

TERMS AND ABBREVIATIONS

ABBRV	TERM
(#)	NUMERICAL QUANTITIES WHEN ENCLOSED IN PARENTHESES
A/E	ARCHITECT/ENGINEER
AB	ANCHOR BOLT
ABC	AGGREGATE BASE COURSE
ARCH	ARCHITECT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
CBC	CALIFORNIA BUILDING CODE
CIP	CAST-IN-PLACE
CD	CONTRACT DOCUMENTS
CJ	CONSTRUCTION JOINT
	CONTROL JOINT
CL	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
D	DEPTH
DIA	DIAMETER
DIM	DIMENSION
DL	DEAD LOAD
EA	EACH
EL	ELEVATION
EQ	EQUAL
EXT	EXTERIOR
EW	EACH WAY
(F)	FUTURE
FF	FINISH FLOOR ELEVATION
FLR	FLOOR
FT	FEET
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GSN	GENERAL STRUCTURAL NOTES
HORIZ	HORIZONTAL
I	HOLLOW STRUCTURAL
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
KIP, K	ONE THOUSAND POUNDS
KLf	KIP PER LINEAR FOOT
L	STEEL ANGLE
LB	POUND
LL	LIVE LOAD
LLBB	LONG LEG BACK TO BACK
LH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
MCJ	MASONRY CONTROL JOINTS
MECH	MECHANICAL
MFR	MANUFACTURER
NA	NOT APPLICABLE
NTS	NOT TO SCALE
OC	ON CENTER
PERP	PERPENDICULAR
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
QA	QUALITY ASSURANCE
QC	QUALITY CONTROL
REINF	REINFORCING
REQD	REQUIRED
RFI	REQUEST FOR INFORMATION
SF	SQUARE FOOT
SIM	SIMILAR
SPEC	SPECIFICATION
STD	STANDARD
T&B	TOP AND BOTTOM
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
W/C	WATER TO CEMENT RATIO
W/O	WITHOUT
WL	WINDLOAD

CODE:

2018 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC)

DESIGN LOADS:

1. ROOF:

LIVE LOAD (UNREDUCIBLE) \_\_\_\_\_ 12 PSF

DEAD LOAD \_\_\_\_\_ 8 PSF
2. WIND LOAD:

RISK CATEGORY \_\_\_\_\_ II

BASIC WIND SPEED, V \_\_\_\_\_ 101 MPH

EXPOSURE CATEGORY \_\_\_\_\_ C

IMPORTANCE FACTOR, Iw \_\_\_\_\_ 1.0

MEAN ROOF HEIGHT: \_\_\_\_\_ 18 FT

G \_\_\_\_\_ 0.85

Kd \_\_\_\_\_ 0.85

Kzt \_\_\_\_\_ 1.0

Kz \_\_\_\_\_ 0.88

ENCLOSURE CLASSIFICATION: \_\_\_\_\_ OPEN BUILDING
3. SEISMIC LOADS:

RISK CATEGORY \_\_\_\_\_ II

IMPORTANCE FACTOR, Ie \_\_\_\_\_ 1.0

SEISMIC SITE CLASS \_\_\_\_\_ DEFAULT

Ss \_\_\_\_\_ 0.172

S1 \_\_\_\_\_ 0.063

SDS \_\_\_\_\_ 0.183

SD1 \_\_\_\_\_ 0.101

K2 \_\_\_\_\_ 0.88

SEISMIC DESIGN CATEGORY \_\_\_\_\_ B

BASIC SEISMIC FORCE RESISTING SYSTEM: \_\_\_\_\_

STEEL ORDINARY CANTILEVER COLUMN SYSTEMS

R \_\_\_\_\_ 3.5

O \_\_\_\_\_ 2.5

Cd \_\_\_\_\_ 3.0

Cs \_\_\_\_\_ 0.052

BASE SHEAR, V \_\_\_\_\_ 0.052W

GENERAL:

1. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES.

2. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK THAT CONFORMS TO THE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) SAFETY AND HEALTH STANDARDS FOR THE CONSTRUCTION INDUSTRY.

3. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDUM.

4. OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. HE SHALL BE RESPONSIBLE FOR ALL DETAILS. IF HE CHOOSES AN OPTION AND HE SHALL COORDINATE ALL DETAILS.

5. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO SPECIFIC DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT.

6. TYPICAL DETAILS ARE NOT CUT ON DRAWINGS, BUT APPLY UNLESS NOTED OTHERWISE.

7. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH ACTUAL SITE CONDITIONS AND GENERAL CONTRACTOR PRIOR TO START OF CONSTRUCTION. ALL DIMENSIONS SHOWN ON STRUCTURAL DRAWINGS ARE TO ASSIST CONTRACTOR IN VERIFICATION. DO NOT SCALE DIMENSIONS FROM DRAWINGS.

8. ITEMS SHOWN BY OTHER DISCIPLINES WITH REFERENCE TO STRUCTURAL DRAWINGS BUT NOT SHOWN ON THESE STRUCTURAL DRAWINGS SHALL BE CONSIDERED DESIGN BUILD ITEMS. CONTRACTOR SHALL SUBMIT DESIGN BY OTHERS FOR REVIEW

FOUNDATIONS:

1. GEOTECHNICAL CONSULTANT: N/A

2. DESIGN SOIL BEARING VALUES WERE ASSUMED IN ACCORDANCE WITH SOIL CLASS 5 AS DEFINED IN IBC/CBC TABLE 1806.2 "PRESUMPTIVE LOAD-BEARING VALUES". DESIGN BEARING VALUE OF 1,500 PSF AND LATERAL BEARING VALUE OF 100 PSF/FT WAS USED IN DESIGN. IF ACTUAL SOIL CONDITIONS DIFFER, NOTIFY THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH WORK.

