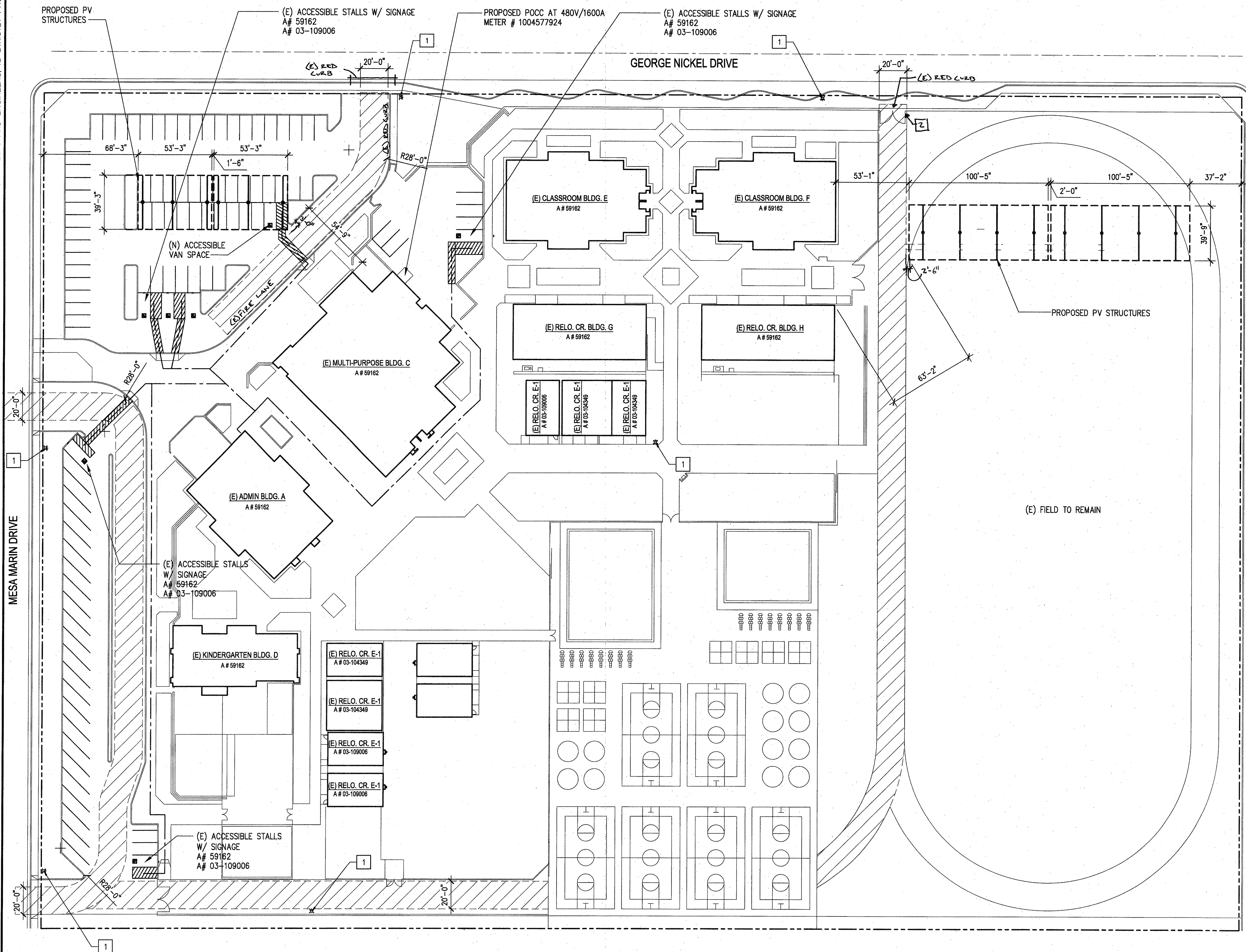


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1 FIRE ACCESS SITE PLAN

SCALE : 1"=40'-0"



SITE PLAN LEGEND

- (E) FIRE LANE ACCESS, 20'-0" MIN. CLEAR
- ASSUMED PROPERTY LINE
- (E) FIRE HYDRANT
- (N) PV MODULAR STRUCTURE

GENERAL NOTES

- (E) FIRE HYDRANT
- (E) 20'-0" GATE WITH KNOX BOX

NOTE: ANY STORAGE UNDER PV CANOPIES IS PROHIBITED.
PROVIDE 13'-6" MIN. CLEARANCE AT LOW END OF ALL CANOPIES.

EDISON ROAD



LOCAL FIRE AUTHORITY REVIEW

To facilitate the Division of the State Architect's (DSA) approval of the Fire/Life Safety portion of a project, DSA requires Local Fire Authority (LFA) review of certain elements as identified in this form. Use of this form is mandatory for projects that add square footage to a campus or if any item on this form is relevant to the project. For additional information, see DSA 810 Instructions and DSA Policy 09-01.

PROJECT INFORMATION				
School District/Owner: Bakersfield City School District				
Project Name/School: Compton Jr. High School				
Project Address: 3211 Pico Avenue, Bakersfield, CA 93306				
LOCAL FIRE AUTHORITY (LFA)				
LFA Agency Name: Bakersfield Fire Department				
LFA Reviewer Name: Ernie Medina		Title:		
Work Email: emedina@bakersfieldfire.us		Work Telephone Number: (661) 326-3682		
I have reviewed and responded to the applicable items for this project as listed below.				
Note: Only sign this form when it is imaged onto the site plan. A loose form is not acceptable to DSA.				
LFA Reviewer's Signature: <i>Ernie Medina</i> Date: 7/25/18				
Review Key: "Y" = Complies with LFA requirements "N" = Not approved (complete Section 8) "NA" = Not applicable to the project "NR" = LFA elects not to review				
Description	Y	N	NA	NR
1 Where an elevator does not meet medical emergency service cab size, per the California Building Code (CBC), use of stairways for emergency rescue and patient transport is acceptable.				X
2 Access roads, fire lane markings, pavers and gate entrances are in accordance with Title 19, California Code of Regulations and the California Fire Code, Chapter 5.	X			
3 Fire hydrant location and distribution complies with the California Fire Code (or see # 4).	X			
4 Fire hydrant location and distribution complies with NFPA 1142, "Alternate Means." If "NR" is checked, DSA can only approve on-site water storage as an alternate. The signature of the school district official is required to acknowledge the use of alternate means.				X
Signature of School District Official: _____ Date: _____				
Print the School District Official's Name: _____				
5 The location(s) of the proposed post indicator valve and fire department connection meet the requirements of this jurisdiction.				X
6 The location(s) of the detector check valve assembly meet the requirements of this jurisdiction.				X
7 Is the project located in a hazard severity zone area? (CBC, Chapter 7A, Section 701A.) ☐ Yes ☒ No Check type if "Yes": ☐ Moderate ☐ High ☐ Very High ☐ WIFA (If one of these boxes is checked, the project design must meet the requirements of Chapter 7A.)				
COMMENTS (note deficiencies): PLEASE MAINTAIN 13.6 FT. MIN. ON LOW END HEIGHT FOR FIRE ACCESS.				

CLIENT



Bakersfield City School District

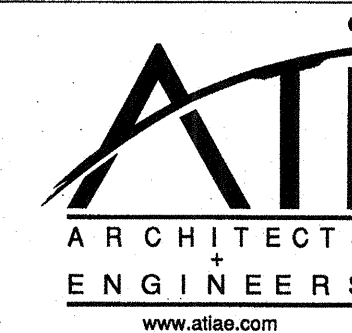
1300 BAKER STREET, BAKERSFIELD, CA 93305

PROJECT LOCATION

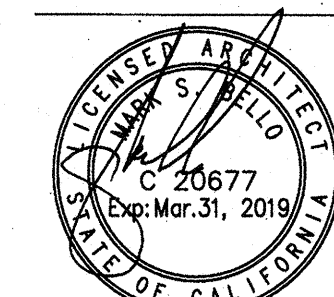
CESAR E. CHAVEZ
ELEMENTARY SCHOOL
4201 MESA MARIN DR.
BAKERSFIELD, CA. 93306

DESIGNER

ARCHITECT



PROFESSIONAL STAMP



AGENCY APPROVAL

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

03 119250

AC / FLS24SS EY
Date AUG 07 2018

ISSUE

MARK	DATE	DESCRIPTION
		DSA SUBMITTAL

PROJECT No : ATI PROJ. #CA4906-006

DRAWN BY:

CHECKED BY:

SCALE:

KEY MAP

SHEET TITLE

**FIRE ACCESS
SITE PLAN**

SHEET NUMBER

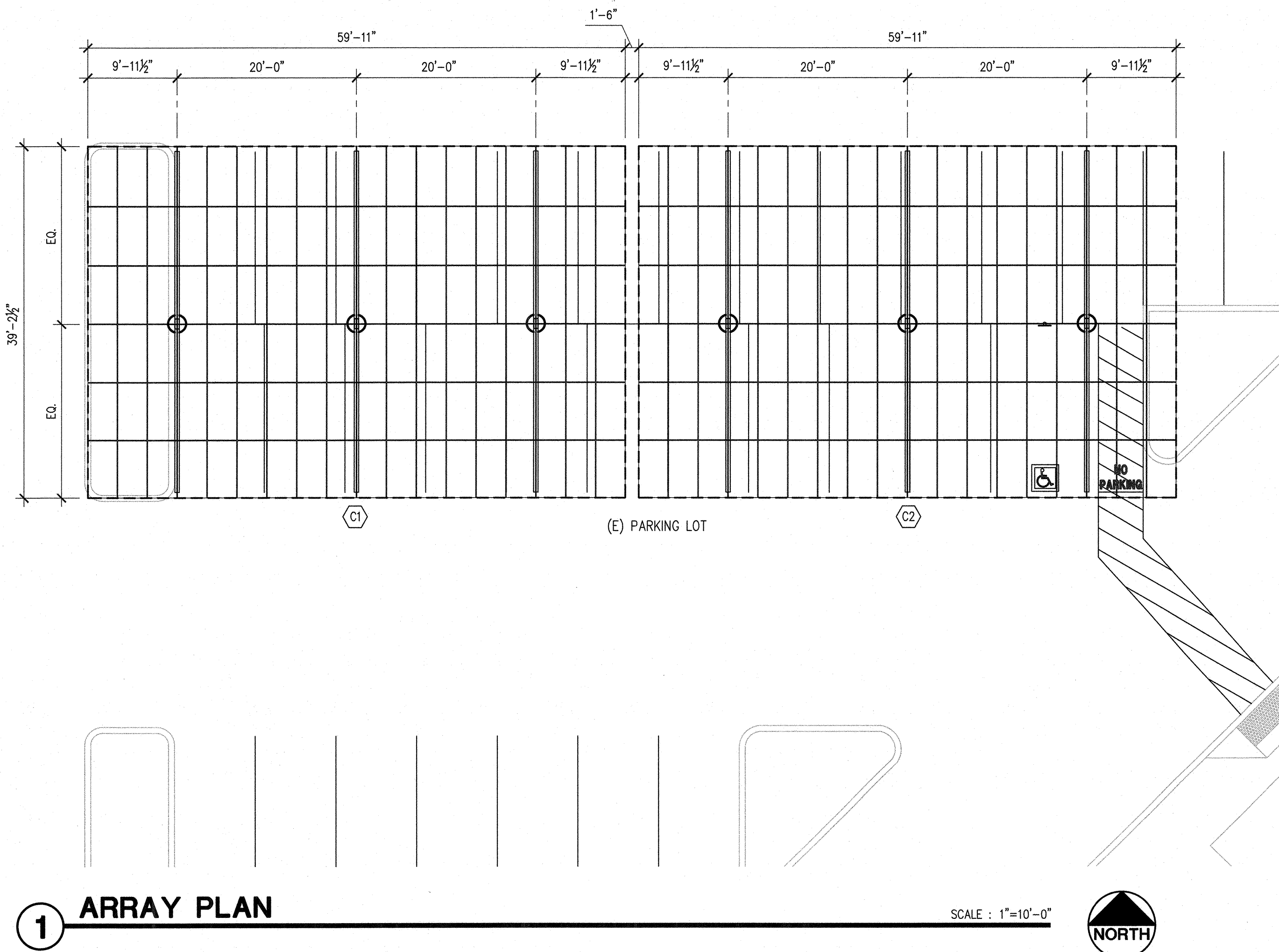
F0.1

MESA MARIN DRIVE



A0.1

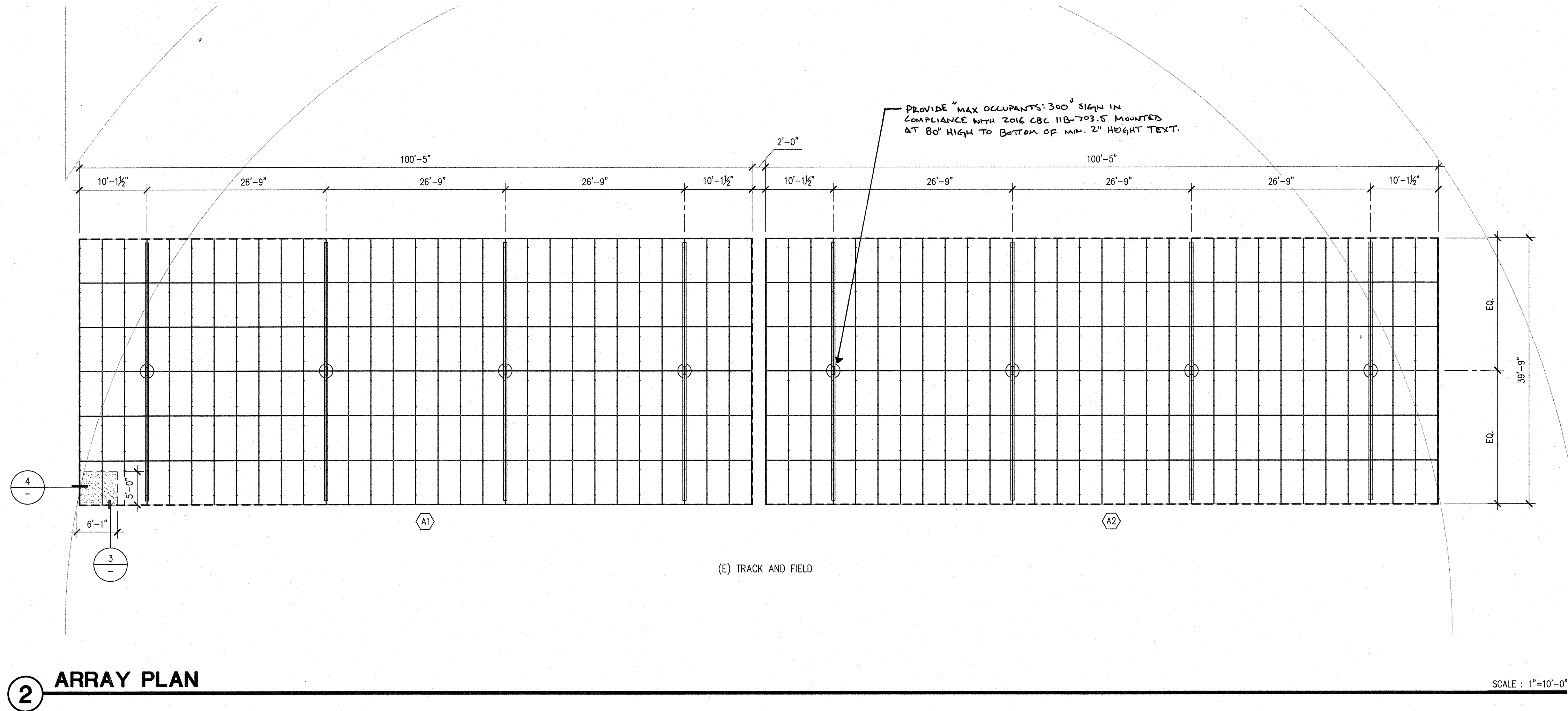
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1

ARRAY PLAN

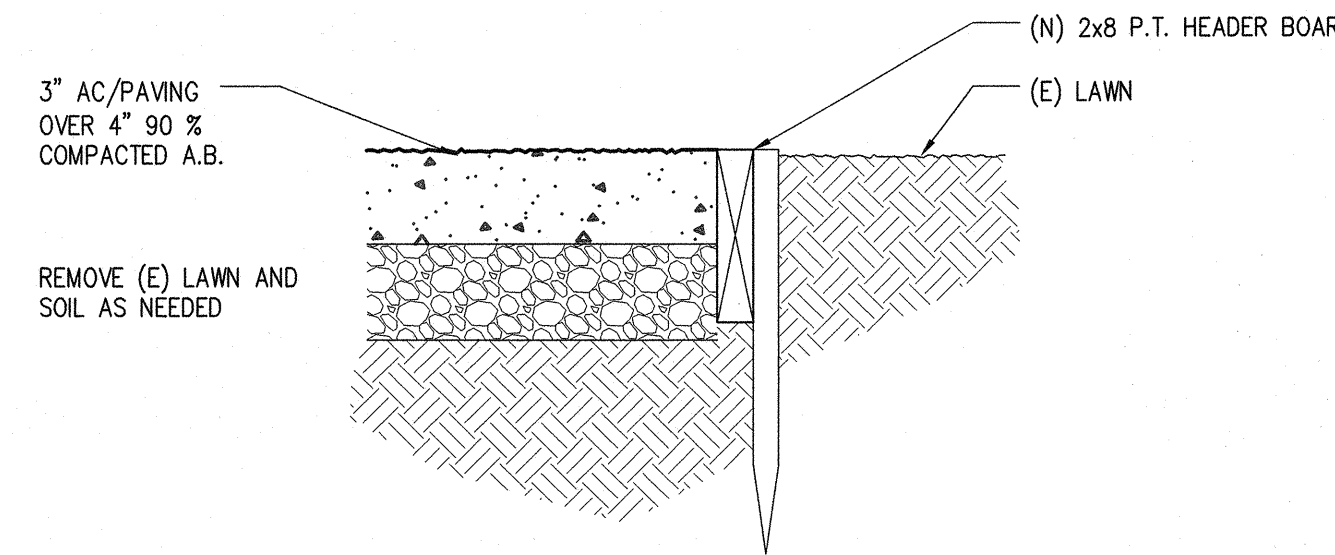
SCALE : 1"=10'-0"



2

ARRAY PLAN

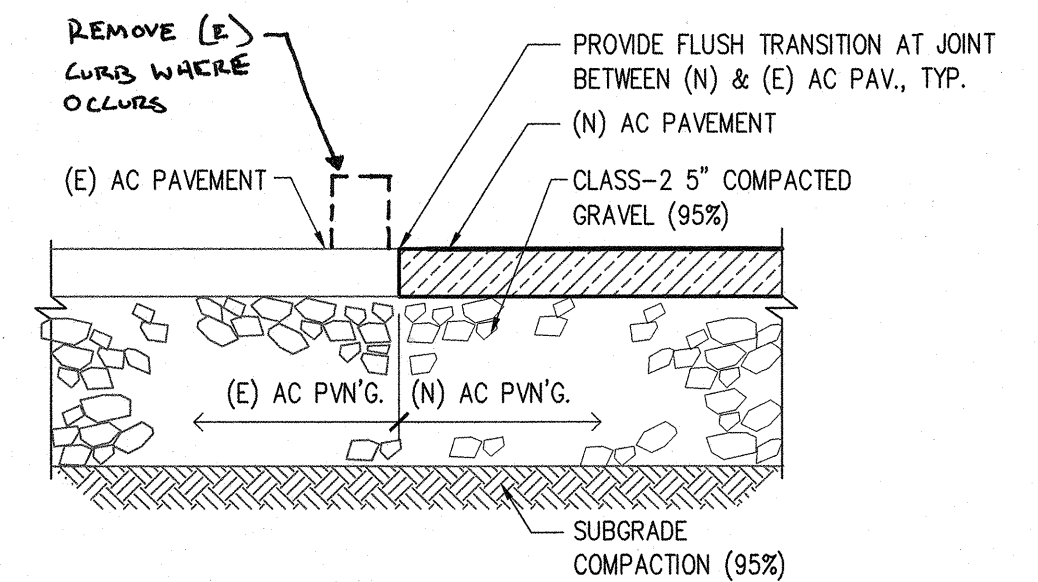
SCALE : 1"=10'-0"



3

ASPHALT PAVING
EDGE

SCALE : 3" = 1'-0"



4

DETAIL AT (E) AC PAVING TO
(N) AC PAVING (TYPICAL)

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

CLIENT



**Bakersfield City
School District**
1300 BAKER STREET, BAKERSFIELD, CA 93305

PROJECT LOCATION

**CESAR E. CHAVEZ
ELEMENTARY SCHOOL**
4201 MESA MARIN DR.
BAKERSFIELD, CA. 93306

DESIGNER

ARCHITECT



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DIV. OF THE STATE ARCHITECT

03 119250

ACME FLS MISS EY
Date JUL 07 2018

ISSUE

MARK	DATE	DESCRIPTION
		DSA SUBMITTAL

PROJECT No : ATI PROJ. #CA4906-006

DRAWN BY:

CHECKED BY:

SCALE:

KEY MAP

SHEET TITLE

DIMENSIONED ARRAYS

SHEET NUMBER

A2.0

FEEDER SCHEDULE

No.	Feeder Origin	Feeder Destination	Potential at Origin (Pi) (Volts)	Phase	Design Current (Amps)	Raceway Type	Sets of Cond.	Conductor Trade Size	Conductor Cross-Sectional Area (CM)	Conductor Material	DC Conductor Material Constant (K)	Q	Distance (ft)	Voltage Drop (Vd) (Volts)	Potential at Load (Pl) (Volts)	Percent Voltage Drop (%Vd)	Total Voltage Drop (%Vd AC)	Conduit & Conductors
F1	MSB'	AC Disconnect 'FD'	480	Three	192.6	Steel	1	250 kCMIL	250000	CU	12.9	1.0485	20	0.36	479.64	0.08	0.08	3"C-3#250 KCMIL, 1#2 NEUT., 1#2 GND. (CU)
F2	AC Disconnect 'FD'	Panel 'S'	480	Three	192.6	Steel	1	350 kCMIL	350000	AL	21.2	1.0413	5	0.11	479.89	0.02	0.10	3"C-3#350 KCMIL, 1#1/0 NEUT., 1#2 GND. (AL)
F3	Panel 'S'	Inverter No. A1	480	Three	72.2	PVC	1	1	83690	AL	21.2	0.9881	130	4.07	475.93	0.85	0.94	1-1/2"C-3#1, 1#6 GND. (AL)
F4	Panel 'S'	Inverter No. B1	480	Three	60.2	PVC	1	1	83690	AL	21.2	0.9881	420	10.96	469.04	2.28	2.38	1-1/2"C-3#1, 1#6 GND. (AL)
F5	Panel 'S'	Inverter No. B2	480	Three	60.2	PVC	1	1/0	105600	AL	21.2	0.9950	420	8.75	471.25	1.82	1.92	2"C-3#1/0, 1#6 GND. (AL)

STRING DC WIRE SIZE CALCULATION
Isc: 9.72 x 1.56 = 15.16A
#10 AWG = 40A (90°C)(PER TABLE CEC 310.16)

21-30 CURRENT CARRYING CONDUCTORS IN A RACEWAY (SHARED CONDUIT)
(PER TABLE CEC 310.15(B)(2)(a)) = 0.45

40A x 0.45 = 18.0A > 15.16 A ALLOWABLE
#10 AWG CONDUCTOR IS ALLOWABLE

STRING VOLTAGE DROP CALCULATION
INVERTER NO. A1
Vmp: 700.2 VDC, Imp: 9.00 A @ 145 FT (WORST CASE FROM ARRAY TO INVERTER)
#10 AWG cir. mils. = 10380
2 x 12.9 x 145 x 9.00 / 10380 = 3.24 VDC lost
3.24 V / 700.2 VDC = 0.47% VOLTAGE DROP
INVERTER NO. B1 = 0.37% VOLTAGE DROP (115°)
INVERTER NO. B2 = 0.71% VOLTAGE DROP (220°)

50 KW INVERTER AC Wire & OCPD CALCULATION:
INVERTER:
AC Output Power: 60.2A AC Output Current Max
60.2A x 1.25 = 75.3A
80 AMP OCPD PER 50KW INVERTER OUTPUT

#2 AWG THWN-2 = 90A (75°C)(PER TABLE CEC 310.16) (AL)

TEMP. CONDITIONS: OUTDOOR WIRE RUN - AMBIENT TEMP. = 38°C
(3) CURRENT CARRYING CONDUCTORS IN A RACEWAY (SHARED CONDUIT)
(PER TABLE CEC 310.15(B)(3)(a)) = 1.0

90A x 1.0 = 90A = 90A TEMP. ADJUSTED
#2 CURRENT = 90A @ 75°C PER CEC 110.14(C)
#2 AWG CONDUCTOR IS MINIMUM ALLOWABLE (AL)

60 KW INVERTER AC Wire & OCPD CALCULATION:
INVERTER:
AC Output Power: 72.2A AC Output Current Max
72.2A x 1.25 = 90.25A
100 AMP OCPD PER 60KW INVERTER OUTPUT

#1 AWG THWN-2 = 100A (75°C)(PER TABLE CEC 310.16) (AL)

TEMP. CONDITIONS: OUTDOOR WIRE RUN - AMBIENT TEMP. = 38°C
(3) CURRENT CARRYING CONDUCTORS IN A RACEWAY (SHARED CONDUIT)
(PER TABLE CEC 310.15(B)(3)(a)) = 1.0

100A x 1.0 = 100A = 100A TEMP. ADJUSTED
#1 CURRENT = 100A @ 75°C PER CEC 110.14(C)
#1 AWG CONDUCTOR IS MINIMUM ALLOWABLE (AL)

MAX/COLD TEMP PV VOLTAGE CALCULATION:
REC TWINPEAK 2S 72 SERIES 350W
Voc: 46.7V
Temp. Coefficient: -0.3%/C
Low Temp*: -2.0°C (27.0°F)
Modules in Series: 18

(46.7 V) x (0.0030 V/C) x (27.0°) = 3.78 VΔ
46.7 Voc + 3.78 VΔ = 50.48 Voc(corr)
(50.48 V) x (18) = 908.7 VDC max (this is < 1000 VDC)

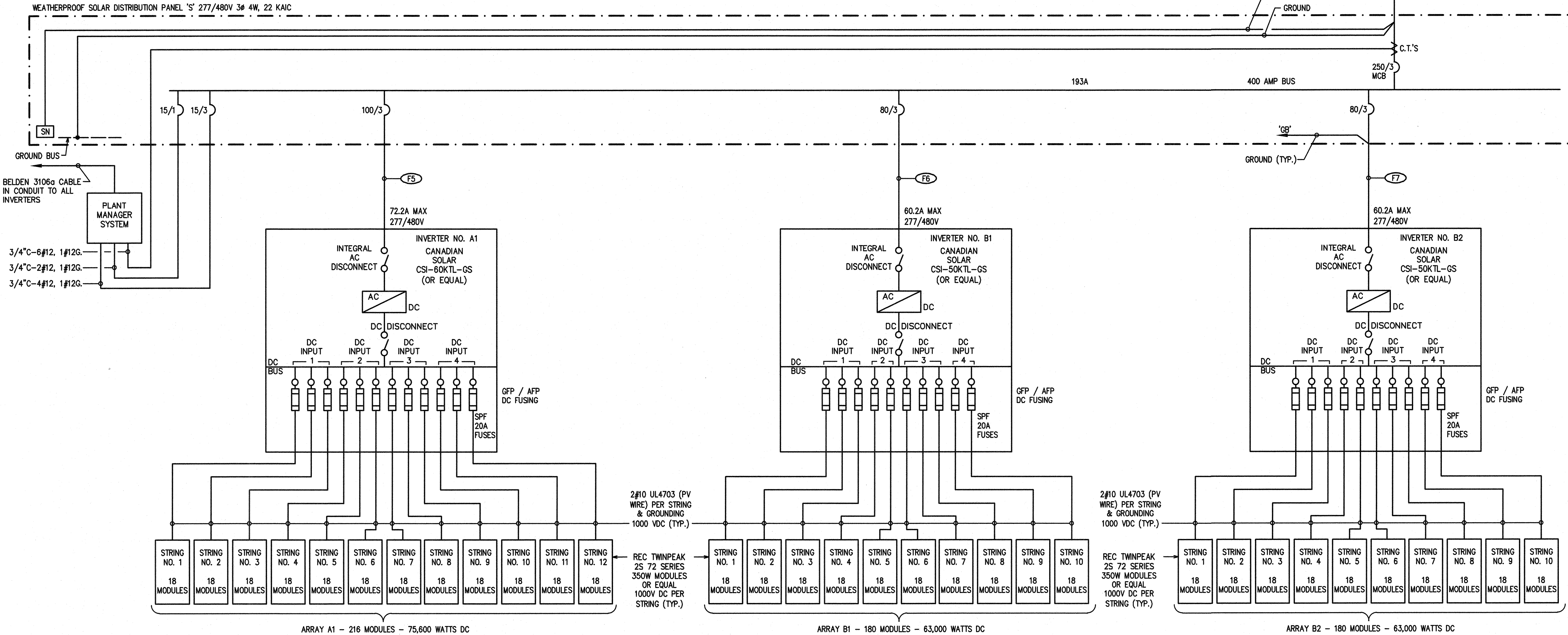
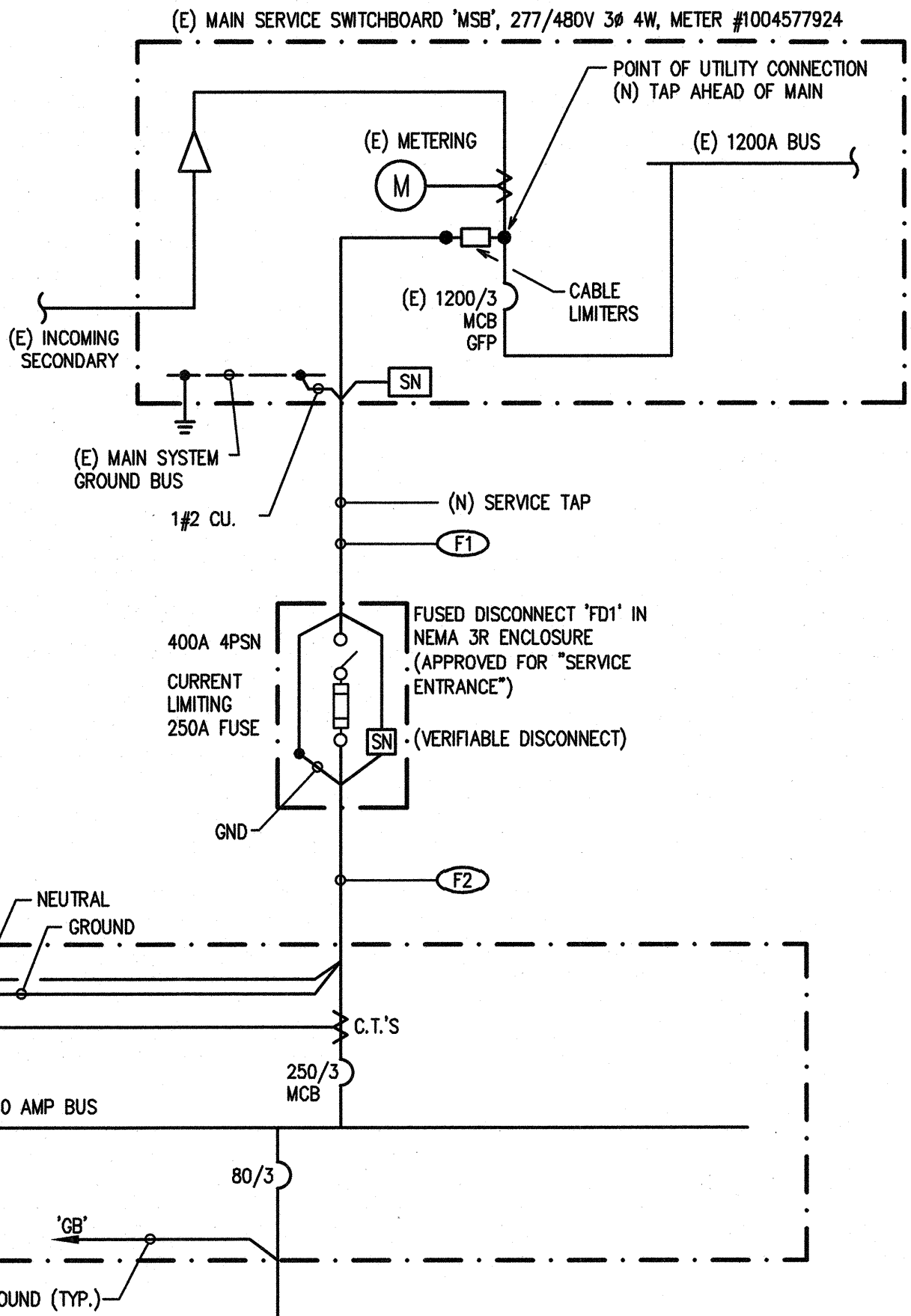
* = Per ASHRAE table

SYSTEM SUMMARY

MODULE MODEL	REC TWINPEAK 2S 72 SERIES 350
MODULE STC DC RATING	350W
TOTAL MODULE COUNT	576
TOTAL STC DC SYSTEM SIZE	201.6kW
TOTAL AC SYSTEM SIZE	160.0kW
INVERTER MODLES	(2) CANADIAN SOLAR CSI-50KTL-GS (1) CANADIAN SOLAR CSI-60KTL-GS
MODULE TILT	7°
ARRAY AZIMUTH	180°
POINT OF SERVICE FAULT CURRENT CONTRIBUTION	1,635 AIC
POINT OF SERVICE RATING	65,000 AIC

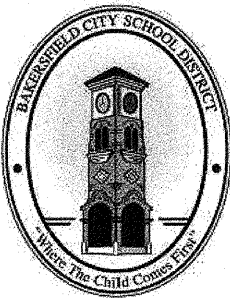
600V HEAVY DUTY AC VERIFIABLE DISCONNECT SCHEDULE
(WITH CLASS 'RK1 OR 'J' CURRENT LIMITING FUSING)

DISCONNECT SIZE (VERIFIABLE)	MANUFACTURER'S CAT NO.	AIC RATING
400A 4PSN 600VAC	SQUARE D #H365 NR	200,000 AIC



SINGLE LINE DIAGRAM 201.60 KW TOTAL
SCALE: NONE

CLIENT



Bakersfield City School District
1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

CESAR E. CHAVEZ
ELEMENTARY SCHOOL
4201 MESA MARIN DR.
BAKERSFIELD, CA 93306

DESIGNER

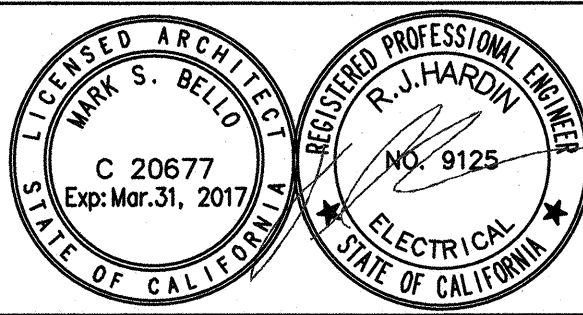


FOREFRONT
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San Francisco, CA 94104
(855) 204-5083
www.ForeFrontPower.com

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DIV. OF THE STATE ARCHITECT

EST 03 119250

AC / FLS 21 SS EY
Date AUG 07 2018

ISSUE

MARK	DATE	DESCRIPTION
-	7/31/2018	DSA SUBMITTAL

PROJECT No : ATI PROJ. #

DRAWN BY: HDE

CHECKED BY: R/H

SCALE: AS NOTED

CONSULTANT

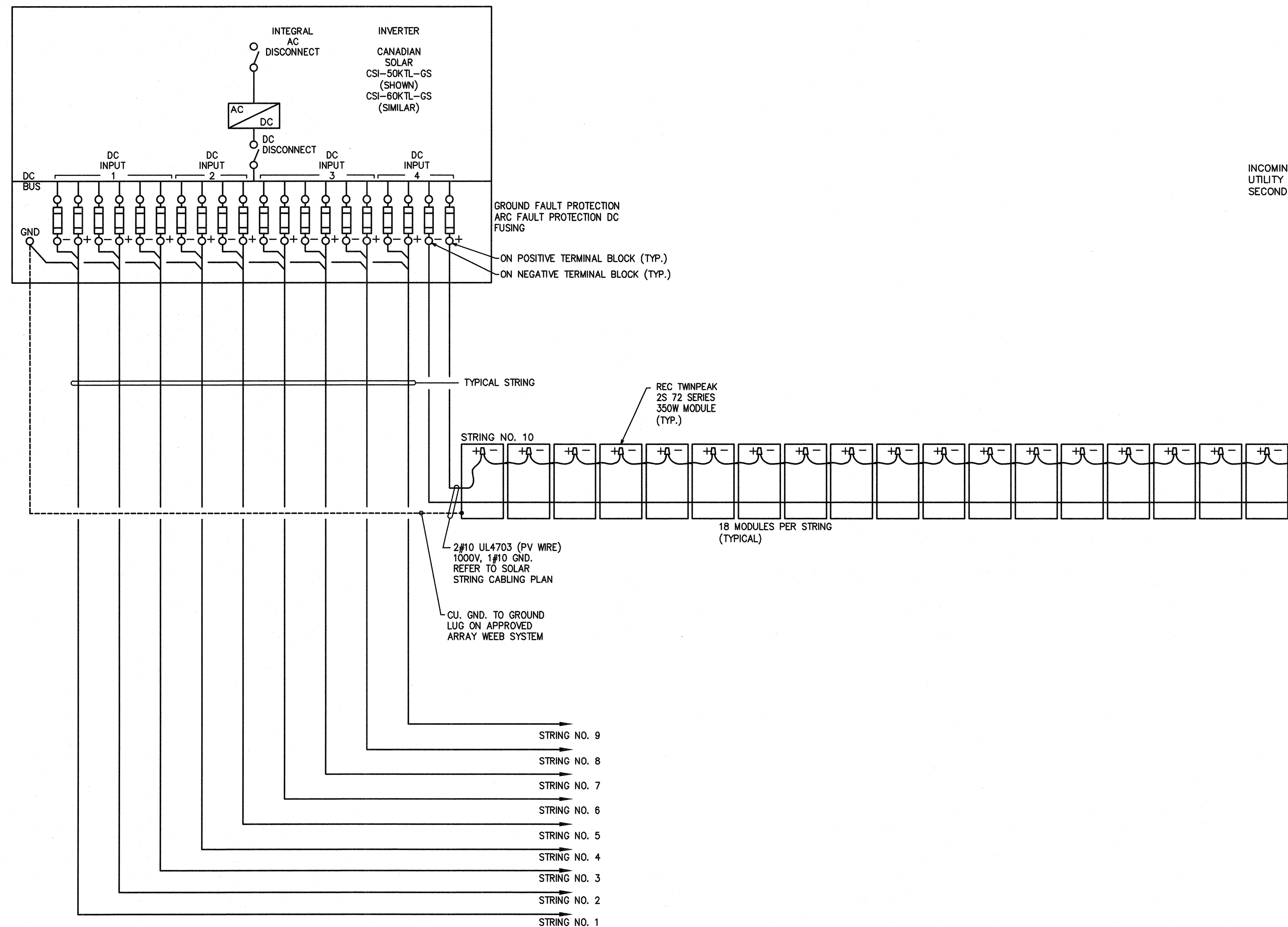


SHEET TITLE

ELECTRICAL SINGLE LINE
DIAGRAM

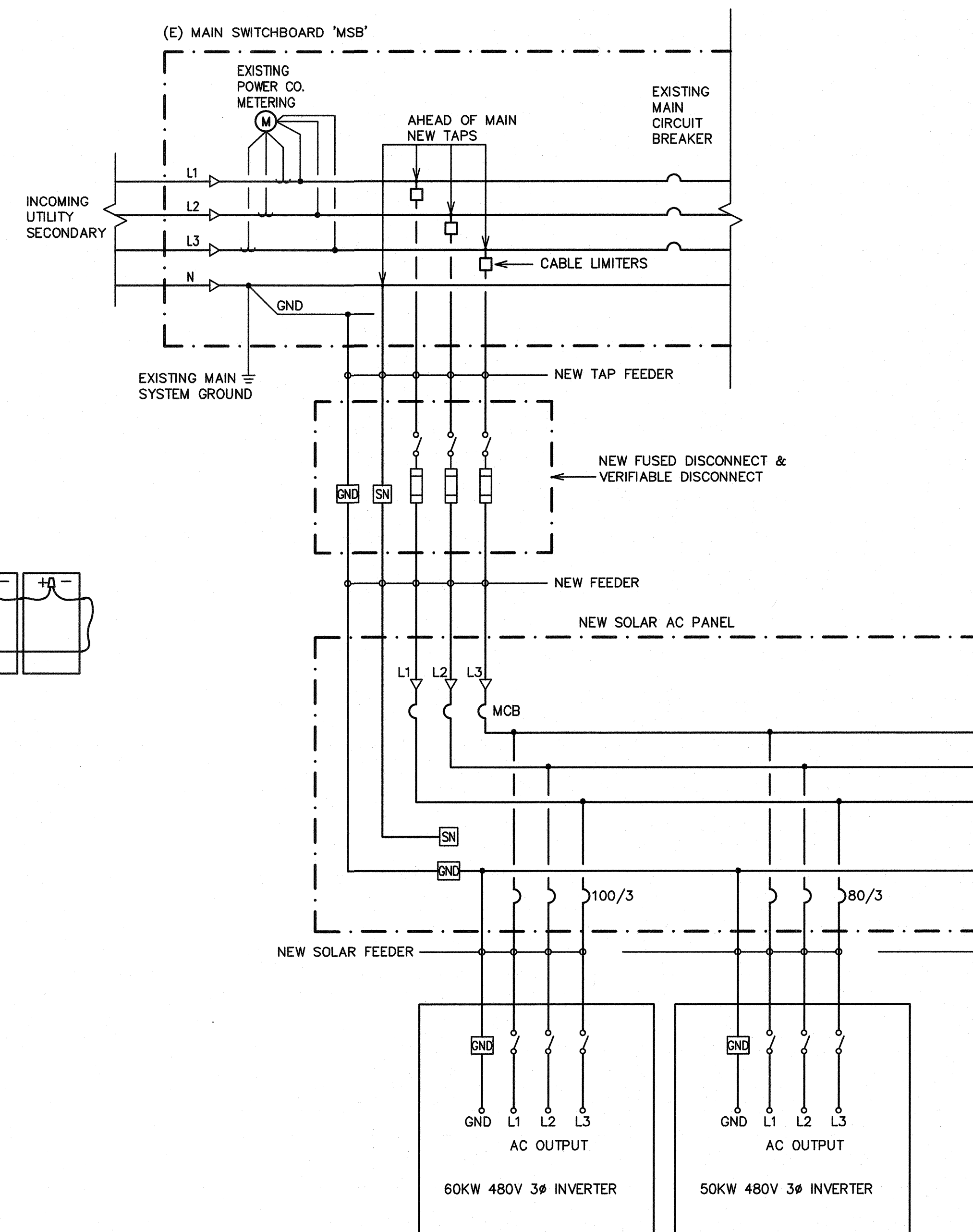
SHEET NUMBER

E2.0



TYPICAL DC LINE DIAGRAM

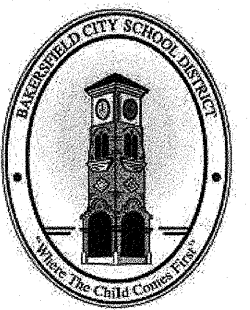
SCALE: NONE



TYPICAL THREE LINE DIAGRAM

SCALE: NONE

CLIENT



Bakersfield City School District

1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

CESAR E. CHAVEZ
ELEMENTARY SCHOOL
4201 MESA MARIN DR.
BAKERSFIELD, CA 93306

DESIGNER



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(855) 204-5083
www.ForeFrontPower.com

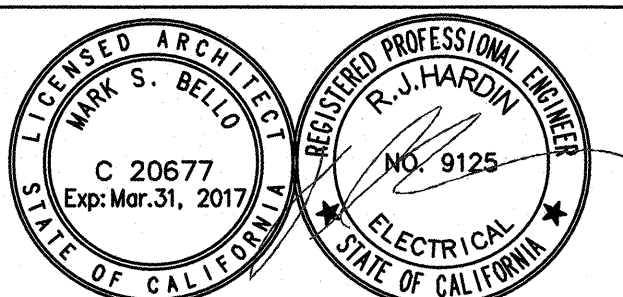
ARCHITECT



ATI ARCHITECTS ENGINEERS

4750 Willow Road Suite 250
Pleasanton, CA 94566
T. 925.445.8800
2510 Douglas Boulevard
Folsom, CA 95601
T. 916.772.1000
3050 Putman Street
Colton, CA 92308
T. 714.325.1000
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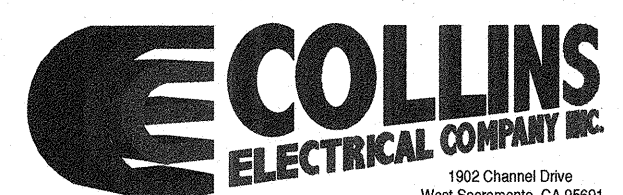
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DRAWN BY: HDE

CHECKED BY: RJH

SCALE: AS NOTED

CONSULTANT

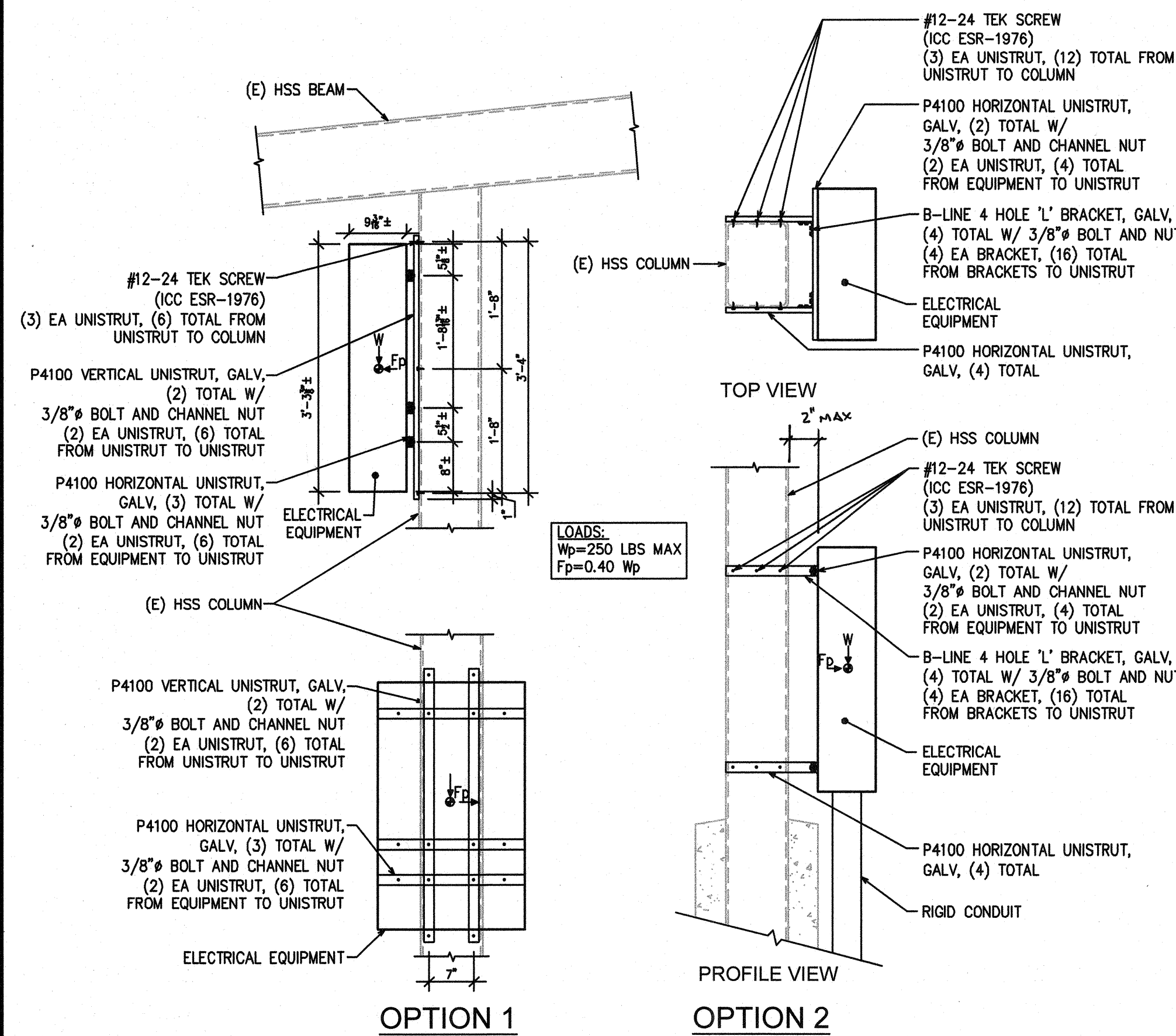


SHEET TITLE

TYPICAL ELECTRICAL THREE LINE DIAGRAM

SHEET NUMBER

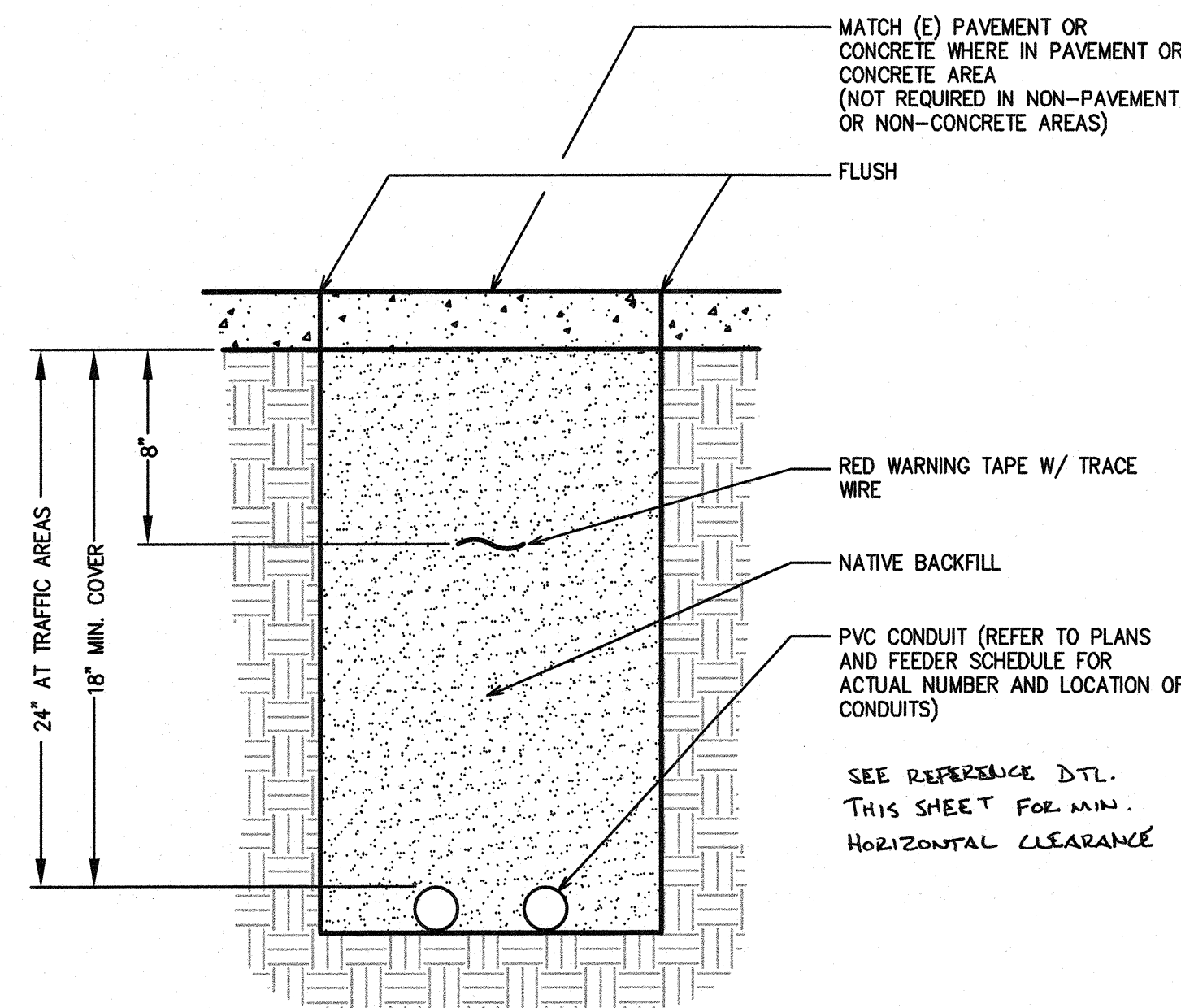
E3.0



COLUMN MOUNTED EQUIPMENT ANCHORAGE DETAIL

NO SCALE

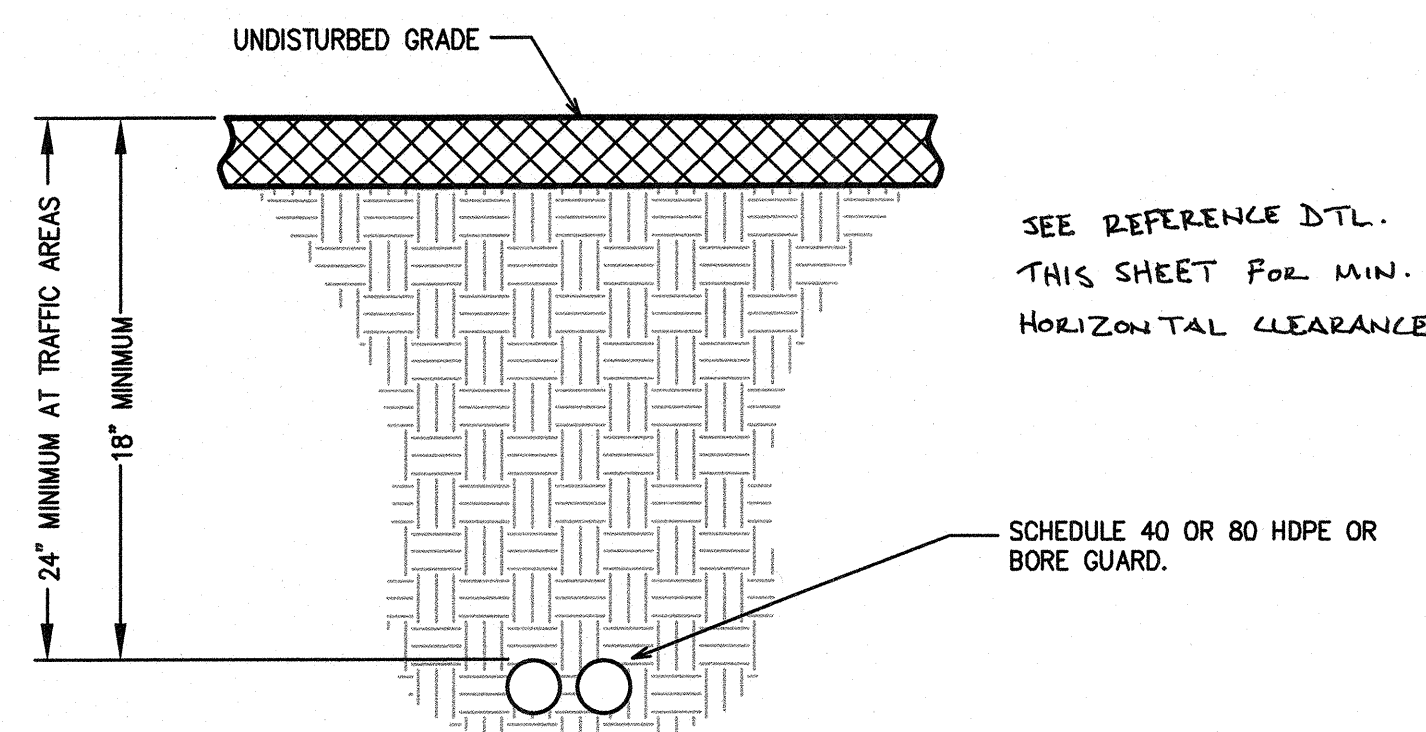
6



TRENCH THROUGH PAVEMENT TRAFFIC DETAIL

NO SCALE

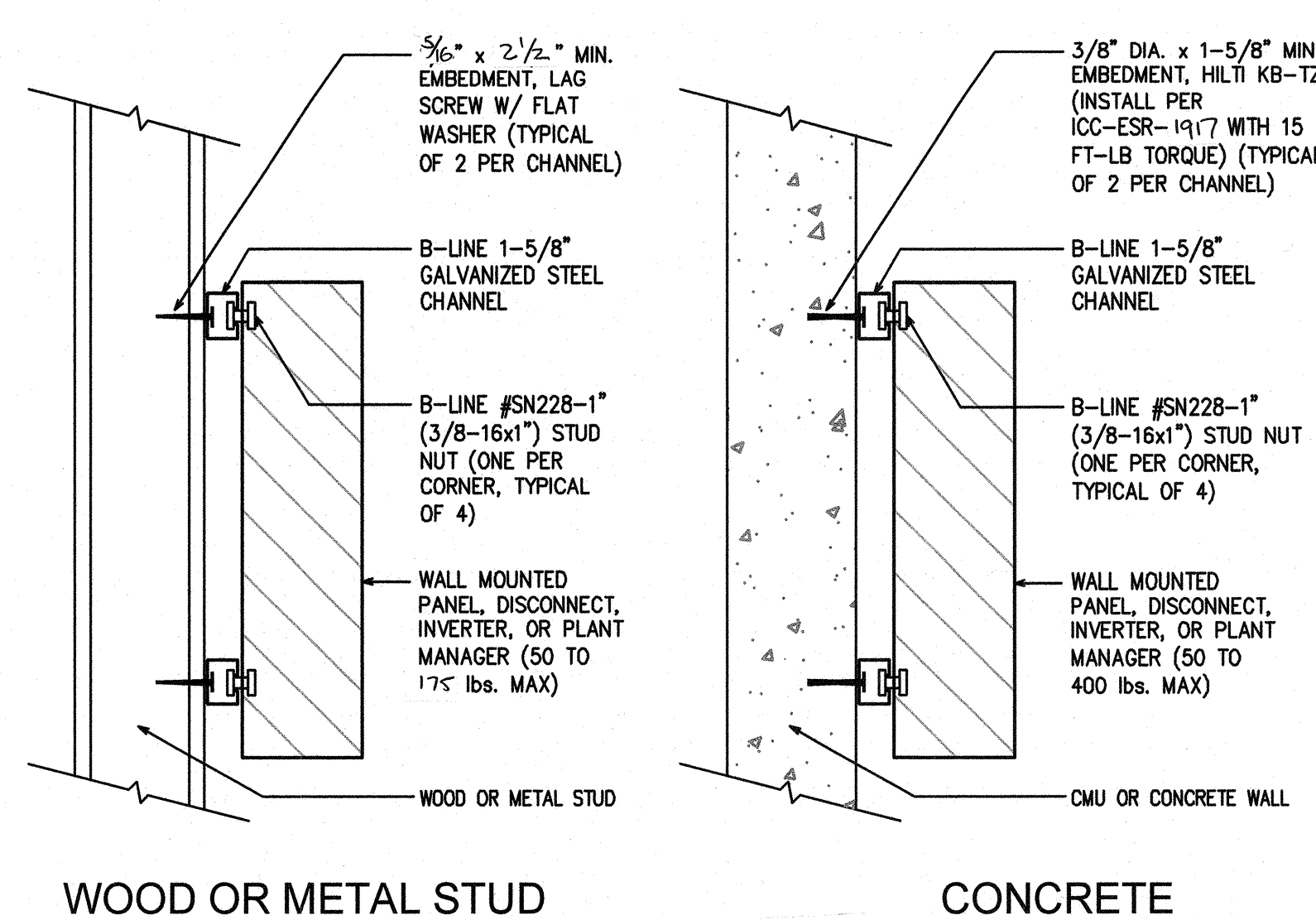
3



HORIZONTAL BORE DETAIL

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

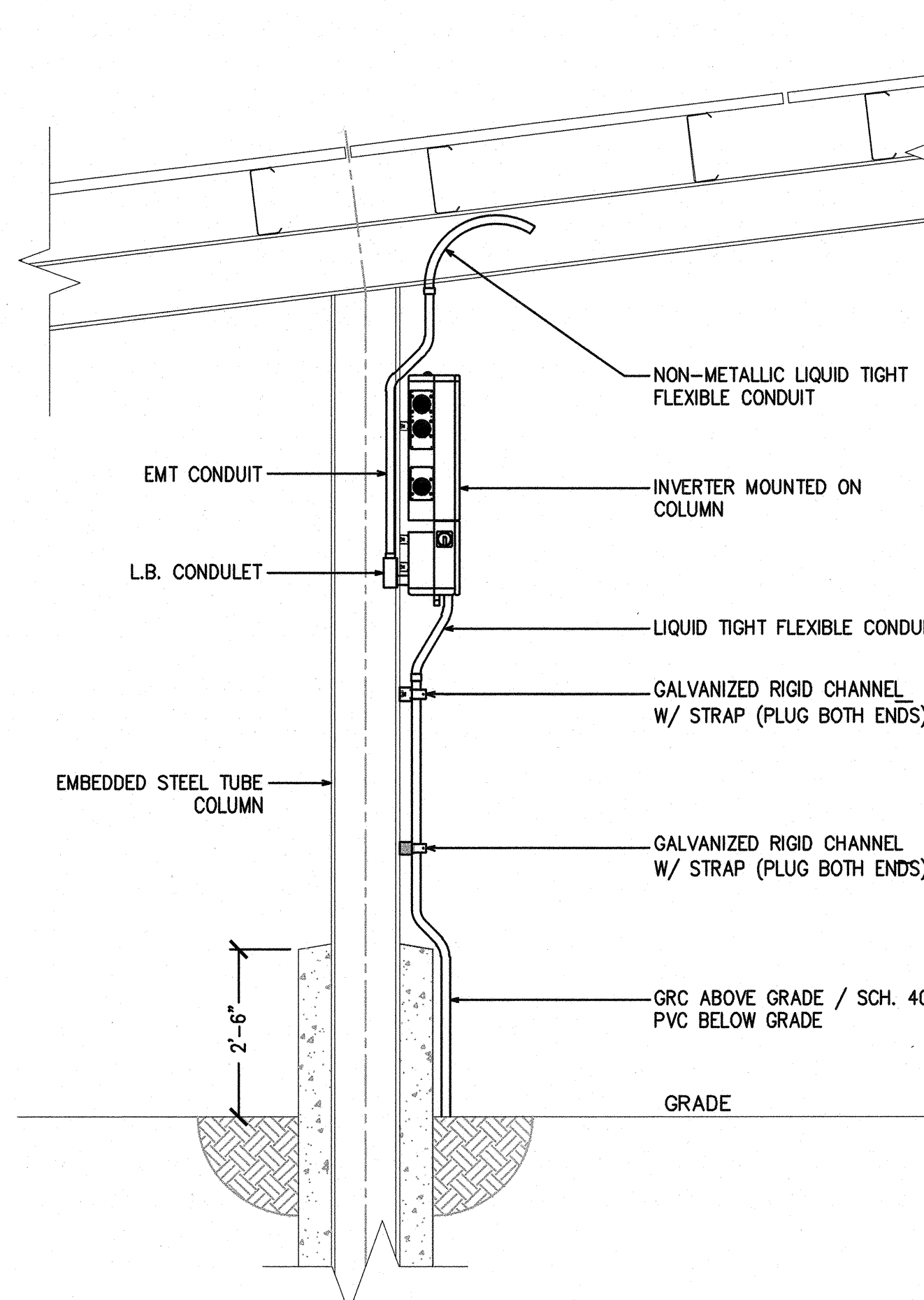
1



WALL MOUNTED EQUIPMENT DETAIL

NO SCALE

7

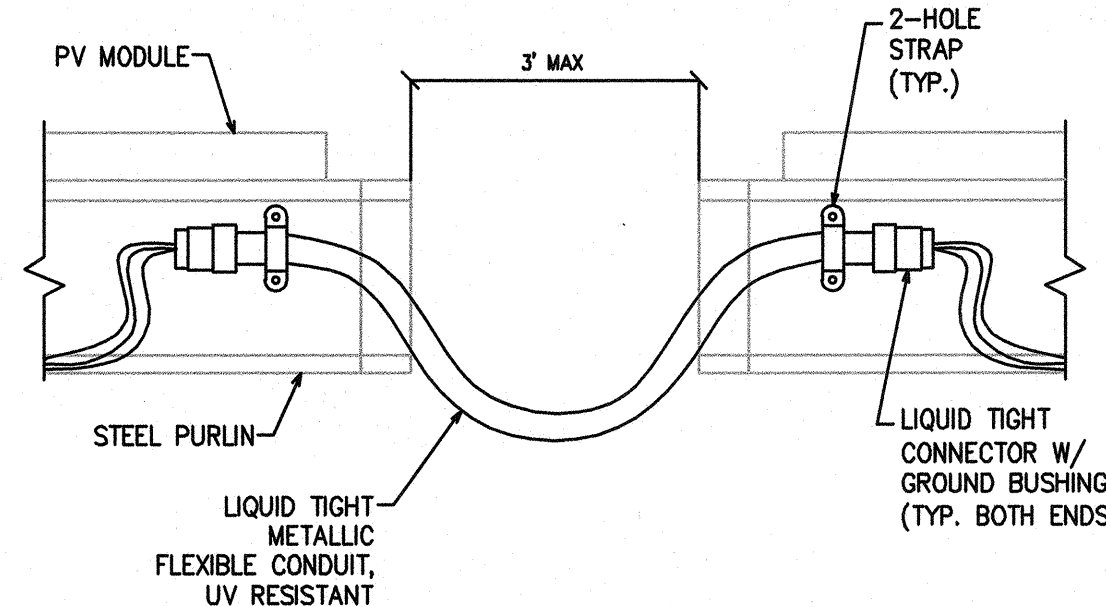


TYPICAL PV CANOPY CONDUIT RISER DETAIL

NO SCALE

NOTE: ONE REQUIRED PER ARRAY STRUCTURE

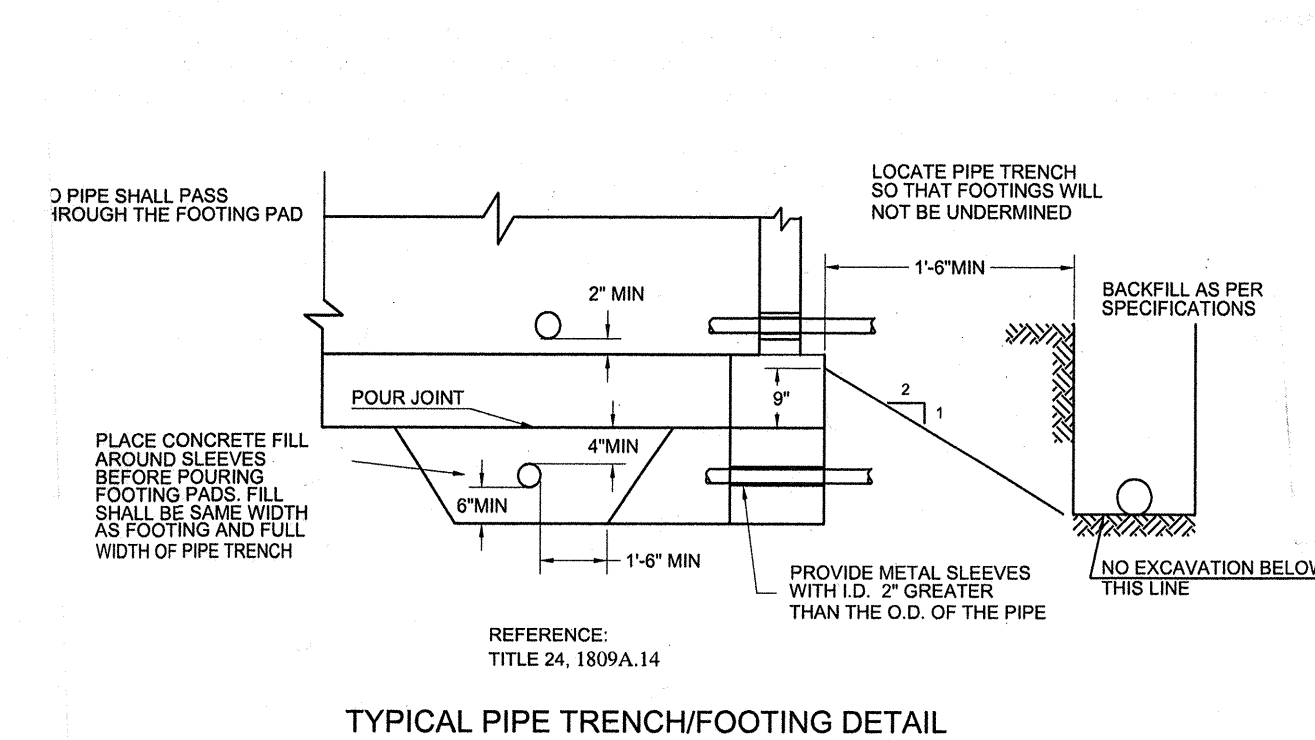
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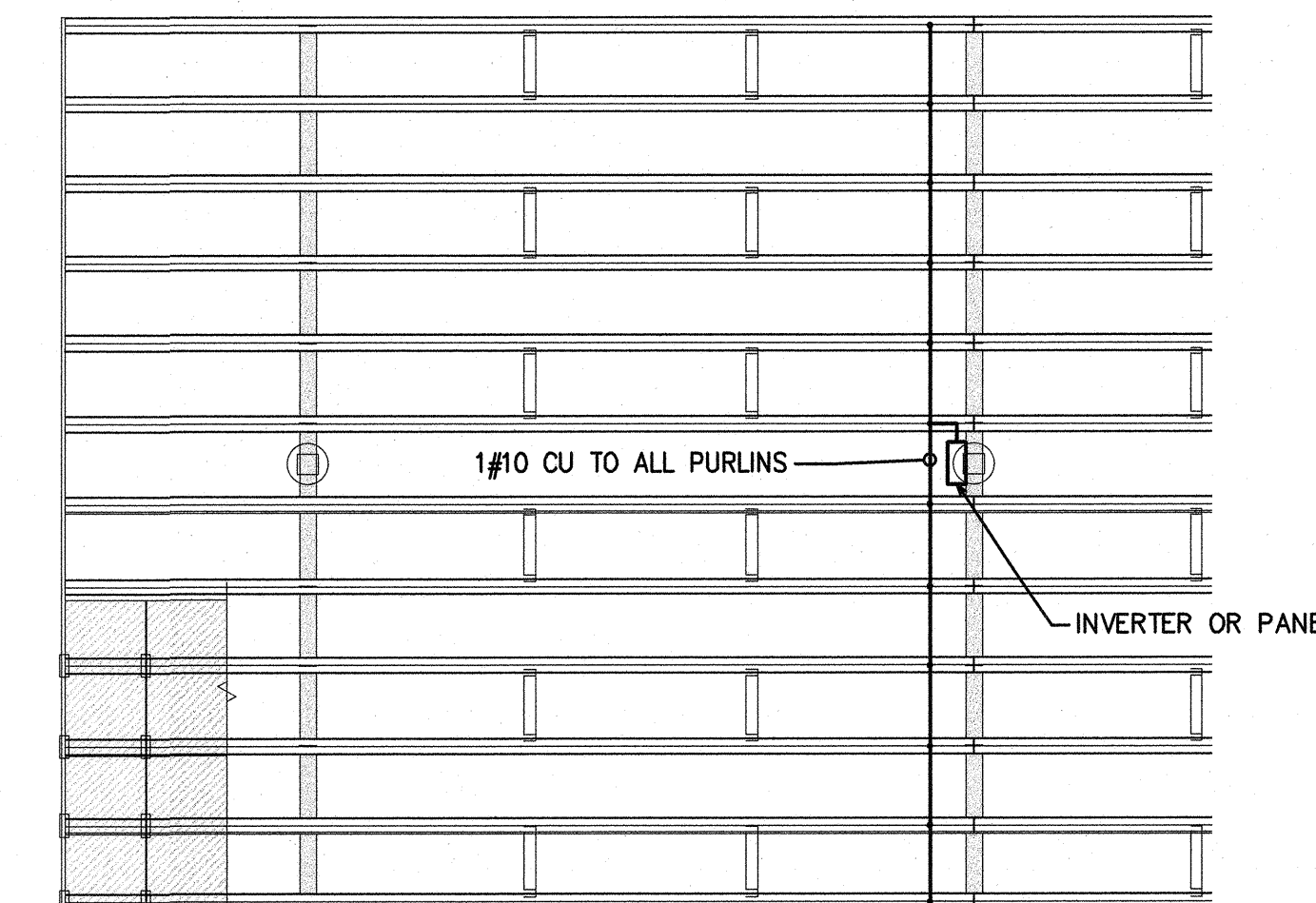
WIRING BRIDGE DETAIL

