



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

APPLICATION FOR HCAI PREAPPROVAL OF
MANUFACTURER'S CERTIFICATION (OPM)

OFFICE USE ONLY

APPLICATION #: OPM-0771

HCAI Preapproval of Manufacturer's Certification (OPM)

Type: ☒ New ☐ Renewal/Update

Manufacturer Information

Manufacturer: AJ Manufacturing

Manufacturer's Technical Representative: Ashley Strube

Mailing Address: 8701 Elmwood Ave, Ste 400, Kansas City, MO 64132

Telephone: (816) 507-6875

Email: ashleystрубе@ajmfg.us

Product Information

Product Name: AJ Manufacturing Clean Air Room Equipment System

Product Type: Operating Room Ceiling Air Distribution System

Product Model Number: CARES, SS-CARES

General Description: Modular laminar flow diffuser array system for operating rooms with integrated filters and lighting, with optional mounting locations for equipment booms.

Applicant Information

Applicant Company Name: BSE Structural Engineers

Contact Person: Ryan Kubr

Mailing Address: 11320 West 79th Street, Lenexa, KS 66214

Telephone: (913) 492-7400

Email: rkubr@bsestructural.com

Title: Senior Structural Engineer

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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY





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Registered Design Professional Preparing Engineering Recommendations

Company Name: BSE STRUCTURAL ENGINEERS LLC

Name: Kevin Boehringer

California License Number: CE67904

Mailing Address: 11320 West 79th Street, Lenexa,, KS 66214

Telephone: (913) 492-7400

Email: kboehringer@bsestructural.com

Certification Method

Testing in accordance with: ☐ ICC-ES AC156 ☐ FM 1950 ☐ ASHRAE 171 ☐ FEMA 461

☐ Other(s) (Please Specify):

*Use of criteria other than those adopted by the California Building Standards Code, 2025 (CBSC 2025) for component supports and attachments are not permitted. For distribution system, interior partition wall, and suspended ceiling seismic bracings, test criteria other than those adopted in the CBSC 2025 may be used when approved by HCAI prior to testing.

☒ Analysis

☐ Experience Data

☐ Combination of Testing, Analysis, and/or Experience Data (Please Specify):

HCAI Approval

Date: 8/2/2026

Name: William Staehlin

Title: Senior Structural Engineer

Condition of Approval (if applicable):

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OSHPD OPM-0771

MANUFACTURE: AJ MANUFACTURING

EQUIPMENT TYPE: CEILING MOUNTED BOOM AIR DISTRIBUTION SYSTEM

GENERAL NOTES

1. THIS HCAI PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2025. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2025.
2. SEISMIC CRITERIA USED: SEE SCHEDULE.
3. SUPPORT AND ATTACHMENT FORCES ARE DETERMINED USING ASCE 7-22 CHAPTER 13 "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". AN OVERSTRENGTH FACTOR $\Omega_0=2.0$ IS USED FOR CONCRETE MATERIALS PER ASCE 7-22 SUPPLEMENT 1 TABLE 13.6-1. LOADS SHOWN ARE STRENGTH DESIGN LOADS.
4. THIS PREAPPROVAL COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.
5. STEEL MATERIALS: ANGLES AND PLATE ASTM A36, ROUND HSS ASTM A500 GRADE C (FY = 46 KSI), RECTANGULAR HSS ASTM A500 GRADE C (FY = 50 KSI), WELDING ELECTRODES 70 KSI. ALL THREAD ROD ASTM F1554 GRADE 36 OR ASTM F1554 GRADE 55 S1 AS NOTED, NUTS ASTM A563, WASHERS ASTM F436. BOLTS SUPPLIED BY AJ MANUFACTURING ARE SAE GRADE 5 / ASTM F3125 GR. A325 EQUIVALENT.
6. CONCRETE SLABS:
 - a. FOR ELEVATED SOLID CONCRETE SLABS: 6" THICKNESS OF NORMAL WEIGHT CONCRETE WITH 4000 PSI MINIMUM STRENGTH.
 - b. METAL DECK: 3" DEEP COMPOSITE STEEL DECK, 20 GAUGE MINIMUM, 4 3/4 INCH MINIMUM BOTTOM FLUTE WIDTH AND FLUTE SPACING IS 12", WITH 2 1/2 INCH SAND LIGHT WEIGHT CONCRETE AT 4000 PSI MINIMUM STRENGTH.
7. POST-INSTALLED CONCRETE ANCHORS: CARBON STEEL BODY WEDGE ANCHORS INSTALLED PER DETAILS AND TABLE 2 SHEET 3 REQUIREMENTS. STAINLESS STEEL BODY ANCHORS SHALL NOT BE USED. ANCHORS SHALL BE INSTALLED PER MANUFACTURER INSTRUCTIONS TO MANUFACTURER SPECIFIED INSTALLATION TORQUE.
8. ATTACHED COMPONENTS ARE NOT SENSITIVE TO SEISMIC DRIFT OR DISPLACEMENTS.
9. ALL ATTACHMENT ANGLES, BOLTS, AND CONCRETE ANCHORS ARE TO BE SUPPLIED BY THE GENERAL CONTRACTOR OR SYSTEM INSTALLER.

RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD

1. CONFIRM THE MATERIAL PROPERTIES AND THICKNESS OF THE CONCRETE SLAB TO WHICH THE EQUIPMENT IS ATTACHED MEETS THE REQUIREMENTS OF THIS OPM.
2. PROVIDE A PLAN FOR INSPECTION OF SUPPORTS AND ATTACHMENTS AND VERIFY ITS IMPLEMENTATION.
3. CONFIRM THE SPECIFIED MINIMUM CONCRETE EDGE DISTANCES ARE MAINTAINED BASED ON THE ACTUAL EQUIPMENT LOCATION. VERIFY THAT EXISTING OR NEW ANCHORS ARE AN ADEQUATE DISTANCE FROM THIS UNIT'S ATTACHMENT.
4. VERIFY THAT THE EXISTING STRUCTURE IS ADEQUATE FOR THE IMPOSED DEAD, LATERAL, AND TENSION FORCES SHOWN IN ADDITION TO ALL OTHER LOADS.
5. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH CBC 2025 AND WITH THE OPM-0771 DETAILS INCLUDING MATERIALS AND DIMENSIONS OF THE SUPPORT WHERE THE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN.
6. VERIFY THAT THE PROJECT SPECIFIC S_{DS} AND z/h VALUES RESULT IN SEISMIC FORCES (EH AND EV) DO NOT EXCEED THE VALUES SHOWN IN THESE DETAILS.

SEISMIC CRITERIA

S_{ds}	I_p	C_{AR}	a_p	R_{po}	R_u	H_f	H_f/R_u	Z/h	F_{ph}	F_{pv}
2.5	1.5	1.4	2.5	1.5	1.3	3.5	2.69	1.0	2.69	0.50

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www.BSEstructural.com
Project Number 25-475**AJ MFG.**

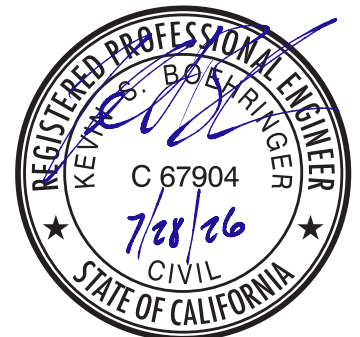
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08/02/2026

