGONAL REINFORCING BARS AT REENTRANT CORNERS IN ALL SLABS-ON-GRADE AND ELEVATED SLABS, AT CORNER OF OPENINGS IN WALLS AND SLABS, AND AT STEEL COLUMNS PENETRATING SLABS PER DETAILS IN THIS DRAWING SET.



FOUNDATION SYMBOL LEGEND



CONCRETE FOUNDATION NOTES

1. FINISHED FLOOR - EL 100'-0" (unless noted otherwise)
2. TOP OF FOOTINGS EXTERIOR - EL 96'-0" (unless noted otherwise)
3. (xxx'-x") INDICATES TOP OF FOOTING ELEVATIONS.
4. [xxx'-x"] INDICATES TOP OF FOUNDATION WALL/PIER ELEVATIONS. TOW - EL 102'-0" (unless noted otherwise)
5. WALL FOOTINGS EXTERIOR - 3'-0" x 12" NO REINF (unless noted otherwise) STOOPS - 1'-4" x 8" NO REINF (unless noted otherwise)
6. PROVIDE (2) #4 TOP BARS IN INTERIOR WALL FOOTINGS AT ALL OPENINGS 6'-0" OR GREATER.
7. CONCRETE FOUNDATION WALL REINFORCING (2) #5 CONT TOP AND BOTTOM (unless noted otherwise)
8. COORDINATE ALL FLOOR DRAINS AND PITCHED SLABS WITH ARCHITECTURAL AND PLUMBING DRAWINGS.
9. SEE DETAIL 1/S501 AND 2/S501 FOR TYPICAL CONCRETE FOUNDATION WALL DETAILS.
10. SEE DETAIL 3/S501 FOR TYPICAL PIPE PENETRATIONS THROUGH FOUNDATIONS.

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Seal / Signature

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GENERAL NOTES AND FOUNDATION PLAN