3. SPREAD FOOTINGS SHALL BEAR ON COMPACTED NATIVE SOILS. BOTTOM OF FOOTINGS SHALL BEAR AT A DEPTH NOT LESS THAN 2.0 FT BELOW LOWEST ADJACENT GRADE WITHIN 5 FEET OF STRUCTURE OR FOUNDATION. FOUNDATION EXCAVATIONS SHALL BE INSPECTED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE. DRILLED POLE FOUNDATIONS SHALL BEAR ON MACHINE CLEANED, INSPECTED SOIL STRATA. POLE FOUNDATIONS WERE DESIGNED IN ACCORDANCE WITH THE PRESCRIPTIVE METHOD OF IBC/CBC SECTION 1807.3.2. FOR TOP OF POLE FOUNDATION ELEVATIONS, SEE FOUNDATION PLANS AND SECTIONS. IF WATER IS ENCOUNTERED DURING DRILLING, STOP AND CONSULT STRUCTURAL ENGINEER OR GEOTECHNICAL ENGINEER FOR RESOLUTION.

SHOP DRAWINGS:

1. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL ITEMS AND ITEMS REQUIRED BY ARCHITECTURAL SPECIFICATIONS. UNITED STRUCTURAL DESIGN, LLC. ASSUMES NO RESPONSIBILITY FOR THE FAILURE OF THE CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR REVIEW.

2. ITEMS NOT IN ACCORDANCE WITH CONTRACT DOCUMENTS SHALL BE FLAGGED UPON CONTRACTORS REVIEW

3. THE CONSTRUCTION DOCUMENTS MAY NOT BE REPRODUCED FOR USE AS SHOP DRAWINGS.

4. ELECTRONIC FILES OF CONSTRUCTION DOCUMENTS WILL NOT BE MADE AVAILABLE FOR USE AS SHOP DRAWINGS.

5. FIELD VERIFY ALL DIMENSIONS AND FINISHED GRADE PRIOR TO CONSTRUCTION AND PRIOR TO BEGINNING SHOP DRAWINGS.

6. THE ENGINEER OF RECORD HAS THE RIGHT TO APPROVE OR DISAPPROVE ANY CHANGES TO CONTRACT DOCUMENTS AT ANYTIME BEFORE OR AFTER SHOP DRAWING REVIEW.

7. ITEMS OMITTED OR SHOWN INCORRECTLY ARE AND NOT FLAGGED BY THE STRUCTURAL ENGINEER OR ARCHITECT SHALL NOT BE CONSIDERED CHANGES TO THE CONTRACT DOCUMENTS. SHOP DRAWINGS DO NOT REPLACE THE CONTRACT DOCUMENTS. REVIEWING IS INTENDED ONLY AS AN AID TO THE CONTRACTOR IN OBTAINING CORRECT SHOP DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL ITEMS ARE CONSTRUCTED ACCORDING TO THE CONTRACT DOCUMENTS.

CONCRETE:

1. CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301, "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE" AND ACI 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".

2. ADDITION OF WATER TO THE BATCH FOR MATERIAL WITH INSUFFICIENT SLUMP WILL NOT BE PERMITTED, UNLESS THE SUPPLIER HAS SPECIFICALLY WITHHELD WATER FROM THE BATCH AT THE PLANT. IN SUCH CASE THE MIX DESIGN AND TRUCK TICKET MUST CLEARLY STATE THE MAXIMUM AMOUNT OF WATER THAT CAN BE ADDED TO THE BATCH ON SITE. IN NO CASE SHALL THE DESIGN WATER TO CEMENTITIOUS MATERIAL RATIO BE EXCEEDED.

3. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED, EXCEPT THAT SLABS ON GRADE NEED BE VIBRATED ONLY AROUND SLAB EDGES, REINFORCING, AND COLUMNS. MECHANICALLY VIBRATE ONLY THE TOP 5 FEET OF DRILLED PIER CONCRETE. REVIBRATE TOP OF DRILLED PIER 15 MINUTES AFTER PLACING CONCRETE.

4. TEST DATA FOR CONCRETE SUBMITTALS SHALL BE SUBMITTED FOR REVIEW PRIOR TO PLACEMENT OF CONCRETE. REFERENCE ACI 318 CHAPTER 5, TABLE R5.3 FOR SPECIFIC REQUIREMENTS.

5. DRILLED PIER CONCRETE SHALL BE CHanneled TO FREE FALL DOWN THE SHAFT WITHOUT STRIKING THE REINFORCING OR THE SIDES OF THE SHAFT. MAXIMUM HEIGHT OF FREE-FALL IS 15'-0".