AJ MANUFACTURING**Clean Air Room Equipment System**

MODEL #: CARES, SS-CARES

DESIGNED BY: KB/RK	PROJECT #: 25-475	SHEET 1
DATE: 2026-07-28	DRAWN BY: AG	OF 19

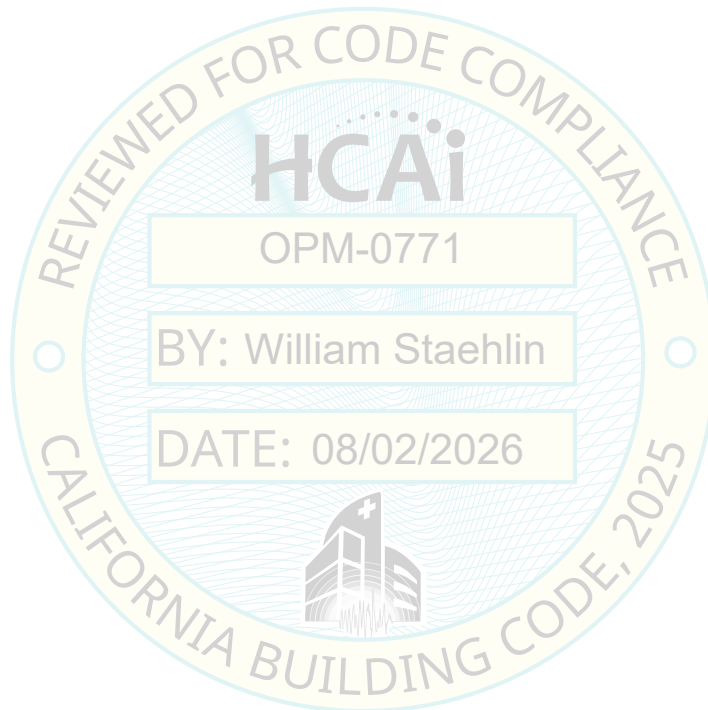


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ATTACHMENT NOTES

1. BRACE ARM INCLINATION MAY VARY FROM 35° TO 55° FROM HORIZONTAL WHERE SHOWN IN THE ATTACHMENT DETAILS. ANGLE LIMITATIONS VARY BASED ON ANCHOR SUBSTRATE AND CONFIGURATION.
2. PERIODIC SPECIAL INSPECTION IS REQUIRED PER CBC 2025 SECTION 1705A AND TABLE 1705A.3 INCLUDING VERIFICATION OF ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, ANCHOR SPACING, EDGE DISTANCES, CONCRETE MEMBER THICKNESS, TIGHTENING TORQUE, HOLE DIMENSIONS, ANCHOR EMBEDMENT AND ADHERENCE TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. IN ADDITION, FOLLOW THE PROVISIONS OF THE 2025 CALIFORNIA BUILDING CODE SECTION 1910A.5 BY CONFIRMING THE INSTALLATION TORQUE SPECIFIED BY THE MANUFACTURER. TESTING IS NOT TO OCCUR UNTIL A MINIMUM OF 24 HOURS HAS ELAPSED AFTER THE INSTALLATION OF THE SUBJECT ANCHORS. TESTING SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR. TEST 50% OF THE ANCHORS FOR EACH PIECE OF EQUIPMENT. USING A CALIBRATED TORQUE WRENCH VERIFY THE INSTALLATION TORQUE IS OBTAINED WITHIN 1/2 TURN OF THE NUT. REPORT OF TEST RESULTS ARE TO BE SUBMITTED TO THE ENFORCEMENT AGENCY. THE S.E.O.R. SHALL PROVIDE REMEDIAL ANCHORAGE DETAILS IN THE EVENT THAT AN ANCHOR FAILS TO MEET THE TEST REQUIREMENTS.
3. WELDS ARE TO BE VISUALLY INSPECTED BY A QUALIFIED WELDING INSPECTOR.
4. STRENGTH DESIGN WAS USED FOR ANCHOR FORCE CALCULATIONS INCLUDING OVERSTRENGTH (ϕ) PER ACI 318-19 WHERE REQUIRED FOR ATTACHMENT TO CONCRETE.
5. EXERCISE DUE CARE WHEN DRILLING POST-INSTALLED ANCHORS TO AVOID DAMAGING CONCRETE REINFORCEMENT OR TENDONS.
6. ALL STEEL TO STEEL BOLTS SHALL BE INSTALLED SNUG-TIGHT WITH DOUBLE NUT, BURRED/DAMAGED THREADS, OR PERMANENT THREAD LOCKER TO PREVENT LOOSENING.



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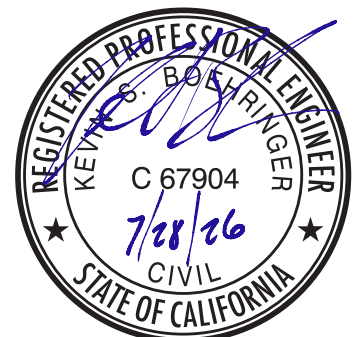


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MODEL #: CARES, SS-CARES

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TABLE 1 - ALLOWABLE PLENUM MODULE DIMENSIONS & WEIGHTS

PLENUM HEIGHT 'H'	MAXIMUM OVERALL LENGTH 'L'	MAXIMUM OVERALL WIDTH 'W'	MAXIMUM MODULE WEIGHT	CENTER OF GRAVITY 'C.G.'	SUPPORTING EQUIPMENT
0'-8"	12'-0"	12'-0"	1000 LBS	4"	NO
1'-0"	12'-0"	12'-0"	1000 LBS	6"	NO
1'-6"	12'-0"	12'-0"	1000 LBS	9"	NO

NOTES:

1. PLENUM HEIGHT 'H' AND CENTER OF GRAVITY MAY BE INTERPOLATED BETWEEN LISTED HEIGHT DIMENSIONS OF MINIMUM 8" AND MAXIMUM 1'-6" MODULE HEIGHT.

2. PLENUM OVERALL LENGTH AND OVERALL WIDTH IS THE TOTAL OF ALL CONNECTED MODULES AND SHALL NOT EXCEED THE NOTED DIMENSIONS. MINIMUM OVERALL LENGTH AND OVERALL WIDTH IS NOT LIMITED.

TABLE 2 - ANCHOR SUMMARY

MARK	MANUF.	PRODUCT	DIAMETER (IN)	NOMINAL MIN. EMBED (H _{mon}) (IN)	REQ'D. INSTALLATION TORQUE	MIN.CONC. THICKNESS 'A'	FLUTE WIDTH 'B' (IN)	MIN.CONC. 'C' COVER (IN)	FLUTE CL OFFSET 'D' (IN)	FLUTE EDGE 'E' (IN)
A	HILTI	KB-TZ2 CS	5/8	4-1/2	40	2-1/2	3-7/8	3/4	N/A	1" MIN
B	DEWALT	POWER-STUD+ SD2	5/8	4-7/8	60	3-1/4	3-7/8	1	N/A	1" MIN
C	SIMPSON	STRONG-BOLT 2	1/2	4	60	3-1/4	3-7/8	1	1" MAX	1" MIN
D	SIMPSON	STRONG-BOLT 2	5/8	5-1/8	90	3-1/4	3-7/8	3/4	1" MAX	1" MIN
E	HILTI	KB-TZ2 CS	5/8	4-1/2	40	6	N/A	N/A	N/A	N/A
F	DEWALT	POWER-STUD+ SD2	5/8	4-7/8	60	6 1/2	N/A	N/A	N/A	N/A
G	SIMPSON	STRONG-BOLT 2	5/8	4-3/8	90	6 7/8	N/A	N/A	N/A	N/A

NOTES:

1. MINIMUM CONCRETE THICKNESS, NOMINAL MINIMUM EMBEDMENT AND MINIMUM CONCRETE COVER SHALL BE COORDINATED WITH AVAILABLE SLAB THICKNESS AND FLUTE DEPTH TO SATISFY ALL MINIMUM REQUIREMENTS. CONSULT MANUFACTURER INSTRUCTIONS FOR INSTALLATION REQUIREMENTS.
2. MINIMUM CONCRETE THICKNESS AT CONCRETE ON METAL DECK IS THE MINIMUM TOPPING THICKNESS ABOVE THE FLUTES.
3. ALL ANCHORS LISTED SHALL BE CARBON STEEL BODY ANCHORS. STAINLESS STILL BODY ANCHORS SHALL NOT BE USED.

ESR-4266 HILTI KB-TZ2 CS
 ESR-2502 DEWALT POWER-STUD+ SD2
 ESR-3037 SIMPSON STRONG-BOLT 2

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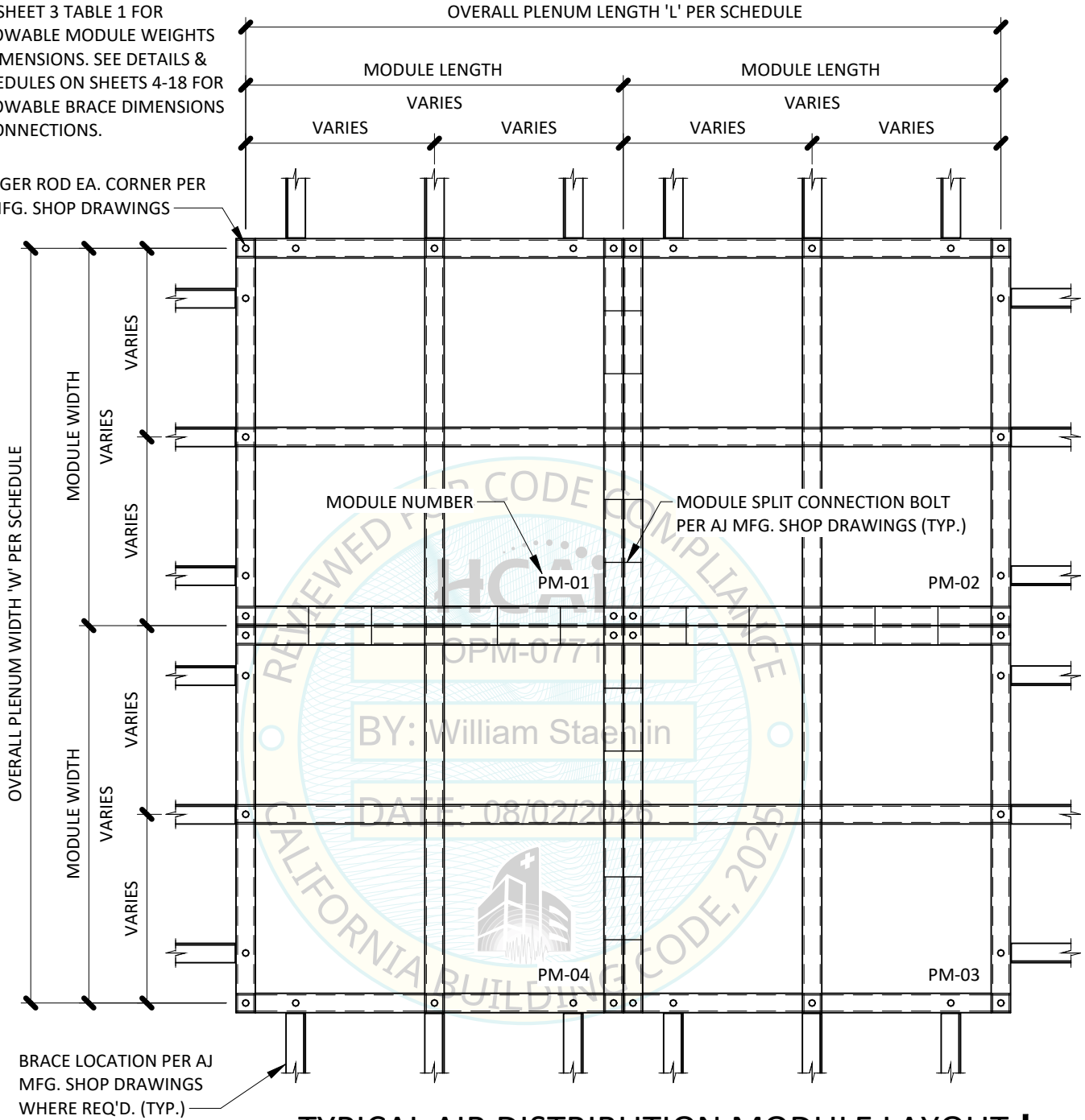
DESIGNED BY: Designer PROJECT #: 25-475 SHEET 3
 DATE: 2026-07-28 DRAWN BY: Author OF 19



NOTE:

SEE SHEET 3 TABLE 1 FOR ALLOWABLE MODULE WEIGHTS & DIMENSIONS. SEE DETAILS & SCHEDULES ON SHEETS 4-18 FOR ALLOWABLE BRACE DIMENSIONS & CONNECTIONS.