NO SCALE

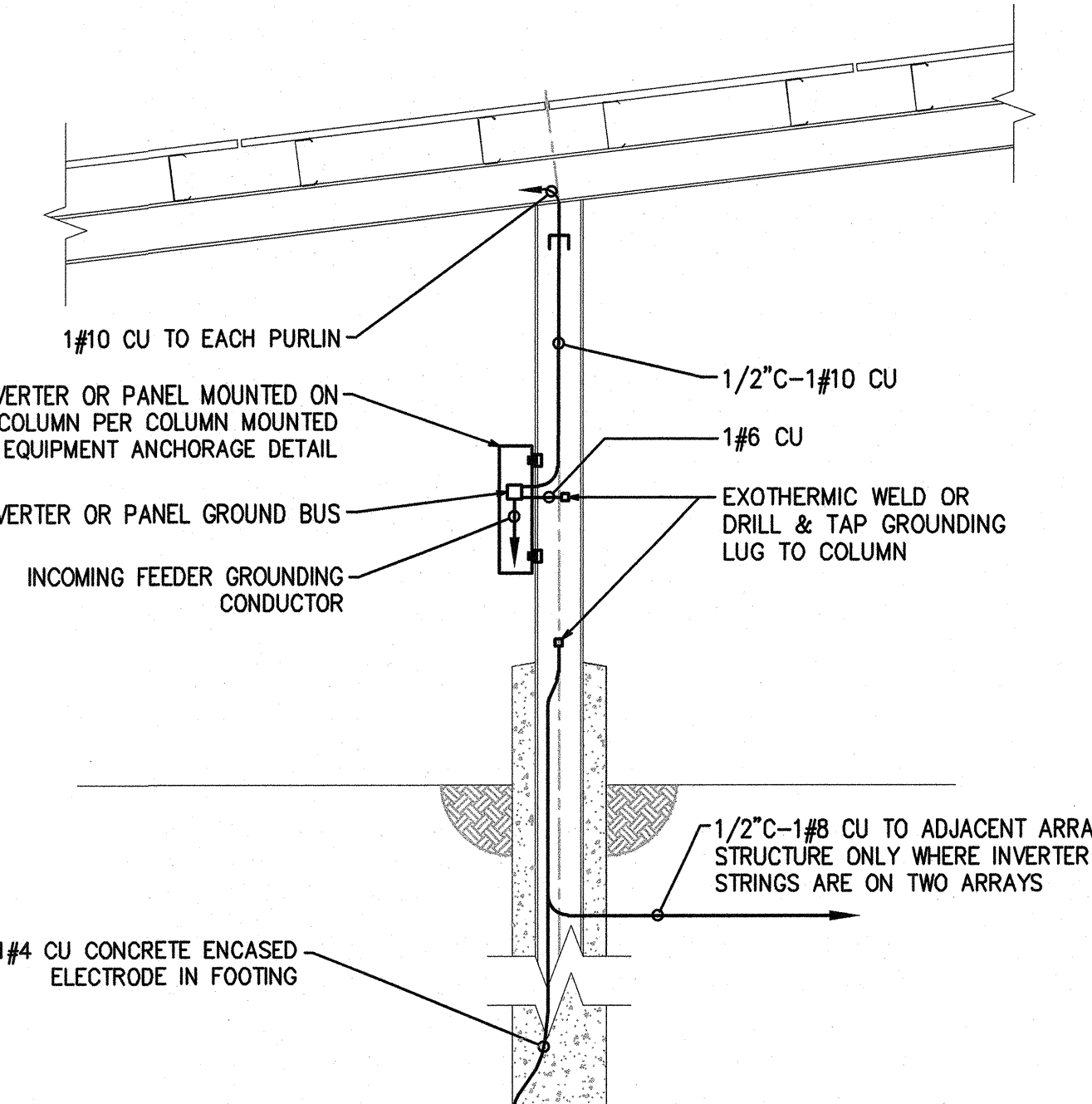
2



TYPICAL PIPE TRENCH/FOOTING DETAIL



ARRAY GROUNDING DETAIL

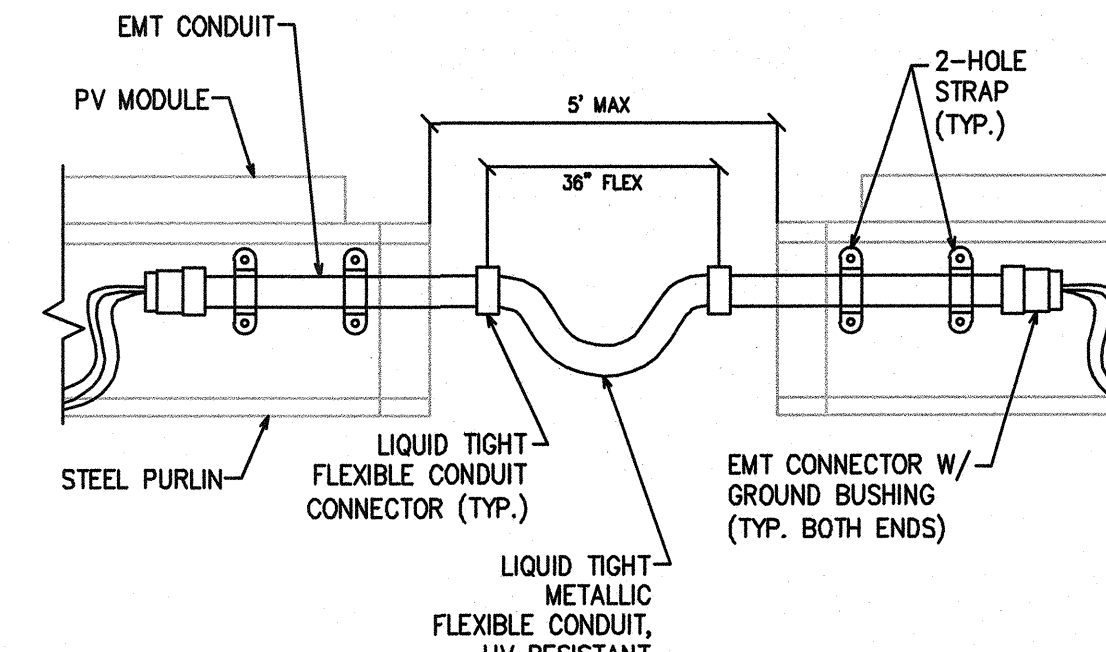


PV CANOPY GROUNDING DETAIL

NO SCALE

NOTE: ONE REQUIRED PER ARRAY STRUCTURE

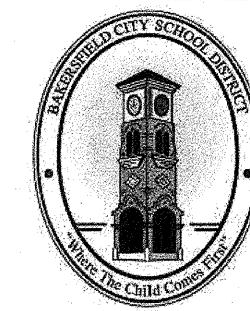
5



3' TO 5' GAP

2

CLIENT



Bakersfield City School District

1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

**CESAR E. CHAVEZ
ELEMENTARY SCHOOL**
4201 MESA MARIN DR.
BAKERSFIELD, CA 93306

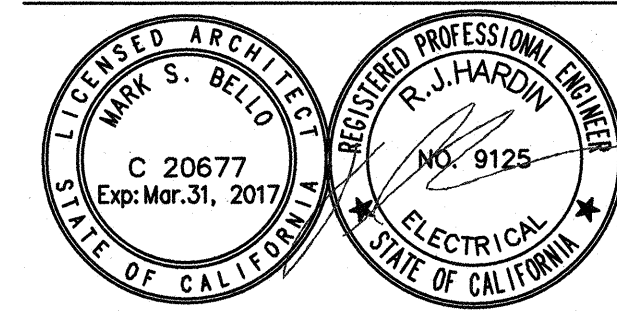
DESIGNER



ARCHITECT



PROFESSIONAL STAMP



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03 119250

AC / FLSM SS EY
Date AUG 07 2018

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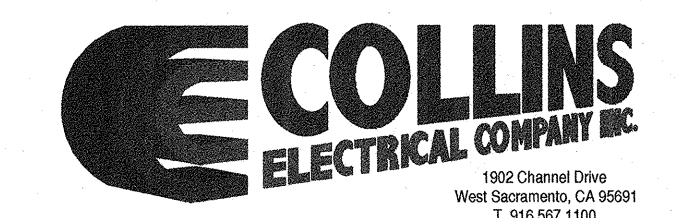
PROJECT No : ATI PROJ. #

DRAWN BY: HDE

CHECKED BY: R/JH

SCALE: AS NOTED

CONSULTANT

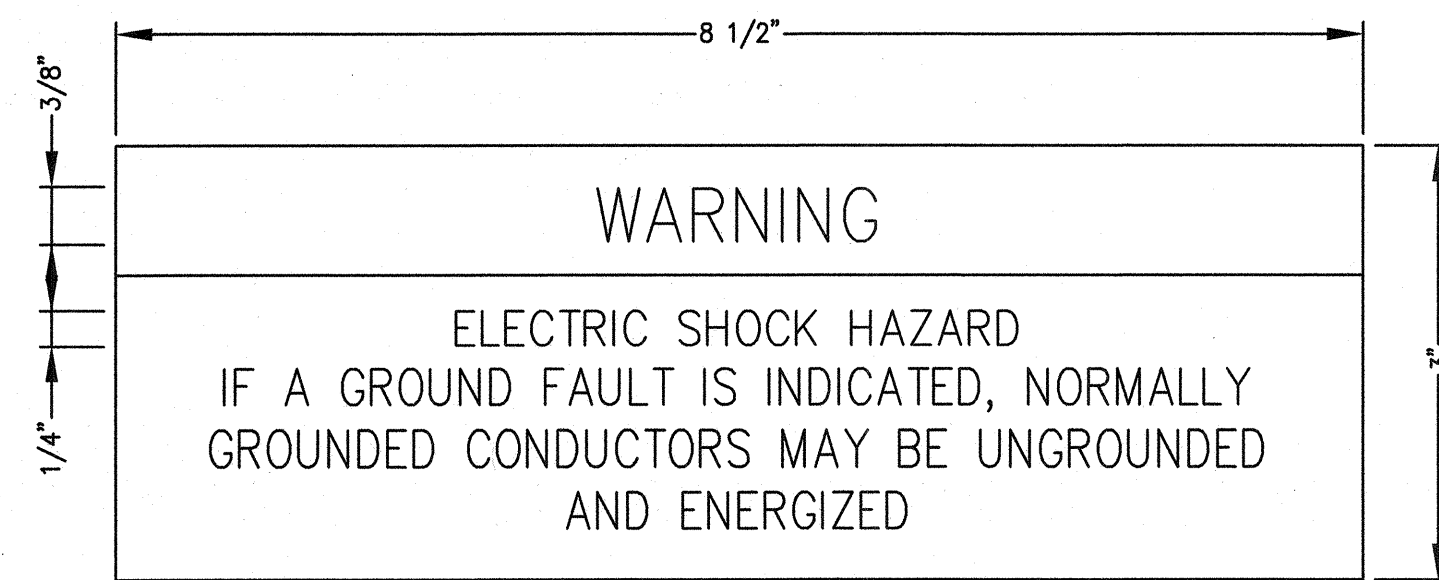


SHEET TITLE

ELECTRICAL DETAILS

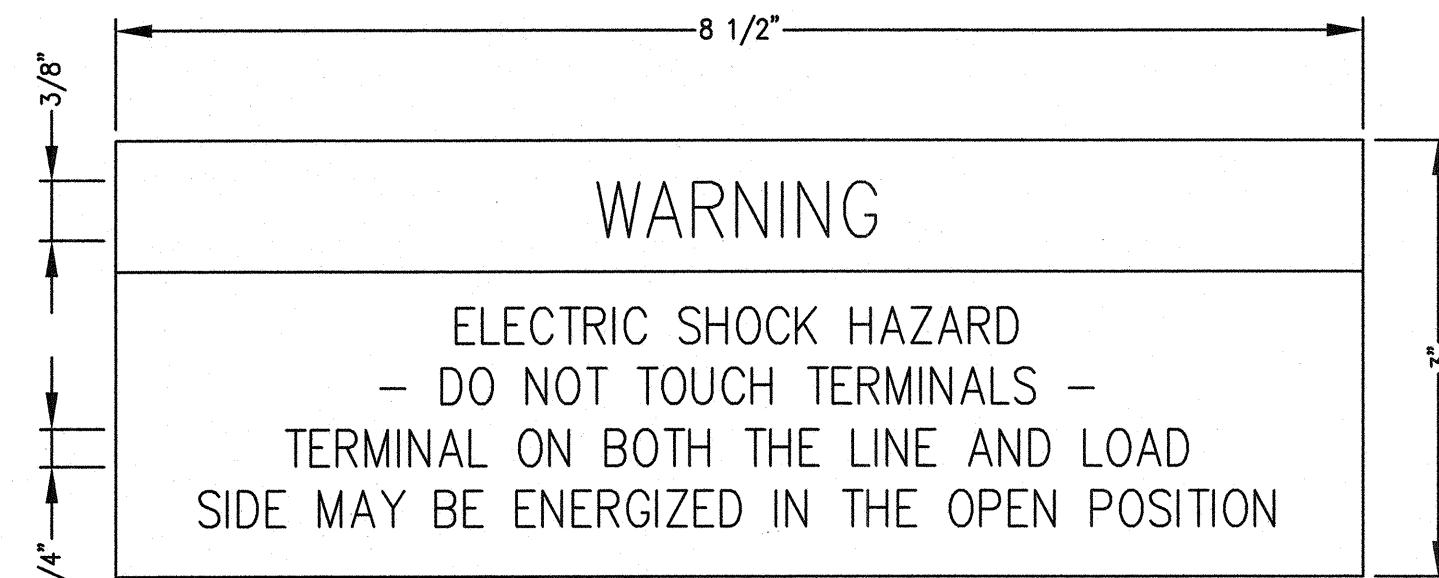
SHEET NUMBER

E4.0



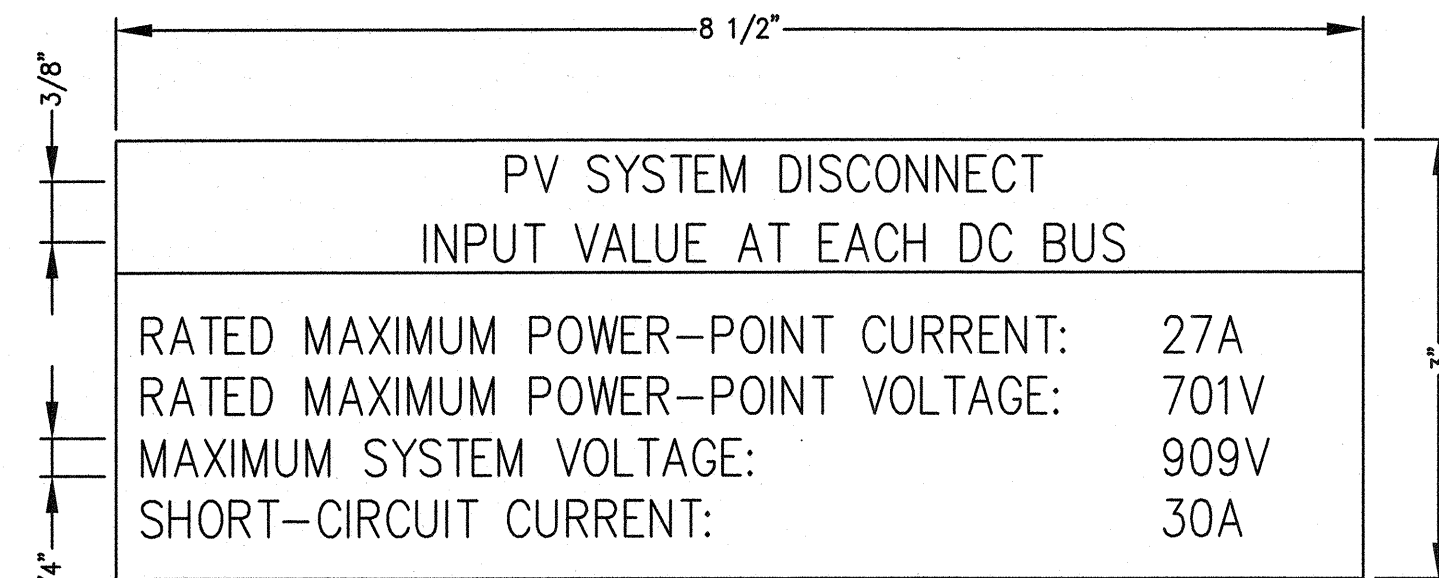
LABEL - 1 ①
SCALE: NTS

LOCATION:	INVERTERS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



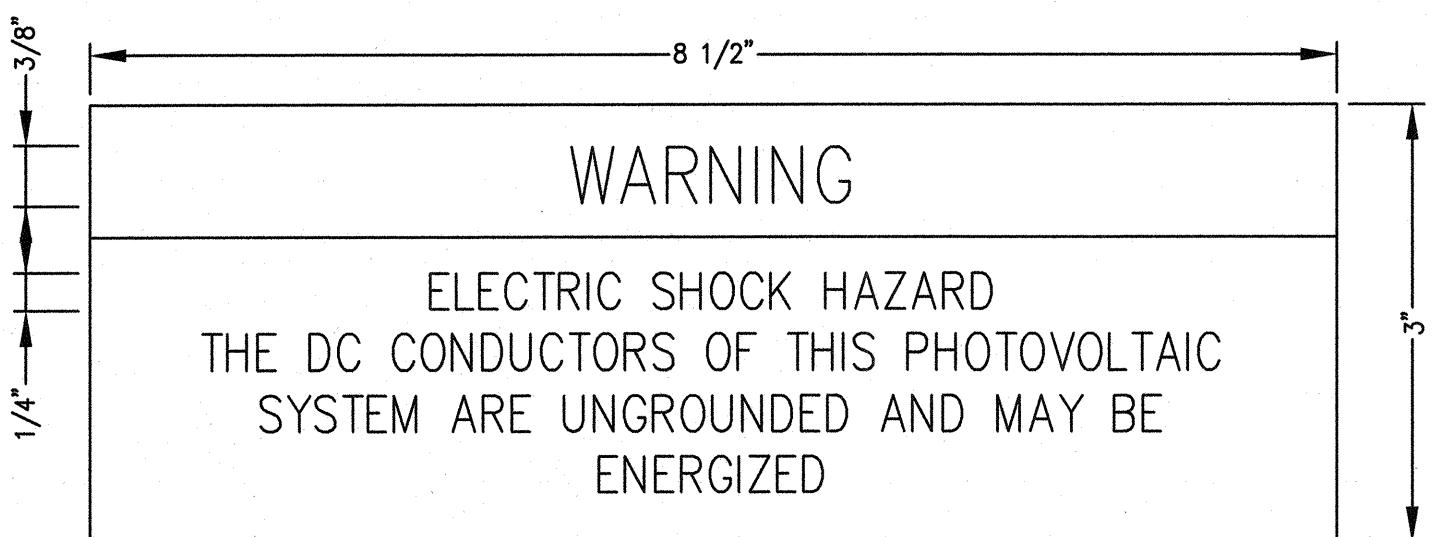
LABEL - 2 ②
SCALE: NTS

LOCATION:	AC DISCONNECTS & PANELBOARDS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



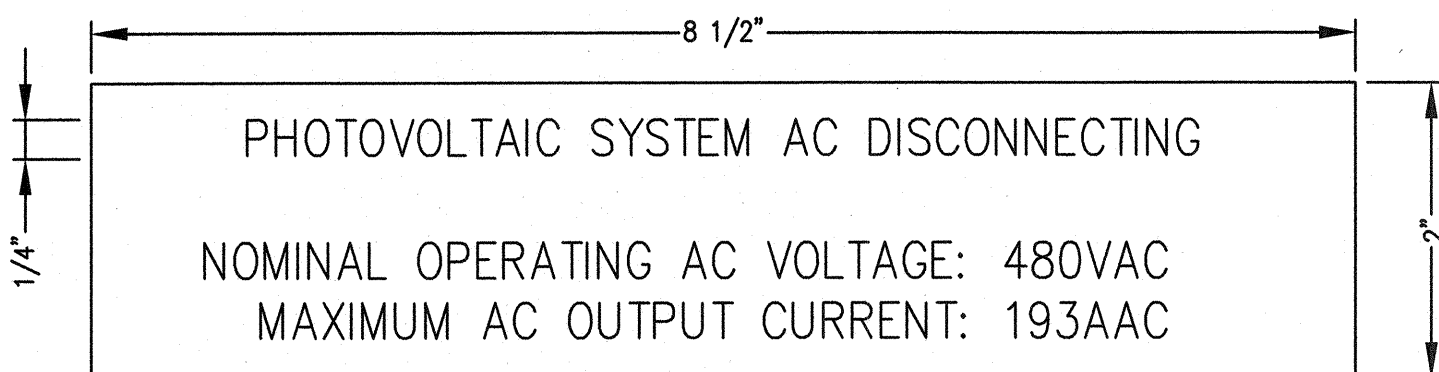
LABEL - 3 ③
SCALE: NTS

LOCATION:	50kW & 60kW INVERTERS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



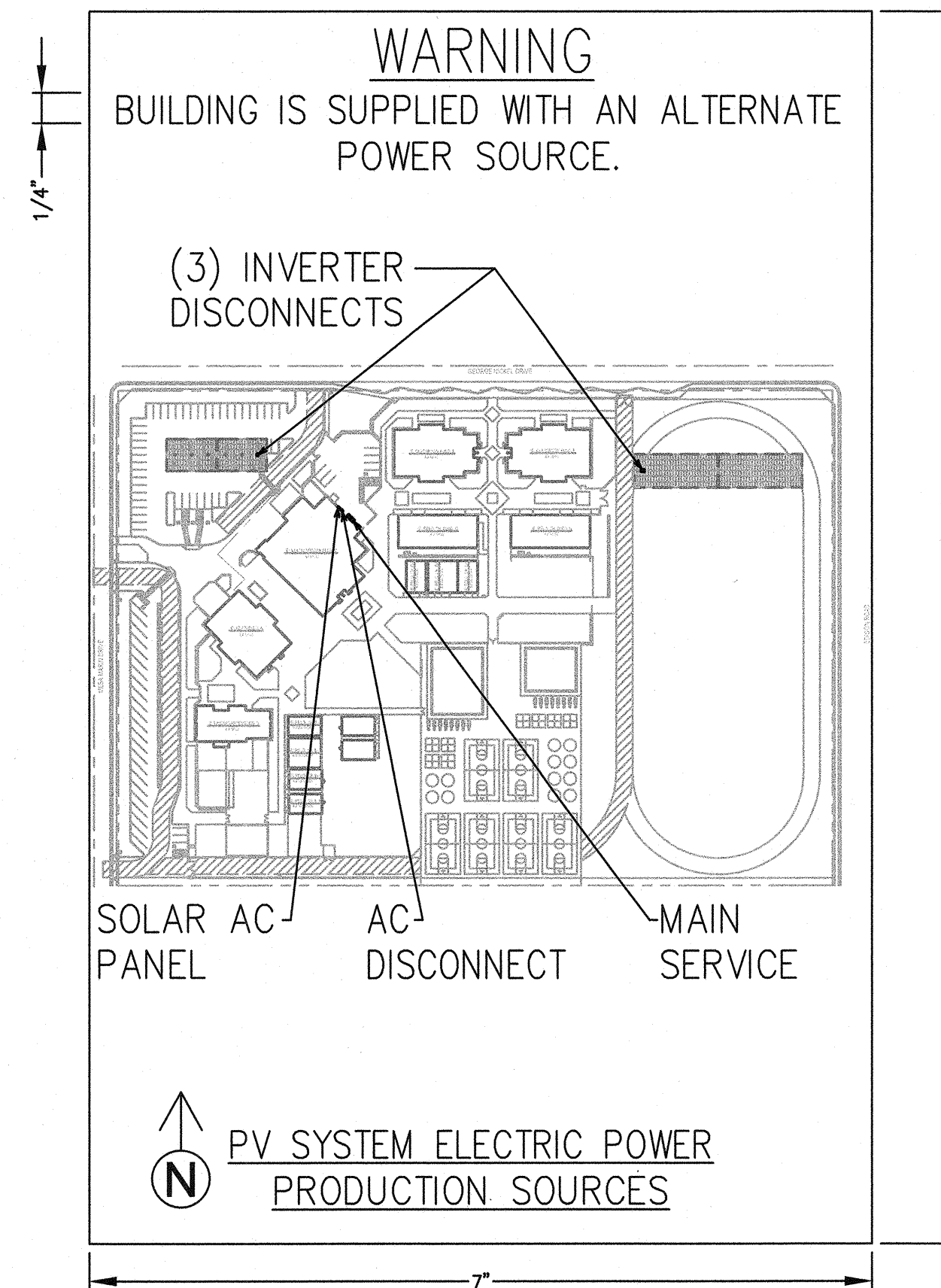
LABEL - 4 ④
SCALE: NTS

LOCATION:	INVERTERS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



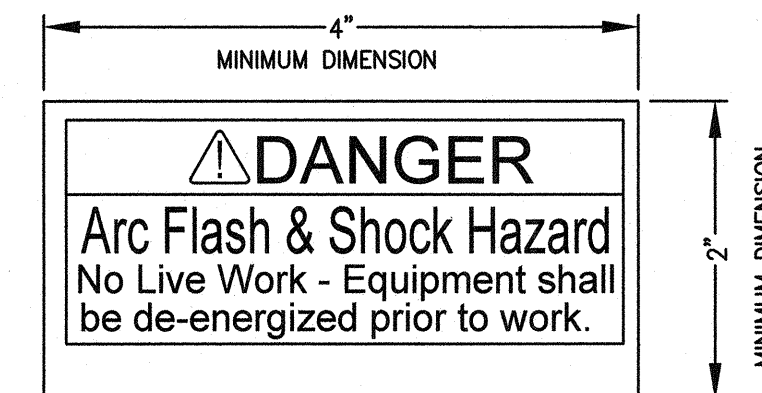
LABEL - 5 ⑤
SCALE: NTS

LOCATION:	AC DISCONNECT
BACKGROUND	RED
LETTERING	WHITE
NOTES:	



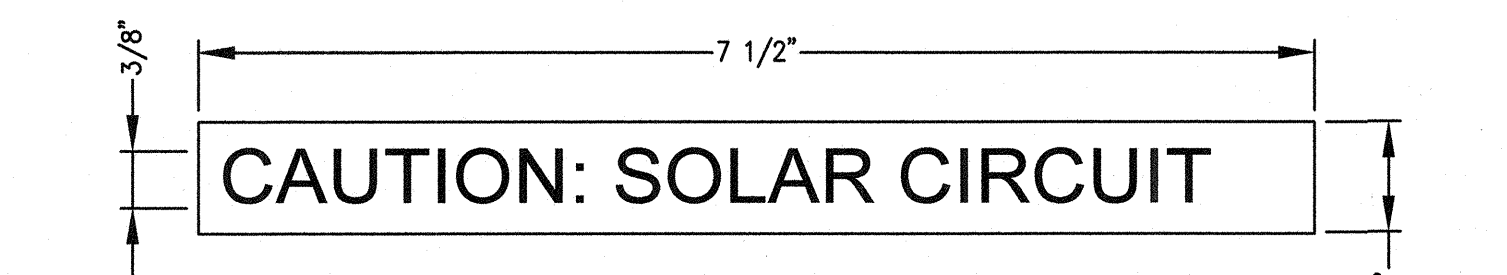
LABEL - 6 ⑥
SCALE: NTS

LOCATION:	MAIN SERVICE DISCONNECT
BACKGROUND	RED
LETTERING	WHITE
NOTES:	1 SIGN AT (E) SERVICE METER. PLACE ADDITIONAL SIGN AT SOLAR AC SYSTEM DISCONNECT WHERE NOT LOCATED WITHIN 25' & IN VIEW OF (E) SERVICE METER.



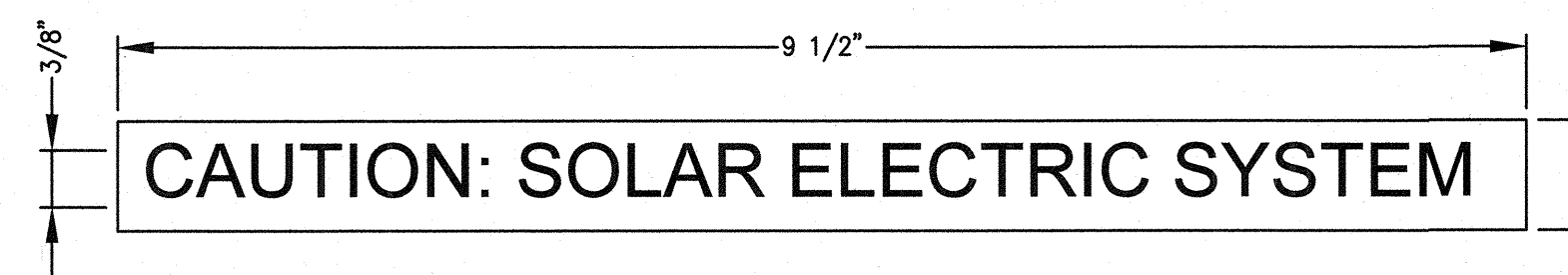
LABEL - 7 ⑦
SCALE: NTS

LOCATION:	INVERTER DISCONNECTS, AC DISCONNECT, PANEL
BACKGROUND	WHITE, RED OR YELLOW
LETTERING	BLACK AND/OR RED
NOTES:	



LABEL - 8 ⑧
SCALE: NTS

LOCATION:	DC ENCLOSURES, RACEWAYS AND CONDUITS
BACKGROUND	RED
LETTERING	WHITE
NOTES:	EXPOSED CONDUIT EVERY 10 FT.



LABEL - 9 ⑨
SCALE: NTS

LOCATION:	MAIN SERVICE DISCONNECT
BACKGROUND	RED
LETTERING	WHITE
NOTES:	

WARNING LABELS & MARKING NOTES:

- MARKING IS REQUIRED ON INTERIOR AND EXTERIOR DIRECT-CURRENT (DC) CONDUIT, ENCLOSURES, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES AND DISCONNECTS.
- THE MATERIALS USED FOR MARKING SHALL BE REFLECTIVE, WEATHER RESISTANT AND SUITABLE FOR THE ENVIRONMENT. MARKING AS REQUIRED IN SECTIONS 605.11.1.2 THROUGH 605.11.1.4 SHALL HAVE ALL LETTERS CAPITAL SIZED WITH A MINIMUM HEIGHT OF 3/8 INCH (9.5 MM) WHITE ON RED BACKGROUND.
- THE MARKING SHALL CONTAIN THE WORDS "WARNING: PHOTOVOLTAIC POWER SOURCE."
- THE MARKING SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE DISCONNECT IS OPERATED.
- MARKING SHALL BE PLACED ON INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLIES EVERY 10 FEET (3048 MM), WITHIN 1 FOOT (305 MM) OF TURNS OR BENDS AND WITHIN 1 FOOT (305 MM) ABOVE AND BELOW PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS OR BARRIERS.

CLIENT



Bakersfield City School District

1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

**CESAR E. CHAVEZ
ELEMENTARY SCHOOL**
4201 MESA MARIN DR.
BAKERSFIELD, CA 93306

DESIGNER



**FOREFRONT
POWER**

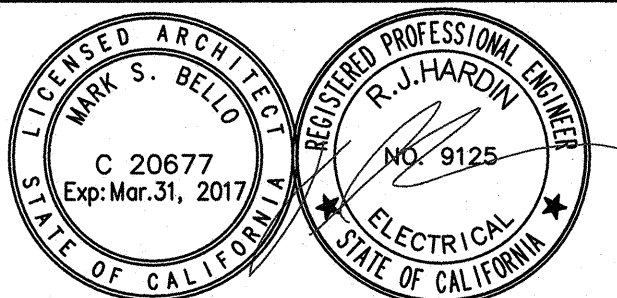
100 Montgomery Street #1400
San Francisco, CA 94104
(855) 204-5083
www.ForeFrontPower.com

ARCHITECT



4750 Willow Road Suite 250
Pleasanton, CA 94566
T 925.448.8800
2510 Douglas Boulevard
Fremont, CA 94501
T 916.772.1800
3050 Pullman Street
Cupertino, CA 95014
T 714.338.1000
www.atiaee.com

PROFESSIONAL STAMP



AGENCY APPROVAL

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

Exp. 03 119250

AC/FLS MESS EY
Date AUG. 07 2018

ISSUE

MARK	DATE	DESCRIPTION
-	7/31/2018	DSA SUBMITTAL

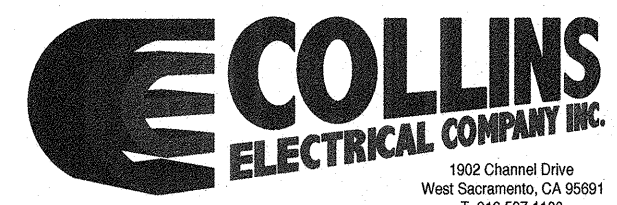
PROJECT No : ATI PROJ. #

DRAWN BY: HDE

CHECKED BY: R/JH

SCALE: AS NOTED

CONSULTANT



1902 Channel Drive
West Sacramento, CA 95691
T 916.957.1100

SHEET TITLE

**TYPICAL ELECTRICAL SOLAR
WARNING LABELS**

SHEET NUMBER

E5.0

SOLAR'S MOST TRUSTED REC

REC TWINPEAK 25 72 SERIES

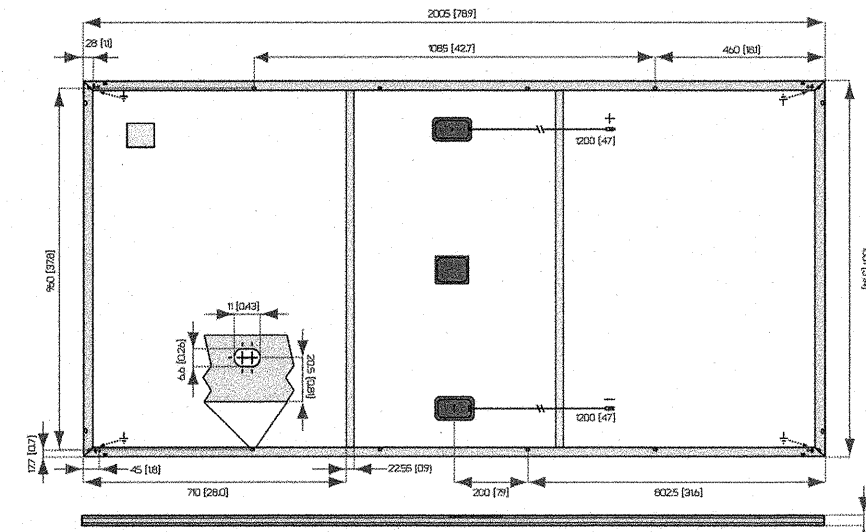
**PREMIUM SOLAR PANELS
100% MADE IN SINGAPORE**

REC TwinPeak 25 72 Series solar panels feature an innovative design with high efficiency and an industry leading lightweight, yet robust construction, enabling customers to get the most out of the installation area. Combined with the product quality and reliability of a strong and established European brand, REC TwinPeak 25 72 panels are ideal for commercial rooftops worldwide.

INTEGRATED MANUFACTURING IN SINGAPORE

WAFERS CELLS MODULES MADE IN SINGAPORE

REC TWINPEAK 25 72 SERIES



All measurements in mm (in)

ELECTRICAL DATA @ STC	Product Code*: RECxxATP2572					
Nominal Power - P _{nom} (Wp)	330	335	340	345	350	355
Watt Class Sorting (W)	-0/+5	-0/+5	-0/+5	-0/+5	-0/+5	-0/+5
Nominal Power Voltage - V _{nom} (V)	38.1	38.3	38.5	38.7	38.9	39.1
Nominal Power Current - I _{nom} (A)	8.67	8.75	8.84	8.92	9.00	9.09
Open Circuit Voltage - V _{oc} (V)	46.0	46.2	46.3	46.5	46.7	46.8
Short Circuit Current - I _{sc} (A)	9.22	9.52	9.58	9.64	9.72	9.78
Panel Efficiency (%)	16.5	16.7	16.9	17.2	17.4	17.7

Values at standard test conditions STC (irradiance AM 1.5, irradiance 1000 W/m², cell temperature 77°F (25°C).
At low irradiance of 200 W/m² AM 1.5 and cell temperature 77°F (25°C) at least 95% of the STC module efficiency will be achieved.
*xx indicates the nominal power class (P_{nom}) at STC, and can be followed by the suffix XV for modules with a 1500 V maximum system voltage.

ELECTRICAL DATA @ NOCT	Product Code*: RECxxATP2572					
Nominal Power - P _{nom} (Wp)	244	252	257	260	264	268
Nominal Power Voltage - V _{nom} (V)	34.9	35.5	35.7	35.8	36.0	36.2
Nominal Power Current - I _{nom} (A)	6.99	7.10	7.19	7.25	7.32	7.39
Open Circuit Voltage - V _{oc} (V)	42.3	42.8	42.9	43.1	43.2	43.3
Short Circuit Current - I _{sc} (A)	7.44	7.74	7.79	7.84	7.90	7.95

Nominal cell operating temperature NOCT (800 W/m², AM 1.5, wind speed 1 m/s, ambient temperature 68°F (20°C).
*xx indicates the nominal power class (P_{nom}) at STC, and can be followed by the suffix XV for modules with a 1500 V maximum system voltage.

CERTIFICATION	WARRANTY	
UL 1703, Fire classification: Type (0500 VV) Type 2 (0000 V) IEC 62109, IEC 61730, IEC 61646 (Pb), IEC 61730 (Ammonia) IEC 62109 (Salt Mist level 6), ISO 10252-2 (Class E) ISO 9001:2015, ISO 14001:2004, OHSAS 18001:2007	10 year product warranty, 25 year linear power output warranty (max. degradation in performance of 0.7% p.a.).	

17.7% EFFICIENCY
10 YEAR PRODUCT WARRANTY
25 YEAR LINEAR POWER OUTPUT WARRANTY
BUTTERFIE US IMPORT DUTY FREE

TEMPERATURE RATINGS
Nominal Operating Cell Temperature (NOCT): 44.5°C (±2°C)
Temperature Coefficient of P_{nom}: -0.36 %/°C
Temperature Coefficient of V_{oc}: -0.30 %/°C
Temperature Coefficient of I_{sc}: 0.066 %/°C

GENERAL DATA
Cell Type: 6 strings of 24 RECH2 multi-crystalline PERC
Glass: 0.13" (3.2 mm) solar glass with anti-reflection surface treatment
Back Sheet: Highly resistant polyester
Frame: Anodized aluminium (silver)
Support bars: Anodized aluminium (bonded to backsheet)
Junction Box: IP67 rated with 3 bypass diodes
Design Load: 12 AWG (4 mm²) PV wire, 47" x 47" (1.2 m x 1.2 m)
Connectors: Tongue & Groove (IEC 61950-1, 12 AWG (6 mm²))
Origins: Silicon: Made in USA & Norway
Wafer/Cell/Module: Made in Singapore

MAXIMUM RATINGS
Operational Temperature: -40 ... +185°F (-40 ... +85°C)
Maximum System Voltage: 1000 V / 1500 V*
Design Load: 175.2 lbs/ft² (8000 Pa)
Design Wind: 123.4 lbs/ft² (6000 Pa)
Refer to installation instructions

Max Series Fuse Rating: 20 A
Max Reverse Current: 20 A

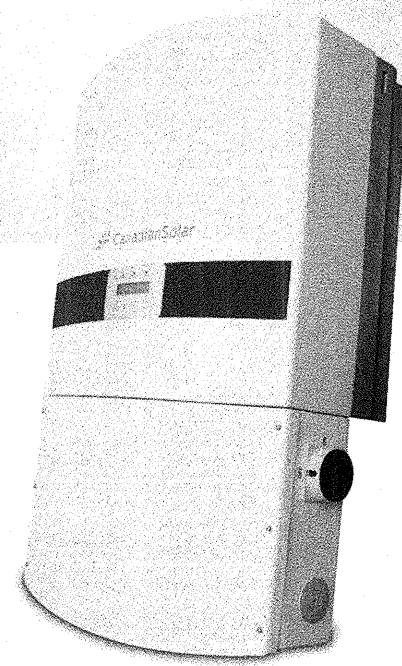
MECHANICAL DATA
Dimensions: 78.9" x 39.4" x 1.2" (2005 x 1001 x 30 mm)
Area: 21.6 ft² (2.01 m²)
Weight: 48.5 lbs (22 kg)

Note: Specifications subject to change without notice.

REC
www.recgroup.com



CanadianSolar



10 years

Standard warranty, extension up to 20 years

THREE PHASE STRING INVERTER 50-66 KW

CSI-50KTL-GS-FL | CSI-50KTL-GS |
CSI-60KTL-GS | CSI-66KTL-GS

Canadian Solar's grid-tied, transformer-less string inverters help accelerate the use of three-phase string architecture for commercial rooftop and small ground-mount applications. An NRTL approved, cost-effective alternative to central inverters, these inverters are modular design building blocks that provide high yield and enable significant BoS cost savings. They provide up to 98.8% conversion efficiency, a wide operating range of 200-850 V_{DC} and four MPPTs for maximum energy harvest.

KEY FEATURES

- Maximum efficiency of 98.8%, CEC efficiency of 98.4%
- 4 MPPTs to achieve higher system efficiency
- Transformerless design
- High switching frequency and ultra fast MPPT (<5 sec.) for maximum efficiency over a wide load range

HIGH RELIABILITY

- Advanced thermal design with fan assisted cooling
- Ground-fault detection and interruption circuit
- AFCI Integrated (per UL1699B, factory enabled option)

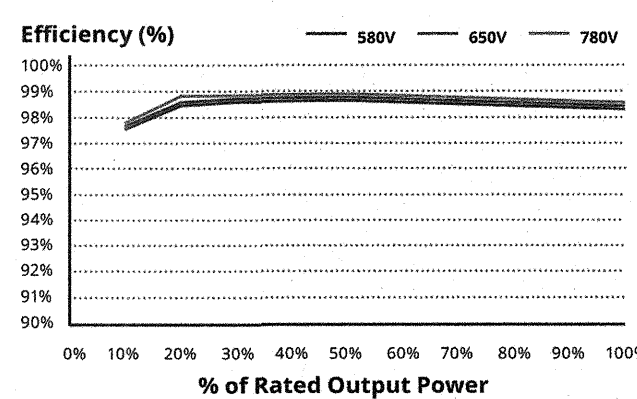
BROAD ADAPTABILITY

- NEMA 4X (IP65), outdoor application
- Utility interactive controls: active power derating, reactive power control and over frequency derating
- Integrated wiring box design
- Integrated DC and AC load rated disconnects
- Wide MPPT range for flexible string sizing
- 15-90 degree installation angle
- AC terminals compatible with copper and aluminum conductors (Al with bimetallic terminal)
- Supports up to 12 or 16 DC string inputs (3 or 4 per MPPT)

CANADIAN SOLAR (USA), INC. is committed to providing high quality solar products, solar system solutions and services to customers around the world. As a leading PV project developer and manufacturer of solar modules with over 25 GW deployed around the world since 2001, Canadian Solar Inc. (NASDAQ: CSIQ) is one of the most bankable solar companies worldwide.

EFFICIENCY CURVE

CSI-66KTL-GS@480 V



*For detailed information, please refer to the Installation Manual.

CANADIAN SOLAR (USA), INC.

3000 Oak Road, Suite 400, Walnut Creek, CA 94597, USA | www.canadiansolar.com/na | sales.us@canadiansolar.com

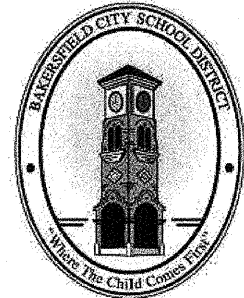
SYSTEM/TECHNICAL DATA				
MODEL NAME	CSI-50KTL-GS-FL	CSI-50KTL-GS	CSI-60KTL-GS	CSI-66KTL-GS
DC INPUT				
Max. PV Power	64 kW (16 kW/MPPT)	75 kW (22.5 kW/MPPT)	90 kW (22.5 kW/MPPT)	90 kW (22.5 kW/MPPT)
Max. DC Input Voltage	1000 V _{DC}			
Operating DC Input Voltage Range	200-850 V _{DC}			
Start-up DC Input Voltage/Power	200 V			
Number of MPPT Trackers	4			
MPPT Voltage Range	568-850 V _{DC}			
Operating Current (Imp)	88 A (22 A per MPPT)	114 A (28.5 A per MPPT)		178 A (44.5 A per MPPT)
Max. Input Current (Iscl)	137.2 A (34.3 A per MPPT)	178 A (44.5 A per MPPT)		178 A (44.5 A per MPPT)
Number of DC Inputs	12 (3 per MPPT)	16 (4 per MPPT)		
DC Disconnection Type	Load rated DC switch			
AC OUTPUT				
Rated AC Output Power	50 kW	50 kW	60 kW	66 kW
Max. AC Output Power	50 kW	50 kW	60 kW	66 kW
Rated Output Voltage	480 V _{AC}			
Output Voltage Range*	422.4 - 528 V _{AC}			
Grid Connection Type	3 Ø/PE			
Nominal AC Output Current @480 Vac	60.2 A		72.2 A	79.4 A
Rated Output Frequency	60 Hz			
Output Frequency Range*	59.5 - 60.5 Hz			
Power Factor	1 default (±0.8 adjustable)			
Current THD	< 3 %			
AC Disconnection Type	Load rated AC switch			
SYSTEM				
Topology	Transformerless			
Max. Efficiency	98.8 %	98.8 %	98.7 %	98.8 %
CEC Efficiency	98.4 %			
Night Consumption	< 1 W			
ENVIRONMENT				
Protection Degree	NEMA 4X			
Cooling	Natural Convection Cooling	Intelligent Redundant Cooling		
Operating Temperature Range	-13 ° F to + 140 ° F / -25 ° C to +60 ° C			
Storage Temperature Range	-40 ° F to + 158 ° F / -40 ° C to +70 ° C			
Operating Humidity	0 - 100 %			
Operating Altitude	13,123.4 ft / 4000 m			
Audible Noise	<60 dBA @ 1 m			
DISPLAY AND COMMUNICATION				
Display	LCD + LED			
Communication	Standard: RS485 (Modbus)			
MECHANICAL DATA				
Dimensions (W / H / D)	24.8 x 40.7 x 13.9 in / 630 x 1034 x 354 mm			
Weight	165 lb / 74.8 kg	172 lb / 78 kg		
Installation Angle	90 degrees from horizontal	15-90 degrees from horizontal		
DC Inputs	15 A standard			
SAFETY				
Safety and EMC Standard	UL1741-SA, UL1699B, CSA-C22.2 No. 1071-01, IEEE1547, FCC PART 15			
Grid Standard	IEEE1547, Rule 21			
Smart-Grid Features	Voltage-Ride Thru, Frequency-Ride Thru, Soft-Start, Volt-Var, Frequency-Watt, Volt-Watt			

The specification and key features described in this datasheet may deviate slightly and are not guaranteed. Due to on-going innovation, research and product enhancement, Canadian Solar Inc. reserves the right to make any adjustment to the information described herein at any time without notice. Please always obtain the most recent version of the datasheet, which shall be duly incorporated into the binding contract made by the parties governing all transactions related to the purchase and sale of the products described herein.

Cauton: For professional use only. The installation and handling of PV equipment requires professional skills and should only be performed by qualified professionals. Please read the safety and installation instructions before using the product.

CANADIAN SOLAR (USA), INC. February 2018 | All rights reserved | Inverter Product Datasheet V2.0_E3_NA

CLIENT



Bakersfield City School District

1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

**CESAR E. CHAVEZ
ELEMENTARY SCHOOL
4201 MESA MARIN DR.
BAKERSFIELD, CA 93306**

DESIGNER

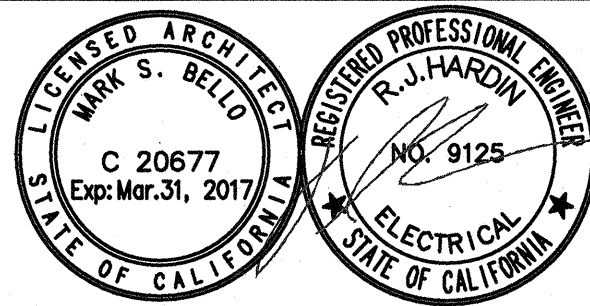


**FOREFRONT
POWER**
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San Francisco, CA 94104
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www.ForeFrontPower.com

ARCHITECT

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ARCHITECTS
ENGINEERS**
4750 Willow Road Suite 250
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T: 925.444.8800
2510 Douglas Boulevard
Folsom, CA 95611
T: 916.772.1900
3050 Pullman Street
Corte Madera, CA 94929
T: 714.398.1900
www.atiao.com

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IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

03 119250

AC / FLS 2KSS EY
Date AUG 07 2018

ISSUE

MARK	DATE	DESCRIPTION
-	7/31/2018	DSA SUBMITTAL

PROJECT No : ATI PROJ. #

DRAWN BY: HDE

CHECKED BY: R.JH

SCALE: AS NOTED

CONSULTANT

**COLLINS
ELECTRICAL COMPANY INC.**
1902 Channel Drive
West Sacramento, CA 95691
T: 916.567.1100

SHEET TITLE

**ELECTRICAL SOLAR
EQUIPMENT CUT SHEETS**

SHEET NUMBER

E6.0

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17)
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
This document is used to demonstrate compliance with requirements in §140.9, §130.0, §130.2, §140.7, and §141.0(b)(2), for outdoor lighting scopes using the prescriptive path.
Project Name: Cesar E. Chavez Elementary School
Project Address: 4201 Mesa Marin Dr.
Report Page: Page 1 of 6
Date Prepared: 7/5/2018

A. GENERAL INFORMATION
01 Project Location (city) Bakersfield
02 Climate Zone 13
03 Outdoor Lighting Zone per Title 24, Part 1 §10-114 or as designated by Authority Having Jurisdiction (AHJ):
LZ-0: Very Low - Undeveloped Parkland
LZ-1: Low - Developed Parkland
LZ-2: Moderate - Rural Areas
LZ-3: Moderately High - Urban Areas
LZ-4: High - Must be reviewed by CA Energy Commission for Approval

B. PROJECT SCOPE
Table Instructions: Include any outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.7 or §141.0(b)(2), for alterations.
My project consists of:
01 New Lighting System
02 Must Comply with Allowances from §140.7.
Altered Lighting System
Is your alteration increasing the connected lighting load (Watts)? Yes No
FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100

C. COMPLIANCE RESULTS
Table Instructions: If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance.
Calculation of Total Allowed Lighting Power (Watts) §140.7 or §141.0(b)(2)
01 General Hardscape Allowance §140.7(d)1
02 Per Application §140.7(d)2
03 Sales Frontage §140.7(d)2
04 Ornamental §140.7(d)2
05 Per Specific Area §140.7(d)2
06 Existing Power §141.0(b)(2)
07 Total Allowed (Watts)
08 Total Actual (Watts)
09 07 Must be ≥ 08
822.4 + + + + + = 822.4 ≥ 120 COMPLIES
Cutoff Compliance (See Table G for Details)
Controls Compliance (See Table H for Details)
Not Applicable
COMPLIES

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance: <http://www.energy.ca.gov/title24/2016standards> September 2017

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17)
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: Cesar E. Chavez Elementary School
Project Address: 4201 Mesa Marin Dr.
Report Page: Page 4 of 6
Date Prepared: 7/5/2018

J. LIGHTING ALLOWANCE: PER APPLICATION
This Section Does Not Apply

K. LIGHTING ALLOWANCE: SALES FRONTAGE
This Section Does Not Apply

L. LIGHTING ALLOWANCE: ORNAMENTAL
This Section Does Not Apply

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA
This Section Does Not Apply

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)
This Section Does Not Apply

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION
Table Instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at <http://www.energy.ca.gov/2015publications/CEC-400-2015-033/appendices/forms/NRCL>

YES	NO	Form/Title	Field Inspector	
			Pass	Fail
☒	☐	NRCL-LTO-01-E - Must be submitted for all buildings.	☐	☐
☒	☐	NRCL-LTO-02-E - Must be submitted for a lighting control system; or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance: <http://www.energy.ca.gov/title24/2016standards> September 2017

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17)
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: Cesar E. Chavez Elementary School
Project Address: 4201 Mesa Marin Dr.
Report Page: Page 2 of 6
Date Prepared: 7/5/2018

D. EXCEPTIONAL CONDITIONS
This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.
No exceptional conditions apply to this project.

E. ADDITIONAL REMARKS
This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. OUTDOOR LIGHTING FIXTURE SCHEDULE
This Section Does Not Apply

F. OUTDOOR LIGHTING FIXTURE SCHEDULE
Table Instructions: For new or altered lighting systems demonstrating compliance with §140.7 (ie Table I has expanded for input), include all luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application in the Table below. For altered lighting systems using the Existing Power method per §141.0(b)(2) (ie Table N has expanded for input), include only new luminaires being installed and replacement luminaires being installed as part of the project scope (ie, do not include existing luminaires remaining or existing luminaires being moved).
Designed Wattage:
01 Name or Item Tag
02 Complete Luminaire Description
03 Watts per luminaire¹
04 How Wattage is determined
05 Total number luminaires
06 Luminaire Status²
07 Excluded per §140.7(a)
08 Design Watts
09 Cutoff Req. > 150W §130.2(b)³
10 Field Inspector
A 30W LED 30 Mfr. Spec¹ 4 New ☐ 120 ☐ ☐
Total Designed Watts: 120
* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.
EX: Luminaire is lighting a statue; EXCEPTION 2 to §130.2(b).

G. CUTOFF REQUIREMENTS (BUG)
This Section Does Not Apply

H. OUTDOOR LIGHTING CONTROLS
This Section Does Not Apply

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance: <http://www.energy.ca.gov/title24/2016standards> September 2017

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17)
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: Cesar E. Chavez Elementary School
Project Address: 4201 Mesa Marin Dr.
Report Page: Page 5 of 6
Date Prepared: 7/5/2018

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE
Table Instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: <http://www.energy.ca.gov/title24/attcp/providers.html>

YES	NO	Form/Title	Field Inspector	
			Pass	Fail
☐	☐	NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls area added to ≤ 20 luminaires.	☐	☐

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance: <http://www.energy.ca.gov/title24/2016standards> September 2017

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17)
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: Cesar E. Chavez Elementary School
Project Address: 4201 Mesa Marin Dr.
Report Page: Page 3 of 6
Date Prepared: 7/5/2018

H. OUTDOOR LIGHTING CONTROLS
Table Instructions: Complete this table demonstrating compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.
When an option having a * is selected, the notes section of this table must be completed. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank. For each requirement in columns 02 through 07, do not leave the field blank, instead select NA or Exempt* from the dropdown list to indicate not applicable or an exemption.

01	02	03	04	05	06	07	08
Area Description	Motion Sensor: Incandescent>100W §130.2(a) Shut-Off §130.2(c)1 Auto-Schedule §130.2(c)2 Motion Sensor §130.2(c)3	Photocontrol	Yes	Yes	Sales Frontage §130.2(c)4 NA: No Sales Front Litg	Facade, Ornament, Outdoor Dining §130.2(c)5 No Applicable Lt	Field Inspector Pass Fail
Exterior Lights	NA: No Incand>100W	Photocontrol	Yes	Yes	NA: No Sales Front Litg	No Applicable Lt	☐ ☐

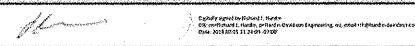
*NOTES: Controls with a * require a note in the space below explaining how compliance is achieved.
EX: Not permitted by health & safety to be turned off, EXCEPTION 1 to §130.2(c).

I. LIGHTING POWER ALLOWANCE (per §140.7)
Table Instructions: Please complete this table for areas using the allowance calculations per §140.7. General Hardscape Allowance is per Table 140.7-A while "Use it or lose it" Allowances are per Table 140.7-B. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.

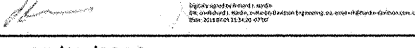
01	
*Use it or lose it" Allowance (Watts)	
General Hardscape Allowance	Per Application Sales Frontage Ornamental Per Specific Area
Table I (below)	Table J Table K Table L Table M
Calculated General Hardscape Lighting Power Allowance per Table 140.7-A	
02 Area Description	03 Area Wattage Allowance (AWA) Illuminated Area (ft²) 04 Allowed Density (W/ft²) 05 Area Allowance (Watts) 06 Perimeter Length (lf) 07 Linear Wattage Allowance (LWA) Allowed Density (W/lf) 08 Linear Allowance (Watts) 09 Total General AWA + LWA (Watts)
Solar Canopies	4,760 0.04 190.4 320 0.35 112 302.4
Initial Wattage Allowance for Entire Site (Watts): \$20	
Total General Hardscape Allowance (Watts): 822.4	

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance: <http://www.energy.ca.gov/title24/2016standards> September 2017

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 9/17)
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: Cesar E. Chavez Elementary School
Project Address: 4201 Mesa Marin Dr.
Report Page: Page 6 of 6
Date Prepared: 7/5/2018

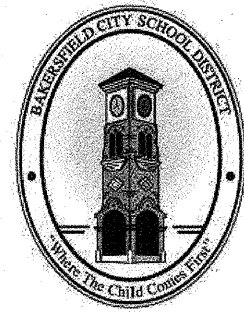
DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
Documentation Author Name: Richard J. Hardin
Documentation Author Signature: 
Company: Hardin-Davidson Engineering
Signature Date: 07/05/2018
Address: 356 Pollasky Ave, Suite 200
CEA/ HERS Certification Identification (if applicable): E9125
City/State/Zip: Clovis, CA 93612
Phone: (559) 323-4995

RESPONSIBLE PERSON'S DECLARATION STATEMENT
I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name:	Rich Hardin	Responsible Designer Signature:	
Company :	Hardin Davidson Engineering	Date Signed:	07/05/2018
Address:	356 Pollasky Ave, Suite 200	License:	E9125
City/State/Zip:	Clovis, CA 93612	Phone:	559.323.4995

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance: <http://www.energy.ca.gov/title24/2016standards> September 2017

CLIENT



Bakersfield City School District
1300 Baker St., Bakersfield, CA 93305

PROJECT LOCATION

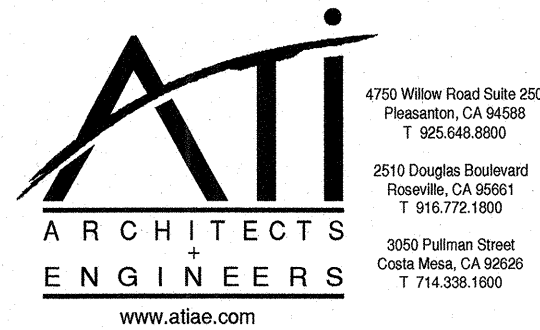
**CESAR E. CHAVEZ
ELEMENTARY SCHOOL
4201 MESA MARIN DR.
BAKERSFIELD, CA 93306**

DESIGNER

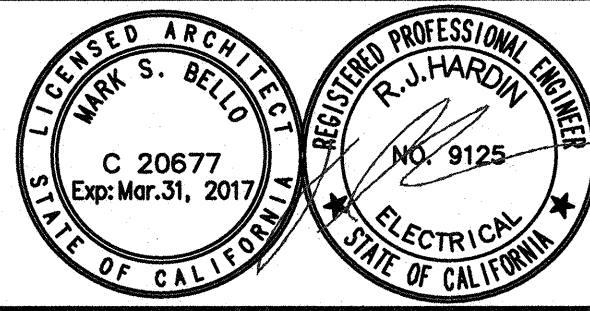


**FOREFRONT
POWER**
100 Montgomery Street #1400
San Francisco, CA 94104
(855) 204-5083
www.ForeFrontPower.com

ARCHITECT



PROFESSIONAL STAMP



AGENCY APPROVAL

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

03 119250

AC FLS MSS EY
Date AUG 07 2018

ISSUE

MARK	DATE	DESCRIPTION
-	7/31/2018	DSA SUBMITTAL

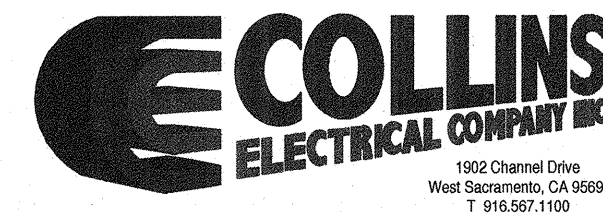
PROJECT No : ATI PROJ. #

DRAWN BY: HDE

CHECKED BY: R&H

SCALE: AS NOTED

CONSULTANT

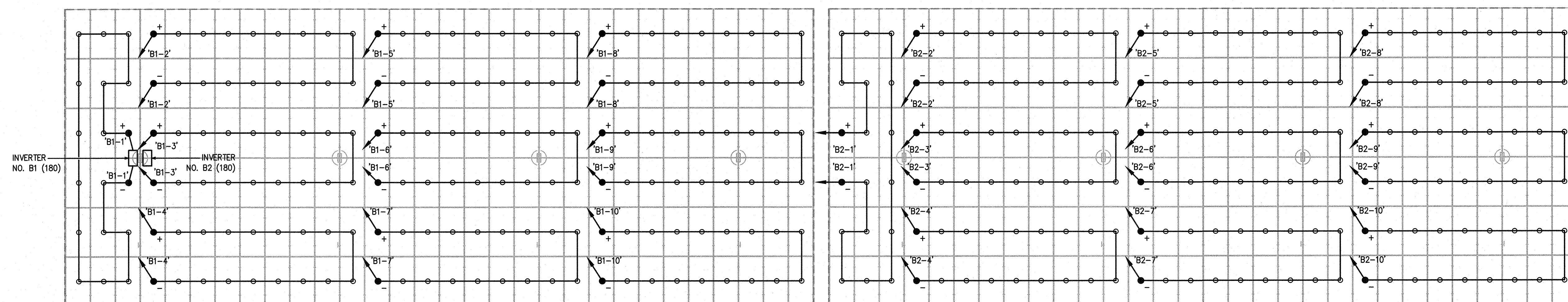


SHEET TITLE

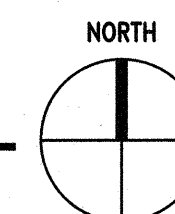
**LIGHTING TITLE 24
COMPLIANCE FORMS**

SHEET NUMBER

E7.0



SCALE: 1/8"=1'-0"



ULTIMATE GUARDIAN 3.3³

PHOTOVOLTAIC SUPPORT STRUCTURES

PC OWNERSHIP

STRUCTURAL ENGINEERING FIRM



109 EAST ESCALONES
SAN CLEMENTE, CA 92672

PHONE: (949) 388-9333
FAX: (949) 388-3773

STRUCTURAL ENGINEER
OF RECORD:

DUSTIN K. ROSEPINK, SE 5885

POINT OF CONTACT:

BRADLEY STEVENS

STRUCTURAL STEEL CONTRACTOR



M BAR C
CONSTRUCTION
INC.

674 RANCHEROS DR
SAN MARCOS, CA. 92069

PHONE: (760) 744-4131
FAX: (760) 744-4449

LIC # 869960
B AND C51

POINT OF CONTACT:

ERIK KRIVOKOPICH



STANDARD NOTES FOR PC USE

- 4 S.T.E.L. ENGINEERING, INC. SHALL ALWAYS BE GIVEN THE OPPORTUNITY TO BID THE DSA SUBMITTAL PACKAGE (I.E. TO ACT AS THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE).
- FOR CONSTRUCTION COST INFORMATION, CONTACT M BAR C CONSTRUCTION, INC.
- CUSTOM SIZES AND LOADING REQUIRE SUPPLEMENTARY SHOP DRAWINGS AND CALCULATIONS.

NOTES TO OTC PLAN REVIEWER AND DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE

1. THIS PC CONTAINS MEMBERS DESIGNED TO THREE SEPARATE SETS OF SEISMIC CRITERIA.
CRITERIA #1: $S_s=1.7$, $S_1=1.39$, $C_s=0.907$, $R=1.25$
~~CRITERIA #2: $S_s=3.2$, $S_1=1.39$, $C_s=0.853$, $R=2.5$~~
~~CRITERIA #3: $S_s=0.8$, $S_1=1.39$, $C_s=0.587$, $R=1.25$~~
~~CRITERIA #4: $S_s=1.8$, $S_1=1.39$, $C_s=0.853$, $R=1.25$~~
THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE IS RESPONSIBLE FOR SELECTING AND UTILIZING THE CORRECT MEMBER SHEETS FOR THE SITE-SPECIFIC CONDITION SUCH THAT THE SITE-SPECIFIC S_s AND S_1 ARE LESS THAN THOSE CONTAINED WITHIN ONE OF THE SETS OF CRITERIA; OR MEETS THE REQUIREMENTS OF NOTE 2 OF DESIGN PARAMETERS ON S-2.
2. THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE IS RESPONSIBLE FOR VERIFYING SITE-SPECIFIC WIND PARAMETERS AT ANY AND ALL SITES WHERE THIS PC IS USED. THIS PC IS DESIGNED BASED ON 110 mph EXPOSURE C. SEE NOTE 1 OF DESIGN CRITERIA ON S-2.
3. SITE SPECIFIC PLANS TO SHOW SITE SPECIFIC SOLAR PANEL LAYOUT.
4. SITE SPECIFIC SOLAR PANEL LAYOUT SHALL HAVE MAXIMUM DIMENSION TO THE OUTSIDE EDGES OF SOLAR PANELS OR STRUCTURAL STEEL - WHICHEVER IS GREATER - LESS THAN THE MAXIMUM DIMENSIONS OF THE STRUCTURES SHOWN ON THE PC PLANS (OR CHARTS).
5. IF THE SNOW LOAD OPTION IS USED THEN P_g , P_f , P_s , C_e , I , C_t SHALL BE LISTED ON SITE SPECIFIC PLANS.
6. IF A SNOW LOAD OPTION IS USED THEN THE SITE SPECIFIC MAXIMUM SNOW LOADING INCLUDING DRIFT MUST BE EQUAL TO 0 PSF OR LESS THAN 20 PSF BASED ON OPTION SELECTED.
7. A SITE SPECIFIC GEOTECHNICAL REPORT SHALL BE SUBMITTED JUSTIFYING THE SOILS VALUES SELECTED IF GREATER THAN 100 PCF FOR LATERAL BEARING AND 1,500 PSF FOR VERTICAL BEARING. SEE SOILS NOTES ON S-3.
8. SITE SPECIFIC DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE TO SELECT SOILS CLASS FOR SITE SPECIFIC USE.
9. IF A SOLAR PANEL CONNECTION DETAIL IS SHOWN ON THE SITE SPECIFIC PLANS IT SHALL BE IN ACCORDANCE WITH DETAILS ON S-34, S-35 AND/OR S-36 IN THE PC PLANS. IF NO SOLAR PANEL CONNECTION DETAIL IS SHOWN ON THE SITE SPECIFIC PLANS, DETAILS ON S-34, S-35 AND/OR S-36 SHALL GOVERN.
10. NO FUTURE STRUCTURAL ROOF DECK OR SHEATHING MAY BE APPLIED TO THE OPEN GRID.
11. THE MAXIMUM PSF ALLOWED FOR THE SOLAR PANEL, ELECTRICAL, AND OTHER NON STRUCTURAL ITEMS IS 3.15 PSF.
12. WET STAMPED & SIGNED COPIES OF PC PLANS ARE NOT REQUIRED FOR SITE SPECIFIC PC USE.
13. DUSTIN ROSEPINK IS NOT ACTING AS SITE SPECIFIC SEOR UNLESS HE IS THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR A SIGNED LETTER HAS BEEN SUBMITTED WITH DSA-1 FORM STATING HE ACCEPTS THE RESPONSIBILITY AS THE SEOR FOR THE SITE.
14. DUSTIN ROSEPINK WILL NOT SIGN ANY DSA FORMS (IE DSA-5, DSA-6, ECT), REVIEW OR APPROVE ANY SUBMITTALS (IE CONCRETE MIX DESIGNS, SHOP DRAWINGS, ETC.) FOR THE SITE SPECIFIC PROJECT UNLESS HE IS ACTING AS THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR THE SITE SPECIFIC STRUCTURAL ENGINEER OF RECORD PER ABOVE NOTE 13.