6. CONCRETE PROPERTIES:

CONCRETE USE

MINIMUM 28 DAY COMPRESSIVE

STRENGTH

UNLESS NOTED OTHERWISE ALL CONCRETE SHALL BE \_\_\_\_\_ 2,500 PSI

PHOTOVOLTAIC PANELS:

1. THE PANEL MANUFACTURER IS RESPONSIBLE FOR THE DESIGN OF THE PANELS AND THE DESIGN OF THE PANEL CONNECTIONS TO THE STRUCTURE INCLUDING ALL COMPONENTS REQUIRED TO MAKE THE CONNECTIONS. PHOTOVOLTAIC PANELS, COMPONENTS AND CONNECTIONS SHALL BE DESIGNED TO SUPPORT PANEL WEIGHT PLUS SNOW, WIND, OR SEISMIC LOADING, WHICHEVER COMBINATION PRODUCES THE MOST SEVERE CONDITION IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE.

2. OWNER TO PROVIDE PANEL CAPABLE OF SUPPORTING IN MANOR IN WHICH IS INTENDED BY THESE DRAWINGS (I.E. SUPPORTED BY SHORT END, DUAL SUPPORTS, ETC.) SUBMIT PANEL SPEC SHEETS FOR REVIEW PRIOR TO PURCHASING ANY PANELS.

3. CONTRACTOR TO VERIFY PV PANELS WITH OWNER PRIOR TO FABRICATION.

4. THIS IS A DEFERRED SUBMITTAL ITEM.

STRUCTURAL STEEL:

1. LATEST AISC AND AWS CODES APPLY. THE WORD APPROVED INSPECTION 4.4 OF THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES IS REDEFINED AS REVIEWED.

2. STEEL SHALL BE FINISHED AT LOCATIONS EXPOSED TO WEATHER WITH A CORROSION RESISTANT COATING APPLICABLE TO WEATHER AND EXPOSURE CONDITIONS OF PROJECT LOCATION.

3. WHEN STRUCTURAL STEEL IS FURNISHED TO A SPECIFIED MINIMUM YIELD POINT GREATER THAN 36 KSI, THE ASTM OR OTHER SPECIFICATION DESIGNATION SHALL BE INCLUDED NEAR THE ERECTION MARK ON EACH SHIPPING ASSEMBLY OR IMPORTANT CONSTRUCTION COMPONENT OVER ANY SHOP COAT OF PAINT PRIOR TO SHIPMENT FROM THE FABRICATORS PLANT.

4. IF IT IS NECESSARY TO SPLICE ANY MEMBER, SPLICE LOCATIONS ARE SUBJECT TO REVIEW BY STRUCTURAL ENGINEER. SPLICES SHALL BE FULL PENETRATION WELDED AND TESTED PER THIS SECTION. INDICATE ALL SPLICE LOCATIONS, AND WELDING PROCEDURES ON SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION.

5. ALL BEAMS SHALL BE ERECTED WITH THE NATURAL CAMBER UPWARDS.

6. ALL BOLTS SHALL BE INSTALLED WITH STEEL WASHERS.

7. ALL WELDING BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN TYPE OF WELD SHOWN ON THE DRAWINGS OR NOTES. CERTIFICATES SHALL BE THOSE ISSUED BY AN INDEPENDENT TESTING AGENCY.

8. ALL WELDING DONE BY E70 SERIES LOW HYDROGEN RODS. USE E90 SERIES FOR ASTM A708 REINFORCING BARS.

9. ALL WELDING PER AMERICAN WELDING SOCIETY STANDARDS. ALL WELDS ON DRAWINGS ARE SHOWN AS SHOP WELDS. CONTRACTOR MAY SHOP WELD OR FIELD WELD AT THEIR DISCRETION. SHOP WELDS OR FIELD WELDS SHALL BE SHOWN ON SHOP DRAWINGS.

10. SLAG SHALL BE REMOVED FROM ALL COMPLETED WELDS, AND THE WELD AND ADJACENT BASE METAL SHALL BE CLEANED BY BRUSHING OR OTHER SUITABLE MEANS. WELDED JOINTS SHALL NOT BE PAINTED UNTIL AFTER WELDING HAS BEEN COMPLETED AND THE WELD ACCEPTED.

11. ALL STRUCTURAL STEEL SHALL BE FABRICATED BY A FABRICATOR WITH ANY ONE OF THE FOLLOWING MINIMUM QUALIFICATIONS. QUALIFICATIONS SHALL BE IN EFFECT AT TIME OF BID.

12. AISC CERTIFIED FABRICATOR (STD).

13. STEEL PROPERTIES
  - WIDE FLANGE COLUMNS, BEAMS AND TEES: ASTM A992 (Fy = 50 KSI)
  - STEEL PLATES: ASTM A572 (Fy = 50 KSI)
  - CHANNELS AND ANGLES: ASTM A36 (Fy = 36 KSI)
  - HSS RECTANGULAR STEEL: ASTM A500 Gr. B (Fy = 46 KSI)
  - BOLTS: ASTM A325 OR ASTM A F1852 TWIST-OFF TYPE
  - ANCHOR RODS: ASTM F1554 Gr. 55 (Fy = 55 KSI)

14. STEEL BOLTS SHALL BE PRETENSIONED UNLESS OTHERWISE NOTED AS A SNUG-TIGHT CONNECTION ON THE DRAWINGS OR DETAILS. ONE OF THE FOLLOWING METHODS SHALL BE USED TO ASSURE ADEQUATE PRETENSIONING IS ACHIEVED:
  - TURN-OF-NUT METHOD
  - DIRECT TENSION INDICATOR WASHERS
  - CALIBRATED WRENCH
  - TWIST-OFF TYPE BOLT

STEEL REINFORCING:

1. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. LATEST ACI CODE AND DETAILING MANUAL APPLY. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE. REINFORCING BAR SPACING GIVEN ARE MAXIMUM ON CENTERS.