HANGER ROD EA. CORNER PER AJ MFG. SHOP DRAWINGS



TYPICAL AIR DISTRIBUTION MODULE LAYOUT

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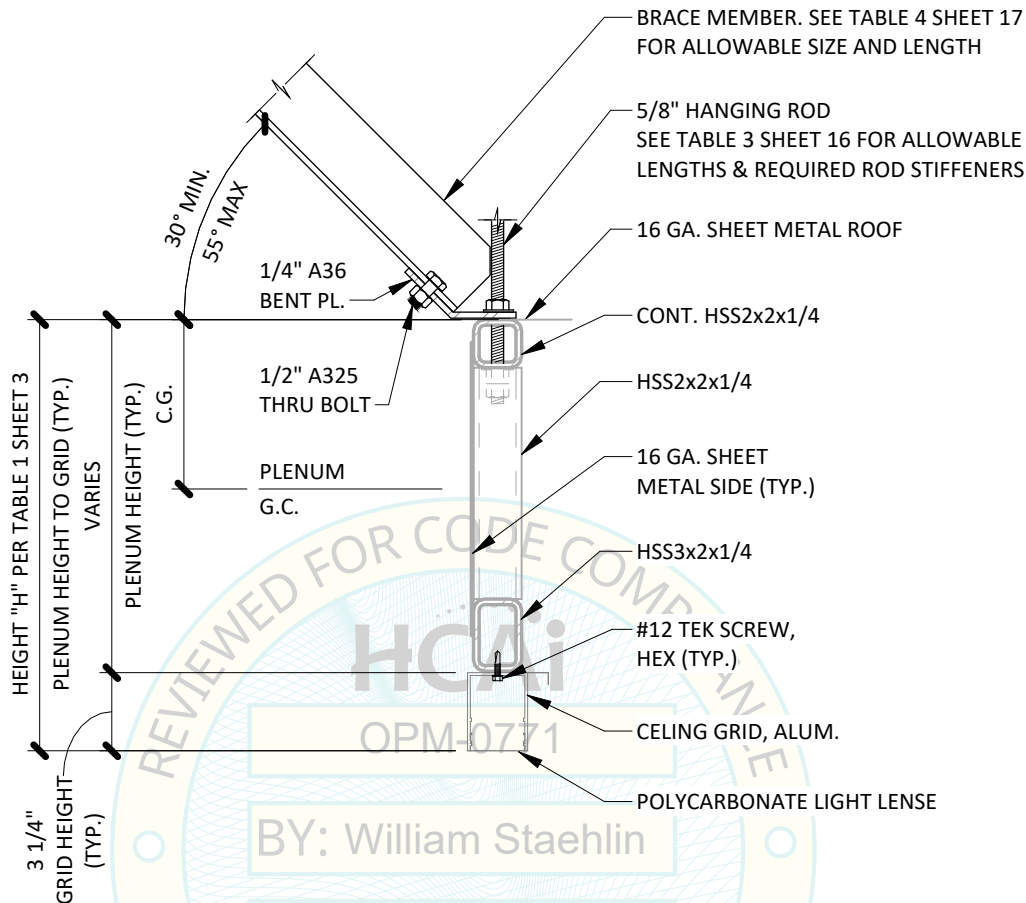


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NOTES:

- 1.) REFER TO MODULE PLAN NOTES AND ALLOWABLE LOAD TABLE ON SHEET 3 FOR MODULE WEIGHT & DIMENSION LIMITATIONS.
- 2.) AT HALF-TONED TUBES, SHEET, & CEILING GRID. REFER TO PROJECT SPECIFIC MODULE SUBMITTAL & CALCULATIONS FOR FINAL MODULE LAYOUT, DESIGN WEIGHT, REACTIONS, HANGER LOCATIONS & BRACING LOCATIONS.

TYPICAL BRACE & HANGER ROD ATTACHMENT SECTION

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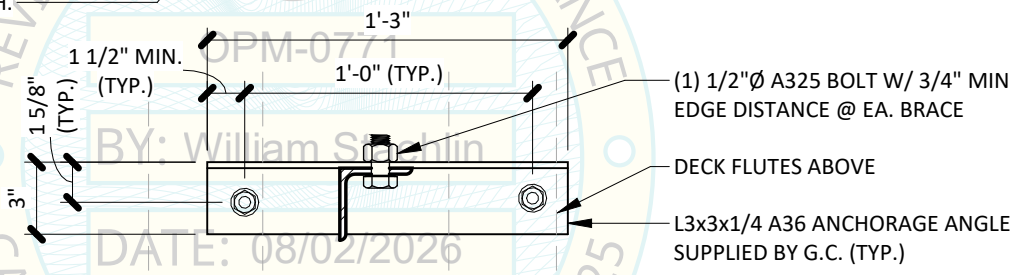
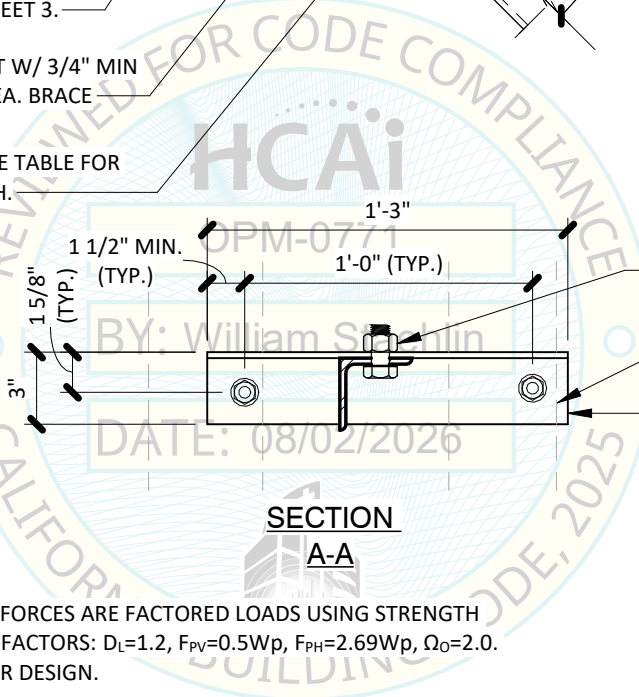
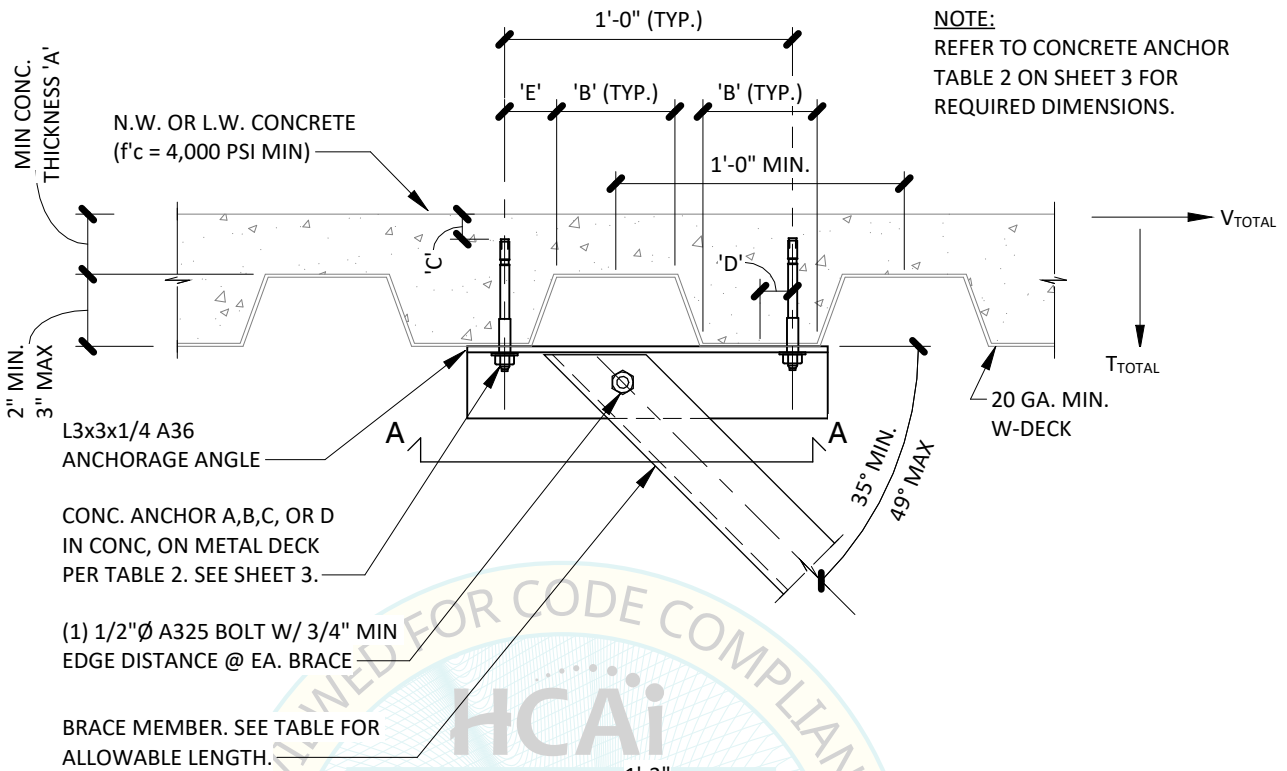
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SECTION
A-A

NOTES:

1. $V_{TOTAL}=2510$ LBS. & $T_{TOTAL}=3584$ LBS. FORCES ARE FACTORED LOADS USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: $D_L=1.2$, $F_{PV}=0.5W_p$, $F_{PH}=2.69W_p$, $\Omega_0=2.0$. MAXIMUM LOAD EFFECTS ARE USED FOR DESIGN.
2. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGN TO SUPPORT FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