LEGAL INFO

- USE OF PC WITHOUT WRITTEN CONSENT FROM 4 S.T.E.L. ENGINEERING, INC. AND/ OR M BAR C CONSTRUCTION, INC. IS STRICTLY PROHIBITED.
- ALL INFORMATION HEREIN IS PROPRIETARY INFORMATION AND UNDER THE OWNERSHIP OF 4 S.T.E.L. ENGINEERING, INC & M BAR C CONSTRUCTION, INC.
- ALL INFORMATION COPYRIGHT 2009, 2011 & 2014.

SHEET INDEX

S-1	COVER SHEET 1
S-2	COVER SHEET 2
S-3	GENERAL NOTE SPECIFICATIONS
S-4	SAMPLE DSA-103 FORMS
S-5	SECTION PROPERTIES & REBAR DETAILS
S-6	T-STRUCTURE FRAMING PLAN
S-7	R=1.25 T-STRUCTURE BEAM/COLUMN SCHEDULE
S-8	R=1.25 T-STRUCTURE NON-CONSTRAINED PIER FOUNDATION SCHEDULE
S-9	NOT USED
S-10	R=1.25 T-STRUCTURE SPREAD FOOTING SCHEDULE
S-11	NOT USED
S-12	R=1.25 T-STRUCTURE BEAM TO COLUMN SCHEDULE
S-13	R=2.5 T-STRUCTURE BEAM/COLUMN SCHEDULE
S-14	R=2.5 T-STRUCTURE NON-CONSTRAINED PIER FOUNDATION SCHEDULE
S-15	NOT USED
S-16	R=2.5 T-STRUCTURE SPREAD FOOTING SCHEDULE
S-17	NOT USED
S-18	R=2.5 T-STRUCTURE BEAM TO COLUMN SCHEDULE
S-18.1	R=1.25 T-STRUCTURE BEAM/COLUMN SCHEDULE
S-18.2	R=1.25 T-STRUCTURE NON-CONSTRAINED PIER FOUNDATION SCHEDULE
S-18.3	NOT USED
S-18.4	R=1.25 T-STRUCTURE SPREAD FOOTING SCHEDULE
S-18.5	NOT USED
S-18.6	R=1.25 T-STRUCTURE BEAM TO COLUMN SCHEDULE
S-19	OT-STRUCTURE FRAMING PLAN
S-20	R=1.25 OT-STRUCTURE BEAM/COLUMN SCHEDULE
S-21	R=1.25 OT-STRUCTURE NON-CONSTRAINED PIER FOUNDATION SCHEDULE
S-22	NOT USED
S-23	R=1.25 OT-STRUCTURE SPREAD FOOTING SCHEDULE
S-24	NOT USED
S-25	R=1.25 OT-STRUCTURE BEAM TO COLUMN SCHEDULE
S-26	R=2.5 OT-STRUCTURE BEAM/COLUMN SCHEDULE
S-27	R=2.5 OT-STRUCTURE NON-CONSTRAINED PIER FOUNDATION SCHEDULE
S-28	NOT USED
S-29	R=2.5 OT-STRUCTURE SPREAD FOOTING SCHEDULE
S-30	NOT USED
S-31	R=2.5 OT-STRUCTURE BEAM TO COLUMN SCHEDULE
S-31.1	R=1.25 OT-STRUCTURE BEAM/COLUMN SCHEDULE
S-31.2	R=1.25 OT-STRUCTURE NON-CONSTRAINED PIER FOUNDATION SCHEDULE

S-31.3	NOT USED
S-31.4	R=1.25 OT-STRUCTURE SPREAD FOOTING SCHEDULE
S-31.5	NOT USED
S-31.6	R=1.25 OT-STRUCTURE BEAM TO COLUMN SCHEDULE
S-32	PURLIN SCHEDULE (ALL SLOPES)
S-33	STANDARD PURLIN DETAILS
S-34	STANDARD SOLAR PANEL SUPPORT DETAILS
S-35	ALTERNATE PANEL CONNECTIONS
S-36	OPTIONAL GROUNDING DETAILS
S-37	STANDARD ELECTRICAL DETAILS
S-37.1	ALTERNATE CONNECTION DETAILS
S-38	EQUIPMENT PAD
S-39	BRACED UNISTRUT EQUIPMENT RACK 1
S-40	STANDARD STEEL EQUIPMENT RACK 2
S-41	UNISTRUT EQUIPMENT RACK 3
S-42	EQUIPMENT PAD ENCLOSURE
S-43	EQUIPMENT PAD ENCLOSURE SCHEDULE
S-44	PERIMETER FENCE/SCHEDULE
S-45	STANDARD ACCESSIBILITY DETAILS
TOTAL: 46 SHEETS	

BID INFORMATION

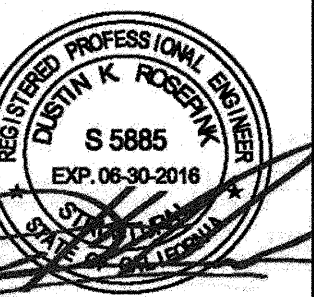
THE STEEL STRUCTURES IN THIS PC ARE PROPRIETARY TO M BAR C AND 4 S.T.E.L. ENGINEERING, INC.
THE STEEL PORTION OF WORK SHALL NOT GO OUT TO BID.

PRE-CHECK (PC) DOCUMENT

CODE: 2013 CBC

A SEPARATE PROJECT APPLICATION FOR CONSTRUCTION IS REQUIRED

ENGINEER'S
APPROVAL



DATE SIGNED
July 2, 2018

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

A 03119250

AC ☒ FLS ☒ SS ☒ EY
DATE AUG 0 1 2018

SITE SPECIFIC
DSA APPROVAL

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES

APPROVED: C. 04-11-2018
Rev: 04-11-2018
AC ☒ FLS ☒ SS ☒ PR
DATE 7/2/2018

M BAR C
CONSTRUCTION
INC.



674 RANCHEROS DR
SAN MARCOS, CA 92069
PHONE: (760) 744-4131
FAX: (760) 744-4449
LIC # 869960
B AND C51

4 STEEL ENGINEERING
STRUCTURAL ENGINEERING

DRAWN
MAP
CHECKED
DKR
DATE
7/2/2018
4 STEEL JOB NO.
13-1010
SHEET
S-1
1 of 46 SHEETS

PHOTOVOLTAIC CANOPIES

CONSTRUCTION OPTIONS

*ALL FRAMING OPTIONS AVAILABLE WITH 45" O.C. OR 80" O.C. MAXIMUM PURLIN SPACING.

*ALL OPTIONS AVAILABLE WITH MAXIMUM COLUMN SPACING OF 18'-0", 20'-0" & 27'-0".

*ALL 18'-0" AND 20'-0" COLUMN SPACING OPTIONS IN ALL WIDTHS ARE AVAILABLE IN A 20 psf SNOW LOAD OPTION.

*ALL OPTIONS INCLUDE OPTIONS FOR DRILLED PIERS AND SPREAD FOOTINGS.

20'-0" WIDE, 7.49° SLOPE
21'-0" WIDE, 7.49° SLOPE
24'-9" WIDE, 7.49° SLOPE
36'-8" WIDE, 7.49° SLOPE
38'-6" WIDE, 7.49° SLOPE
42'-6" WIDE, 7.49° SLOPE
18'-6" WIDE, 10° SLOPE
21'-1" WIDE, 10° SLOPE
24'-6" WIDE, 10° SLOPE
36'-0" WIDE, 10° SLOPE
38'-4" WIDE, 10° SLOPE
41'-10" WIDE, 10° SLOPE

STRUCTURAL DATA

LATERAL RESISTING SYSTEM.....CANTILEVERED COLUMN FOUNDATION.....PIER AND SPREAD FOOTING
MINIMUM REQUIRED SEISMIC SEPARATION.....8"
TESTING AND INSPECTION LIST.....SEE SHEETS S-3 & S-4
DESIGNED TO SUPPORT FIRE SPRINKLERS?.....CONDITIONAL
YES.....IF WEIGHT OF SPRINKLER SYSTEM COMBINED WITH SOLAR SYSTEM IS LESS THAN 3.15 psf
NO.....IF WEIGHT OF SPRINKLER SYSTEM COMBINED WITH SOLAR SYSTEM IS MORE THAN 3.15 psf

CODES

TITLE 24 CODES:
2013 CALIFORNIA ADMINISTRATIVE CODE (CAC)(PART 1, TITLE 24, CCR)
2013 CALIFORNIA BUILDING CODE (CBC), VOLUMES 1 AND 2.....(PART 2, TITLE 24, CCR)
(2012 INTERNATIONAL BUILDING CODE WITH 2013 CALIFORNIA AMENDMENTS)
2013 CALIFORNIA ELECTRICAL CODE(PART 3, TITLE 24, CCR)
(2011 NATIONAL ELECTRICAL CODE WITH 2013 CALIFORNIA AMENDMENTS)
2013 CALIFORNIA MECHANICAL CODE (CMC)(PART 4, TITLE 24, CCR)
(2012 UNIFORM MECHANICAL CODE WITH 2013 CALIFORNIA AMENDMENTS)
2013 CALIFORNIA PLUMBING CODE (CPC)(PART 5, TITLE 24, CCR)
(2012 UNIFORM PLUMBING CODE WITH 2013 CALIFORNIA AMENDMENTS)
2013 CALIFORNIA ENERGY CODE(PART 6, TITLE 24, CCR)
(2013 EDITION CALIFORNIA ENERGY COMMISSION BUILDING ENERGY EFFICIENCY STANDARDS)
2013 CALIFORNIA FIRE CODE (CFC)(PART 9, TITLE 24, CCR)
(2012 INTERNATIONAL FIRE CODE WITH 2013 CALIFORNIA AMENDMENTS)
2013 CALIFORNIA GREEN BUILDING STANDARDS CODE(PART 11, TITLE 24, CCR)
2013 CALIFORNIA REFERENCED STANDARDS CODE(PART 12, TITLE 24, CCR)

NFPA 13 - 2013
NFPA 72 - 2013

REFERENCE CODE SECTIONS FOR APPLICABLE STANDARDS:
2013 CBC, CHAPTER 35
2013 CFC, CHAPTER 47

OPTIONS SHEET INDEX

THE FOLLOWING CHART LISTS THE DRAWING SHEETS REQUIRED FOR EACH MAJOR OPTION. WHEN ONE OR MORE OF THE OPTIONS ARE CHOSEN THE LISTED REFERENCE SHEETS MUST BE INCLUDED IN THE SITE SPECIFIC DRAWING SET.

OPTIONS	SHEET
ALWAYS REQUIRED	S-1 THROUGH S-5; S-32 THROUGH S-37
T-STRUCTURE, R=1.25 Ss ≤ 1.7	S-6 THROUGH S-12
T-STRUCTURE, R=2.5 Ss ≤ 3.2	S-6, S-13 THROUGH S-18
T-STRUCTURE, R=1.25 Ss ≤ 3.2	S-6, S-18.1 THROUGH S-18.6
OFFSET T-STRUCTURE, R=1.25 Ss ≤ 1.7	S-19 THROUGH S-25
OFFSET T-STRUCTURE, R=2.5 Ss ≤ 3.2	S-19, S-26 THROUGH S-31
OFFSET T-STRUCTURE, R=1.25 Ss ≤ 3.2	S-19, S-31.1 THROUGH S-31.6
EQUIPMENT PAD	S-38
BRACED UNISTRUT EQUIPMENT RACK	S-39
TUBE STEEL EQUIPMENT RACK	S-40
UNISTRUT EQUIPMENT RACK	S-41
EQUIPMENT PAD ENCLOSURE	S-42 & S-43
PERIMETER FENCE	S-44
STANDARD ACCESSIBILITY DETAILS	S-45

GENERAL NOTES

- ALL WORK SHALL CONFORM TO TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)
- CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY ADDENDA OR CONSTRUCTION CHANGE DOCUMENTS APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.
- A 'DSA CERTIFIED' PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR).
- A 'DSA CERTIFIED' INSPECTOR WITH CLASS 2 CERTIFICATION IS REQUIRED FOR THIS PROJECT.
- A 'DSA CERTIFIED' INSPECTOR WHO IS SPECIFICALLY QUALIFIED IN MECHANICAL AND ELECTRICAL WORK WILL BE REQUIRED FOR THIS PROJECT. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE SCHOOL BOARD SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THE PROJECT.
- FOOD HANDLING FACILITIES SHALL COMPLY WITH ALL LOCAL HEALTH REQUIREMENTS AND CALIFORNIA UNIFORM RETAIL FOOD FACILITIES LAWS.
- SWIMMING POOL SHALL COMPLY WITH ALL LOCAL HEALTH DEPARTMENT REQUIREMENTS.
- DRINKING WATER WELL SHALL COMPLY WITH ALL LOCAL HEALTH DEPARTMENT REQUIREMENTS.
- GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.
- IF THE PROJECT IS DIVIDED INTO INCREMENTS: THE SCOPE OF WORK FOR EACH INCREMENT MUST BE CLEARLY SPECIFIED ON THE TITLE SHEET OF ALL INCREMENTS SUBMITTED.

FIRE LIFE SAFETY

AUTOMATIC FIRE SPRINKLERS REQUIRED? (Y/N).....N

DESIGN PARAMETERS

RISK CATEGORY II
ROOF LIVE LOAD (Lr):
WITH SOLAR PANELS INSTALLED: 0 psf (PER IR 16-8)
OPEN TRELLIS SYSTEM: 10 psf (PER IR 16-8)
POINT LOAD: 300 lb (PER IR 16-8)
MAX SNOW LOAD (GROUND) (S): 0 psf, 20 psf (SEE OPTIONS)

MAX DEAD LOAD:
SOLAR PANEL/RACKING/ELEC: 3.15 psf
PURLIN: 1.59 psf
ROOF DEAD LOAD TO BEAM (D): 4.74 psf MAX

WIND: DIRECTIONAL PROCEDURE
BASIC WIND SPEED: 110 mph (3 SECOND GUST)
WIND EXPOSURE: C
INTERNAL PRESSURE: N/A (OPEN STRUCTURE)
Kd=0.85
Kz=0.88
Kzt=1.00

SEISMIC:
SEISMIC IMPORTANCE FACTOR: 1.0
CRITERIA #1

SHORT SPECTRAL RESPONSE: Ss=1.700²
LONG SPECTRAL RESPONSE: S1=1.390²
SITE CLASS: D
SHORT SPECTRAL RESPONSE: Sps=1.133²
LONG SPECTRAL RESPONSE: Spt=1.390²
RESPONSE MODIFICATION FACTOR: R=1.25
SEISMIC RESPONSE COEFFICIENT: Cs=0.907²

DESIGN BASE SHEAR:
T-STRUCTURES: 8,257.9² lb MAX (VARIES DUE TO OPTIONS)
OFFSET T-STRUCTURES: 4,761.0² lb MAX (VARIES DUE TO OPTIONS)

CRITERIA #2
SHORT SPECTRAL RESPONSE: Ss=3.20²
LONG SPECTRAL RESPONSE: S1=1.390²
SITE CLASS: D
SHORT SPECTRAL RESPONSE: Sps=2.133²
LONG SPECTRAL RESPONSE: Spt=1.390²
RESPONSE MODIFICATION FACTOR: R=2.5
SEISMIC RESPONSE COEFFICIENT: Cs=0.853²

DESIGN BASE SHEAR:
T-STRUCTURES: 7,663.2² lb MAX (VARIES DUE TO OPTIONS)
OFFSET T-STRUCTURES: 4,888.3² lb MAX (VARIES DUE TO OPTIONS)

CRITERIA #3
SHORT SPECTRAL RESPONSE: Ss=3.20²
LONG SPECTRAL RESPONSE: S1=1.390²
SITE CLASS: D
SHORT SPECTRAL RESPONSE: Sps=2.133²
LONG SPECTRAL RESPONSE: Spt=1.390²
RESPONSE MODIFICATION FACTOR: R=1.25
SEISMIC RESPONSE COEFFICIENT: Cs=1.707²

DESIGN BASE SHEAR:
T-STRUCTURES: 15,544.3² lb MAX (VARIES DUE TO OPTIONS)
OFFSET T-STRUCTURES: 9,994.5² lb MAX (VARIES DUE TO OPTIONS)

SEISMIC DESIGN CATEGORY: E
SEISMIC FORCE RESISTING SYSTEM: CANTILEVERED COLUMN EQUIVALENT LATERAL FORCE

CRITERIA #4
SHORT SPECTRAL RESPONSE: Ss=1.0²
LONG SPECTRAL RESPONSE: S1=1.390²
SITE CLASS: D
SHORT SPECTRAL RESPONSE: Sps=0.733²
LONG SPECTRAL RESPONSE: Spt=1.390²
RESPONSE MODIFICATION FACTOR: R=1.25
SEISMIC RESPONSE COEFFICIENT: Cs=0.587²

DESIGN BASE SHEAR:
T-STRUCTURES: 6,159.6² lb MAX

NOTES:

¹ THIS PC'S WIND FORCE RESISTING SYSTEM IS DESIGNED TO qh = 23.24 psf, WHICH CORRESPONDS TO 110 mph EXPOSURE C WITH THE ABOVE USED Kz Kd AND Kzt. THIS PC MAY BE USED IN ANY WIND ZONE WITH qh ≤ 23.24 psf. FOR EXAMPLE: THIS PC MAY BE USED AT A SITE WITH 133 mph WIND EXPOSURE B WITH Kd = 0.85, Kz = 0.60 AND Kzt = 1.00 RESULTS IN qh = 23.20 psf.

² THIS PC'S SEISMIC FORCE RESISTING SYSTEM IS GOVERNED BY Cs = 0.907, Cs = 0.853, OR Cs = 1.707, DEPENDING ON THE DESIGN CRITERIA AS GIVEN ABOVE (FOR EXAMPLE: R = 1.25, Ss = 1.7 OR R=2.5, Ss = 3.2). THIS PC MAY BE USED AT ANY SITE SUCH THAT THE SITE SPECIFIC VALUE OF Cs IS LESS THAN THE Cs VALUE OF THE DESIRED CRITERIA SET (E.G. CRITERIA #2) WHILE USING EITHER R = 1.25 OR R = 2.5 WITH SITE SPECIFIC SEISMIC PARAMETERS. FOR EXAMPLE: Ss = 3.3, S1 = 1.4, R = 2.5 WITH SITE CLASS A WILL HAVE Cs = 0.704 < 0.853 THEREFORE CRITERIA #2 OF THE PC MAY BE USED AT THIS SITE.

BUILDING DATA

TYPE OF CONSTRUCTION.....IIB
OCCUPANCY.....S-2

NOTE: OCCUPANCIES OTHER THAN S-2 (OPEN PARKING AREAS) MAY BE UTILIZED AS LONG AS THEY CONFORM TO THE FOLLOWING:

- THE RISK CATEGORY OF THE STRUCTURE REMAINS RISK II PER THE 2013 CBC TABLE 1604A.5.
- THE OCCUPANCY IS DETERMINED TO MEET WITH THE 2013 CBC CHAPTER 3 AND ITS REQUIREMENTS.
- THE ALLOWABLE HEIGHT AND BUILDING AREA IS LIMITED TO THE REQUIREMENTS IN THE 2013 CBC TABLE 503, AND THE REQUIREMENTS OF THE 2013 CBC TABLE 1604A.5 TO REMAIN A CATEGORY II STRUCTURE.

NUMBER OF STORIES.....1
BUILDING AREAS.....UNLIMITED
(PER 2013 CBC SECTIONS 406.5.4 AND 406.5.5)

MODULE SIZES.....VARY WITH OPTIONS

BUILDING LENGTH:

18'-6" TO 42'-6" WIDTH.....MAX 500'-0" LENGTH

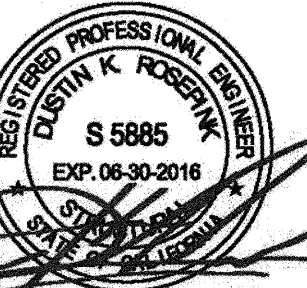
NOTE: NO SEISMIC AND/OR THERMAL EXPANSION JOINTS REQUIRED ALONG THE LENGTH OF THE STRUCTURES. (ALL JOINTS ARE INTERNAL)

PRE-CHECK (PC) DOCUMENT

CODE: 2013 CBC

A SEPARATE PROJECT APPLICATION FOR CONSTRUCTION IS REQUIRED

ENGINEER'S APPROVAL



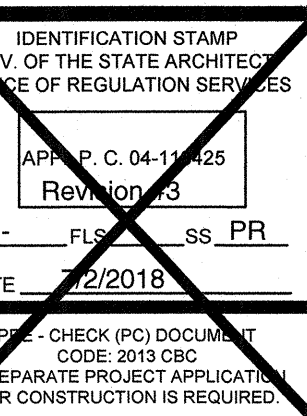
DATE SIGNED
December 23, 2015

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

A 03119250

AC / FLS / SS EY
DATE AUG 07 2018

SITE SPECIFIC
DSA APPROVAL



MBARC CONSTRUCTION INC.
674 RANCHEROS DR
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FAX: (949) 388-3773

PHOTOVOLTAIC STRUCTURES COVER SHEET 2

DRAWN MAP
CHECKED DKR
DATE 8/18/2018
ASTEL JOB NO. 13-1010
SHEET S-2
2 OF 46 SHEETS

SOILS NOTES:

1. IF NO GEOTECHNICAL REPORT IS SUPPLIED AT THE TIME OF DSA REVIEW ADDRESSING SITE-SPECIFIC PARAMETERS, FOUNDATION SELECTIONS SHALL BE BASED ON CLASS W SOILS (SOIL CLASS 5 OF CBC TABLE 1806A.2 WITH DOUBLING OF LATERAL BEARING PRESSURE FOR STRUCTURES NOT ADVERSELY AFFECTED BY 1/2" MOTION AT GROUND SURFACE) IN THE SOIL CLASS TABLE BELOW.

2. WHEN A GEOTECHNICAL REPORT IS SUPPLIED, THE GEOTECHNICAL ENGINEER SHALL REVIEW THE SITE CONDITIONS AND SUPPLY THE FINAL SOILS CLASS TO BE USED FROM THE BELOW TABLE. IN MAKING A SELECTION OF THE APPROPRIATE SOILS CLASS, THE GEOTECHNICAL ENGINEER SHOULD TAKE INTO CONSIDERATION: ANY AND ALL ALLOWED INCREASES, BASIS OF DEPTH CALCULATION, ACTUAL LOADING CONDITIONS, AND SITE CONDITIONS. THESE CONSIDERATIONS INCLUDE BUT ARE NOT LIMITED TO:

A. ALLOWABLE LATERAL BEARING PRESSURE MAY BE DOUBLED DUE TO THE STRUCTURES NOT BEING ADVERSELY AFFECTED BY 1/2" MOTION AT THE GROUND SURFACE DUE TO SHORT-TERM LATERAL LOADS PER 2013 CBC 1806A.3.4.

B. ALLOWABLE LATERAL BEARING PRESSURE MAY BE CONSIDERED TO ACT OVER AN AREA EQUAL TO TWO TIMES THE PIER DIAMETER DUE TO LARGE PIER SPACING. IF THIS IS ALLOWED, THE ALLOWABLE LATERAL BEARING PRESSURE MAY BE DOUBLED, ACTING OVER THE ACTUAL PIER DIAMETER.

C. THE GEOTECHNICAL REPORT SHALL SPECIFY WHETHER THE INCREASES TO ALLOWABLE LATERAL BEARING PRESSURE FOR 1/2" MOTION AT GROUND SURFACE AND FOR INCREASED PIER SPACING MAY BE APPLIED AT THE SAME TIME.

D. THE SOILS CLASSES IN THE CHART BELOW REFLECT THE BASE VALUES USED IN THE CALCULATIONS TO DETERMINE THE REQUIRED FOUNDATION DEPTHS.

E. THE FOUNDATION DEPTHS SHOWN ON SHEETS S-8, S-10, S-14, S-16, S-18.2, S-18.4, S-21, S-23, S-27, S-29, S-31.2 AND S-31.4, REFLECT THE GOVERNING DEPTH REQUIREMENT DUE TO EITHER LATERAL LOAD OR VERTICAL LOAD.

F. FOR LATERAL LOADING, THE FOUNDATION DEPTHS SHOWN ON SHEETS S-8, S-10, S-14, S-16, S-18.2, S-18.4, S-21, S-23, S-27, S-29, S-31.2 AND S-31.4, UTILIZE THE LATERAL BEARING PRESSURES FROM THE BELOW SOIL CLASS CHART, WHICH HAVE BEEN INCREASED BY 33% FOR SHORT DURATION LOADS USING ALTERNATIVE ASD LOAD COMBINATIONS PER 2013 CBC 1806A.1.

G. FOR VERTICAL LOADING, THE FOUNDATION DEPTHS SHOWN ON SHEETS S-8, S-14, S-18.2, S-18.4, S-21, S-27, S-31.2 AND S-31.4 ARE DESIGNED BASED ON EITHER END BEARING OR SKIN FRICTION, WHERE SKIN FRICTION HAS BEEN BASED ON 2013 CBC 1810A.3.3.1.4 (I.E. SKIN FRICTION BASED ON 1/6 THE VALUE OF END BEARING, AND END BEARING AND SKIN FRICTION NOT BEING COMBINED).

H. THE GOVERNING LOAD COMBINATIONS FOR FOUNDATION DESIGN ARE SHOWN ON SHEETS S-7, S-13, S- 18.1, S-20, S-26 AND S-31.1. IF THE GEOTECHNICAL REPORT USES LOADS FROM THE CHART, A CCD SHALL BE PROCESSED THROUGH DSA TO USE ALTERNATIVE FOUNDATION DEPTHS GIVEN IN THE GEOTECHNICAL REPORT.

I. FOR SITES WITH HIGH GROUND WATER AND/OR POTENTIAL CAVING ISSUES DURING EXCAVATION, THE GEOTECHNICAL REPORT SHALL INCLUDE ALTERNATIVE SKIN FRICTION OR VERTICAL BEARING VALUES FOR PIERS UTILIZING STEEL CASING.

3. THE GEOTECHNICAL ENGINEER MAY SPECIFY DIFFERENT SOILS CLASSES TO BE USED FOR THE DIFFERENT STRUCTURE TYPES (T OR OT), DIFFERENT AREAS OF THE SITE (I.E. NORTH LOT OR WEST LOT), OR THE ENGINEER MAY SPECIFY ONE SOILS CLASS TO BE USED FOR THE ENTIRE SITE.

4. THE GEOTECHNICAL ENGINEER SHALL ADDRESS IN THE REPORT ANY CONCRETE DURABILITY REQUIREMENTS IN ACCORDANCE WITH ACI 318-11 CHAPTER 4.

5. THE GEOTECHNICAL REPORT SHALL BE SPECIFIC TO THE LOCATION OF THE PHOTOVOLTAIC STRUCTURES. BORING(S) SHALL BE DONE AT THE SPECIFIC LOCATION(S) WHERE THE PHOTOVOLTAIC STRUCTURES ARE TO OCCUR. THE GEOTECHNICAL REPORT SHALL CONFORM TO 2013 CBC SECTION 1803A.

6. A COPY OF THE GEOTECHNICAL REPORT SHALL BE PROVIDED AT THE TIME OF PLAN REVIEW.

7. AT THE TIME OF PLAN REVIEW, THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE SHALL SELECT A SOILS CLASS ON THE SITE-SPECIFIC PLANS BASED ON THE GEOTECHNICAL REPORT (OR NOTE 1 ABOVE).
- ALLOWABLE VERTICAL AND LATERAL BEARING
- | SOILS CLASS | ALLOWABLE VERTICAL BEARING PERSSURE (psf) | ALLOWABLE LATERAL BEARING (psf/ft BELOW NATURAL GRADE) |
|-------------|---|--|
| CLASS V | 1500 | 100 |
| CLASS W | 1500 | 200 |
| CLASS X | 2000 | 300 |
| CLASS Y | 2000 | 400 |
| CLASS Z | 3000 | 600 |
- SPECIAL INSPECTION
1. SOILS:

- VERIFY THE SITE HAS BEEN PREPARED PROPERLY PRIOR TO PLACEMENT OF CONTROLLED FILL AND/OR EXCAVATIONS FOR FOUNDATIONS.

- VERIFY THAT THE FOUNDATION EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.

- VERIFY THAT MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.

2. PIER FOUNDATIONS:

- INSPECT DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH PIER.

- VERIFY LOCATIONS OF PIERS.

3. CONCRETE:

- VERIFY USE OF REQUIRED DESIGN MIX, DETERMINE THE TEMPERATURE OF THE CONCRETE, AND (WHERE REQUIRED) PERFORM AIR CONTENT TEST.

- TEST CONCRETE (COMPRESSION TEST).

- INSPECT PLACEMENT OF FORMWORK, REINFORCING STEEL, EMBEDDED ITEMS, AND CONCRETE. INSPECT CURING AND FORM REMOVAL.

- INSPECT INSTALLATION OF POST-INSTALLED ANCHORS.

- TEST POST-INSTALLED ANCHORS PER 2013 CBC 1913A.

- ALL 1/2" Ø HILTI STAINLESS STEEL KB-TZ BOLTS TO BE INSTALLED TO 40 FT-LB OF TORQUE. ALL 3/8" Ø HILTI STAINLESS STEEL KB-TZ BOLTS TO BE INSTALLED TO 60 FT-LB OF TORQUE. ALL 3/4" Ø HILTI STAINLESS STEEL KB-TZ BOLTS TO BE INSTALLED TO 110 FT-LB OF TORQUE. AT LEAST 50% OF THE INSTALLED ANCHORS SHALL BE TESTED.

- SLUMP TEST SHALL BE PERFORMED PER SITE SPECIFIC DSA-103

4. STEEL:

- VERIFY THAT ALL MATERIALS ARE APPROPRIATELY MARKED AND THAT:

- MILL CERTIFICATES INDICATE MATERIAL PROPERTIES THAT COMPLY WITH REQUIREMENTS.

- MATERIAL SIZES, TYPES AND GRADES COMPLY WITH REQUIREMENTS.

- TEST UNIDENTIFIED MATERIALS.

- VERIFY MEMBER LOCATIONS, BRACING AND ALL DETAILS CONSTRUCTED IN THE FIELD.

- VERIFY STIFFENER LOCATIONS, CONNECTION TAB LOCATIONS, AND ALL CONSTRUCTION DETAILS FABRICATED IN THE SHOP.

- VERIFY WELD FILLER MATERIAL IDENTIFICATION MARKINGS PER AWS DESIGNATION LISTED ON THE DSA APPROVED DOCUMENTS AND THE WPS.

- VERIFY WELD FILLER MATERIAL MANUFACTURER'S CERTIFICATE OF COMPLIANCE.

- VERIFY WPS, WELDER QUALIFICATIONS, AND EQUIPMENT.

- INSPECT GROOVE, MULTI-PASS, AND FILLET WELDS > 5/16" (BOTH SHOP AND FIELD WELDS).

5. SHOP FABRICATION:

- VERIFY FABRICATOR'S FABRICATION AND QUALITY CONTROL PROCEDURES.

- VERIFY ALL ASPECTS OF SHOP FABRICATION INCLUDING MEMBER LOCATIONS, DIMENSIONAL LAYOUT OF ALL PARTS AND PIECES, ALL WELDING, BOLTING, ETC.

6. SEE DSA APPROVED 103 FOR ADDITIONAL REQUIREMENTS.
- GENERAL NOTES:
1. DESIGN PER 2013 C.B.C. AND ITS PRESCRIBED LOADING AND MATERIAL SPECIFICATIONS:

- ASCE 7-10

- 14TH EDITION AISC STEEL MANUAL

- 2007 AISI COLD FORMED STEEL STANDARD

- ACI 318-11

2. THESE STRUCTURES ARE NOT DESIGNED TO BE, NOR SHALL THEY BE, ENCLOSED.

3. ALL DIMENSIONS, CONDITIONS, AND ELEVATIONS ARE TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING WORK OR FABRICATION. IF ANY DISCREPANCIES ARE FOUND OR IF ANY CONDITION EXISTS NOT AS SHOWN ON THE DRAWINGS THE DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE SHALL BE NOTIFIED IMMEDIATELY.

4. IF THE SNOW LOAD OPTION IS USED THEN THE SITE-SPECIFIC MAX GROUND SNOW LOADING INCLUDING DRIFT MUST BE LESS THAN OR EQUAL TO 20 PSF.

5. NO FUTURE STRUCTURAL ROOF DECK OR SHEATHING MAY BE APPLIED TO THE OPEN GRID.

6. THE ALLOWABLE MAXIMUM PSF ALLOWED FOR THE SOLAR PANEL, ELECTRICAL, AND OTHER NON-STRUCTURAL ITEMS IS 3.15 PSF.

7. ALL SCREWS OTHER THAN THE SOLAR PANEL CLIP SCREW TO BE ITW BUILDX TEK SCREWS PER ICC ESR-1976 OR ELCO DRIL SCREW PER ICC-ESR# 3294.

8. SOLAR PANEL ATTACHMENT CLIPS AND SOLAR FIT SYSTEM DO NOT HAVE SPECIAL INSPECTIONS REQUIREMENTS NOR DO THEY REQUIRE INSPECTION OR VERIFICATION BY THE TESTING INSPECTION LAB OR IOR.
- IFORCE CLIP AND SCREW NOTES:
- NOTES BELOW PERTAIN TO THE IFORCE SOLAR CLIP INSTALLATION. SOLAR PANEL CLIPS, WHEN USED, THE PROJECT INSPECTOR SHALL INSPECT THE INSTALLATION OF THE CLIP (NOT THE PHYSICAL CLIP).

1. SCREWS USED TO ATTACH THE SOLAR PANELS (I.E. SOLAR PANEL CLIP SCREW) - THE ONLY APPROVED SCREWS THAT WILL BE ACCEPTED FOR SOLAR PANEL CLIP IS THE ITW BUILDX TEKs SELECT #12 SCREW PER CITY OF LOS ANGELES RR 25915 AND PER ICC ESR 3223 OR DRIL-FLEX SCREW PER ICC-ESR# 3332. NO SUBSTITUTES WILL BE ACCEPTED.

2. TO ENSURE ALL REQUIREMENTS OF ICC-ESR-3223 OR ICC-ESR# 3332 AND SPECIFICATIONS ON THESE PLANS HAVE BEEN MET, FORMAL SUBMITTALS ARE REQUIRED TO BE APPROVED BY THE DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FOR:

- THE SOLAR PANEL CLIP

- SOLAR PANEL CNR SCREW

- THE SCREW GUN USED TO INSTALL THE SOLAR PANEL CLIP

3. SOLAR PANEL CLIP TO HAVE A SHOP DRAWING SUBMITTED FOR SIZE. THE MINIMUM GRIP HEIGHT IS 1/4" LESS THAN THE SOLAR PANEL HEIGHT; THE MAXIMUM GRIP HEIGHT IS 1/8" LESS THAN THE SOLAR PANEL HEIGHT.

4. SOLAR PANEL CLIP INSTALLATION LOCATION ON PANEL TO BE VERIFIED WITH MANUFACTURER FOR WARRANTY CONFORMANCE.

5. FORMAL SUBMITTALS ARE REQUIRED TO BE APPROVED BY THE DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FOR:

- A WRITTEN DESCRIPTION DETAILING THE PROPOSED SOLAR PANEL INSTALLATION PROCEDURE

- SOLAR PANEL CLIP

- SCREW INSTALLATION PROCEDURE

6. THE IOR NEEDS TO BE PRESENT AT THE START OF INSTALLATION OF THE SOLAR PANEL CLIP SCREWS TO PROPERLY DETERMINE THE PROPER CLUTCH SETTING ON THE SCREW GUNS IS BEING UTILIZED, AND CONFORMANCE TO ICC ESR-3223 OR ICC-ESR# 3332. IT IS RECOMMENDED, BUT NOT REQUIRED, THAT SOME SAMPLE PURLIN MATERIAL BE USED TO DO SOME TEST INSTALLS ON THE GROUND PRIOR TO THE IN AIR INSTALLATION. THIS WILL MAKE DETERMINING THE CORRECT CLUTCH SETTING EASIER.

7. THE IOR IS REQUIRED TO PERIODICALLY INSPECT THE INSTALLATION OF THE SOLAR PANEL CLIPS TO ENSURE THE INSTALLATION MEETS WITH THE WRITTEN DESCRIPTION OF INSTALLATION AS APPROVED THROUGH THE SUBMITTAL PROCESS AND TO VERIFY THE PROPER SCREW GUN SETTINGS ARE BEING UTILIZED.

8. THE IOR NEEDS TO PERFORM AN END OF PROJECT INSPECTION OF EACH CANOPY FROM A LIFT TO VERIFY ALL CLIPS HAVE BEEN INSTALLED AND THAT THERE ARE NO MISSING CLIPS.
- STEEL NOTES
1. COLD FORMED STEEL SIZES ARE BASED ON GAUGE THICKNESS.

2. PURLINS, BEAMS, POSTS (FRAMING MEMBERS) HAVE MIN. YIELD STRENGTHS AS INDICATED.

3. ZINC COATED CONFORMANCE WITH G60 STANDARD OR BETTER. COLD FORM MEMBERS TO BE GALVANIZED IN ACCORDANCE WITH ASTM A653. TUBE STEEL MEMBERS AND PLATES IN ACCORDANCE WITH AST A123.

4. FASTENERS SHALL BE GALVANIZED, CADMIUM PLATED, OR ZINC COATED.

5. ALL STEEL FABRICATION SHALL COMPLY WITH LATEST AISC SPECIFICATIONS.

6. ALL WELDING SHALL COMPLY WITH THE LATEST AWS D1.1. ALL WELD FILLER MATERIAL SHALL HAVE A MINIMUM CHARPY V-NOTCH (CVN) VALUE OF 20 FT-LBS AT A TEMPERATURE OF -20DEG F

7. ALL BOLTS TO MEET OR EXCEED ASTM A307. NO BOLTING INSPECTIONS REQUIRED.

8. ALL PLATES AND ANGLES TO BE ASTM A36 U.N.O.

9. ALL STRUCTURAL TUBING TO BE ASTM A1085 U.N.O.

10. ALL PURLINS TO BE ASTM A653 GR. 55

11. REPAIR ANY DAMAGED GALVANIZATION AFTER FIELD WELDS WITH AN APPROVED REPAIR METHOD.

12. ALL MEMBERS TO BE GALVANIZED OR PRIMED AND PAINTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. ALL CONTRACT DOCUMENTS SHALL SPECIFY THE TYPE OF SSPC CORROSION RESISTING SYSTEM TO BE UTILIZED AND THE SSPC GRADE FOR CLEANING, MINIMUM SSPC GRADE SP2

13. ALL BEAM TO COLUMN CONNECTIONS TO MEET WITH DETAILS 3 OR 4/S-12, 3 OR 4/S-18, 3 OR 4/S-18.6, 3 OR 4/S-25, 3 OR 4/S-31, 3 OR 4/S-31.6 FOR CORROSION PROTECTION

14. ALL A307 BOLTS MAY BE SUBSTITUTED WITH THE SAME QUANTITY OF SAE J429 GRADE 2 BOLTS OF THE SAME DIAMETER.

15. A1085 STEEL HAS SAME OR BETTER PROPERTIES AND WELDABILITY THAN A500 GR. B

16. BOLT HOLES FOR 1/2" DIAMETER BOLTS SHALL BE AS FOLLOWS: 9/16" DIAMETER FOR STANDARD HOLES; 9/16" X 11/16" FOR SHORT SLOTTED HOLES.
- CONCRETE NOTES:
1. CONCRETE MIN. 3000 psi AT 28 DAYS. (NOTE: DESIGN BASED ON 3000 psi) IF 3500 psi OR GREATER IS UTILIZED, CONTINUOUS BATCH PLANT INSPECTION MAY BE WAIVED PER 2013 CBC 1705A.3.3 AND PERIODIC INSPECTION SHALL COMPLY WITH NOTE 10.

2. CONCRETE TO REACH 1000 psi PRIOR TO REMOVAL OF SHORING AND/OR INSTALLATION OF BEAMS AND PURLINS. (NOTE: A HIGHER COMPRESSIVE CONCRETE MAY BE USED TO ACHIEVE 1000 psi SOONER. SUBMIT AN APPROVED CONCRETE MIX DESIGN TO JUSTIFY)

3. CONCRETE TO REACH 3000 psi PRIOR TO INSTALLATION OF SOLAR PANELS. (NOTE: A HIGHER COMPRESSIVE CONCRETE MAY BE USED TO ACHIEVE 3000 psi SOONER. SUBMIT AN APPROVED CONCRETE MIX DESIGN TO JUSTIFY)

4. REINFORCEMENT BARS SHALL BE ASTM A615, GR60. MINIMUM U.N.O.

5. MINIMUM CONCRETE COVER SHALL BE 2 1/2" TO EARTH (DRILLED PIER FOUNDATIONS ONLY), 3" TO EARTH ALL OTHER CONCRETE, 2" TO SKY. PER CBC TABLE 1808A.8.2

6. ALL REINFORCING STEEL AND OTHER EMBEDDED ITEMS SHALL BE SECURELY POSITIONED PRIOR TO THE POURING OF CONCRETE.

7. ALL CONCRETE WORK SHALL COMPLY WITH ACI 301 & 318 LATEST EDITION.

8. AGGREGATE GRADATION AND QUALITY SHALL BE IN ACCORDANCE WITH ACI 302-IR.

9. COLD JOINTS SHALL HAVE A ROUGHENED SURFACE. BONDING AGENT SHALL COMPLY WITH ASTM C1059. A SUBMITTAL FOR CONCRETE BONDING AGENT SHALL BE APPROVED BY DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO INSTALLATION. DSA INSPECTOR OF RECORD TO PERIODICALLY INSPECT INSTALLATION OF BONDING AGENT.

10. WHEN CONTINUOUS BATCH PLANT INSPECTION IS WAIVED, THE FOLLOWING PERIODIC INSPECTION REQUIREMENTS SHALL APPLY:

- QUALIFIED TECHNICIAN OF THE TESTING LABORATORY SHALL CHECK THE FIRST BATCH AT THE START OF THE DAY.

- LICENSED WEIGHMASTER TO POSITIVELY IDENTIFY MATERIALS AS TO QUANTITY AND CERTIFY TO EACH LOAD BY A BATCH TICKET.

- BATCH TICKETS, INCLUDING MATERIAL QUANTITIES AND WEIGHTS SHALL ACCOMPANY THE LOAD, SHALL BE TRANSMITTED TO THE INSPECTOR OF RECORD BY A TRUCK DRIVER WITH LOAD IDENTIFIED THEREON. THE LOAD SHALL NOT BE PLACED WITHOUT A BATCH TICKET IDENTIFYING THE MIX. THE INSPECTOR WILL KEEP A DAILY RECORD OF PLACEMENTS, IDENTIFYING EACH TRUCK, ITS LOAD, AND TIME OF RECEIPT, AND APPROXIMATE LOCATION OF DEPOSIT IN THE STRUCTURE AND WILL TRANSMIT A COPY OF THE DAILY RECORD TO THE ENFORCEMENT AGENCY.

11. CONCRETE MAY BE PUMPED, POURED, TREMIED, TAILGATED, FUNNELED OR OTHER SUCH METHODS INTO PLACE. CONCRETE SHALL BE ALLOWED TO FREE FALL THE ENTIRE DEPTH OF THE FOUNDATION. PLACEMENT OF ANY FREE-FALL CONCRETE SHALL BE SUCH THAT THE CONCRETE DOES NOT ALTER THE EMBEDMENT DEPTH OR THE CLEARANCE OF THE REINFORCING BAR CAGE OR OTHER EMBEDDED MATERIALS.
- ENGINEER'S APPROVAL
-
- 7/22/15
- DATE SIGNED
MMMM DD, 2015
- IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
- A03119250
- AC / FLS / SS / EY
DATE AUG 07 2018
- SITE SPECIFIC
DSA APPROVAL
- IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
- APP. P. C. 04-11-225
- AC / FLS / SS / EY
DATE AUG 07 2018
- FOR CHECK (PC) DOCUMENT
CODE: 2013 CBC
SEPARATE PROJECT APPLICATION
FOR CONSTRUCTION IS REQUIRED.
- MBARC

CONSTRUCTION

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B AND CS1
- 4

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- PHOTOVOLTAIC
STRUCTURES
GENERAL NOTE
SPECIFICATIONS
- DRAWN
MAP

CHECKED
DKR

DATE
5/29/15

4STEEL JOB NO.
13-1010

SHEET
S-3

3 OF 46 SHEETS

STRUCTURES WITH ONLY PIER FOOTINGS
WITH OUT POST INSTALLED ANCHORS

2. **Bolt Loading and Inspection:** Special Inspection Verified Report - Form DBA-093

3. **All Structures Tasting:** Laboratory Verified Report - Form DBA-091

4. **Concrete Batch Plant Inspection:** Special Inspection Verified Report - Form DBA-092

5. **Shoe Welding Inspection:** Special Inspection Verified Report - Form DBA-092

6. **Press Welding Inspection:** Special Inspection Verified Report - Form DBA-092

STRUCTURES WITH PIER & SPREAD FOOTINGS WITH OUT POST INSTALLED ANCHORS

1. Soils Testing and Inspection: Geotechnical Vialled Report - Form GSA-293

STRUCTURES WITH ONLY PIER FOOTINGS WITH POST INSTALLED ANCHORS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1. Sole testing and inspection: Comprehensive Visual Report - Form DSA-253 2. At Atmospheric Testing Laboratory Visual Report - Form DSA-251 3. Corrosion Bath Plating Inspection: Special Inspection Visual Report - Form DSA-262 4. Stress Welding Inspection: Special Inspection Visual Report - Form DSA-280 5. Field Welding Inspection: Special Inspection Visual Report - Form DSA-292																																																																																																			

STRUCTURES WITH PIER & SPREAD FOOTINGS WITH POST INSTALLED ANCHORS

28. [FORGE PANEL CLIP INSTALLATION]	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE	REMARKS
1	Soils testing and inspection, Geotechnical Vertical Report - Pallet DSA-213					
2	At Atmosphere Testing, Laboratory Vertical Report - Form DSA-291					
3	Concrete Beam Pile Inspection: Special Inspection Vertical Report - Form DSA-212					
4	Shap Welding Inspection: Special Inspection Vertical Report - Form DSA-260					
5	Field Welding Inspection: Special Inspection Vertical Report - Form DSA-262					

STRUCTURES WITH ONLY SPREAD FOOTINGS WITH POST INSTALLED ANCHORS

5. Gas Infrared and Inertness: Gas/chemical Viallet Report - Form DSA-293

STRUCTURES WITH ONLY SPREAD FOOTINGS WITH OUT POST INSTALLED ANCHORS

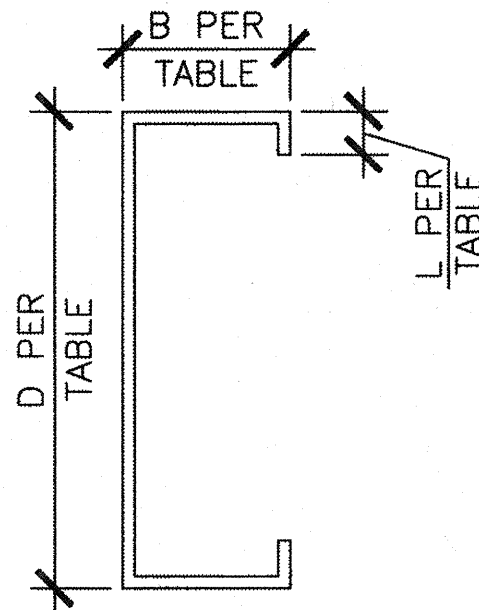
ILLUSTRATION PURPOSES ONLY TO ASSIST IN THE COMPLETION OF FUTURE PROJECT-SPECIFIC FORM DSA-103'S. A FORM DSA-103 IS TO BE COMPLETED FOR EACH APPLICATION THAT THIS PC IS BEING INCORPORATED INTO AND ALL EXAMPLE FORM DSA-103'S ARE TO

PHOTOVOLTAIC
STRUCTURES
SAMPLE
DSA-103 FORMS

**DRAWN
MAP
CHECKED
DKR
DATE
6/25/14
4STEL JOB NO.
13-1010
SHEET
S-4
4 OF 45 SHEETS**

SECTION NAME	D (in)	B (in)	L (in)	GA	WT (lb/ft)	A (in ²)	AXIS X-X			AXIS Y-Y		
							lx (in4)	Sxe (in3)	rx (in)	ly (in4)	Sy (in3)	ry (in)
C 8 x 4 14 GA	8	4.0	0.750	14	4.007	1.179	12.440	2.259	3.25	2.453	0.889	1.443
C 8 x 4 12 GA	8	4.0	0.750	12	5.950	1.750	18.270	3.687	3.23	3.554	1.289	1.425
C 10 x 4 14 GA	10	4.0	0.831	14	4.522	1.330	20.940	2.923	3.97	2.726	0.953	1.432
C 10 x 4 12 GA	10	4.0	0.916	12	6.783	1.995	31.138	5.242	3.95	4.093	1.444	1.433

ALL PURLINS ARE ASTM A653, GR 55, F_y=55 ksi
ALL LIGHT GAGE STEEL DESIGNED USING 2007 AISI COLD-FORMED STEEL DESIGN MANUAL.
PROPERTIES PER A.E.P. STANDARD SIZES.
ACTUAL MANUFACTURER'S PROPERTIES MUST MEET OR EXCEED A.E.P. STANDARD PROPERTIES.

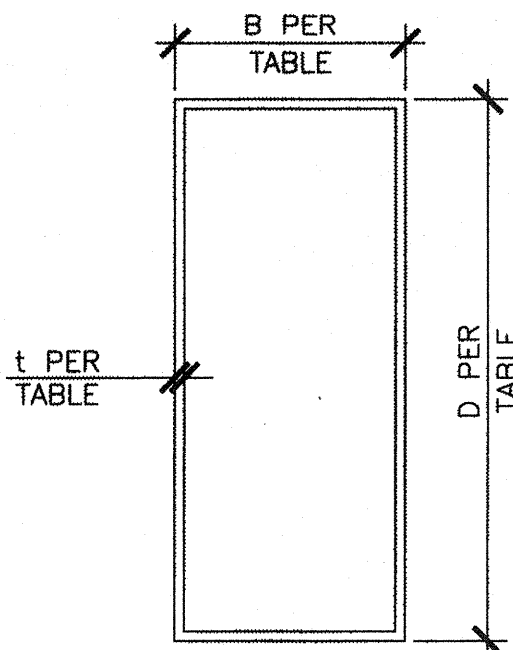


1 PURLIN DETAIL

SCALE: 3" = 1'-0"

SECTION NAME	D (in)	B (in)	t (in)	WEIGHT (lb/ft)	A (in ²)	AXIS X-X			AXIS Y-Y		
						lx (in4)	Sx (in3)	rx (in)	ly (in4)	Sy (in3)	ry (in)
HSS8x8x1/2	8	8	1/2	48.85	14.40	131.0	32.8	3.02	131.0	32.8	3.02
HSS8x8x5/8	8	8	5/8	59.32	17.40	153.0	38.2	2.97	153.0	38.2	2.97
HSS10x8x5/8	10	8	5/8	67.82	19.90	266.0	53.2	3.66	187.0	46.8	3.07
HSS10x10x5/8	10	10	5/8	76.33	22.40	321.0	64.2	3.79	321.0	64.2	3.79
HSS10x10x3/4	10	10	3/4	89.50	26.30	364.0	72.8	3.72	364.0	72.8	3.72
HSS12x8x3/16	12	8	3/16	24.73	7.29	151.0	25.2	4.55	81.3	20.3	3.34
HSS12x8x1/4	12	8	1/4	32.63	9.59	196.0	32.7	4.52	105.0	26.2	3.31
HSS12x8x5/16	12	8	5/16	40.35	11.90	239.0	39.8	4.48	128.0	32.0	3.28
HSS12x8x3/8	12	8	3/8	47.90	14.10	279.0	46.5	4.45	149.0	37.2	3.25
HSS12x8x1/2	12	8	1/2	62.46	18.40	353.0	58.8	4.38	188.0	47.0	3.20
HSS12x8x5/8	12	8	5/8	76.33	22.40	419.0	69.8	4.32	221.0	55.2	3.14
HSS14x6x3/16	14	6	3/16	24.73	7.29	182.0	26.0	5.00	49.2	16.4	2.60
HSS14x6x1/4	14	6	1/4	32.63	9.59	237.0	33.9	4.97	63.4	21.1	2.57
HSS14x6x5/16	14	6	5/16	40.35	11.90	289.0	41.3	4.93	76.9	25.6	2.54
HSS14x6x3/8	14	6	3/8	47.90	14.10	337.0	48.1	4.89	89.1	29.7	2.51
HSS14x6x1/2	14	6	1/2	62.46	18.40	426.0	60.9	4.81	111.0	37.0	2.46
HSS14x6x5/8	14	6	5/8	76.33	22.40	504.0	72.0	4.74	130.0	43.3	2.41
HSS14x10x1/4	14	10	1/4	39.43	11.60	331.0	47.3	5.34	198.0	39.6	4.13
HSS14x10x5/16	14	10	5/16	48.86	14.40	406.0	58.0	5.31	242.0	48.4	4.10
HSS14x10x3/8	14	10	3/8	58.10	17.10	476.0	68.0	5.28	284.0	56.8	4.08
HSS14x10x1/2	14	10	1/2	76.07	22.40	608.0	86.9	5.21	361.0	72.2	4.01
HSS14x10x5/8	14	10	5/8	93.34	27.40	728.0	104.0	5.15	431.0	86.2	3.97

ALL BEAMS AND COLUMNS ARE ASTM A1085, F_y=50 ksi

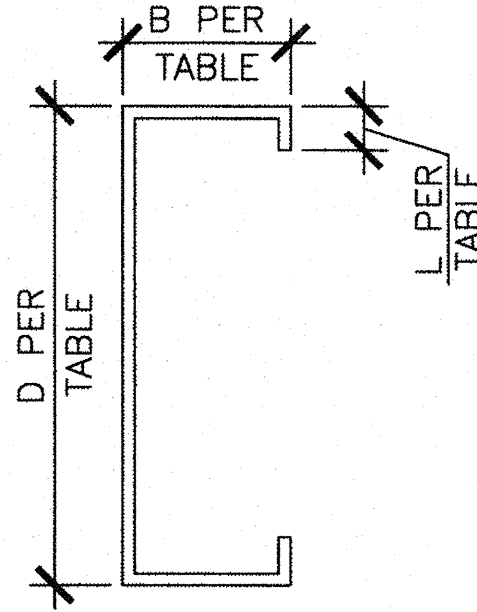


2 HSS DETAIL

SCALE: 3" = 1'-0"

SECTION NAME	D (in)	B (in)	L (in)	GA	WT (lb/ft)	A (in ²)	AXIS X-X			AXIS Y-Y		
							lx (in4)	Sxe (in3)	rx (in)	ly (in4)	Sy (in3)	ry (in)
C 6 x 2.5 16 GA	6	2.5	0.805	16	2.41	0.444	3.990	1.173	2.374	0.626	0.369	0.940

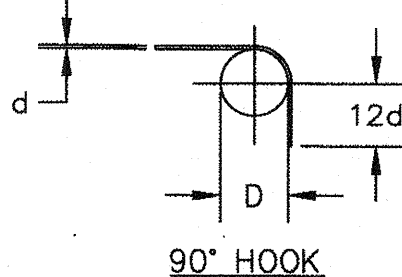
ALL BLOCKING SECTIONS ARE ASTM A653, GR 55, F_y=55 ksi
ALL LIGHT GAGE STEEL DESIGNED USING 2007 AISI COLD-FORMED STEEL DESIGN MANUAL.
PROPERTIES PER A.E.P. STANDARD SIZES.
ACTUAL MANUFACTURER'S PROPERTIES MUST MEET OR EXCEED A.E.P. STANDARD PROPERTIES.



4 BLOCKING DETAIL

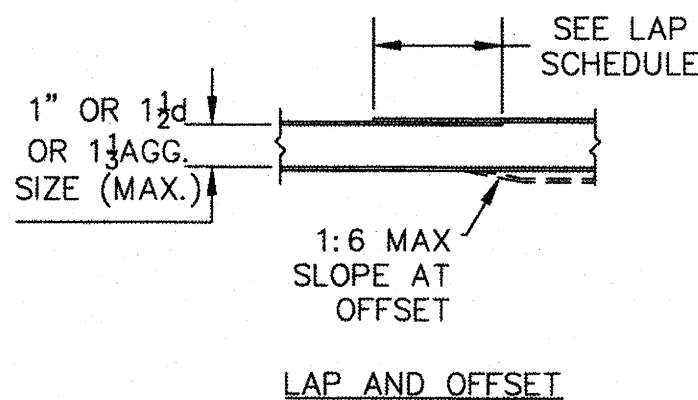
SCALE: 6" = 1'-0"

BEND SCHEDULE	
BAR SIZES	D
#3 THRU #8	6d
#9 THRU #11	8d
#14 THRU #18	10d



LAP SCHEDULE			
BAR SIZES	TOP BARS	OTHER BARS	ALL BARS
#3	21"	15"	24"
#4	29"	20"	26"
#5	36"	26"	32"
#6	46"	33"	28"
#7	63"	45"	44"
#8	82"	59"	-
#9	104"	74"	-
#10	132"	95"	-
#11	168"	116"	-

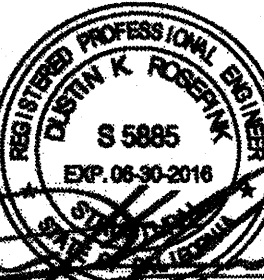
- NOTES:
- THESE LENGTHS SHALL BE USED UNLESS SPECIFICALLY DETAILED OTHERWISE.
 - TOP BARS ARE BARS LOCATED ≥12" FROM BOTTOM. OTHER BARS ARE BARS LOCATED WITHIN 12" FROM BOTTOM. THE LAP FOR ALL BARS SHALL BE USED IF ALL THE BARS TERMINATE WITHIN THE SAME LAP LENGTH.



5 TYPICAL REINFORCEMENT BAR BENDS AND LAPS

SCALE: N.T.S.

ENGINEER'S
APPROVAL



7/22/15

DATE SIGNED
MMMM DD, 2015

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

A 03119250

AC ☒ FLS ☒ SS ☒ EY
DATE AUG 07 2018

SITE SPECIFIC
DSA APPROVAL

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OFFICE OF REGULATION SERVICES

APP. P. C. 04-11-11-25

AC ☒ FLS ☒ SS ☒ EY
DATE JUL 28 2015

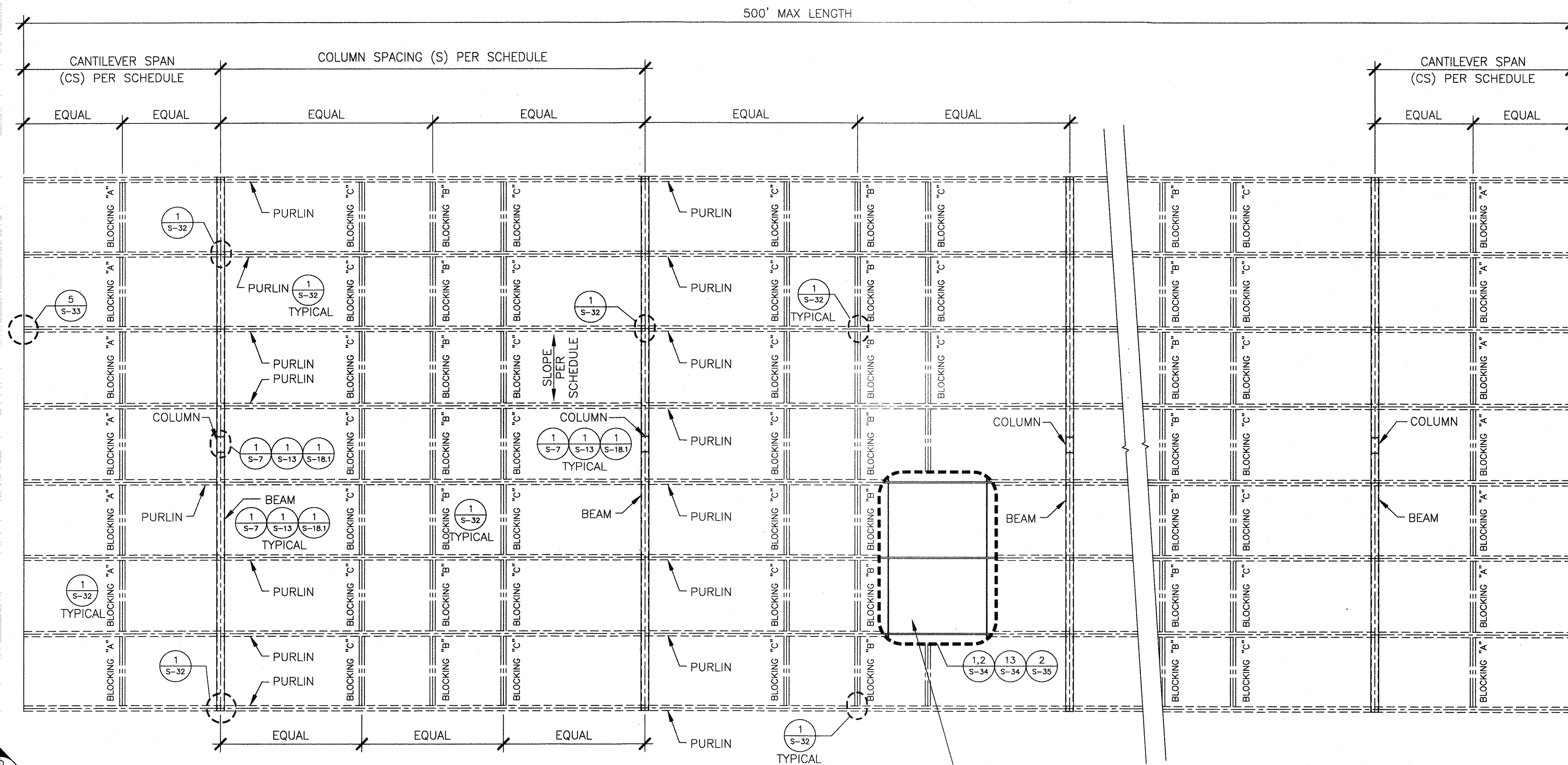
THE CHECK (PC) DOCUMENT
CODE: 2013 CBO
SEPARATE PROJECT APPLICATION
FOR CONSTRUCTION IS REQUIRED

MBARC CONSTRUCTION INC.
674 RANCHEROS DR
SAN MARCOS, CA 92069
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FAX: (760) 744-4449
LIC # 869960
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PHOTOVOLTAIC
STRUCTURES
SECTION
PROPERTIES
& REBAR
DETAILS

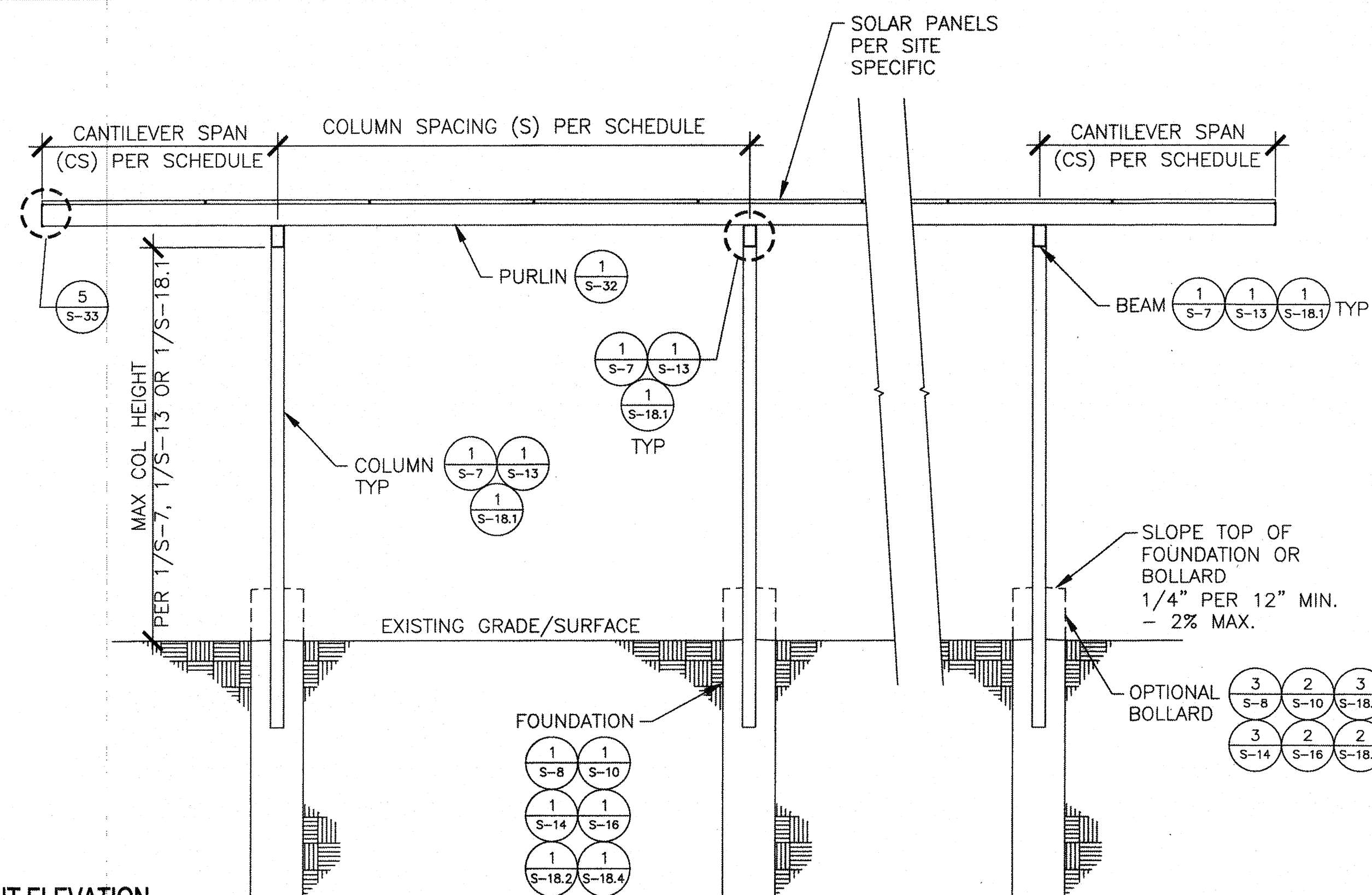
DRAWN
MAP
CHECKED
DKR
DATE
5/29/15
4STEEL JOB NO.
13-1010
SHEET
S-5
5 OF 46 SHEETS



1 PLAN VIEW T-STRUCTURE

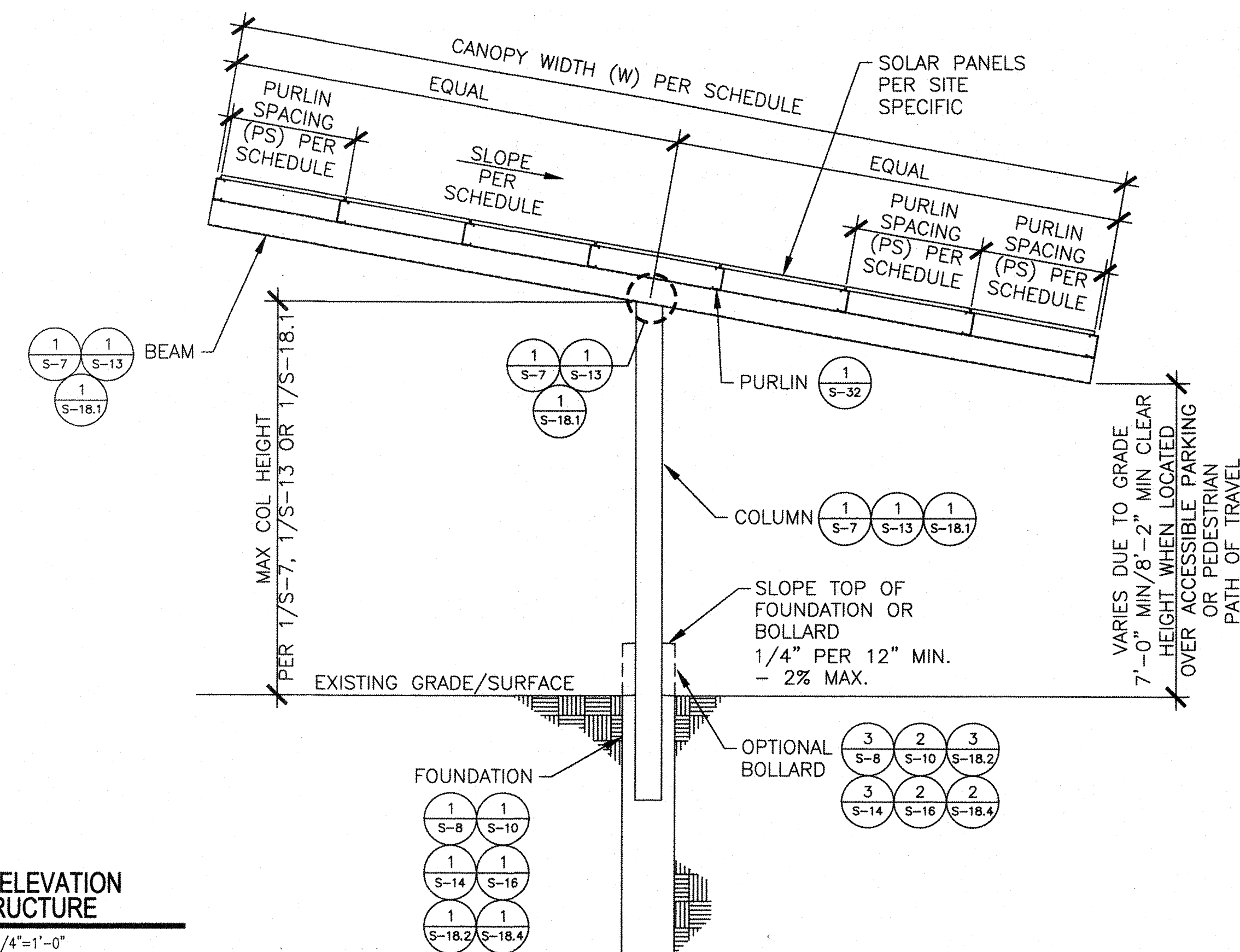
SCALE: 1/4"=1'-0"

NOTE: BEAM, COLUMN, CONNECTION, AND FOUNDATION SIZES AT ENDS OF STRUCTURE MAY NEED TO BE INCREASED DEPENDING ON PURLIN CANTILEVER. SEE NOTE 6/S-32.