2. ALL REINFORCING TO BE WELDED SHALL BE WELDED IN ACCORDANCE WITH AWS D1.4. NO TACK WELDING OF REINFORCING BARS IS ALLOWED WITHOUT PRIOR REVIEW OF PROCEDURE BY STRUCTURAL ENGINEER.

3. REINFORCING LAP SPLICES IN CONCRETE SHALL BE PER TYPICAL DETAIL UNLESS NOTED OTHERWISE. ALL SPLICE LOCATIONS ARE SUBJECT TO APPROVAL. PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF FOOTINGS AND WALLS

4. TYPICAL REINFORCING BAR STRENGTHS

5. REINFORCING (WELDABLE): ASTM A706, DEFORMED, Fy = 60 KSI

6. TYPICAL CLEAR CONCRETE COVERAGE
  - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
  - FORMED CONCRETE EXPOSED TO EARTH OR WEATHER: #6 AND LARGER: 2" #5 AND SMALLER: 1 1/2"

ALL OTHERS PER LATEST EDITION OF ACI 318.

COLD-FORMED STEEL FRAMING:

1. ALL COLD-FORMED STEEL FRAMING SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS BY THE AMERICAN IRON AND STEEL INSTITUTE AND THE STEEL STUD MANUFACTURERS ASSOCIATION AND I.C.C. ESR-3064(P).

2. STEEL FOR ALL MEMBERS AND FOR ALL STRAPS SHALL HAVE A MINIMUM YIELD STRENGTH OF 55,000 PSI.

3. STEEL SHALL BE GALVANIZED AT LOCATIONS EXPOSED TO WEATHER AND WHENEVER NOTED ON THE DRAWINGS.

4. ALL MEMBERS SHALL BE SECURELY SEATED FOR FULL BEARING UNLESS NOTED OTHERWISE.

5. ALL WELDING SHALL BE PERFORMED BY WELDERS EXPERIENCED IN LIGHT GAUGE STEEL FRAMING WORK.

6. ALL SCREWS REFERENCED IN THE DRAWINGS FOR LIGHT GAUGE CONNECTIONS SHALL BE DRIL-FLEX BY HILTI OR APPROVED EQUIVALENT (I.C.C. ESR-3332).

7. STEEL STUD SIZES ARE AS INDICATED IN PLANS AND KEYNOTES. THICKNESS REFERENCED IN THE DRAWINGS ARE AS FOLLOWS:
  - 16 GAUGE MATERIAL - 0.059 INCHES
  - 14 GAUGE MATERIAL - 0.075 INCHES
  - 12 GAUGE MATERIAL - 0.105 INCHES
  - 10 GAUGE MATERIAL - 0.134 INCHES

NOTE: THE UNCOATED MINIMUM STEEL THICKNESS OF THE COLD-FORMED STEEL PRODUCTS AS DELIVERED TO THE JOB SITE SHALL NOT AT ANY LOCATION BE LESS THAN 95 PERCENT OF THE DESIGN THICKNESS INDICATED ABOVE.

1704.2.5 SPECIAL INSPECTION OF FABRICATORS:

SPECIAL INSPECTION OF FABRICATION OF STRUCTURAL STEEL BEING PERFORMED ON THE PREMISES OF A FABRICATOR'S SHOP IS REQUIRED.

EXCEPTION: SPECIAL INSPECTIONS OF FABRICATORS WITH ONE OF THE FOLLOWING QUALIFICATIONS IS NOT REQUIRED:

- INTERNATIONAL ACCREDITATION SERVICE, INC. (IAS)APPROVED FABRICATOR.

• AISC CERTIFIED FABRICATOR (STD).

THE SPECIAL INSPECTOR SHALL VERIFY THAT THE FABRICATOR MAINTAINS DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR INSPECTION CONTROL OF THE WORKMANSHIP AND THE FABRICATOR'S ABILITY TO CONFORM TO APPROVED CONSTRUCTION DOCUMENTS AND REFERENCED STANDARDS. THE SPECIAL INSPECTOR SHALL REVIEW THE PROCEDURES FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE CODE REQUIREMENTS FOR THE FABRICATOR'S SCOPE OF WORK.

SPECIAL STRUCTURAL INSPECTIONS:

PER IBC/CBC SECTION 1704 AND 1705 SPECIAL INSPECTIONS ARE IN ADDITION TO THE REQUIRED INSPECTION CONDUCTED BY THE BUILDING JURISDICTION PER IBC/CBC SECTION 110. THE TYPES OF WORK LISTED BELOW SHALL BE INSPECTED BY A SPECIAL INSPECTOR.

