

City of Costa Mesa

Memorandum

TO: SCOTT DRAPKIN, ASSISTANT DEVELOPMENT SERVICES DIRECTOR

FROM: JEFFREY RIMANDO, ASSISTANT PLANNER

DATE: MARCH 4, 2024

SUBJECT: MINOR MODIFICATION PMND-23-0007 FOR A REDUCED SIDE YARD SETBACK TO ACCOMODATE A PROPOSED OPEN SOLID PATIO COVER AT 2994 MILBRO STREET

BACKGROUND

The property at 2994 Milbro Street is zoned R1 (Single-Family Residential District) and is developed with a detached single-family residence and an attached garage. The property is located on the eastside of Milbro Street, between Baker Street and Post Road. The existing home has an area of 1,130 square feet and an attached approximate 400 square-foot garage. The residence was constructed in 1956 under Building Permit Number 3041. The residence also has an attached lattice patio cover in rear that was constructed in 2007 under permit number B07-00099. The home also has an attached unpermitted patio cover located on the side (north) of the residence that currently encroaches into the required side setback area. The side patio cover is proposed to be rebuilt in its existing location and would therefore continue to encroach into the required side-yard setback area. The proposed encroachment requires approval of a minor modification application to remain in the same location.

DESCRIPTION

The applicant has applied for a minor modification to allow a proposed patio cover to encroach into the required five-foot side-yard setback by one-foot. The patio cover is proposed to be 4' - 10" deep by 10' - 4" wide and have a maximum height of eight feet. The patio is proposed to be located near the back northeast corner of the house. With the exception of the proposed side setback encroachment, the proposed patio cover and site development comply with all development standards of the Costa Mesa Municipal Code (CMMC), including such standards as height and open space.

ANALYSIS

CMMC Section 13-28(j)(1) allows for minor deviations from certain code requirements, including a 20-percent decrease in the required side yard setback subject to the review and approval of the Director of Economic and Development Services. The applicant's request for a one-foot

reduction (i.e. 20 percent) is consistent with that authorized by code. Table 1 below summarizes the proposed minor modification request:

Table 1 – Minor Modification Request

Deviation Type	Existing Condition	CMMC Requirement	Maximum Deviation Permitted	Proposed Minor Modification
20% Reduction in the Side Yard Setback	House is located 9' – 10" feet from north side property line	5 feet Between side property line and support post(s)	20 percent (1 foot encroachment)	20 percent or 4' – 0" from property line (1 foot encroachment)

Pursuant to CMMC Table 13-32, a roof eave overhang may project a maximum of 2' – 6" into the required side setback area allowing a typical patio cover roof eave overhang to be as close as 2' - 6" to the side property line. The proposed patio cover roof eave overhang design complies with the required 2' – 6" setback.

The new proposed patio cover will be constructed within a similar footprint as the existing unpermitted patio cover that will be removed. Furthermore, the existing unpermitted patio cover has, to this date, not been materially detrimental to the surrounding community. While it will be visible from the side and rear yards of the adjacent neighboring property, it is otherwise obscured from street view and other nearby properties because of its location on the site, distance from the street, and existing mature surrounding landscape.

A review of City records has not identified any filed complaints for the existing patio structure to be replaced. Although the support posts of the proposed patio cover will encroach one-foot into the side setback area, the proposed four-foot unobstructed width would allow for adequate fire and police access, and would meet building safety requirements.

Minor Modification Findings

Per CMMC 13-29(g)(6), two findings must be made for the Director of Economic and Development Services to approve a minor modification. These findings and facts in support of the findings are provided below:

Finding I: *The improvement will not be materially detrimental to the health, safety and general welfare of persons residing or working within the immediate vicinity of the project or to property and improvements within the neighborhood.*

Facts in Support of Finding:

- a) The proposed patio cover will not be materially detrimental to the health, safety and general welfare of persons residing or working within the immediate vicinity of the property in that the proposed patio cover will be constructed within a similar footprint of an existing unpermitted patio cover. Further, the existing unpermitted patio cover has, to this date, not been materially detrimental to the surrounding community. Although the proposed patio cover will encroach one-foot into the side setback area, the patio cover will comply with the maximum roof projection requirements under CMMC Table 13-32, and would allow for adequate emergency response access, and would meet building safety requirements.

Finding II: *The improvement is compatible and enhances the architecture and design of the existing and anticipated development in the vicinity. This includes the site planning, land coverage, landscaping, appearance, scale of structures, open space and any other applicable features relative to a compatible and attractive development.*

Facts in Support of Finding:

- a) The proposed patio cover will be painted white and positioned at the back northeast corner of the house. While it will be visible to residents of the subject property and from the side and rear yards of the adjacent neighboring property, it is otherwise obscured from street view and other nearby properties because of its location on the site, distance from the street, and existing landscaping. The material and color of the patio cover is typical of patio covers locate in the City, and its white paint color is complementary to the current grey paint color of the house. The patio cover will tuck under the home's existing eave line and will appear to be a natural extension from the side of the house. Therefore, the improvement is compatible and enhances the design of the existing residence.

The proposed patio cover will be designed with rafter tail ends and consist of aluminum material with an appearance to reflect the rich look of real wood. All development standards are met except for the requested side setback encroachment. As proposed, the patio cover would be consistent with development in the surrounding neighborhood and would not negatively impact the safety of the surrounding neighborhood.

RECOMMENDATION

Approve the minor modification.

ATTACHMENTS

- 1. PLANS

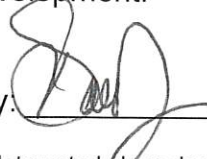
DIRECTOR DECISION

THE MINOR MODIFICATION REQUEST IS **APPROVED** / **DENIED** BASED ON THE FOLLOWING FINDINGS:

The improvement **will not be** / **will be** materially detrimental to the health, safety, and general welfare of persons residing or working within the immediate vicinity of the project or to property and improvements within the neighborhood.

The improvement **is** / **is not** compatible and enhances the architecture and design of the existing and anticipated development in the vicinity. This includes the site planning, land coverage, landscaping, appearance, scale of structures, open space and any other applicable features relative to a compatible and attractive development.

Zone: R1 (Single-Family Residential) Approved by:



Decision Date:

3/4/24

Appeal of this decision shall be filed within 7 days of the decision date noted above by remittance of the appeal fee and according to the procedures set forth in Title 2, Chapter IX, of the Costa Mesa Municipal Code.

Cover Sheet

2994 Milbro St.

Costa Mesa, CA 92626

Sheet Index

Cover Page	1
Proposed Site Plan	2
Cover Layout – Aerial Perspective	3-4
Elevations – Side Perspective	5-6
Frontal Perspective	6-7
Architectural & Structural Details	8- End

Project Description & Scope of Work

We are to build two new aluminum insulated patio covers. The proposed patio covers are labeled “(P) Patio Cover” on the plans provided and their dimensions total about 411 sq. ft. There is a 2’6” distance to the side property line, about a 17’9” distance to the rear property line, and a 24’ distance to the other side property line. These aluminum patio covers will be attached to the wall and fascia of the home. The electrical plan will consist of (4) lights. They are intended to be used as shade providing structures in the backyard of the home at 2994 Milbro Street, Costa Mesa, CA 92626. This project will not affect any pervious surface coverage, but our proposed structures will be adding 411 square feet to the total site coverage, resulting in a new total 25.6% site coverage.

Building Data Legend

Project Address: 2994 Milbro Street, Costa Mesa, CA 92626

Owner’s Name, Address, & Contact Information: Amy & Cameron Kurth
2994 Milbro St.
Costa Mesa, CA 92626
(714) 203 – 4601
(cameronkurth@gmail.com)

Contractor’s Info: Backyard Patio Covers and Awning (LIC# 1035265) **Authorized Agent/ Contact Person: Miguel Ceballos**
2716 W Harvard St., Santa Ana, CA 92704 **(miguel@garradesigns.com)**
(949) 506 – 0990 (info@backyardpatiocoversandawning.com) **(951) 494 - 2772**

A.P.N.: 7061-020-009 (Single Family Residential)

Zoning Code: R-1

Site Coverage – Total Lot Size: 6,001 sq. ft.

Proposed Structure: 411 sq. ft.

Total Proposed Site Coverage: 1,541 sq. ft. / 6,001 sq. ft.

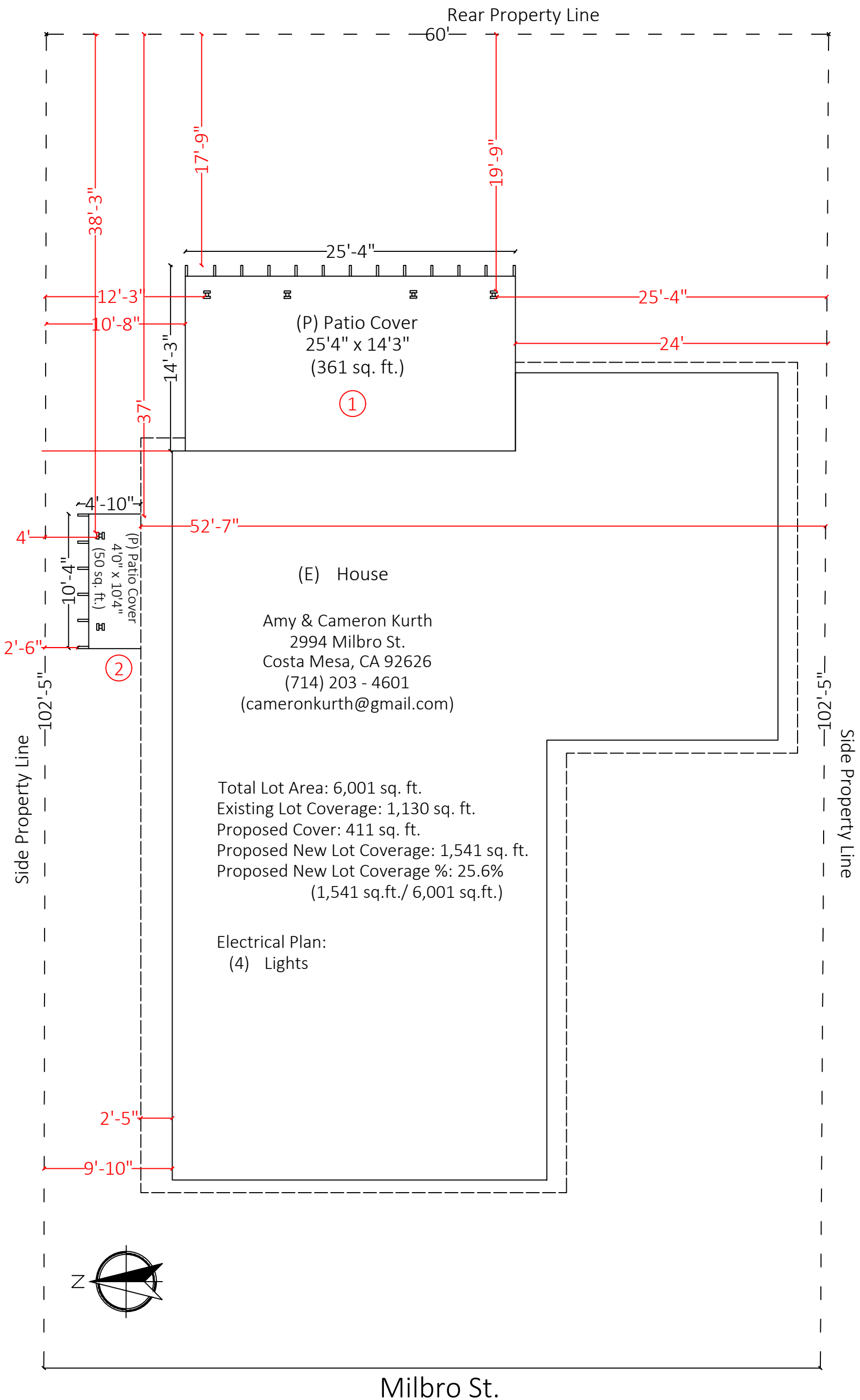
% of Site Coverage: 25.6% Site Coverage

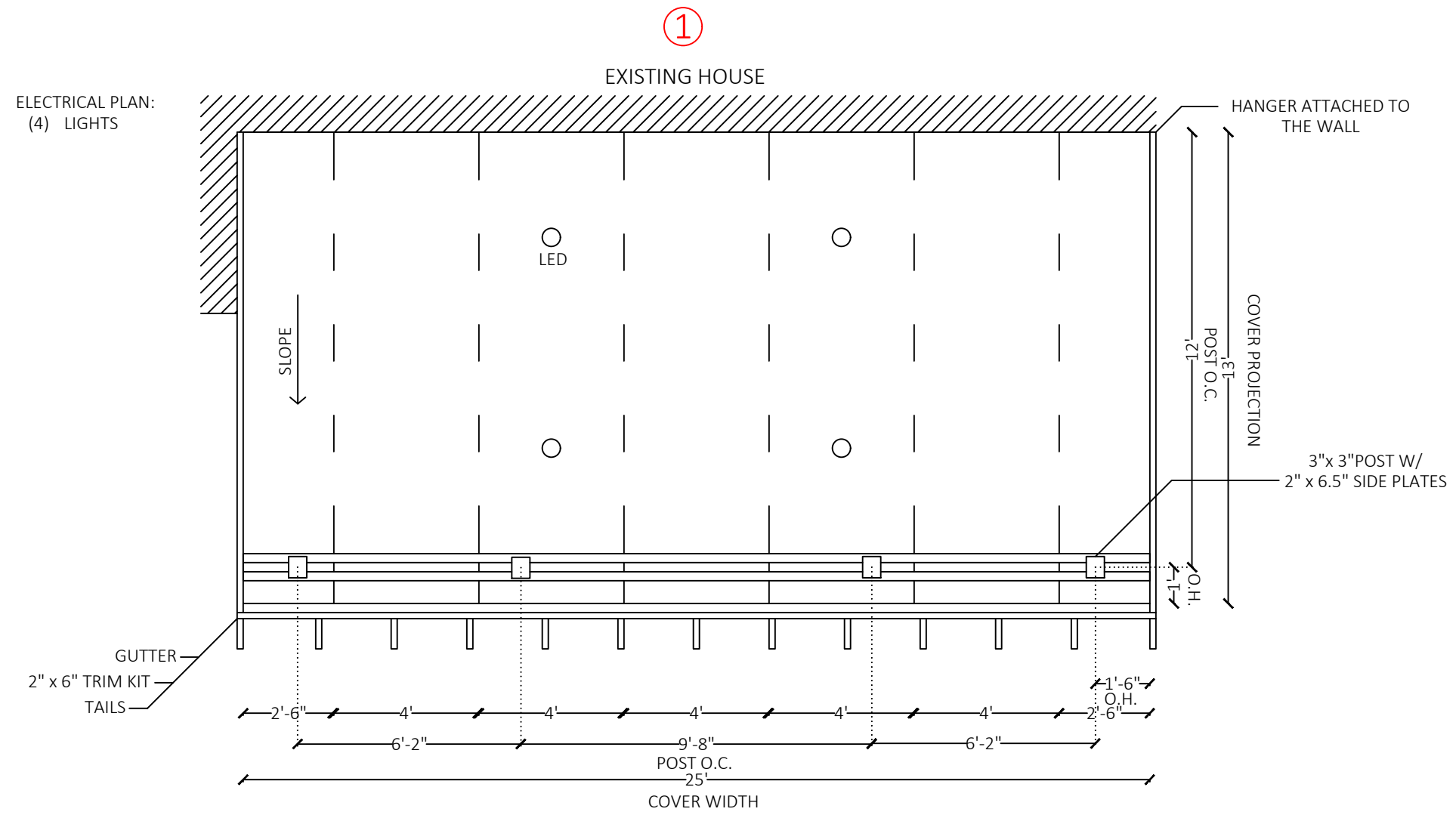
Construction Type: V-B

This project shall comply with all existing relevant codes:

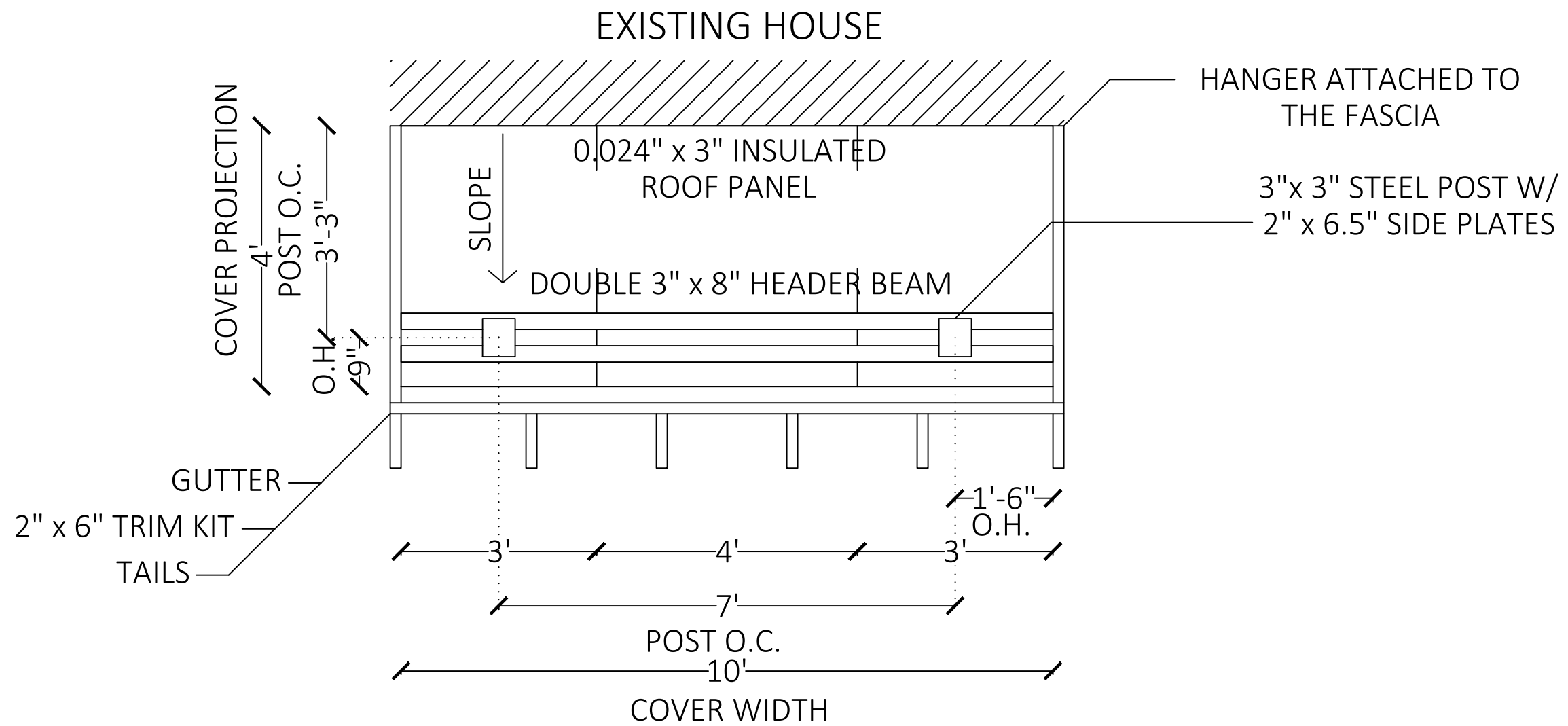
- 2022 California Building Code (CBC)
- 2022 California Residential Code (CRC)
- 2022 California Mechanical Code (CMC)
- 2022 California Plumbing Code (CPC)
- 2022 California Electrical Code (CEC)
- 2022 California Green Building Standards Code (CGBS)
- 2022 California Energy Efficiency Code (CEEC)

NDPES Statement - “The discharge of pollutants to any storm drainage system is prohibited. No solid waste, petroleum byproducts, soil particulate, construction waste materials, or wastewater generated on construction sites or by construction activities shall be placed, conveyed or discharged into the street, gutter or storm drain system.”