2 FRONT ELEVATION T-STRUCTURE

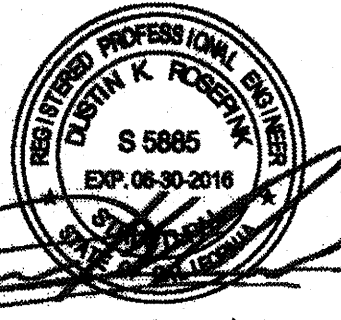
SCALE: 1/4"=1'-0"



3 SIDE ELEVATION T-STRUCTURE

SCALE: 1/4"=1'-0"

ENGINEER'S APPROVAL



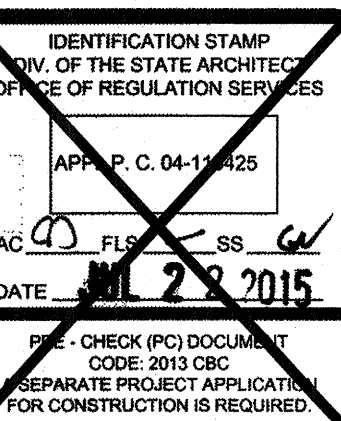
7/22/15
DATE SIGNED
MMMM DD, 2015

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OFFICE OF REGULATION SERVICES

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109 EAST ESCALONES
SAN CLEMENTE, CA 92672

PHOTOVOLTAIC
STRUCTURES
T-STRUCTURE
FRAMING PLAN

DRAWN
MAP
CHECKED
DKR
DATE
5/29/15
4STEL JOB NO.
13-1010
SHEET
S-6

6 OF 46 SHEETS

T-STRUCTURE BEAM/COLUMN SCHEDULE BASED ON R=1.25, Ss ≤ 1.7

I.D. #	MAX WIDTH (W)	MAX COLUMN SPACING (S)	ROOF SLOPE	GROUND SNOW LOAD	BEAM		BEAM TO COLUMN DETAIL	COLUMN		MAX COLUMN HEIGHT	LOADS TO FOUNDATIONS				
					SECTION	DETAIL		SECTION	DETAIL		AXIAL	P (lb)	SHEAR	V (lb)	MOMENT
											GOVERNING LOAD COMBINATION		GOVERNING LOAD COMBINATION		GOVERNING LOAD COMBINATION
T1	36' - 9"	18' - 0"	7.49° MAX	0 psf	HSS14x6x3/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x1/4	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-3	10,627	0.9D + E/1.4	3,815	0.9D + E/1.4
T2	36' - 9"	20' - 0"	7.49° MAX	0 psf	HSS14x6x3/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-3	11,769	0.9D + E/1.4	4,206	0.9D + E/1.4
T3	36' - 9"	27' - 0"	7.49° MAX	0 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x1/2	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-3	13,980	0.9D + E/1.4	5,755	0.9D + E/1.4
T4	38' - 6"	18' - 0"	7.49° MAX	0 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-3	11,527	0.9D + E/1.4	4,331	0.9D + E/1.4
T5	38' - 6"	20' - 0"	7.49° MAX	0 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-3	12,602	0.9D + E/1.4	4,638	0.9D + E/1.4
T6	38' - 6"	27' - 0"	7.49° MAX	0 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x1/2	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-3	16,696	0.9D + E/1.4	5,992	0.9D + E/1.4
T7	42' - 6"	18' - 0"	7.49° MAX	0 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x3/8	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-3	12,775	0.9D + E/1.4	4,823	0.9D + E/1.4
T8	42' - 6"	20' - 0"	7.49° MAX	0 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x3/8	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-3	13,962	0.9D + E/1.4	5,162	0.9D + E/1.4
T9	42' - 6"	27' - 0"	7.49° MAX	0 psf	HSS14x6x5/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x1/2	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-3	18,659	0.9D + E/1.4	6,809	0.9D + E/1.4
T10	36' - 9"	18' - 0"	7.49° MAX	20 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-3	17,882	0.9D + E/1.4	4,157	D + 0.2S + E/1.4
T11	36' - 9"	20' - 0"	7.49° MAX	20 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-3	19,670	0.9D + E/1.4	4,450	D + 0.2S + E/1.4
T12	38' - 6"	18' - 0"	7.49° MAX	20 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-3	18,705	0.9D + E/1.4	4,331	D + 0.2S + E/1.4
T13	38' - 6"	20' - 0"	7.49° MAX	20 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x3/8	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-3	20,691	0.9D + E/1.4	4,733	D + 0.2S + E/1.4
T14	42' - 6"	18' - 0"	7.49° MAX	20 psf	HSS14x6x5/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x3/8	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-3	21,024	0.9D + E/1.4	5,099	D + 0.2S + E/1.4
T15	42' - 6"	20' - 0"	7.49° MAX	20 psf	HSS14x6x5/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x1/2	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-3	23,309	0.9D + E/1.4	5,622	D + 0.2S + E/1.4
T51	36' - 0"	18' - 0"	10° MAX	0 psf	HSS14x6x3/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x1/4	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-2	13,956	0.9D + E/1.4	3,746	D + 0.6wWDOWN-1
T52	36' - 0"	20' - 0"	10° MAX	0 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-2	15,751	0.9D + E/1.4	4,370	D + 0.6wWDOWN-1
T53	36' - 0"	27' - 0"	10° MAX	0 psf	HSS14x6x5/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x1/2	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-2	21,253	0.9D + E/1.4	5,888	D + 0.6wWDOWN-1
T54	38' - 4.5"	18' - 0"	10° MAX	0 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-2	15,259	0.9D + E/1.4	4,318	D + 0.6wWDOWN-1
T55	38' - 4.5"	20' - 0"	10° MAX	0 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-2	16,751	0.9D + E/1.4	4,624	D + 0.6wWDOWN-1
T56	38' - 4.5"	27' - 0"	10° MAX	0 psf	HSS14x6x5/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x1/2	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-2	22,593	0.9D + E/1.4	6,224	D + 0.6wWDOWN-1
T57	41' - 10"	18' - 0"	10° MAX	0 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-2	16,580	0.9D + E/1.4	4,662	D + 0.6wWDOWN-1
T58	41' - 10"	20' - 0"	10° MAX	0 psf	HSS14x6x5/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x3/8	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-2	18,637	0.9D + E/1.4	5,363	D + 0.6wWDOWN-1
T59	41' - 10"	27' - 0"	10° MAX	0 psf	HSS14x6x1/2	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/8	$\frac{2}{S-5}$	15' - 0"	D + 0.6wWDOWN-2	25,664	0.9D + E/1.4	7,668	D + 0.6wWDOWN-1
T60	36' - 0"	18' - 0"	10° MAX	20 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-2	19,218	0.9D + E/1.4	4,083	D + 0.5S + 0.6wWDOWN-1
T61	36' - 0"	20' - 0"	10° MAX	20 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-2	21,157	0.9D + E/1.4	4,370	D + 0.5S + 0.6wWDOWN-1
T62	38' - 4.5"	18' - 0"	10° MAX	20 psf	HSS14x6x1/4	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x5/16	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-2	20,445	0.9D + E/1.4	4,318	D + 0.5S + 0.6wWDOWN-1
T63	38' - 4.5"	20' - 0"	10° MAX	20 psf	HSS14x6x5/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x3/8	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-2	22,918	0.9D + E/1.4	4,969	D + 0.5S + 0.6wWDOWN-1
T64	41' - 10"	18' - 0"	10° MAX	20 psf	HSS14x6x5/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x3/8	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-2	22,665	0.9D + E/1.4	5,029	D + 0.5S + 0.6wWDOWN-1
T65	41' - 10"	20' - 0"	10° MAX	20 psf	HSS14x6x3/8	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x1/2	$\frac{2}{S-5}$	15' - 0"	D + S + 0.5*0.6wWDOWN-2	25,448	0.9D + E/1.4	5,812	D + 0.5S + 0.6wWDOWN-1

1. MULTIPLE STRUCTURE ID'S MAY BE SELECTED WITHIN THE SAME SITE AND/OR STRUCTURE.
2. WHEN UTILIZING A STRUCTURE ID READ FROM WITHIN THAT ID ROW ONLY.
3. LOADS TO FOUNDATION BASED ON ALTERNATIVE ASD LOAD COMBINATIONS WITH $\omega = 1.3$. FOR LATERAL LOADS AND $\omega = 1.0$ FOR VERTICAL LOADS.

1 | R=1.25 T-STRUCTURE
BEAM/COLUMN SCHEDULE
SCALE: N/A

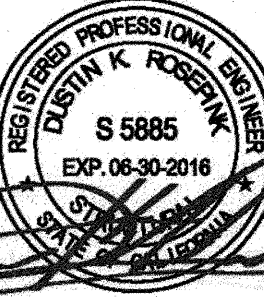
T-STRUCTURE BEAM/COLUMN SCHEDULE BASED ON R=1.25, Ss ≤ 1.0

I.D. #	MAX WIDTH (W)	MAX COLUMN SPACING (S)	ROOF SLOPE	GROUND SNOW LOAD	BEAM		BEAM TO COLUMN DETAIL	COLUMN		MAX COLUMN HEIGHT
					SECTION	DETAIL		SECTION	DETAIL	
T66	42' - 6"	27' - 0"	7.49° MAX	0 psf	HSS14x6x5/16	$\frac{2}{S-5}$	$\frac{2}{S-12}$	HSS14x6x1/2	$\frac{2}{S-5}$	20' - 0"

1. MULTIPLE STRUCTURE ID'S MAY BE SELECTED WITHIN THE SAME SITE AND/OR STRUCTURE.
2. WHEN UTILIZING A STRUCTURE ID READ FROM WITHIN THAT ID ROW ONLY.
3. LOADS TO FOUNDATION BASED ON ALTERNATIVE ASD LOAD COMBINATIONS WITH $\omega = 1.3$. FOR LATERAL LOADS AND $\omega = 1.0$ FOR VERTICAL LOADS.

2 | R=1.25 T-STRUCTURE
BEAM/COLUMN SCHEDULE
SCALE: N/A

ENGINEER'S
APPROVAL



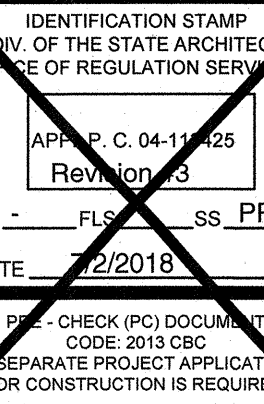
DATE SIGNED
December 23, 2015

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S-7
7 OF 46 SHEETS

T-STRUCTURE NON-CONSTRAINED PIER FOUNDATION SCHEDULE BASED ON R=1.25, Ss ≤ 1.7

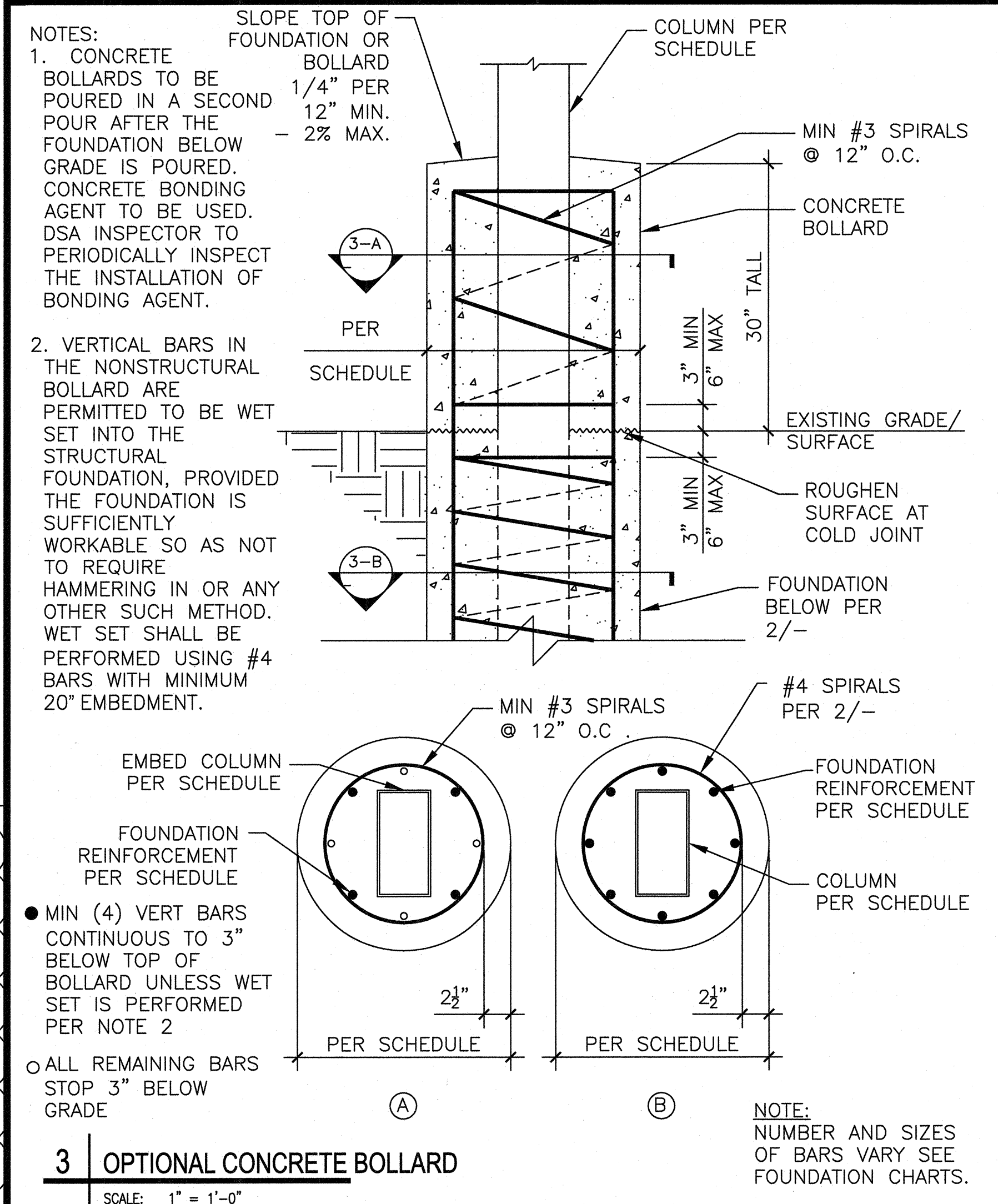
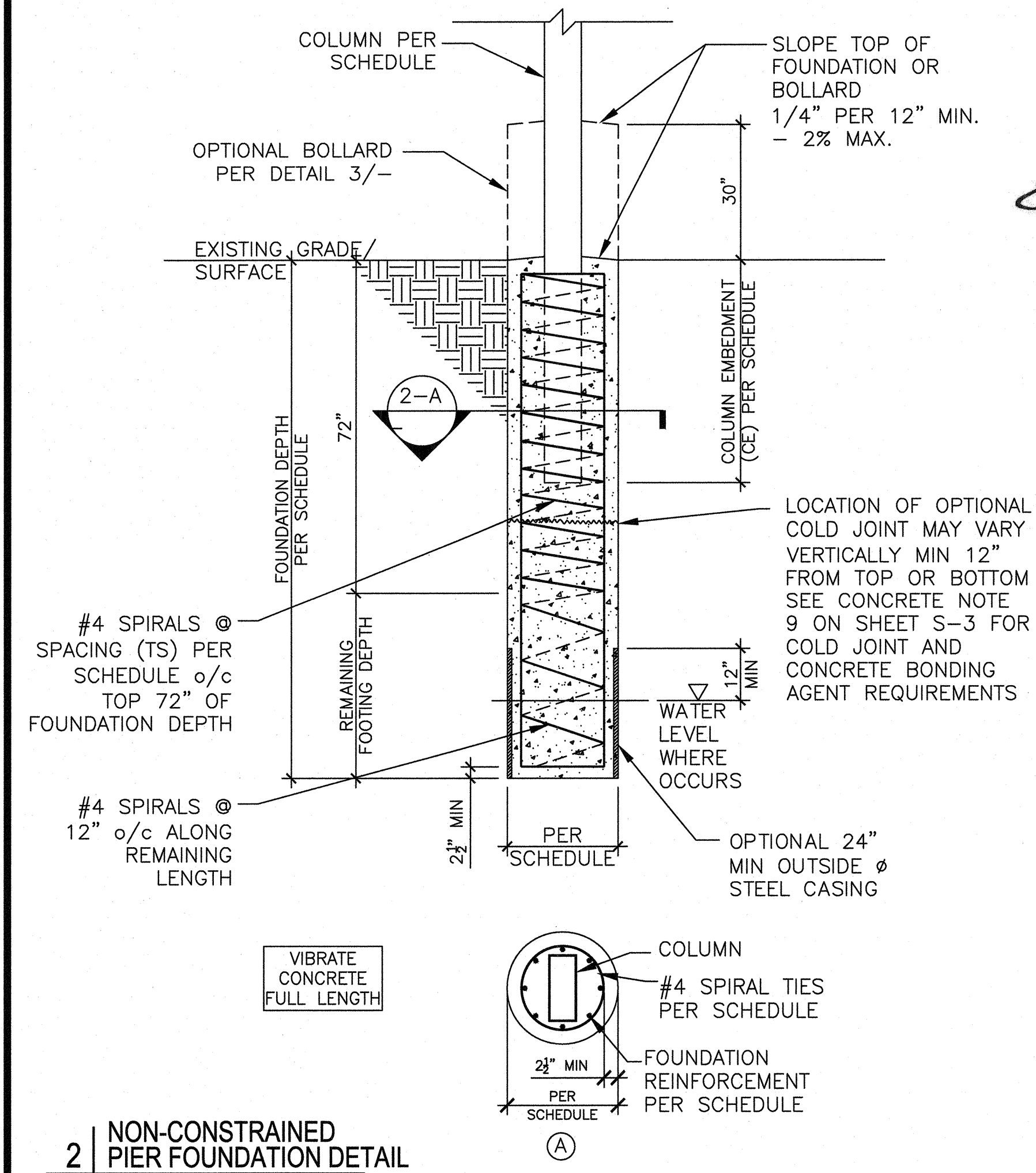
I.D. #	MAX WIDTH (W)	MAX COLUMN SPACING (S)	ROOF SLOPE	GROUND SNOW LOAD	FOUNDATION REINFORCEMENT	FOUNDATION DIAMETER	COLUMN EMBEDMENT (CE)	MAX TIE SPACING (TS) AT TOP	FOUNDATION DETAIL	PIER FOUNDATION				
										FOUNDATION WITH SOIL MATERIAL CLASS V (SOILS NOTES S-3)	FOUNDATION WITH SOIL MATERIAL CLASS W (SOILS NOTES S-3)	FOUNDATION WITH SOIL MATERIAL CLASS X (SOILS NOTES S-3)	FOUNDATION WITH SOIL MATERIAL CLASS Y (SOILS NOTES S-3)	FOUNDATION WITH SOIL MATERIAL CLASS Z (SOILS NOTES S-3)
										DEPTH	DEPTH	DEPTH	DEPTH	DEPTH
T1	36' - 0"	18' - 0"	7.49° MAX	0 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	15' - 0"	11' - 6"	9' - 9"	8' - 9"	7' - 6"
T2	36' - 9"	20' - 0"	7.49° MAX	0 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	15' - 6"	11' - 9"	10' - 3"	9' - 3"	7' - 9"
T3	36' - 9"	27' - 0"	7.49° MAX	0 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	17' - 6"	13' - 3"	11' - 6"	10' - 3"	8' - 9"
T4	38' - 6"	18' - 0"	7.49° MAX	0 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	15' - 9"	12' - 0"	10' - 3"	9' - 3"	8' - 0"
T5	38' - 6"	20' - 0"	7.49° MAX	0 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	16' - 3"	12' - 3"	10' - 6"	9' - 6"	8' - 3"
T6	38' - 6"	27' - 0"	7.49° MAX	0 psf	(5) - #8 VERT REBAR	24"	36"	6"	(2)	17' - 9"	13' - 6"	11' - 6"	10' - 6"	9' - 0"
T7	42' - 6"	18' - 0"	7.49° MAX	0 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	16' - 3"	12' - 6"	10' - 9"	9' - 6"	8' - 3"
T8	42' - 6"	20' - 0"	7.49° MAX	0 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	17' - 0"	13' - 0"	11' - 0"	10' - 0"	8' - 6"
T9	42' - 6"	27' - 0"	7.49° MAX	0 psf	(5) - #8 VERT REBAR	24"	36"	6"	(2)	18' - 3"	14' - 3"	12' - 6"	11' - 3"	9' - 6"
T10	36' - 9"	18' - 0"	7.49° MAX	20 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	15' - 9"	12' - 0"	10' - 3"	9' - 3"	8' - 0"
T11	36' - 9"	20' - 0"	7.49° MAX	20 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	16' - 6"	12' - 9"	10' - 9"	9' - 9"	8' - 3"
T12	38' - 6"	18' - 0"	7.49° MAX	20 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	16' - 3"	12' - 6"	10' - 9"	9' - 6"	8' - 3"
T13	38' - 6"	20' - 0"	7.49° MAX	20 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	17' - 0"	13' - 3"	11' - 0"	10' - 0"	8' - 6"
T14	42' - 6"	18' - 0"	7.49° MAX	20 psf	(4) - #8 VERT REBAR	24"	36"	6"	(2)	17' - 6"	13' - 6"	11' - 3"	10' - 3"	8' - 9"
T15	42' - 6"	20' - 0"	7.49° MAX	20 psf	(5) - #8 VERT REBAR	24"	36"	6"	(2)	18' - 3"	15' - 0"	12' - 0"	11' - 3"	9' - 3"
T51	36' - 0"	18' - 0"	10° MAX	0 psf	(4) - #8 VERT REBAR	24"	48"	6"	(2)	17' - 6"	12' - 3"	11' - 3"	10' - 3"	8' - 9"
T52	36' - 0"	20' - 0"	10° MAX	0 psf	(5) - #8 VERT REBAR	24"	48"	6"	(2)	18' - 3"	13' - 9"	11' - 9"	10' - 6"	9' - 0"
T53	36' - 0"	27' - 0"	10° MAX	0 psf	(6) - #8 VERT REBAR	24"	48"	6"	(2)	20' - 6"	15' - 6"	13' - 3"	12' - 0"	10' - 3"
T54	38' - 4.5"	18' - 0"	10° MAX	0 psf	(5) - #8 VERT REBAR	24"	48"	6"	(2)	18' - 3"	13' - 9"	11' - 9"	10' - 9"	9' - 3"
T55	38' - 4.5"	20' - 0"	10° MAX	0 psf	(5) - #8 VERT REBAR	24"	48"	6"	(2)	19' - 0"	14' - 6"	12' - 3"	11' - 0"	9' - 6"
T56	38' - 4.5"	27' - 0"	10° MAX	0 psf	(7) - #8 VERT REBAR	24"	48"	6"	(2)	21' - 6"	16' - 3"	13' - 9"	12' - 6"	10' - 9"
T57	41' - 10"	18' - 0"	10° MAX	0 psf	(6) - #8 VERT REBAR	24"	48"	6"	(2)	19' - 6"	14' - 9"	12' - 6"	11' - 3"	9' - 9"
T58	41' - 10"	20' - 0"	10° MAX	0 psf	(6) - #8 VERT REBAR	24"	48"	6"	(2)	20' - 3"	15' - 3"	13' - 0"	11' - 9"	10' - 0"
T59	41' - 10"	27' - 0"	10° MAX	0 psf	(9) - #8 VERT REBAR	24"	48"	6"	(2)	23' - 0"	17' - 3"	14' - 9"	13' - 3"	11' - 3"
T60	36' - 0"	18' - 0"	10° MAX	20 psf	(5) - #8 VERT REBAR	24"	48"	6"	(2)	18' - 3"	14' - 0"	12' - 0"	10' - 9"	9' - 3"
T61	36' - 0"	20' - 0"	10° MAX	20 psf	(5) - #8 VERT REBAR	24"	48"	6"	(2)	19' - 0"	14' - 6"	12' - 6"	11' - 0"	9' - 6"
T62	38' - 4.5"	18' - 0"	10° MAX	20 psf	(5) - #8 VERT REBAR	24"	48"	6"	(2)	19' - 3"	14' - 6"	12' - 6"	11' - 3"	9' - 6"
T63	38' - 4.5"	20' - 0"	10° MAX	20 psf	(6) - #8 VERT REBAR	24"	48"	6"	(2)	20' - 0"	15' - 3"	13' - 0"	11' - 6"	10' - 0"
T64	41' - 10"	18' - 0"	10° MAX	20 psf	(6) - #8 VERT REBAR	24"	48"	6"	(2)	20' - 6"	15' - 6"	13' - 3"	11' - 9"	10' - 3"
T65	41' - 10"	20' - 0"	10° MAX	20 psf	(7) - #8 VERT REBAR	24"	48"	6"	(2)	21' - 3"	16' - 3"	13' - 9"	12' - 3"	10' - 6"

1. R=1.25 T-STRUCTURE NON-CONSTRAINED PIER FOUNDATION SCHEDULE
SCALE: N/A
1. MULTIPLE STRUCTURE ID'S MAY BE SELECTED WITHIN THE SAME SITE AND/OR STRUCTURE.
2. WHEN UTILIZING A STRUCTURE ID READ FROM WITHIN THAT ID ROW ONLY.
3. SEE SOILS NOTES ON SHEET S-3 FOR INFORMATION ON SOILS CLASS SELECTION.
4. FOR SITUATIONS WHERE WATER MITIGATION IS NECESSARY, OR FOR OTHER CONDITIONS REQUIRING MITIGATION, REFER TO DETAIL 2/- FOR SLEEVED FOUNDATION OPTION.

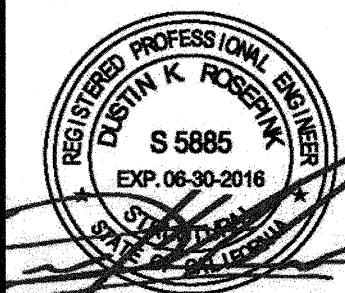
T-STRUCTURE NON-CONSTRAINED PIER FOUNDATION SCHEDULE BASED ON R=1.25, Ss ≤ 1.0

I.D. #	MAX WIDTH (W)	MAX COLUMN SPACING (S)	ROOF SLOPE	GROUND SNOW LOAD	FOUNDATION REINFORCEMENT	FOUNDATION DIAMETER	COLUMN EMBEDMENT (CE)	MAX TIE SPACING (TS) AT TOP	FOUNDATION DETAIL	PIER FOUNDATION				
										FOUNDATION WITH SOIL MATERIAL CLASS V (SOILS NOTES S-3)	FOUNDATION WITH SOIL MATERIAL CLASS W (SOILS NOTES S-3)	FOUNDATION WITH SOIL MATERIAL CLASS X (SOILS NOTES S-3)	FOUNDATION WITH SOIL MATERIAL CLASS Y (SOILS NOTES S-3)	FOUNDATION WITH SOIL MATERIAL CLASS Z (SOILS NOTES S-3)
										DEPTH	DEPTH	DEPTH	DEPTH	DEPTH
T66	42' - 6"	27' - 0"	7.49° MAX	0 psf	(5) - #8 VERT REBAR	24"	36"	6"	(2)	19' - 3"	14' - 9"	12' - 6"	11' - 3"	9' - 9"

2. R=1.25 T-STRUCTURE NON-CONSTRAINED PIER FOUNDATION SCHEDULE
SCALE: N/A
1. MULTIPLE STRUCTURE ID'S MAY BE SELECTED WITHIN THE SAME SITE AND/OR STRUCTURE.
2. WHEN UTILIZING A STRUCTURE ID READ FROM WITHIN THAT ID ROW ONLY.
3. SEE SOILS NOTES ON SHEET S-3 FOR INFORMATION ON SOILS CLASS SELECTION.
4. FOR SITUATIONS WHERE WATER MITIGATION IS NECESSARY, OR FOR OTHER CONDITIONS REQUIRING MITIGATION, REFER TO DETAIL 2/- FOR SLEEVED FOUNDATION OPTION.



ENGINEER'S APPROVAL



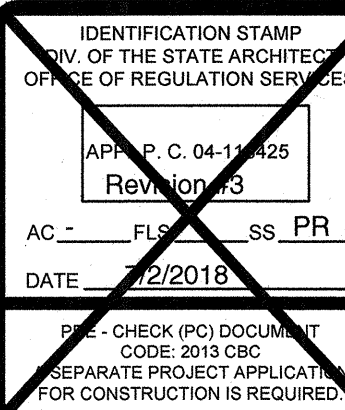
DATE SIGNED
December 23, 2015

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

A 03119250

AC / FLS / SS BY
DATE AUG 07 2018

SITE SPECIFIC
DSA APPROVAL



MBARC CONSTRUCTION INC.
674 RANCHEROS DR
SAN MARCOS, CA 92069
PHONE: (760) 744-4131
FAX: (760) 744-4449

STEEL ENGINEERING
STRUCTURAL ENGINEERING
109 EAST ESCALONES
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PHOTOVOLTAIC STRUCTURES
R-1.25 T-STRUCTURE NON-CONSTRAINED PIER FOUNDATION SCHEDULE

DRAWN MAP
CHECKED DKR
DATE 6/18/2018
SHEET S-8
8 of 46 SHEETS

I.D. #	MAX WIDTH (W)	MAX COLUMN SPACING (S)	ROOF SLOPE	GROUND SNOW LOAD	FOOTING REINFORCEMENT	FOOTING DETAIL	SPREAD FOOTINGS FOR SOIL MATERIAL CLASS V (SOILS NOTES S-3)
T1	36' - 9"	18' - 0"	7.49° MAX	0 psf	#6 BARS @ 15" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	8'-6" x 8'-6" x 30" DEEP
T2	36' - 9"	20' - 0"	7.49° MAX	0 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	8'-9" x 8'-9" x 30" DEEP
T3	36' - 9"	27' - 0"	7.49° MAX	0 psf	#6 BARS @ 15" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-9" x 9'-9" x 30" DEEP
T4	38' - 6"	18' - 0"	7.49° MAX	0 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-0" x 9'-0" x 30" DEEP
T5	38' - 6"	20' - 0"	7.49° MAX	0 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-0" x 9'-0" x 30" DEEP
T6	38' - 6"	27' - 0"	7.49° MAX	0 psf	#6 BARS @ 15" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-9" x 9'-9" x 30" DEEP
T7	42' - 6"	18' - 0"	7.49° MAX	0 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-3" x 9'-3" x 30" DEEP
T8	42' - 6"	20' - 0"	7.49° MAX	0 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-6" x 9'-6" x 30" DEEP
T9	42' - 6"	27' - 0"	7.49° MAX	0 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	10'-3" x 10'-3" x 30" DEEP
T10	36' - 9"	18' - 0"	7.49° MAX	20 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	8'-9" x 8'-9" x 30" DEEP
T11	36' - 9"	20' - 0"	7.49° MAX	20 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-0" x 9'-0" x 30" DEEP
T12	36' - 6"	18' - 0"	7.49° MAX	20 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-0" x 9'-0" x 30" DEEP
T13	38' - 6"	20' - 0"	7.49° MAX	20 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-3" x 9'-3" x 30" DEEP
T14	42' - 6"	18' - 0"	7.49° MAX	20 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-3" x 9'-3" x 30" DEEP
T15	42' - 6"	20' - 0"	7.49° MAX	20 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-6" x 9'-6" x 30" DEEP
T51	36' - 0"	18' - 0"	10° MAX	0 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-3" x 9'-3" x 30" DEEP
T52	36' - 0"	20' - 0"	10° MAX	0 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-6" x 9'-6" x 30" DEEP
T53	36' - 0"	27' - 0"	10° MAX	0 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	10'-6" x 10'-6" x 30" DEEP
T54	38' - 4.5"	18' - 0"	10° MAX	0 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-6" x 9'-6" x 30" DEEP
T55	38' - 4.5"	20' - 0"	10° MAX	0 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	10'-0" x 10'-0" x 30" DEEP
T56	38' - 4.5"	27' - 0"	10° MAX	0 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	11'-0" x 11'-0" x 30" DEEP
T57	41' - 10"	18' - 0"	10° MAX	0 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	10'-0" x 10'-0" x 30" DEEP
T58	41' - 10"	20' - 0"	10° MAX	0 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	10'-6" x 10'-6" x 30" DEEP
T59	41' - 10"	27' - 0"	10° MAX	0 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	11'-6" x 11'-6" x 30" DEEP
T60	36' - 0"	18' - 0"	10° MAX	20 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-3" x 9'-3" x 30" DEEP
T61	36' - 0"	20' - 0"	10° MAX	20 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-6" x 9'-6" x 30" DEEP
T62	38' - 4.5"	18' - 0"	10° MAX	20 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-6" x 9'-6" x 30" DEEP
T63	38' - 4.5"	20' - 0"	10° MAX	20 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	10'-0" x 10'-0" x 30" DEEP
T64	41' - 10"	18' - 0"	10° MAX	20 psf	#6 BARS @ 17" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-3" x 9'-3" x 30" DEEP
T65	41' - 10"	20' - 0"	10° MAX	20 psf	#6 BARS @ 15" O.C. MAX EACH WAY TOP & BOTTOM	$\frac{2}{-}$	9'-9" x 9'-9" x 30" DEEP

1. MULTIPLE STRUCTURE ID'S MAY BE SELECTED WITHIN THE SAME SITE AND/OR STRUCTURE.
2. WHEN UTILIZING A STRUCTURE ID READ FROM WITHIN THAT ID ROW ONLY.
3. SEE SOILS NOTES ON SHEET S-3 FOR INFORMATION ON SOILS CLASS SELECTION.

I.D. #	MAX WIDTH (W)	MAX COLUMN SPACING (S)	ROOF SLOPE	GROUND SNOW LOAD	FOOTING REINFORCEMENT	FOOTING DETAIL	SPREAD FOOTINGS FOR SOIL MATERIAL CLASS V (SOILS NOTES S-3)
T66	42" ± 6"	27' ± 0"	7.49" MAX	0 psf	#6 BARS @ 16" O.C. MAX EACH WAY TOP & BOTTOM		16" ± 3" x 10" ± 3" x 30" DEEP

2 | R=1.25 T-STRUCTURE
SPREAD FOOTING SCHEDULE

[illegible]

**DRAWN
MAP**

**CHECKED
DKR**

DATE
6/18/2018

STEL JOB NO.
13-1010

SHEET
S-10

0 OF 46 SHEETS

T-STRUCTURE BEAM TO COLUMN CONNECTION SCHEDULE BASED ON R=1.25, Ss ≤ 1.7

I.D. #	MAX WIDTH (W)	MAX COLUMN SPACING (S)	ROOF SLOPE	GROUND SNOW LOAD	BEAM TO COLUMN DETAIL	BEAM TO COLUMN SIDE PLATE	MIN WELD THICKNESS (t)	MIN STRUCTURAL WELD LENGTH (lv)	MIN STRUCTURAL WELD LENGTH (lh)
T1	36' - 9"	18' - 0"	7.49° MAX	0 psf	$\frac{2}{-}$	11 7/8" x 25 3/4" x 5/16" THICK	3/16" THICK	11.5" VERTICAL	11.5" HORIZONTAL
T2	36' - 9"	20' - 0"	7.49° MAX	0 psf	$\frac{2}{-}$	11 1/2" x 25 7/8" x 3/8" THICK	3/16" THICK	11.5" VERTICAL	11.5" HORIZONTAL
T3	36' - 9"	27' - 0"	7.49° MAX	0 psf	$\frac{2}{-}$	10 3/4" x 25 5/8" x 1/2" THICK	3/16" THICK	11.5" VERTICAL	10.5" HORIZONTAL
T4	38' - 6"	18' - 0"	7.49° MAX	0 psf	$\frac{2}{-}$	11 1/2" x 25 1/2" x 3/8" THICK	3/16" THICK	11" VERTICAL	11.5" HORIZONTAL
T5	38' - 6"	20' - 0"	7.49° MAX	0 psf	$\frac{2}{-}$	11 1/2" x 25 1/2" x 3/8" THICK	3/16" THICK	11" VERTICAL	11.5" HORIZONTAL
T6	38' - 6"	27' - 0"	7.49° MAX	0 psf	$\frac{2}{-}$	10 3/4" x 25 5/8" x 1/2" THICK	3/16" THICK	11.5" VERTICAL	10.5" HORIZONTAL
T7	42' - 6"	18' - 0"	7.49° MAX	0 psf	$\frac{2}{-}$	11 1/4" x 25 5/8" x 3/8" THICK	3/16" THICK	11.5" VERTICAL	11" HORIZONTAL
T8	42' - 6"	20' - 0"	7.49° MAX	0 psf	$\frac{2}{-}$	11 1/4" x 25 5/8" x 3/8" THICK	3/16" THICK	11.5" VERTICAL	11" HORIZONTAL
T9	42' - 6"	27' - 0"	7.49° MAX	0 psf	$\frac{2}{-}$	10 3/4" x 25 3/8" x 1/2" THICK	1/4" THICK	11" VERTICAL	10.5" HORIZONTAL
T10	36' - 9"	18' - 0"	7.49° MAX	20 psf	$\frac{2}{-}$	11 1/2" x 25 1/2" x 3/8" THICK	3/16" THICK	11" VERTICAL	11.5" HORIZONTAL
T11	36' - 9"	20' - 0"	7.49° MAX	20 psf	$\frac{2}{-}$	11 1/2" x 25 1/2" x 3/8" THICK	3/16" THICK	11" VERTICAL	11.5" HORIZONTAL
T12	38' - 6"	18' - 0"	7.49° MAX	20 psf	$\frac{2}{-}$	11 1/2" x 25 1/2" x 3/8" THICK	3/16" THICK	11" VERTICAL	11.5" HORIZONTAL
T13	38' - 6"	20' - 0"	7.49° MAX	20 psf	$\frac{2}{-}$	11 1/4" x 25 5/8" x 3/8" THICK	3/16" THICK	11.5" VERTICAL	11" HORIZONTAL
T14	42' - 6"	18' - 0"	7.49° MAX	20 psf	$\frac{2}{-}$	11 1/4" x 25 1/4" x 3/8" THICK	3/16" THICK	11" VERTICAL	11" HORIZONTAL
T15	42' - 6"	20' - 0"	7.49° MAX	20 psf	$\frac{2}{-}$	10 3/4" x 25 3/8" x 1/2" THICK	1/4" THICK	11" VERTICAL	10.5" HORIZONTAL
T51	36' - 0"	18' - 0"	10° MAX	0 psf	$\frac{2}{-}$	11 7/8" x 25 1/2" x 5/16" THICK	3/16" THICK	11" VERTICAL	11.5" HORIZONTAL
T52	36' - 0"	20' - 0"	10° MAX	0 psf	$\frac{2}{-}$	11 1/2" x 25 1/4" x 3/8" THICK	3/16" THICK	11" VERTICAL	11.5" HORIZONTAL
T53	36' - 0"	27' - 0"	10° MAX	0 psf	$\frac{2}{-}$	10 3/4" x 25" x 5/8" THICK	5/16" THICK	10.5" VERTICAL	10.5" HORIZONTAL
T54	38' - 4.5"	18' - 0"	10° MAX	0 psf	$\frac{2}{-}$	11 1/2" x 25 1/4" x 3/8" THICK	3/16" THICK	11" VERTICAL	11.5" HORIZONTAL
T55	38' - 4.5"	20' - 0"	10° MAX	0 psf	$\frac{2}{-}$	11 1/2" x 25 1/4" x 1/2" THICK	1/4" THICK	11" VERTICAL	11.5" HORIZONTAL
T56	38' - 4.5"	27' - 0"	10° MAX	0 psf	$\frac{2}{-}$	10 3/4" x 25" x 3/4" THICK	5/16" THICK	10.5" VERTICAL	10.5" HORIZONTAL
T57	41' - 10"	18' - 0"	10° MAX	0 psf	$\frac{2}{-}$	11 1/2" x 25 1/4" x 1/2" THICK	1/4" THICK	11" VERTICAL	11.5" HORIZONTAL
T58	41' - 10"	20' - 0"	10° MAX	0 psf	$\frac{2}{-}$	11 1/4" x 24 7/8" x 5/8" THICK	5/16" THICK	10.5" VERTICAL	11" HORIZONTAL
T59	41' - 10"	27' - 0"	10° MAX	0 psf	$\frac{2}{-}$	10 1/8" x 24 1/4" x 7/8" THICK	7/16" THICK	10" VERTICAL	10" HORIZONTAL
T60	36' - 0"	18' - 0"	10° MAX	20 psf	$\frac{2}{-}$	11 1/2" x 25 1/4" x 3/8" THICK	3/16" THICK	11" VERTICAL	11.5" HORIZONTAL
T61	36' - 0"	20' - 0"	10° MAX	20 psf	$\frac{2}{-}$	11 1/2" x 25 1/4" x 1/2" THICK	1/4" THICK	11" VERTICAL	11.5" HORIZONTAL
T62	38' - 4.5"	18' - 0"	10° MAX	20 psf	$\frac{2}{-}$	11 1/2" x 25 1/4" x 1/2" THICK	1/4" THICK	11" VERTICAL	11.5" HORIZONTAL
T63	38' - 4.5"	20' - 0"	10° MAX	20 psf	$\frac{2}{-}$	11 1/4" x 24 7/8" x 1/2" THICK	1/4" THICK	10.5" VERTICAL	11" HORIZONTAL
T64	41' - 10"	18' - 0"	10° MAX	20 psf	$\frac{2}{-}$	11 1/4" x 24 7/8" x 1/2" THICK	1/4" THICK	10.5" VERTICAL	11" HORIZONTAL
T65	41' - 10"	20' - 0"	10° MAX	20 psf	$\frac{2}{-}$	10 3/4" x 24 3/4" x 5/8" THICK	5/16" THICK	10.5" VERTICAL	10.5" HORIZONTAL

1 | R=1.25 T-STRUCTURE BEAM TO COLUMN SCHEDULE
SCALE: N/A

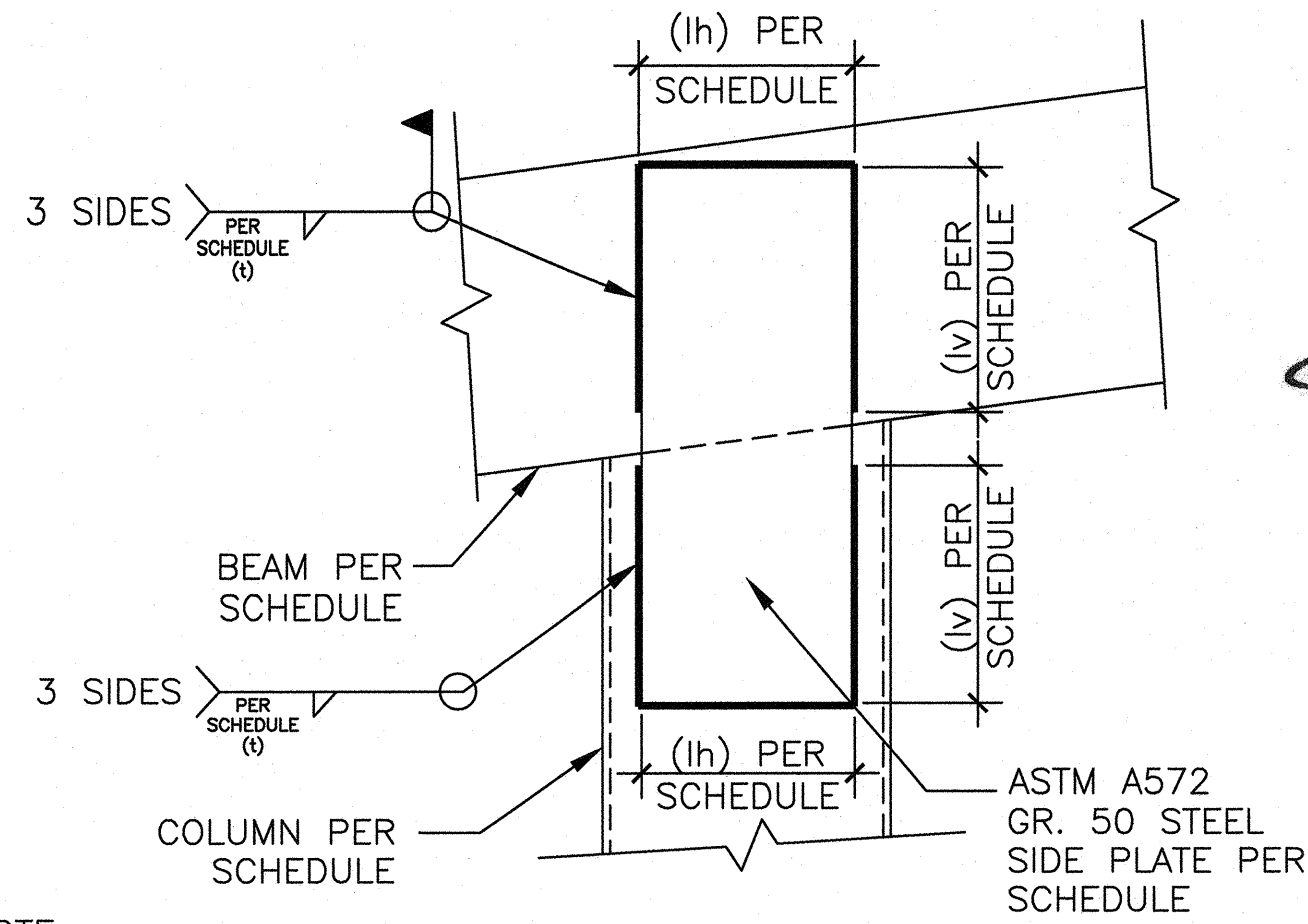
1. MULTIPLE STRUCTURE ID'S MAY BE SELECTED WITHIN THE SAME SITE AND/OR STRUCTURE.
2. WHEN UTILIZING A STRUCTURE ID READ FROM WITHIN THAT ID ROW ONLY.

T-STRUCTURE BEAM TO COLUMN CONNECTION SCHEDULE BASED ON R=1.25, Ss ≤ 1.0

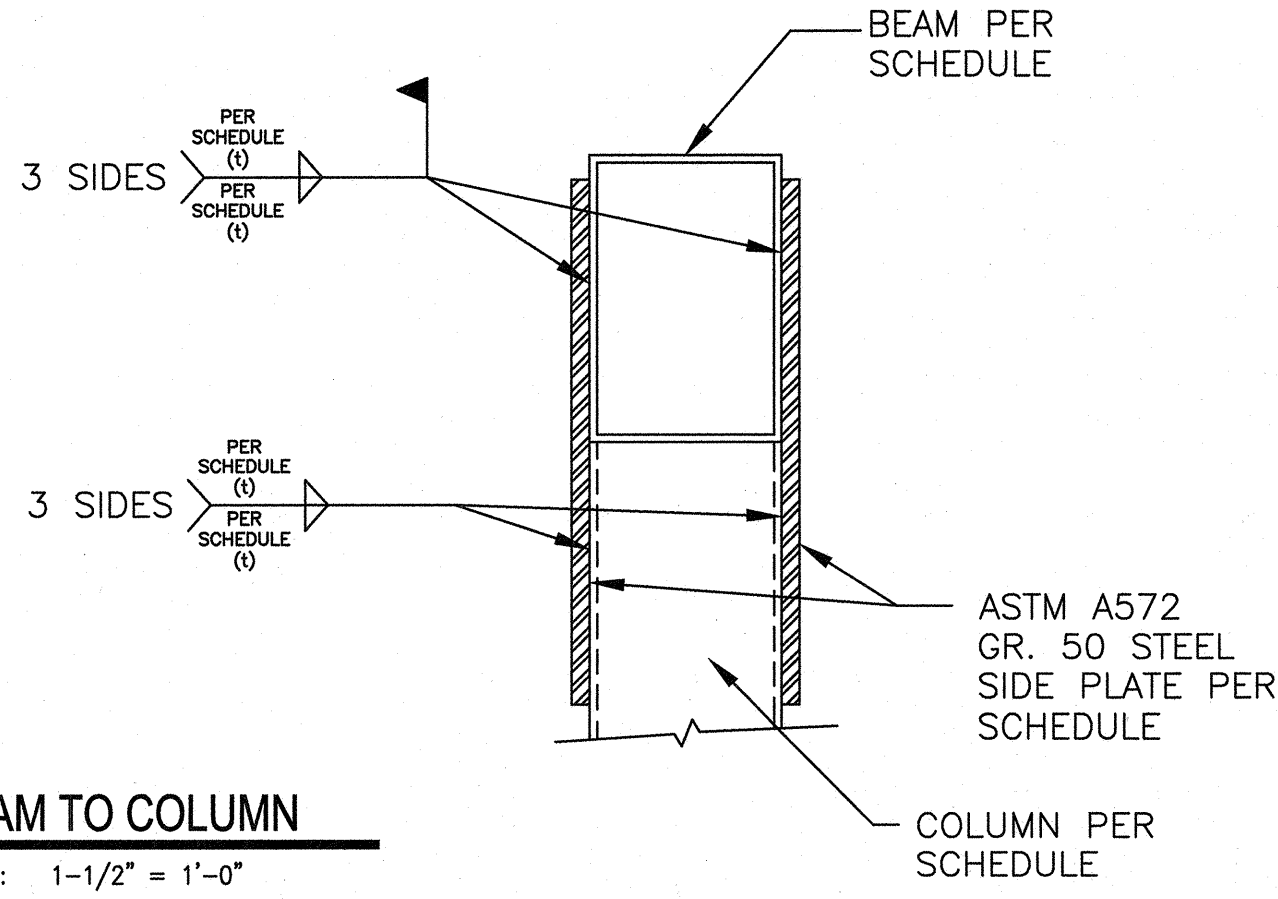
I.D. #	MAX WIDTH (W)	MAX COLUMN SPACING (S)	ROOF SLOPE	GROUND SNOW LOAD	BEAM TO COLUMN DETAIL	BEAM TO COLUMN SIDE PLATE	MIN WELD THICKNESS (t)	MIN STRUCTURAL WELD LENGTH (lv)	MIN STRUCTURAL WELD LENGTH (lh)
T66	42' - 6"	27' - 0"	7.49° MAX	0 psf	$\frac{2}{-}$	10 3/4" x 25 3/8" x 9/16" THICK	1/4" THICK	11" VERTICAL	10.5" HORIZONTAL

1. MULTIPLE STRUCTURE ID'S MAY BE SELECTED WITHIN THE SAME SITE AND/OR STRUCTURE.
2. WHEN UTILIZING A STRUCTURE ID READ FROM WITHIN THAT ID ROW ONLY.

2 | R=1.25 T-STRUCTURE BEAM TO COLUMN SCHEDULE
SCALE: N/A

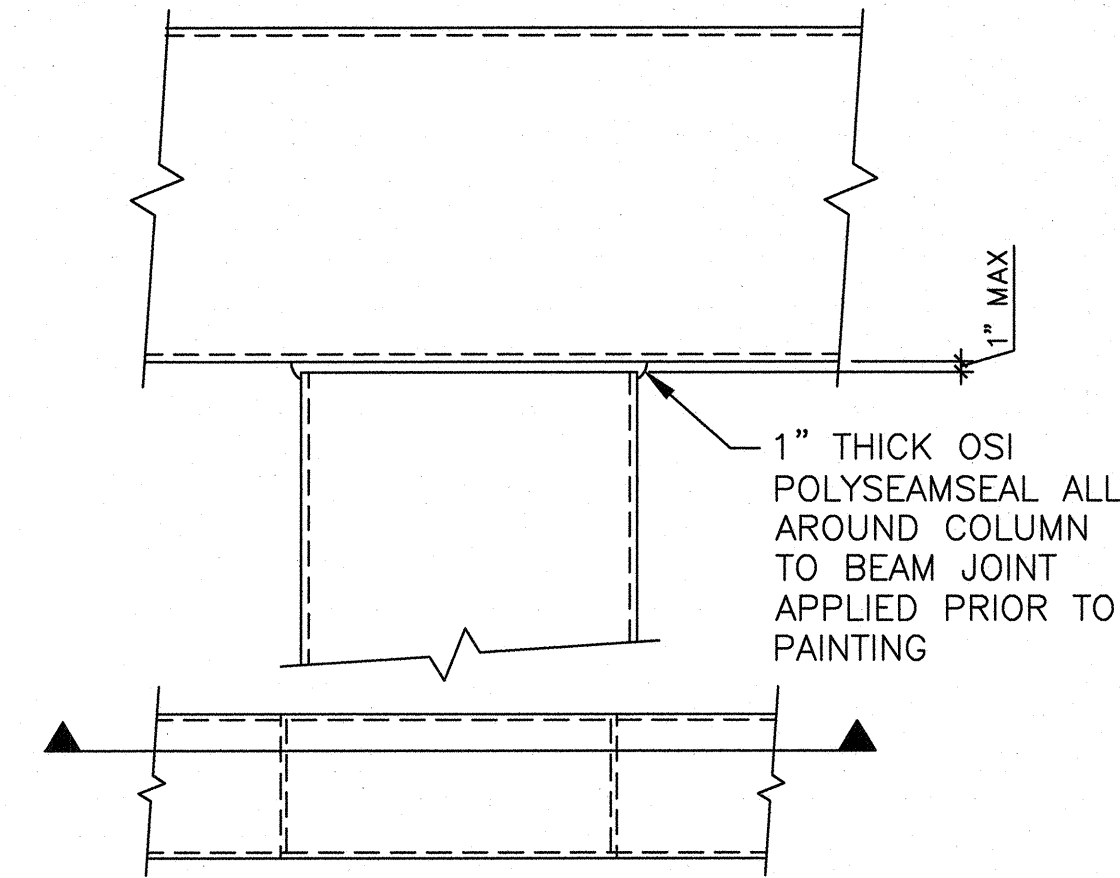


- NOTE:
1. WELD TO BE ALL AROUND PLATE. PORTIONS OF THE WELD ALL AROUND JOINT ARE STRUCTURAL AND OTHER PORTIONS ARE NON STRUCTURAL. MINIMUM STRUCTURAL WELD LENGTHS (lv) AND (lh) PER SCHEDULE. WELDS BEYOND THESE MIN LENGTHS ARE NON STRUCTURAL SEAL WELDS.
2. PURLIN, SOLAR PANEL NOT SHOWN



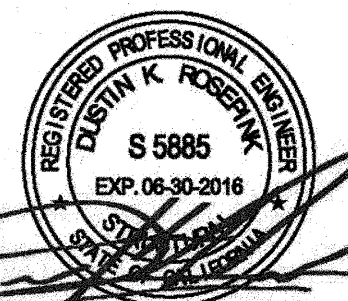
2 | BEAM TO COLUMN
SCALE: 1 1/2" = 1'-0"

3 | BEAM TO COLUMN CORROSION PROTECTION OPTION 1
SCALE: 1 1/2" = 1'-0"



4 | BEAM TO COLUMN CORROSION PROTECTION OPTION 2
SCALE: 1 1/2" = 1'-0"

ENGINEER'S APPROVAL



DATE SIGNED
December 23, 2015

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
A 03119250
AC FLS SS EX
DATE AUG 07 2018

SITE SPECIFIC
DSA APPROVAL

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
APPROVED: C. 04-11-1225
Revision: 03
AC FLS SS PR
DATE 12/2/2018
CHECK (PC) DOCUMENT
CODE: 2015 CBC
SEPARATE PROJECT APPLICATION
FOR CONSTRUCTION IS REQUIRED

MBARC CONSTRUCTION INC.
674 RANCHEROS DR
SAN MARCOS, CA 92069
PHONE: (760) 744-4131
FAX: (760) 744-4449
LIC # 869960
B AND C51

ASTEL ENGINEERING
STRUCTURAL ENGINEERING
109 EAST ESCALONES
SAN CLEMENTE, CA 92672
PHONE: (949) 388-9333
FAX: (949) 388-3773

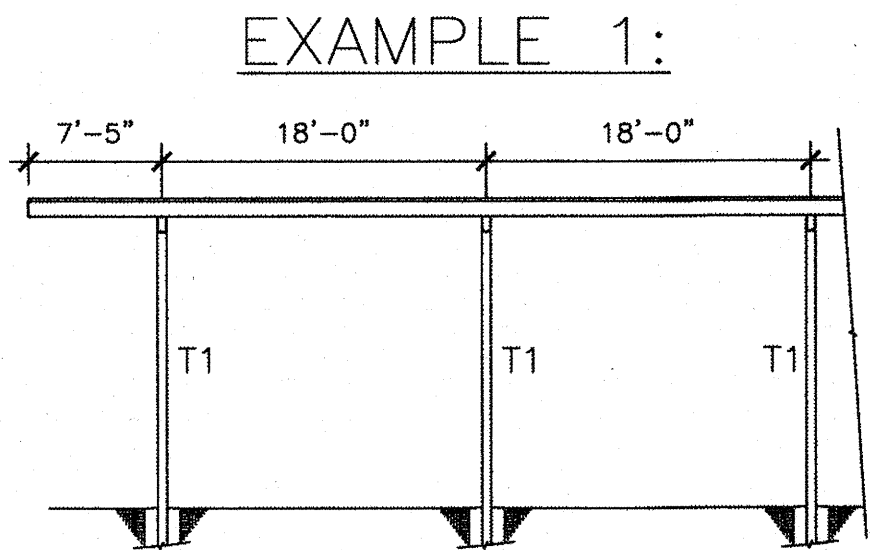
PHOTOVOLTAIC
STRUCTURES
R=1.25 T-STRUCTURE
BEAM TO
COLUMN SCHEDULE

DRAWN
MAP
CHECKED
DKR
DATE
6/18/2018
4STEL JOB NO.
13-1010
SHEET
S-12
12 of 46 SHEETS

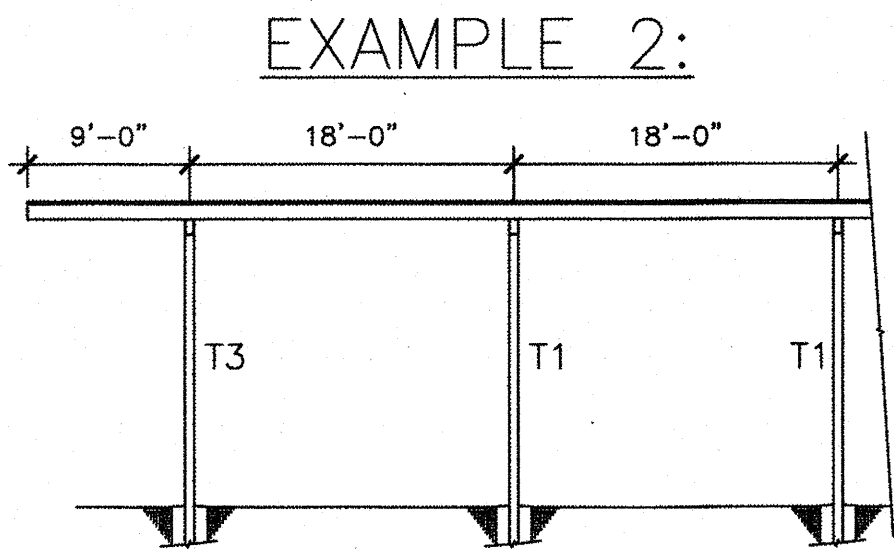
I.D. #	MAX PURLIN SPACING (PS)	MAX COLUMN SPACING (S)	MAX CANTILEVER SPAN, NO BLOCKING (CS)	MAX CANTILEVER SPAN, BLOCKING (CS)	MAX GROUND SNOW LOAD	PURLIN		BLOCKING "A" MID SPAN OF CANTILEVER		BLOCKING "B" MID SPAN OF SIMPLE SPAN		BLOCKING "C" 1/3 SPAN OF SIMPLE SPAN		BLOCKING TO INTERIOR PURLIN DETAIL	BLOCKING TO EXTERIOR PURLIN DETAIL	BEAM TO PURLIN DETAIL			
						SECTION	DETAIL	SECTION	DETAIL	SECTION	DETAIL	SECTION	DETAIL			INTERIOR SPLICE	INTERIOR @ CANTILEVER	EXTERIOR SPLICE	EXTERIOR @ CANTILEVER
A	45"	18'-0"	7'-5"	10'-0"	0 psf	C8 x 4 14 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{4}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$
B	45"	20'-0"	7'-9"	10'-0"	0 psf	C8 x 4 14 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{1}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$
C	45"	27'-0"	8'-9"	11'-2"	0 psf	C8 x 4 12 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{1}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$
D	60"	18'-0"	6'-9"	8'-3"	0 psf	C8 x 4 14 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{1}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$
E	80"	18'-0"	7'-3"	9'-0"	0 psf	C10 x 4 14 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{1}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$
F	80"	20'-0"	7'-9"	10'-3"	0 psf	C8 x 4 12 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{1}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$
G	80"	20'-0"	7'-3"	9'-0"	0 psf	C10 x 4 14 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{1}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$
H	80"	27'-0"	8'-6"	11'-2"	0 psf	C10 x 4 12 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{1}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$
J	45"	18'-0"	7'-3"	9'-3"	20 psf	C8 x 4 14 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{1}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$
K	45"	20'-0"	7'-3"	9'-3"	20 psf	C8 x 4 14 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{1}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$
L	80"	18'-0"	7'-5"	10'-6"	20 psf	C10 x 4 12 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{1}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$
M	80"	20'-0"	8'-0"	10'-6"	20 psf	C10 x 4 12 GA	$\frac{1}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	C6 x 2.5 x 16 GA	$\frac{4}{S-5}$	N/A	N/A	$\frac{7}{S-33}$	$\frac{8}{S-33}$	$\frac{1}{S-33}$	$\frac{12}{S-33}$	$\frac{2}{S-33}$	$\frac{13}{S-33}$

1. MULTIPLE STRUCTURE ID'S MAY BE SELECTED WITHIN THE SAME SITE AND/OR STRUCTURE.
2. WHEN UTILIZING A STRUCTURE ID READ FROM WITHIN THAT ID ROW ONLY.
3. BEAM TO PURLIN DETAIL AT SPLICE SHALL NOT OCCUR ON A PURLIN WITH A CANTILEVER SPAN.
4. WHEN THE CANTILEVER SPAN SHOWN ON THE SITE SPECIFIC SHEETS DOES NOT EXCEED THE MAX CANTILEVER SPAN NO BLOCKING, MID SPAN BLOCKING OF THE CANTILEVER IS NOT REQUIRED.
5. PURLIN SPACING MAY BE INCREASED BEYOND THE MAXIMUMS GIVEN IN THE CHART ABOVE AS LONG AS THE TRIBUTARY WIDTH TO THE PURLIN DOES NOT EXCEED PS.
6. LONG PURLIN CANTILEVERS INCREASE THE TRIBUTARY AREA TO THE END BEAM AND MAY REQUIRE THE SUPPORTING MEMBERS TO INCREASE IN SIZE PER THE SCHEDULE BELOW. THE LEFT COLUMN OF THE SCHEDULE REPRESENTS THE COLUMN SPACING CURRENTLY USED, AND THE CENTER COLUMN OF THE SCHEDULE REPRESENTS THE PURLIN CANTILEVER RANGE. USING THE COLUMN SPACING AND PURLIN CANTILEVER ADJACENT TO THE END BEAM, DETERMINE THE APPROPRIATE MEMBER SIZING PER THE RIGHTMOST COLUMN OF THE SCHEDULE. FOR EXAMPLE, SEE 2/-

PURLIN CANTILEVER SCHEDULE		
COLUMN SPACING	MAX CANTILEVER	MEMBER SIZING
18'-0"	CS ≤ 7'-5"	18'-0"
18'-0"	7'-5" < CS ≤ 8'-9"	20'-0"
18'-0"	8'-9" < CS ≤ 13'-2"	27'-0"
20'-0"	CS ≤ 8'-3"	20'-0"
20'-0"	8'-3" < CS ≤ 12'-10"	27'-0"
27'-0"	CS ≤ 11'-2"	27'-0"



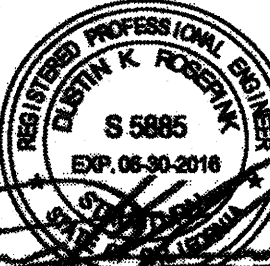
PURLIN CANTILEVER DOES NOT
REQUIRE MEMBER SIZE INCREASE
AT END.



PURLIN CANTILEVER EXCEEDS
LIMITS SHOWN IN CHART AND
REQUIRES MEMBER SIZE
INCREASE AT END.

2 | PURLIN
CONDITION EXAMPLES

SCALE: N.T.S.



7/22/15
DATE SIGNED
MMMM DD, 2015

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

A 03119250

AC / FLS / SS EY
DATE AUG 07 2018

SITE SPECIFIC
DSA APPROVAL

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES

APPROVED P.C. 04-11-1525

AC / FLS / SS G
DATE JUL 28 2015

CHECK (PC) DOCUMENT
CODE: 2013 CBC
SEPARATE PROJECT APPLICATION
FOR CONSTRUCTION IS REQUIRED

MBARC
CONSTRUCTION
INC.