1. ALL SPECIAL INSPECTORS SHALL BE UNDER THE SUPERVISION OF A REGISTERED CIVIL OR STRUCTURAL ENGINEER.

2. THE QUALIFICATIONS OF ALL SPECIAL INSPECTORS SHALL BE REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.

3. THE MINIMUM QUALIFICATIONS FOR THE SPECIAL INSPECTORS ARE AS FOLLOWS:
  - CONCRETE INSPECTION - I.C.C. CERTIFICATION IN REINFORCED CONCRETE OR E.I.T. CERTIFICATION
  - STRUCTURAL WELDING INSPECTION
  - VISUAL TESTING - I.C.C. CERTIFICATION IN STRUCTURAL STEEL AND WELDING OR A.W.S. CERTIFIED WELD INSPECTOR (C.W.I.).
  - NON-DESTRUCTIVE TESTING - A.W.S. C.W.I.- HIGH STRENGTH BOLTING INSPECTION - I.C.C. CERTIFICATION IN STRUCTURAL STEEL AND WELDING.
- SPECIAL CASES - EXPERIENCE ACCEPTABLE TO THE STRUCTURAL ENGINEER OF RECORD.
4. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
- THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK REQUIRING SPECIAL INSPECTION FOR CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.

• THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO BE KEPT AT THE SITE FOR USE BY THE BUILDING OFFICIAL, THE CONTRACTOR, THE STRUCTURAL ENGINEER OF RECORD, AND THE ARCHITECT OF RECORD. IF SPECIAL INSPECTION IS PROVIDED BY ANYONE OTHER THAN THE STRUCTURAL ENGINEER OF RECORD, INSPECTION REPORTS SHALL BE SUBMITTED TO THE OFFICE OF THE STRUCTURAL ENGINEER ON A WEEKLY BASIS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN IF UNCORRECTED, TO THE DESIGN AUTHORITY AND THE BUILDING OFFICIAL.

• UPON COMPLETION OF THE ASSIGNED WORK, THE SPECIAL INSPECTOR SHALL COMPLETE AND SIGN A FINAL REPORT CERTIFYING THAT TO THE BEST OF HIS KNOWLEDGE, THE WORK IS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.
5. DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR:
- NOTIFY THE RESPONSIBLE INSPECTOR THAT WORK IS READY FOR INSPECTION AT LEAST ONE WORKING DAY (24 HOURS MINIMUM) BEFORE SUCH INSPECTION IS REQUIRED.

• ALL WORK REQUIRING SPECIAL STRUCTURAL INSPECTION SHALL REMAIN ACCESSIBLE AND EXPOSED UNTIL IT IS OBSERVED BY THE SPECIAL STRUCTURAL INSPECTOR.
6. SPECIAL INSPECTION
- INSPECTION OF FABRICATORS

• INSPECTION OF CONCRETE CONSTRUCTION

• INSPECTION OF STRUCTURAL STEEL

• INSPECTION OF SOILS
- SEE TABLES ON GSN FOR ADDITIONAL INFORMATION.
- 1705.6 SPECIAL INSPECTION OF SOILS
- SPECIAL INSPECTION FOR EXISTING SITE SOIL CONDITIONS. FILL PLACEMENT AND LOAD-BEARING REQUIREMENTS SHALL BE AS REQUIRED BY TABLE 1705.6.
- | TABLE 1705.6: REQUIRED VERIFICATION AND INSPECTION OF SOILS  |   |            |          |
|--|---|------------|----------|
| VERIFICATION AND INSPECTION TASK   |   | CONTINUOUS | PERIODIC |
|  |   |            |          |
| 1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.                   |   | —          | X        |
| 2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.                                 |   | —          | X        |
| 3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.   |   | —          | X        |
| 4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL. | X | —          |          |
| 5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.           |   | —          | X        |
- 2018 1705.3 SPECIAL INSPECTION OF CONCRETE CONSTRUCTION
- SPECIAL INSPECTION AND VERIFICATIONS FOR CONCRETE CONSTRUCTION SHALL BE AS REQUIRED BY TABLE 1705.3.
- EXCEPTIONS: SPECIAL INSPECTIONS SHALL NOT BE REQUIRED FOR:

1. ISOLATED SPREAD CONCRETE FOOTINGS OF BUILDING THREE STORIES OR LESS ABOVE GRADE PLANE THAT ARE FULLY SUPPORTED ON EARTH OR ROCK.