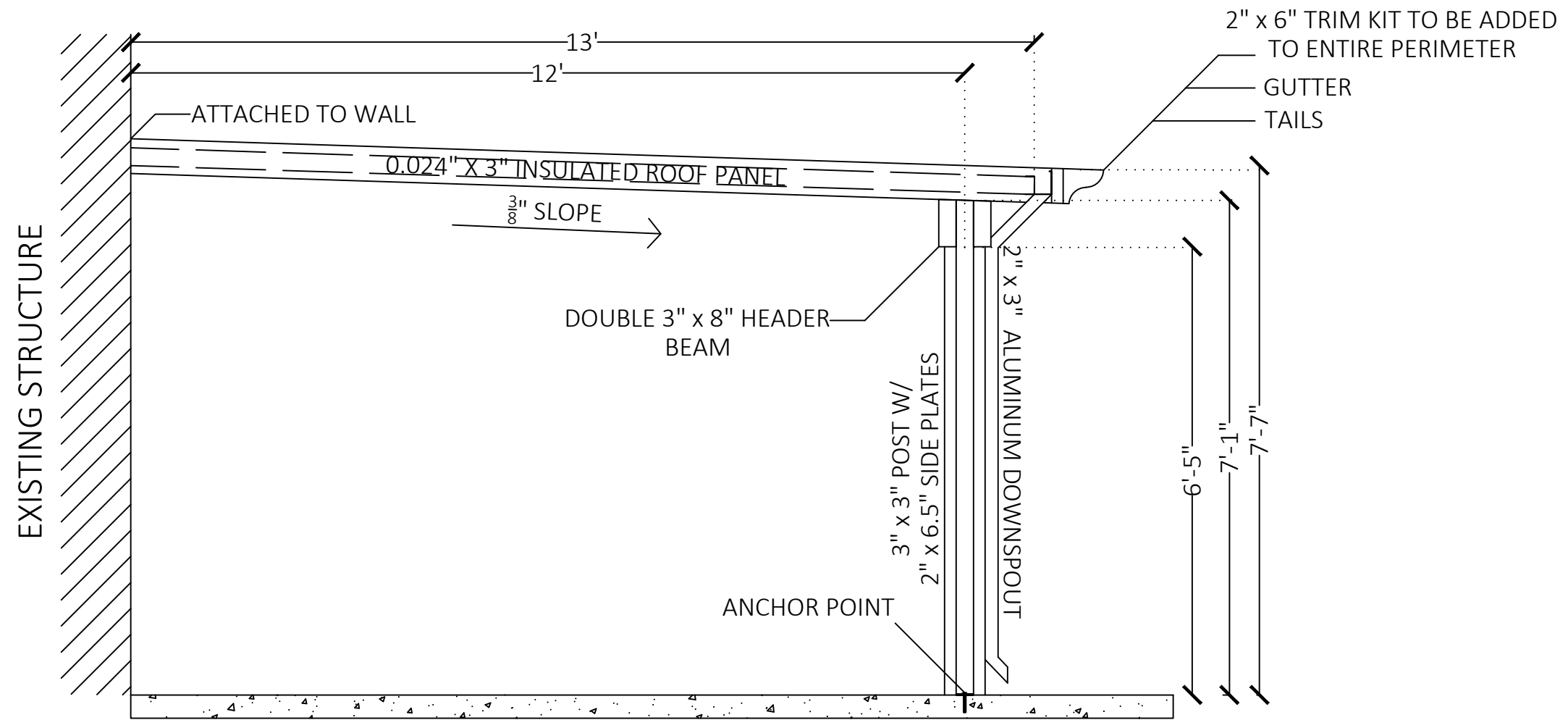




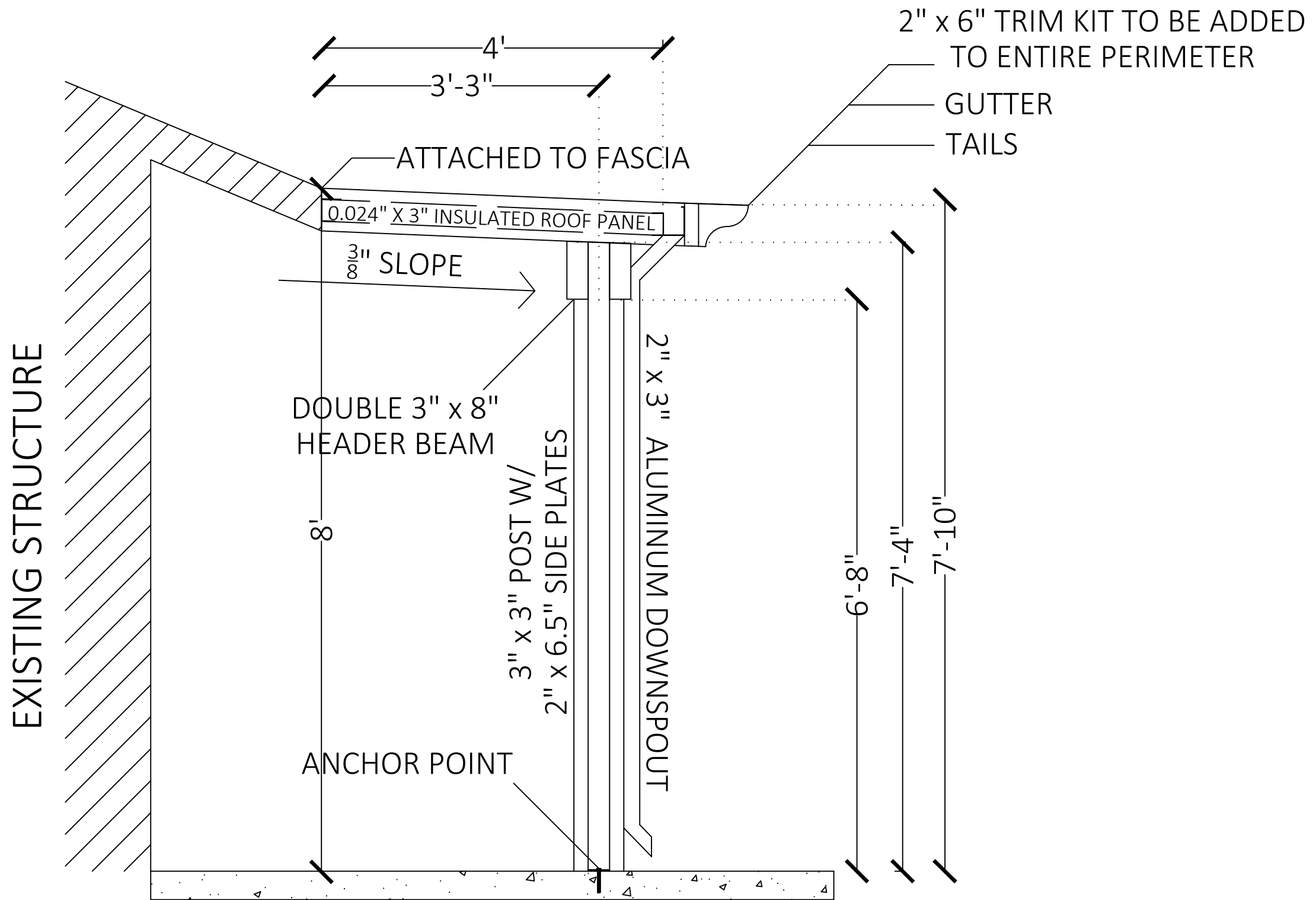
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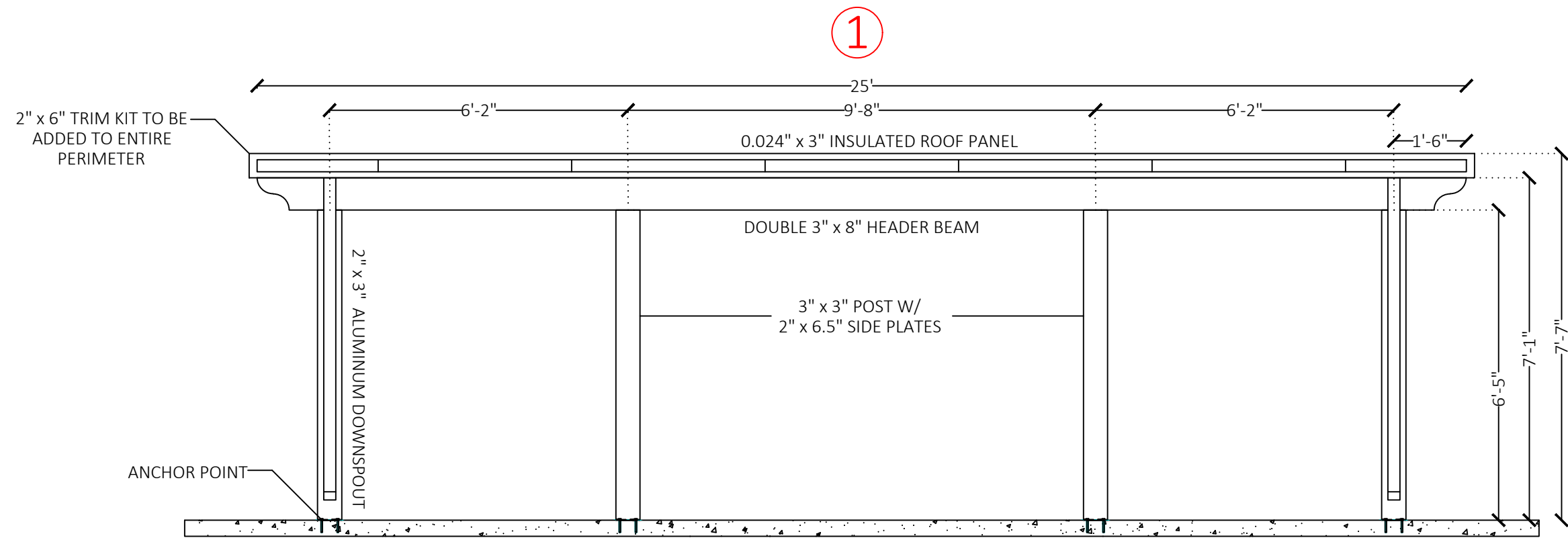


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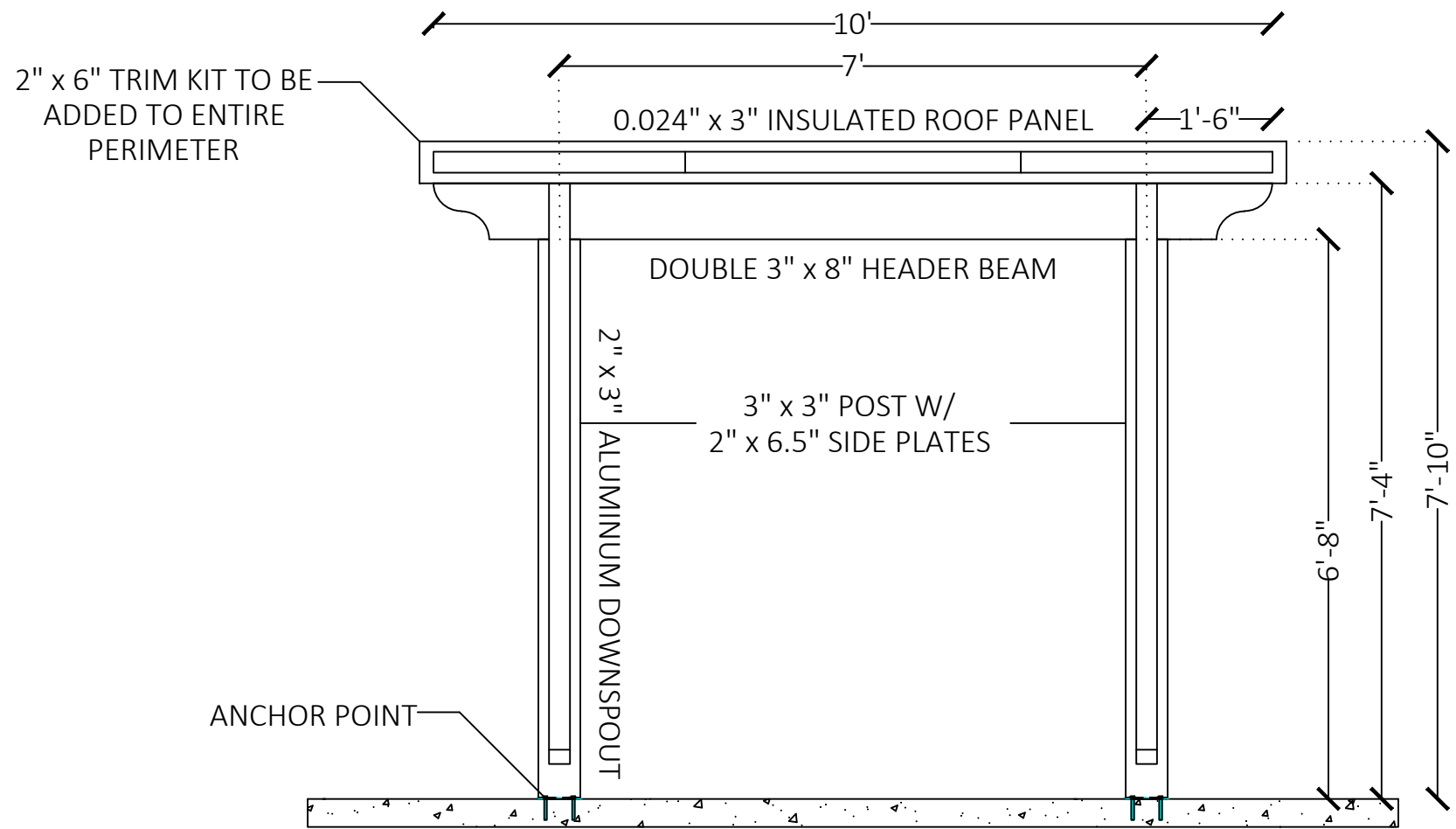


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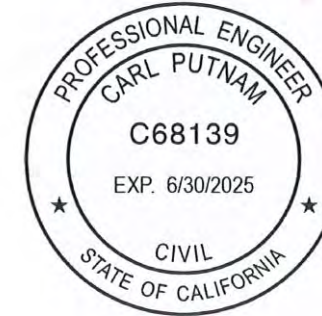
UNITED DURALUME PATIO COVER, CARPORT AND COMMERCIAL STRUCTURE ENGINEERING (2021 IBC)

PAGES	DRAWING	SECTION DESCRIPTION
1 PAGE		PROFESSIONAL ENGINEERING STAMPS AND TRIBUTARY WIDTH DIAGRAM
1 PAGE		GENERAL NOTES
LATTICE COVER COMPONENTS AND CONNECTION DETAILS		
2 PAGE		STRUCTURAL CONFIGURATIONS
6 PAGES		COMPONENTS/CONNECTION DETAILS
4 PAGES		LATTICE 1.0 RAFTER SPANS FOR COMMERCIAL AND PATIO STRUCTURES
44 PAGES		LATTICE 2.0 POST SPACINGS FOR LATTICE PATIO AND COMMERCIAL COVERS

Solid Cover
10 and 20 psf

SOLID COVER COMPONENTS AND CONNECTION DETAILS

2 PAGE		STRUCTURAL CONFIGURATIONS
9 PAGES		COMPONENTS/CONNECTION DETAILS
7 PAGES		4.0 PANEL SPANS FOR PATIO, CARPORT AND COMMERCIAL STRUCTURES
62 PAGES		5.0 POST SPACINGS FOR PATIO AND COMMERCIAL COVERS
2 PAGES	Misc1.DWG	7.0 MISC DETAILS
1 PAGE	Misc2.DWG	7.0 FAN BEAM DETAILS
1 PAGE	Misc3	7.0 POST AND FASTENER REQUIREMENTS FOR ALL STRUCTURES
2 PAGES	Misc4a Misc4b	7.0 CONCRETE FOOTING OPTIONS
2 PAGES	Misc5	7.0 REQUIREMENTS FOR SURFACE MOUNTED POSTS ON CONCRETE SLABS OR FOOTINGS FOR SINGLE SPAN ATTACHED LATTICE STRUCTURES
1 PAGE	Misc6	7.0 FORCES ON EXISTING STRUCTURES
1 PAGE	Misc7	7.0 STRUCTURAL PROPERTIES OF BEAMS, FASCIA, PANELS AND RAFTERS FOR USE BY DESIGN PROFESSIONALS
1 PAGE	Misc8	7.0 CONCRETE SLAB REQUIREMENTS FOR CONSTRAINED FOOTINGS



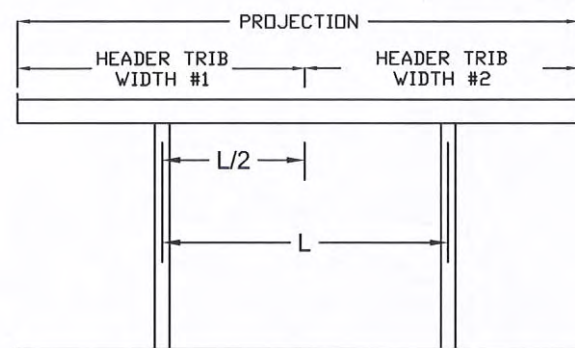
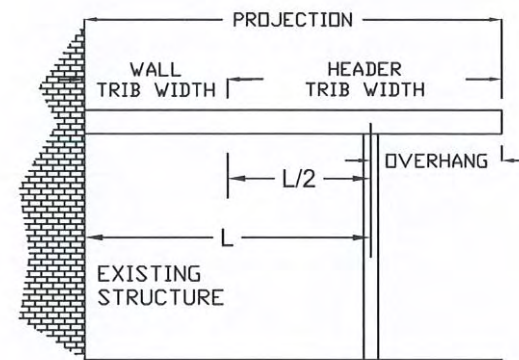
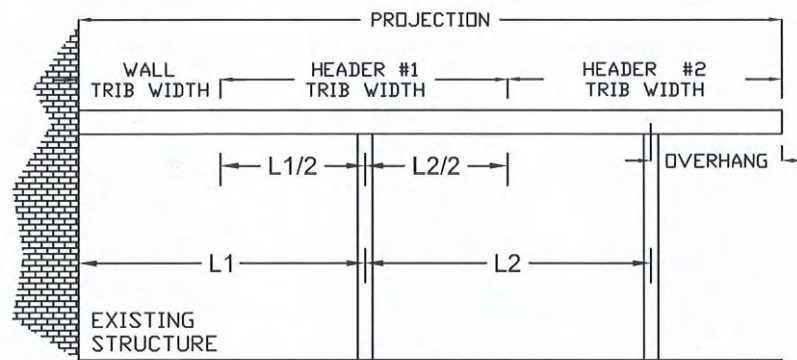
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signed by Carl
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January 9, 2023

PROFESSIONAL ENGINEERING STAMPS PAGE AND TRIBUTARY WIDTH DIAGRAM

THESE DRAWINGS DEFINE "TRIB WIDTH" FOR COMMON STRUCTURES



GENERAL NOTES:

- 1. DESIGNED IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AND THE 2022 CALIFORNIA BUILDING CODE.
- 2. ALUMINUM DESIGN IN ACCORDANCE WITH THE 2020 EDITION OF ALUMINUM ASSOCIATION'S SPECIFICATIONS AND CHAPTER 20 OF THE INTERNATIONAL BUILDING CODE.

- 3. DESIGN LOADINGS: Ct = 1.2, I = 1.0, Ce = 1.0 (ALL EXPOSURES EXCEPT B AND C WHEN LOCATED TIGHT IN AMONG CONIFERS)

GROUND SNOW LOAD	DESIGN LOAD	
10 PSF	10 PSF	LIVE LOAD ONLY
20 PSF	20 PSF	LIVE LOAD ONLY
25 PSF	21 PSF	DESIGN ROOF SNOW LOAD
30 PSF	25.2 PSF	DESIGN ROOF SNOW LOAD
35.7 PSF	30.0 PSF	DESIGN ROOF SNOW LOAD
42 PSF	35.3 PSF	DESIGN ROOF SNOW LOAD
50 PSF	42 PSF	DESIGN ROOF SNOW LOAD
60 PSF	50.4 PSF	DESIGN ROOF SNOW LOAD

FOR 0.25/12 < SLOPE < 1/12

WIND SPEEDS IN THE 2021 IBC ARE "BASIC DESIGN WIND SPEED." ALL STRUCTURES DESCRIBED IN THIS REPORT ARE DESIGNED USING PRESSURES CALCULATED FROM "BASIC DESIGN WIND SPEEDS" FOR RISK CATEGORY II. FOR ATTACHED STRUCTURES THE MAXIMUM MEAN ROOF HEIGHT OF THE EXISTING STRUCTURE IS 30'. Kzt WAS ASSUMED AS 1.0 FOR ALL WIND LOADS. SITE LOCATIONS REQUIRING HIGHER A HIGHER Kzt VALUE (ISOLATED HILLS, RIDGES, ESCARPMENTS) WILL REQUIRE HIGHER WIND LOADS AS PER ASCE7-16 SECTION 26.8 AND ARE OUTSIDE THE SCOPE OF THIS REPORT.

NOTE: EXPOSURE B: SHALL APPLY WHEN THE GROUND SURFACE ROUGHNESS CATEGORY B (URBAN AND SUBURBAN AREAS, WOODED AREAS, OR OTHER TERRAIN W/ NUMEROUS CLOSELY SPACED OBSTRUCTIONS HAVING THE SIZE OF A SINGLE FAMILY DWELLING OR LARGER) PREVAILS IN THE UPWIND DIRECTION FOR A DISTANCE OF AT LEAST 1500 FT.

EXPOSURE C: SHALL APPLY WHEN EXPOSURE B AND D (SMOOTH MUD FLATS, SALT FLATS, UNBROKEN ICE AND OTHER) DO NOT.

SEISMIC LOADING

MAXIMUM Ss = 150% SHOWN IN 2021 IBC FIGURE 1613.2.1(1)

Ss > 150% ARE NOT REQUIRED AS PER ASCE7-16 12.8.1.3 FOR Ss < 215%

S1 NOT APPLICABLE TO THESE STRUCTURES

SITE CLASS = A-E ANALYSIS ASSUMES HIGHEST Fa

BASIC SEISMIC FORCE RESISTING SYSTEM

POSTS EMBEDDED INTO FOOTINGS = ORDINARY STEEL MOMENT FRAME >> R = 1.25

POSTS SURFACE MOUNTED = GENERIC SYSTEM >> R = 1.25

ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE PROCEDURE

THESE ROOFS ARE NOT SUBJECT TO MAINTENANCE WORKERS AND HAVE NOT BEEN EVALUATED FOR A CONCENTRATED 300 LBF LOAD.

THE BASIS OF THE DESIGN FORCES ARE IN ACCORDANCE WITH THE BASIC LOAD COMBINATIONS DESCRIBED IN IBC SECTION 1605.1 AND NO FURTHER INCREASES ARE PERMITTED FOR PATIO COVERS RESISTING WIND OR SEISMIC FORCES.

- 4. THIS ENTIRE ENGINEERING PACKAGE IS NOT REQUIRED FOR MOST BUILDING PERMITS. SUBMISSION FOR A BUILDING PERMIT MUST INCLUDE:

- a. GENERAL NOTES (2 PAGES)
- b. STRUCTURAL CONFIGURATIONS (1 PAGE)
- c. RAFTER SPAN TABLES (FOR LATTICE STRUCTURES), PANEL SPAN TABLES (FOR SOLID COVER STRUCTURES) OR BOTH (FOR COMBINATION STRUCTURES)
- d. HEADER POST SPACING, FOOTING SIZE AND POST TABLE FOR LIVE/SNOW AND WIND LOAD
- e. ALL APPROPRIATE DETAILS
- f. OTHER DOCUMENTATION REQUIRED BY LOCAL BUILDING AUTHORITY.

5. CONCRETE MIX: Fc=2500, 3000 OR 3500 PSI FOR 28 DAYS IN NEGLIGIBLE, MODERATE, AND SEVERE CONDITIONS AS SHOWN IN ACI 314-19. PATIO STRUCTURES MAY BE ATTACHED TO CONCRETE SLAB WITHOUT FOOTINGS (DETAILS 28, AQ AND AO) WHEN THE POST LOAD IS 750 LBF OR LESS AND THE FROST DEPTH IS ZERO. CONCRETE SHALL BE A MINIMUM OF 3.5 INCHES THICK AND NO CRACKS WITHIN 2'-6" OF POSTS. POSTS SHALL BE SET BACK A MINIMUM OF 4 INCHES FROM EDGE OR EXPANSION JOINT OF A SLAB.