BRACE ATTACHMENT TO CONCRETE OVER METAL DECK

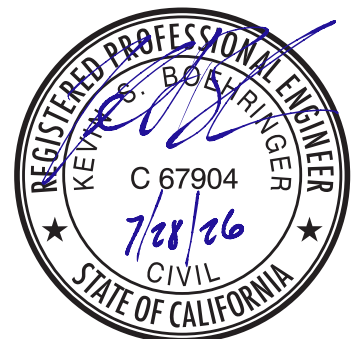
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DESIGNED BY: KB/RK	PROJECT #: 25-475	SHEET 6
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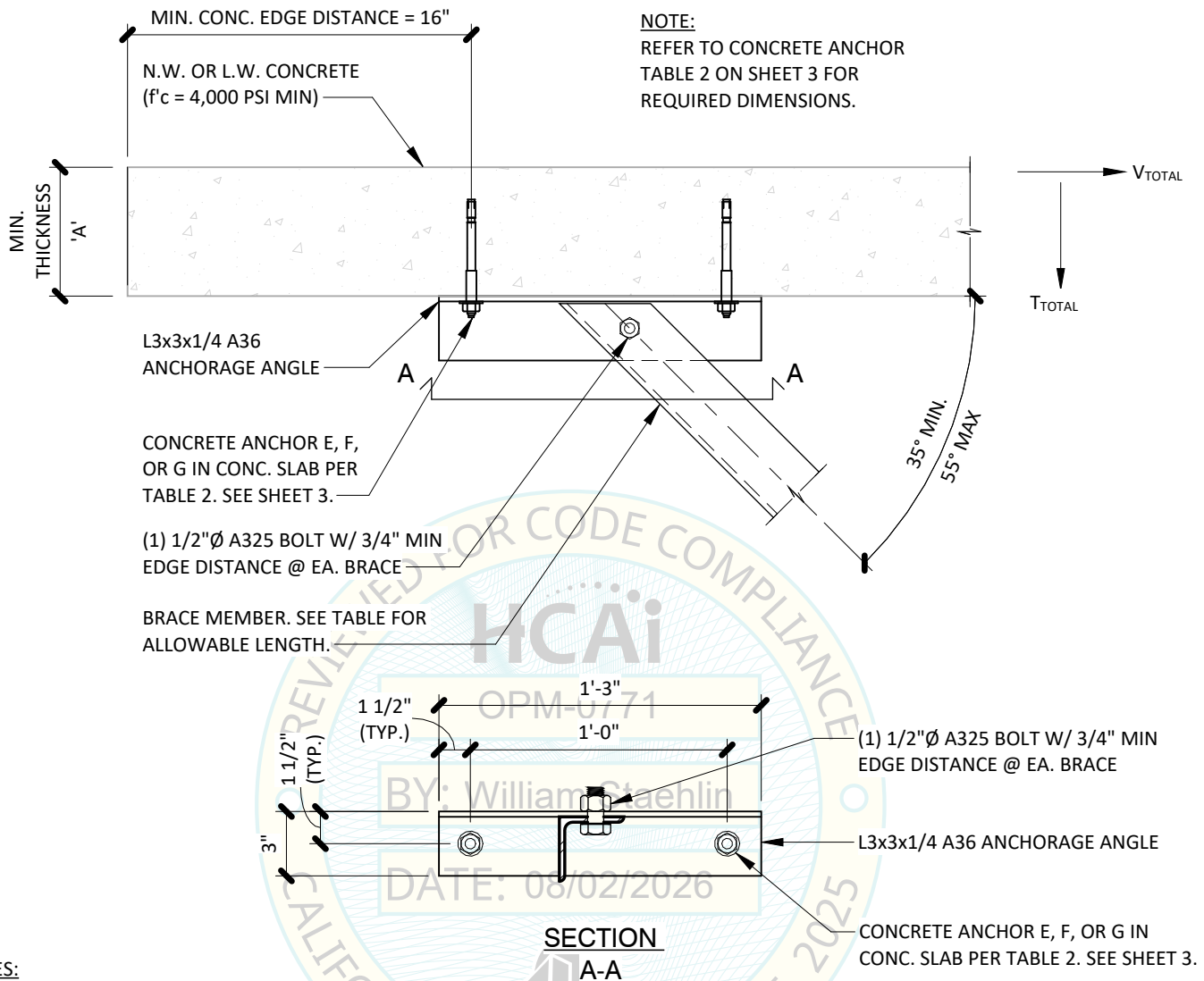


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NOTES:

1. $V_{TOTAL} = 2510$ LBS. & $T_{TOTAL} = 3584$ LBS. FORCES ARE FACTORED LOADS USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: $D_L = 1.2$, $F_{PV} = 0.5W_p$, $F_{PH} = 2.69W_p$, $\Omega_0 = 2.0$. MAXIMUM LOAD EFFECTS ARE USED FOR DESIGN.
2. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGN TO SUPPORT FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

BRACE ATTACHMENT TO ELEVATED CONCRETE SLAB

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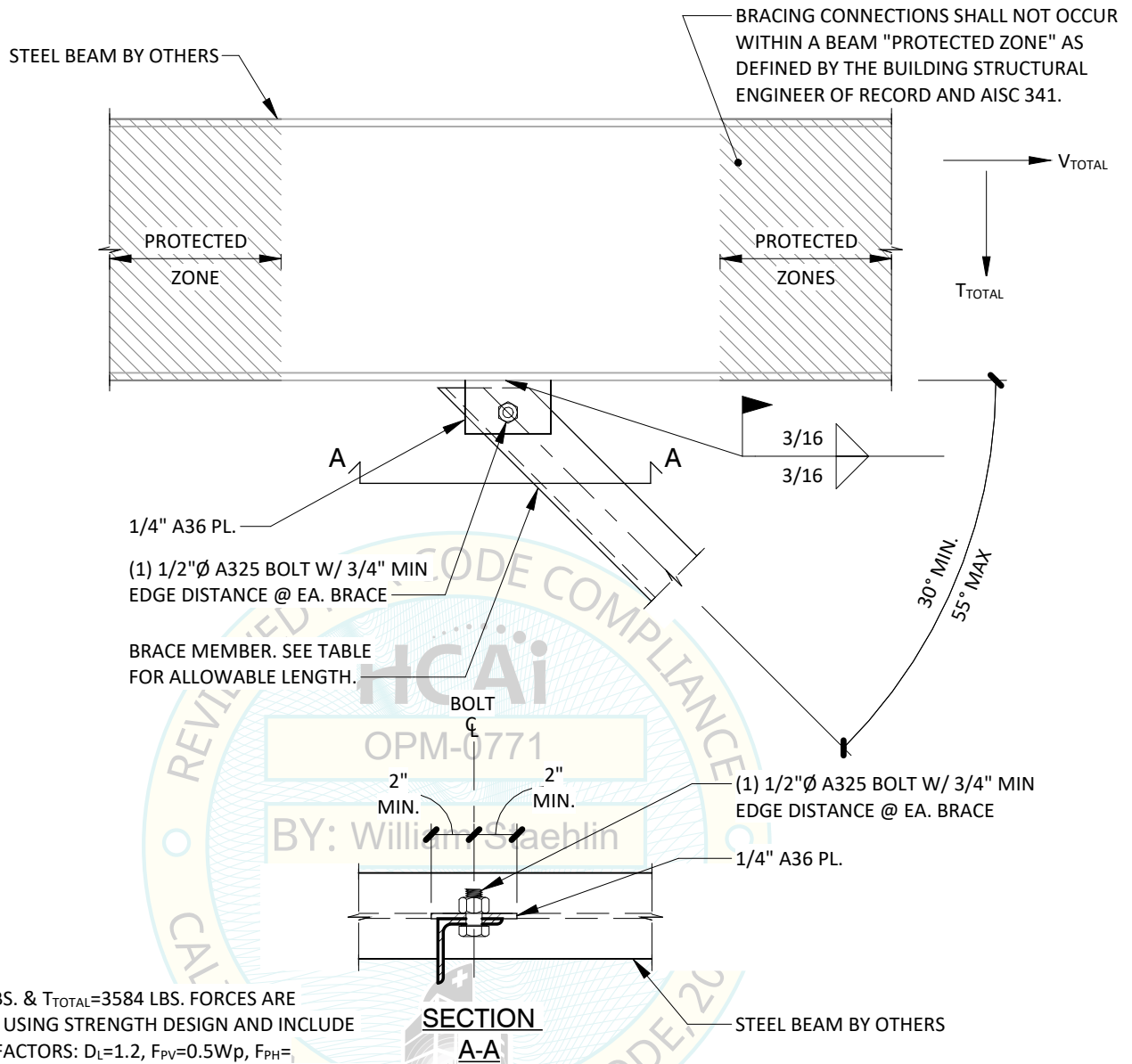
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MODEL #: CARES, SS-CARES

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DATE: 2026-07-28	DRAWN BY: AG	OF 19



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NOTES:

1. $V_{TOTAL}=2510$ LBS. & $T_{TOTAL}=3584$ LBS. FORCES ARE FACTORED LOADS USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: $D_L=1.2$, $F_{PV}=0.5W_p$, $F_{PH}=2.69W_p$, $\Omega_0=2.0$. MAXIMUM LOAD EFFECTS ARE USED FOR DESIGN.

2. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGN TO SUPPORT FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