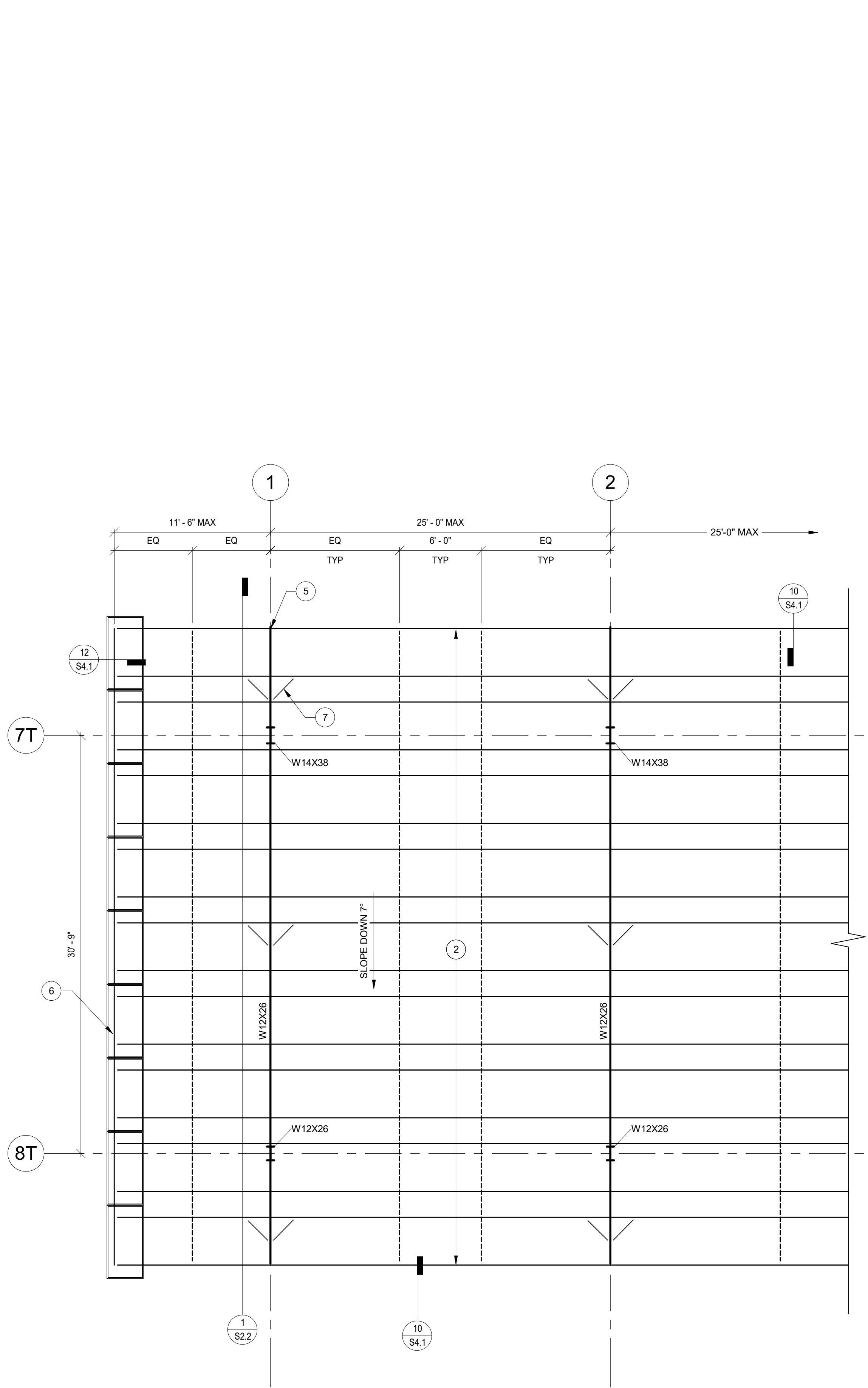
2. CONTINUOUS CONCRETE FOOTINGS SUPPORTING WALLS OF BUILDINGS THREE STORIES OR LESS ABOVE GRADE PLANE THAT ARE FULLY SUPPORTED ON EARTH OR ROCK WHERE:

3. THE FOOTINGS SUPPORT WALLS OF LIGHT-FRAME CONSTRUCTION.

4. THE STRUCTURAL DESIGN OF THE FOOTING IS BASED ON A SPECIFIED COMPRESSIVE STRENGTH, fc, NO GREATER THAN 2,500 PSI REGARDLESS OF THE COMPRESSIVE STRENGTH SPECIFIED.

5. CONCRETE SLABS ON GRADE. STEEL REINFORCING STILL REQUIRES SPECIAL INSPECTION.
- | TABLE 1705.3: REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION   |  |            |          |  |                                |
|---|--|------------|----------|--|--------------------------------|
| VERIFICATION AND INSPECTION   |  | CONTINUOUS | PERIODIC | REFERENCE STANDARD                         | IBC/CBC REFERENCE              |
|   |  |            |          |  |                                |
| 1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.   |  | —          | X        | ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3 | 1908.4                         |
| 2. REINFORCING BAR WELDING. a. VERIFY WELDABILITY OF REINFORCING BARS. b. INSPECT SINGLE PASS, FILLET WELDS, MAXIMUM 5/16". c. INSPECT ALL OTHER WELDS. |  | —          | —        | AWS D1.4 ACI 318: 26.6.4                   | —                              |
| 5. VERIFYING USE OF REQUIRED DESIGN MIX.  |  | —          | X        | ACI 318: Ch 19, 26.4.3, 26.4.4             | 1904.1, 1904.2, 1908.2, 1908.3 |
| 7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.  |  | X          | —        | ACI 318: 26.5                              | 1908.6, 1908.7, 1908.8         |
| 8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.   |  | —          | X        | ACI 318: 26.5.3-26.5.5                     | 1908.9                         |
| 12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.  |  | —          | X        | ACI 318:26.11.2 (b)                        | —                              |
- | Sheet List   |                             |
|--------------|-----------------------------|
| Sheet Number | Sheet Name                  |
| S0.1         | GENERAL STRUCTURAL NOTES    |
| S2.1         | DOUBLE POST STRUCTURE PLANS |
| S2.2         | DOUBLE POST STRUCTURE PLANS |
| S2.3         | TRIPLE POST STRUCTURE PLANS |
| S2.4         | TRIPLE POST STRUCTURE PLANS |
| S4.1         | SOLAR CANOPY DETAILS        |
- UNITED STRUCTURAL DESIGN LLC
- 2068 S. Dobson Rd, Suite 10  
Mesa, AZ 85202  
(480) 454-6406  
www.unitedstr.com
- 
- FULCRUM STEEL
- 3700 N 36th Ave  
Phoenix, AZ 85019  
(602) 512-4411
- NEW FULCRUM CANOPIES
- 6839 W CHICAGO STREET  
CHANDLER, AZ 85226
- | No. | Description | Date |
|-----|-------------|------|
|-----|-------------|------|
- PROJECT NUMBER: 21120  
DRAWN BY: KS  
CHECKED BY: JE  
DATE: 05/06/2021
- SHEET NAME  
GENERAL  
STRUCTURAL NOTES
- S0.1