6. FOOTINGS HAVE BEEN DESIGNED FOR CLASS 5 SOIL FROM TABLE 1806.2 OF 2018 IBC. ALLOWABLE FOUNDATION PRESSURE IS 1500 POUNDS PER SQUARE FOOT. LATERAL BEARING PRESSURE IS 100 PSF/FT AND IS DOUBLED PER IBC SECTION 1806.3.4. THESE DESIGN VALUES DO NOT APPLY TO MUD, ORGANIC SILTS, ORGANIC CLAYS, PEAT OR UNPREPARED FILLS AND MAY REQUIRE FURTHER SOIL INVESTIGATION. THE BUILDING OFFICIAL MAY ASSIGN A LOAD BEARING CAPACITY. UNITS IN ROOF SNOW/LIVE LOAD AREA OF 25 PSF OR LESS MAY BE BUILT ON 1000 PSF BEARING SOIL W/O ADDITIONAL ENGINEERING. MINIMUM FOOTING DEPTH IS THE LOCAL FROST DEPTH.

7. 20 PSF AND HIGHER LIVE LOAD STRUCTURES MAY BE USED AS COVERS FOR PARKING OF MOTOR VEHICLES. CARPORTS MUST HAVE AT LEAST TWO OPEN SIDES AND HAVE FLOOR SURFACES MADE OF APPROVED NONCOMBUSTIBLE MATERIAL OR ASPHALT.

8. WOOD USED IN CONNECTIONS SHALL BE PROTECTED FROM WEATHER (EXTERIOR EXPOSURE) AS PER IBC SECTION 1404.2 AND /OR 1503, WHICHEVER IS MORE APPROPRIATE.

9. ALL STEEL SHALL BE GALVANIZED PER ASTM A-653 G90, A123 G45 OR A153 B-3, PAINTED PER ASTM A755 OR PROTECTED WITH AN APPROVED COATING COMPLYING WITH IBC SECTION 2203.

10. ALTERNATE ALUMINUM ALLOYS OF EQUAL OR HIGHER STRENGTHS MAY BE USED. 3004H2x ALUMINUM MAY BE SUBSTITUTED FOR 3004H3x.

11. STEEL FASTENERS SHALL BE EITHER STAINLESS (300 SERIES), GALVANIZED OR DOUBLE CADMIUM PLATED. BOLTS SHALL BE ASTM A-307 HOT DIPPED GALVANIZED, MECHANICALLY GALVANIZED, ZINC ELECTROPLATED, ALUMINIZED OR 300 SERIES STAINLESS STEEL. CONCRETE ANCHOR BOLTS ARE SPECIFIED IN THE DETAILS. ALL WOOD SCREWS MUST COMPLY WITH ANSI/ASME STANDARD B18.6.1 AHD AND AWC NDS-18 12.1.5. ALL LAG SCREWS ANSI/ASME B18.2.1 AND AWC NDS-18 12.1.4. ALL STEEL WASHERS TO BE ASTM F844 W/ DIMENSIONS IN ACCORDANCE WITH ASME B18.22.1, TYPE A. THE MINIMUM WASHER DIAMETER SHALL BE 1" FOR BOLTED CONNECTIONS. ALL STEEL NUTS TO BE ASTM A563. SCREWS AND BOLTS SHALL HAVE A MINIMUM EDGE DISTANCE OF 2X FASTENER DIAMETER.

12. EMBEDDED POST SURFACES SHALL BE CLEAN AND FREE FROM OILY SURFACES.

13. HEADER SPLICES SHALL NOT BE LOCATED NEARER TO THE END OF THE STRUCTURE THAN THE FIRST INTERIOR POST. (EXCEPT FOR FULL STRENGTH SPLICES) FULL STRENGTH SPLICES (DETAILS X, Y, Z AND AA) MAY BE LOCATED ANYWHERE.

14. ALL SELF DRILLING AND SELF TAPPING SCREWS MUST COMPLY TO ICC- ESR 1271, 1408, 1976, 2196, 3006, 3215, 3223, 3231, 3294, 3332, 3528, 3558, OR EQUIVALENT AND USE HEADS W/ DIAMETERS EQUAL TO #8 = 5/16", #10 = 3/8", #12 = 1/2" AND #14 = 1/2" OR STEEL WASHERS OF SIMILAR DIAMETER AND AS PER GENERAL NOTE #11

15. STRUCTURES SHALL NOT BE ENCLOSED IN ANY MANNER WITHOUT APPROVAL OF THE CODE OFFICIAL.

16. ALUMINUM SOLID ROOF PANELS ARE CLASS A FIRE RATED AS INDICATED BY THE EXCEPTION IN IBC SECTION 1505.2. ALUMINUM IS A NONCOMBUSTIBLE MATERIAL AS PER 2021 IBC CHAPTER 20 AND THE ALUM ASSOC. 2020 ALUMINUM DESIGN MANUAL (AA ADM 1) PART III SECTION 7.

17. AT LEAST ONE HORIZONTAL DIMENSION (PROJECTION OR WIDTH) OF COVER SHALL BE LESS THAN 30'.

18. WHERE ALUMINUM ALLOY PARTS ARE IN CONTACT WITH DISSIMILAR METALS (OTHER THAN ALUMINIZED OR GALVANIZED STEEL) OR ABSORBENT BUILDING MATERIALS, LIKELY TO BE CONTINUOUSLY OR INTERMITTENTLY WET, THE FAYING SURFACES SHALL BE PAINTED OR OTHERWISE SEPARATED IN ACCORDANCE WITH THE ALUMINUM DESIGN MANUAL SECTION M.7.1 OR M.7.2.

19. WHEN A SINGLE SPAN ATTACHED UNIT IS ATTACHED TO A WOODEN DECK, THE MAXIMUM DEAD LOAD + SNOW/LIVE LOAD FROM THE PATIO COVER IS 750 LBS CONCENTRATED LOAD AT EACH POST AND THE POST SPACING SHALL NOT EXCEED THAT SPECIFIED FOR ATTACHING TO A CONCRETE SLAB. THE MAXIMUM CONNECTION UPLIFT LOAD IS 1366 LBS FOR 115 MPH EXP C WIND SPEED. CONNECTIONS ARE FOR MAXIMUM PATIO ROOF HEIGHTS OF 12 FT FROM GRADE. THE EXISTING DECK STRUCTURE MUST BE ADEQUATE TO SUSTAIN THESE ADDITIONAL LOADS. THE STRUCTURAL ADEQUACY OF THE DECK TO SAFELY SUSTAIN THESE ADDITIONAL LOADS WILL REQUIRE APPROVAL BY LOCAL BUILDING AUTHORITY OR ADDITIONAL ENGINEERING. SEE DETAIL M6. CONSTRUCTION OUTSIDE OF THESE PARAMETERS MAY REQUIRE ADDITIONAL ENGINEERING.

20. All structures must comply with one of the following:

- a. All structures with a roof snow load of 30 psf or less may be built in Seismic Design Category (SDC) A-D up to the maximum Ss noted in General Note #3.
- b. Structures with flat roof design snow loads over 30 psf complying with IBC Section 1613.1 Exception #1 do not require additional seismic analysis.
- c. Structures not complying with (a) or (b) must have constrained or non-constrained footings and are limited to the Ss shown in Section 2.0 or 5.0.

21. DRIFTING SNOW IS ADDRESSED IN DETAIL M4. SLIDING SNOW IS BEYOND THE SCOPE OF THIS REPORT.

22. ALL MULTISPAN TABLES AND DETAILS ASSUME EQUAL SPANS WITH A LONGEST SPAN TO SHORTEST SPAN RATIO OF 1.2. ALL SPECIFICATIONS MUST BE BASED ON LONGEST ACTUAL SPAN.

23. SEVERAL DETAILS (K, M, S, 11, 13 AND 15) SPECIFY CONNECTIONS BASED ON "MAX HEADER SPAN". THIS SPAN IS THE MAX ALLOWABLE SPAN IN THE SECTION 5.0 TABLES FOR THAT HEADER, TRIB AND LOAD CONDITIONS. SEE THE EXAMPLES IN DETAILS S OR 15.

GENERAL NOTES FOR LATTICE STRUCTURES:

(PERTAINS TO LATTICE STRUCTURES (DETAILS 1-39)

1. SEE GENERAL NOTES #3 FOR LIVE AND SNOW LOADS.

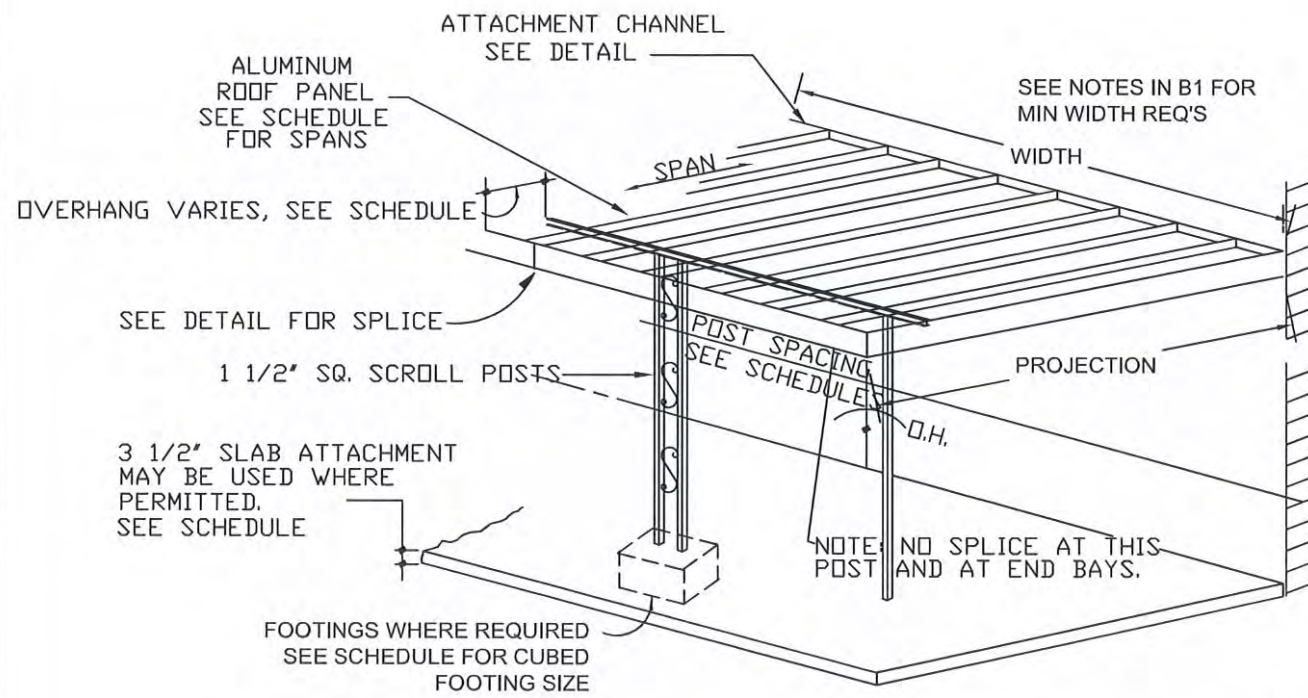
2. SINGLE SPAN LATTICE STRUCTURES THAT DO NOT USE DETAIL 27 OR M7 MUST USE DETAIL 17 OR 30 AND MUST COMPLY WITH TABLE L1 AND L2 ON SHEET MISC5.



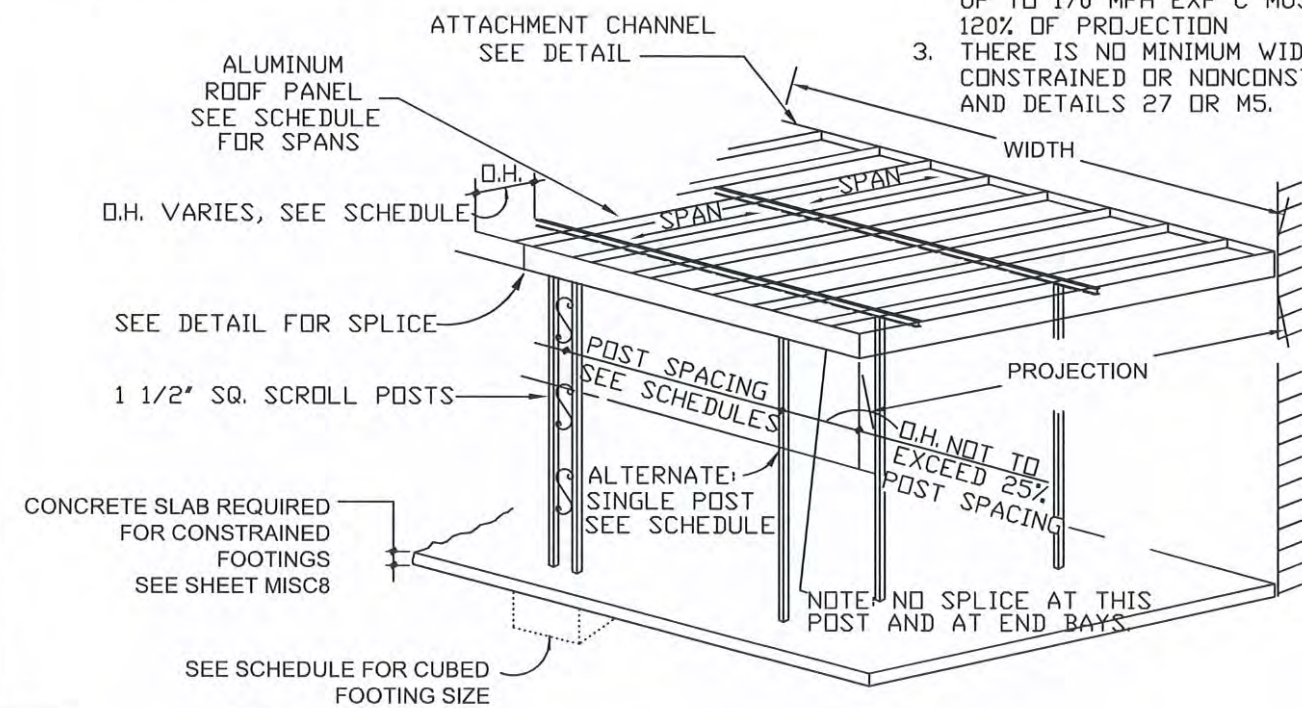
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SOLID PATIO TYPES

- NOTES FOR ATTACHED STRUCTURES
1. SEE SCHEDULES FOR POST SPACING
 2. MIN WIDTH IS 100% OF PROJECTION FOR WIND SPEEDS UP TO 140 MPH EXP C. WIND SPEEDS UP TO 170 MPH EXP C MUST BE AT LEAST 120% OF PROJECTION
 3. THERE IS NO MINIMUM WIDTH IF USING CONSTRAINED OR NONCONSTRAINED FOOTINGS AND DETAILS 27 OR M5.