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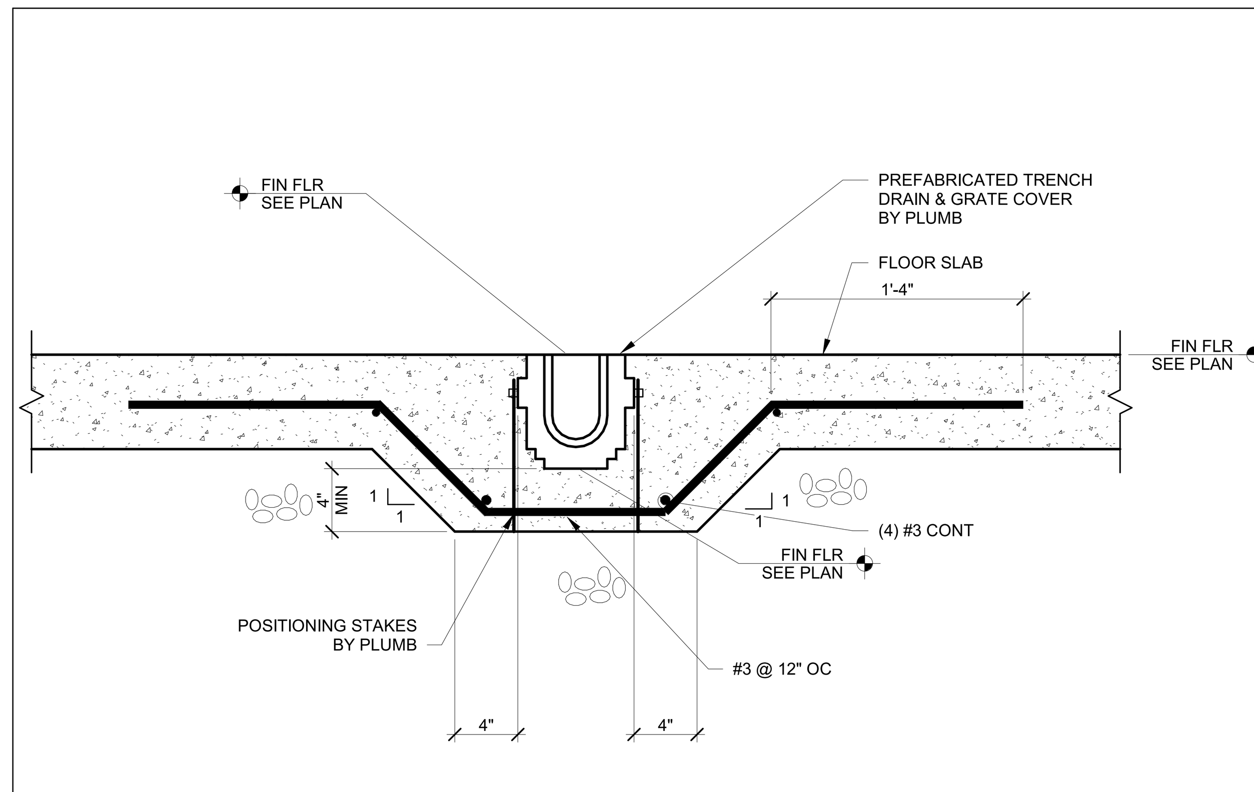
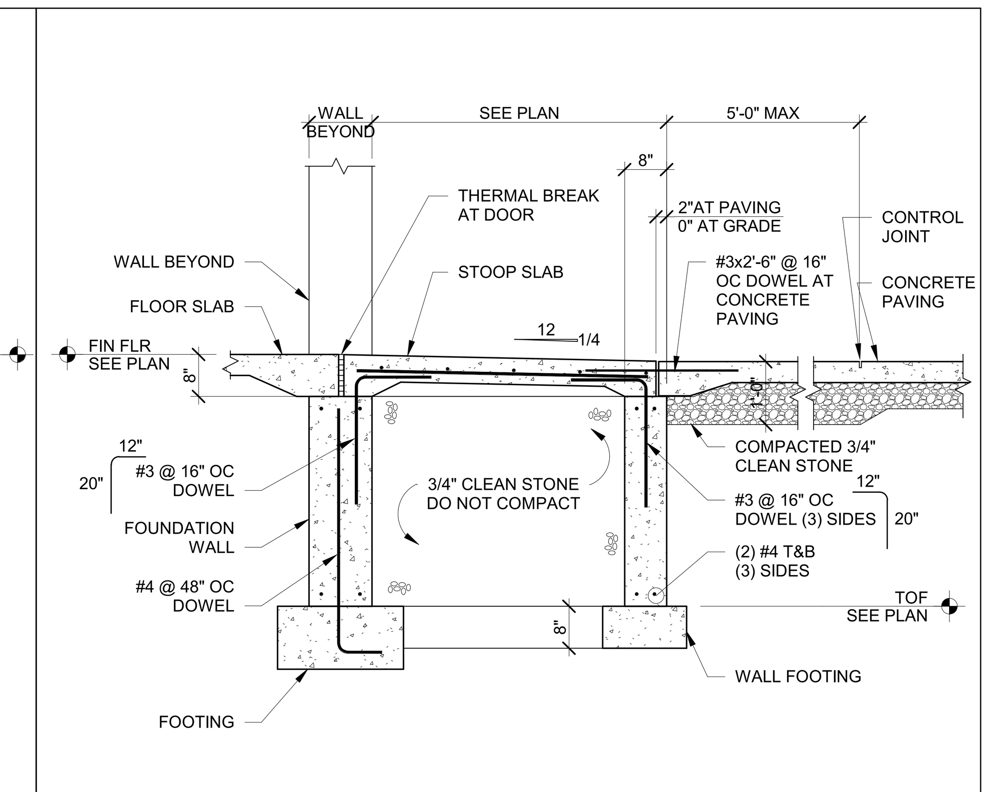
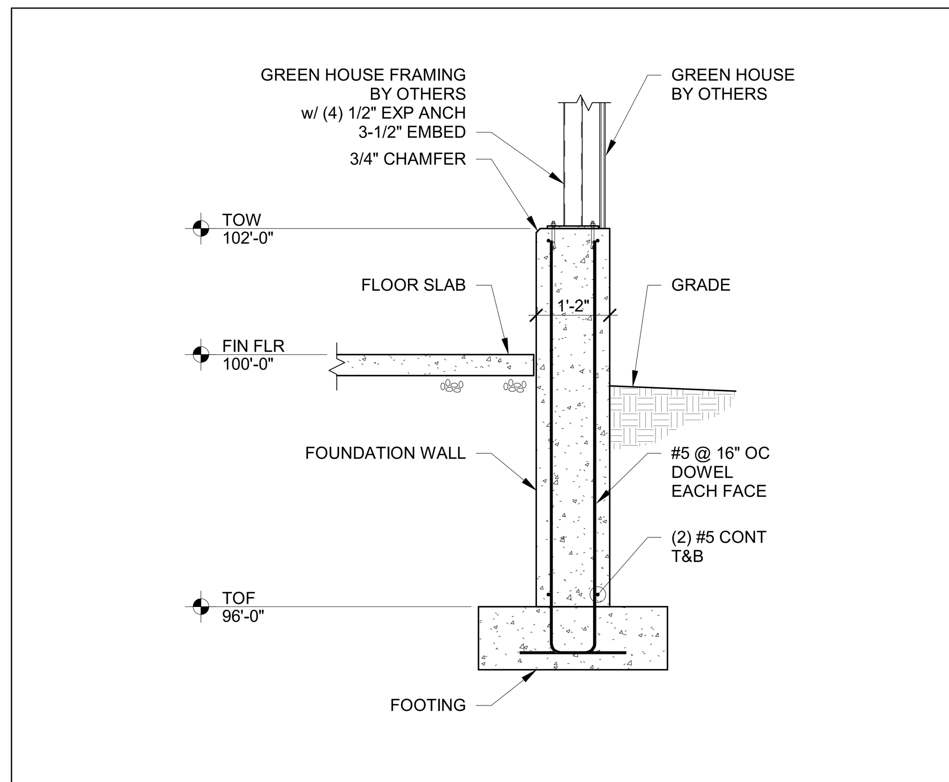