674 RANCHEROS DR
SAN MARCOS, CA
92069

ASTEL ENGINEERING
STRUCTURAL ENGINEERING

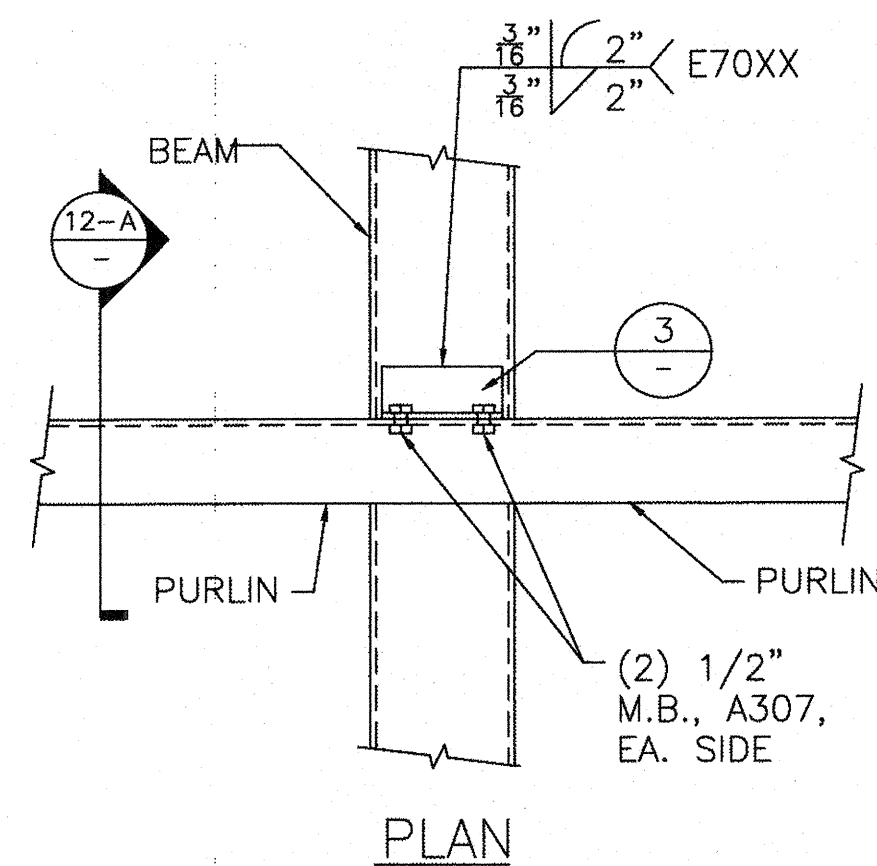
109 EAST ESCALONES
SAN CLEMENTE, CA 92672

PHOTOVOLTAIC
STRUCTURES
PURLIN
SCHEDULE
(ALL SLOPES)

DRAWN
MAP
CHECKED
DKR
DATE
5/29/15
4STEL JOB NO.
13-1010
SHEET

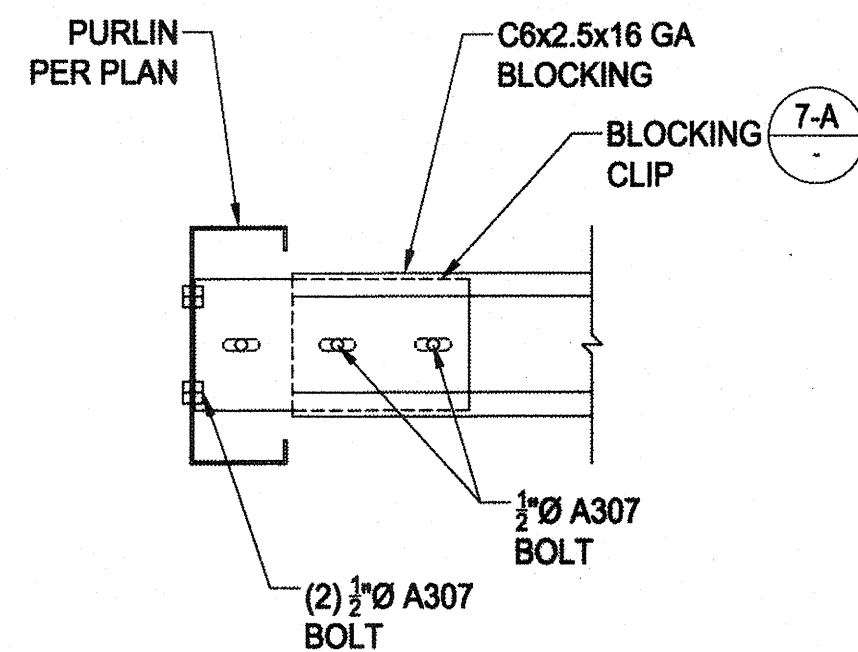
S-32

32 OF 46 SHEETS



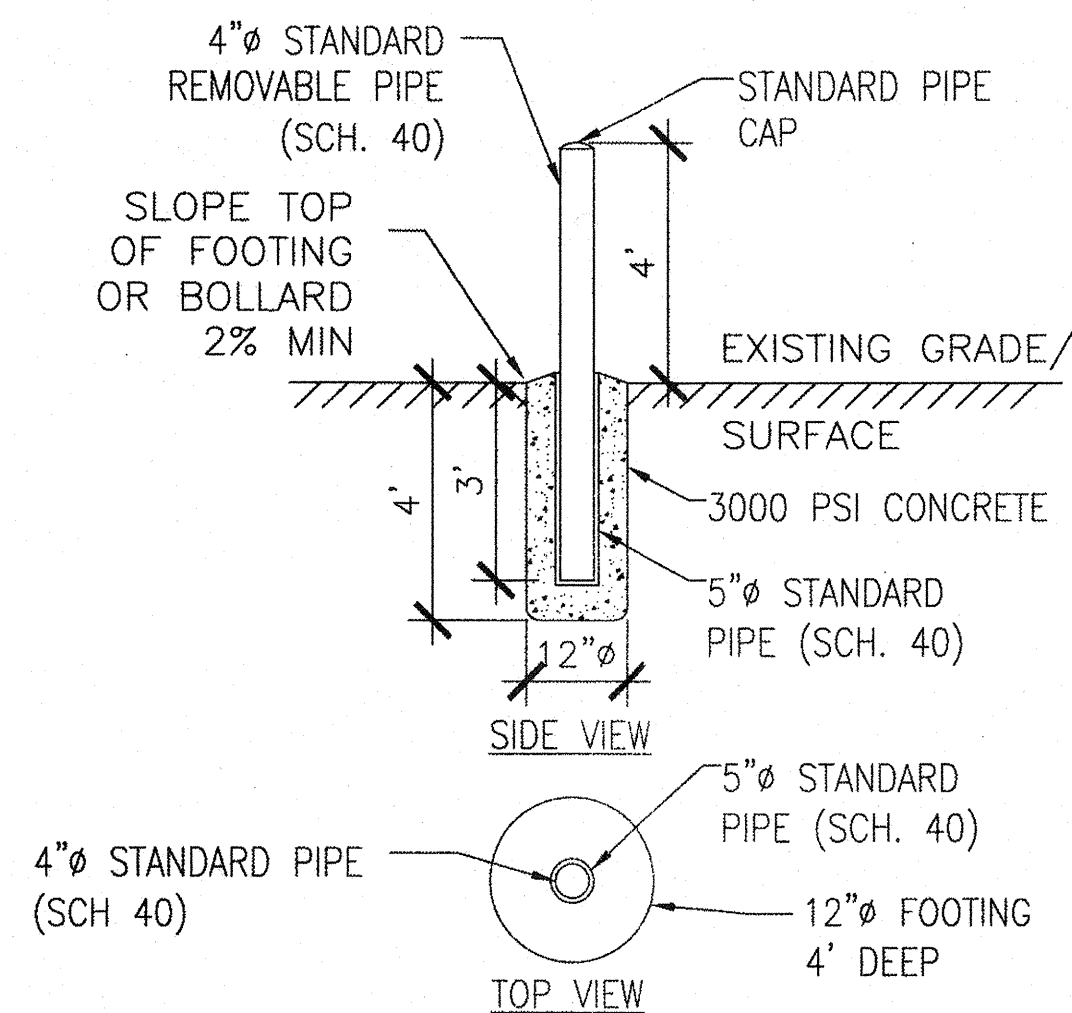
12 BEAM TO PURLIN

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



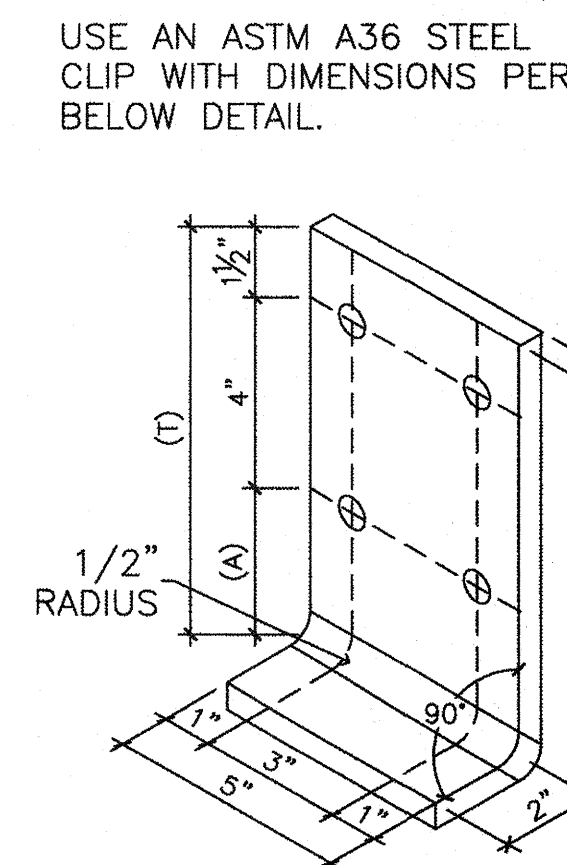
8 PURLIN BLOCKING CONNECTION AT EXTERIOR

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



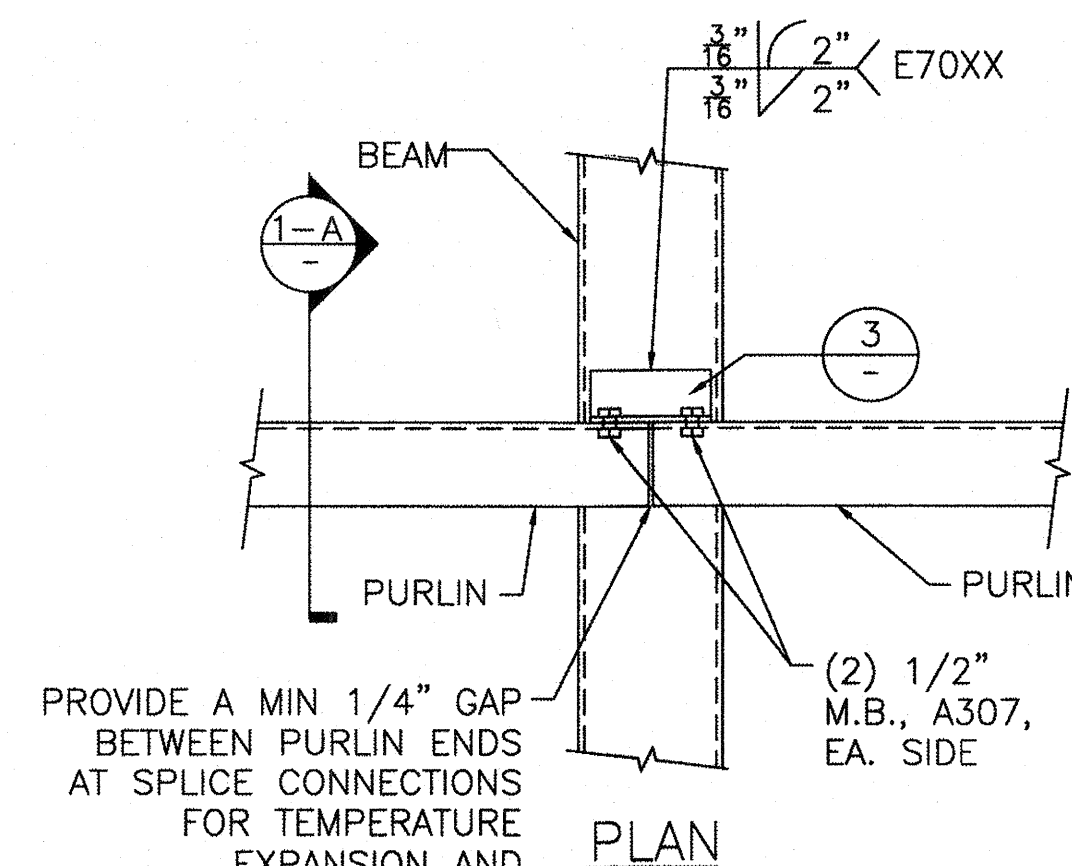
6 OPTIONAL BOLLARD

SCALE: NTS



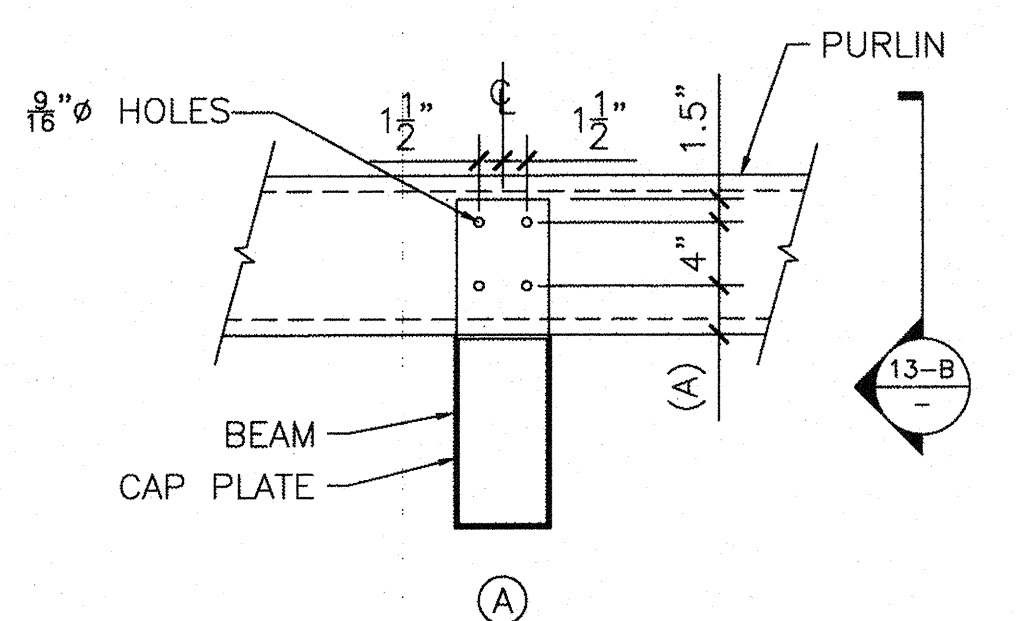
3 CLIP ANGLE

SCALE: 3" = 1'-0"



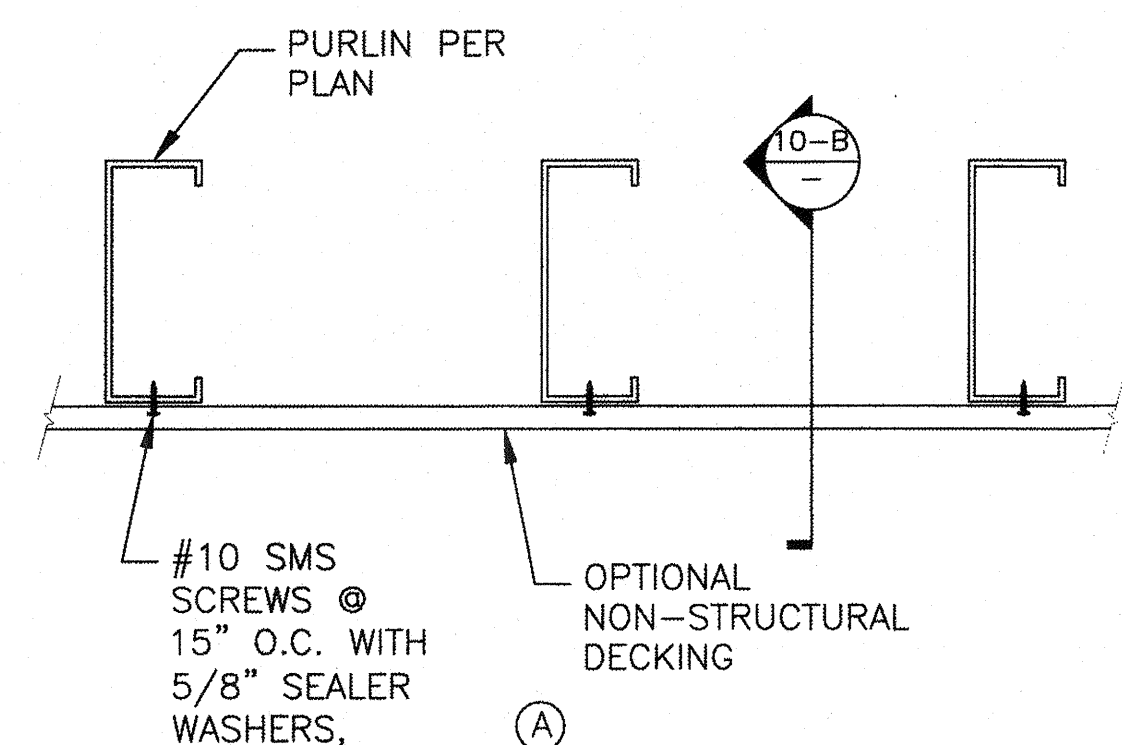
1 BEAM TO PURLIN AT SPLICE

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



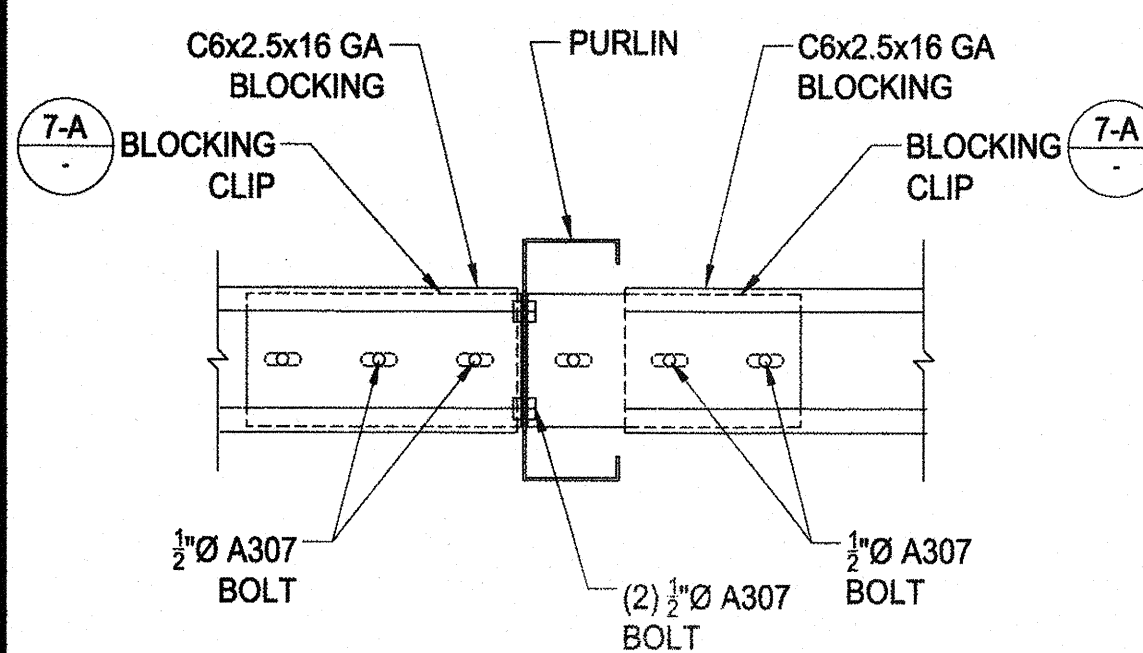
13 BEAM END PLATE

SCALE: 1" = 1'-0"



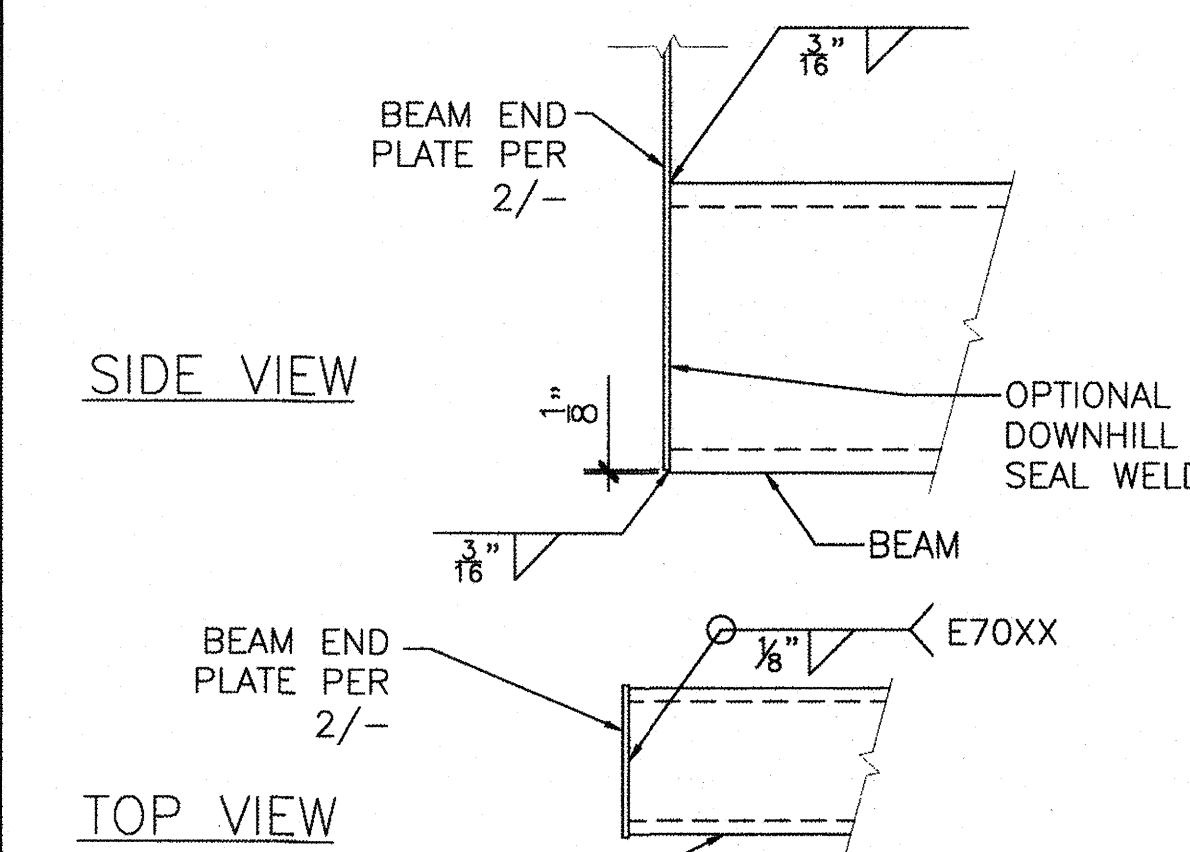
9 DECK FLASHING

SCALE: 6" = 1'-0"



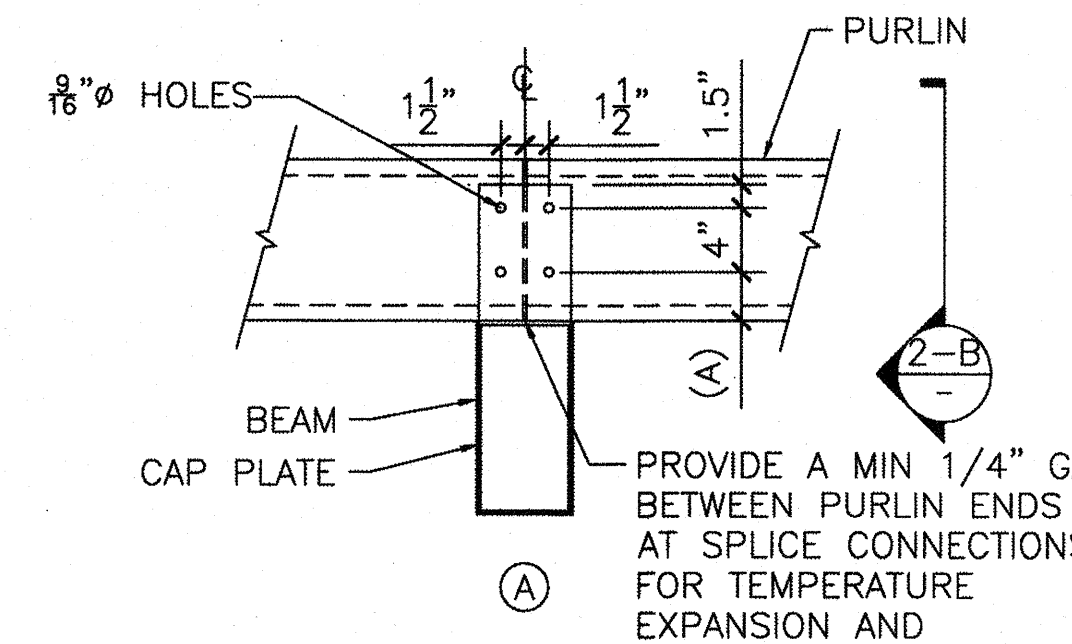
7 PURLIN BLOCKING CONNECTION AT INTERIOR

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



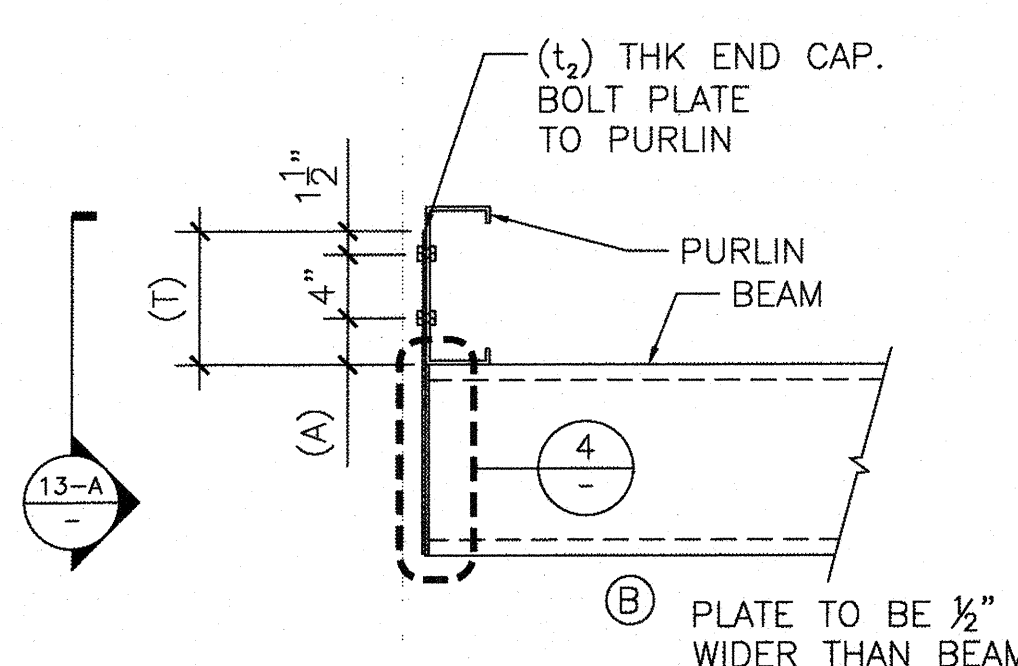
4 BEAM TO END PLATE

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

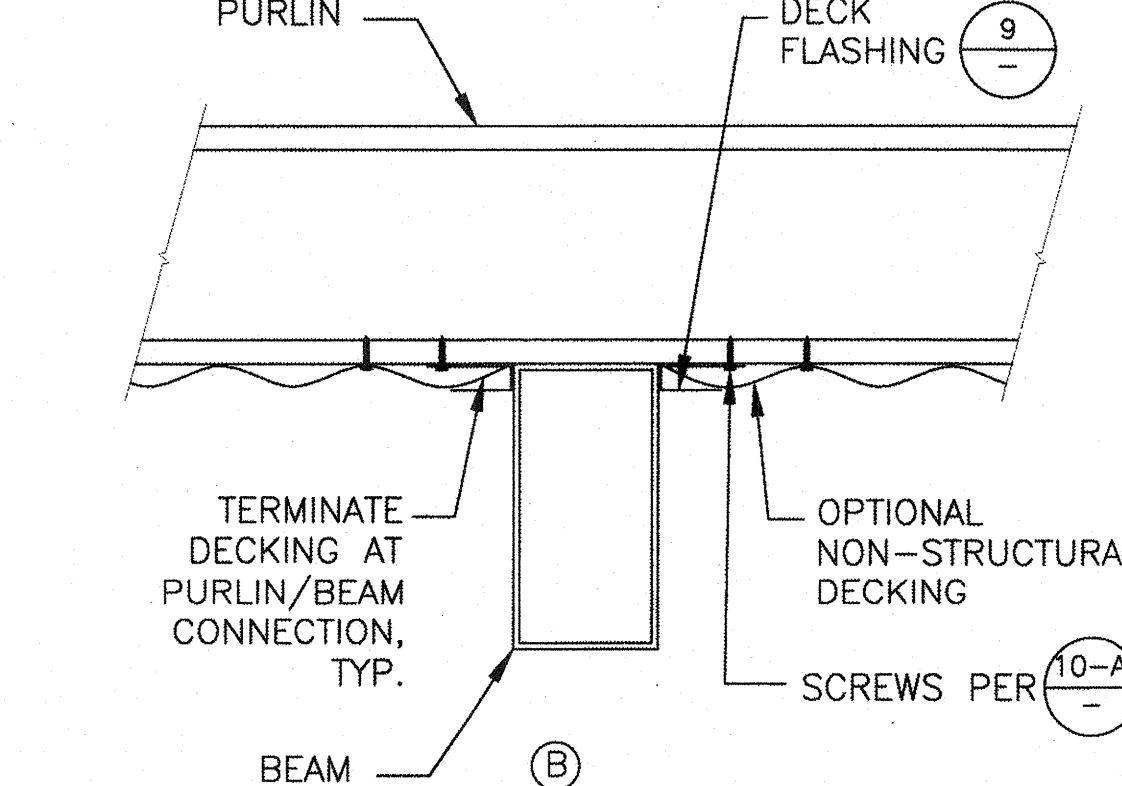


2 BEAM END PLATE AT SPLICE

SCALE: 1" = 1'-0"

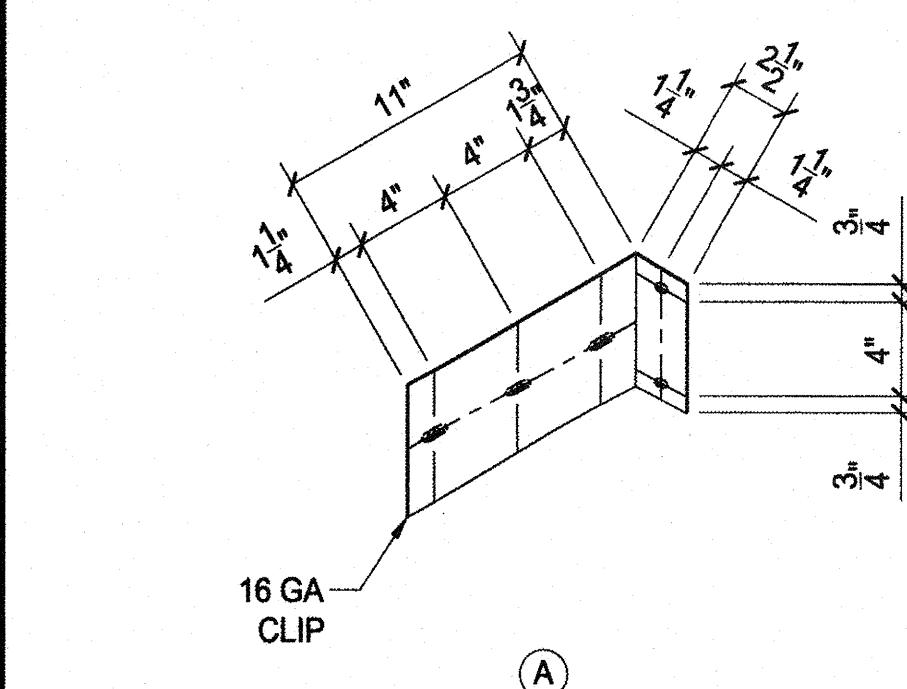


END PLATE						
PURLIN HEIGHT	T	A	PURLIN SPACING	COLUMN SPACING	GROUND SNOW	12
8"	7.5"	2"	≤ 45"	≤ 20'-0"	≤ 20 psf	1/4"
8"	7.5"	2"	> 45"	> 20'-0"	≤ 20 psf	5/16"
10"	8.5"	3"	≤ 80"	≤ 20'-0"	0 psf	5/16"
10"	8.5"	3"	≤ 80"	> 20'-0"	0 psf	3/8"
10"	8.5"	3"	≤ 80"	> 20'-0"	≤ 20 psf	5/16"

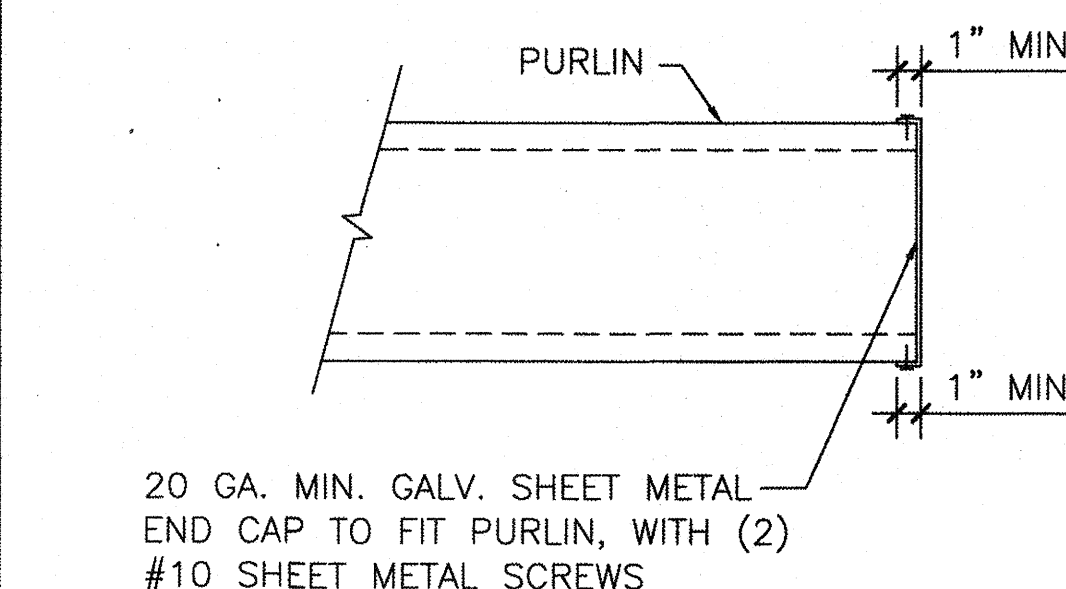


10 OPTIONAL DECKING

SCALE: 3" = 1'-0"

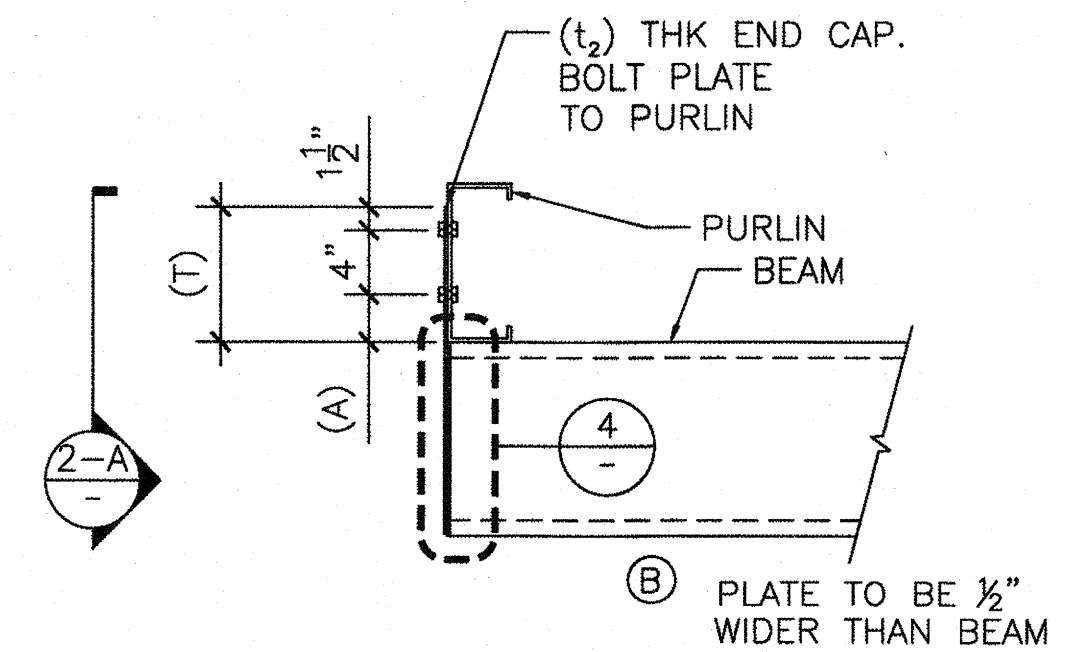


- NOTE:
1. BLOCKING SECTIONS SHALL BE 2 1/2" WIDE.
 2. SHORT-SLOTTED HOLES OPTIONAL. STANDARD ROUND HOLES MAY BE USED.



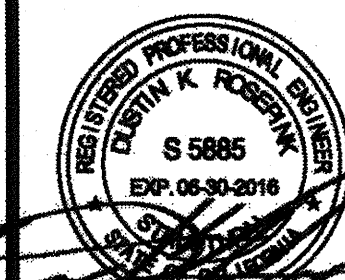
5 PURLIN END CAP

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



END PLATE						
PURLIN HEIGHT	T	A	PURLIN SPACING	COLUMN SPACING	GROUND SNOW	12
8"	7.5"	2"	≤ 45"	≤ 20'-0"	≤ 20 psf	1/4"
8"	7.5"	2"	> 45"	> 20'-0"	≤ 20 psf	5/16"
10"	8.5"	3"	≤ 80"	≤ 20'-0"	0 psf	5/16"
10"	8.5"	3"	≤ 80"	> 20'-0"	0 psf	3/8"
10"	8.5"	3"	≤ 80"	> 20'-0"	≤ 20 psf	5/16"

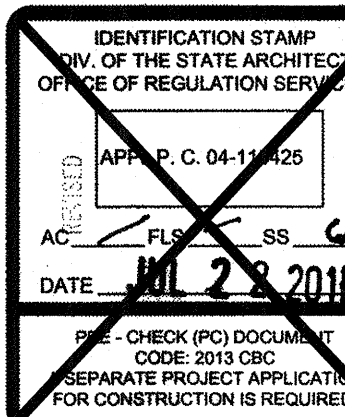
ENGINEER'S APPROVAL



7/22/15
DATE SIGNED
MMMM DD, 2015

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
A 03119250
AC FLS SS EY
DATE AUG 07 2018

SITE SPECIFIC
DSA APPROVAL

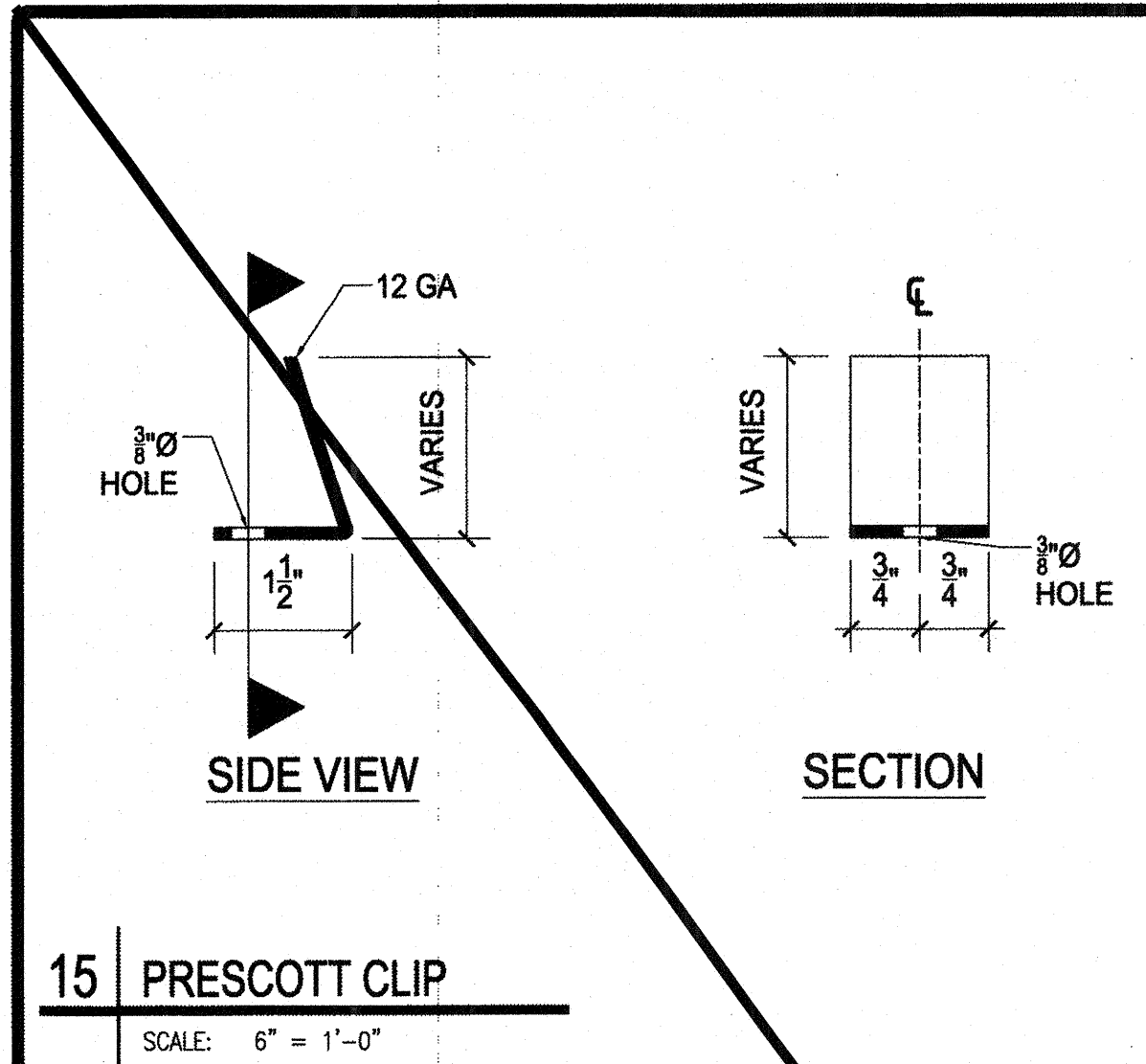


MBARC
CONSTRUCTION
INC.
674 RANCHEROS DR
SAN MARCOS, CA 92069
PHONE: (760) 744-4131
FAX: (760) 744-4449
LIC # 869940
B AND C51

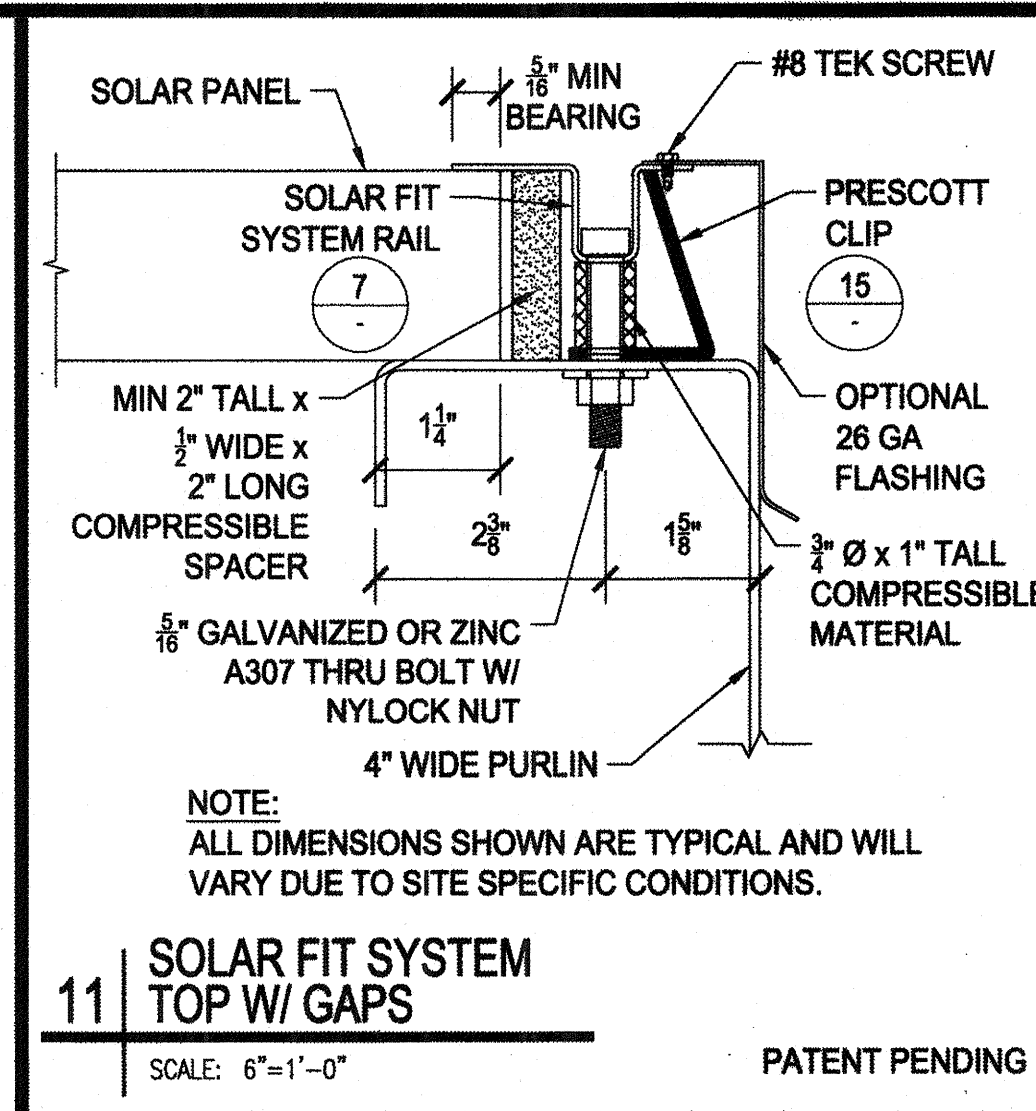
ASTEL
ENGINEERING
STRUCTURAL ENGINEERING
109 EAST ESCALONES
SAN CLEMENTE, CA 92672
PHONE: (949) 388-9333
FAX: (949) 388-3773

PHOTOVOLTIC
STRUCTURES
STANDARD
PURLIN
DETAILS

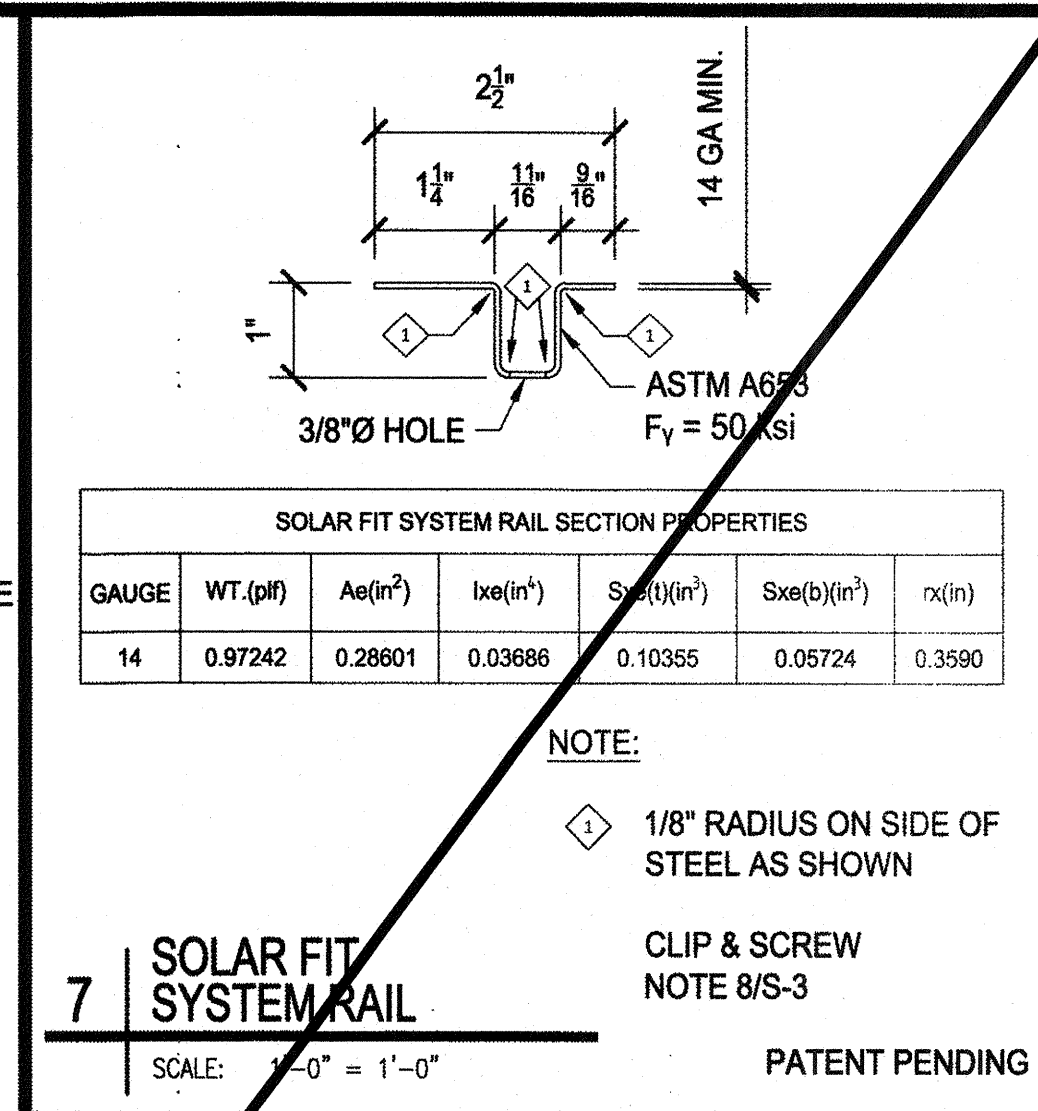
DRAWN
MAP
CHECKED
DKR
DATE
5/29/15
4STEL JOB NO.
13-1010
SHEET
S-33
33 OF 46 SHEETS



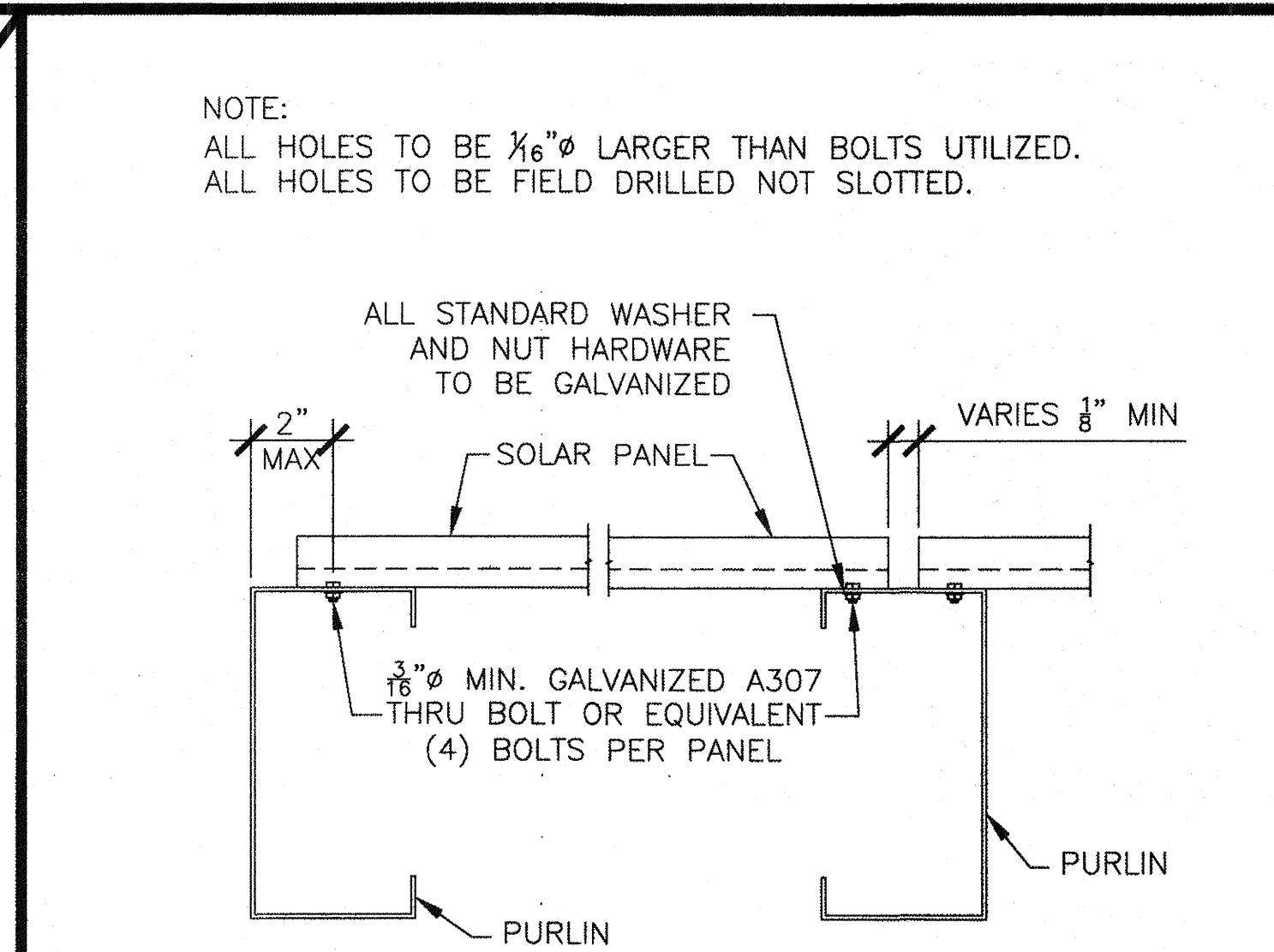
15 PRESCOTT CLIP
SCALE: 6" = 1'-0"



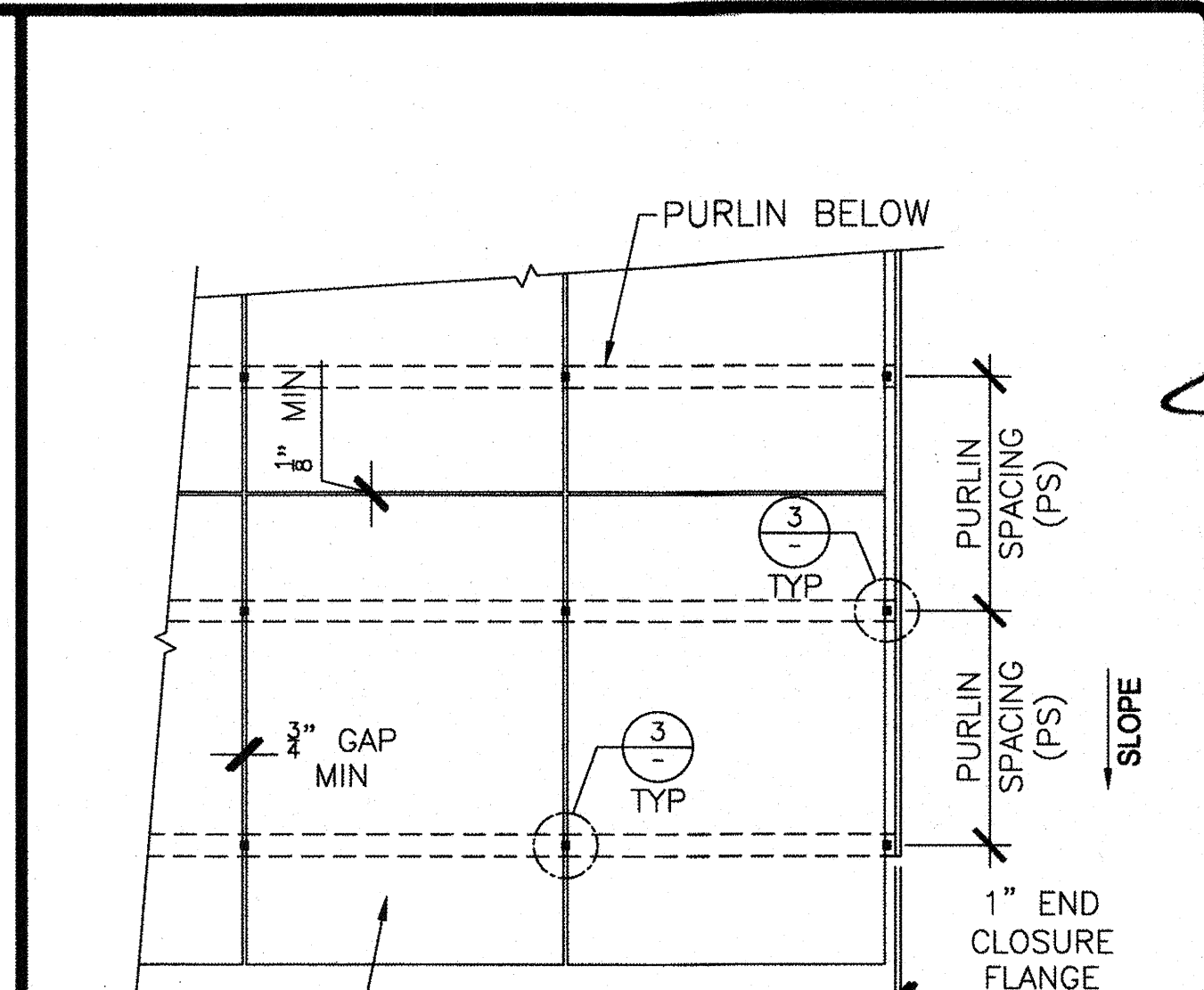
11 SOLAR FIT SYSTEM TOP W/ GAPS
SCALE: 6" = 1'-0" PATENT PENDING



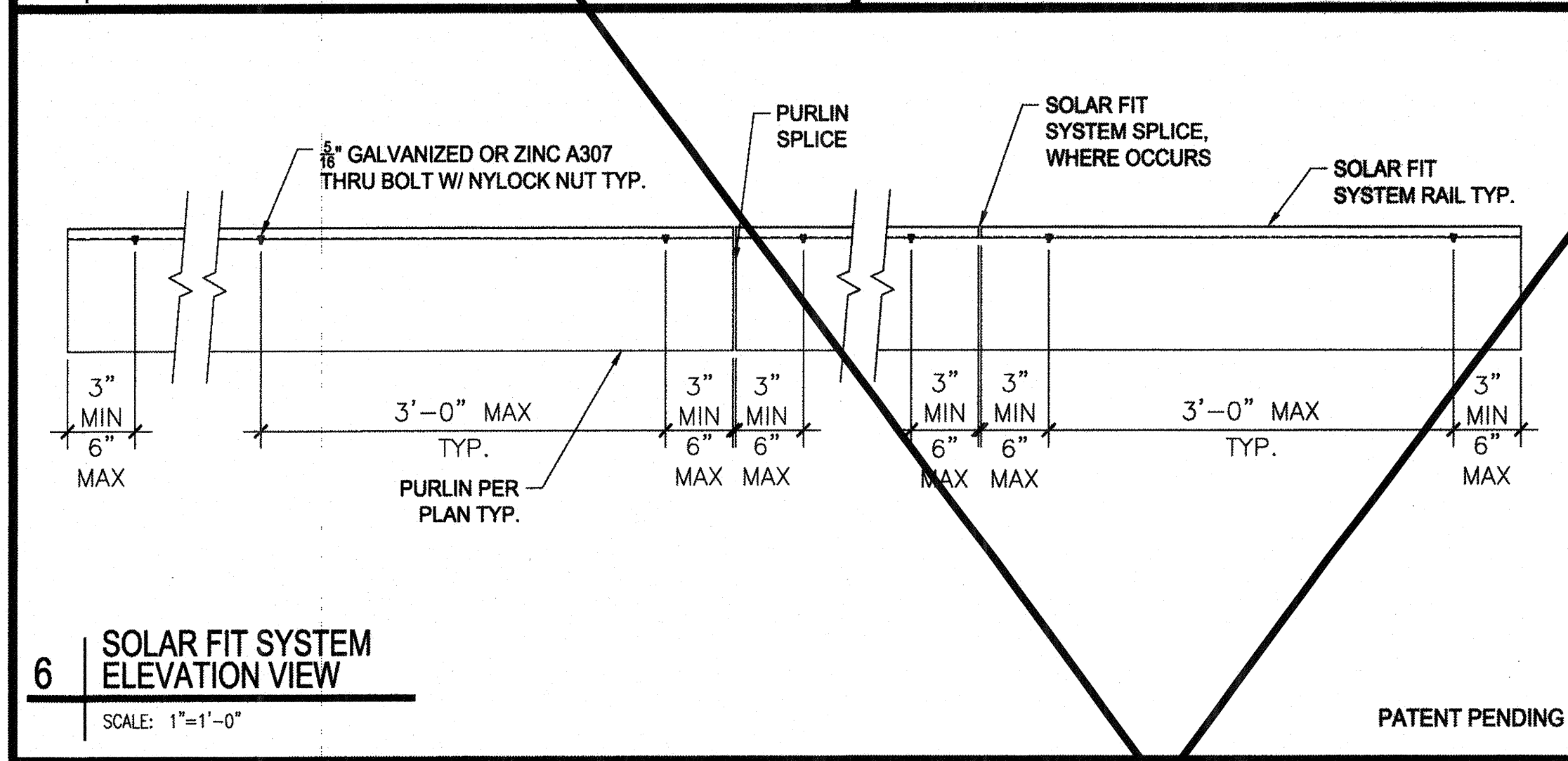
7 SOLAR FIT SYSTEM RAIL
SCALE: 6" = 1'-0" PATENT PENDING



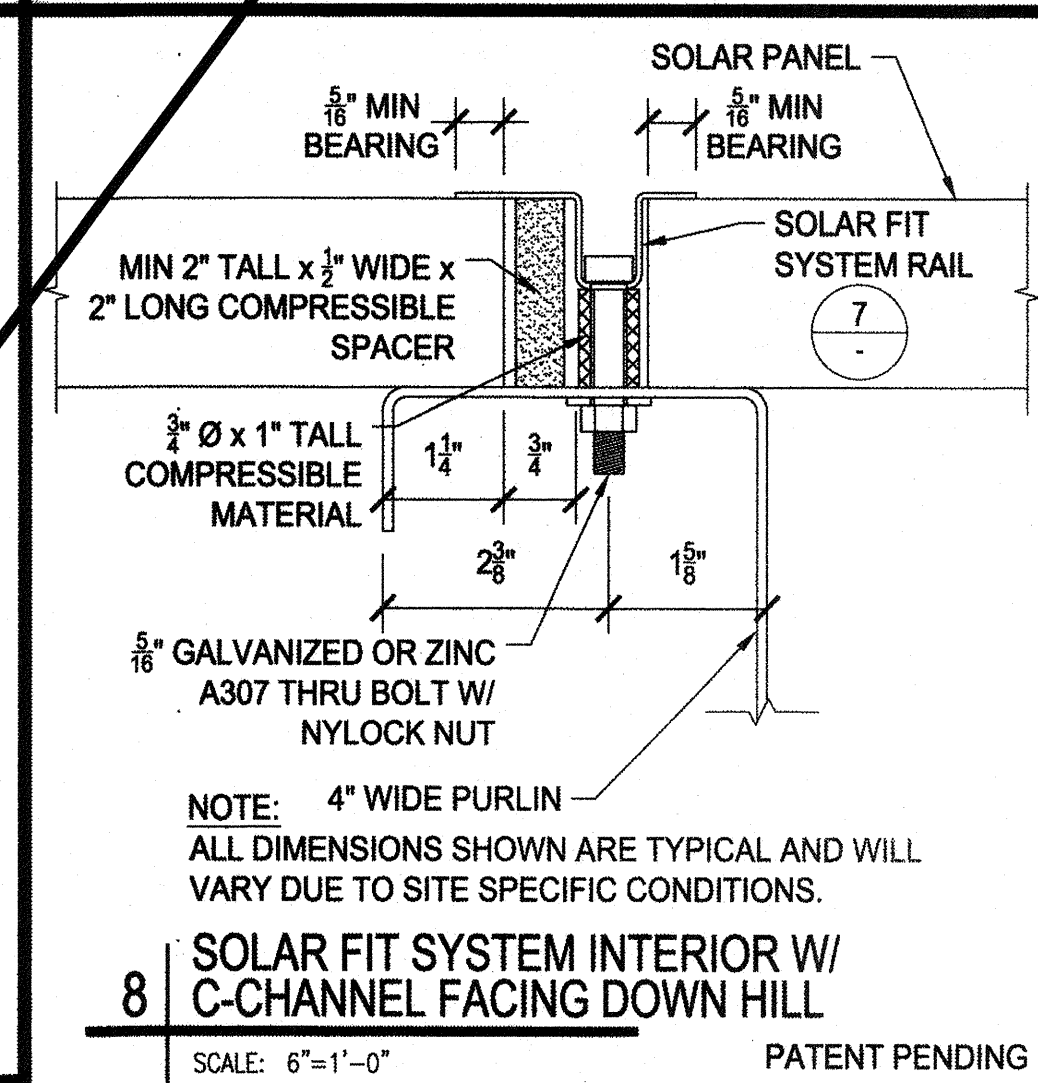
4 ALTERNATE PANEL ATTACHMENT
SCALE: 3" = 1'-0"



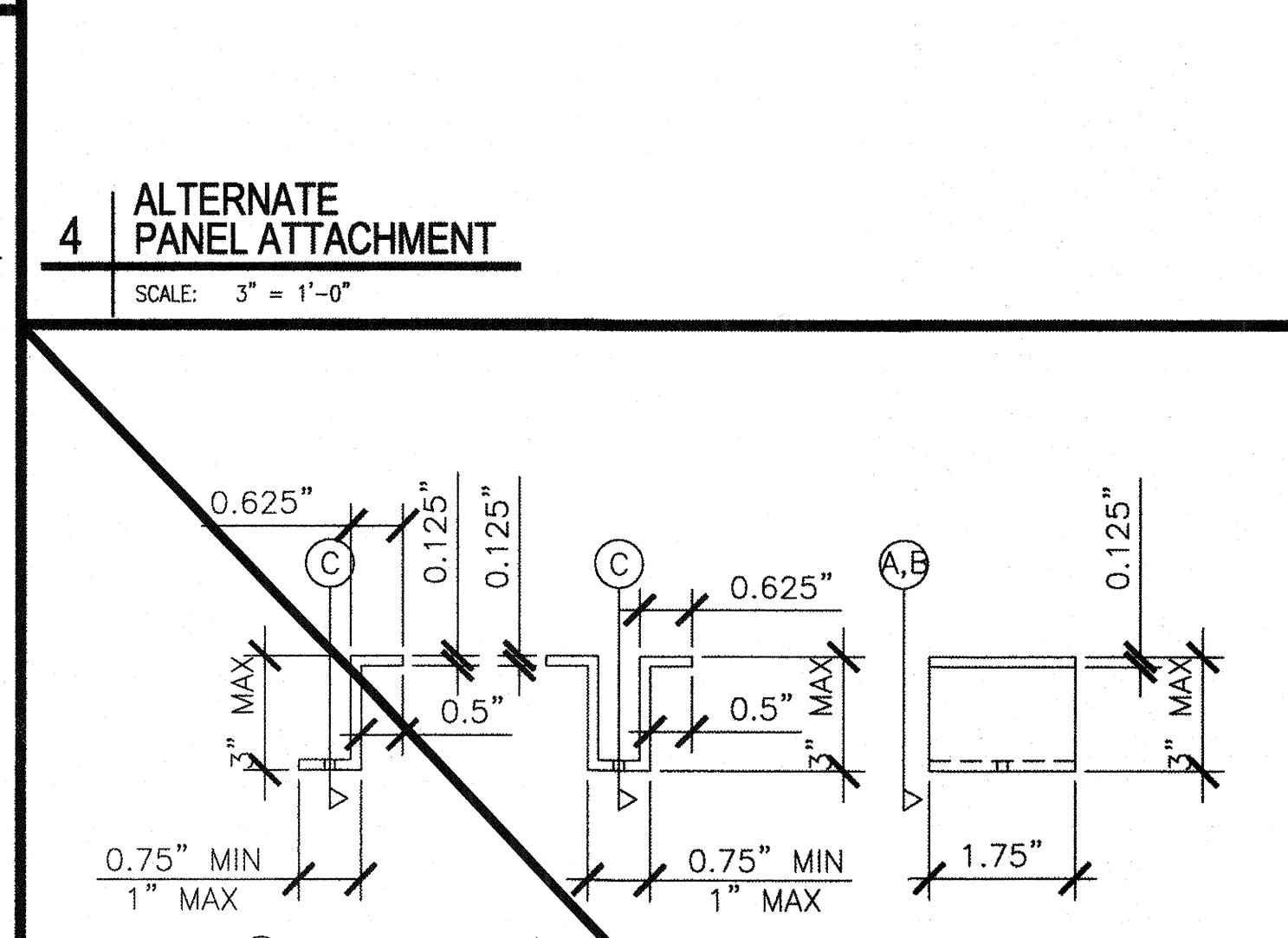
1 PORTRAIT SOLAR PANEL LAYOUT
SCALE: 3/8" = 1'-0" NOTE: SEE S-36 FOR WEBB GROUNDING DETAILS.