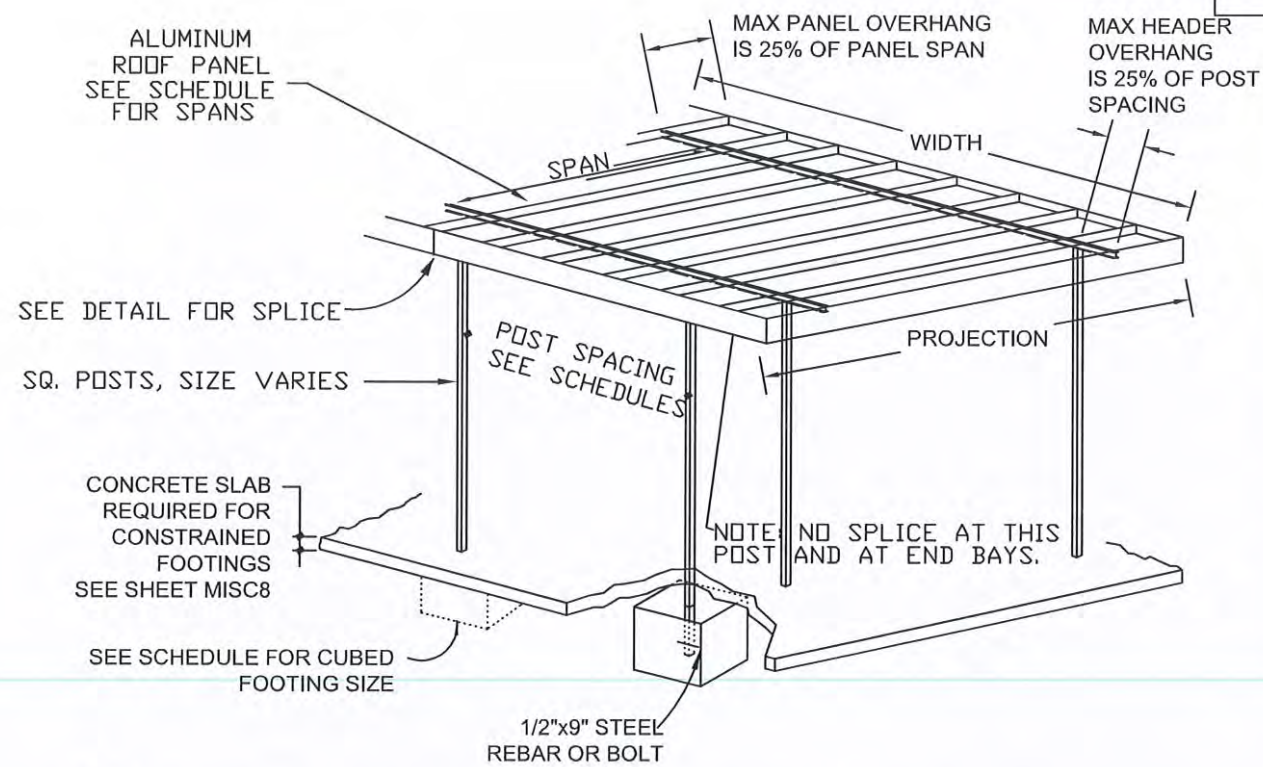


A1 ATTACHED SINGLE SPAN

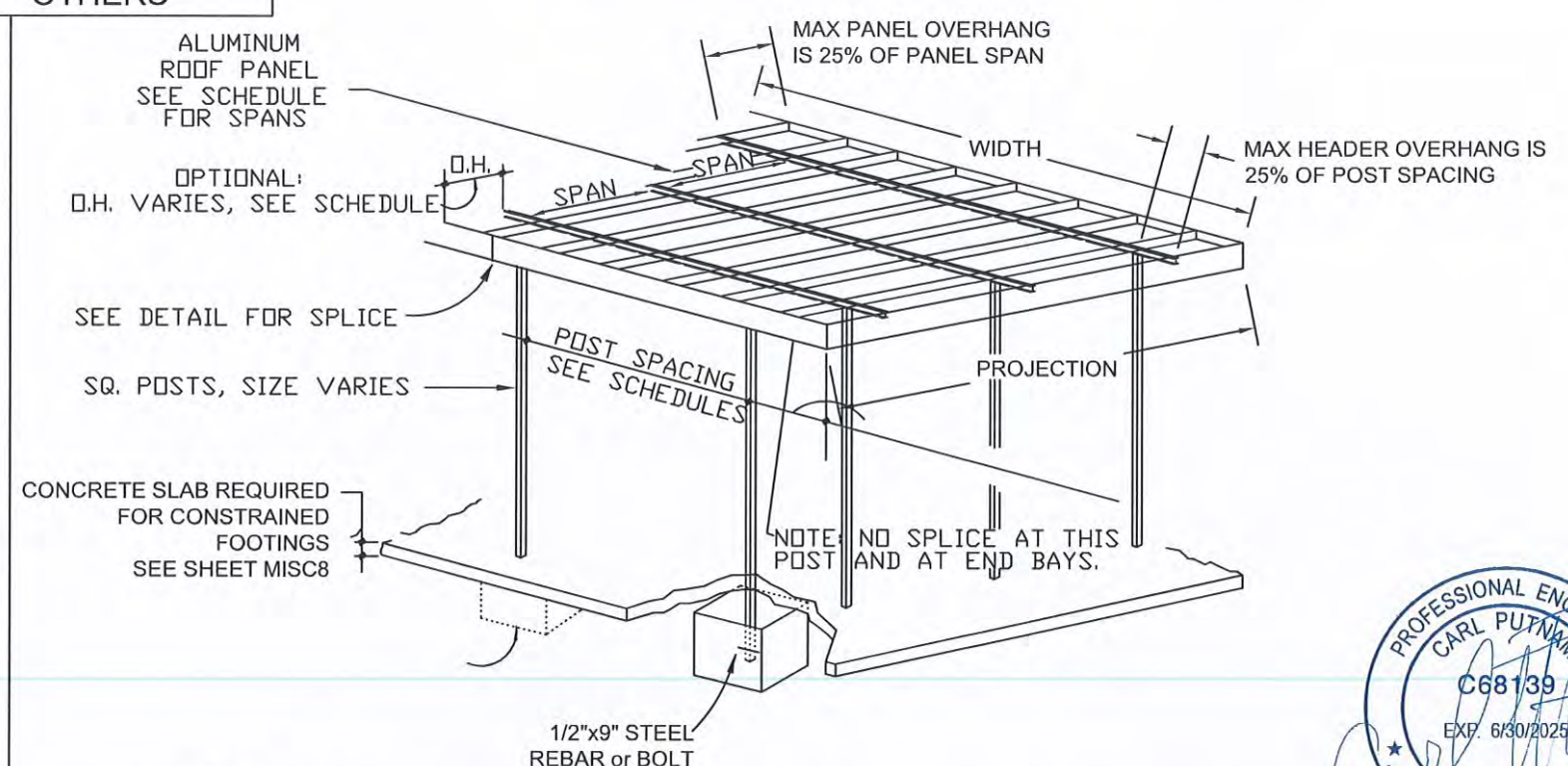


B1 ATTACHED MULTISPAN

12' MAX HGT FOR PATIO COVERS
15' MAX HEIGHT FOR OTHERS



C1 FREESTANDING W/CANTILEVER OPTION

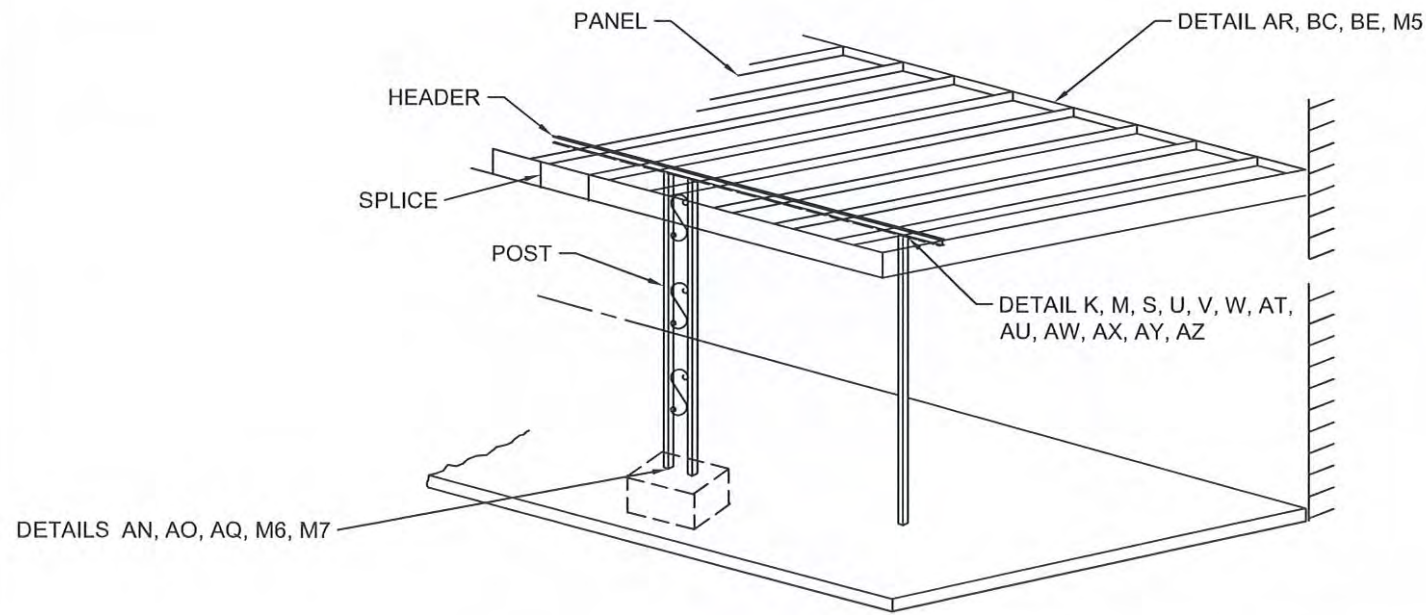


D1 FREESTANDING MULTISPAN

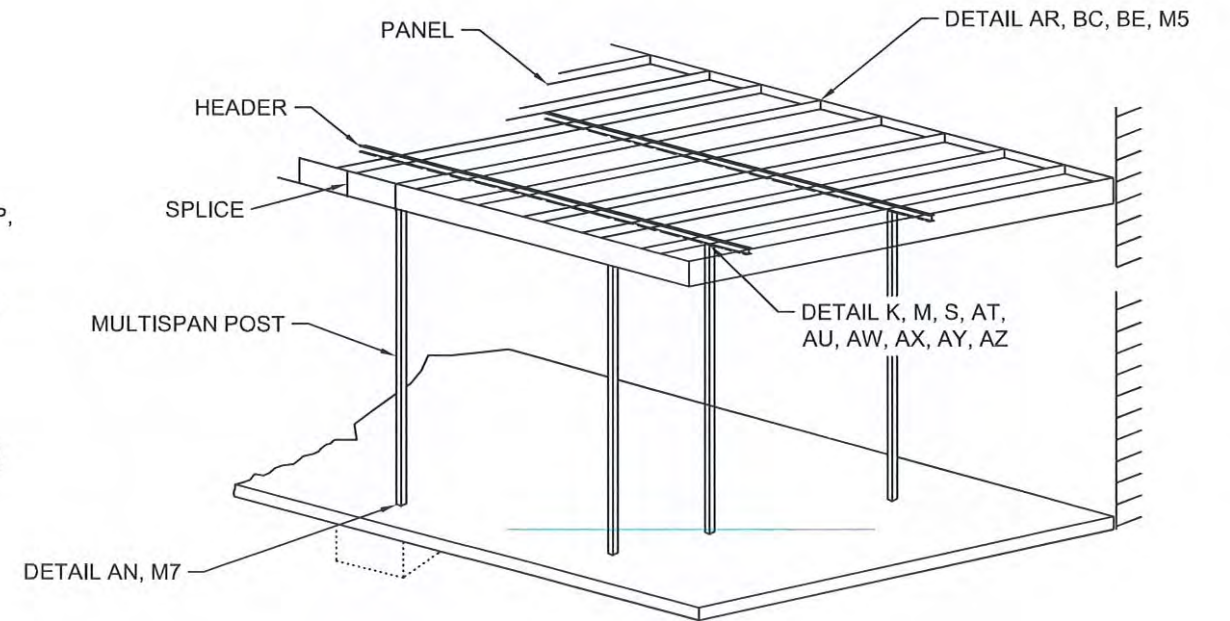


MAY 23 2023

SOLID PATIO TYPES



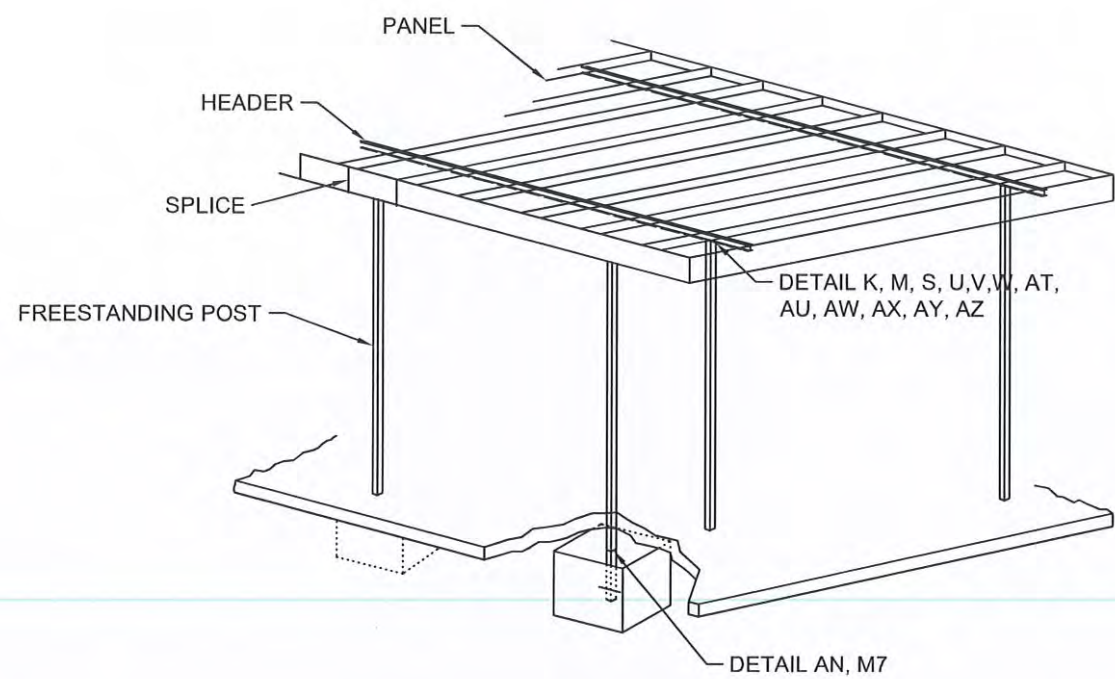
A2 ATTACHED SINGLE SPAN



B2 ATTACHED MULTISPAN

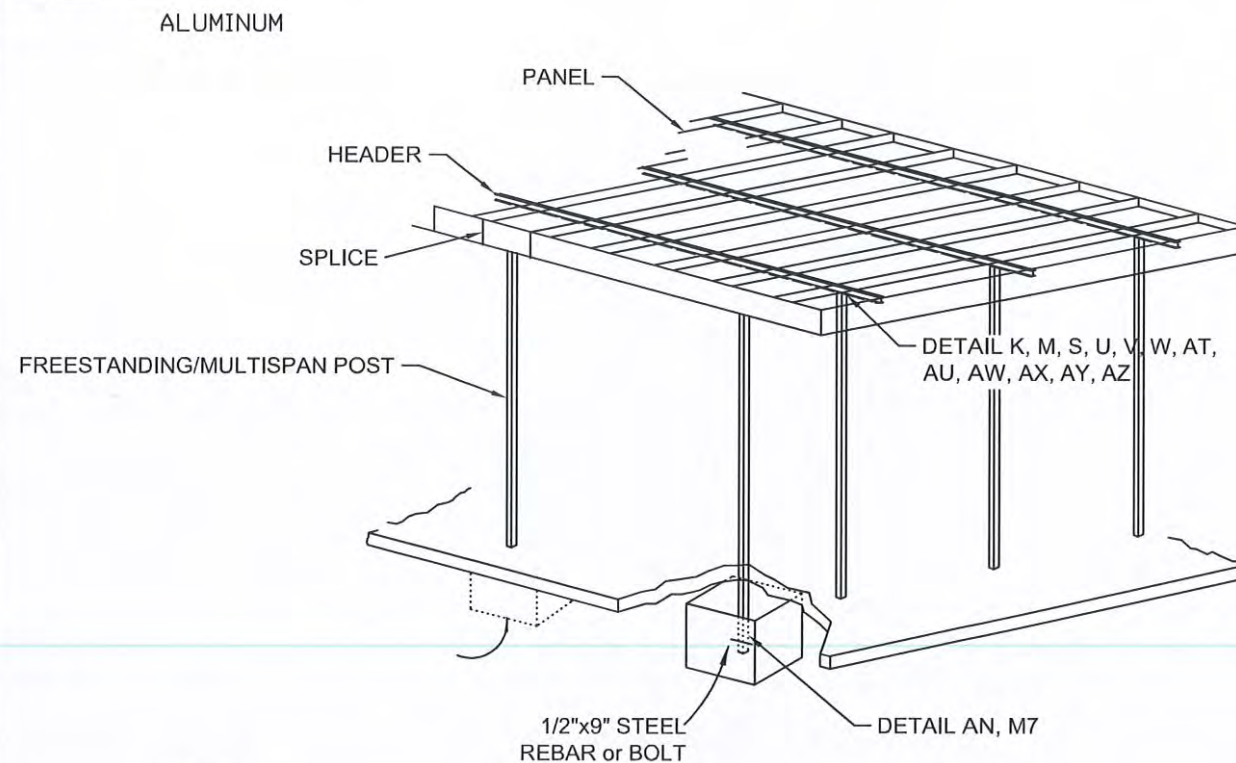
12' MAX HGT FOR PATIO COVERS
15' MAX HEIGHT FOR OTHERS

- DETAILS:
 PANEL: E, F, G, H, I
 HEADER: J, K, L, M, N, O, P, Q, R, S, T, U, V, W, AU
 POST: AE, AH, AK, AF, AL, AJ, AO
 POSTS FOR FREESTANDING AND MULTISPAN UNITS: AF AND AK (STEEL ONLY)
 SPLICE: X, Y, Z, AA



C2 FREESTANDING W/CANTILEVER OPTION

ICC ESR 2676 (2021 IBC/2022 CBC) 1/9/2023



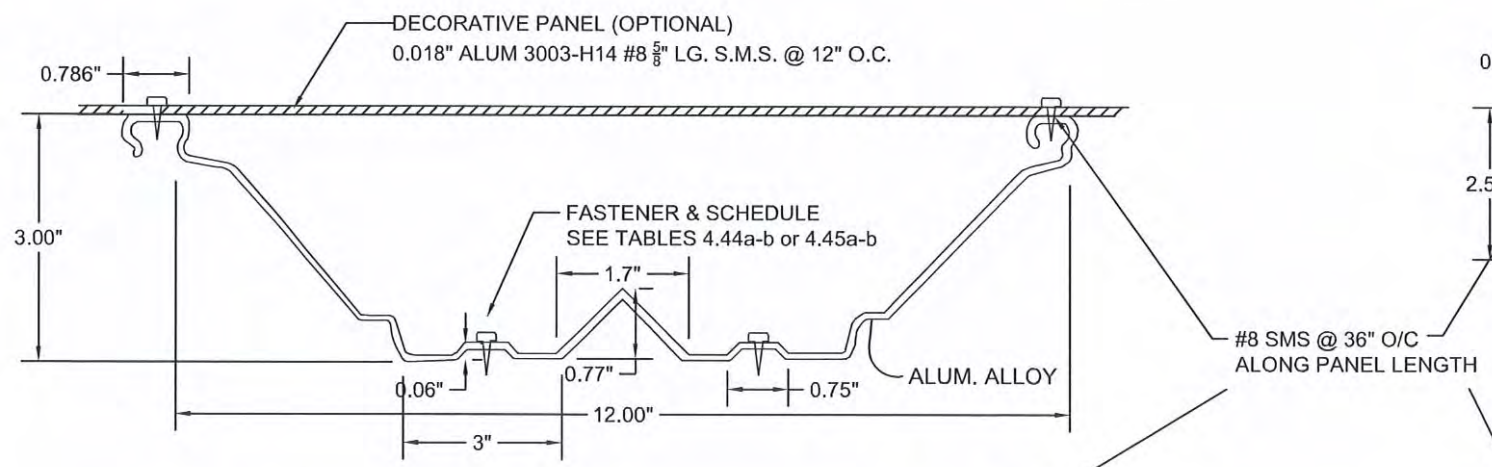
D2 FREESTANDING MULTISPAN

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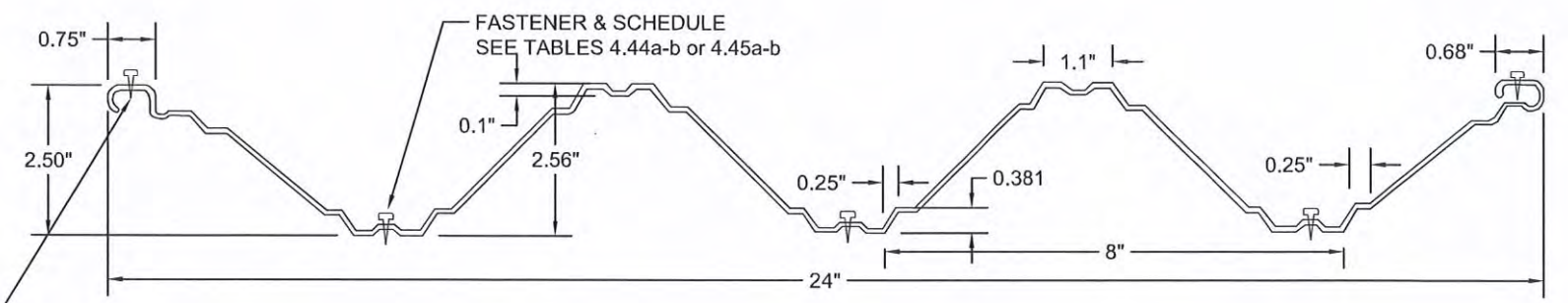


MAY 23 2023

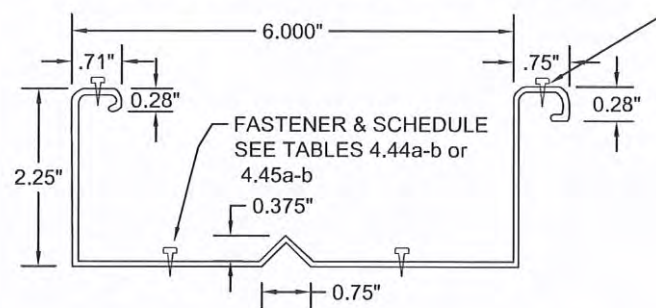
E 3" x 12" "W" PANEL
(ALUM. ALLOY 3004-H34 OR EQUAL)



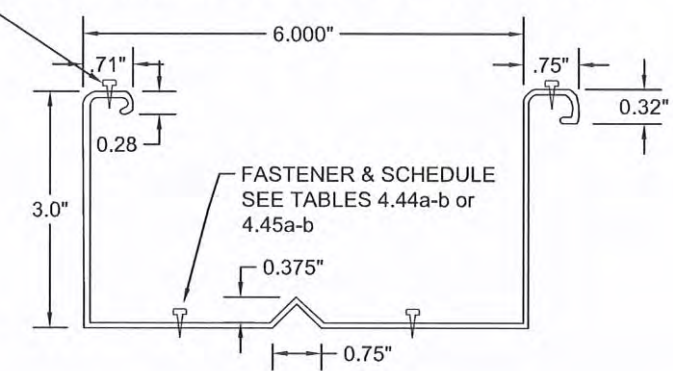
F 2 1/2" x 24" TRI-PANEL
(ALUM. ALLOY 3004-H34 OR EQUAL)



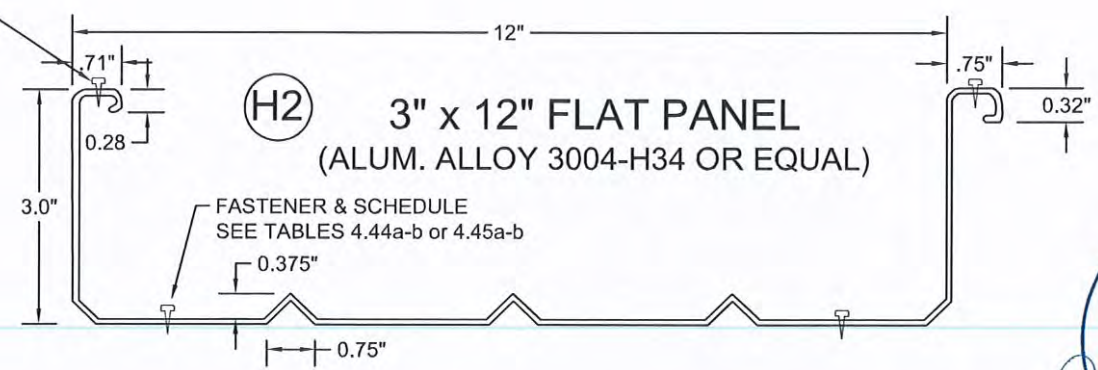
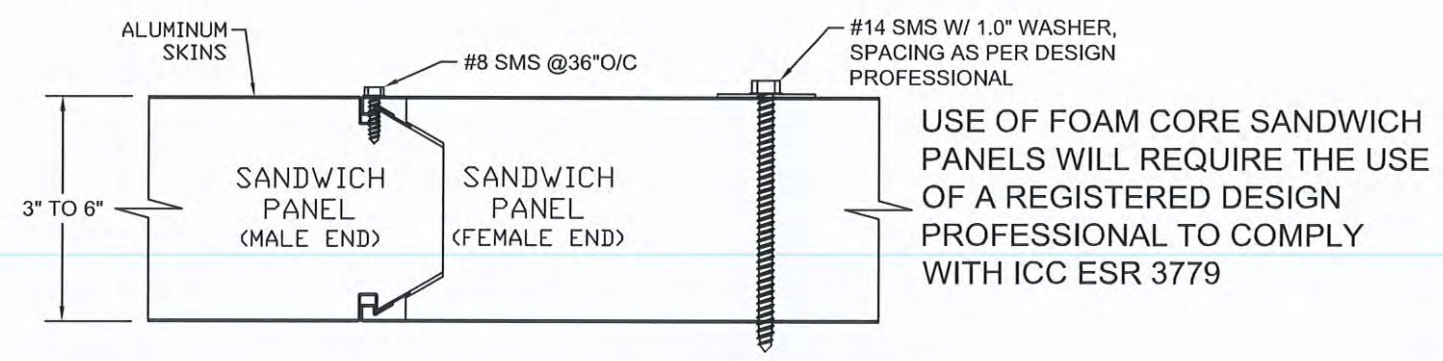
G 2.25" x 6" FLAT PANEL
(ALUM. ALLOY 3004-H34 OR EQUAL)



H1 3" x 6" FLAT PANEL
(ALUM. ALLOY 3004-H34 OR EQUAL)

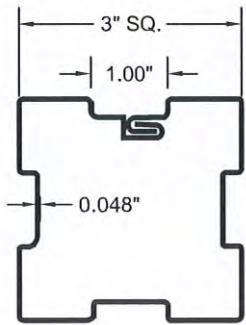


I 3" , 4" OR 6" INSULATED
ROOFING PANEL ICC ESR 3779



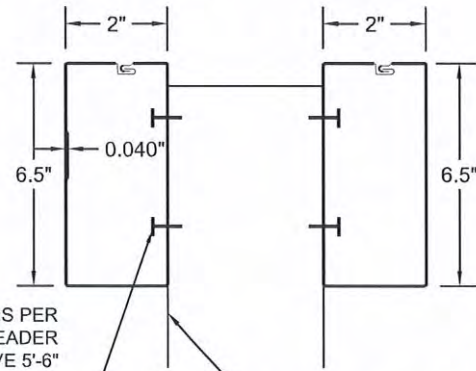
J

3" SQ. STEEL BEAM
(ASTM A653 GRADE 40)



K

DBL. 2" x 6.5" BEAM
(ALUM. ALLOY 3004-H34)



USE FOUR #14 SMS PER SIDE FOR MAX HEADER SPAN ABOVE 5'-6"

USE FIVE #14 SMS PER SIDE FOR MAX HEADER SPAN BELOW 5'-6"

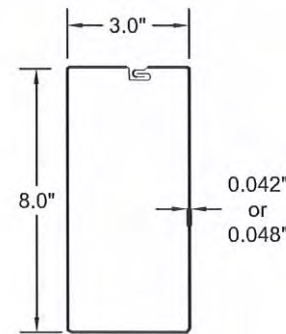
POST E OR STRONGER (DETAIL AJ)

SEE GEN NOTE #23

MAX UPLIFT FOOTING d= 31"

L

3" x 8" BEAM
(ALUM. ALLOY 3004-H34)



M

DBL. 3" x 8" BEAM
(ALUM. ALLOY 3004-H34)