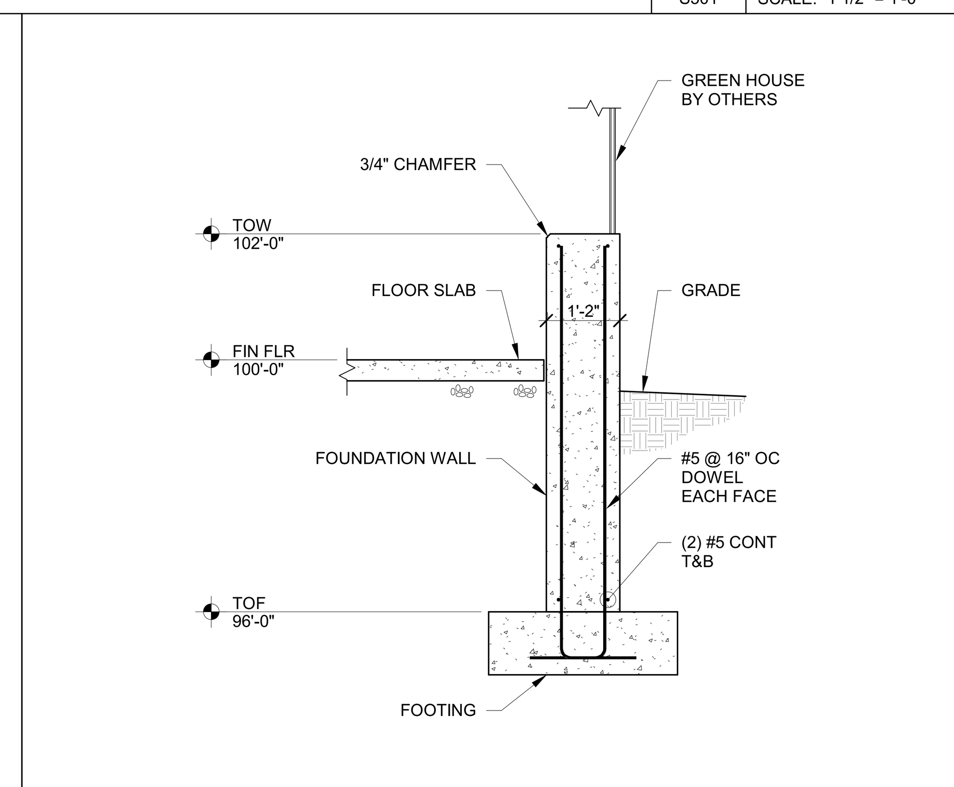
8 TYPICAL TRENCH DRAIN DETAIL
S501 SCALE: 1 1/2" = 1'-0"