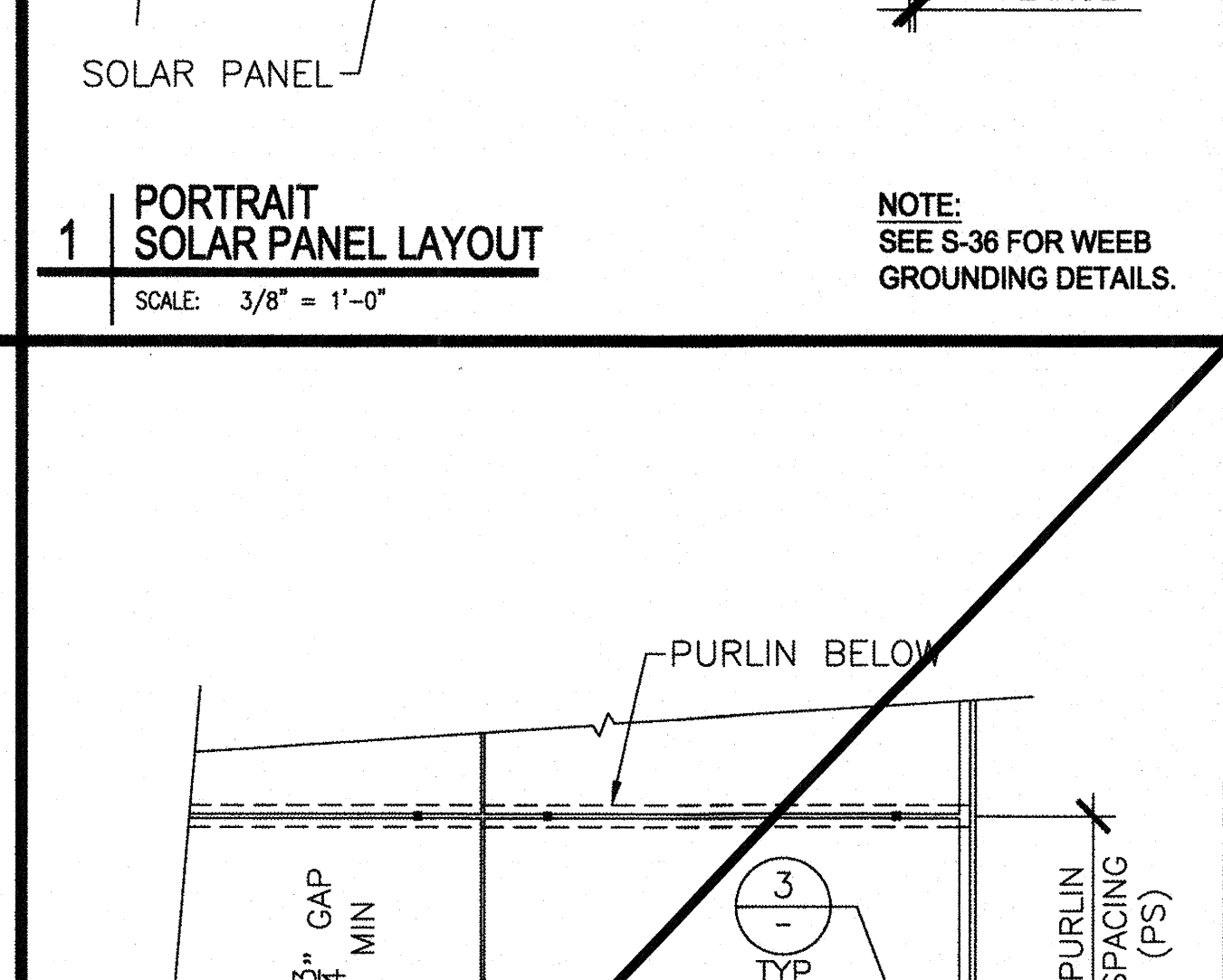
6 SOLAR FIT SYSTEM ELEVATION VIEW
SCALE: 1" = 1'-0" PATENT PENDING



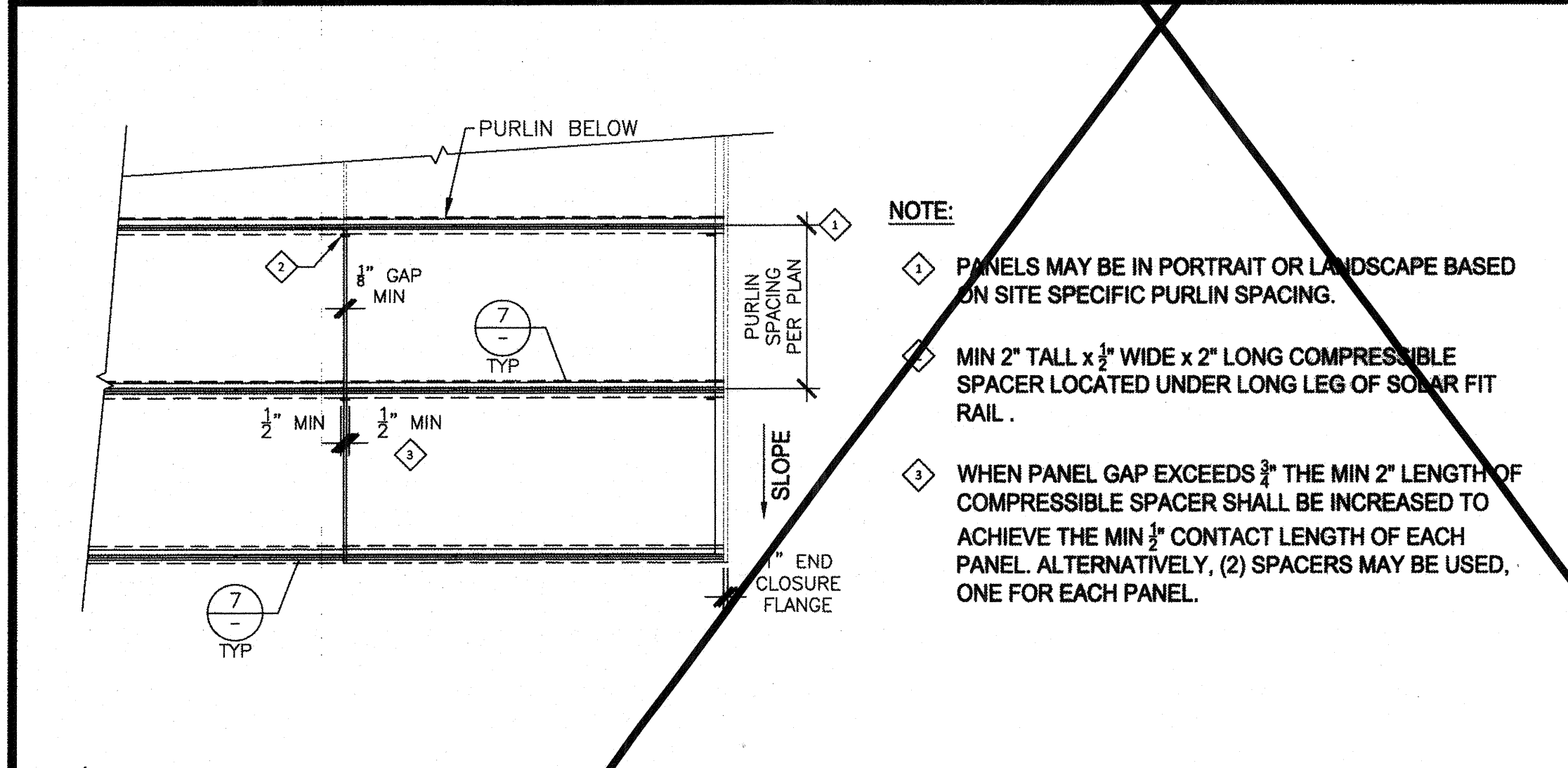
8 SOLAR FIT SYSTEM INTERIOR W/ C-CHANNEL FACING DOWN HILL
SCALE: 6" = 1'-0" PATENT PENDING



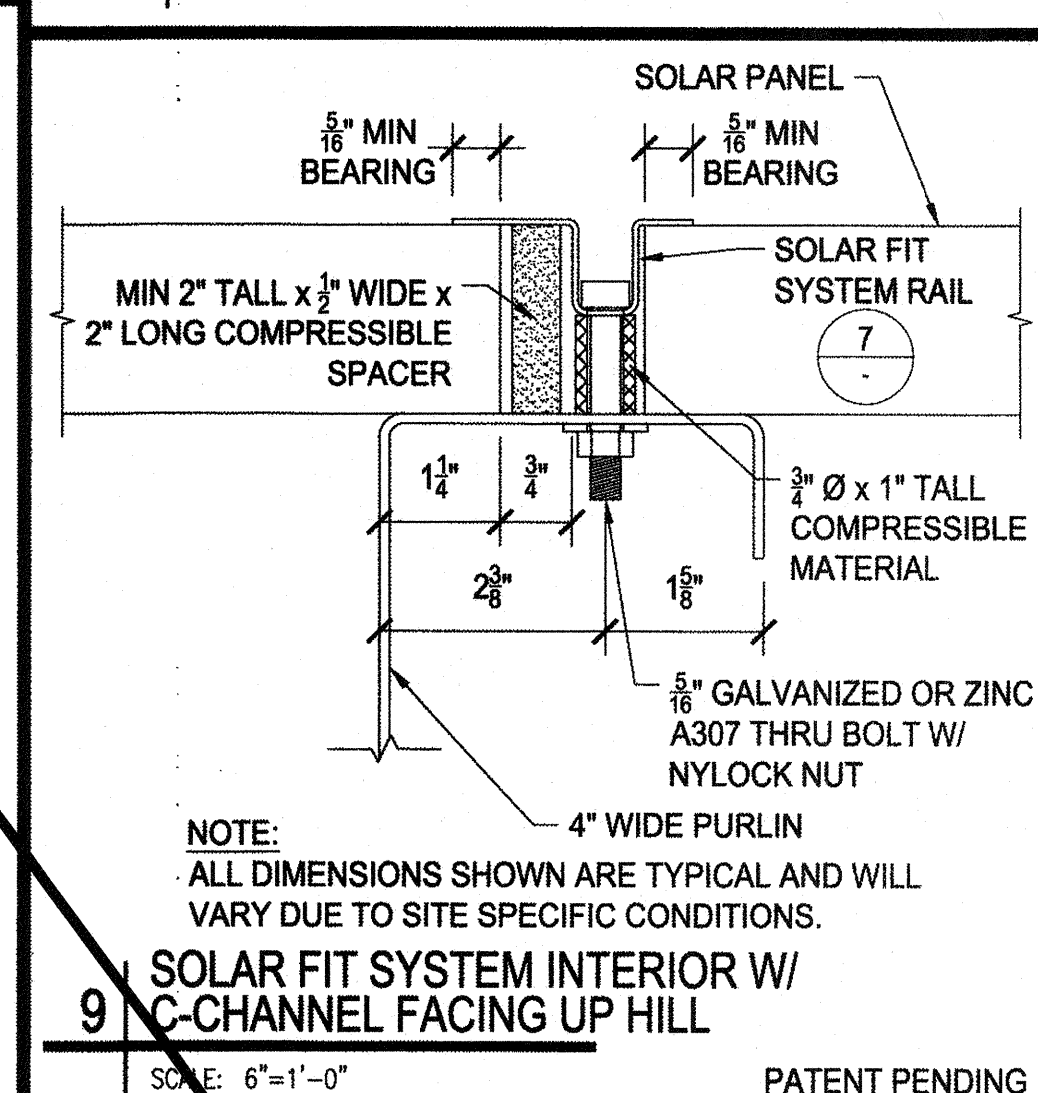
5 12 GA PURLIN SOLAR PANEL CLIP
SCALE: 6" = 1'-0"



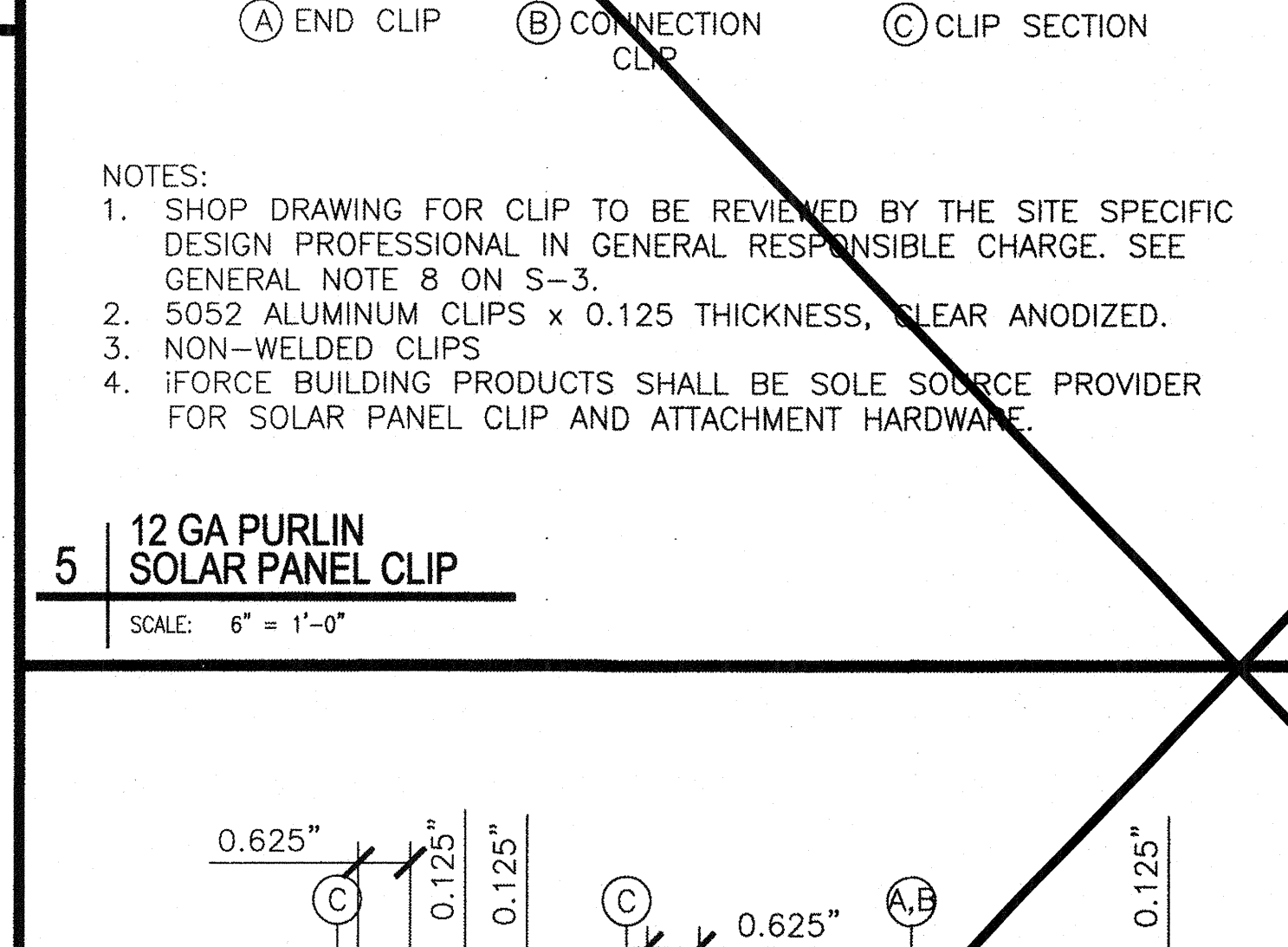
2 LANDSCAPE SOLAR PANEL LAYOUT
SCALE: 3/8" = 1'-0" NOTE: SEE S-36 FOR WEBB GROUNDING DETAILS.



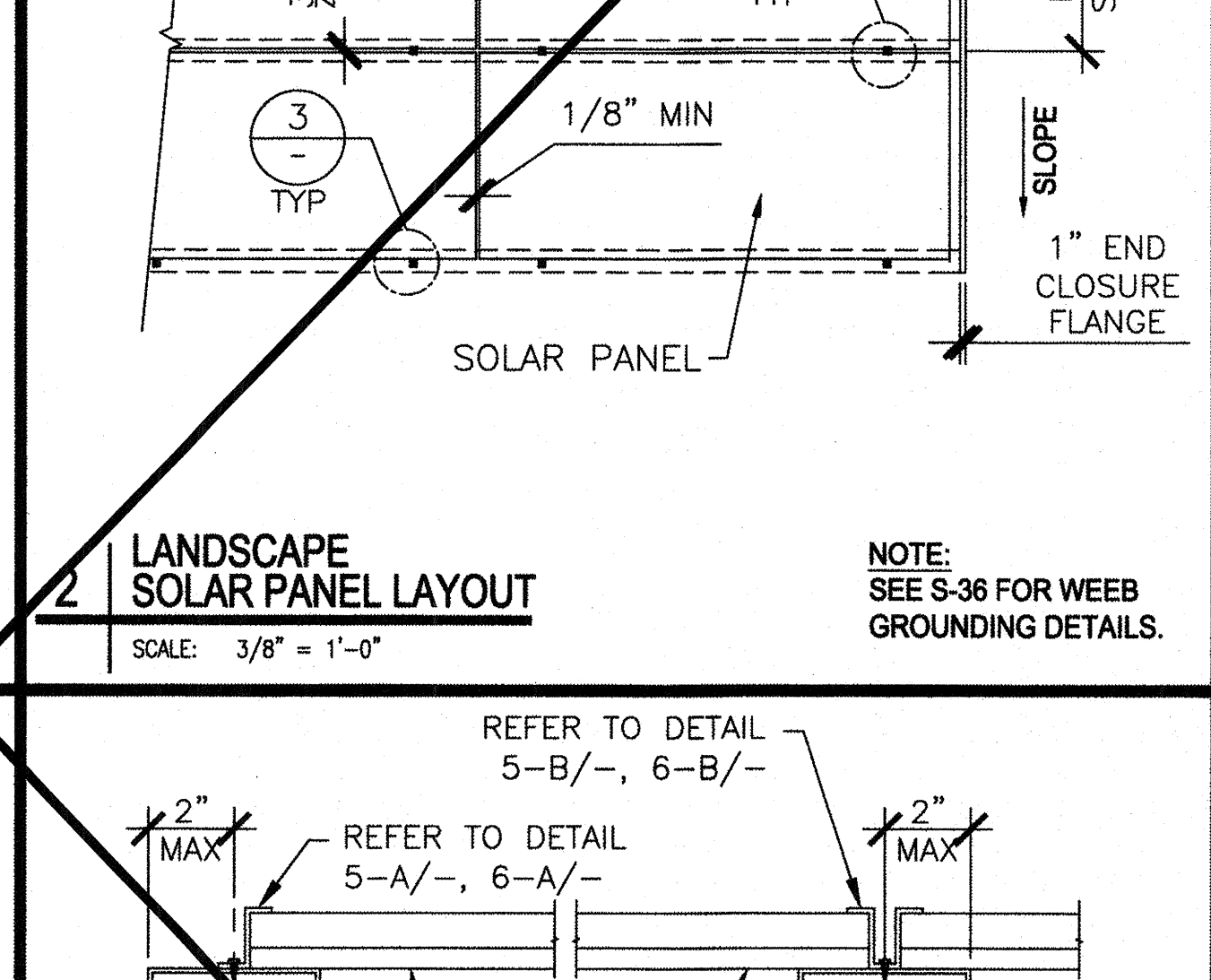
13 SOLAR PANEL LAYOUT
SCALE: 3/8" = 1'-0"



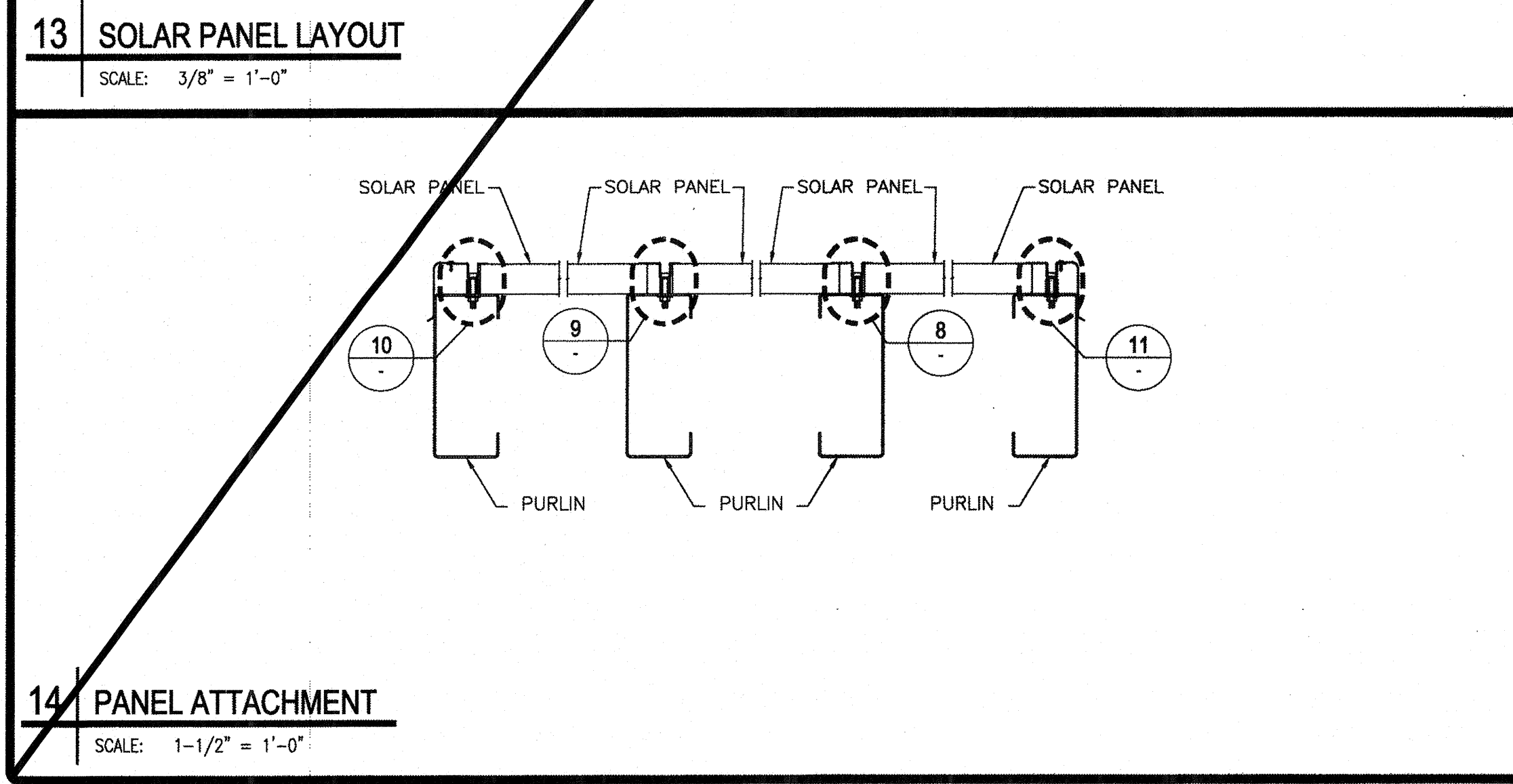
9 SOLAR FIT SYSTEM INTERIOR W/ C-CHANNEL FACING UP HILL
SCALE: 6" = 1'-0" PATENT PENDING



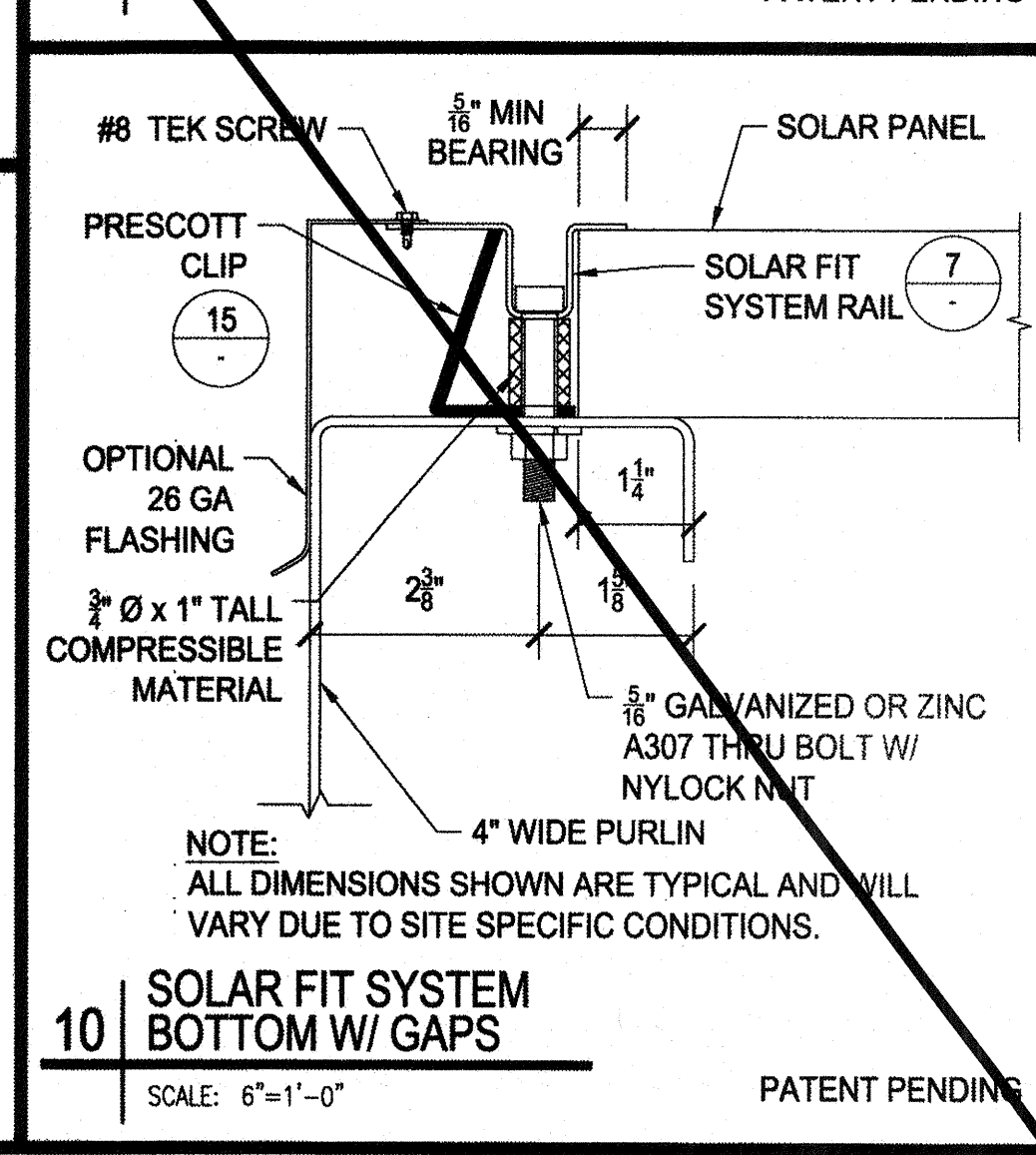
6 14 GA PURLIN SOLAR PANEL CLIP
SCALE: 6" = 1'-0"



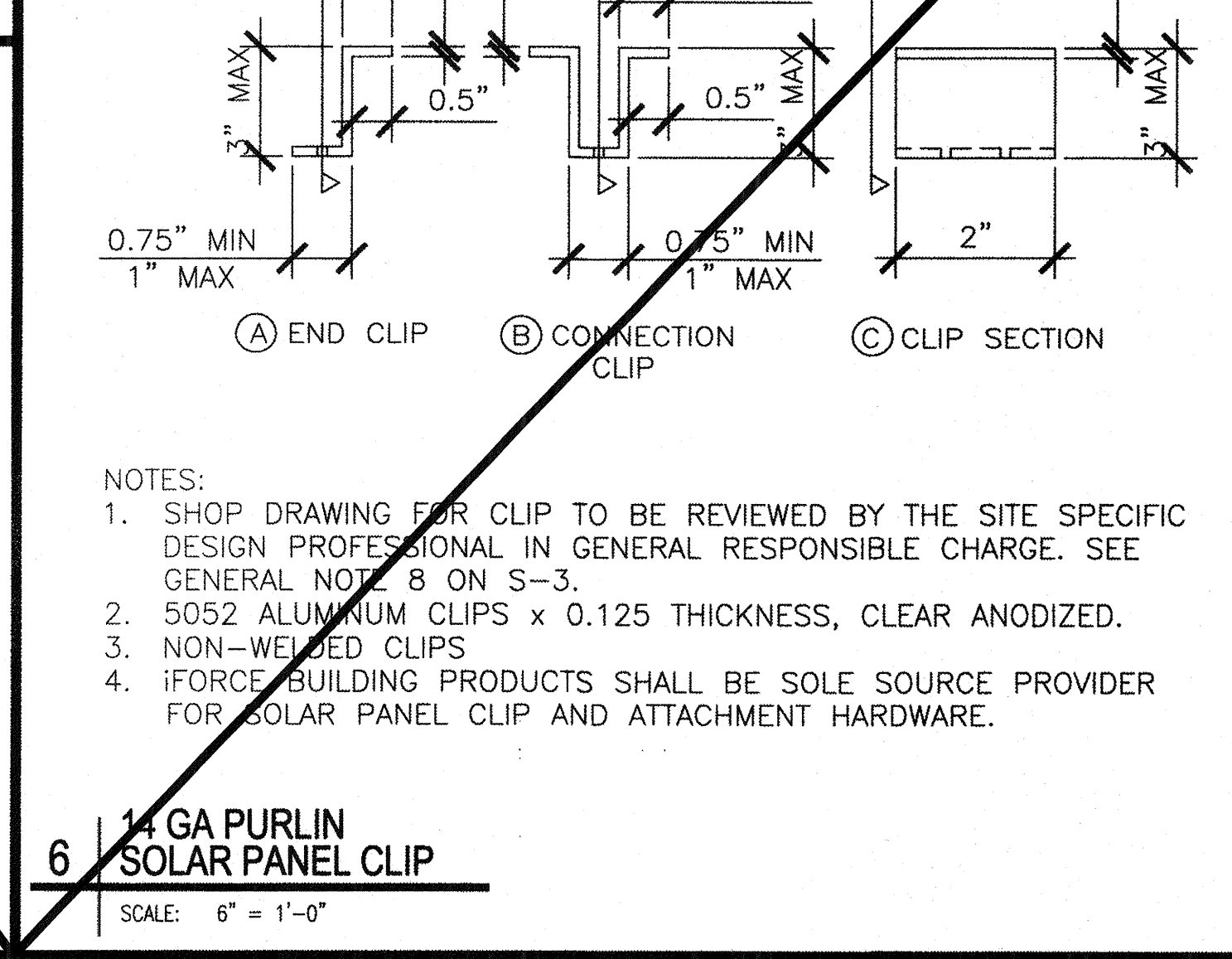
3 PANEL ATTACHMENT
SCALE: 3" = 1'-0"



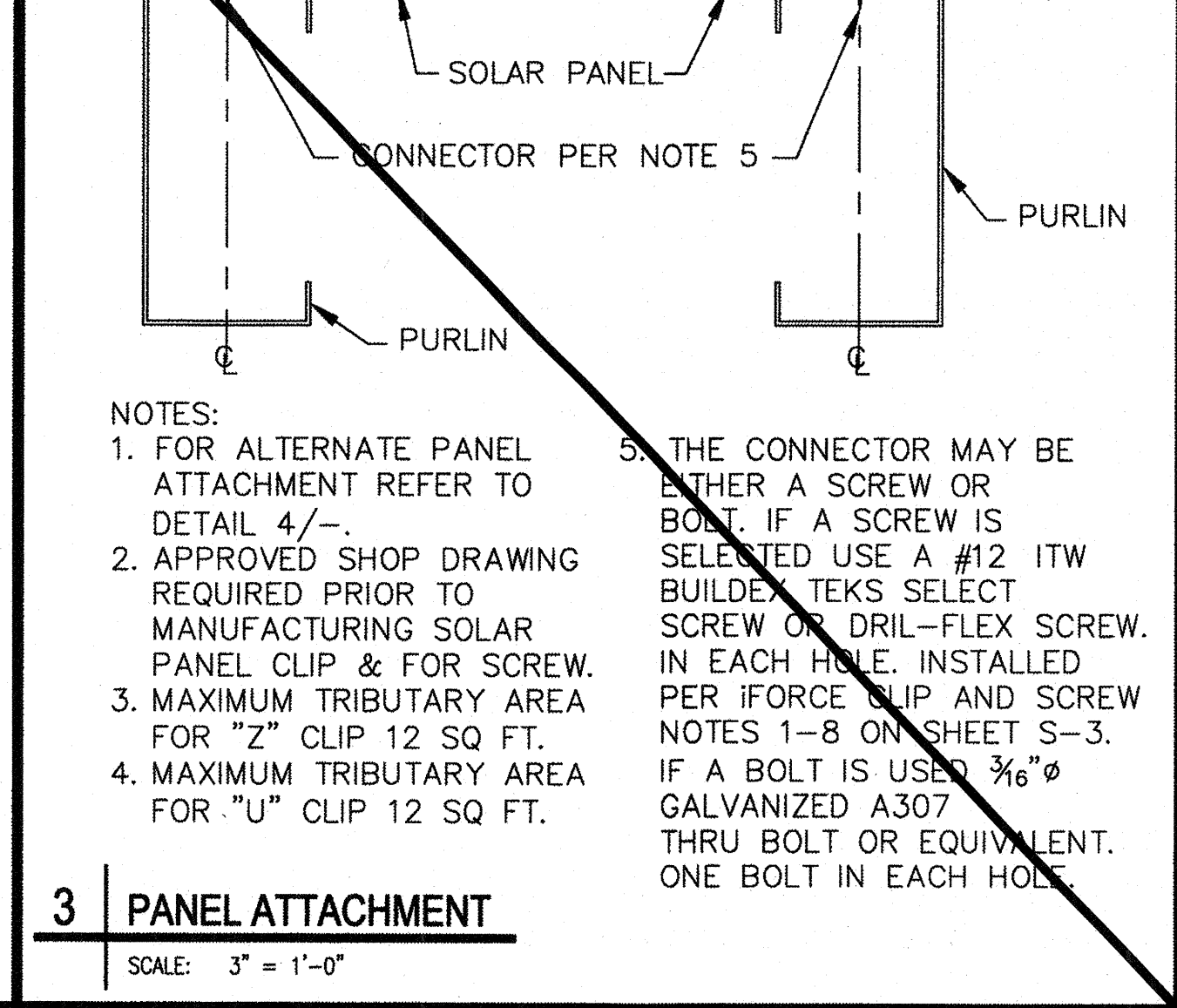
14 PANEL ATTACHMENT
SCALE: 1-1/2" = 1'-0"



10 SOLAR FIT SYSTEM BOTTOM W/ GAPS
SCALE: 6" = 1'-0" PATENT PENDING



6 14 GA PURLIN SOLAR PANEL CLIP
SCALE: 6" = 1'-0"



3 PANEL ATTACHMENT
SCALE: 3" = 1'-0"

ENGINEER'S APPROVAL

7/22/15

DATE SIGNED

MMMM DD, 2015

IDENTIFICATION STAMP

DIV. OF THE STATE ARCHITECT

A 03119250

AC FLS SS

DATE AUG 07 2018

SITE SPECIFIC

DSA APPROVAL

IDENTIFICATION STAMP

DIV. OF THE STATE ARCHITECT

OFFICE OF REGULATION SERVICES

APPROVED FOR CONSTRUCTION

DATE 7/22/15

MBARC CONSTRUCTION INC.

674 RANCHEROS DR

SAN MARCOS, CA 92069

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UC # 869940

B AND C51

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PHOTOVOLTAIC

STRUCTURES

STANDARD

SOLAR PANEL

SUPPORT

DETAILS

DRAWN

MAP

CHECKED

DKR

DATE

5/29/15

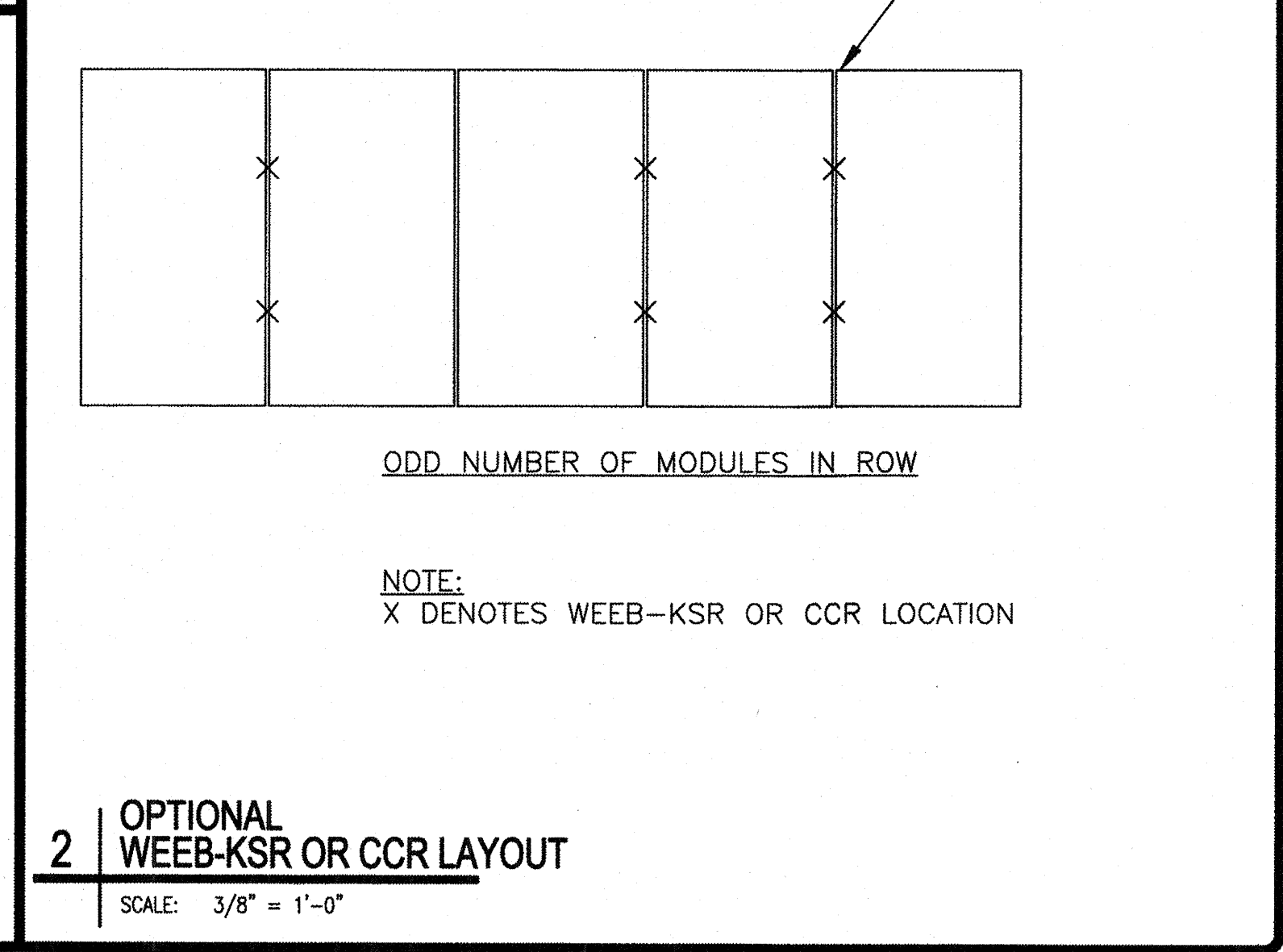
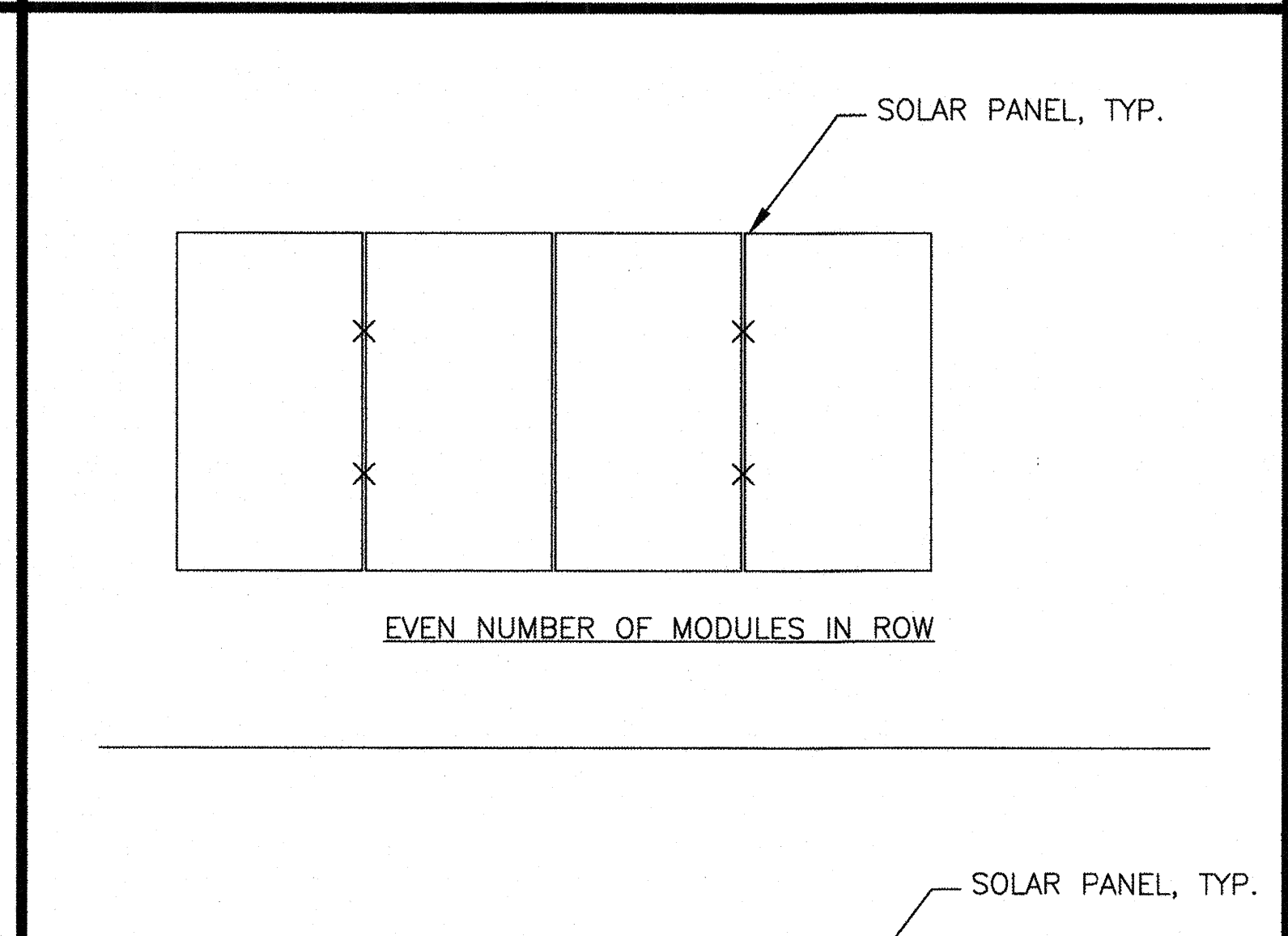
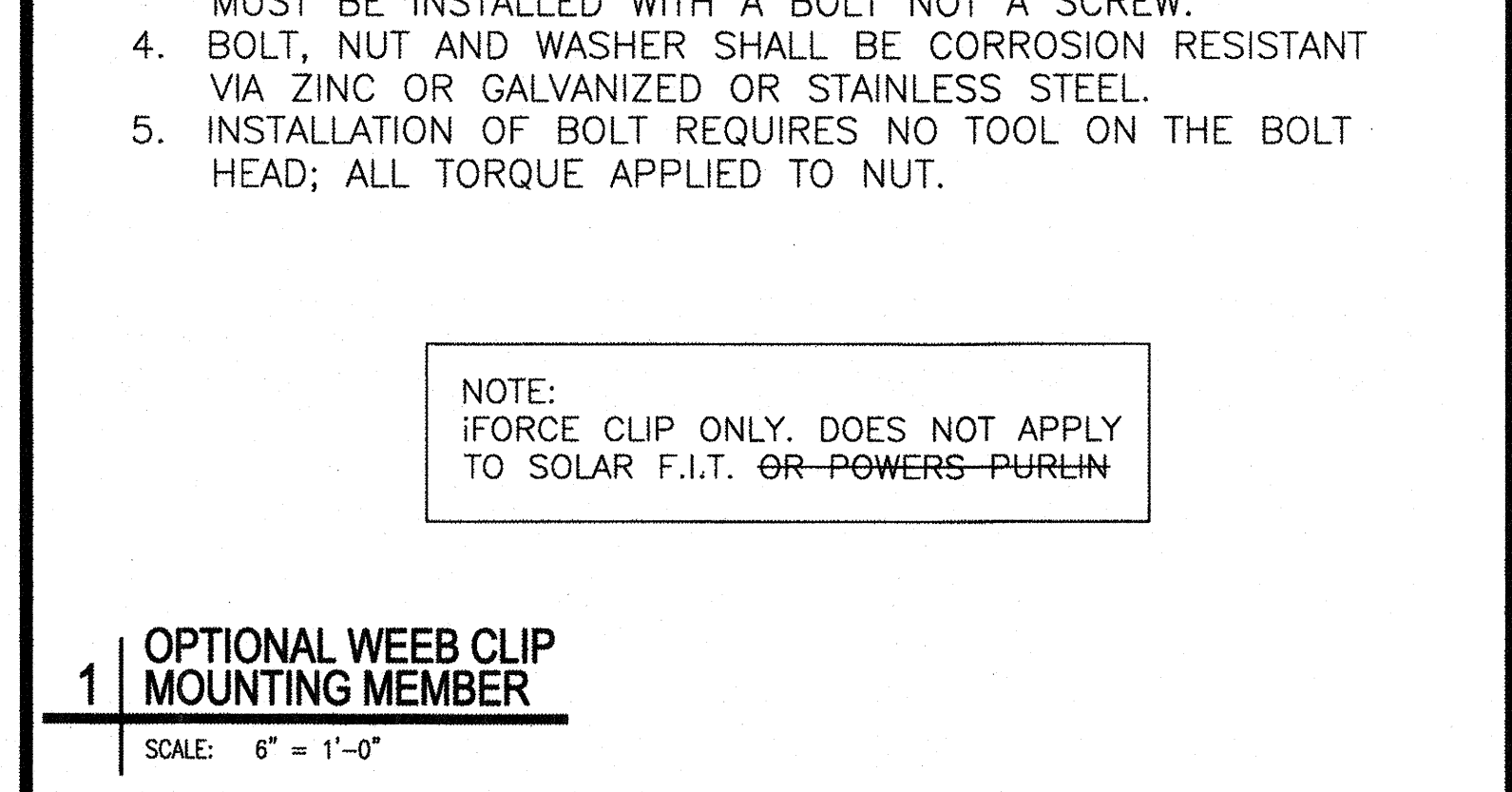
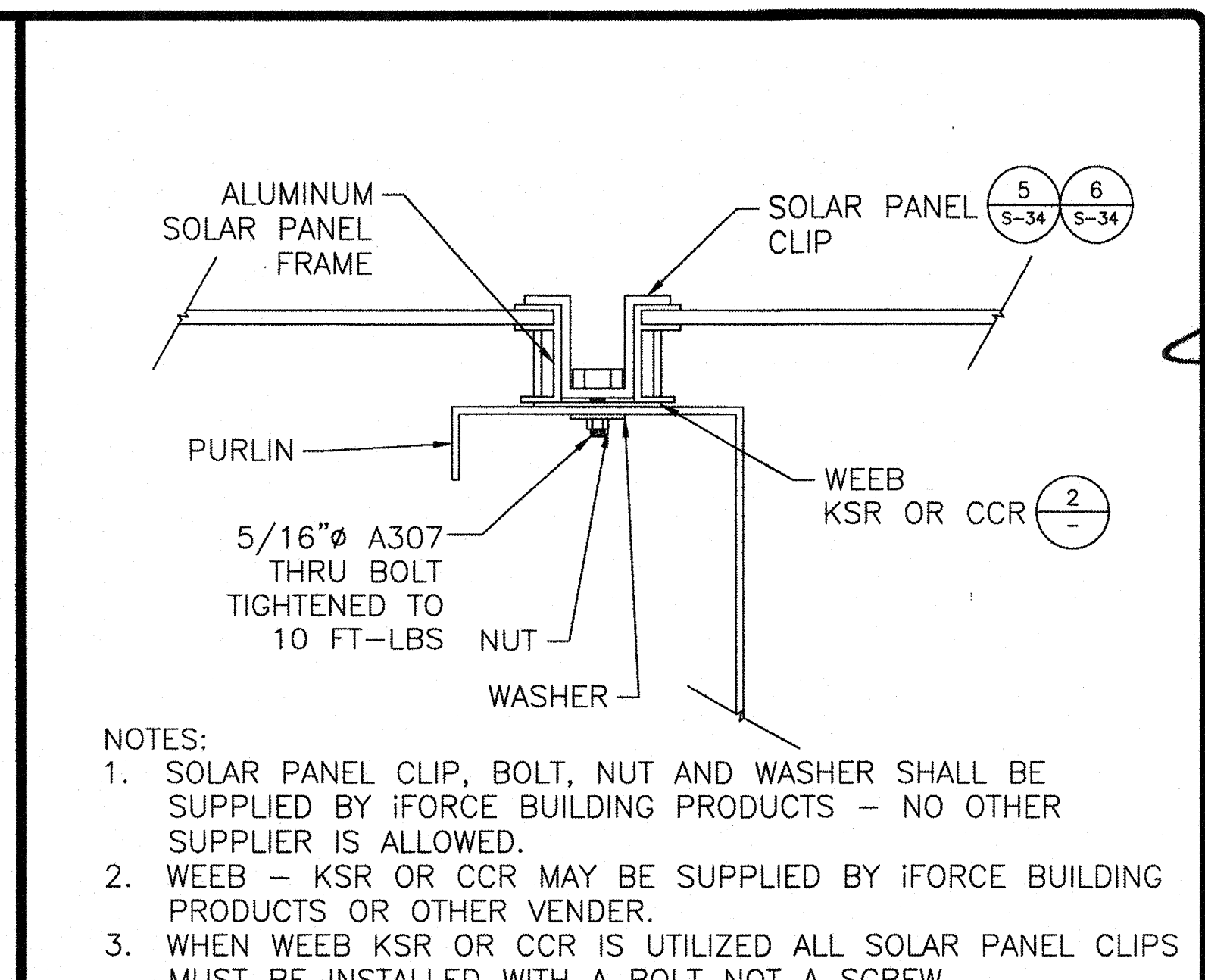
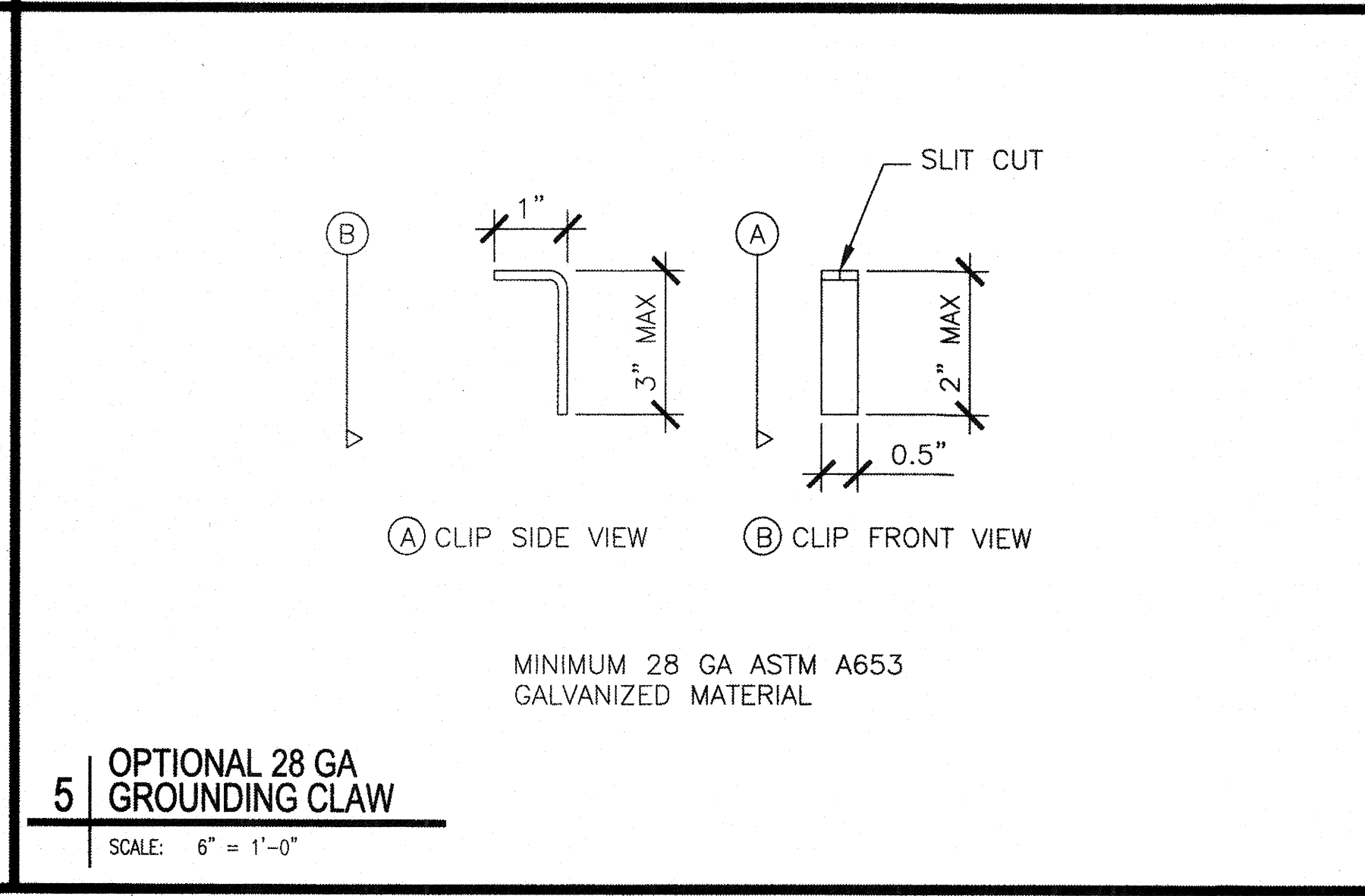
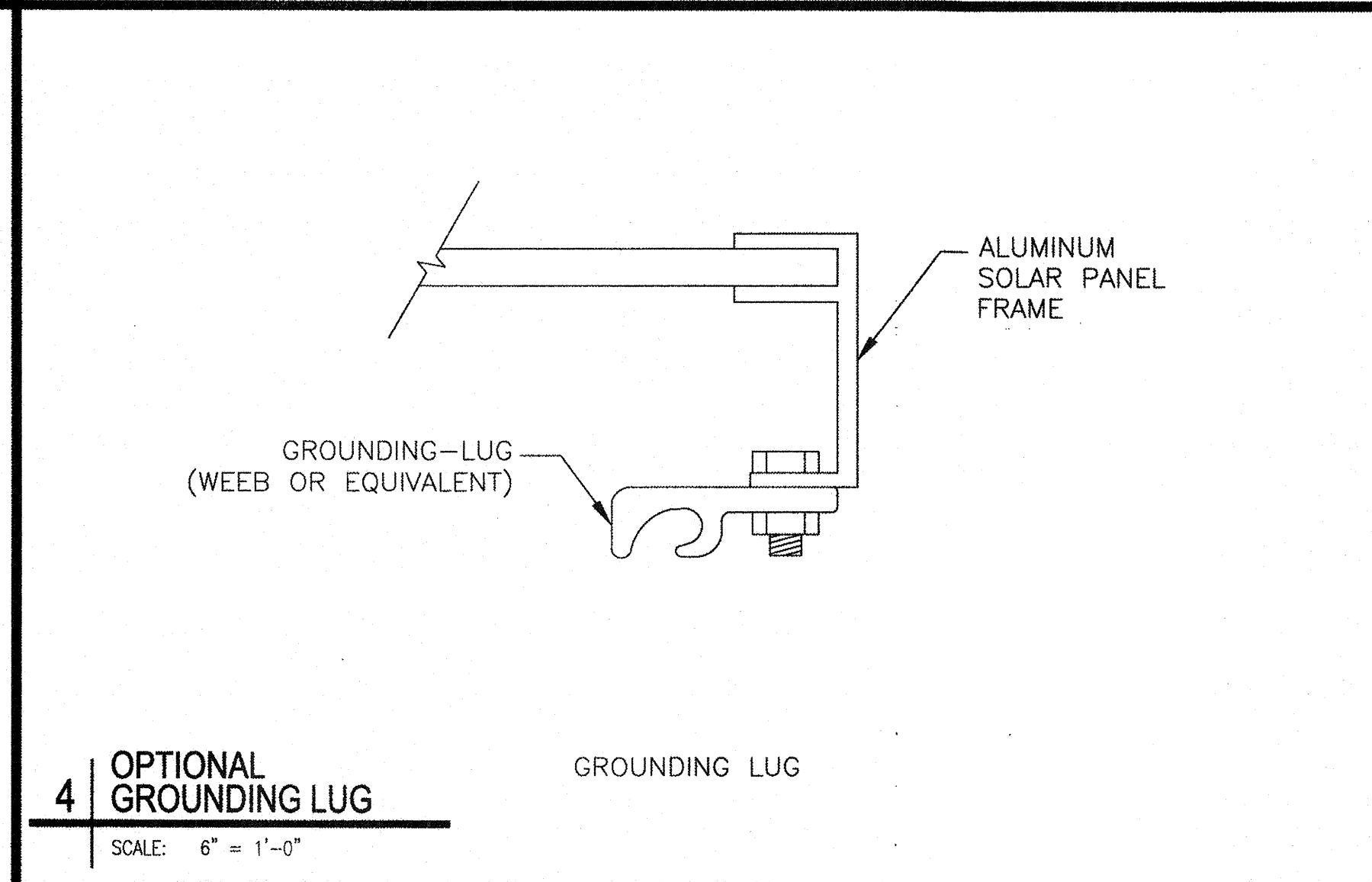
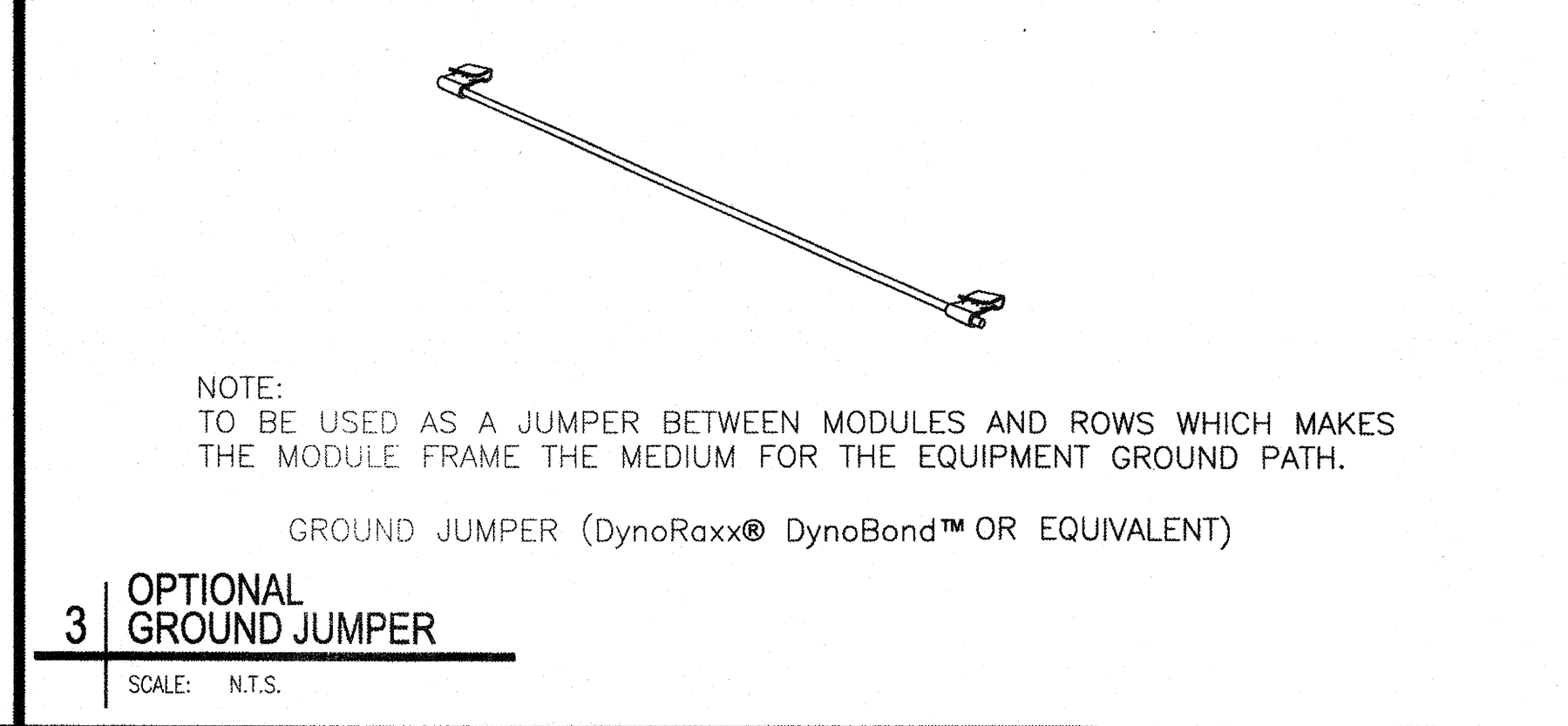
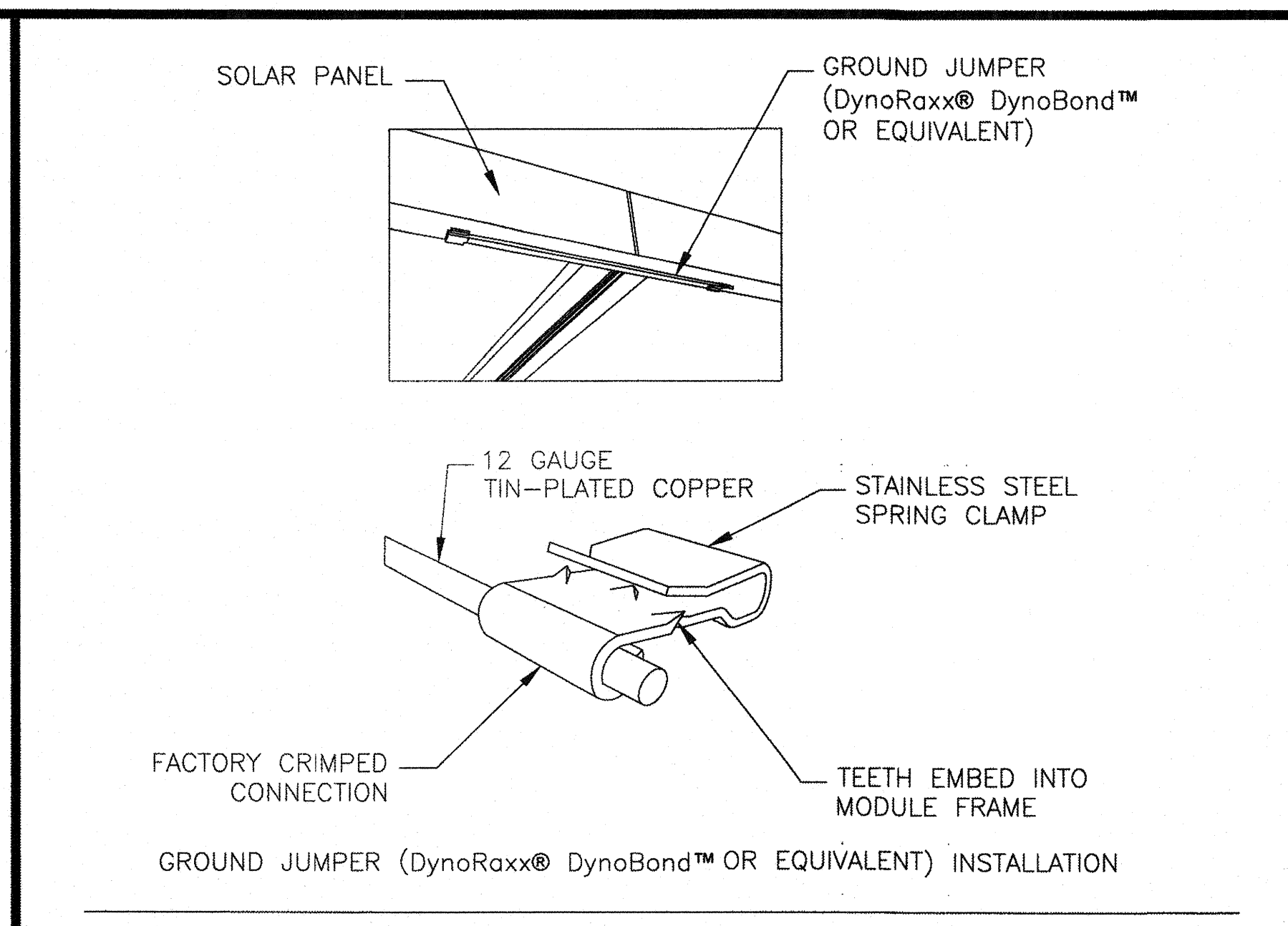
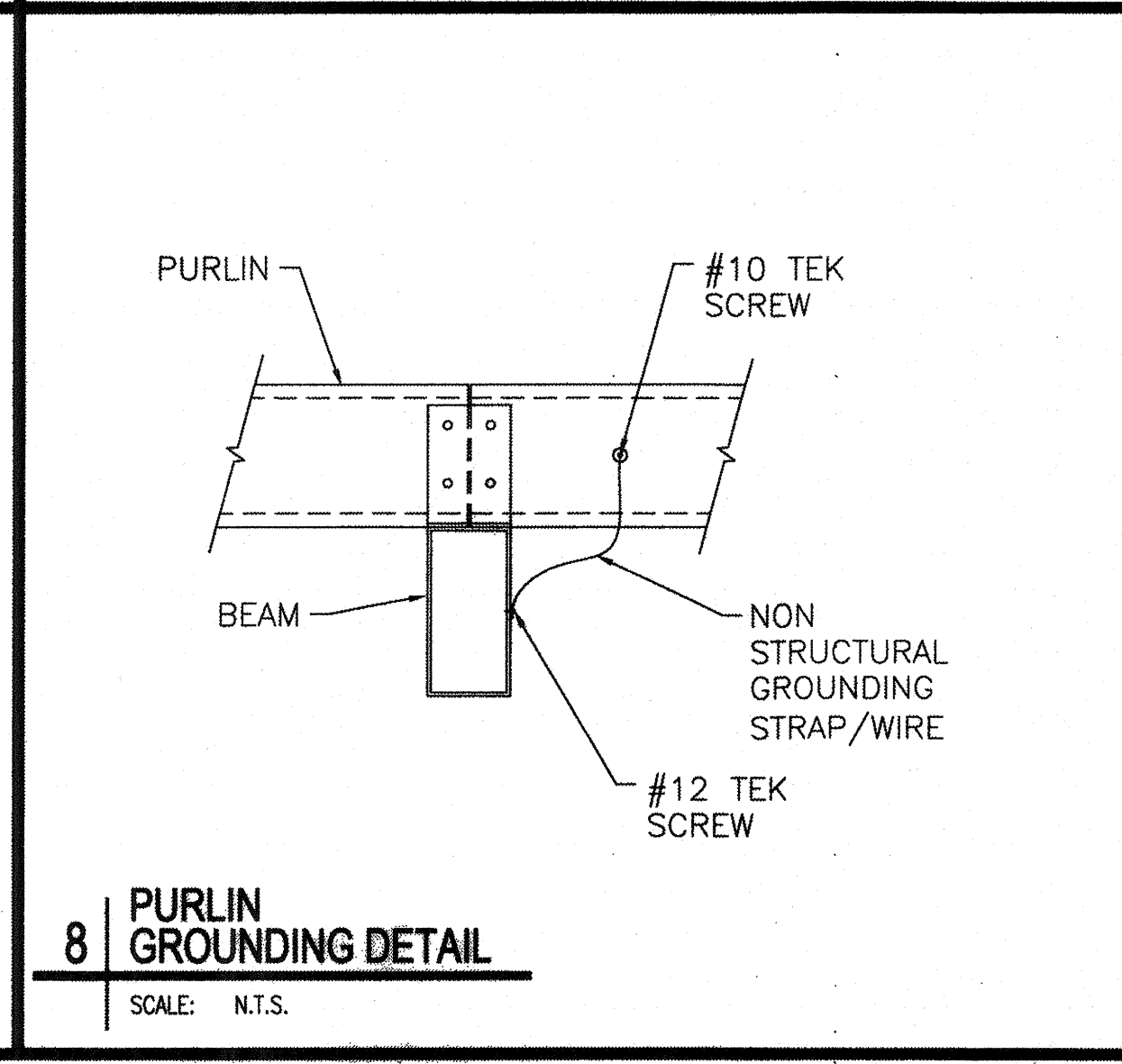
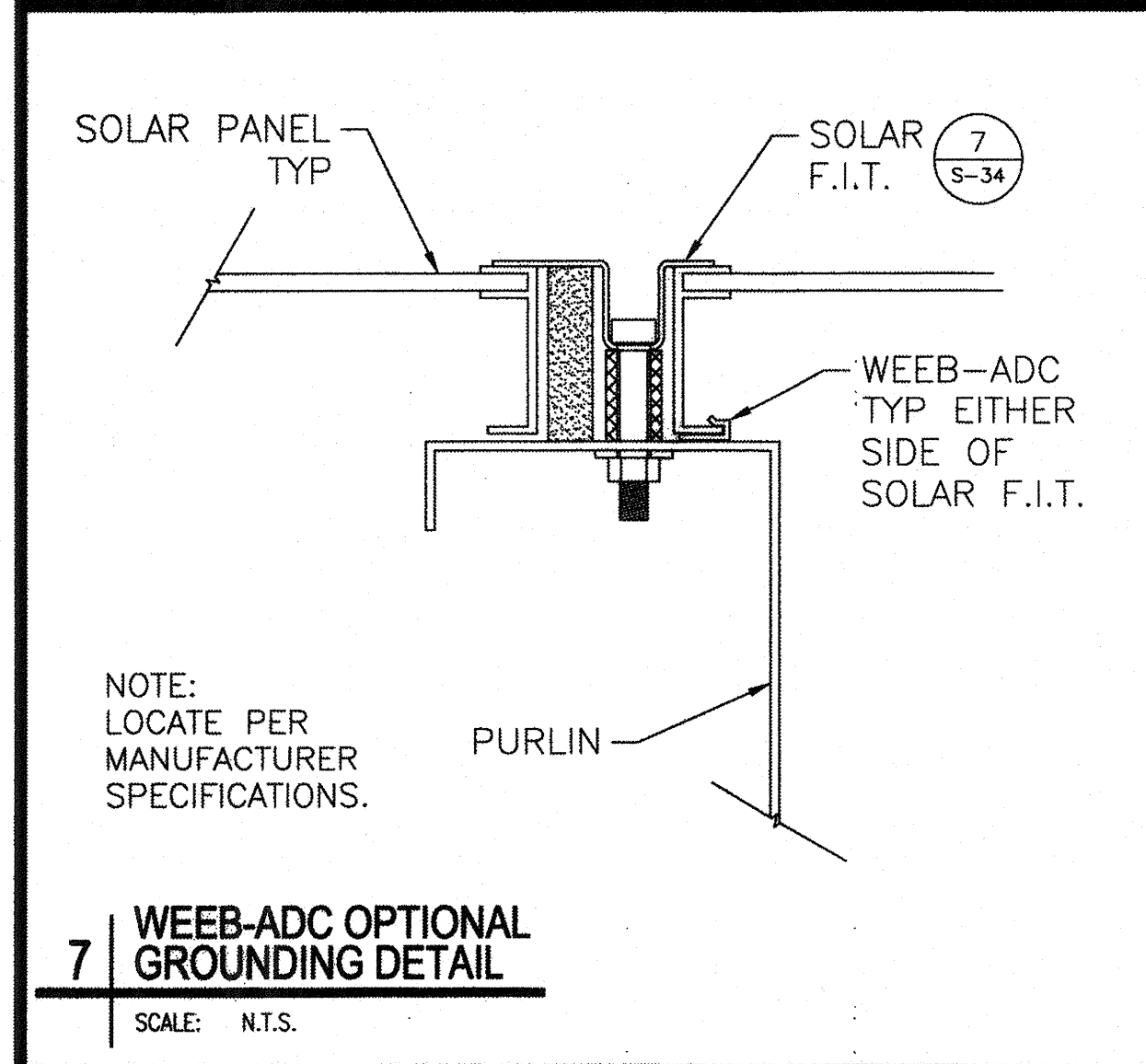
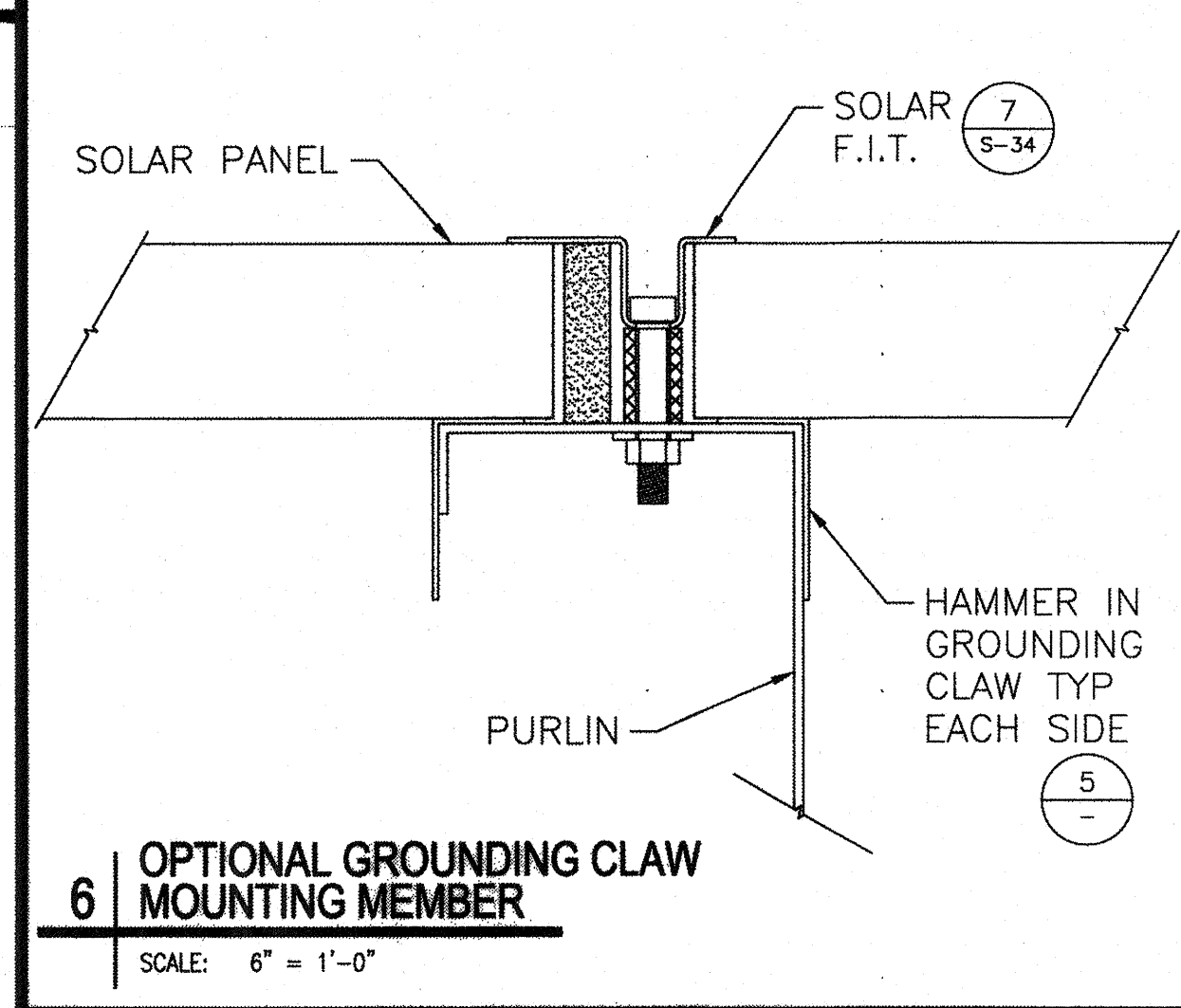
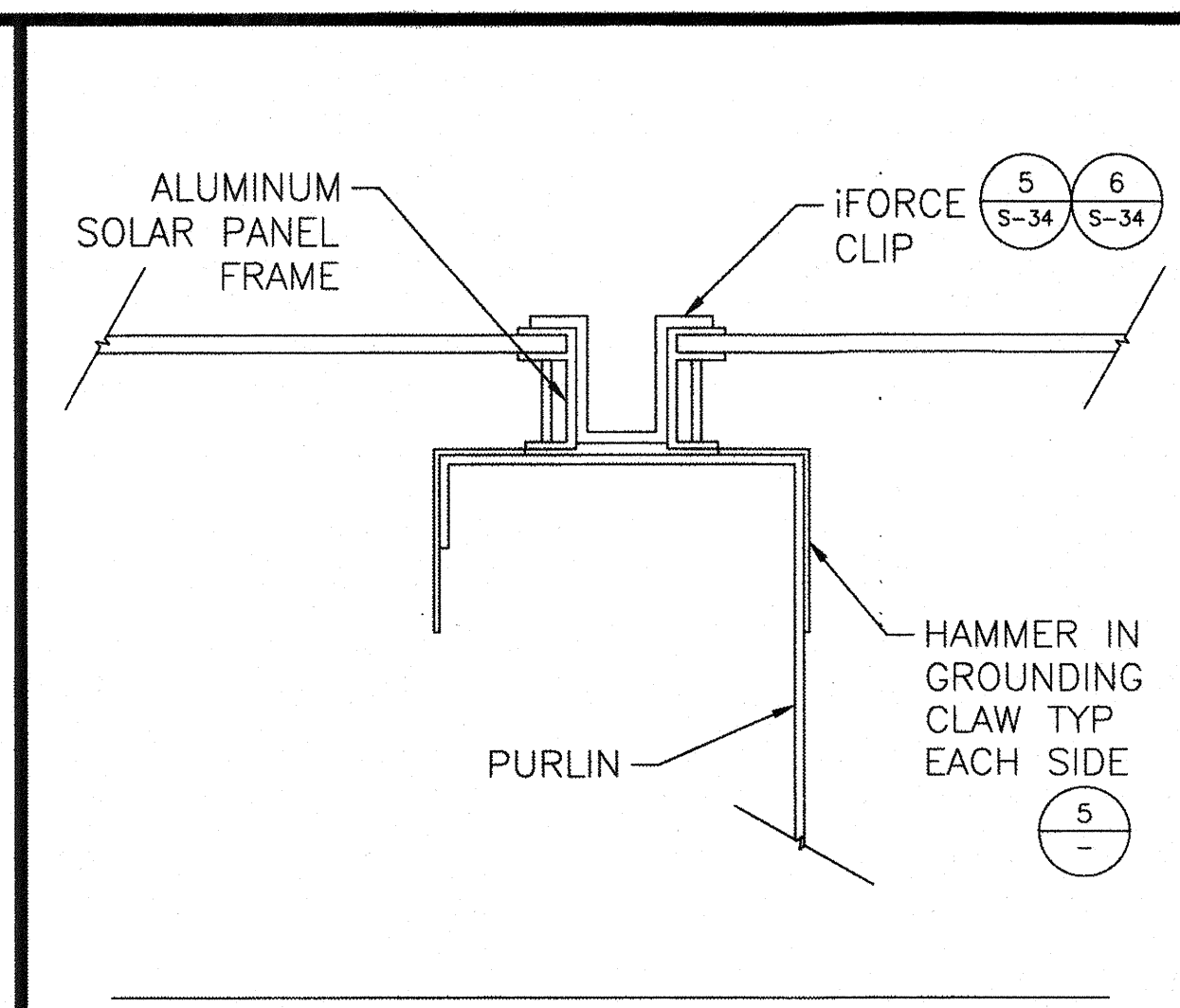
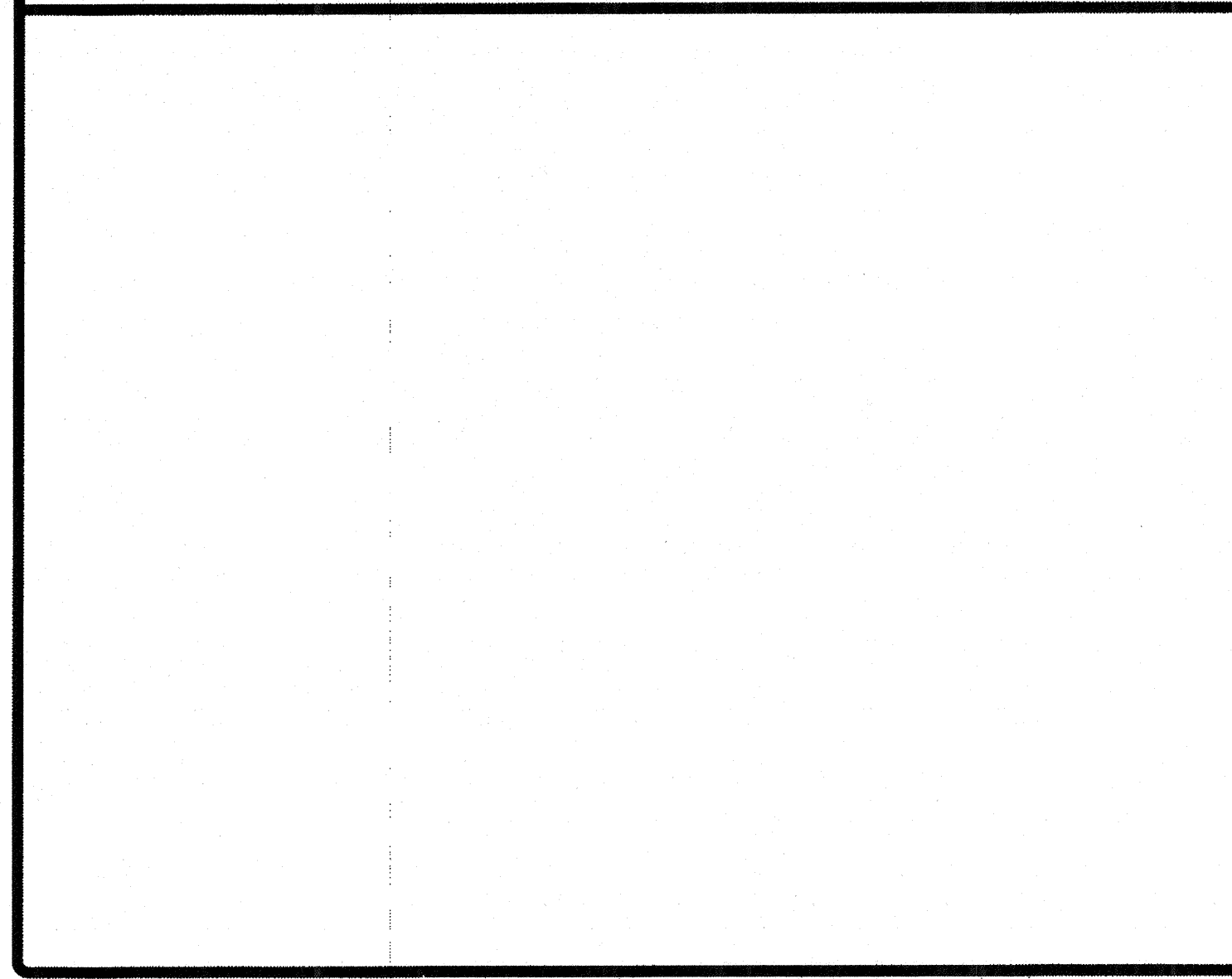
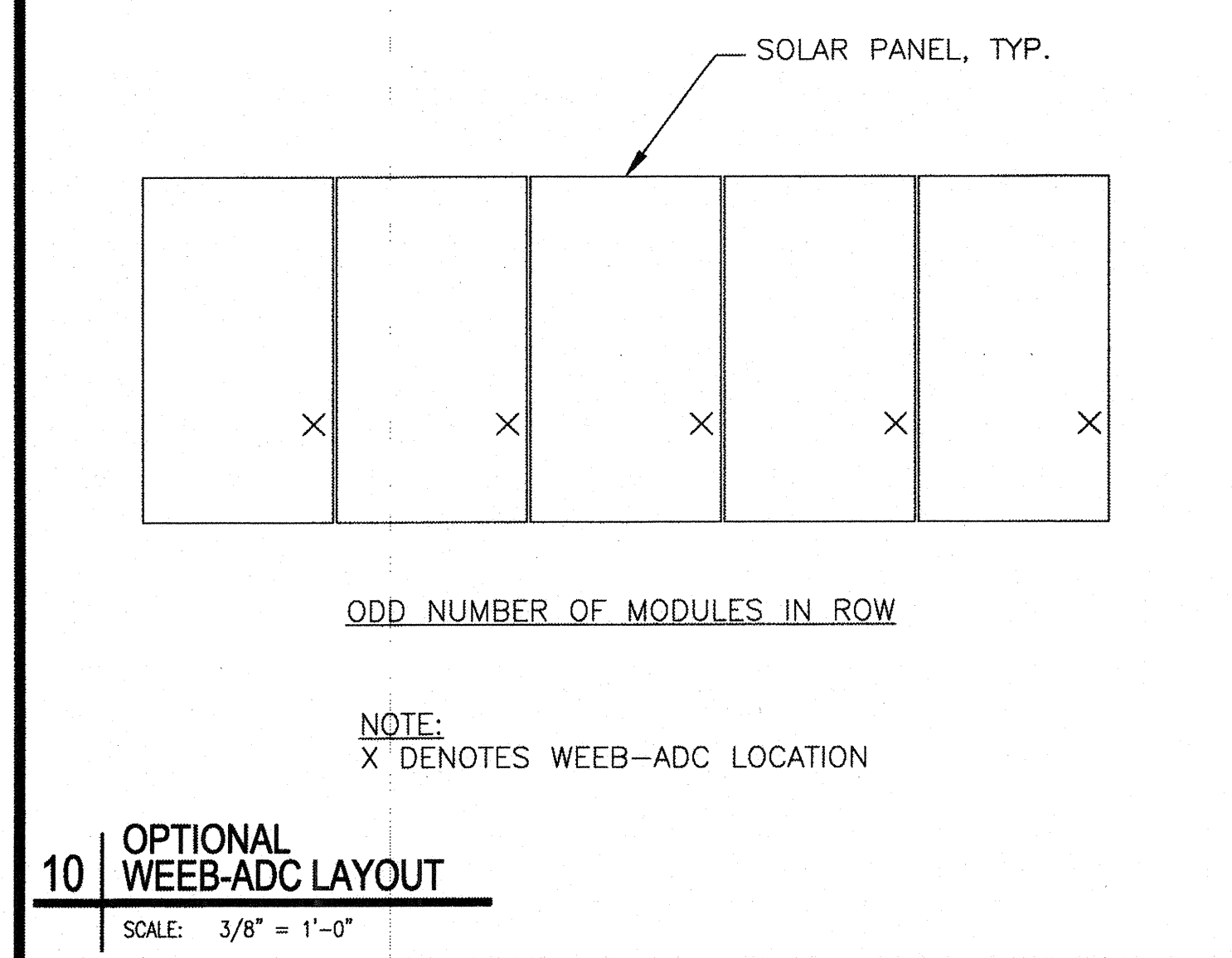
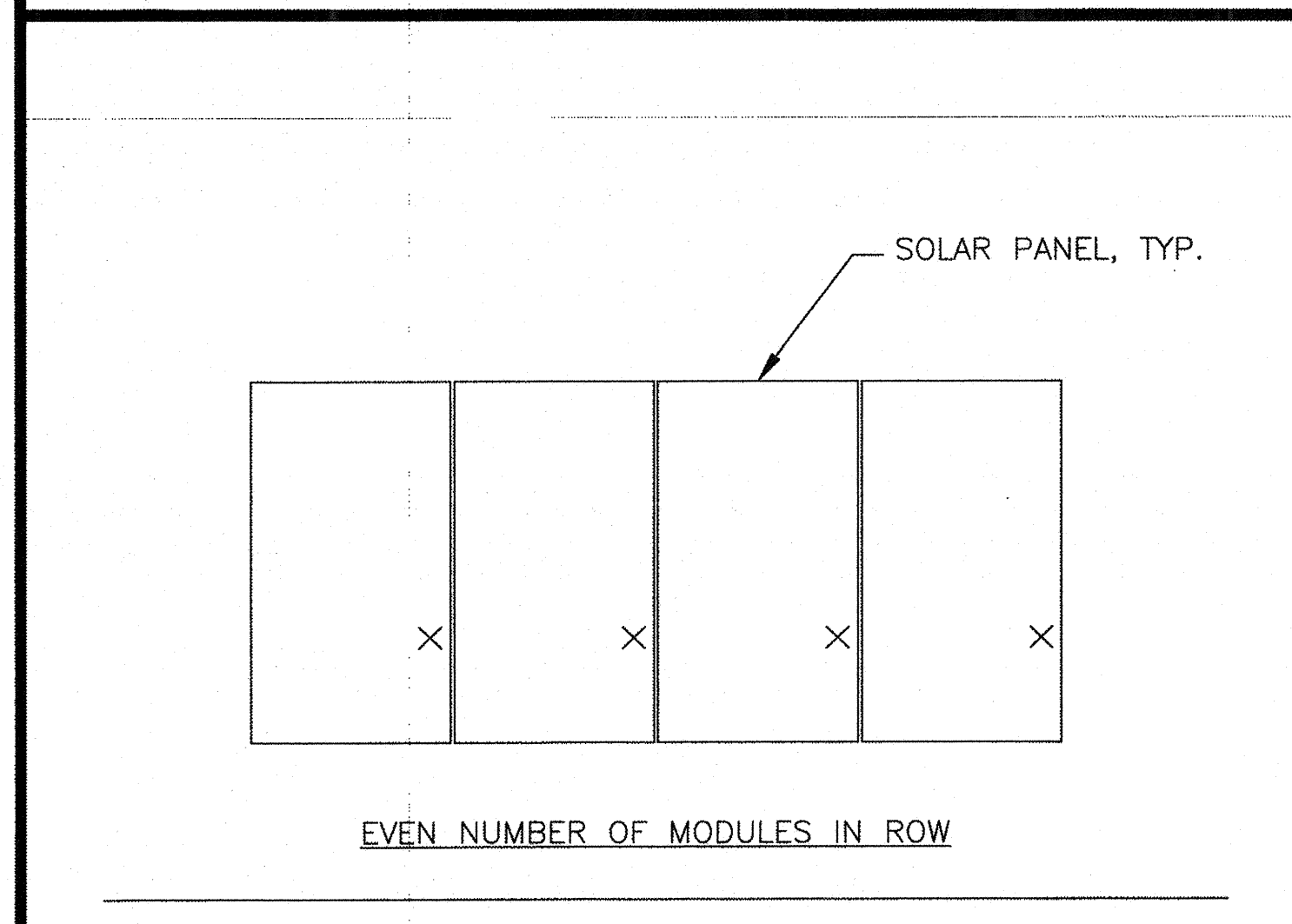
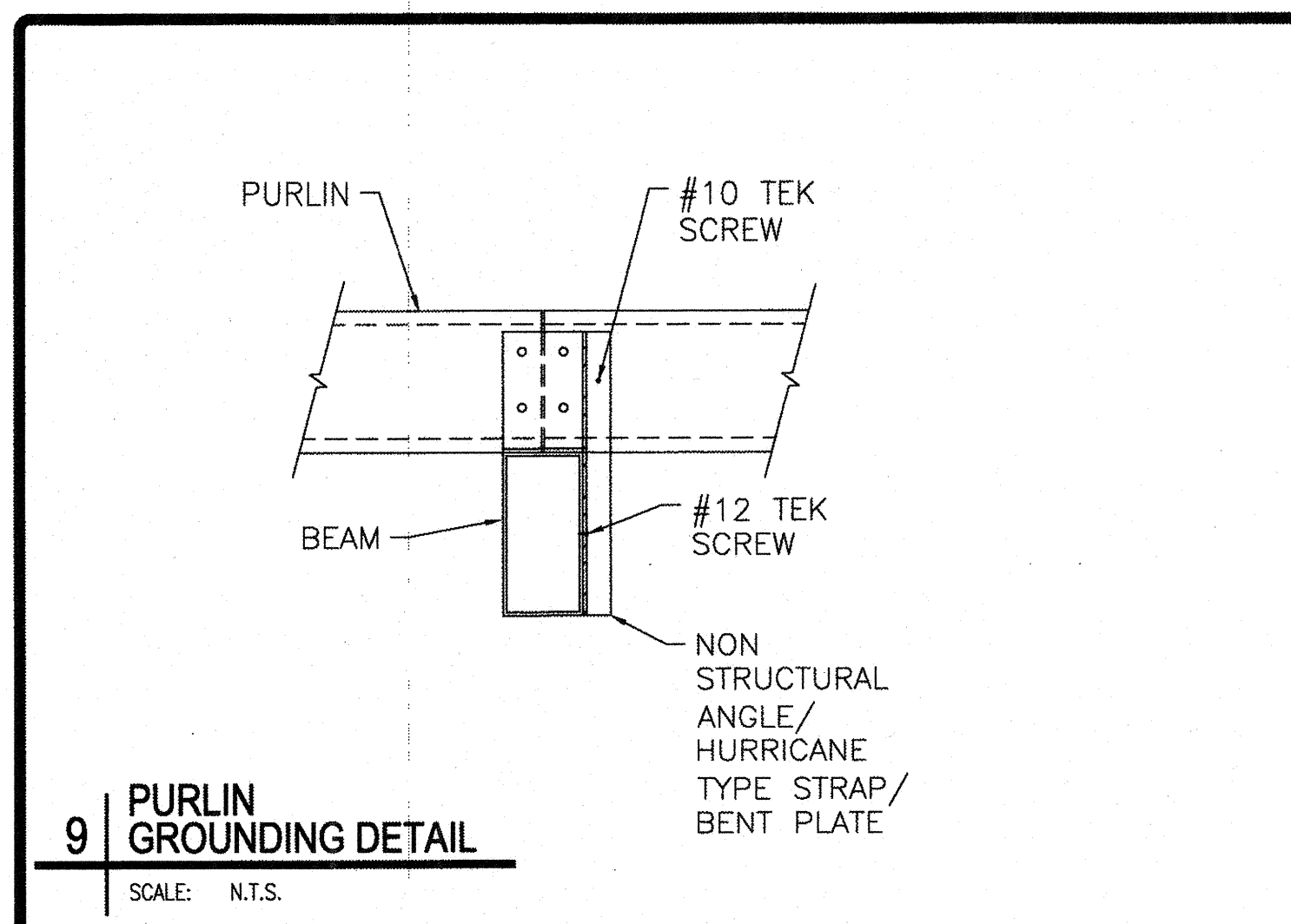
4STEL JOB NO.