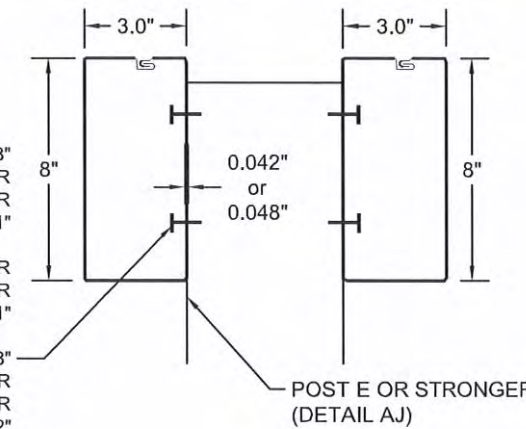
0.042"x3"x8"
USE FOUR #14 SMS PER SIDE FOR MAX HEADER SPAN ABOVE 6'-1"

USE FIVE #14 SMS PER SIDE FOR MAX HEADER SPAN BELOW 6'-1"

0.048"x3"x8"
USE FIVE #14 SMS PER SIDE FOR MAX HEADER SPAN ABOVE 8'-2"

USE SIX #14 SMS PER SIDE FOR MAX HEADER SPAN BELOW 8'-2"

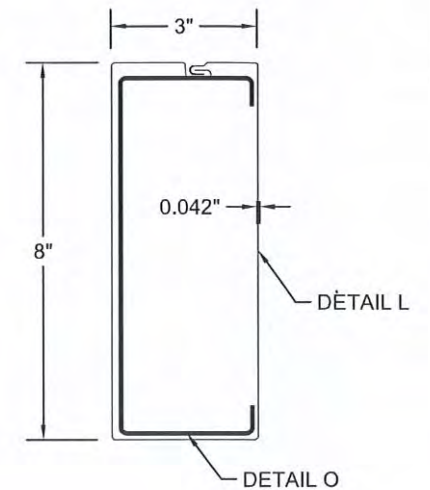
SEE GEN NOTE #23



MAX UPLIFT FOOTING
t= 0.042" then max d= 32"
t= 0.048" then max d= 34"

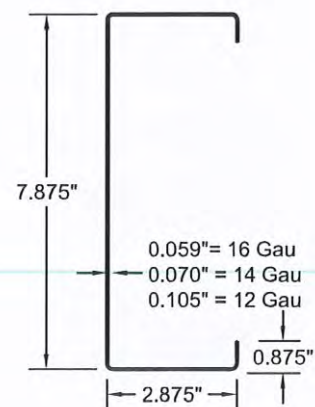
N

3" x 8" BEAM
W/ STL. INSERT



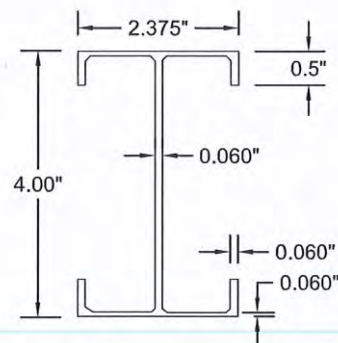
O

3" x 8" BEAM
STEEL INSERT
(ASTM A653 GRADE 50)



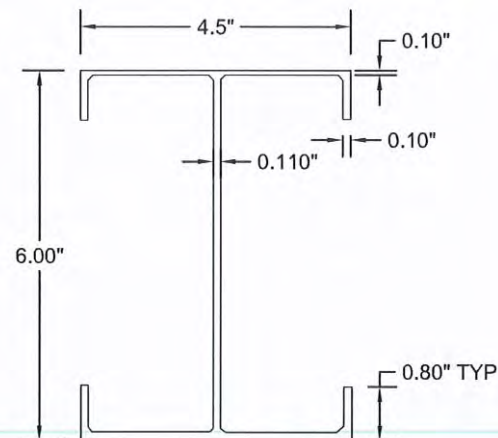
P

4" I-BEAM
(ALUM. ALLOY 6061-T6)



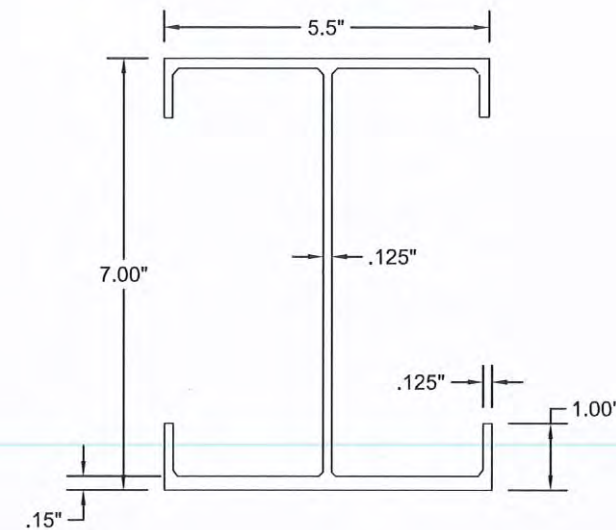
Q

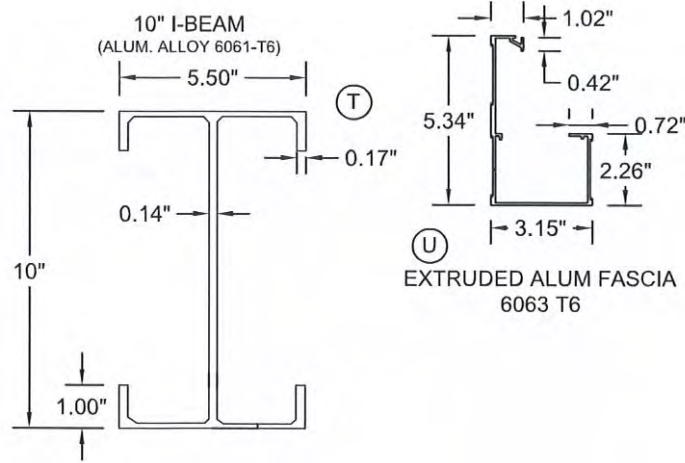
6" I-BEAM
(ALUM. ALLOY 6061-T6)



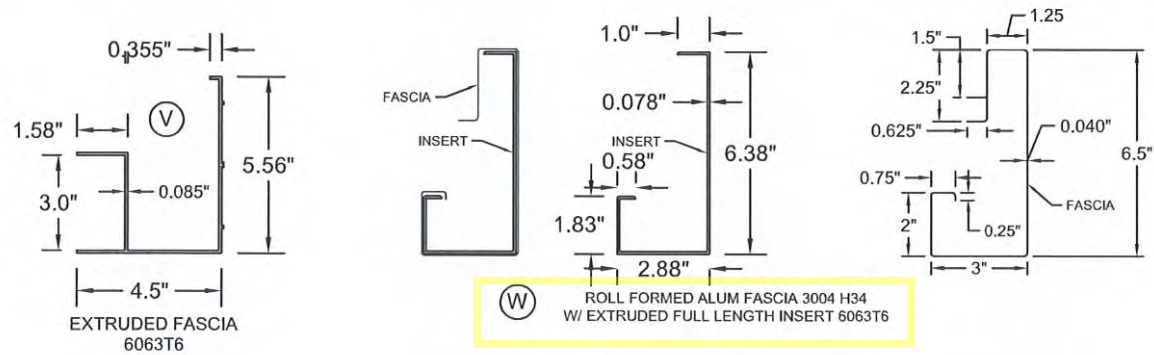
R

7" I-BEAM
(ALUM. ALLOY 6061-T6)



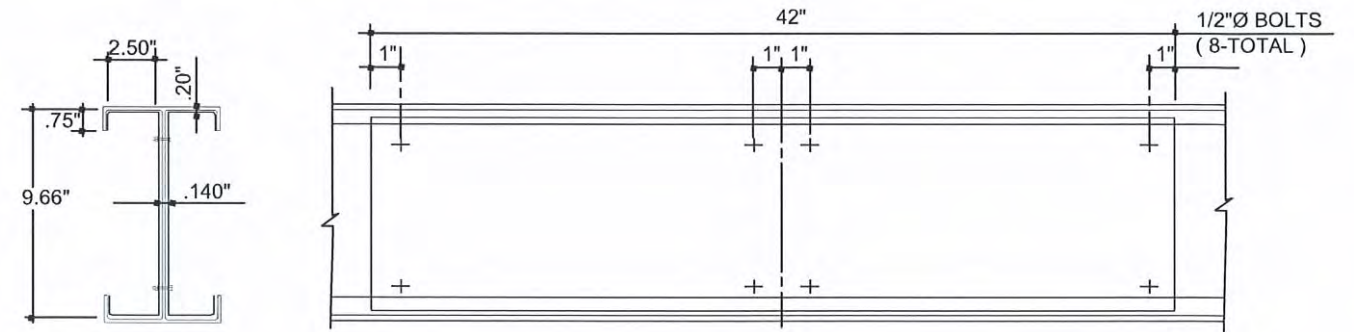


EXTRUDED ALUM FASCIA
6063 T6

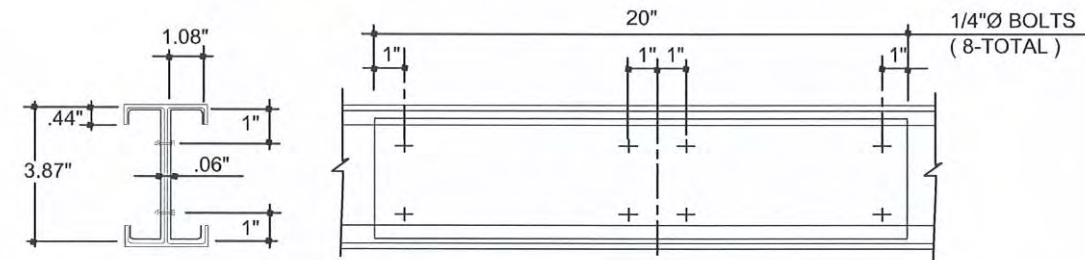


ROLL FORMED ALUM FASCIA 3004 H34
W/ EXTRUDED FULL LENGTH INSERT 6063T6

Y 10" x 5.5 I-BEAM SPLICE 6061T6



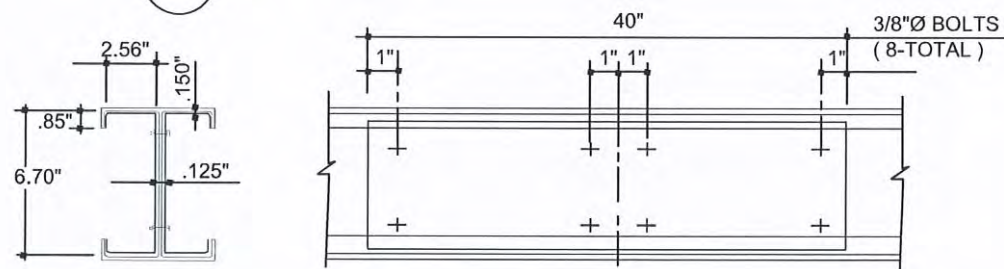
Z 4" x 2.375 I-BEAM SPLICE 6061T6



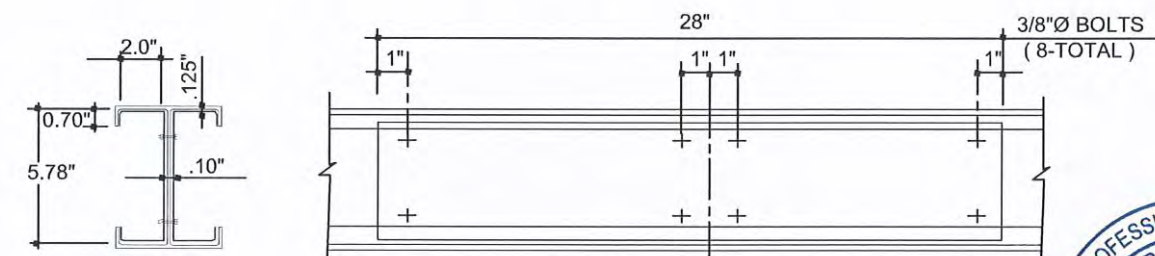
I BEAM SPLICES ARE ON
BOTH SIDES OF WEB

DETAILS X, Y, Z AND AA ARE FULL MOMENT SPLICES

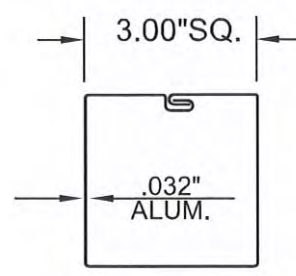
X 7" x 5.5 I-BEAM SPLICE 6061T6



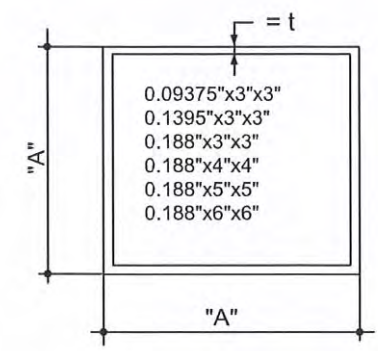
AA 6" x 4.5 I-BEAM SPLICE 6061T6



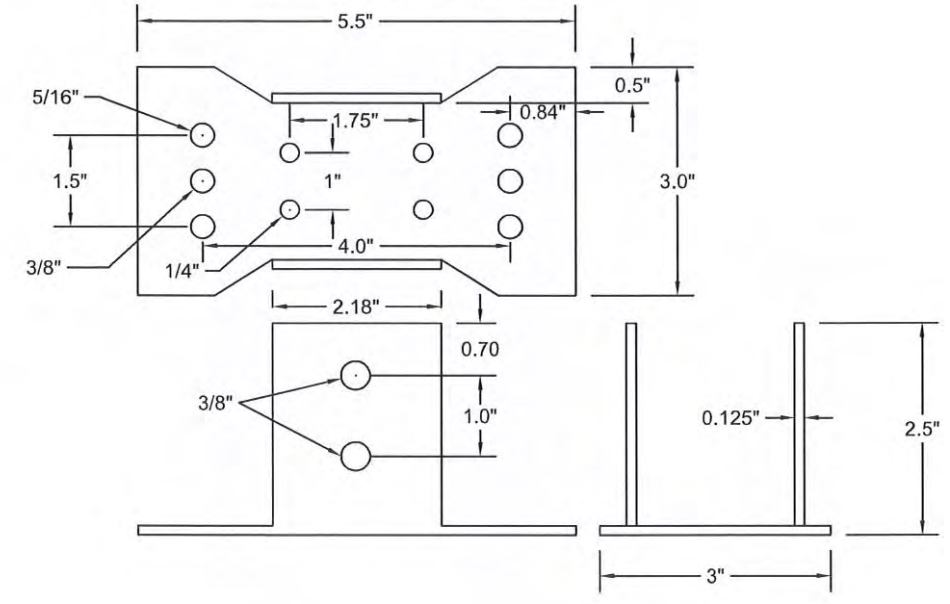
(AE) 3" SQ. ALUM POST
ALUM. ALLOY 3004-H34



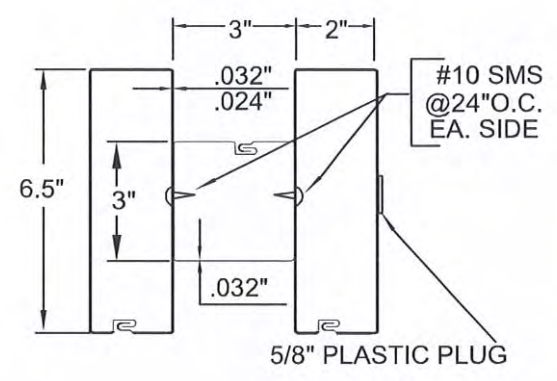
(AF) SQ. STEEL POST
ASTM A500 GRADE B



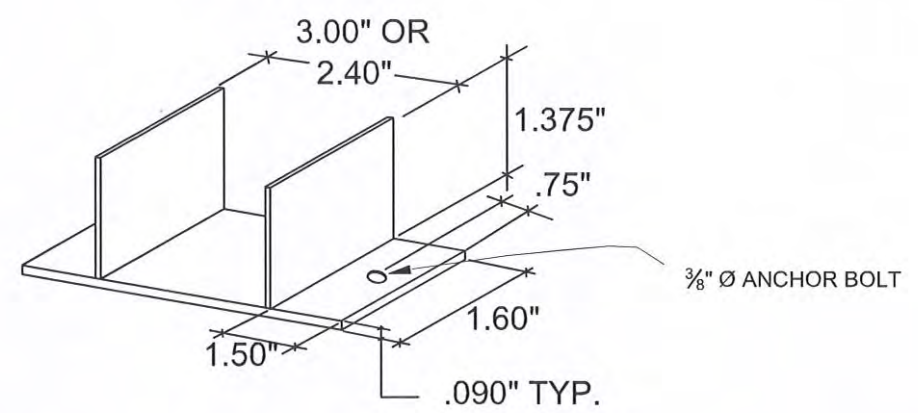
(AG) STEEL "T" BRACKET FOR 3" POSTS
ASTM A36 (Fy = 36 ksi)



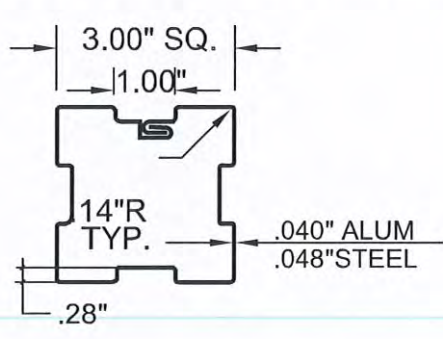
(AH) 3" SQ. ALUM POST WITH
SIDE PLATES
ALUM. ALLOY 3004-H34



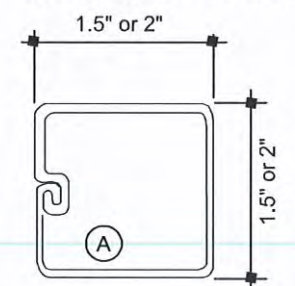
(AI) ALUM "T" BRACKET
.090" BRACKET FOR 3" POSTS
ALUM. ALLOY 6063-T5



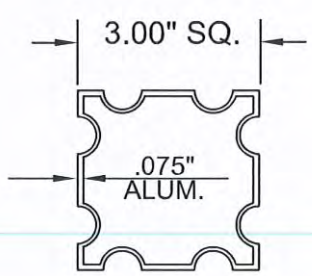
(AK) 3" SQ. ALUM POST ALUM. ALLOY 3004-H34
3" SQ. STEEL POST ASTM A653 SS GRADE 40



(AL) 0.032"x1.5"x1.5"
0.024"x 2"x2" POST
3004 H34 ALUM

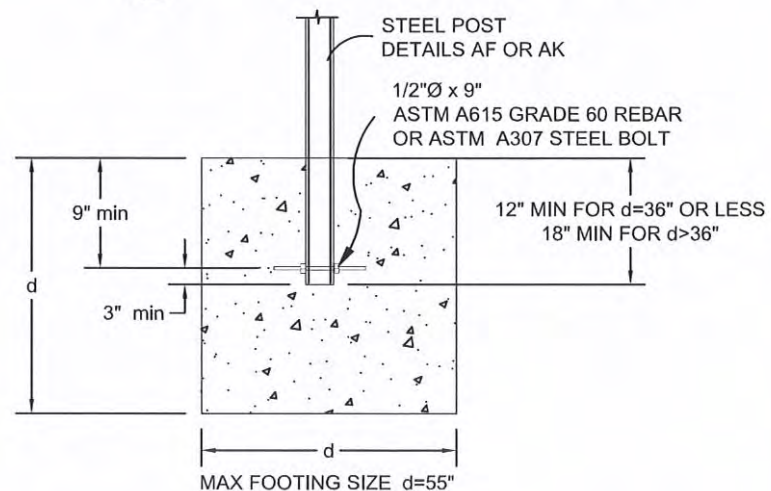


(AJ) MAG POST -3" SQ. ALUM POST
ALUM. ALLOY 6063-T5

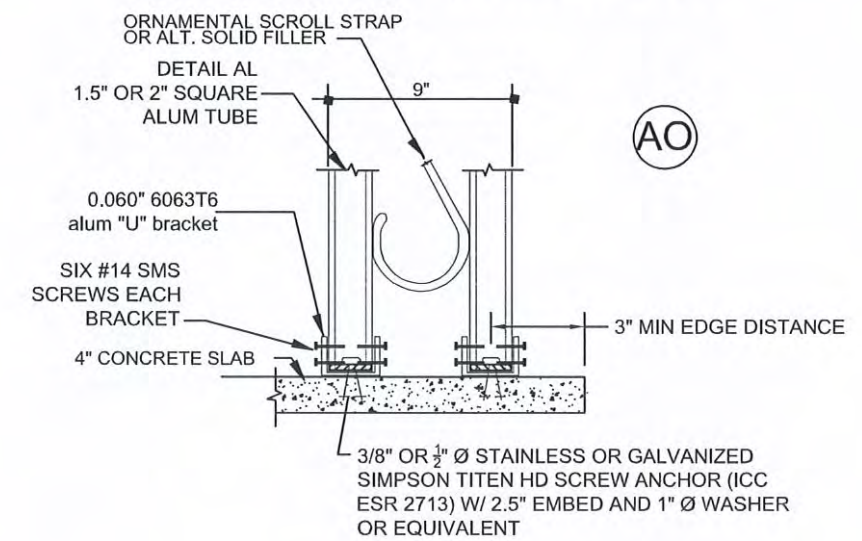


DETAIL AM IS NOT USED

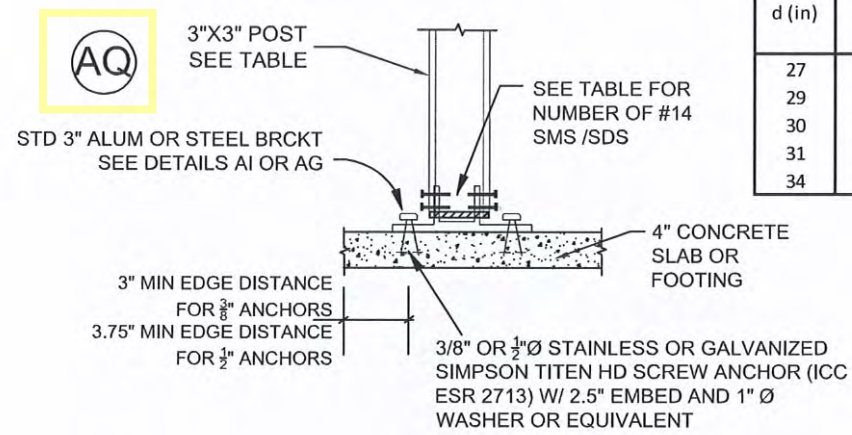
(AN) EMBEDDED STEEL POST



1 1/2" or 2" POST TO CONC SLAB CONNECTION FOR SINGLE SPAN ATTACHED STRUCTURES ONLY in 110 mph Exposure B and 95 mph Exposure C Areas