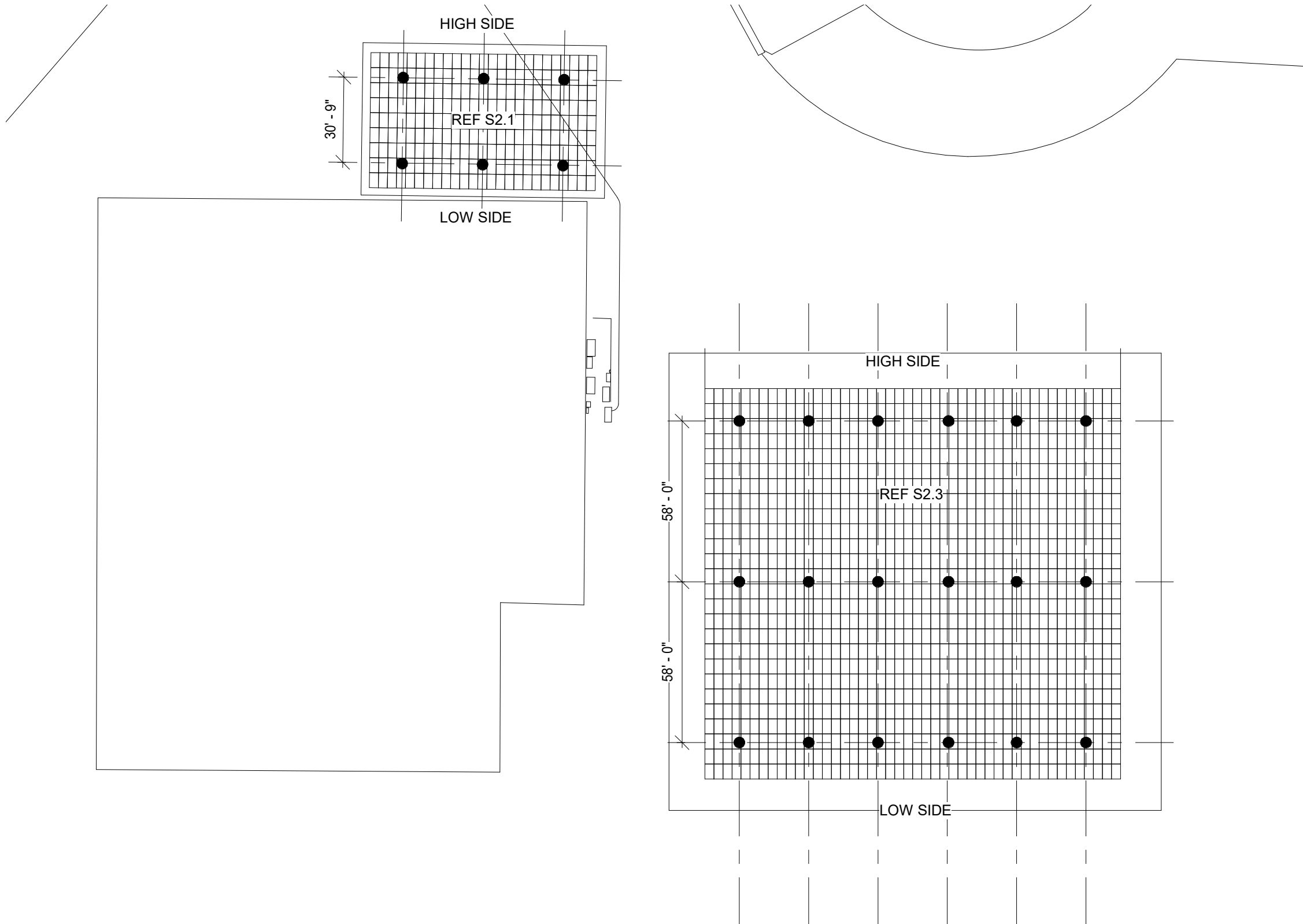




1 DOUBLE POST - 7 DEG - FRAMING PLAN  
3/16" = 1'-0"

2 OVERALL LAYOUT - Dependent 1  
NO SCALE

3 DOUBLE POST - 7 DEG  
NO SCALE



SHEET NOTES

- a. FOR STRUCTURE LOCATIONS REFERENCE PROJECT SITE PLAN. COLUMN SPACING AND LOCATIONS SHALL BE COORDINATED WITH PROJECT ARCHITECT OR PROFESSIONAL RESPONSIBLE FOR SITE PLAN.
- b. VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION. DIMENSIONS, ELEVATIONS WHERE SHOWN ARE TO BE USED AS AN AID AND SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR PRIOR TO CONSTRUCTION.
- c. FOR ADDITIONAL INFORMATION, REFERENCE GENERAL STRUCTURAL NOTES.