BRACE ATTACHMENT TO STRUCTURAL STEEL

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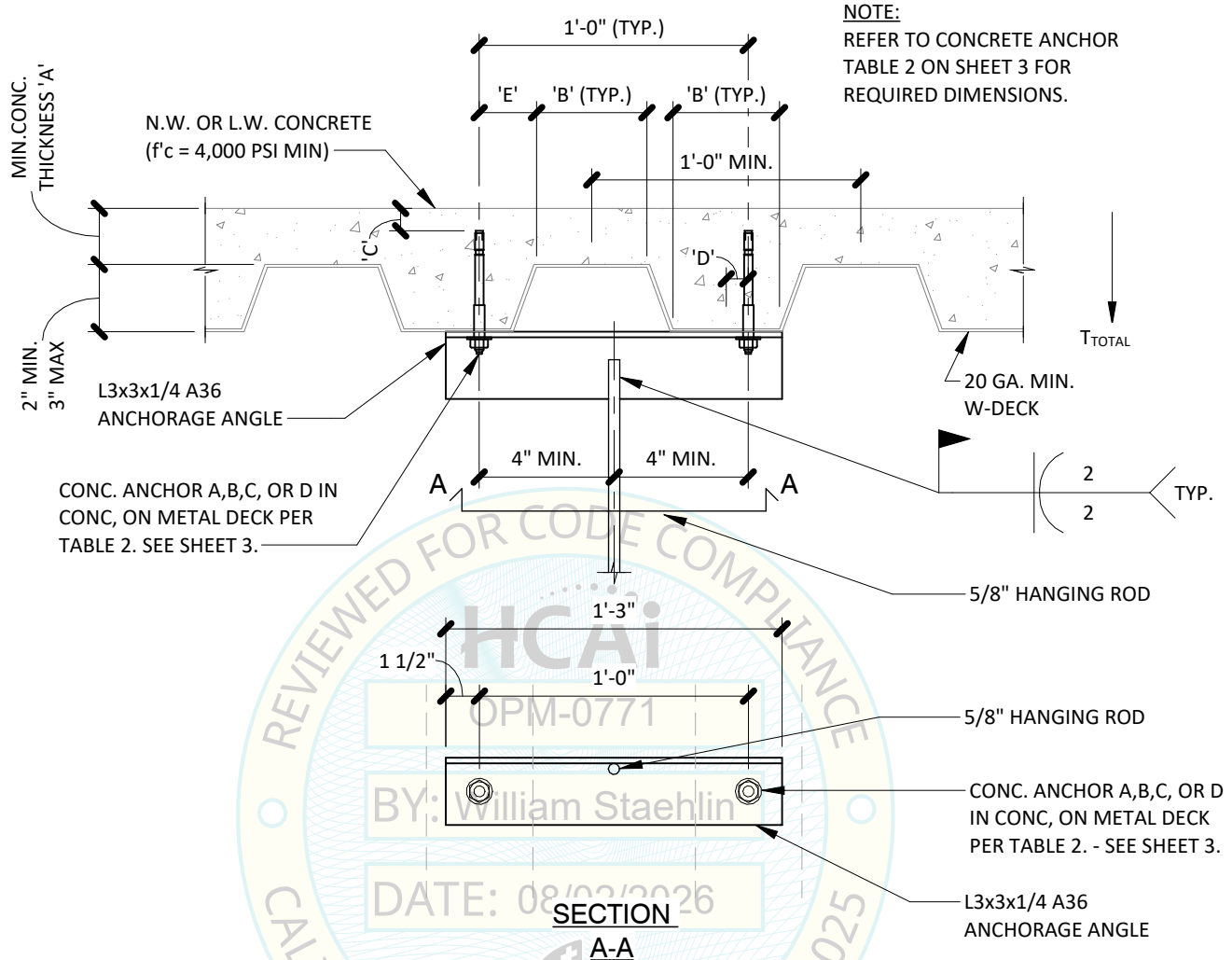
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DATE: 2026-07-28	DRAWN BY: AG	OF 19

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SINGLE HANGER, TWO FLUTES



NOTES:

1. $T_{TOTAL}=3701$ LBS. FORCES ARE FACTORED LOADS USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: $D_L=1.2$, $F_{PV}=0.5W_p$, $F_{PH}=2.69W_p$, $\Omega_0=2.0$. MAXIMUM LOAD EFFECTS ARE USED FOR DESIGN.
2. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGN TO SUPPORT FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.
3. IF THE HANGER IS LESS THAN 4" FROM AN ANCHOR THE SKIPPED FLUTE DETAIL IS REQUIRED

SINGLE HANGER ROD ATTACHMENT TO CONCRETE OVER METAL DECK

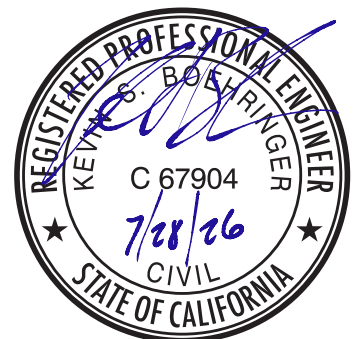
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DESIGNED BY: KB/RK	PROJECT #: 25-475	SHEET 9
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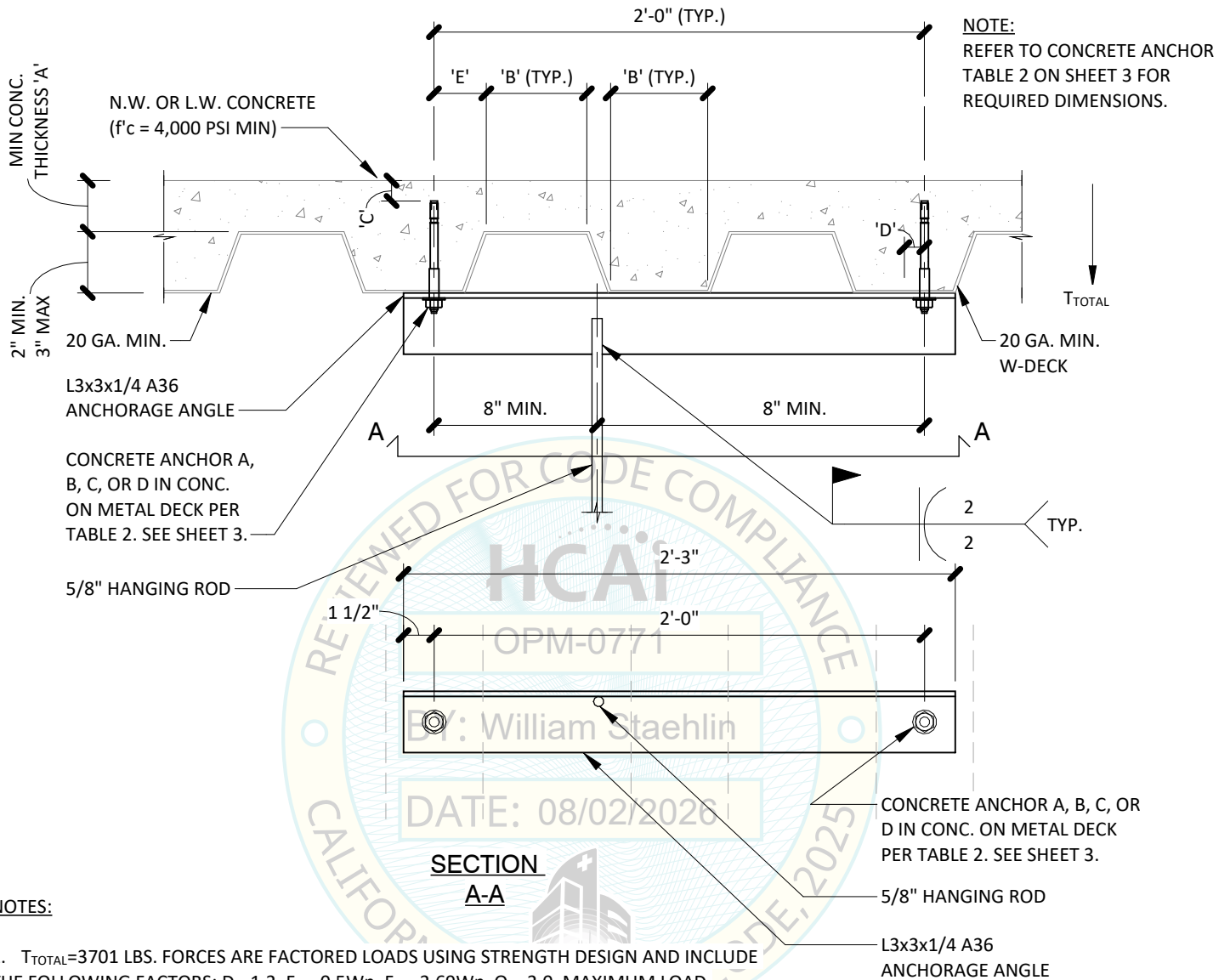
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SINGLE HANGER, THREE FLUTES



SINGLE HANGER ROD ATTACHMENT TO CONCRETE OVER METAL DECK

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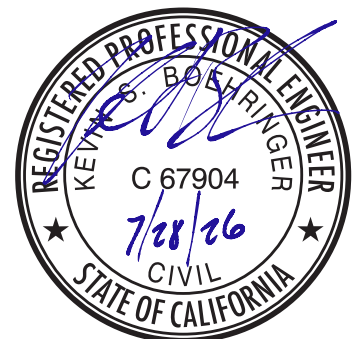
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MODEL #: CARES, SS-CARES

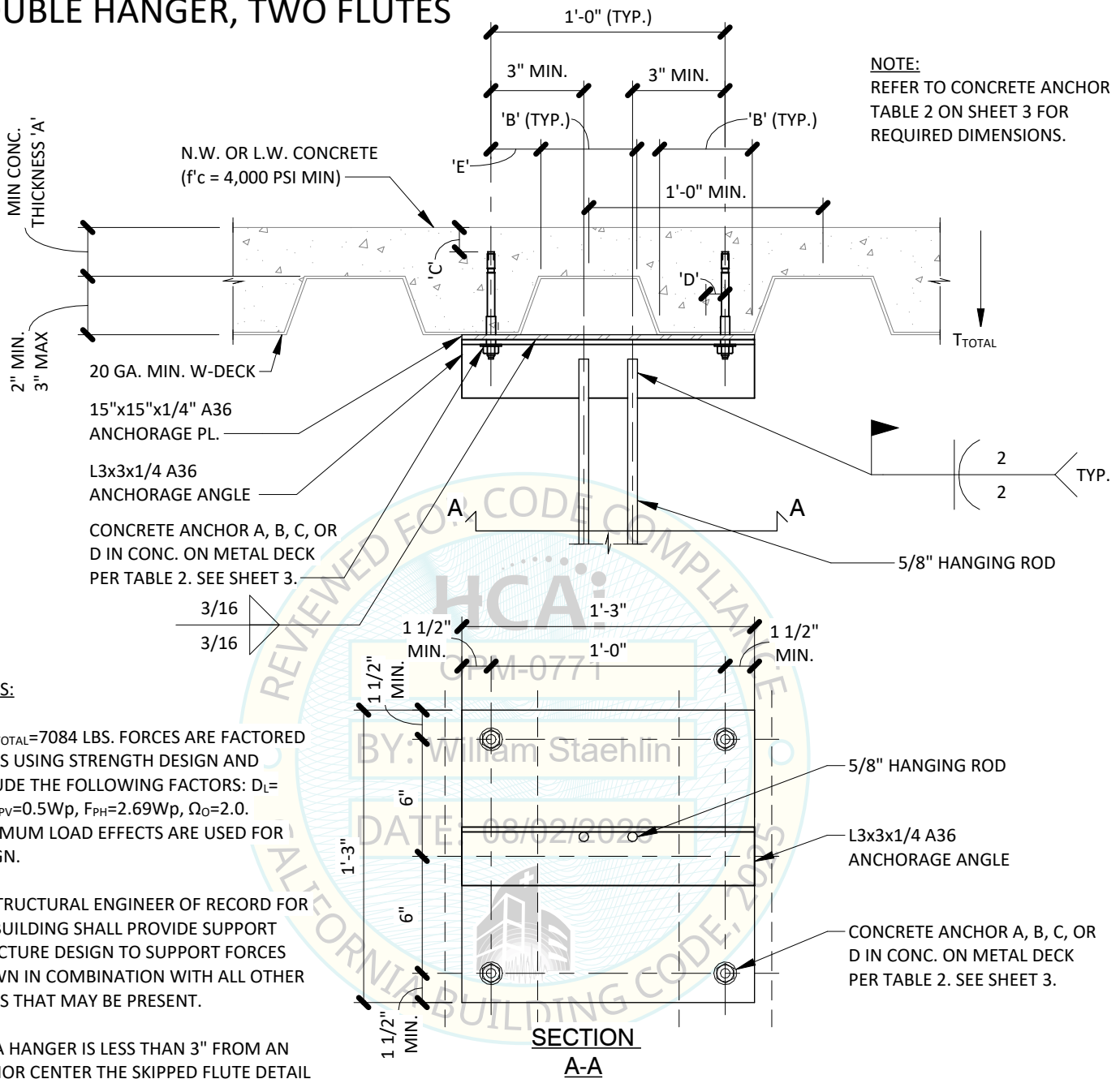
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DOUBLE HANGER, TWO FLUTES