POST ON CONC. SLAB OR FOOTING FOR SINGLE SPAN ATTACHED STRUCTURES ONLY



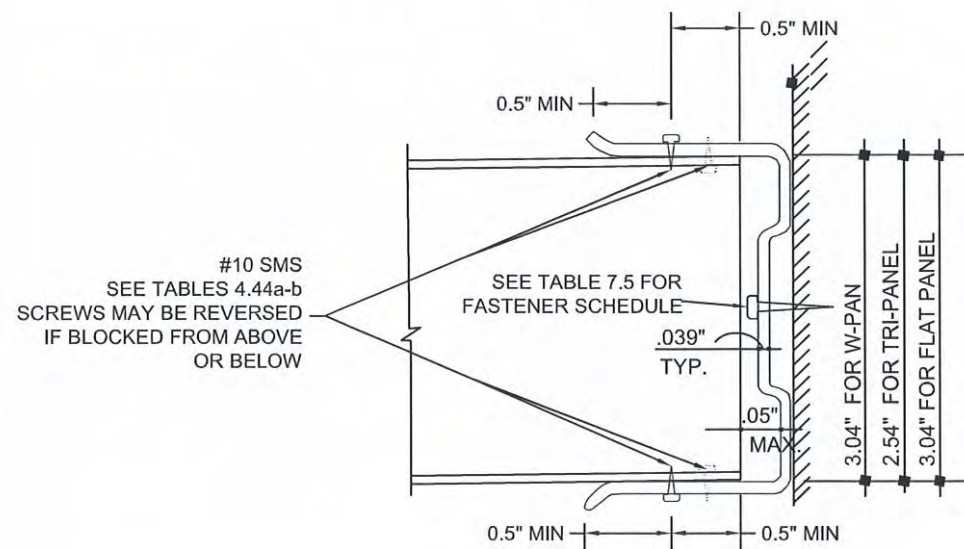
Footing d (in)	Number of #14 SMS	Bracket Detail	3"x3" Post	Concrete Anchor Diameter	Max Wind Condition for Solid Cover "On Slab" Attachment
27	8	AI	0.024" Alum	3/8" min	115 mph Exp B / 95 mph Exp C
29	8	AI	0.032" Alum	3/8" min	130 mph Exp B / 110 mph Exp C
30	12	AI	0.024" Alum	3/8" min	115 mph Exp C
31	12	AG	0.032" Alum	3/8" min	130 mph Exp C
34	8	AG	0.048" Steel	1/2" min	140 mph Exp C



AR

ROLLFORMED HANGER

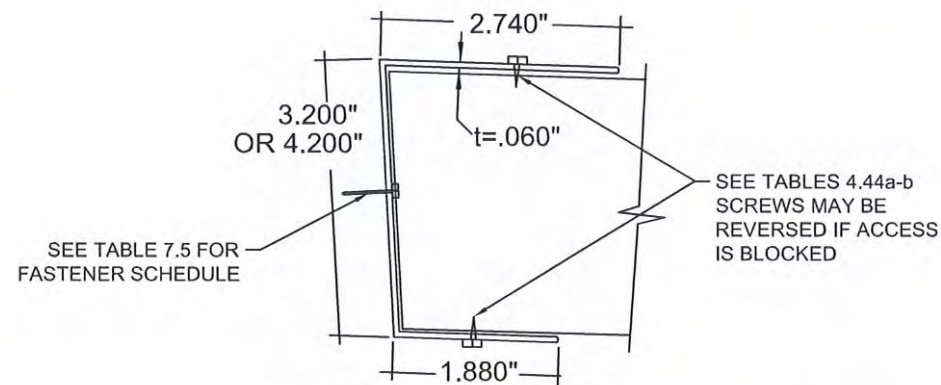
ALUM. ALLOY 3004-H34



AS

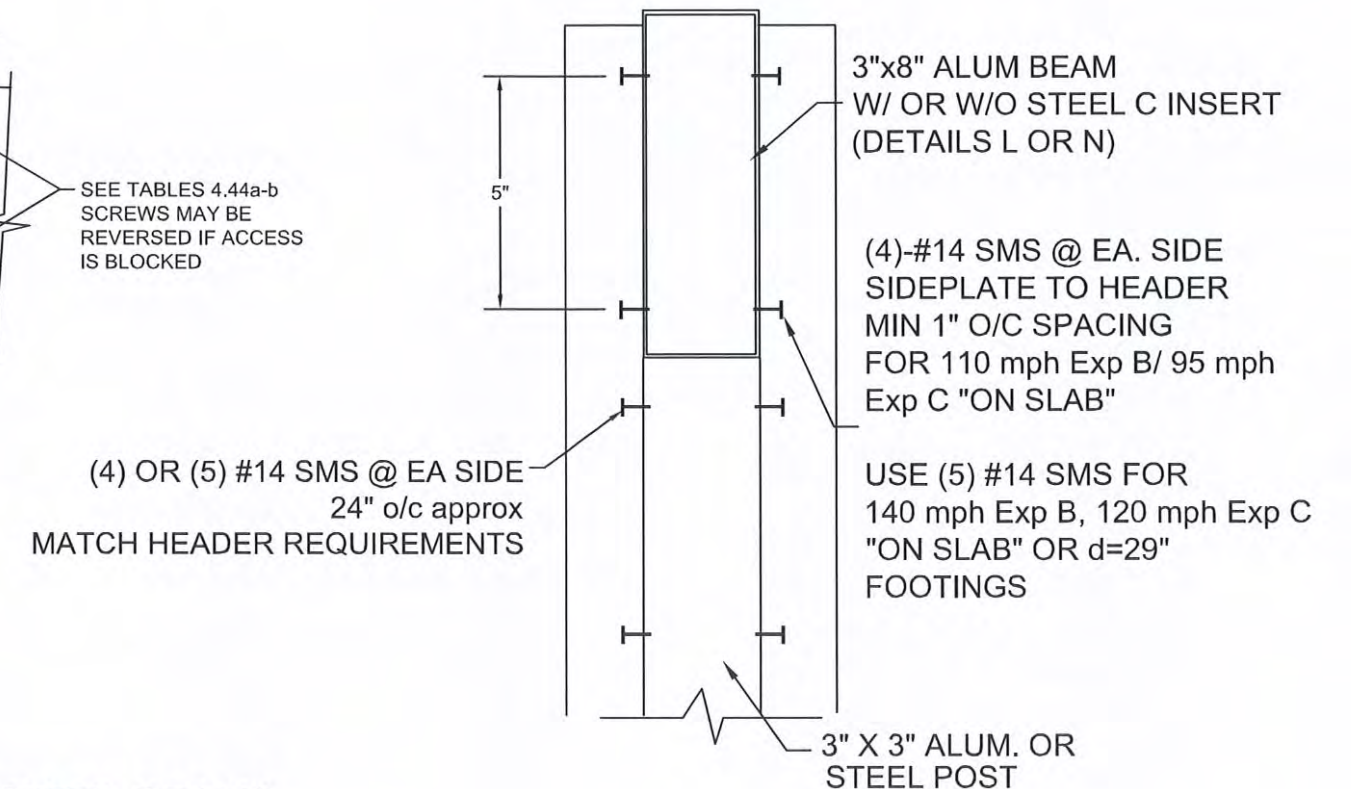
INSULATED ROOFING PANEL HANGER

ALUM. ALLOY 6063-T5

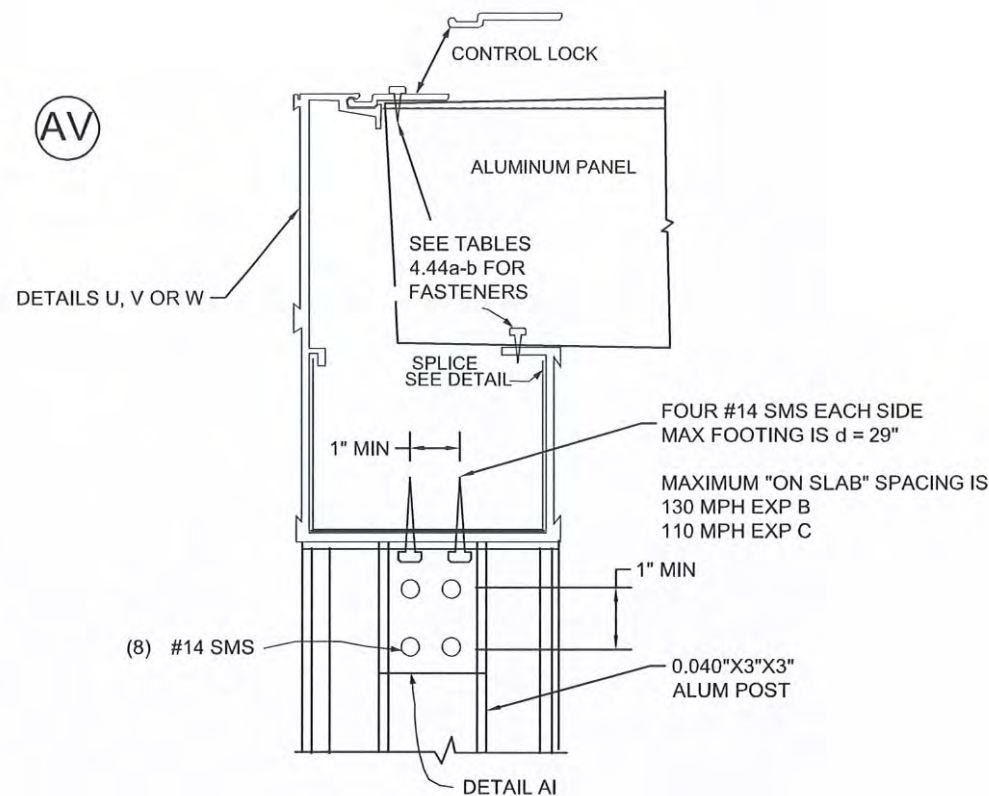


AT

3"x8" BEAM TO POST CONNECTION USING SIDE PLATES (SEE DETAIL AH)

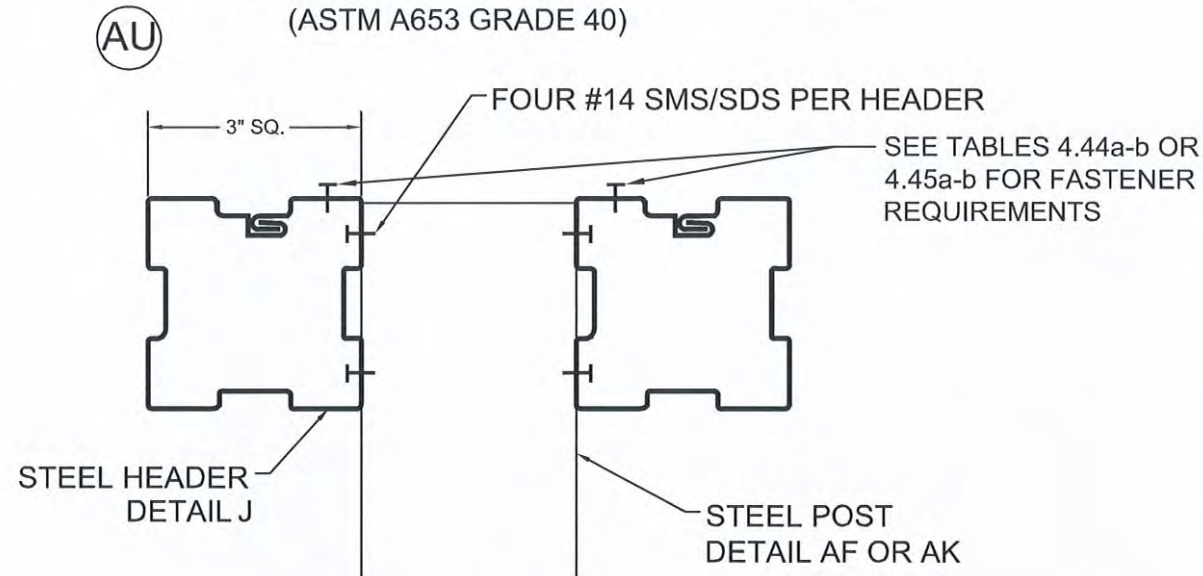


AV

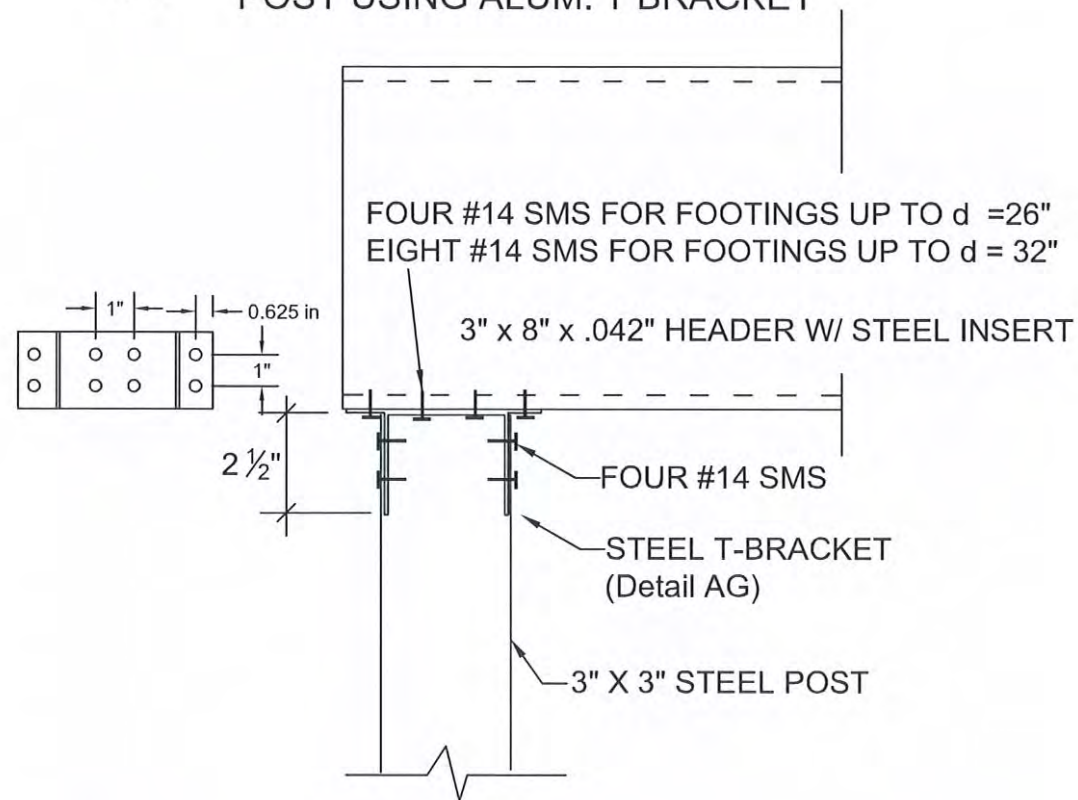


DOUBLE OR SINGLE 3" SQ. STEEL BEAMS

(ASTM A653 GRADE 40)

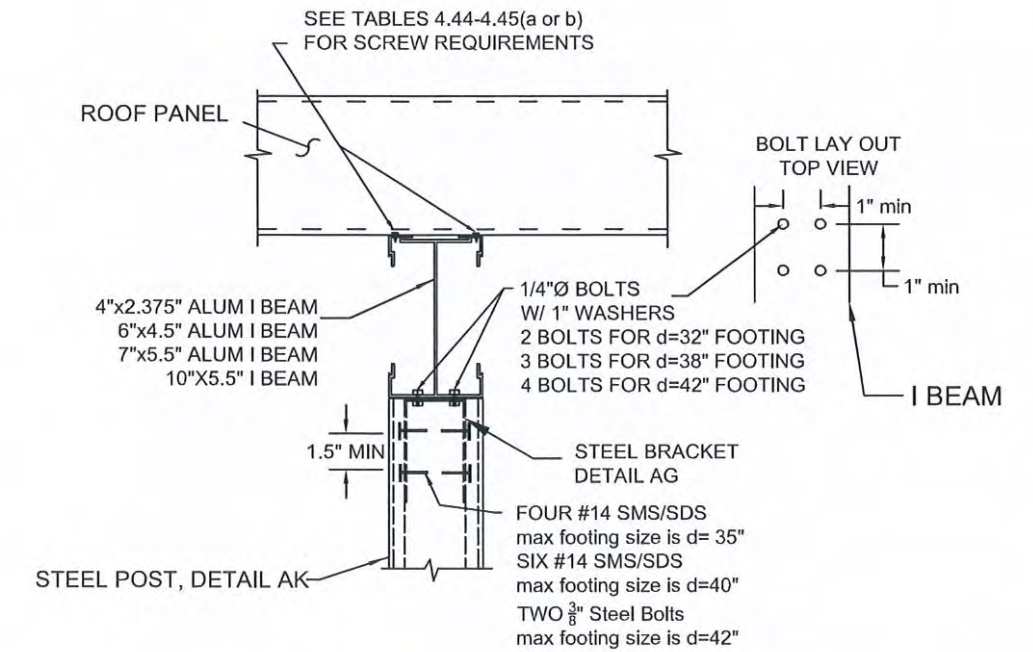


AW 3"x8" BEAM W/ STEEL INSERT TO POST USING ALUM. T BRACKET

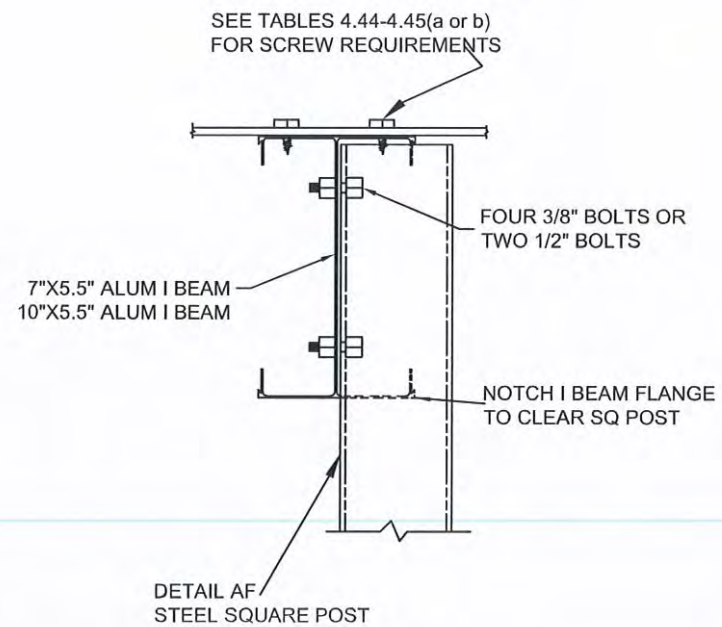


DETAIL AX IS NOT USED

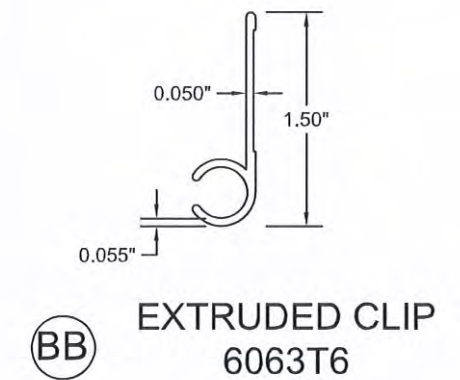
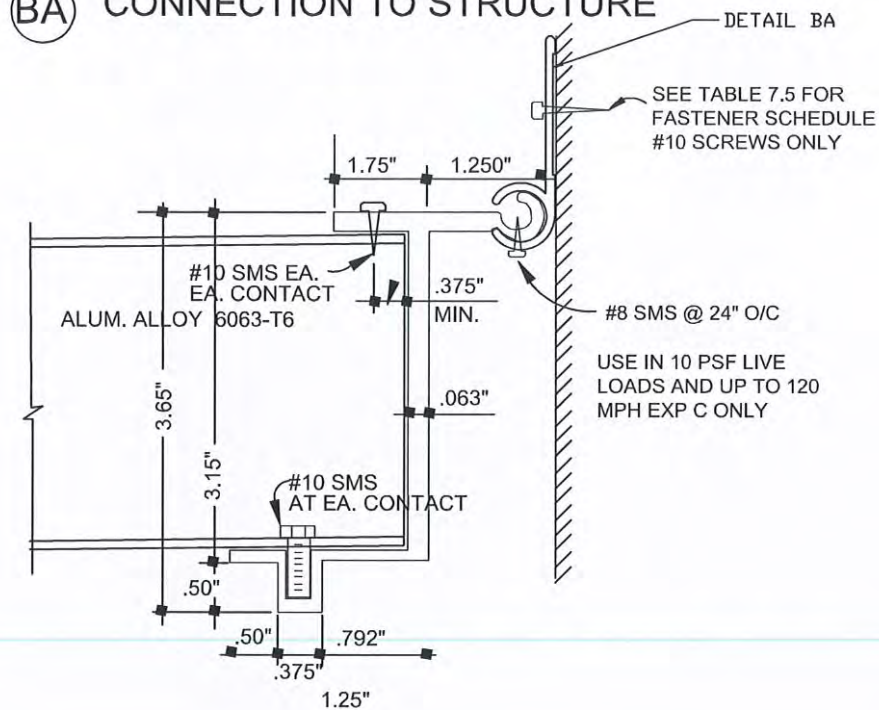
AY I BEAM TO POST CONNECTION