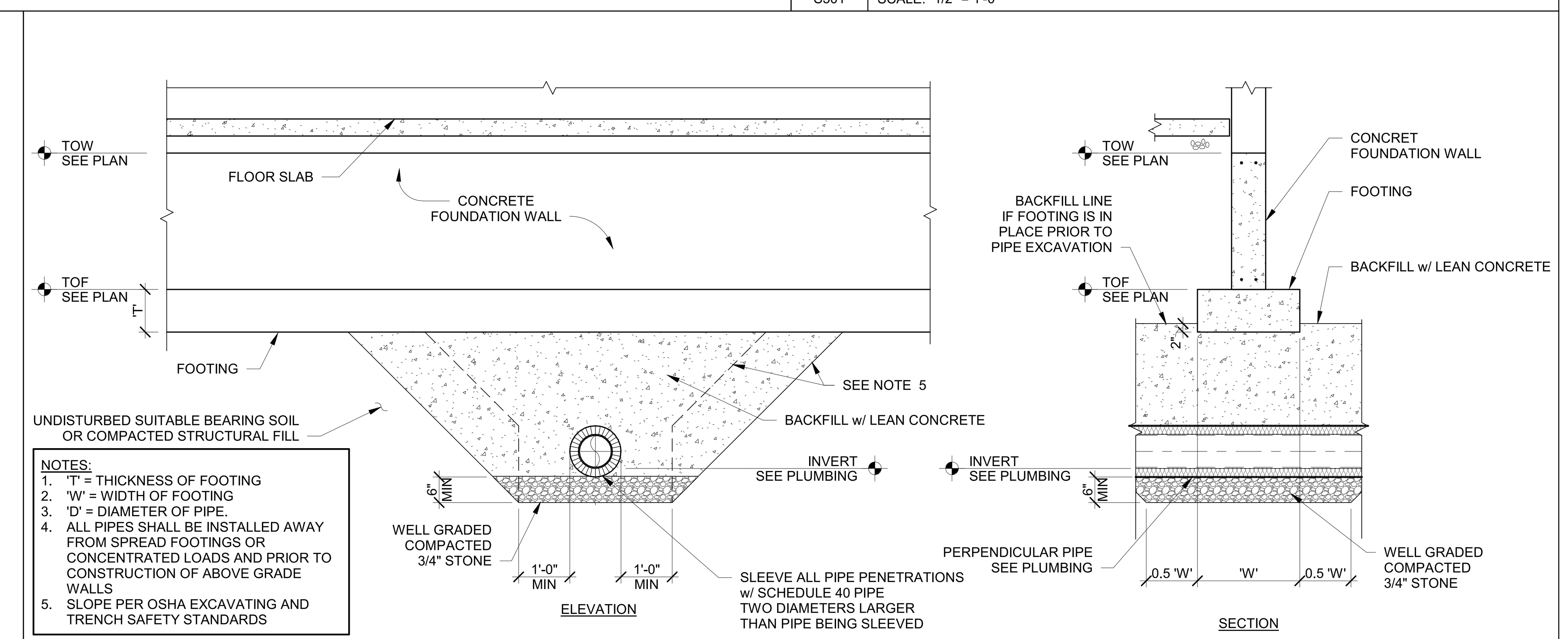
7 TYPICAL STOOP SLAB AT DOOR
S501 SCALE: 1/2" = 1'-0"