DOUBLE HANGER ROD ATTACHMENT TO CONCRETE OVER METAL DECK

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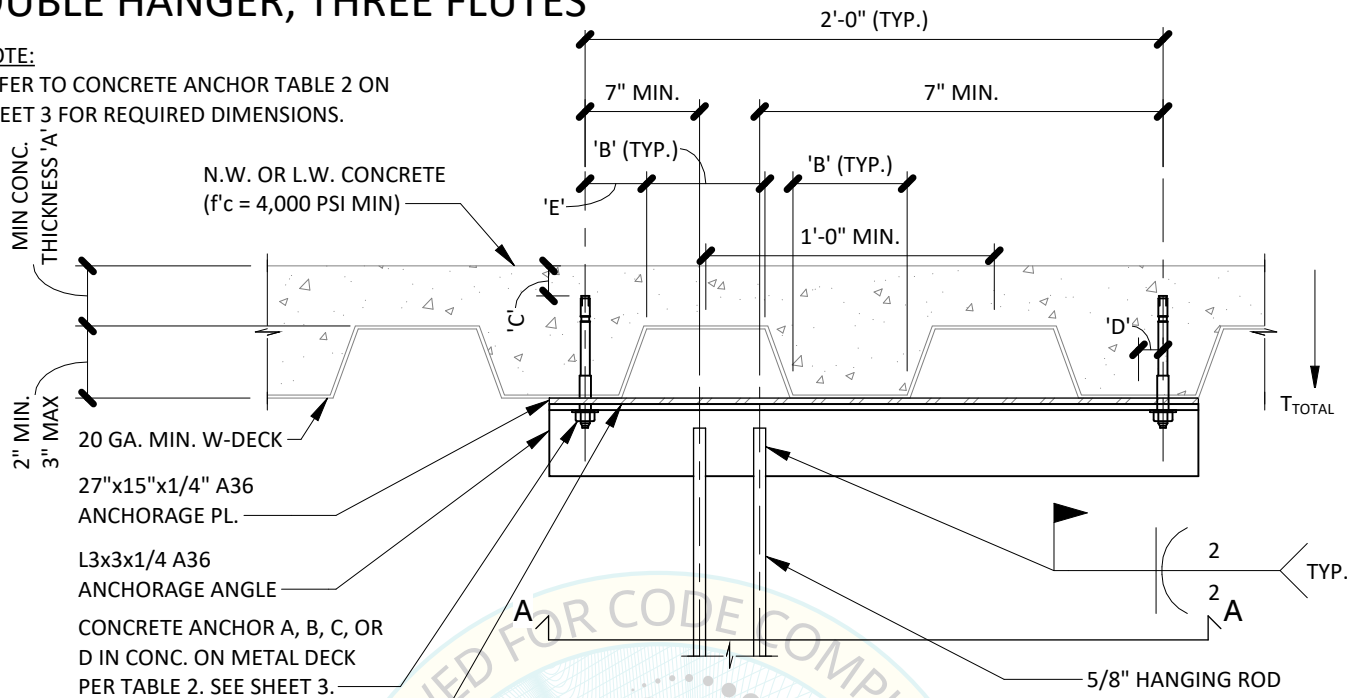
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DOUBLE HANGER, THREE FLUTES

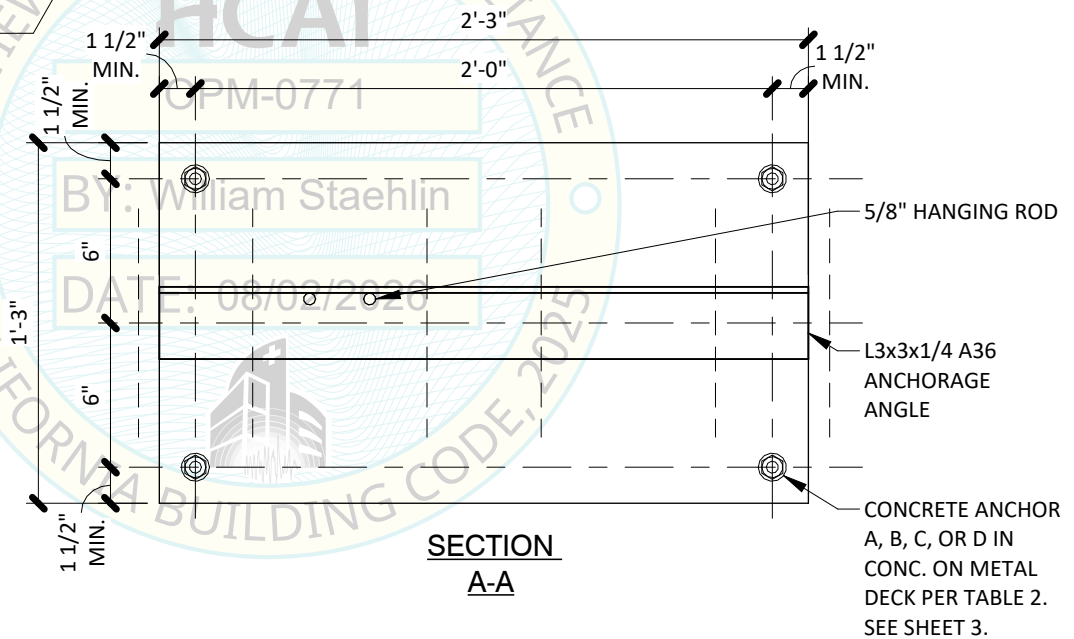
NOTE:
REFER TO CONCRETE ANCHOR TABLE 2 ON
SHEET 3 FOR REQUIRED DIMENSIONS.



NOTES:

1. $T_{TOTAL} = 7084$ LBS. FORCES ARE FACTORED LOADS USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: $D_L = 1.2$, $F_{PV} = 0.5W_p$, $F_{PH} = 2.69W_p$, $\Omega_o = 2.0$. MAXIMUM LOAD EFFECTS ARE USED FOR DESIGN.

2. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGN TO SUPPORT FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.



DOUBLE HANGER ROD ATTACHMENT TO CONCRETE OVER METAL DECK

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Project Number 25-475

AJ MFG.

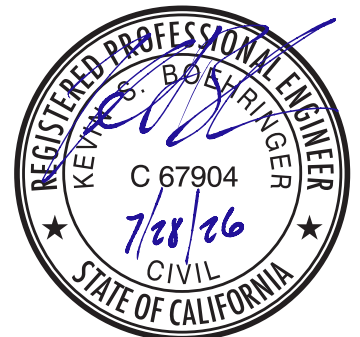
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08/02/2026