AZ NOTCHED I BEAM TO POST CONNECTION



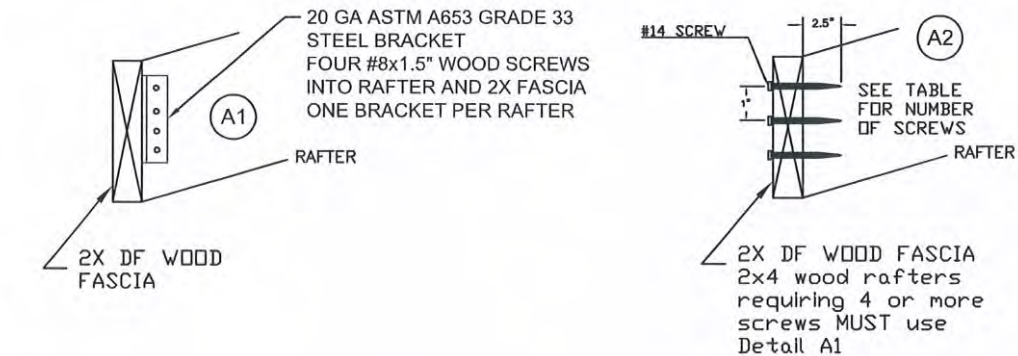
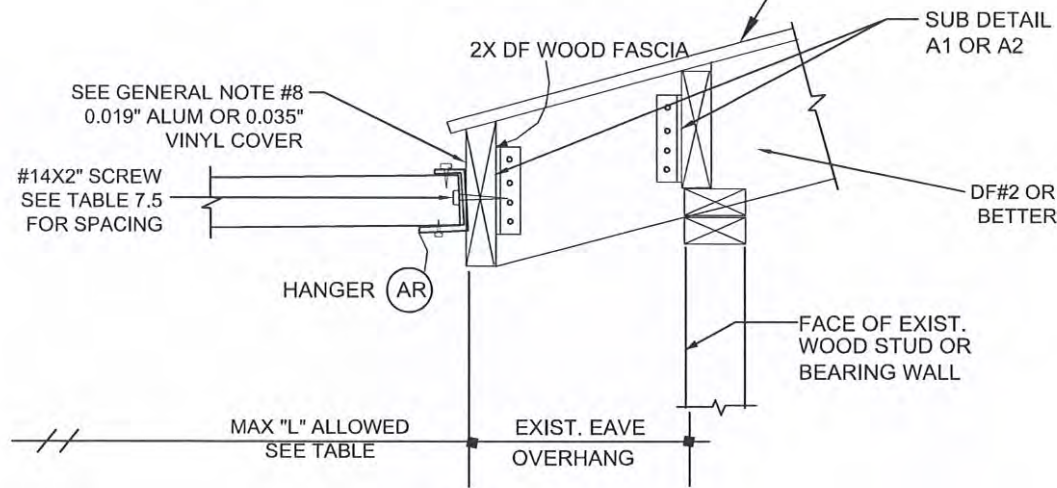
BA EXTRUDED HANGER CONNECTION TO STRUCTURE



BC

PANEL TO EXISTING EAVE CONNECTION

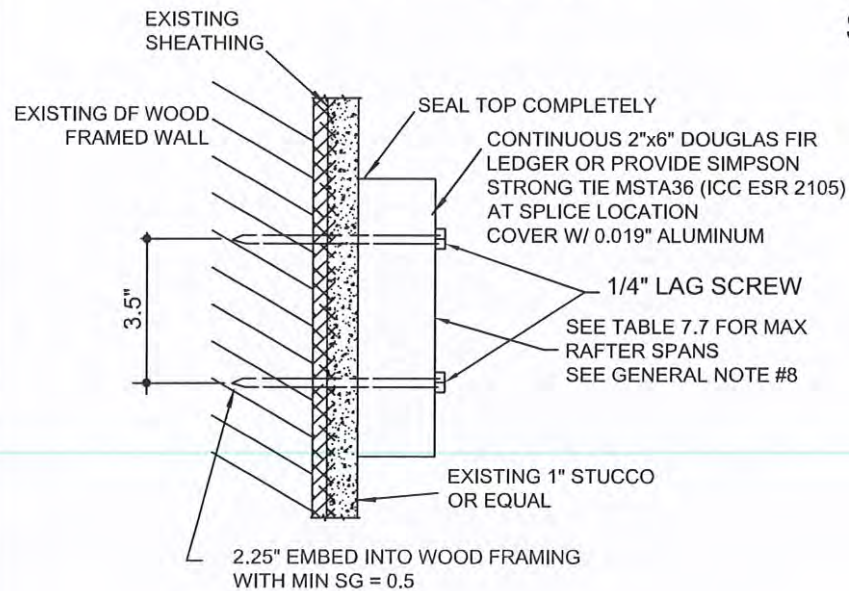
ROOF COVERING IS A MAXIMUM OF 3 PSF
HEAVIER ROOF COVERING SHALL REQUIRE
ADDITIONAL ENGINEERING ANALYSIS



BE

LEDGER TO STRUCTURE CONNECTION

USE THIS TABLE FOR SOLID COVERS >>>>



Live/Snow Load Solid Cover Wind (psf)	RAFTER SIZE (24" O/C)	MAX DISTANCE TO FIRST ROW OF POSTS "L"					# of #14 Screws
		EAVE OVERHANG					
		6"	12"	18"	24"	30"	
10	2x4	20'-6"	18'-10"	10'-11"	6'-5"	3'-4"	3
115 MPH EXP B	2x6	20'-6"	20'-6"	20'-6"	20'-6"	15'-6"	
	2x8	20'-6"	20'-6"	20'-6"	20'-6"	20'-6"	
10	2x4	20'-6"	18'-10"	10'-11"	6'-5"	3'-4"	3
105 MPH EXP C	2x6	20'-6"	20'-6"	20'-6"	20'-6"	15'-6"	
	2x8	20'-6"	20'-6"	20'-6"	20'-6"	20'-6"	
10	2x4	20'-6"	17'-3"	10'-0"	5'-11"	3'-1"	3
110 MPH EXP C	2x6	20'-6"	20'-6"	20'-6"	19'-10"	14'-3"	
	2x8	20'-6"	20'-6"	20'-6"	20'-6"	20'-6"	
10	2x4	20'-6"	15'-9"	9'-1"	5'-4"	2'-9"	3
115 MPH EXP C	2x6	20'-6"	20'-6"	20'-6"	18'-2"	13'-0"	
	2x8	20'-6"	20'-6"	20'-6"	20'-6"	20'-6"	
10	2x4	20'-6"	14'-5"	8'-4"	4'-11"	2'-7"	3
120 MPH EXP C	2x6	20'-6"	20'-6"	20'-6"	16'-7"	11'-11"	
	2x8	20'-6"	20'-6"	20'-6"	20'-6"	20'-6"	
10	2x4	20'-6"	12'-3"	7'-1"	4'-2"	2'-2"	4
130 MPH EXP C	2x6	20'-6"	20'-6"	20'-4"	14'-1"	10'-1"	
	2x8	20'-6"	20'-6"	20'-6"	20'-6"	19'-11"	
10	2x4	20'-6"	10'-6"	6'-1"	3'-7"	1'-10"	4
140 MPH EXP C	2x6	20'-6"	20'-6"	20'-6"	20'-6"	17'-1"	
	2x8	20'-6"	20'-6"	20'-6"	20'-6"	17'-1"	
20	2x4	18'-0"	9'-10"	5'-7"	3'-3"	1'-7"	4
140 MPH EXP C	2x6	18'-0"	18'-0"	16'-4"	11'-3"	8'-0"	
	2x8	18'-0"	18'-0"	18'-0"	18'-0"	15'-11"	
25	2x4	18'-0"	10'-10"	6'-3"	3'-8"	1'-11"	4
130 MPH EXP C	2x6	18'-0"	18'-0"	18'-0"	12'-6"	8'-11"	
	2x8	18'-0"	18'-0"	18'-0"	18'-0"	17'-8"	
25	2x4	18'-0"	10'-6"	6'-1"	3'-7"	1'-10"	4
140 MPH EXP C	2x6	18'-0"	18'-0"	17'-6"	12'-1"	8'-8"	
	2x8	18'-0"	18'-0"	18'-0"	18'-0"	17'-1"	
30	2x4	17'-0"	8'-11"	5'-1"	2'-10"	1'-3"	4
140 MPH EXP C	2x6	17'-0"	17'-0"	14'-11"	10'-3"	7'-2"	
	2x8	17'-0"	17'-0"	17'-0"	17'-0"	14'-6"	
35.7	2x4	16'-0"	7'-5"	4'-0"	2'-1"	0'-8"	5
140 MPH EXP C	2x6	16'-0"	16'-0"	12'-4"	8'-4"	5'-8"	
	2x8	16'-0"	16'-0"	16'-0"	16'-0"	11'-10"	
42	2x4	14'-0"	6'-2"	3'-3"	1'-6"	0'-3"	5
140 MPH EXP C	2x6	14'-6"	14'-6"	10'-4"	6'-10"	4'-6"	
	2x8	14'-6"	14'-6"	14'-6"	13'-5"	9'-9"	
50	2x4	11'-9"	5'-1"	2'-6"	0'-11"	0'-0"	5
140 MPH EXP C	2x6	13'-3"	13'-3"	8'-6"	5'-5"	3'-5"	
	2x8	13'-3"	13'-3"	13'-3"	11'-0"	7'-10"	
60	2x4	9'-9"	4'-1"	1'-10"	0'-5"	0'-0"	6
140 MPH EXP C	2x6	12'-2"	11'-7"	6'-10"	4'-2"	2'-5"	
	2x8	12'-2"	12'-2"	12'-2"	8'-10"	6'-2"	

Live Snow	RAFTER SIZE	MAX DISTANCE TO FIRST ROW OF POSTS "L"					Number of #14 Screws
		EAVE OVERHANG					
		6"	12"	18"	24"	30"	
10 psf	2x4	25'-2"	18'-10"	10'-11"	6'-5"	3'-4"	3
130 mph Exp C	2x6	25'-2"	25'-2"	25'-2"	21'-8"	15'-6"	
	2x8	25'-2"	25'-2"	25'-2"	25'-2"	25'-2"	
20 psf	2x4	18'-3"	9'-10"	5'-8"	3'-4"	1'-9"	4
130 mph Exp C	2x6	18'-3"	18'-3"	16'-5"	11'-4"	8'-1"	
	2x8	18'-3"	18'-3"	18'-3"	18'-3"	16'-1"	
25 psf	2x4	17'-9"	9'-4"	5'-4"	3'-1"	1'-6"	4
130 mph Exp C	2x6	17'-9"	17'-9"	15'-7"	10'-9"	7'-8"	
	2x8	17'-9"	17'-9"	17'-9"	17'-9"	15'-3"	
30 psf	2x4	16'-5"	7'-8"	4'-3"	2'-3"	0'-11"	4
130 mph Exp C	2x6	16'-5"	16'-5"	12'-10"	8'-8"	6'-0"	
	2x8	16'-5"	16'-5"	16'-5"	16'-5"	12'-4"	
36 psf	2x4	14'-3"	6'-4"	3'-4"	1'-7"	0'-4"	5
130 mph Exp C	2x6	15'-0"	15'-0"	10'-7"	7'-0"	4'-8"	
	2x8	15'-0"	15'-0"	15'-0"	13'-9"	10'-1"	
42 psf	2x4	12'-1"	5'-3"	2'-8"	1'-1"	0'-0"	5
130 mph Exp C	2x6	13'-11"	13'-11"	8'-10"	5'-9"	3'-8"	
	2x8	13'-11"	13'-11"	13'-11"	11'-6"	8'-3"	
50 psf	2x4	10'-2"	4'-3"	2'-0"	0'-7"	0'-0"	5
130 mph Exp C	2x6	12'-9"	12'-1"	7'-3"	4'-6"	2'-8"	
	2x8	12'-9"	12'-9"	12'-9"	9'-4"	6'-6"	
60 psf	2x4	8'-5"	3'-5"	1'-5"	0'-2"	0'-0"	6
130 mph Exp C	2x6	11'-8"	10'-0"	5'-9"	3'-5"	1'-10"	
	2x8	11'-8"	11'-8"	11'-2"	7'-6"	5'-1"	

AAAAA

USE THIS TABLE FOR LATTICE COVERS



Foam Core Sandwich Panels Spans for the 2021 IBC for Attached Structures
Patio Cover Applications Only

Ground Snow Load (psf)	Panel Skin Thickness (in)	0.024"x3" (1 pcf)									
		Wind Speed (mph) and Exposure									
		B115	B120	C095	C100	C105	C110	C120	C130	C140	C150
Live 10	0.024 w/ fan beam	13.5'	13'	13.5'	13.5'	13'	12'	11'	10'	9'	8.5'
Snow 10	0.024 w/ fan beam	13.5'	13'	13.5'	13.5'	13'	12'	11'	10'	9'	8.5'
20	0.024 w/ fan beam	10'	10'	10'	10'	10'	9.5'	9'	8.5'	8.5'	8'
25	0.024 w/ fan beam	8'	8'	8'	8'	8'	8'	8'	8'	8'	8'
30	0.024 w/ fan beam	8'	8'	8'	8'	8'	8'	8'	8'	8'	8'
36	0.024 w/ fan beam	7'	7'	7'	7'	7'	7'	7'	7'	7'	7'
42	0.024 w/ fan beam	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'
50	0.024 w/ fan beam	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'

Table 4.46a

Ground Snow Load (psf)	Panel Skin Thickness (in)	0.024"x4" (1 pcf)									
		Wind Speed (mph) and Exposure									
		B115	B120	C095	C100	C105	C110	C120	C130	C140	C150
Live 10	0.024 w/ fan beam	15.5'	15'	15.5'	15.5'	14.5'	14'	12.5'	11.5'	10.5'	10'
Snow 10	0.024 w/ fan beam	15.5'	15'	15.5'	15.5'	14.5'	14'	12.5'	11.5'	10.5'	10'
20	0.024 w/ fan beam	11.5'	11.5'	11.5'	11.5'	11.5'	11'	11'	10.5'	10'	10.5'
25	0.024 w/ fan beam	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'	10'	10'	10.5'
30	0.024 w/ fan beam	10.5'	10.5'	10.5'	10.5'	10.5'	10'	10'	9.5'	9.5'	9.5'
36	0.024 w/ fan beam	9'	9'	9'	9'	9'	9'	9'	9'	9'	9.5'
42	0.024 w/ fan beam	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'
50	0.024 w/ fan beam	7.5'	7.5'	7.5'	7.5'	7.5'	7.5'	7.5'	7.5'	7.5'	7.5'

Table 4.47a

Ground Snow Load (psf)	Panel Skin Thickness (in)	0.024"x6" (1 pcf)									
		Wind Speed (mph) and Exposure									
		B115	B120	C095	C100	C105	C110	C120	C130	C140	C150
Live 10	0.024 w/ fan beam	20'	20'	20'	20'	19.5'	19'	18'	17'	16.5'	15.5'
Snow 10	0.024 w/ fan beam	20'	20'	20'	20'	19.5'	19'	18'	17'	16.5'	15.5'
20	0.024 w/ fan beam	15'	15'	15'	15'	15'	14.5'	14'	14'	13.5'	13'
25	0.024 w/ fan beam	13.5'	13.5'	13.5'	13.5'	13.5'	13.5'	13.5'	13.5'	13.5'	13'
30	0.024 w/ fan beam	13.5'	13.5'	13.5'	13.5'	13.5'	13.5'	13.5'	13'	12.5'	12.5'
36	0.024 w/ fan beam	12.5'	12.5'	12.5'	12.5'	12.5'	12.5'	12.5'	12.5'	12'	11.5'
42	0.024 w/ fan beam	11.5'	11.5'	11.5'	11.5'	11.5'	11.5'	11.5'	11.5'	11.5'	11'
50	0.024 w/ fan beam	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'

Table 4.48a

Commercial Cover or Carport Applications

Ground Snow Load (psf)	Panel Skin Thickness (in)	0.024"x3" (1 pcf)									
		Wind Speed (mph) and Exposure									
		B115	B120	C095	C100	C105	C110	C120	C130	C140	C150
Live 20	0.024 w/ fan beam	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8'	7.5'	7'	6.5'
25	0.024 w/ fan beam	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
30	0.024 w/ fan beam	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
36	0.024 w/ fan beam	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
42	0.024 w/ fan beam	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
50	0.024 w/ fan beam	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'

Table 4.49a

Ground Snow Load (psf)	Panel Skin Thickness (in)	0.024"x4" (1 pcf)									
		Wind Speed (mph) and Exposure									
		B115	B120	C095	C100	C105	C110	C120	C130	C140	C150
Live 20	0.024 w/ fan beam	10'	10'	10'	10'	10'	10'	9.5'	9'	9'	8.5'
25	0.024 w/ fan beam	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'
30	0.024 w/ fan beam	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'	8.5'
36	0.024 w/ fan beam	7'	7'	7'	7'	7'	7'	7'	7'	7'	7'
42	0.024 w/ fan beam	6.5'	6.5'	6.5'	6.5'	6.5'	6.5'	6.5'	6.5'	6.5'	6.5'
50	0.024 w/ fan beam	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'

Table 4.50a

Ground Snow Load (psf)	Panel Skin Thickness (in)	0.024"x6" (1 pcf)									
		Wind Speed (mph) and Exposure									
		B115	B120	C095	C100	C105	C110	C120	C130	C140	C150
Live 20	0.024 w/ fan beam	13.5'	13'	13.5'	13.5'	13'	13'	12.5'	12'	11.5'	10.5'
25	0.024 w/ fan beam	12.5'	12.5'	12.5'	12.5'	12.5'	12.5'	12.5'	12.5'	11.5'	10.5'
30	0.024 w/ fan beam	12.5'	12.5'	12.5'	12.5'	12.5'	12.5'	12.5'	12.5'	11.5'	10.5'
36	0.024 w/ fan beam	11.5'	11.5'	11.5'	11.5'	11.5'	11.5'	11.5'	11.5'	11.5'	10.5'
42	0.024 w/ fan beam	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'	10.5'
50	0.024 w/ fan beam	9.5'	9.5'	9.5'	9.5'	9.5'	9.5'	9.5'	9.5'	9.5'	9.5'

Table 4.51a

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Notes

1. These tables are for use with the ICC ESR 2676 Detail I and the 2021 IBC and 2022 CBC
2. Panels w/ embedded fan beam may have fans/lights installed up to 30 lbs.
3. Panels are as specified in ICC ESR 3779
4. These panel spans are for unenclosed patio cover, carports or commercial covers.
5. Attach to header and wall hanger as per Table 4.52a.
6. Wind speeds noted are "Basic Design Wind Speeds".



Digitally signed by Carl M Putnam
 Date: 2023.05.24 09:38:44 -04'00'

Trib Width (ft)	Required Fastening of Foam Core Panels to Headers									
	Wind Speed (mph) and Exposure									
	B115	B120	C095	C100	C105	C110	C120	C130	C140	C150
3	12"	12"	12"	12"	12"	12"	11"	9"	8"	7"
4	12"	12"	12"	12"	12"	11"	10"	8"	7"	6"
5	10"	9"	11"	10"	9"	8"	7"	6"	5"	4"
6	8"	8"	9"	8"	7"	7"	5"	5"	4"	3"
7	7"	7"	8"	7"	6"	6"	5"	4"	3"	3"
8	6"	6"	7"	6"	5"	5"	4"	3"	3"	3"
9	6"	5"	6"	5"	5"	4"	4"	3"	3"	2"
10	5"	5"	5"	5"	4"	4"	3"	3"	2"	2"
11	5"	4"	5"	4"	4"	4"	3"	3"	2"	2"
12	4"	4"	4"	4"	4"	3"	3"	2"	2"	2"
13	4"	4"	4"	4"	3"	3"	3"	2"	2"	2"
14	4"	3"	4"	3"	3"	3"	2"	2"	2"	1"
15	3"	3"	4"	3"	3"	3"	2"	2"	2"	1"

Table 4.52a

Headers	Panel Thickness (in)	95 MPH EXP B				100 MPH EXP B				105 MPH EXP B				95 MPH EXP C or 110 MPH EXP B					100 MPH EXP C or 115 MPH EXP B						105 MPH EXP C or 120 MPH EXP B					
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	6
		Number of #10 Sheet Metal Screws Required per foot at Header/Panel Connection																												
Dble Headers	0.018	6'	MAX	MAX	MAX	5'	11'	MAX	MAX	5'	10'	MAX	MAX	4'	9'	MAX	MAX	MAX	4'	8'	MAX	MAX	MAX	MAX	3'	7'	10'	MAX	MAX	MAX
Single 3x8	0.018	3'	6'	9'	MAX	3'	5'	8'	11'	2'	5'	7'	10'	2'	4'	6'	9'	11'	2'	4'	6'	8'	10'	MAX	2'	3'	5'	7'	9'	10'
All others	0.018	3'	6'	9'	MAX	3'	5'	8'	11'	2'	5'	7'	10'	2'	4'	6'	9'	11'	2'	4'	6'	8'	10'	MAX	2'	3'	5'	7'	9'	10'
Dble Headers	0.024	8'	MAX	MAX	MAX	7'	15'	MAX	MAX	7'	13'	MAX	MAX	6'	11'	MAX	MAX	MAX	5'	10'	MAX	MAX	MAX	MAX	5'	9'	14'	MAX	MAX	MAX
Single 3x8	0.024	4'	8'	12'	MAX	4'	7'	11'	15'	3'	7'	10'	13'	3'	6'	9'	11'	14'	3'	5'	8'	10'	13'	MAX	2'	5'	7'	9'	12'	14'
All others	0.024	4'	8'	12'	MAX	4'	7'	11'	15'	3'	7'	10'	13'	3'	6'	9'	11'	14'	3'	5'	8'	10'	13'	MAX	2'	5'	7'	9'	12'	14'
Dble Headers	0.032	11'	MAX	MAX	MAX	10'	MAX	MAX	MAX	9'	18'	MAX	MAX	8'	15'	MAX	MAX	MAX	7'	14'	MAX	MAX	MAX	MAX	6'	12'	MAX	MAX	MAX	MAX
Single 3x8	0.032	5'	11'	16'	MAX	5'	10'	15'	MAX	4'	9'	13'	18'	4'	8'	11'	15'	MAX	3'	7'	10'	14'	17'	MAX	3'	6'	9'	12'	16'	MAX
All others	0.032	5'	11'	16'	MAX	5'	10'	15'	MAX	4'	9'	13'	18'	4'	8'	11'	15'	MAX	3'	7'	10'	14'	17'	MAX	3'	6'	9'	12'	16'	MAX
Dble Headers	0.038	12'	MAX	MAX	MAX	11'	MAX	MAX	MAX	10'	MAX	MAX	MAX	8'	17'	MAX	MAX	MAX	7'	15'	MAX	MAX	MAX	MAX	7'	14'	MAX	MAX	MAX	MAX
Single 3x8	0.038	6'	12'	MAX	MAX	6'	11'	17'	MAX	5'	10'	15'	MAX	4'	9'	13'	18'	MAX	4'	8'	12'	16'	MAX	MAX	4'	7'	11'	14'	18'	MAX
All others	0.038	6'	13'	MAX	MAX	6'	12'	17'	MAX	5'	10'	16'	MAX	5'	9'	14'	MAX	MAX	4'	8'	12'	16'	MAX	MAX	4'	7'	11'	15'	MAX	MAX