13-1010

SHEET

S-34

34 OF 46 SHEETS



ENGINEER'S APPROVAL

REGISTERED PROFESSIONAL ENGINEER
S 5885
EXP. 08-30-2016
7/22/15
DATE SIGNED
MMMM DD, 2015

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
A 03119250
AC / FLS / SS / EY
DATE AUG 07 2018

SITE SPECIFIC DSA APPROVAL

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
APPROVED P.C. 04-11-1425
AC / FLS / SS / EY
DATE JUL 23 2015
CHECK (PC) DOCUMENT
CODE 2015 ORC
SEPARATE PROJECT APPLICATION
FOR CONSTRUCTION IS REQUIRED

MBARC CONSTRUCTION INC.

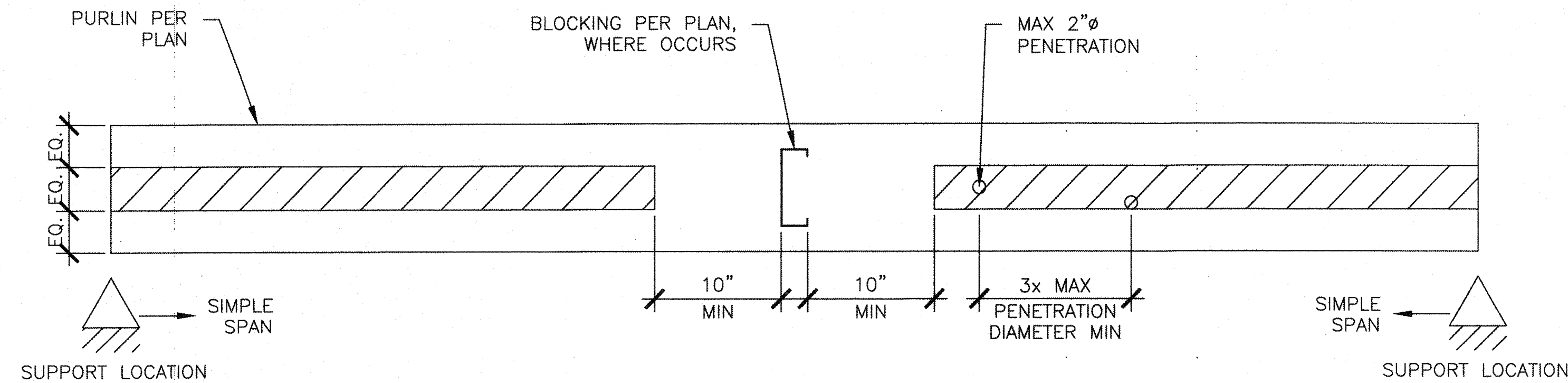
674 RANCHEROS DR
SAN MARCOS, CA 92069
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LIC # 869960
B AND C51

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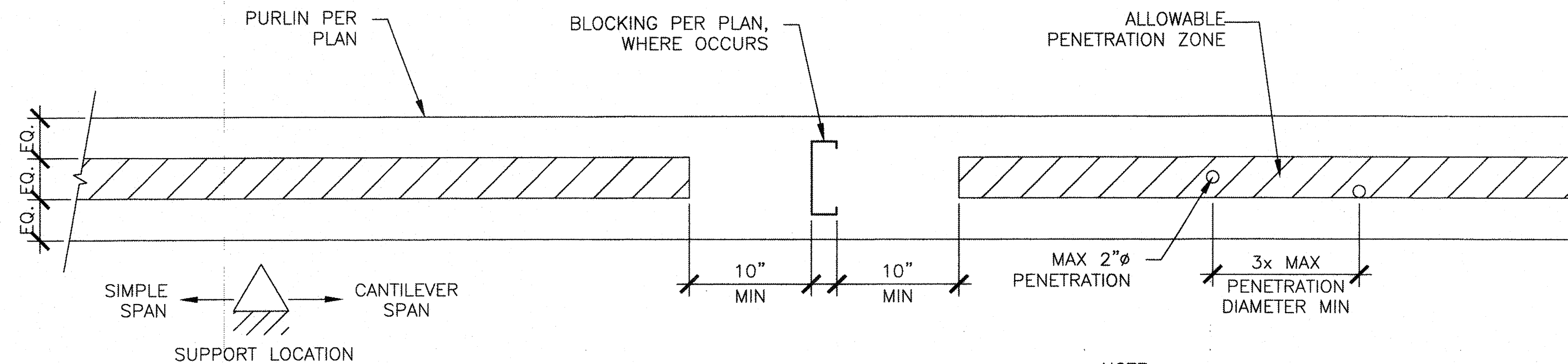
PHOTOVOLTAIC STRUCTURES OPTIONAL GROUNDING DETAILS

DRAWN MAP
CHECKED DKR
DATE 5/29/15
ASTEL JOB NO. 13-1010
SHEET
S-36
36 OF 46 SHEETS



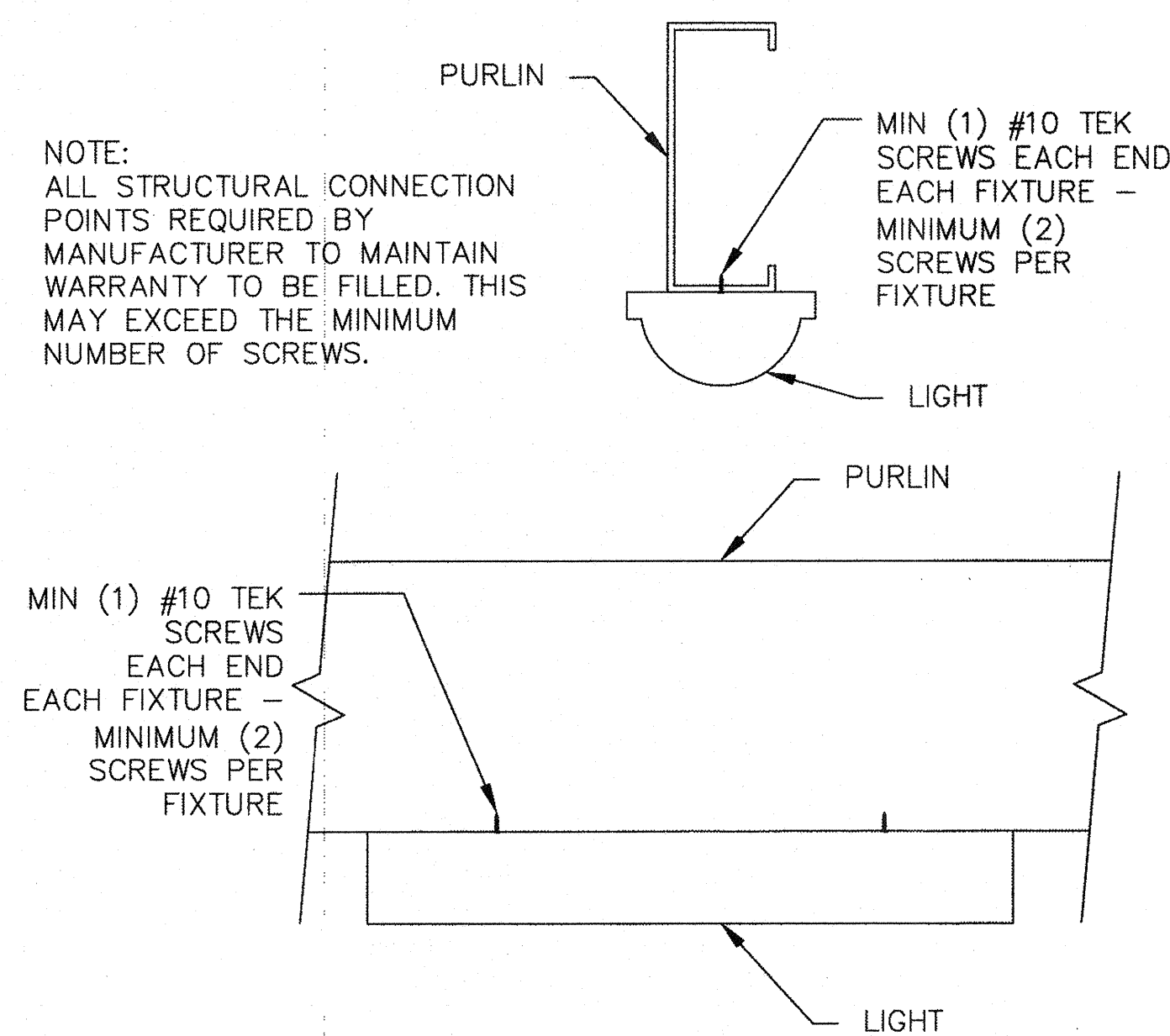
7 ALLOWABLE PURLIN PENETRATION SIMPLE SPAN
SCALE: NTS

NOTE:
IF MORE THAN 5 PENETRATIONS PER SPAN ARE NEEDED, CONTRACTOR TO SUBMIT AN RFI TO DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE TO ENSURE REQUIREMENTS OF THIS DETAIL ARE MET; AND TO JUSTIFY THE QUANTITY OF PENETRATIONS NEEDED.

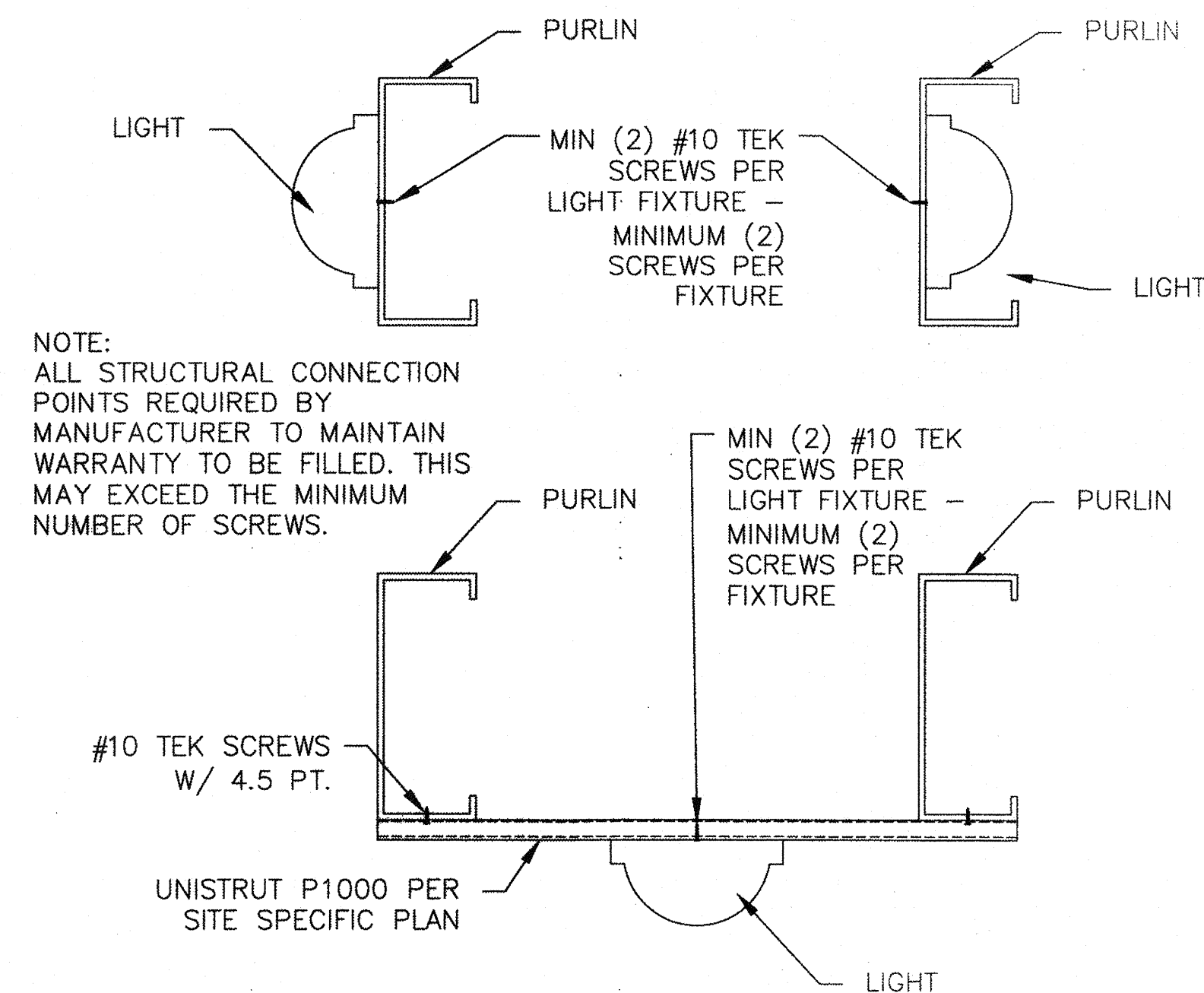


8 ALLOWABLE PURLIN PENETRATION CANTILEVER SPAN
SCALE: NTS

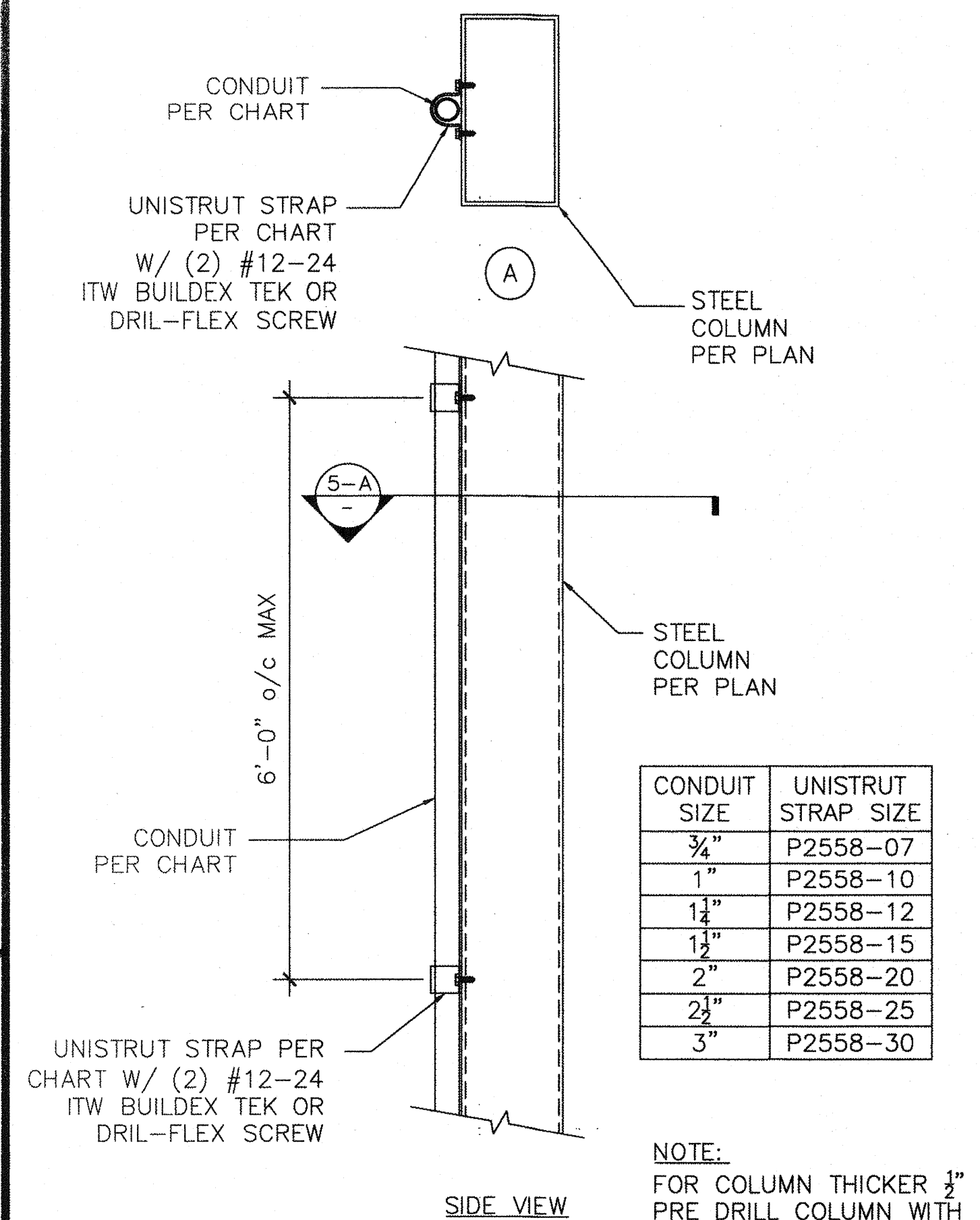
NOTE:
IF MORE THAN 5 PENETRATIONS PER SPAN ARE NEEDED, CONTRACTOR TO SUBMIT AN RFI TO DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE TO ENSURE REQUIREMENTS OF THIS DETAIL ARE MET; AND TO JUSTIFY THE QUANTITY OF PENETRATIONS NEEDED.



10 ALTERNATE LIGHT INSTALLATION OPTIONS
SCALE: 1" = 1'-0"



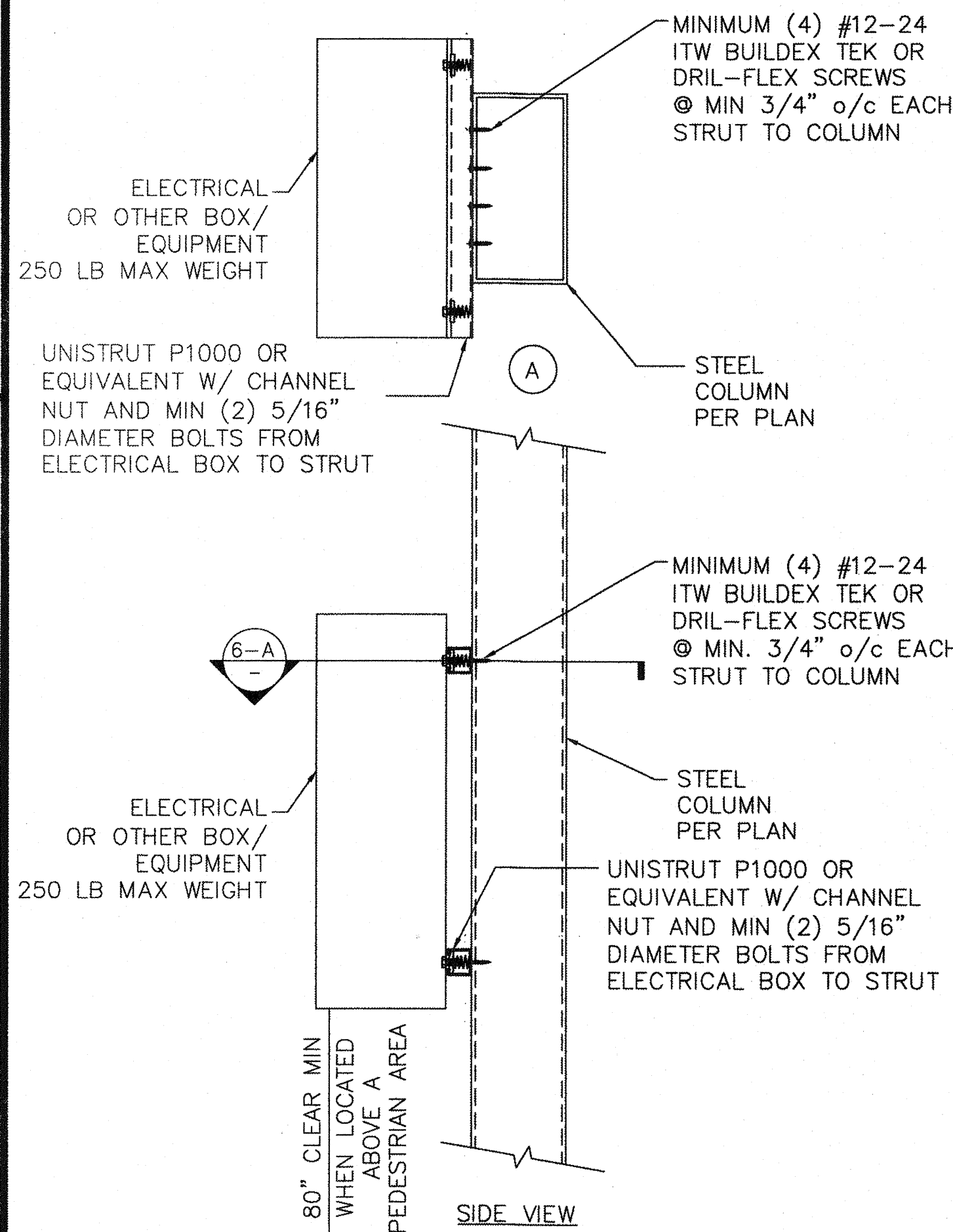
9 LIGHT INSTALLATION OPTIONS
SCALE: 1" = 1'-0"



5 PIPE/CONDUIT MOUNTING
SCALE: 1 1/2" = 1'-0"

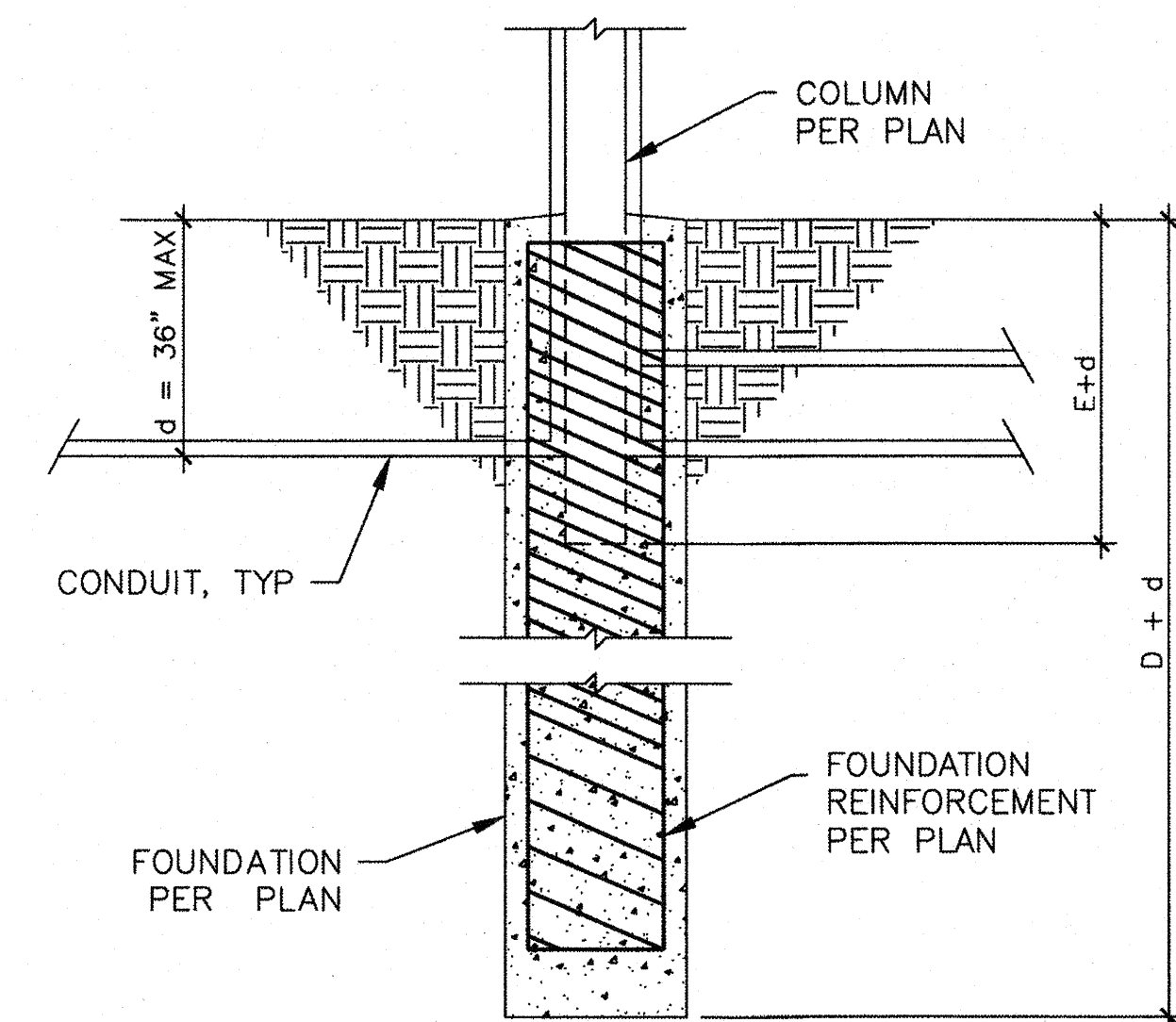
CONDUIT SIZE	UNISTRUT STRAP SIZE
3/4"	P2558-07
1"	P2558-10
1 1/2"	P2558-12
1 3/4"	P2558-15
2"	P2558-20
2 1/2"	P2558-25
3"	P2558-30

NOTE:
FOR COLUMN THICKER 1/2" PRE DRILL COLUMN WITH DRILL BIT EQUAL TO ROOT DIAMETER OF SCREW USED. (I.E. SHAFT EXCLUDING THREADS)



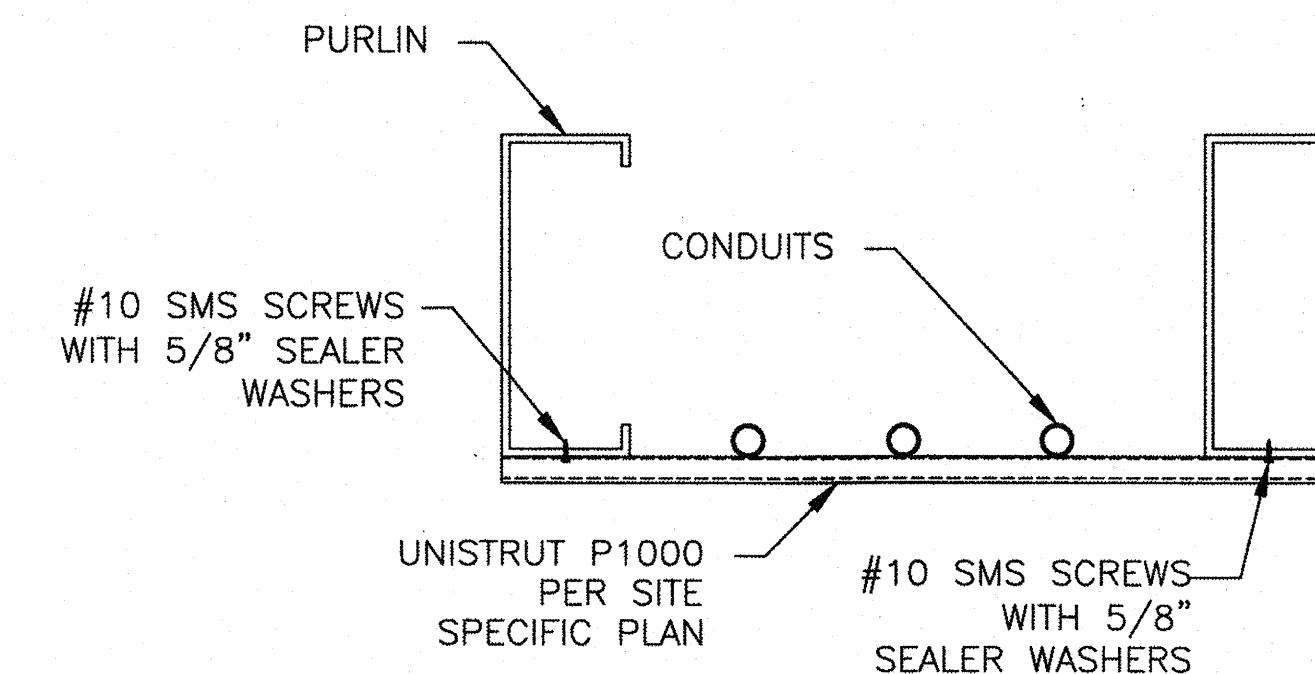
6 ELECTRICAL BOX MOUNTING
SCALE: 1 1/2" = 1'-0"

NOTE:
FOR COLUMN THICKER 1/2" PRE DRILL COLUMN WITH DRILL BIT EQUAL TO ROOT DIAMETER OF SCREW USED. (I.E. SHAFT EXCLUDING THREADS)

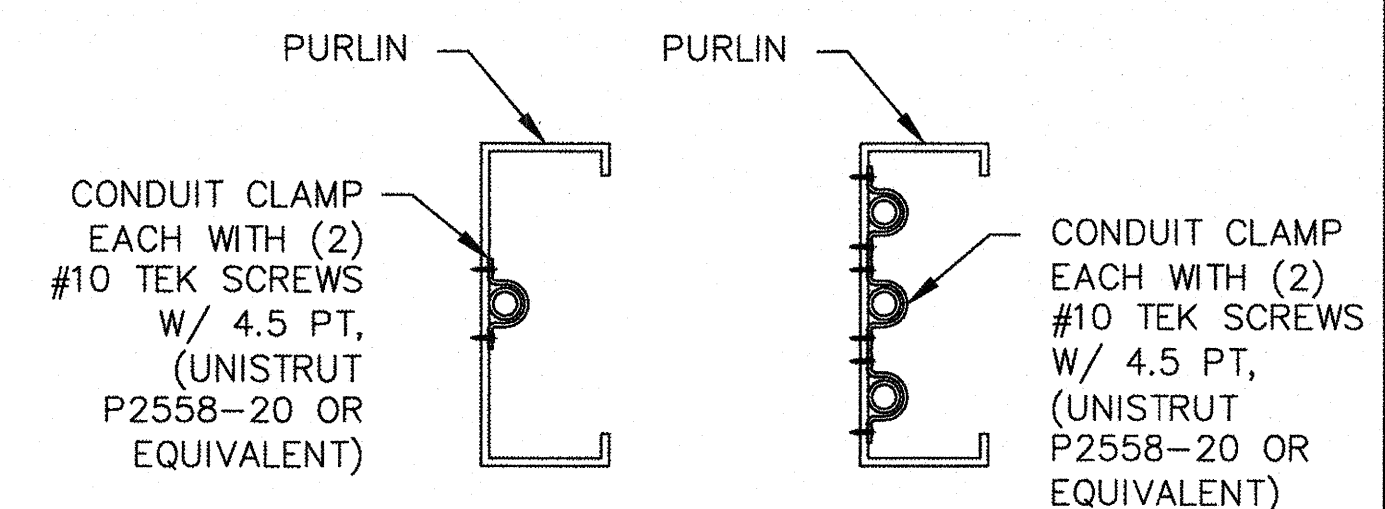


NOTE:
WHEN CONDUIT IS PRESENT, FOUNDATION DEPTH PER PLAN, D, SHALL BE INCREASED BY THE MAXIMUM CONDUIT DEPTH, d AND COLUMN EMBEDMENT, E, SHALL BE INCREASED BY MAX CONDUIT DEPTH, d.

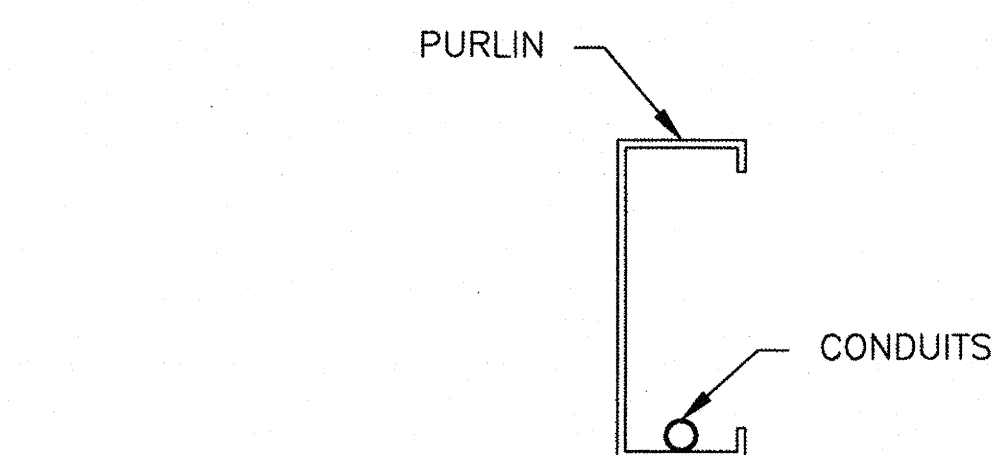
1 CONDUIT OR PIPE THROUGH FOOTING
SCALE: 1" = 1'-0"



2 OPTIONAL CONDUIT SUPPORT 1
SCALE: 1" = 1'-0"

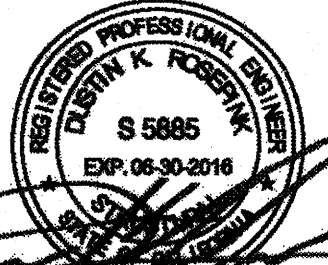


3 OPTIONAL CONDUIT SUPPORT 2
SCALE: 1" = 1'-0"



4 OPTIONAL CONDUIT LOCATION 3
SCALE: 1" = 1'-0"

ENGINEER'S APPROVAL



7/22/15
DATE SIGNED
MMMM DD, 2015

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A 03119250
AC FLS SS EY
DATE AUG 07 2015

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OFFICE OF REGULATION SERVICES
APPROVED FOR CONSTRUCTION
DATE JUL 22 2015
CHECK (PC) DOCUMENT
CODE 9013 OR
SEPARATE PROJECT APPLICATION
FOR CONSTRUCTION IS REQUIRED

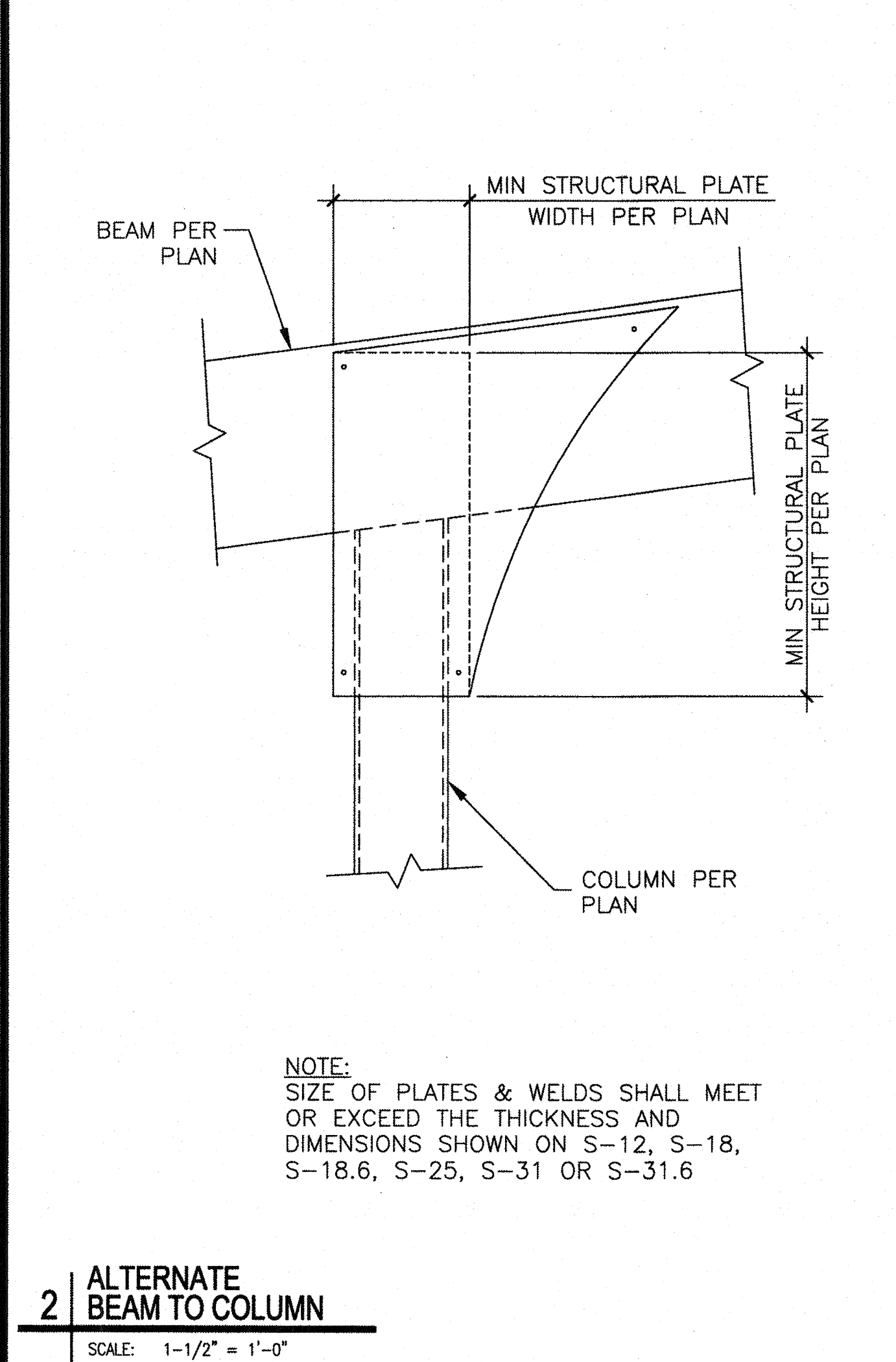
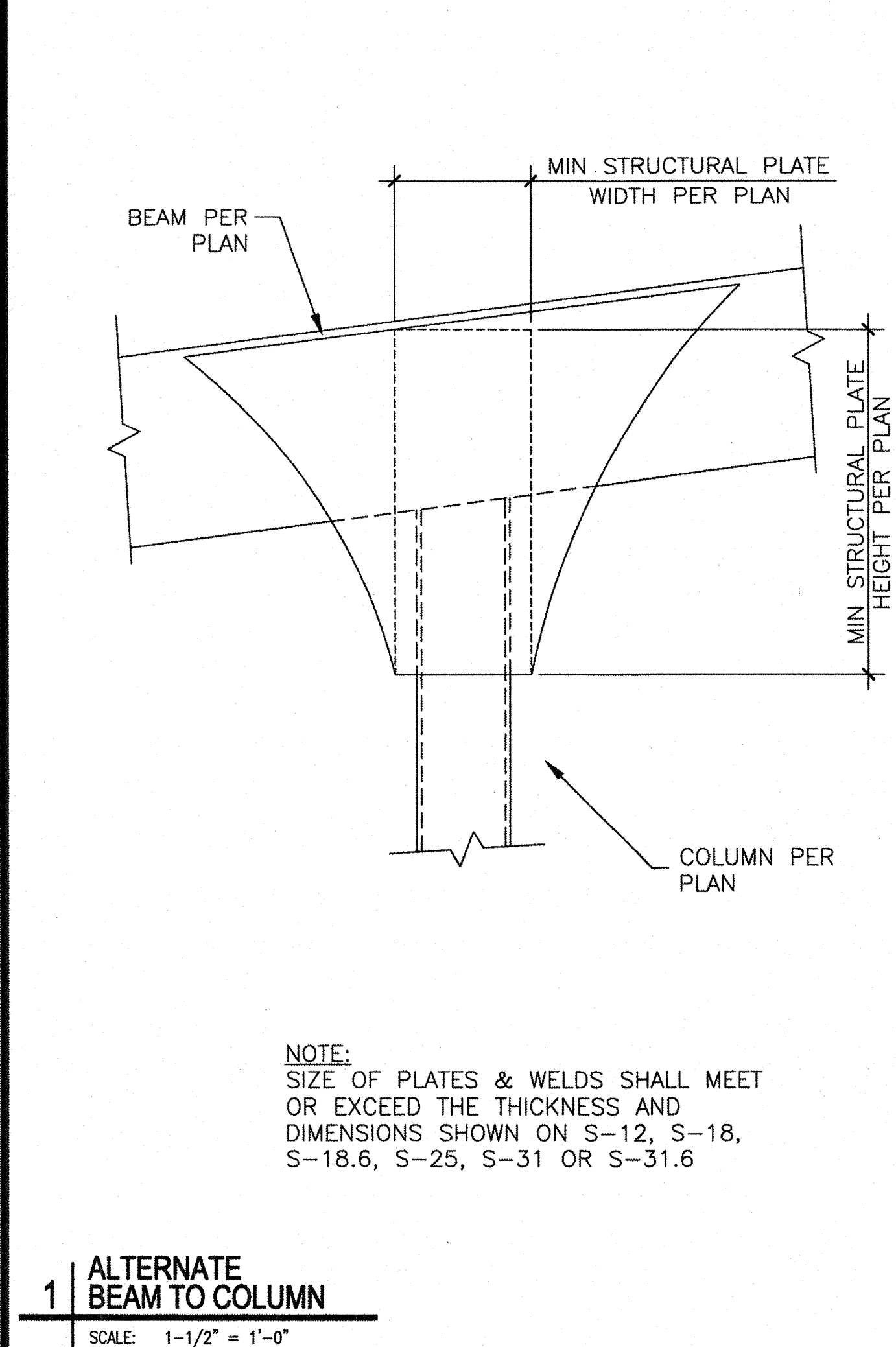
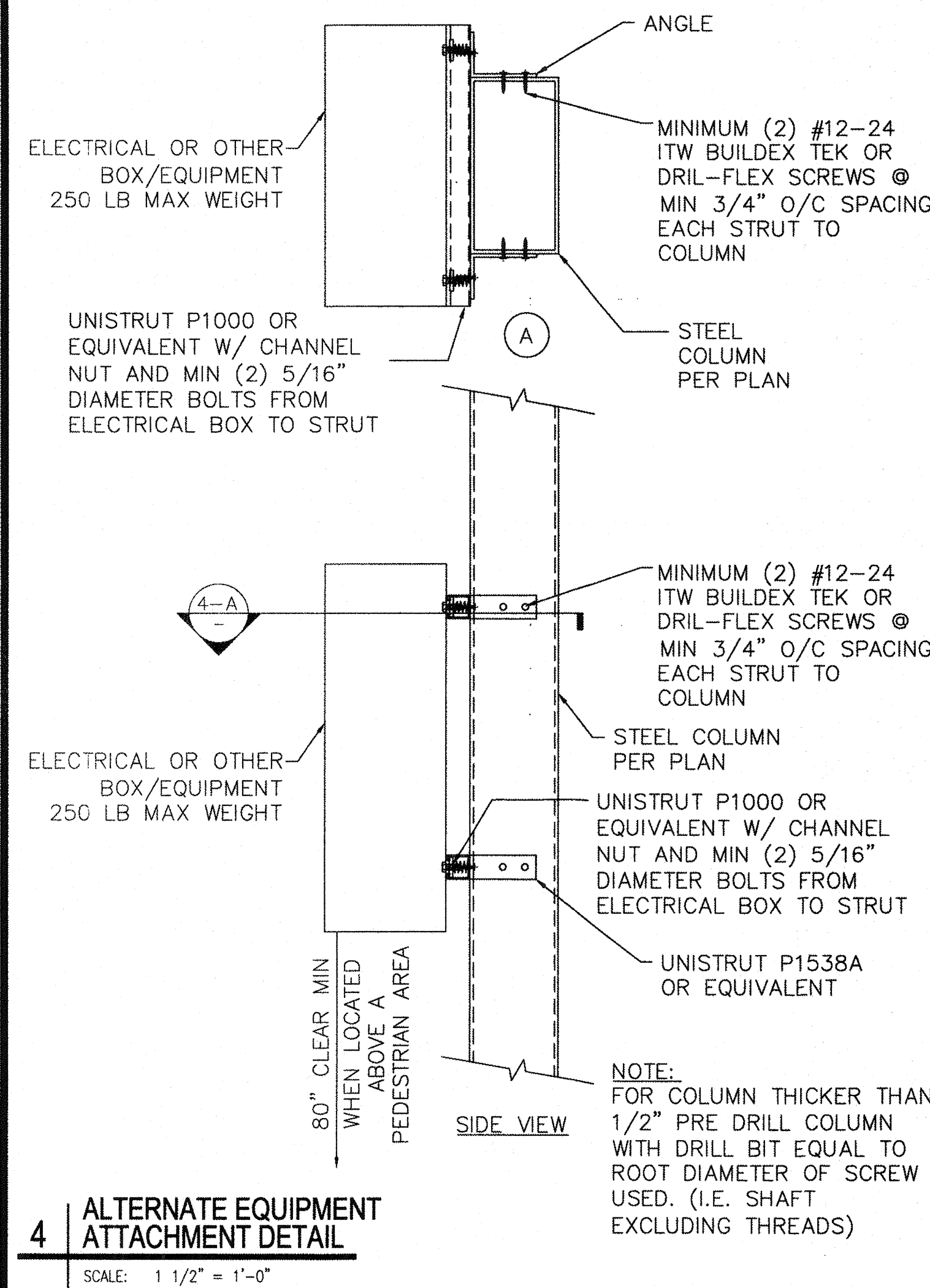
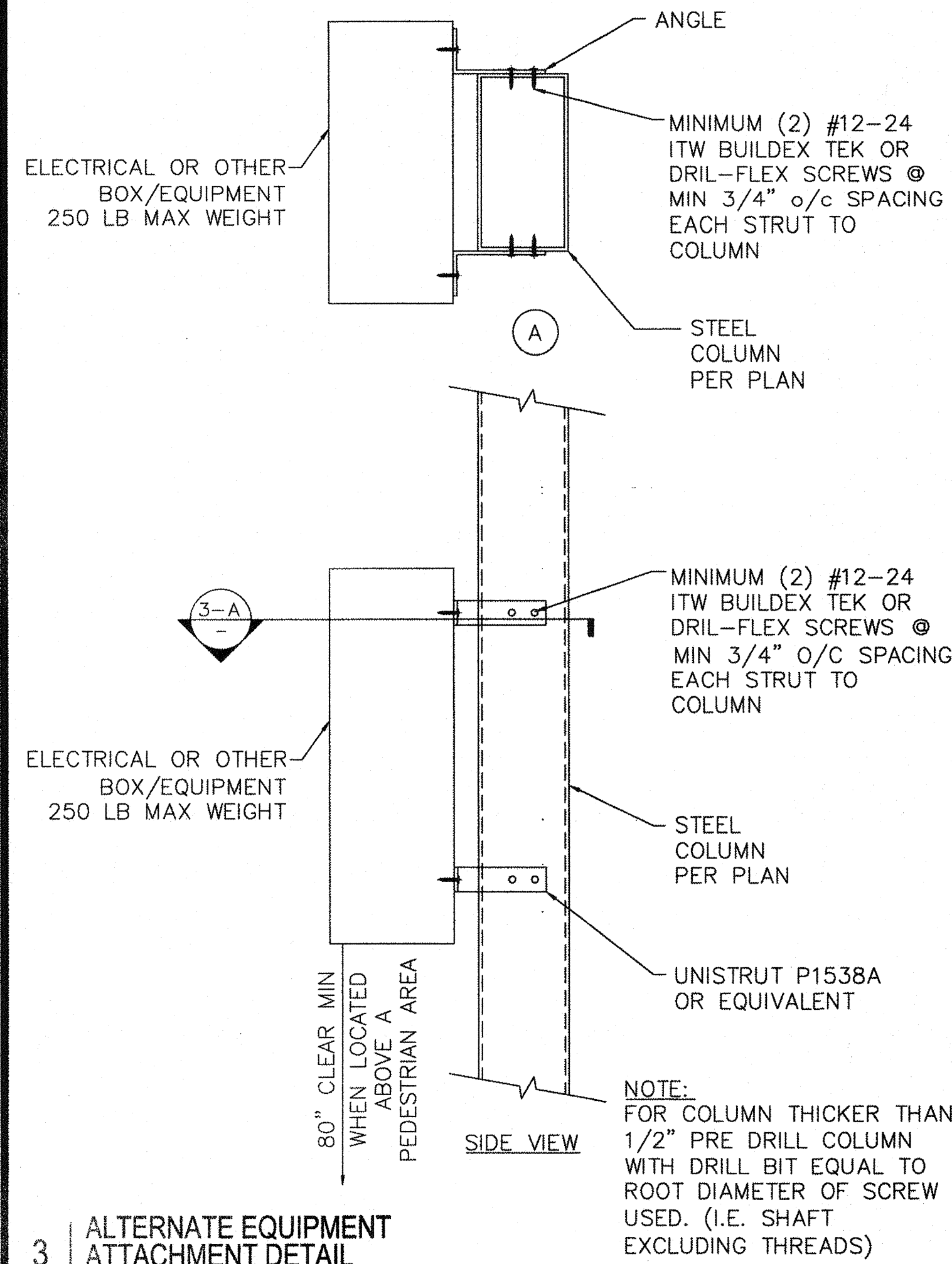
MBARC CONSTRUCTION INC.
674 RANCHOS DRIVE
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LIC # 869960
B AND C51