AJ MANUFACTURING
Clean Air Room Equipment System
MODEL #: CARES, SS-CARES

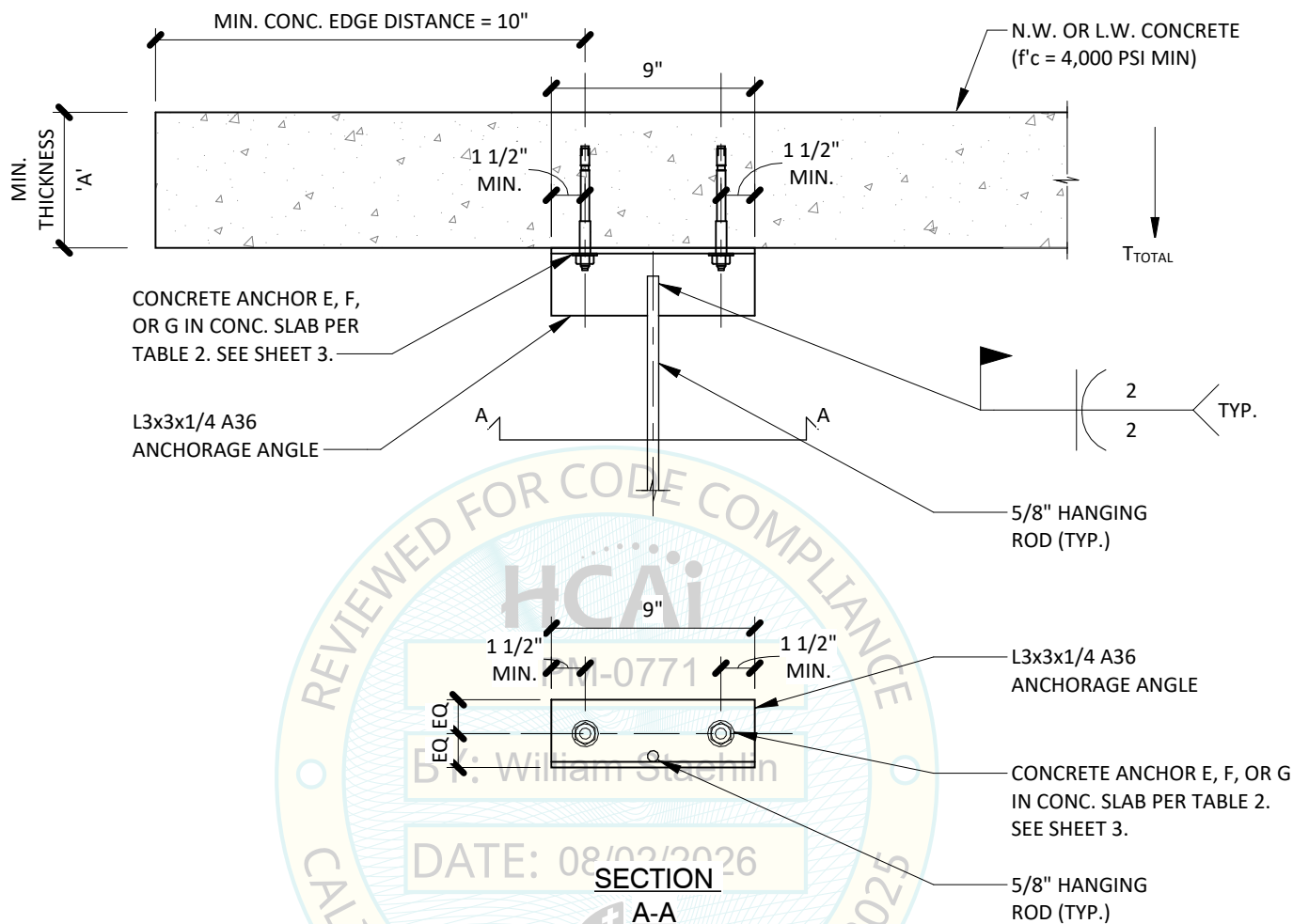
DESIGNED BY: KB/RK	PROJECT #: 25-475	SHEET 12
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NOTE:
REFER TO CONCRETE ANCHOR TABLE 2 ON
SHEET 3 FOR REQUIRED DIMENSIONS.



NOTES:

1. $T_{TOTAL}=4303$ LBS. FORCES ARE FACTORED LOADS USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: $D_L=1.2$, $F_{PV}=0.5W_p$, $F_{PH}=2.69W_p$, $\Omega_o=2.0$. MAXIMUM LOAD EFFECTS ARE USED FOR DESIGN.
2. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGN TO SUPPORT FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

SINGLE HANGER ROD ATTACHMENT TO ELEVATED CONCRETE SLAB

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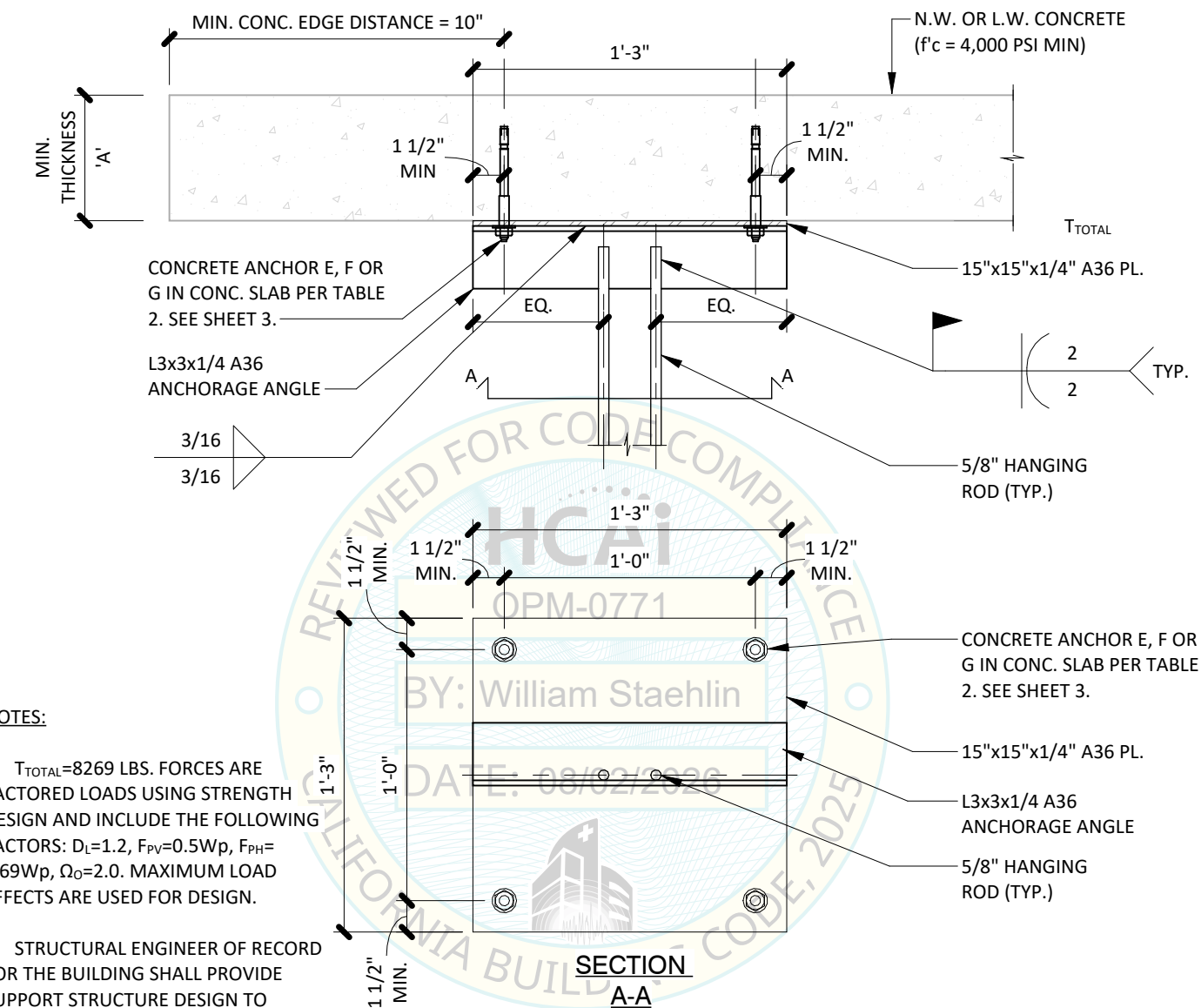
AJ MANUFACTURING
Clean Air Room Equipment System
MODEL #: CARES, SS-CARES

DESIGNED BY: KB/RK	PROJECT #: 25-475	SHEET 13
DATE: 2026-07-28	DRAWN BY: AG	OF 19

OPM-0771: Reviewed for Code Compliance by William Staehlin



NOTE:
REFER TO CONCRETE ANCHOR TABLE 2
ON SHEET 3 FOR REQUIRED DIMENSIONS.



DOUBLE HANGER ROD ATTACHMENT TO ELEVATED CONCRETE SLAB

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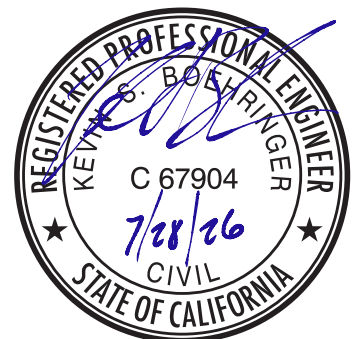
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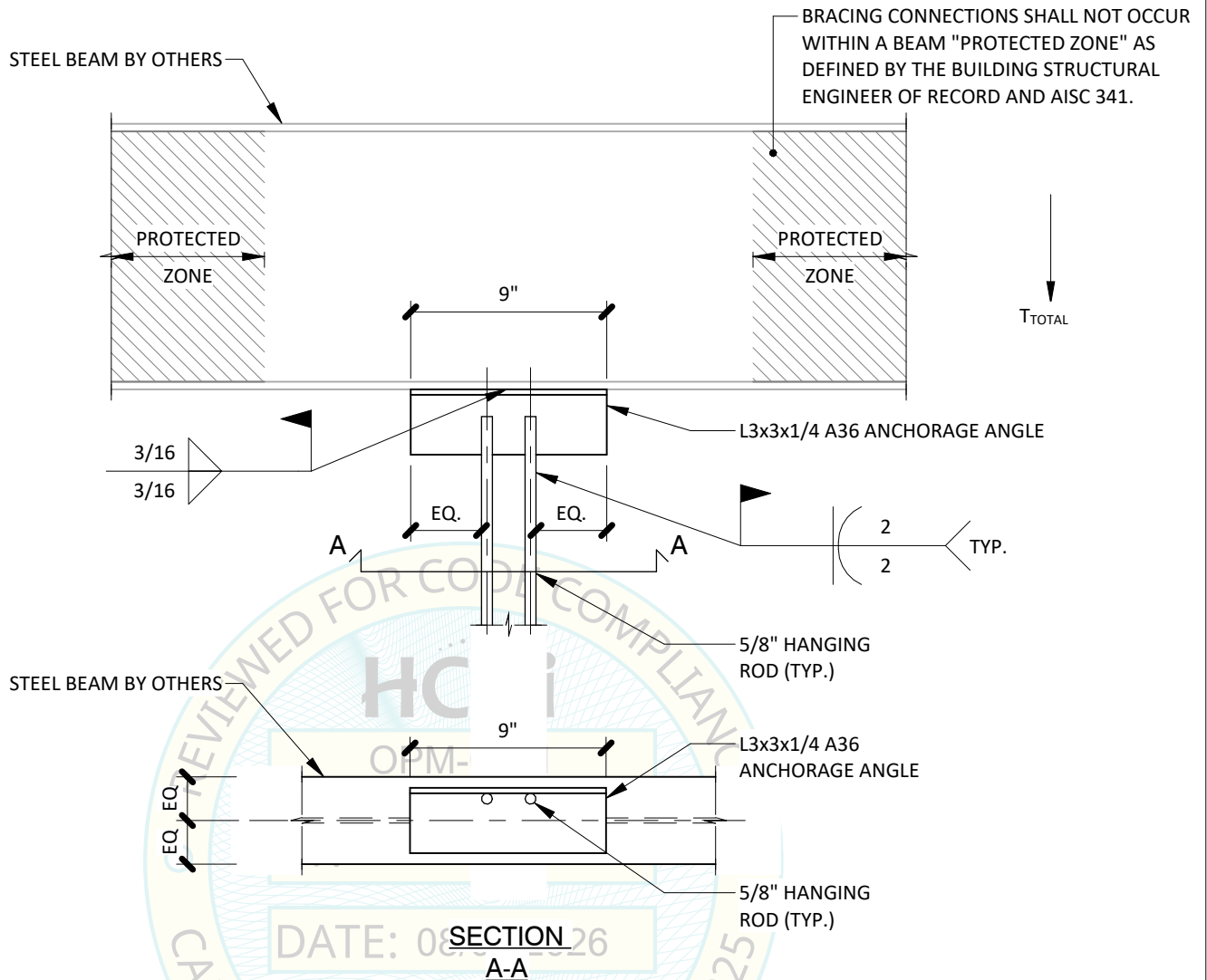
AJ MANUFACTURING
Clean Air Room Equipment System
MODEL #: CARES, SS-CARES