6 FOUNDATION SECTION
S501 SCALE: 1/2" = 1'-0"

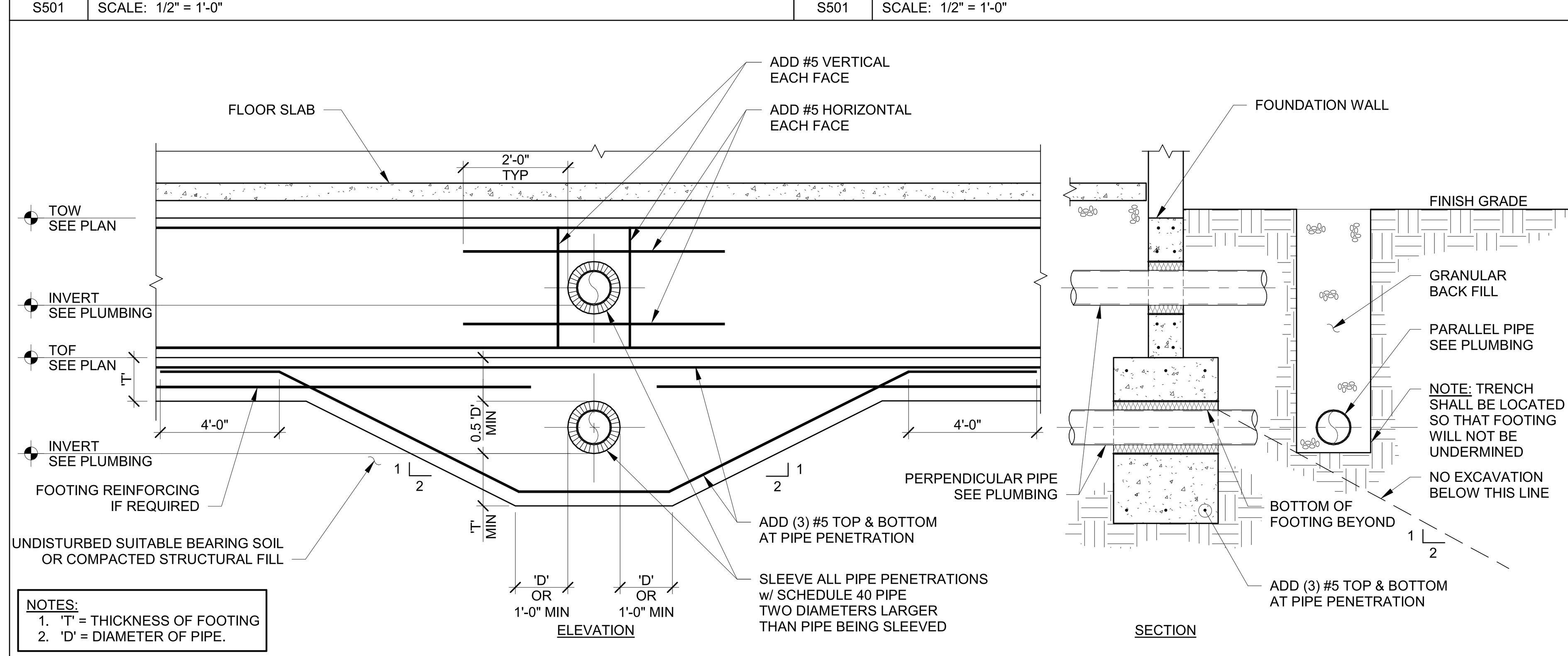


5 FOUNDATION SECTION
S501 SCALE: 1/2" = 1'-0"



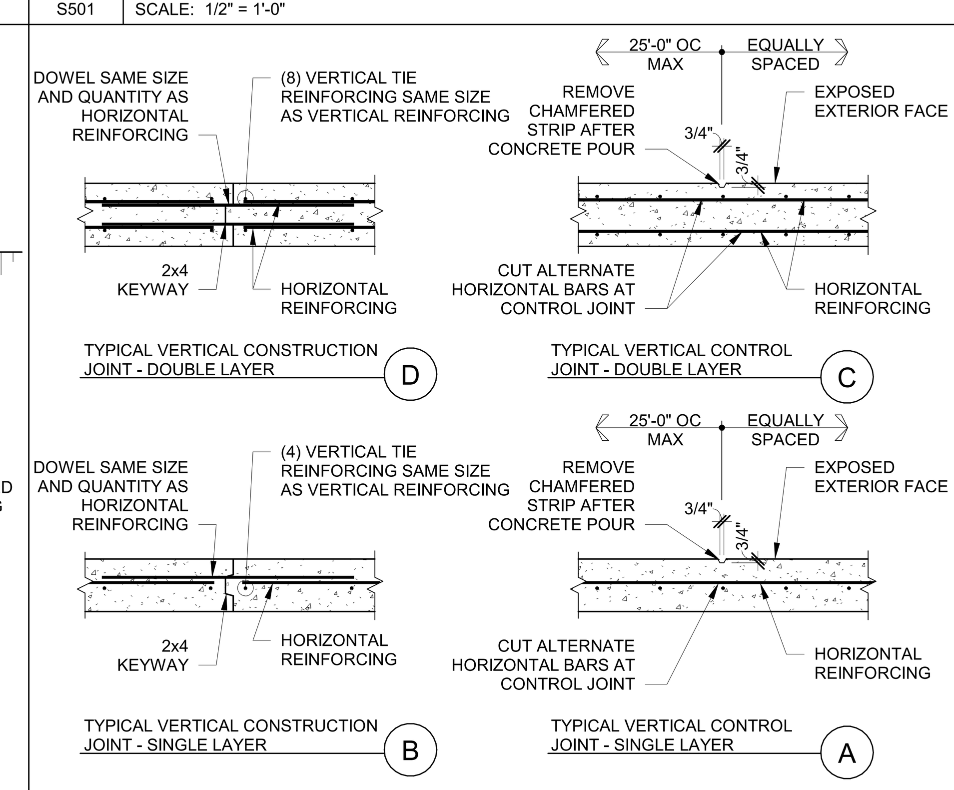
NOTES:
1. "T" = THICKNESS OF FOOTING
2. "W" = WIDTH OF FOOTING
3. 'D' = DIAMETER OF PIPE.
4. ALL PIPES SHALL BE INSTALLED AWAY FROM SPREAD FOOTINGS OR CONCENTRATED LOADS AND PRIOR TO CONSTRUCTION OF ABOVE GRADE WALLS
5. SLOPE PER OSHA EXCAVATING AND TRENCH SAFETY STANDARDS