Table 4.44a Maximum Tributary Width for Each Header/Panel Combination and Number of #10 Sheet Metal Screws

Headers	Panel Thickness (in)	95 MPH EXP B				100 MPH EXP B				105 MPH EXP B				95 MPH EXP C or 110 MPH EXP B					100 MPH EXP C or 115 MPH EXP B						105 MPH EXP C or 120 MPH EXP B					
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	6
		Number of #14 Sheet Metal Screws Required per foot at Header/Panel Connection																												
Dble Headers	0.018	MAX	MAX	MAX	MAX	11'	MAX	MAX	MAX	10'	MAX	MAX	MAX	9'	MAX	MAX	MAX	MAX	8'	MAX	MAX	MAX	MAX	MAX	7'	MAX	MAX	MAX	MAX	MAX
Single 3x8	0.018	6'	MAX	MAX	MAX	6'	11'	MAX	MAX	5'	10'	MAX	MAX	4'	9'	MAX	MAX	MAX	4'	8'	MAX	MAX	MAX	MAX	4'	7'	11'	MAX	MAX	MAX
All others	0.018	6'	MAX	MAX	MAX	6'	11'	MAX	MAX	5'	10'	MAX	MAX	4'	9'	MAX	MAX	MAX	4'	8'	MAX	MAX	MAX	MAX	4'	7'	11'	MAX	MAX	MAX
Dble Headers	0.024	MAX	MAX	MAX	MAX	14'	MAX	MAX	MAX	13'	MAX	MAX	MAX	11'	MAX	MAX	MAX	MAX	10'	MAX	MAX	MAX	MAX	MAX	9'	MAX	MAX	MAX	MAX	MAX
Single 3x8	0.024	8'	MAX	MAX	MAX	7'	15'	MAX	MAX	7'	13'	MAX	MAX	6'	12'	MAX	MAX	MAX	5'	10'	MAX	MAX	MAX	MAX	5'	9'	14'	MAX	MAX	MAX
All others	0.024	8'	MAX	MAX	MAX	7'	15'	MAX	MAX	7'	13'	MAX	MAX	6'	12'	MAX	MAX	MAX	5'	10'	MAX	MAX	MAX	MAX	5'	9'	14'	MAX	MAX	MAX
Dble Headers	0.032	16'	MAX	MAX	MAX	14'	MAX	MAX	MAX	13'	MAX	MAX	MAX	11'	MAX	MAX	MAX	MAX	10'	MAX	MAX	MAX	MAX	MAX	9'	18'	MAX	MAX	MAX	MAX
Single 3x8	0.032	8'	16'	MAX	MAX	7'	15'	MAX	MAX	7'	13'	MAX	MAX	6'	12'	17'	MAX	MAX	5'	10'	16'	MAX	MAX	MAX	5'	9'	14'	MAX	MAX	MAX
All others	0.032	11'	MAX	MAX	MAX	10'	MAX	MAX	MAX	9'	18'	MAX	MAX	8'	15'	MAX	MAX	MAX	7'	14'	MAX	MAX	MAX	MAX	6'	13'	MAX	MAX	MAX	MAX
Dble Headers	0.038	16'	MAX	MAX	MAX	14'	MAX	MAX	MAX	13'	MAX	MAX	MAX	11'	MAX	MAX	MAX	MAX	10'	MAX	MAX	MAX	MAX	MAX	9'	18'	MAX	MAX	MAX	MAX
Single 3x8	0.038	8'	16'	MAX	MAX	7'	15'	MAX	MAX	7'	13'	MAX	MAX	6'	12'	17'	MAX	MAX	5'	10'	16'	MAX	MAX	MAX	5'	9'	14'	MAX	MAX	MAX
All others	0.038	13'	MAX	MAX	MAX	12'	MAX	MAX	MAX	11'	MAX	MAX	MAX	9'	MAX	MAX	MAX	MAX	8'	16'	MAX	MAX	MAX	MAX	7'	15'	MAX	MAX	MAX	MAX

Table 4.45a Maximum Tributary Width for Each Header/Panel Combination and Number of #14 Sheet Metal Screws

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SECTION 5.0 POST SPACING, POST TYPE AND FOOTING SIZE FOR SOLID COVERS

Ground Snow Load: 0 psf

Live Load: 10 psf

Roof Design Load 16 psf

Roof Solidity: 100%

Wind Speed: 95 MPH EXPOSURE C or 115 MPH EXPOSURE B

Seismic Ss= 150%

Seismic Design Category D

Structures are Attached to Existing Building

Table 5.2a: Post spacing and footing size data for solid covers. Columns include member type (On Slab, L, M, K, etc.), post type (A, B, C, D, E, F), and footing dimensions (trib, Min Post, Uplift, Footing, Max Post Length).

Table 5.2b: Post spacing and footing size data for solid covers. Columns include member type (On Slab, L, M, K, etc.), post type (A, B, C, D, E, F), and footing dimensions (trib, Min Post, Uplift, Footing, Max Post Length).

Ground Snow Load: 0 psf

Live Load: 10 psf

Roof Design Load 16 psf

Wind Speed: 95 MPH EXPOSURE C

Seismic Ss= 150%

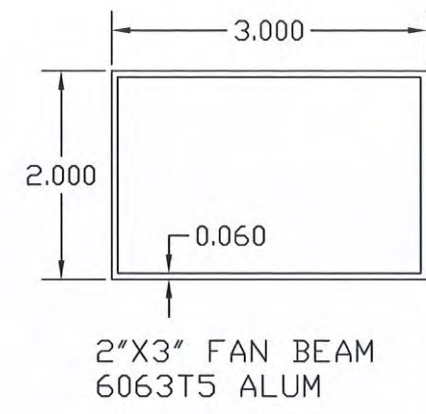
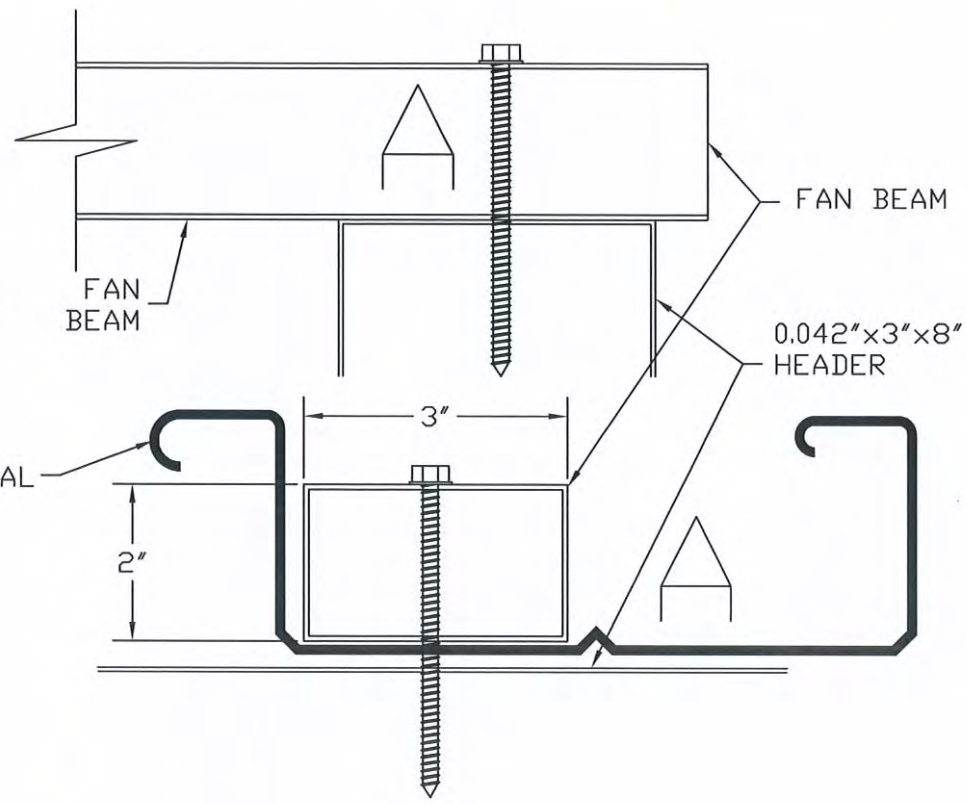
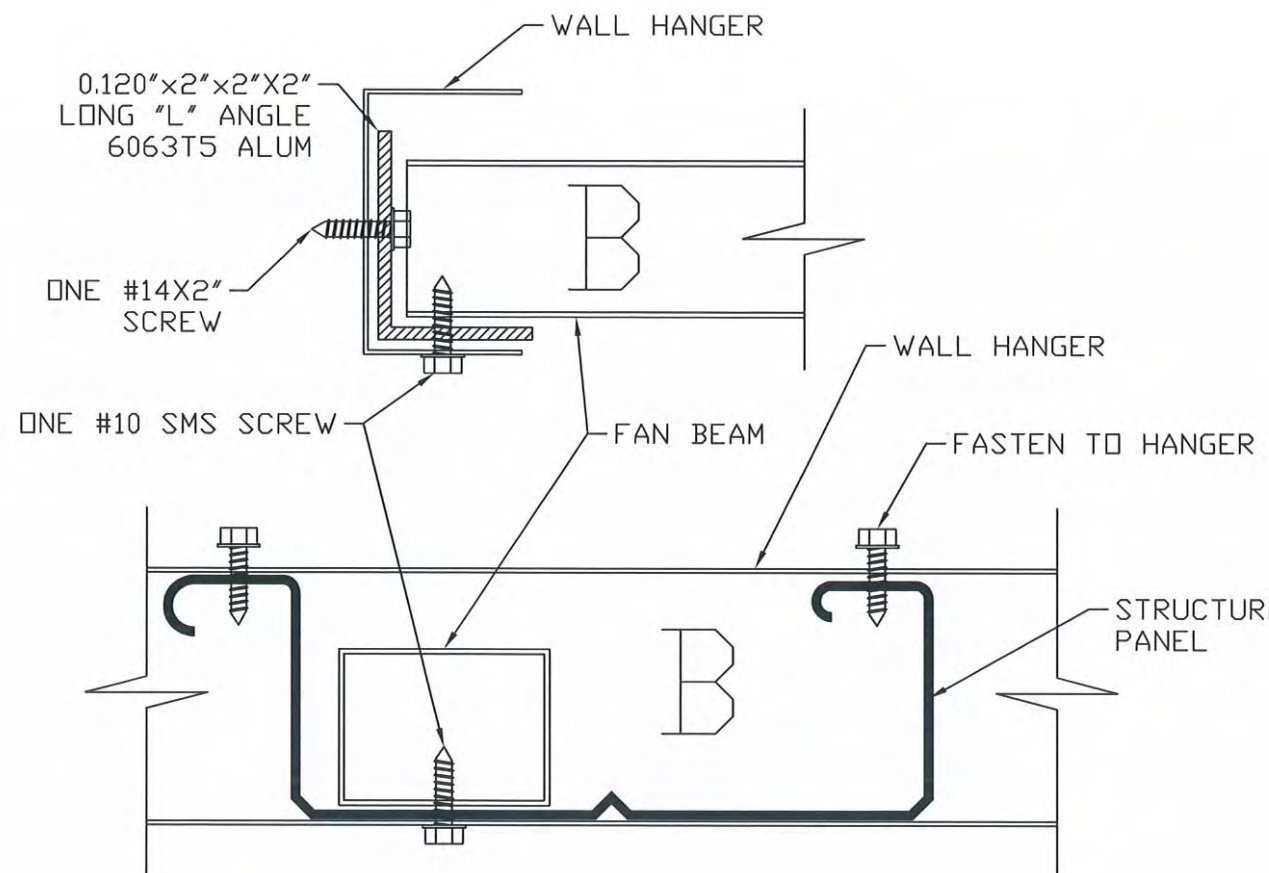
Seismic Design Category D

Freestanding Structures

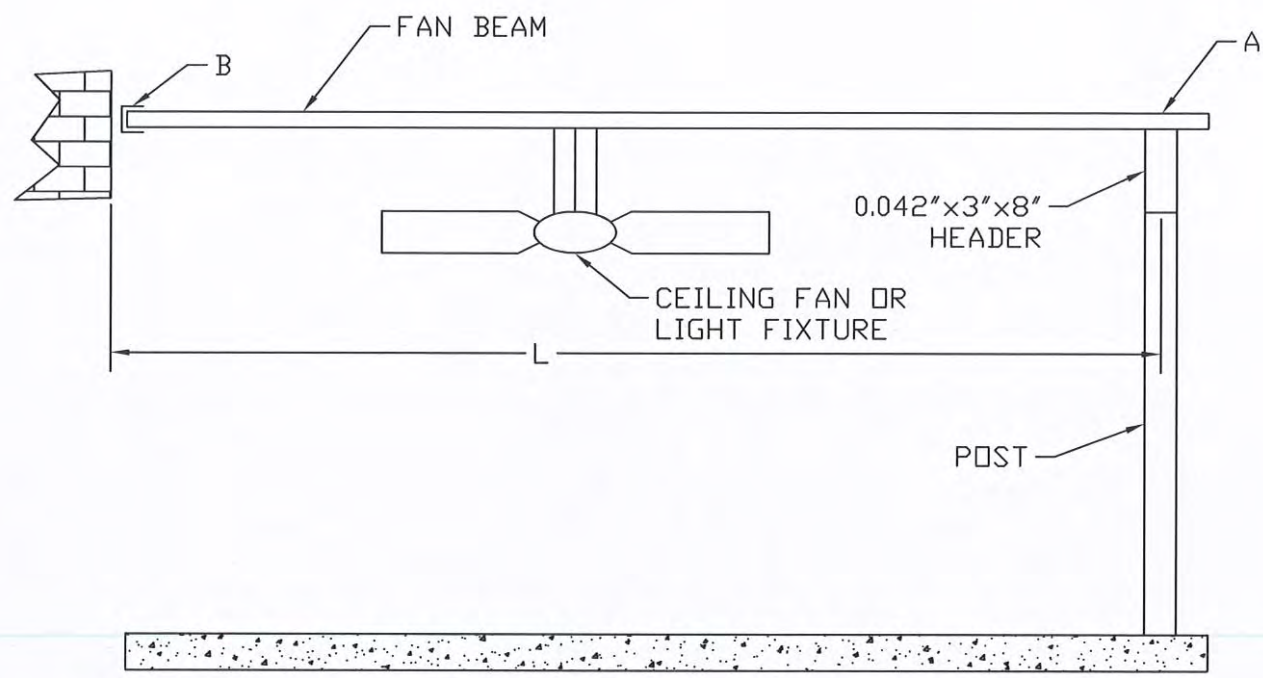
Table 5.2c: Post spacing and footing size data for freestanding structures. Columns include member type (On Slab, L, M, K, etc.), post type (A, B, C, D, E, F), and footing dimensions (trib, Min Post, Uplift, Footing, Max Post Length).

Table 5.2d: Post spacing and footing size data for freestanding structures. Columns include member type (On Slab, L, M, K, etc.), post type (A, B, C, D, E, F), and footing dimensions (trib, Min Post, Uplift, Footing, Max Post Length).





CONFORMANCE TO THE APPLICABLE ELECTRICAL CODE IS OUTSIDE THE SCOPE OF THIS DETAIL AND MUST BE APPROVED SEPERATELY.



Weight of fan/lights	2"x3" Fan Beam
30 lbs	20'



MAY 23 2023

United Duralume Structural Properties of Beams, Fascia, Panels and Rafters for Use by Design Professionals

ASSUMES FULL LATERAL BRACING

Structural Element	I (in ⁴) top in compression	I (in ⁴) bottom in compression	Max Allowable Moment (top in compression) (lb ^f ft)	Max Allowable Moment (bottom in compression) (lb ^f ft)	Max Allowable Shear (lb ^f)	Material	E (ksi)	Ftu or Fu (ksi)	Fty or Fy (ksi)	Fcy (ksi)
Rafters										
0.024"x2"x6.5" Aluminum Rafter Detail 6	2.176	same	295	276	169	3004H34	10100	32	25	22
0.032"x2"x6.5" Aluminum Rafter Detail 6	2.929	same	560	500	406	3004H34	10100	32	25	22
0.040"x2"x6.5" Aluminum Rafter Detail 6	3.693	same	863	796	800	3004H34	10100	32	25	22
0.042"x3"x8" Aluminum Rafter Detail 7	7.907	same	1177	1051	747	3004H34	10100	32	25	22
0.018"x1.5"x1.5" Aluminum Tube Detail 8	0.042	same	32	28	248	3003H14	10100	20	17	15
0.024"x2"x2" Aluminum Tube Detail 8	0.134	same	75	66	442	3003H14	10100	20	17	15
0.024"x2"x3" Aluminum Tube Detail 5	0.182	same	68	65	442	3003H14	10100	20	17	15
0.024"x3"x3" Aluminum Tube Detail 8	0.445	same	107	102	380	3003H14	10100	20	17	15
0.032"x3"x3" Aluminum Tube Detail 8	0.599	same	240	226	912	3004H34	10100	32	25	22
Aluminum Panels										
0.021"x3"x12" W Panel Detail E	0.445	same	231	494	177	3004H34	10100	32	25	22
0.024"x3"x12" W Panel Detail E	0.509	same	269	564	265	3004H34	10100	32	25	22
0.032"x3"x12" W Panel Detail E	0.679	same	393	752	627	3004H34	10100	32	25	22
0.044"x3"x12" W Panel Detail E	0.933	same	642	1034	1624	3004H34	10100	32	25	22
0.018"x2.25"x6" Flat Panel Detail G	0.192	same	129	112	209	3004H34	10100	32	25	22
0.024"x2.25"x6" Flat Panel Detail G	0.256	same	203	184	490	3004H34	10100	32	25	22
0.032"x2.25"x6" Flat Panel Detail G	0.342	same	286	294	929	3004H34	10100	32	25	22
0.038"x2.25"x6" Flat Panel Detail G	0.406	same	348	386	1258	3004H34	10100	32	25	22
0.018"x2.5"x24" Panel Detail F	0.463	same	252	259	357	3004H34	10100	32	25	22
0.024"x2.5"x24" Panel Detail F	0.618	same	470	385	847	3004H34	10100	32	25	22
0.032"x2.5"x24" Panel Detail F	0.824	same	726	580	2008	3004H34	10100	32	25	22
0.038"x2.5"x24" Panel Detail F	0.978	same	936	771	3362	3004H34	10100	32	25	22
0.018"x3"x6" Flat Panel Detail H1	0.373	same	178	136	155	3004H34	10100	32	25	22
0.024"x3"x6" Flat Panel Detail H1	0.497	same	280	241	367	3004H34	10100	32	25	22
0.032"x3"x6" Flat Panel Detail H1	0.663	same	394	401	865	3004H34	10100	32	25	22
0.038"x3"x6" Flat Panel Detail H1	0.787	same	488	538	1309	3004H34	10100	32	25	22
0.018"x3"x12" Flat Panel Detail H2	0.461	same	183	410	172	3004H34	10100	32	25	22
0.024"x3"x12" Flat Panel Detail H2	0.614	same	287	547	407	3004H34	10100	32	25	22
0.032"x3"x12" Flat Panel Detail H2	0.819	same	406	729	913	3004H34	10100	32	25	22
0.038"x3"x12" Flat Panel Detail H2	0.972	same	505	866	1313	3004H34	10100	32	25	22
Aluminum Headers										
0.042"x3"x8" Aluminum Header Detail L/12	7.907	same	1177	1051	747	3004H34	10100	32	25	22
0.048"x3"x8" Aluminum Header Detail L/12	9.081	same	1560	1385	1122	3004H34	10100	32	25	22
Double 0.042"x3"x8" Aluminum Header Detail M/13	15.814	same	2354	2102	1494	3004H34	10100	32	25	22
Double 0.048"x3"x8" Aluminum Header Detail M/13	18.162	same	3120	2770	2244	3004H34	10100	32	25	22
Double 0.040"x2"x6.5" Aluminum Header Detail K/11	7.386	same	1726	1592	1600	3004H34	10100	32	25	22
4"x2.375" I beam Detail P	1.712	same	1479	1479	2152	6061T6	10100	38	35	35
6"x4.5" I beam Detail Q	11.45	same	6046	6046	6928	6061T6	10100	38	35	35
7"x5.5" I beam Detail R	26.15	same	12518	12518	6016	6061T6	10100	38	35	35
10"x5.5" I beam Detail T	64.78	same	21873	21873	10983	6061T6	10100	38	35	35
Steel Headers										
16 Gauge Steel C Beam Detail N/14	8.64	8.64	4187	4187	2370	ASTM A653 Grade 50	29000	65	50	
14 Gauge Steel C Beam Detail N/14	10.19	10.19	5437	5437	3990	ASTM A653 Grade 50	29000	65	50	
12 Gauge Steel C Beam Detail N/14	14.98	14.98	9491	9491	13780	ASTM A653 Grade 50	29000	65	50	
Double 16 Gauge Steel C Beam Detail S/16	17.28	17.28	8374	8374	4740	ASTM A653 Grade 50	29000	65	50	
Double 14 Gauge Steel C Beam Detail S/16	20.38	20.38	10874	10874	7980	ASTM A653 Grade 50	29000	65	50	
Double 12 Gauge Steel C Beam Detail S/16	29.96	29.96	18982	18982	27560	ASTM A653 Grade 50	29000	65	50	
0.048"x3"x3" Lockseam Header Detail J/10	0.90	0.90	1203	1203	4.3	ASTM A653 Grade 40	29000	55	40	
Double 0.048"x3"x3" Lockseam Detail J/10	1.81	1.81	2406	2406	8.6	ASTM A653 Grade 40	29000	55	40	

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