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NOTES:

1. $T_{TOTAL}=8269$ LBS. FORCES ARE FACTORED LOADS USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: $D_L=1.2$, $F_{PV}=0.5W_p$, $F_{PH}=2.69W_p$, $\Omega_o=2.0$. MAXIMUM LOAD EFFECTS ARE USED FOR DESIGN.
2. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGN TO SUPPORT FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

HANGER ROD ATTACHMENT TO STRUCTURAL STEEL

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MODEL #: CARES, SS-CARES

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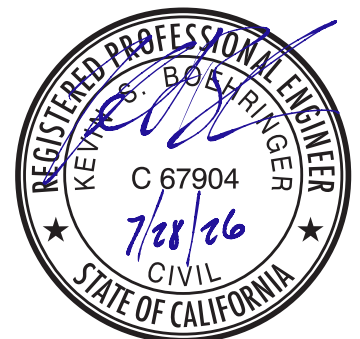


TABLE 3 - ALLOWABLE HANGER ROD LOADS (LRFD)

HANGER MARK	ROD DIAMETER (IN)	ROD GRADE	MAXIMUM COMPRESSION FORCE (LB)	MAXIMUM TENSION FORCE (LB)	MAXIMUM UNBRACED LENGTH (IN)	MAXIMUM CLAMP SPACING (IN)
A	5/8	36	562	6361	54	78
B	5/8	36	711	6361	48	72
C	5/8	36	929	6361	42	60
D	5/8	36	1265	6361	36	54
E	5/8	36	1822	6361	30	42
F	5/8	36	2801	6361	24	36
G	5/8	36	4010	6361	18	24
H	5/8	36	5182	6361	12	18
J	5/8	55	562	9719	54	78
K	5/8	55	711	9719	48	72
L	5/8	55	929	9719	42	60
M	5/8	55	1265	9719	36	54
N	5/8	55	1822	9719	30	42
O	5/8	55	2847	9719	24	36
P	5/8	55	4803	9719	18	24
Q	5/8	55	7105	9719	12	18

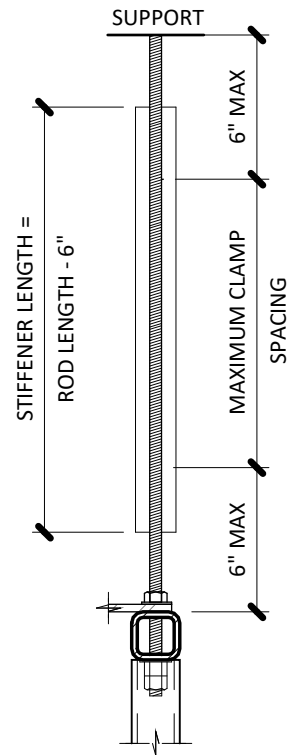
NOTES:

1.) MAXIMUM CLAMP SPACING IS BASED ON FIXED-FIXED ROD END CONDITIONS WITH $K = 0.65$, ROUNDED DOWN TO THE NEAREST 6 INCH INCREMENT. IF ROD END CONDITIONS ARE NOT FIXED, MAXIMUM UNBRACED LENGTH SHALL BE USED INSTEAD.

2.) ROD CLAMPS SHALL BE AS SPECIFIED IN THE ASSOCIATED ROD CLAMP DETAILS AND TABLES ON SHEET 18 FOR STRUT CHANNEL OR ANGLE STIFFENERS. STIFFENER LENGTH = ROD LENGTH - 6 IN.

3.) STIFFENER LENGTH SHALL NOT EXCEED THE LENGTH LISTED IN THE ASSOCIATED ROD STIFFENER DETAIL

4.) REFER TO AJ MFG. SHOP DRAWINGS FOR REQUIRED HANGER MARK AT EACH MODULE HANGER ROD LOCATION.



ALLOWABLE HANGER ROD LOADS

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MODEL #: CARES, SS-CARES

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TABLE 4 - ALLOWABLE BRACE LOADS (LRFD)			
ANGLE SIZE	MAXIMUM LENGTH (FT)	AXIAL CAPACITY (LB)	1/2" BOLT CAPACITY (LB)
L3x3x1/4	9	9540	5400
L4x4x1/4	13	11000	5400
L5x5x5/16	16	18400	5400

NOTES:

- 1.) ANGLE & BOLT MATERIAL SHALL BE PER STEEL MATERIALS GENERAL NOTES
- 2.) MAXIMUM ANGLE LENGTH SHALL BE COORDINATED WITH THE ALLOWABLE BRACE ANGLE SHOWN IN APPLICABLE DETAILS AND ALLOWABLE HANGER ROD LENGTHS.
- 3.) MAXIMUM AXIAL CAPACITY SHALL BE COORDINATED WITH APPLIED BRACE FORCE LISTED IN AJ MFG. SHOP DRAWINGS AND PROJECT SPECIFIC SUBMITTALS.

ALLOWABLE BRACE LOADS

OPM-0771

BY: William Staehlin

DATE: 08/02/2026

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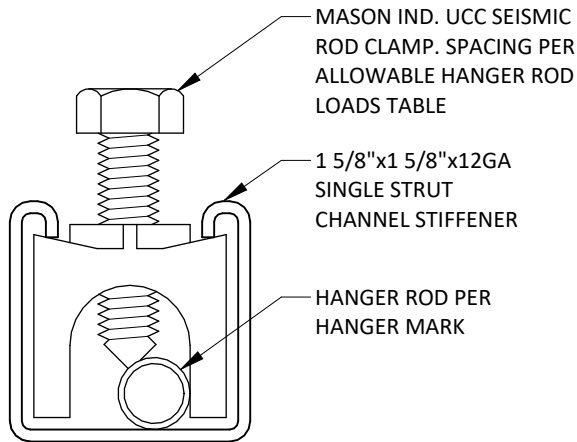


TABLE 5 - STRUT ROD STIFFENER DIMENSIONS	
CLAMP SPACING	MAXIMUM STRUT LENGTH
78"	156"
72"	144"
60"	120"
54"	156"
42"	126"
36"	108"
24"	96"
18"	90"

NOTE: REFER TO TABLE 7 SHEET 19 FOR MINIMUM STRUT PROPERTIES

ROD STIFFENER - STRUT CHANNEL

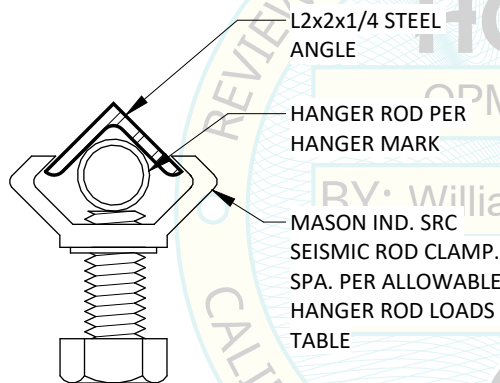


TABLE 6 - ANGLE ROD STIFFENER DIMENSIONS	
CLAMP SPACING	MAXIMUM ANGLE LENGTH
78"	156"
72"	156"
60"	156"
54"	156"
42"	156"
36"	156"
24"	144"
18"	126"

ROD STIFFENER - STEEL ANGLE

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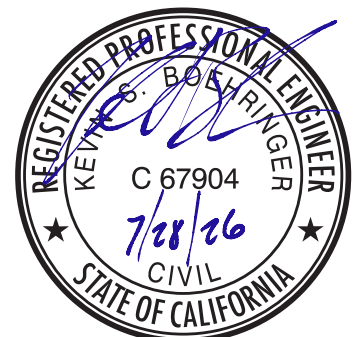
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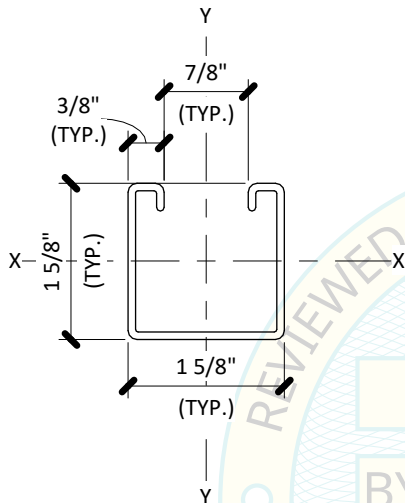


TABLE 7 - MINIMUM STRUT CHANNEL SECTION PROPERTIES

STRUT MEMBER	WEIGHT (LBS/FT)	AREA (IN ²)	I _{xx} (IN ⁴)	S _{xx} (IN ³)	r _x (IN)	I _{yy} (IN ⁴)	S _{yy} (IN ³)	r _y (IN)
1-5/8"x1-5/8"x12GA SINGLE STRUT	1.89	0.519	0.165	0.175	0.563	0.222	0.274	0.655

NOTES:

- 1.) STRUT MATERIAL SHALL BE ASTM A1011 SS GRADE 33
- 2.) STRUS SHALL BE SOLID. STRUS WITH HOLES, SLOTS OR KNOCK OUTS SHALL NOT BE USED.

STRUCTURAL CHANNEL PROPERTIES

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