4 TYPICAL EXCAVATION BELOW FOOTING
S501 SCALE: 1/2" = 1'-0"

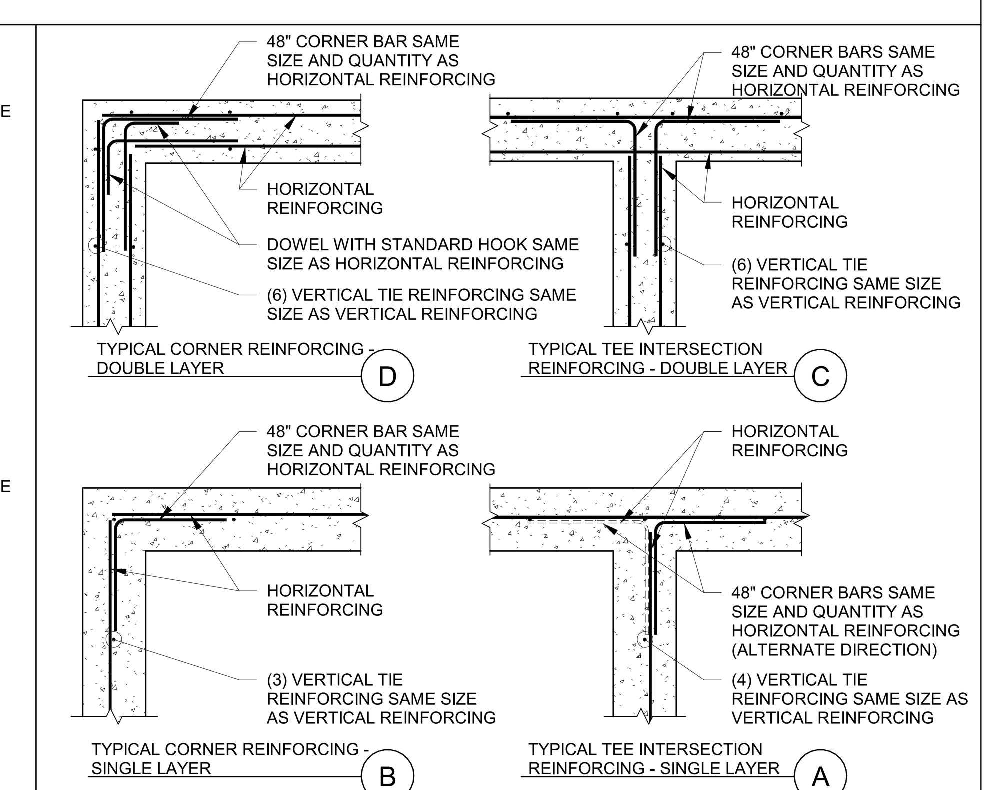


NOTES:
1. "T" = THICKNESS OF FOOTING
2. 'D' = DIAMETER OF PIPE.

3 TYPICAL PENETRATION THROUGH CONCRETE WALL AND FOOTING
S501 SCALE: 1/2" = 1'-0"



2 TYPICAL CONCRETE WALL JOINTS
S501 SCALE: NOT TO SCALE



1 TYPICAL CONCRETE FOUNDATION WALL REINFORCING
S501 SCALE: NOT TO SCALE

Seal / Signature

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