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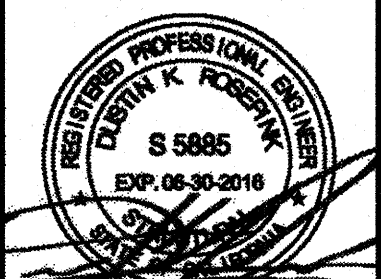
PHOTOVOLTAIC
STRUCTURES
STANDARD
ELECTRICAL
DETAILS

DRAWN
MAP
CHECKED
DKR
DATE
5/29/15
ASTEL JOB NO.
13-1010
SHEET
S-37

37 OF 46 SHEETS



ENGINEER'S APPROVAL



7/22/15
DATE SIGNED
MMMM DD, 2015

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AC / FLS / SS / EX
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OFFICE OF REGULATION SERVICES
APP. P. C. 04-11-1125
AC / FLS / SS / EX
DATE JUL 28 2015
CHECK (PC) DOCUMENT
CODE: 2015 CBC
SEPARATE PROJECT APPLICATION
FOR CONSTRUCTION IS REQUIRED

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STRUCTURES
ALTERNATE
CONNECTION
DETAILS

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5/29/15
4STEL JOB NO.
13-1010
SHEET
S-37.1
37.1 OF 46 SHEETS

ELECTRICAL EQUIPMENT ANCHORAGE AND PAD SIZES

EQUIPMENT SCHEDULE					
DESIGNATION	DESCRIPTION	DIMENSIONS (LENGTH x WIDTH x HEIGHT)	WEIGHT (LBS.)	DESIGNATION	ANCHORAGE
1	INVERTER-1	75" x 31" x 80"	2977	150KW	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 51"X19" MIN PATTERN
2	INVERTER-2	117.7" x 43.3" x 92.6"	4500	250KW	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 93.7"X31.3" MIN PATTERN
3	INVERTER-3	106.33" x 39.59" x 89.18"	3300	375KW	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 82.33"X27.59" MIN PATTERN
4	INVERTER-4	138.75" x 42.47" x 93.47"	5900	500KW	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 114.75"X30.47" MIN PATTERN
5	INVERTER-5	148" x 84" x 107"	12000	1MW	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 124"X72" MIN PATTERN
6	TRANSFORMER-1	49" x 30.5" x 77"	2500	250TRANS	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 25"X18.5" MIN PATTERN
7	TRANSFORMER-2	49" x 30.5" x 77"	3200	500TRANS	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 25"X18.5" MIN PATTERN
8	TRANSFORMER-3	96" x 77" x 96"	17600	3750KVA	(6) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT. TWO ROWS OF 3 BOLTS. ROWS SPACED 71" MIN APART W/ BOLTS EQUALLY SPACED IN EA. ROW
9	TRANSFORMER-4	94" x 74" x 72.5"	12500	1500KVA	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-3/4" EMBEDMENT IN A 70"X62" MIN PATTERN
10	HVL SWITCH	60" x 38" x 97.7"	1300	HVL	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 36"X24" MIN PATTERN
11	54" WIDE SWITCHBOARD COMPONENT	96" x 54" x 91.5" (MAX) 54" x 54" x 91.5" (MIN)	2400	54SB	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 30"X30" MIN PATTERN
12	48" WIDE SWITCHBOARD COMPONENT	96" x 48" x 91.5" (MAX) 48" x 48" x 91.5" (MIN)	1700	48SB	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 24"X24" MIN PATTERN
13	42" WIDE SWITCHBOARD COMPONENT	96" x 42" x 91.5" (MAX) 42" x 42" x 91.5" (MIN)	2200	42SB	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 18"X18" MIN PATTERN
14	24" WIDE SWITCHBOARD COMPONENT	96" x 24" x 91.5" (MAX) 24" x 24" x 91.5" (MIN)	1000	24SB	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 18"X18" MIN PATTERN
15	22" WIDE SWITCHBOARD COMPONENT	96" x 22" x 91.5" (MAX) 22" x 22" x 91.5" (MIN)	1970	22SB	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 16"X16" MIN PATTERN
16	30" WIDE SWITCHBOARD COMPONENT	96" x 30" x 91.5" (MAX) 30" x 30" x 91.5" (MIN)	2020	30SB	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 25"X25" MIN PATTERN
17	36" WIDE SWITCHBOARD COMPONENT	96" x 36" x 91.5" (MAX) 36" x 36" x 91.5" (MIN)	2070	36SB	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 31"X31" MIN PATTERN
18	SWITCHBOARD	72" x 43" x 90"	1450	800ASB	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 48"X31" MIN PATTERN
19	FREE STANDING RACK-1	SEE S-39	1500/ BAY	UNISTRUT BRACED RACK	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 30"X46.5" MIN PATTERN
20	FREE STANDING RACK-2	SEE S-40	2000/ BAY	RACK	(4) - 3/4"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 4" EMBEDMENT IN A 9"X9" MIN PATTERN. PER COLUMN. BASE PLATE PER PLAN
21	FREE STANDING RACK-3	SEE S-41	495/ BAY	UNISTRUT RACK	(4) - 1/2"Ø HILTI STAINLESS STEEL KB-TZ BOLTS PER ICC ESR-1917 W/ 3-1/4" EMBEDMENT IN A 9"X9" MIN PATTERN

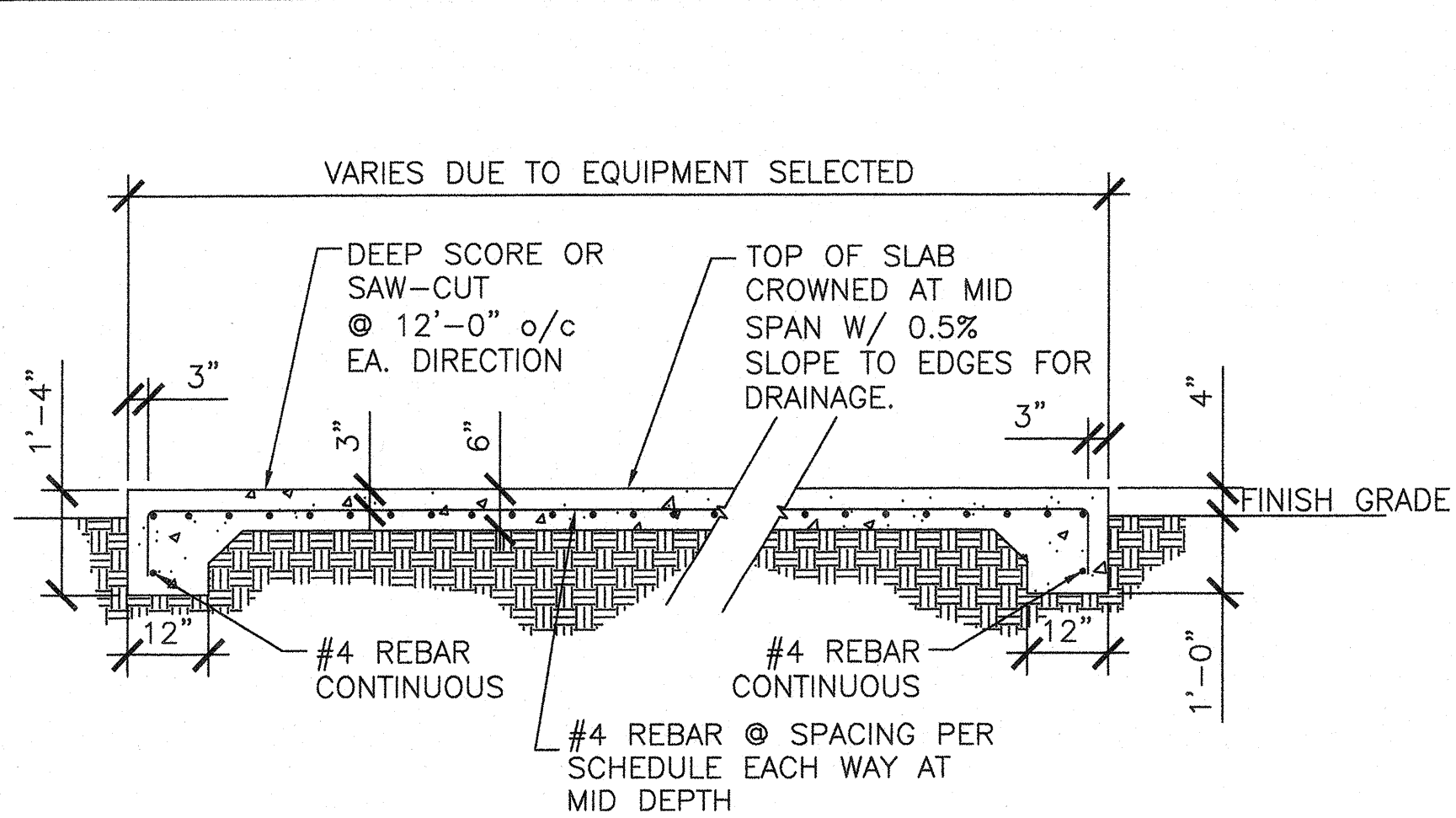
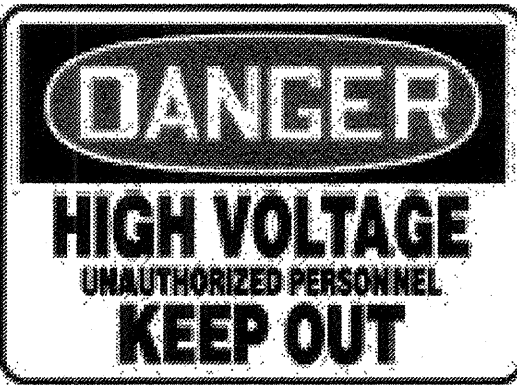
- NOTES:
- EQUIPMENT MAY BE INSTALLED ON A SINGLE PAD AS LONG AS EACH PIECE OF EQUIPMENT HAS THE REQUIRED PAD SIZE WITHOUT OTHER EQUIPMENT'S PAD REQUIREMENTS OVERLAPPING.
 - POST WARNING SIGNS PER DETAIL 4/S-38 REQUIRED AT ALL ENTRY POINTS TO PAD LOCATION. ALSO SEE SITE SPECIFIC ELECTRICAL PLANS FOR ADDITIONAL SIGNAGE REQUIREMENTS.
 - WHEN SWITCHBOARD COMPONENTS ARE ATTACHED TOGETHER THE PAD SIZE MUST BE THE MAXIMUM PAD WIDTH FOR ANY OF THE INDIVIDUAL COMPONENTS AND THE LENGTH MUST BE EQUIVALENT TO THE SUM OF ALL USED COMPONENTS REQUIRED LENGTHS.
 - NOT ALL EQUIPMENT NEEDS TO BE USED. ELECTRICAL ENGINEER TO SPECIFY SITE SPECIFIC EQUIPMENT TO BE USED AND TO PROVIDE ELECTRICAL DOCUMENTS DEMONSTRATING GROUNDING OF EQUIPMENT AND OF THE SOLAR PANELS.
 - IF OTHER EQUIPMENT IS SUBSTITUTED THE PAD SIZE MAY BE ADJUSTED BY RATIONAL PROPORTIONS [EX:(ACTUAL PAD WIDTH)=(WIDTH OF ACTUAL EQUIPMENT)/(WIDTH OF EQUIPMENT IN THE CHART)*(PAD WIDTH IN CHART)]
 - SITE SPECIFIC DESIGN FOR THE DUCT BANK LOCATIONS SHALL TAKE INTO CONSIDERATION POSSIBLE FENCE POST FOUNDATIONS AND/OR THE IMPACTS OF THE SLAB PERIMETER FOUNDATION.
 - ALL STRUCTURAL CONNECTION POINTS REQUIRED BY MANUFACTURER TO MAINTAIN WARRANTY TO BE FILLED. THIS MAY EXCEED THE MINIMUM NUMBER OF BOLTS INDICATED IN THE ABOVE CHART.
 - ALL 1/2" Ø HILTI STAINLESS STEEL KB-TZ BOLTS TO BE INSTALLED TO 40 FT-LB OF TORQUE. ALL 3/8" Ø HILTI STAINLESS STEEL KB-TZ BOLTS TO BE INSTALLED TO 60 FT-LB OF TORQUE. ALL 1/2" Ø HILTI STAINLESS STEEL KB-TZ BOLTS TO BE INSTALLED TO 110 FT-LB OF TORQUE.
 - MINIMUM EDGE DISTANCE FOR ALL Ø HILTI STAINLESS STEEL KB-TZ BOLTS TO BE 6" U.N.O. THE MINIMUM PAD SIZE SHOWN IN CHART MAY NEED TO INCREASE TO ACCOMMODATE THIS MINIMUM REQUIREMENT.
 - IF CHAIN LINK FENCE ENCLOSURE IS USED SEE S-43 FOR CONNECTION OPTIONS WHICH MAY REQUIRE A WIDER PERIMETER FOOTING.

1 EQUIPMENT PAD SCHEDULE

SCALE: N/A

4 WARNING SIGN

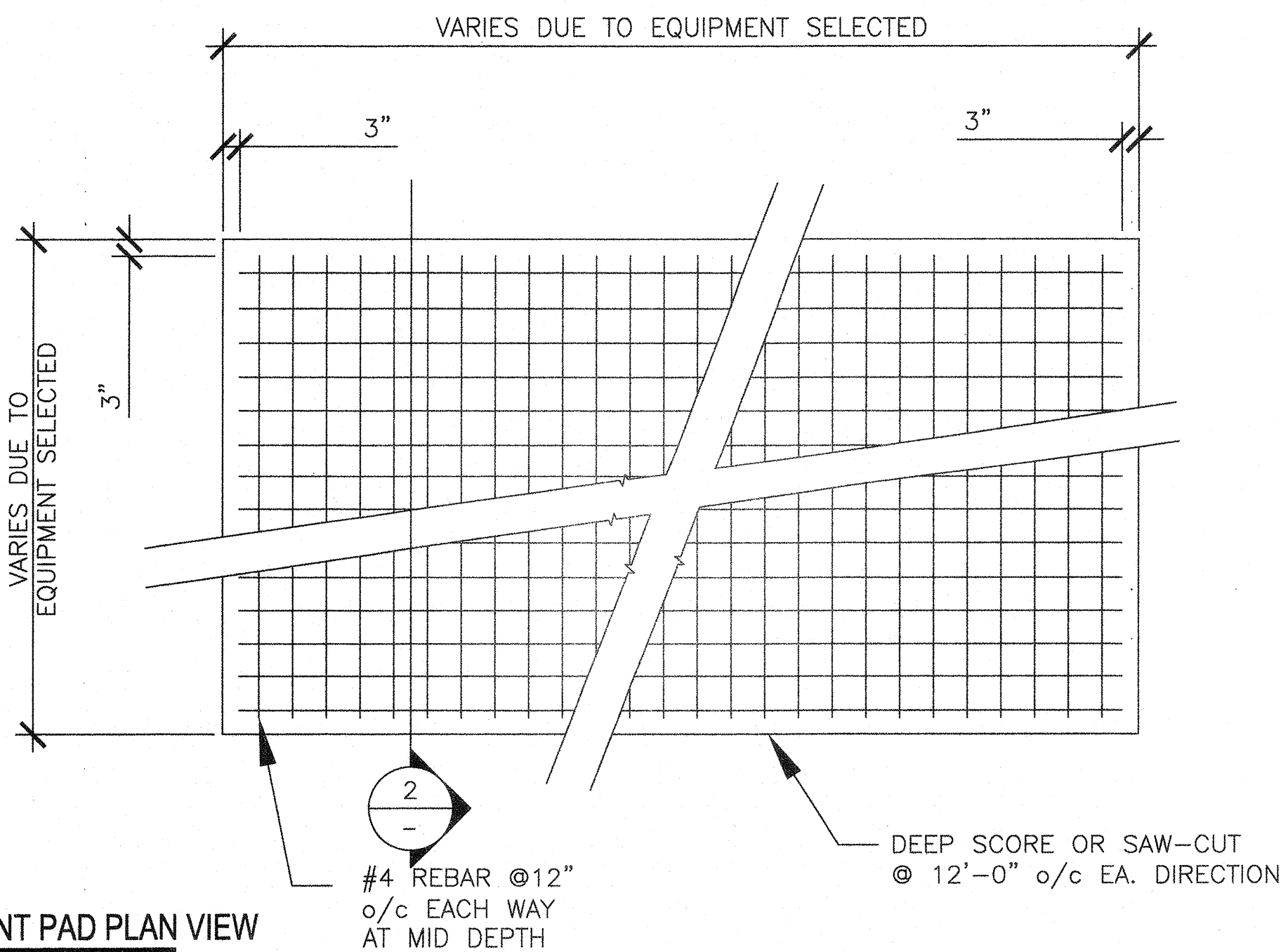
SCALE: N/A



- NOTES:
- IF CHAIN LINK FENCE ENCLOSURE IS USED SEE S-43 FOR CONNECTION OPTIONS WHICH MAY REQUIRE A WIDER PERIMETER FOOTING.

2 EQUIPMENT PAD SECTION

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



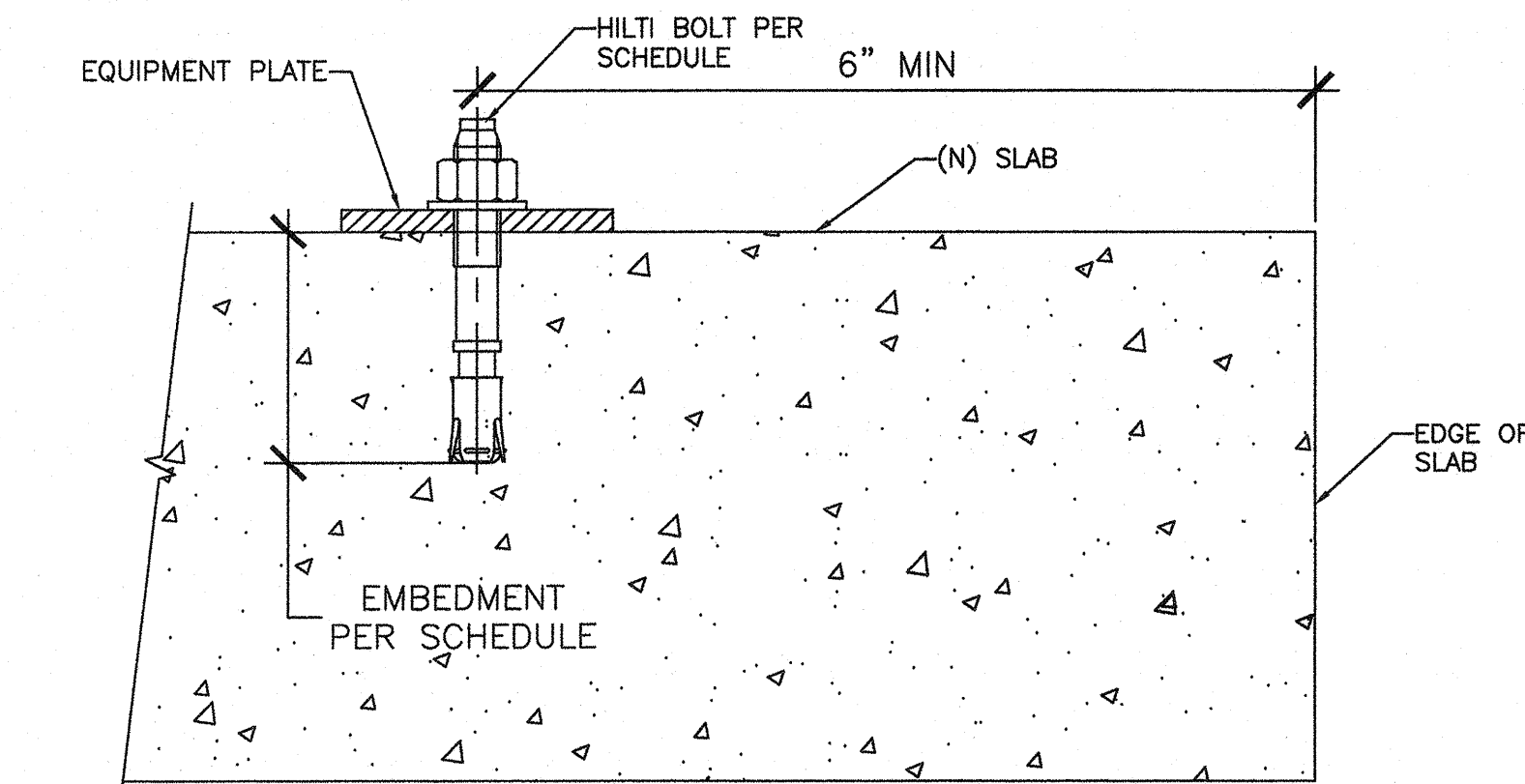
3 EQUIPMENT PAD PLAN VIEW

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

TOP OF SLAB CROWNED AT MID SPAN W/ 0.5% SLOPE TO EDGES FOR DRAINAGE. DEEP SCORE 1/4" x 2" ORSAW-CUT 2" DEEP @ 12'-0" o/c EA. DIRECTION

5 CONTROL JOINT

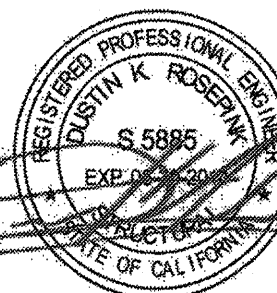
SCALE: 3/4" = 1'-0"



6 HILTI KB-TZ

SCALE: 6" = 1'-0"

ENGINEER'S
APPROVAL



DATE SIGNED
JUNE 25, 2014

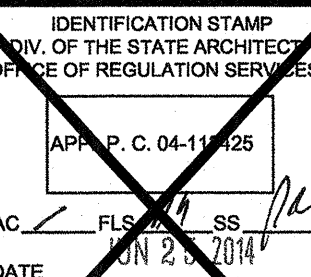
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT

03 119250

AC FLS / SS EY

Date

SITE SPECIFIC
DSA APPROVAL



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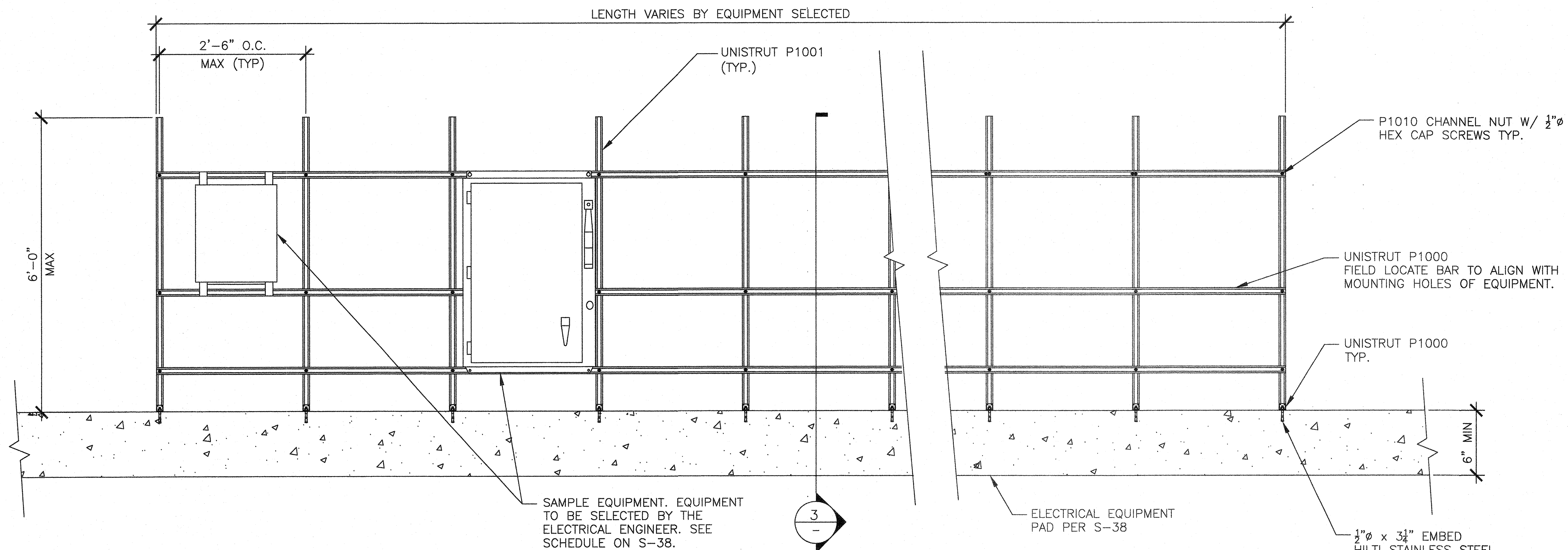
4 STEEL ENGINEERING
STRUCTURAL ENGINEERING
109 EAST ESCALONES
SAN CLEMENTE, CA 92672
PHONE: (949) 388-9333
FAX: (949) 388-3773

PHOTOVOLTAIC
STRUCTURES
EQUIPMENT PAD

DRAWN
MAP
CHECKED
DKR
DATE
6/25/14
4STEL JOB NO.
13-1010
SHEET

S-38

38 OF 45 SHEETS

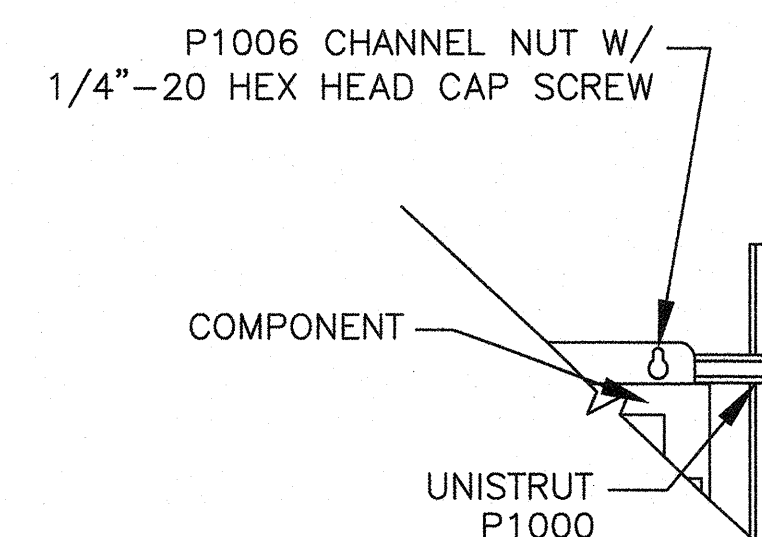


1 MULTI-BAY FREESTANDING RACK 1

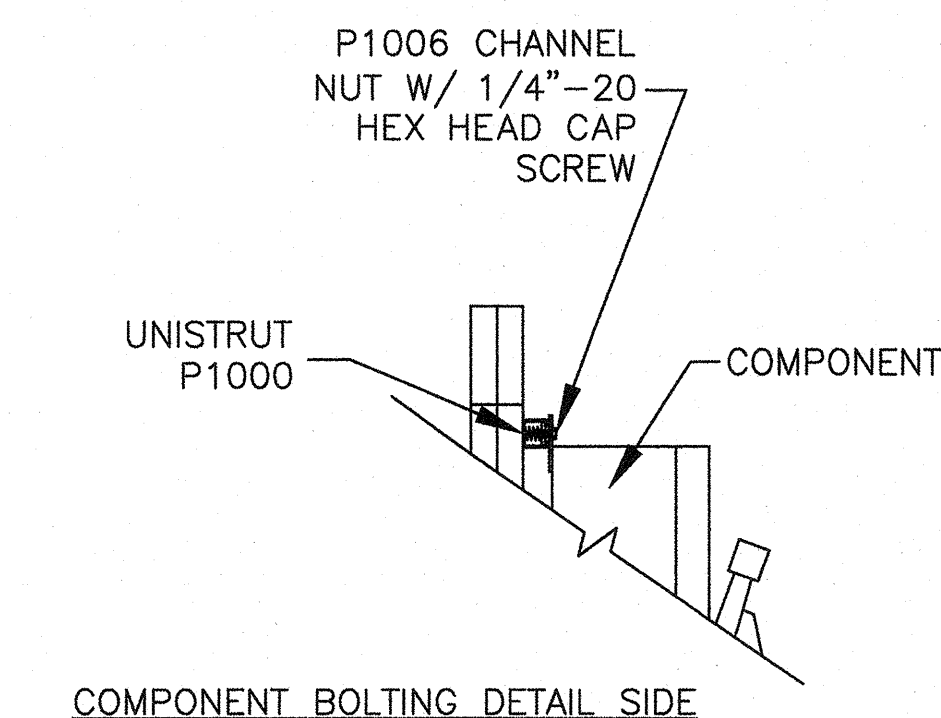
SCALE: 3/4" = 1'-0"

NOTES:

- 1) ALL STEEL TO BE GALVANIZED OR PAINTED PER STEEL NOTE 12 ON S-3
- 2) ALL STEEL TO MEET WITH STEEL NOTES PER S-3
- 3) SEE DETAIL 4 FOR CONNECTIONS
- 4) MAXIMUM EQUIPMENT WEIGHT PER BAY GIVEN IN SCHEDULE 1/S-38



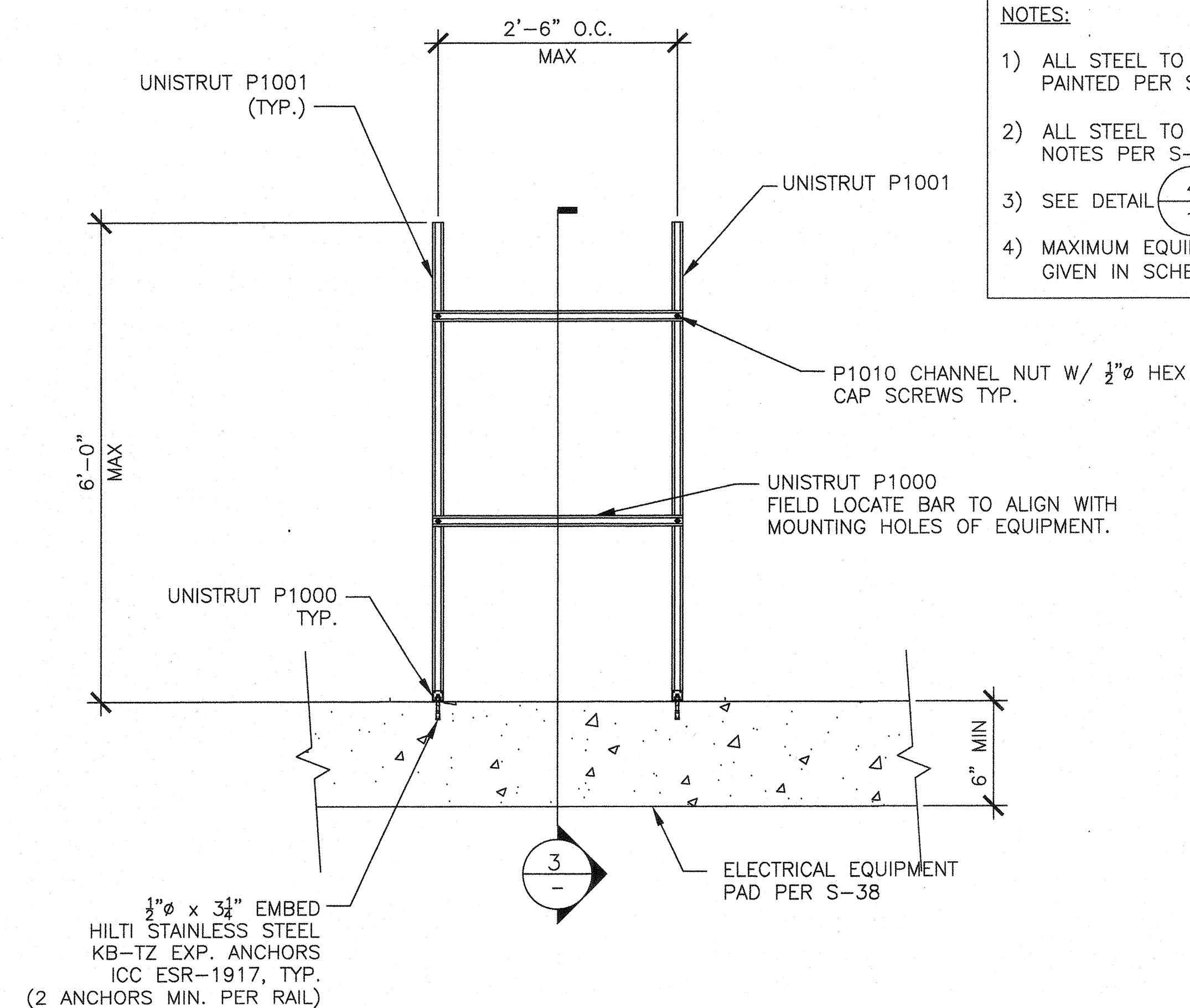
COMPONENT BOLTING DETAIL FRONT



COMPONENT BOLTING DETAIL SIDE

4 RACK 1 CONNECTION DETAILS

SCALE: 1" = 1'-0"

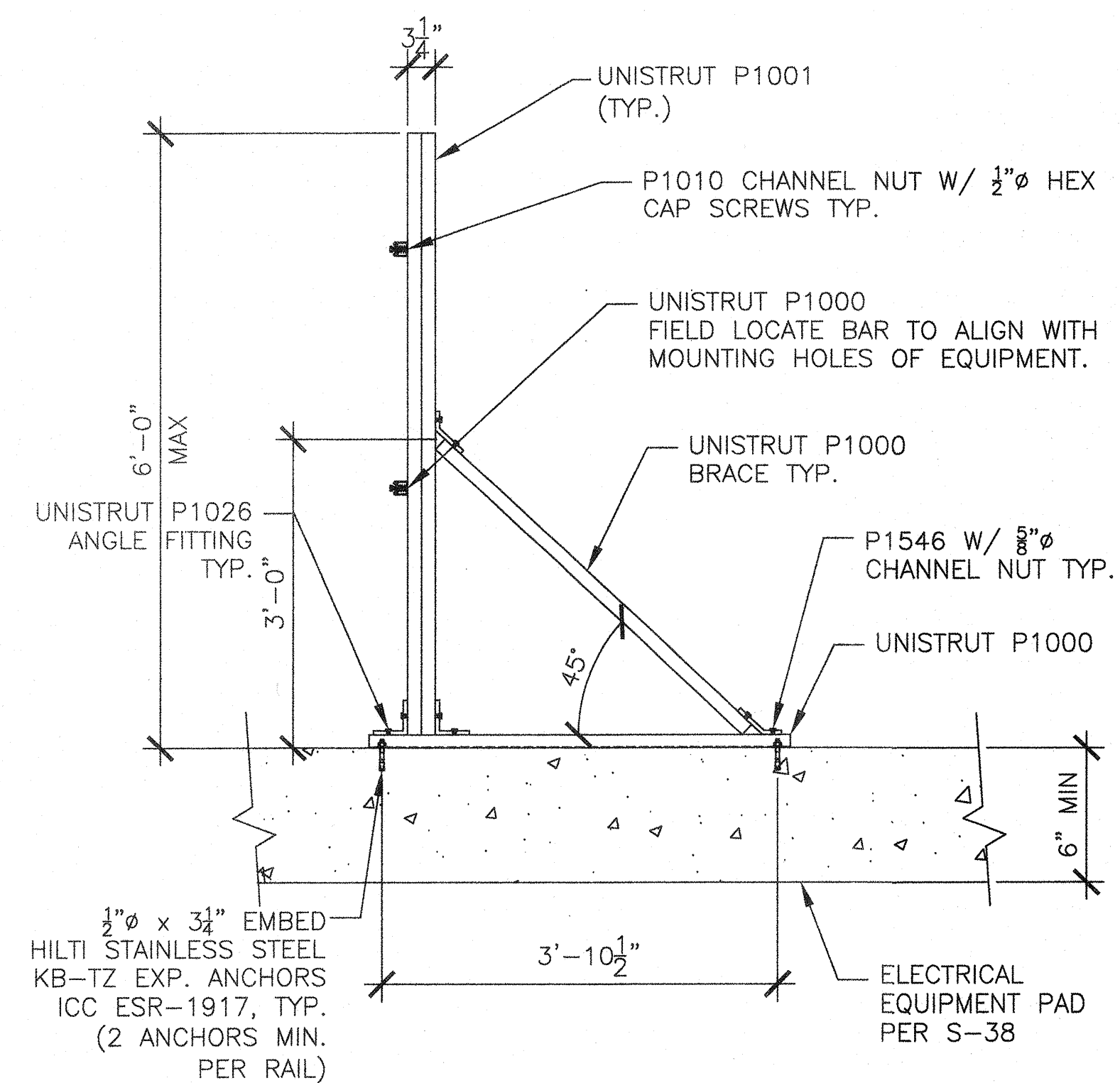


2 SINGLE BAY FREESTANDING RACK 1

SCALE: 3/4" = 1'-0"

NOTES:

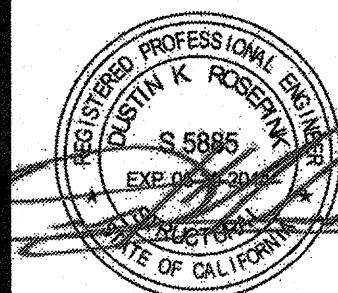
- 1) ALL STEEL TO BE GALVANIZED OR PAINTED PER STEEL NOTE 12 ON S-3
- 2) ALL STEEL TO MEET WITH STEEL NOTES PER S-3
- 3) SEE DETAIL 4 FOR CONNECTIONS
- 4) MAXIMUM EQUIPMENT WEIGHT PER BAY GIVEN IN SCHEDULE 1/S-38



3 DISCONNECT RACK 1 SIDE VIEW

SCALE: 3/4" = 1'-0"

ENGINEER'S APPROVAL



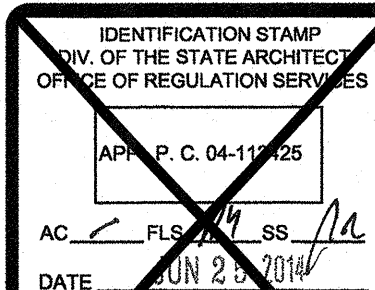
DATE SIGNED
JUNE 25, 2014

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03 119250

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Date AUG 07 2018

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DSA APPROVAL



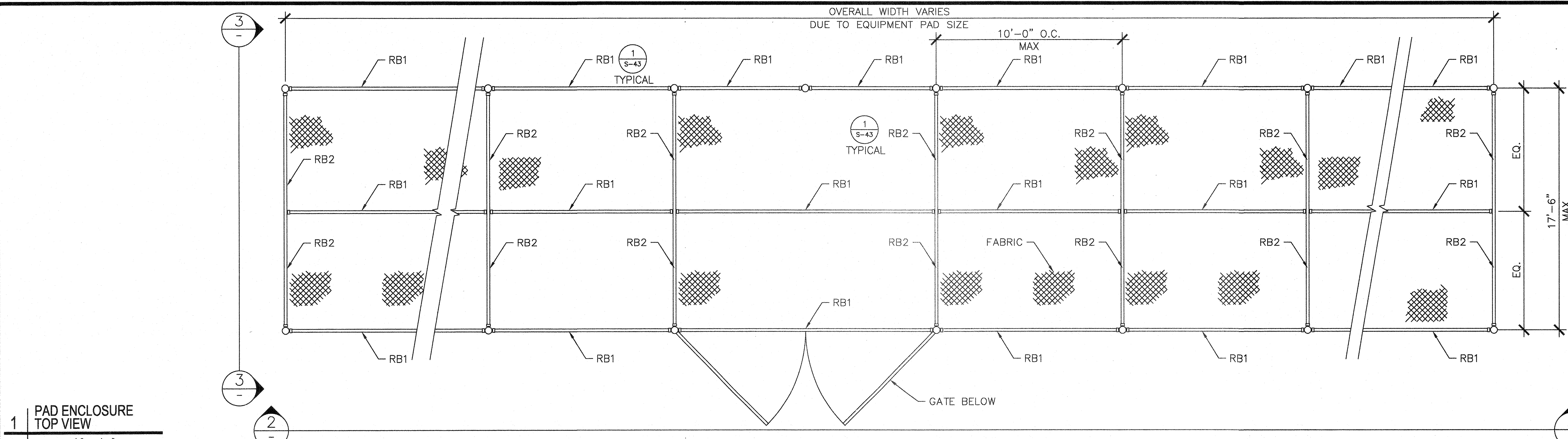
MBARC CONSTRUCTION INC.
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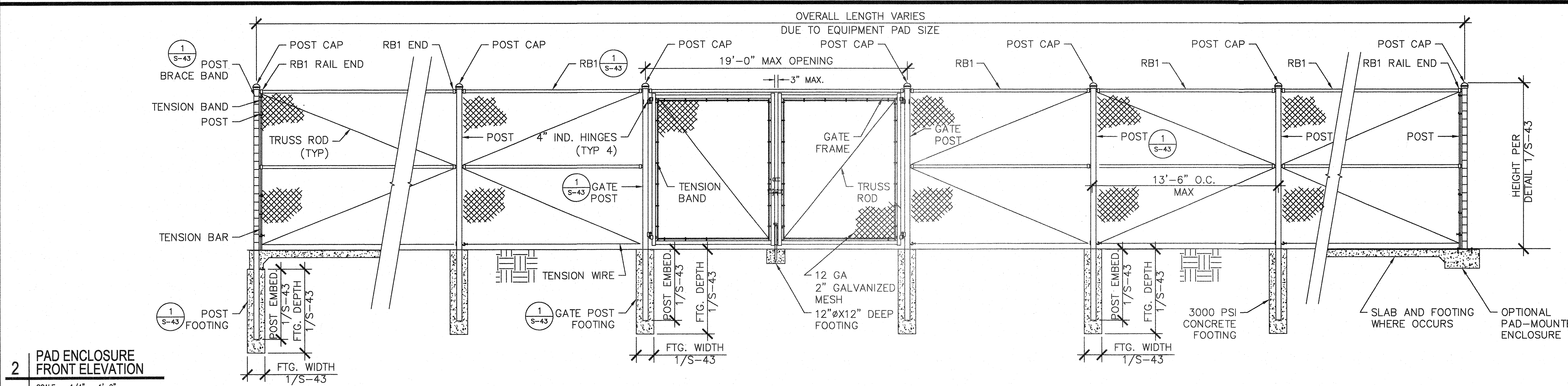
PHOTOVOLTAIC
STRUCTURES
BRACED
UNISTRUT
EQUIPMENT
RACK 1

DRAWN
MAP
CHECKED
DKR
DATE
6/25/14
4STEL JOB NO.
13-1010
SHEET
S-39

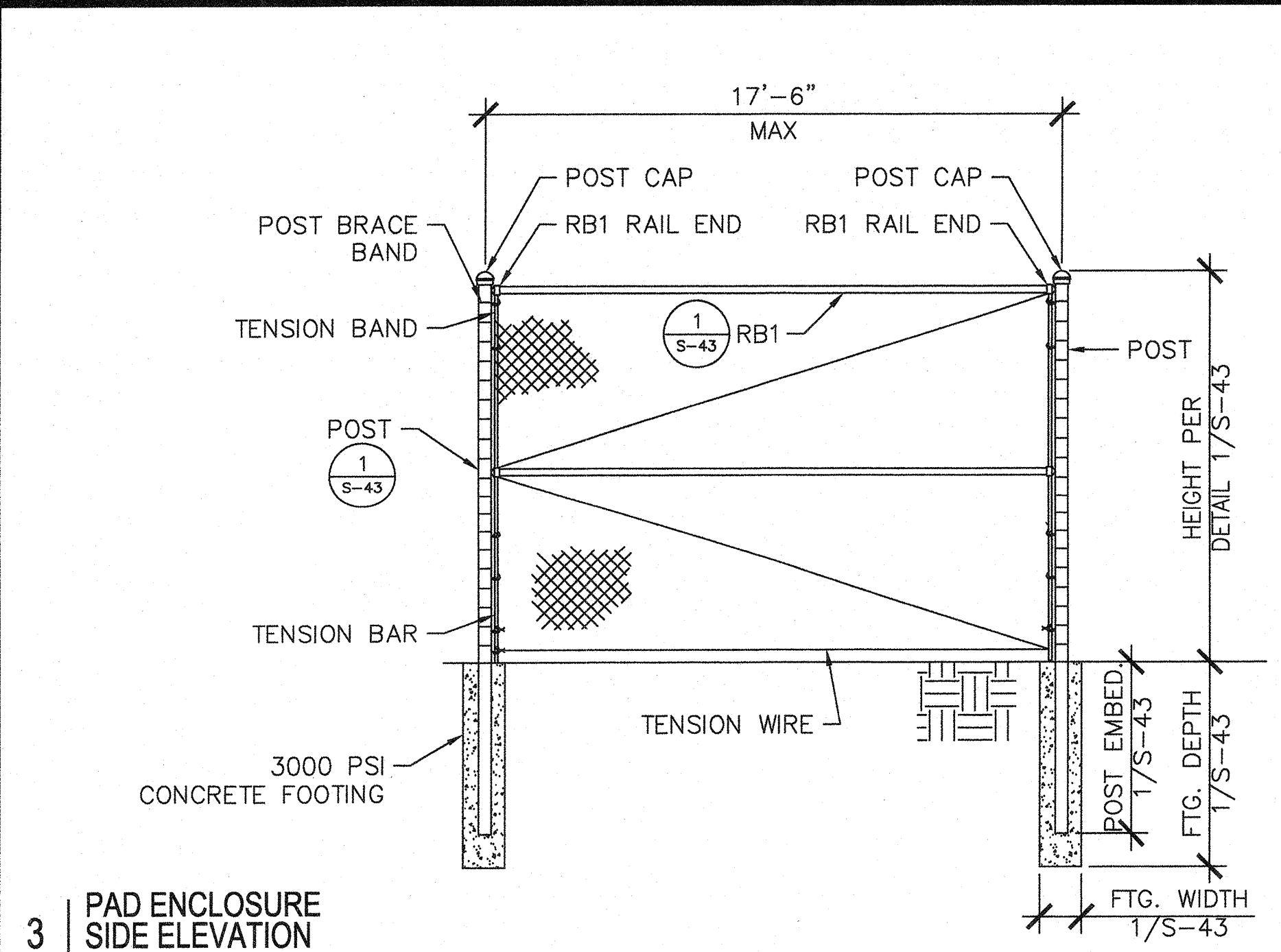
39 OF 45 SHEETS



1 PAD ENCLOSURE TOP VIEW
SCALE: 1/4" = 1'-0"



2 PAD ENCLOSURE FRONT ELEVATION
SCALE: 1/4" = 1'-0"



3 PAD ENCLOSURE SIDE ELEVATION
SCALE: 1/4" = 1'-0"

NOTES:

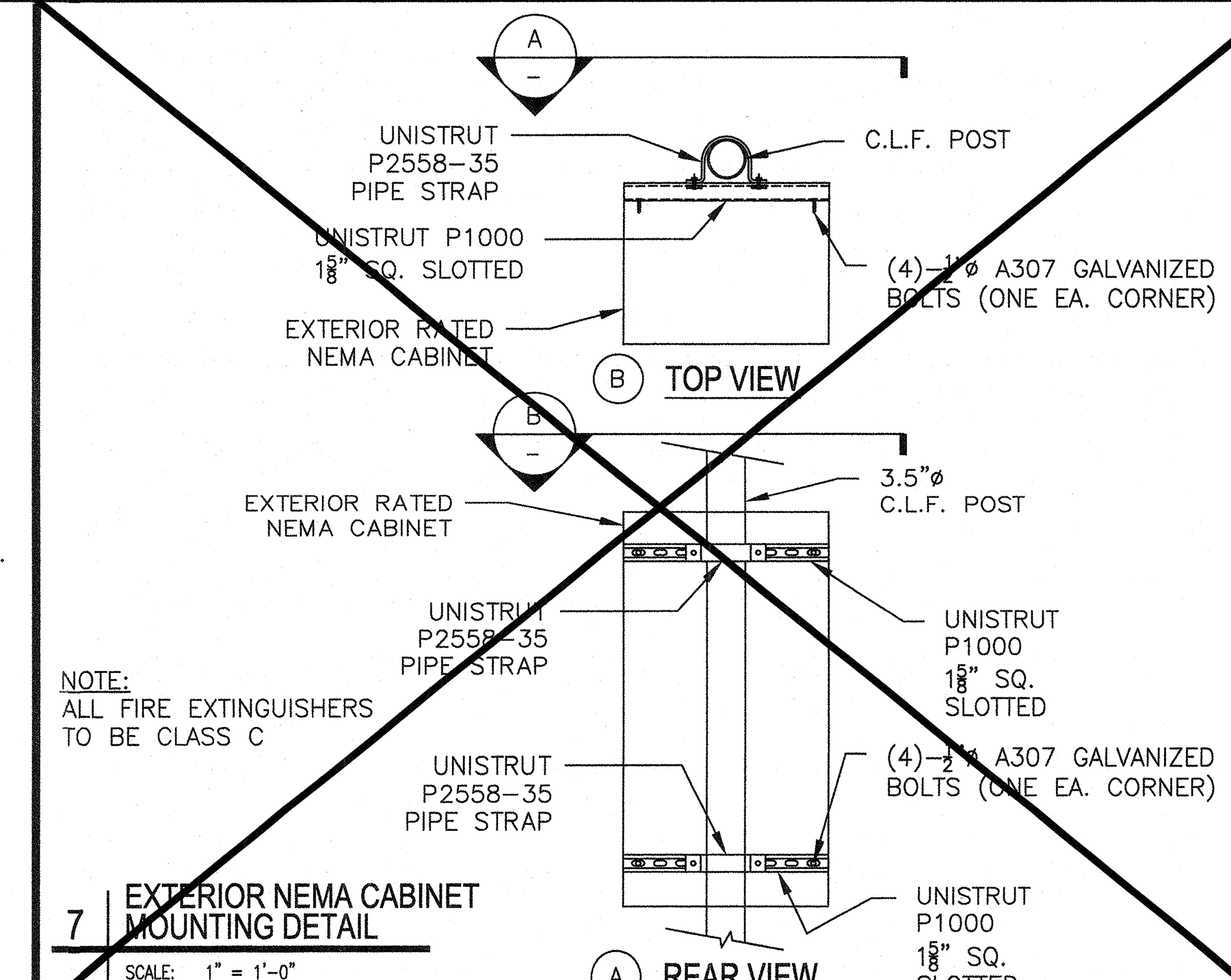
1. ALL FENCE COMPONENTS TO BE GALVANIZED.
2. PROVIDE FLEXIBLE BONDING JUMPER BETWEEN GATE POST AND FENCE POST.
3. PROVIDE PROPER CLAMP TO BOND FENCE TO THE GROUNDING SYSTEM.
4. SEE SITE SPECIFIC ELECTRICAL DRAWINGS FOR GROUNDING SPECIFICATIONS.

EQUIPMENT PAD ENCLOSURE SPECIFICATIONS:

FABRIC: 2" GALVANIZED 11 GA STD ALTERNATES PERMITTED PROVIDED SUBMITTAL SHOW % OF AIR FLOW BLOCKAGE
BARRIER: VISUAL/WIND BARRIER - PROVIDE SUBMITTAL TO SHOW % OF AIR FLOW BLOCK
TOP RAIL: ASTM A53, GRADE B, $F_y=30$ KSI
LINE POST: ASTM A53, GRADE B, $F_y=30$ KSI. SEE DETAIL 1/S-43 FOR FOOTING SIZE.
TERMINAL POST: ASTM A53, GRADE B, $F_y=30$ KSI
GATE: FRAMEWORK TO BE 1 1/4" STANDARD STEEL PIPE, ASTM A53, GRADE B, $F_y=30$ KSI
GATE POSTS: ASTM A53, GRADE B, $F_y=30$ KSI SEE DETAIL FOR FOOTING SIZE.
TOP BEAMS: ASTM A53, GRADE B, $F_y=30$ KSI
TOP BRACING: ASTM A53, GRADE B, $F_y=30$ KSI

4 NOTES

SCALE: N/A



7 EXTERIOR NEMA CABINET MOUNTING DETAIL
SCALE: 1" = 1'-0"

ENGINEER'S APPROVAL

DATE SIGNED
JUNE 25, 2014

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DIV. OF THE STATE ARCHITECT

03 119250

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Date AUG 0 1 2018

SITE SPECIFIC DSA APPROVAL

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES

APPROVAL: 04-11-125

AC FLS SS EY
DATE: JUN 25 2014

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LIC # 869960
B AND C51

ASTEL ENGINEERING

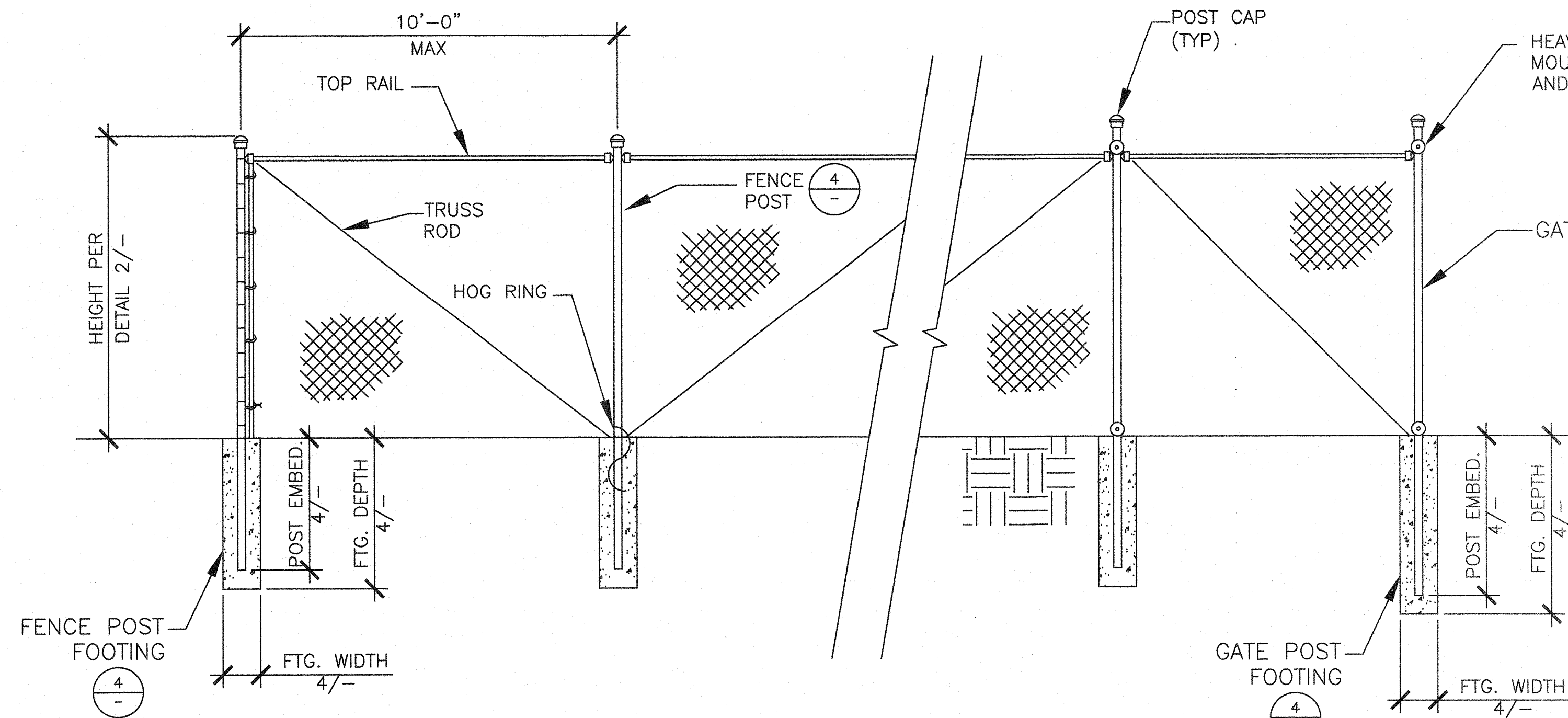
STRUCTURAL ENGINEERING

109 EAST ESCALONES
SAN CLEMENTE, CA 92672

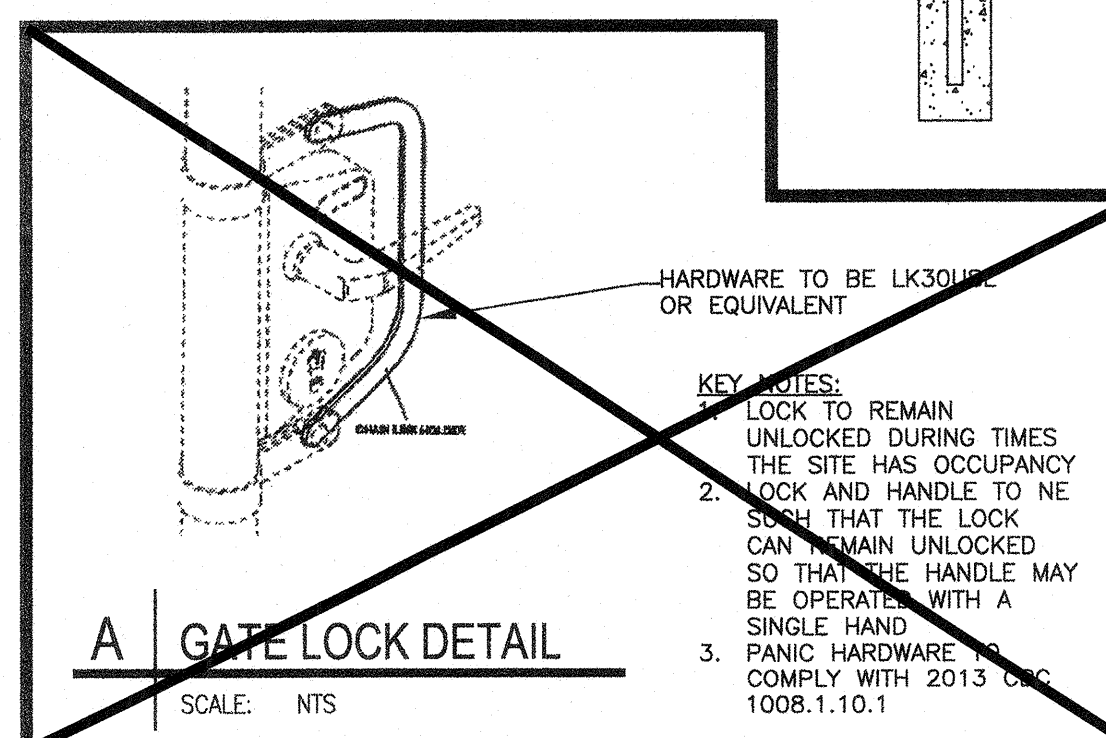
PHONE: (949) 388-9333
FAX: (949) 388-3773

PHOTOVOLTAIC STRUCTURES
EQUIPMENT PAD ENCLOSURE

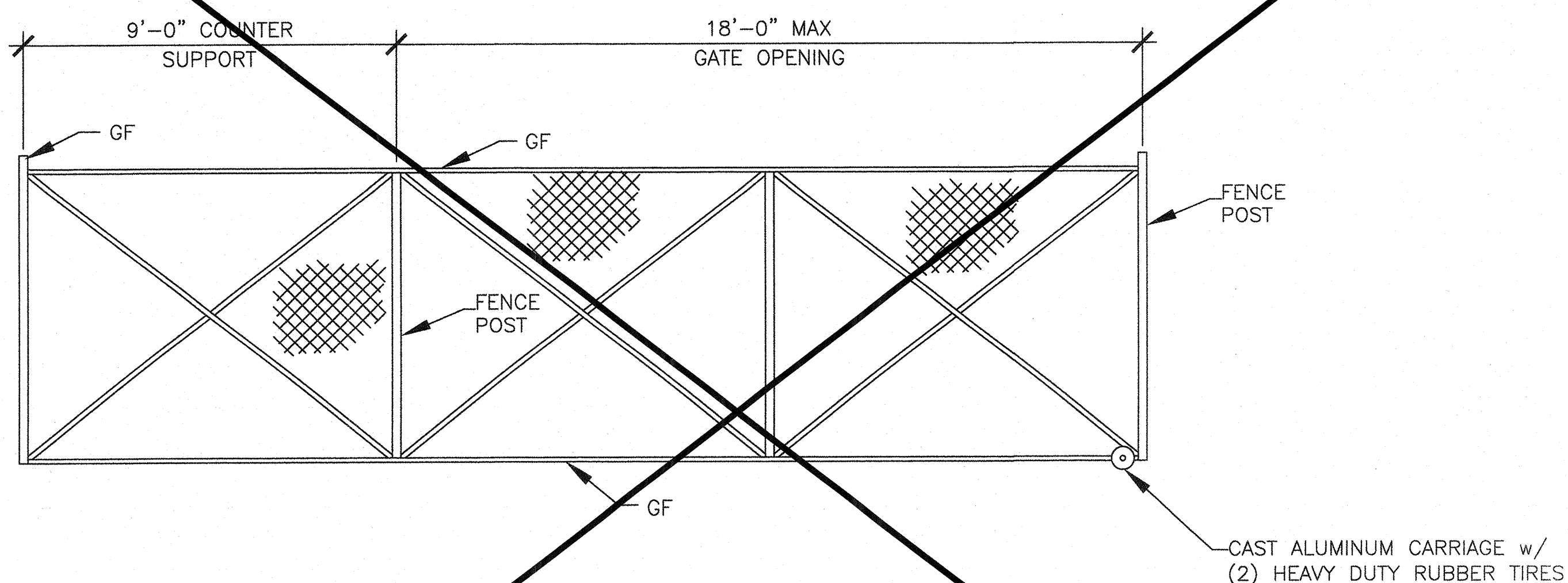
DRAWN MAP
CHECKED DKR
DATE 6/25/14
ASTEL JOB NO. 13-1010
SHEET S-42
42 OF 45 SHEETS



1 PERIMETER FENCE
SCALE: 3/8" = 1'-0"



A GATE LOCK DETAIL
SCALE: NTS



2 ROLLING GATE
SCALE: 3/8" = 1'-0"

NOTES:

1. ALL FENCE COMPONENTS TO BE GALVANIZED.
2. PROVIDE FLEXIBLE BONDING JUMPER BETWEEN GATE POST AND FENCE POST.
3. PROVIDE PROPER CLAMP TO BOND FENCE TO THE GROUNDING SYSTEM.
4. SEE SITE SPECIFIC ELECTRICAL DRAWINGS FOR GROUNDING SPECIFICATIONS.

PERIMETER FENCE SPECIFICATIONS:

FABRIC:	2" GALVANIZED 11 GA STD ALTERNATES PERMITTED PROVIDED SUBMITTAL SHOW % OF AIR FLOW BLOCKAGE
BARRIER:	VISUAL/WIND BARRIER - PROVIDE SUBMITTAL TO SHOW % OF AIR FLOW BLOCK
TOP RAIL:	ASTM A53, GRADE B, $F_y=30$ KSI
LINE POST:	ASTM A53, GRADE B, $F_y=30$ KSI. SEE DETAIL 4/S-44 FOR FOOTING SIZE.
TERMINAL POST:	ASTM A53, GRADE B, $F_y=30$ KSI. SEE DETAIL 4/- FOR FOOTING SIZE.
GATE:	FRAMEWORK TO BE 1 1/4" STANDARD STEEL PIPE, ASTM A53, GRADE B, $F_y=30$ KSI
GATE POSTS:	ASTM A53, GRADE B, $F_y=30$ KSI SEE DETAIL FOR FOOTING SIZE.
TOP BEAMS:	ASTM A53, GRADE B, $F_y=30$ KSI
TOP BRACING:	ASTM A53, GRADE B, $F_y=30$ KSI

3 NOTES

SCALE: N/A

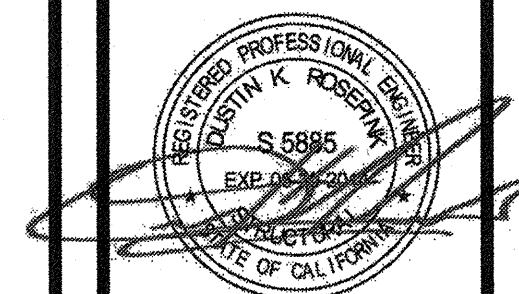
% SOLID ²	HEIGHT	FENCE POST/ GF	FENCE POST FOOTING DEPTH	FENCE POST FOOTING DIAMETER	FENCE POST EMBEDMENT INTO FOOTING	GATE POST	GATE POST FOOTING DEPTH	GATE POST FOOTING DIAMETER	GATE POST EMBEDMENT INTO FOOTING
100%	8'-0"	5" ϕ	7'-0"	24"	6'-6"	6" ϕ	8'-0"	24"	7'-6"
50%	8'-0"	3 1/2" ϕ	6'-0"	18"	5'-6"	5" ϕ	7'-0"	18"	6'-6"
15%	8'-0"	2 1/2" ϕ	4'-6"	12"	4'-0"	2 1/2" ϕ	5'-3"	12"	4'-9"
100%	6'-0"	4" ϕ	6'-0"	24"	5'-6"	5" ϕ	6'-9"	24"	6'-3"
50%	6'-0"	3" ϕ	5'-3"	18"	4'-9"	3 1/2" ϕ	5'-9"	18"	5'-3"
15%	6'-0"	2 1/2" ϕ	3'-9"	12"	3'-3"	2 1/2" ϕ	4'-3"	12"	3'-9"

4 PERIMETER FENCE SCHEDULE

SCALE: N/A

1. READ FROM ONE LINE ONLY.
2. EXAMPLE OF % SOLID FENCING MATERIAL:
15%: CHAIN-LINK ONLY
50%: CHAIN-LINK WITH MESH
100%: CHAIN-LINK WITH SLATS

ENGINEER'S APPROVAL



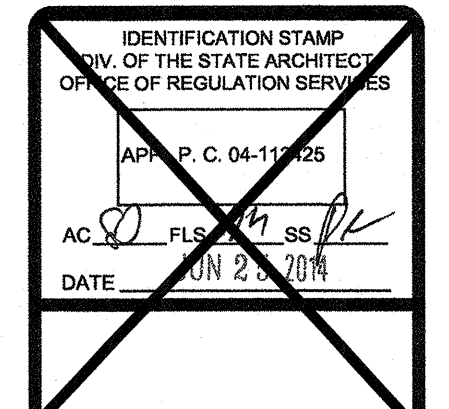
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03 119250

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Date AUG 07 2018

SITE SPECIFIC DSA APPROVAL



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PHOTOVOLTAIC STRUCTURES PERIMETER FENCE/ SCHEDULE

DRAWN MAP
CHECKED DKR
DATE 6/25/14
4STEL JOB NO. 13-1010
SHEET

S-44

44 OF 45 SHEETS