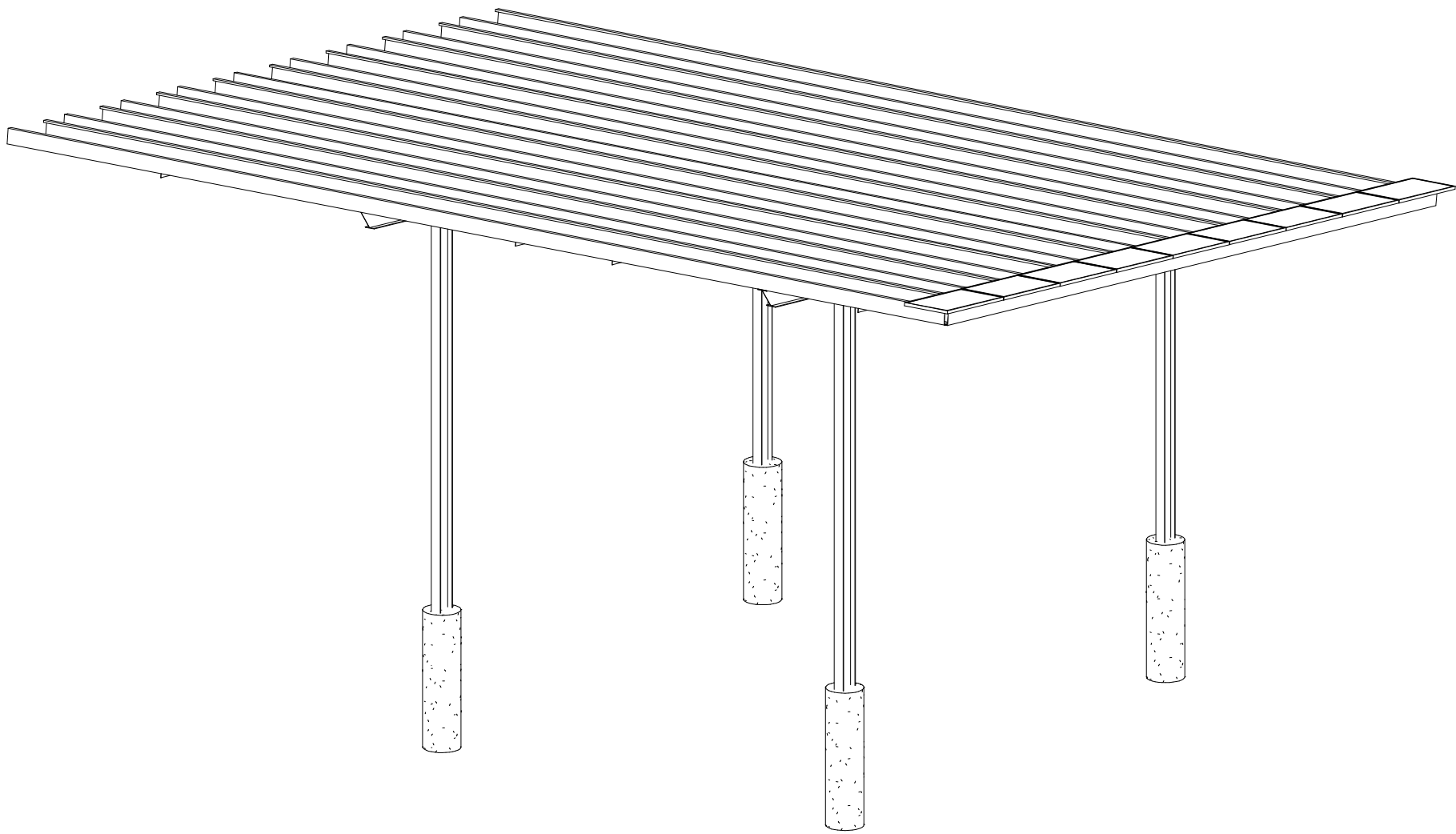
PV PANEL INFORMATION

- A. CONTRACTOR TO VERIFY PANEL INFORMATION PRIOR TO FABRICATION AND ERECTION.
- B. THE PANEL INFORMATION BELOW AND IN THE PLANS WAS PROVIDED BY THE OWNER DURING THE DESIGN PHASE AND PRIOR TO THE START OF CONSTRUCTION. ALL PANEL INFORMATION INDICATED IN THESE DRAWINGS IS FOR REFERENCE ONLY AND SHALL BE VERIFIED WITH THE OWNER, THE ELECTRICAL DRAWINGS AND THE GENERAL CONTRACTOR PRIOR TO FABRICATION AND PRIOR TO CONSTRUCTION.
- C. THE OWNER IS TO PROVIDE A PANEL CAPABLE OF SUPPORTING IN MANOR IN WHICH IS INTENDED BY THESE DRAWINGS (I.E. SUPPORTED BY SHORT END, DUAL SUPPORTS, ETC). SUBMIT PANEL SPEC SHEETS FOR REVIEW PRIOR TO PURCHASING ANY PANELS.
- D. THE PANEL MANUFACTURER IS RESPONSIBLE FOR THE DESIGN OF THE PANELS INCLUDING ALL ITS COMPONENTS: PHOTOVOLTAIC PANELS AND IT'S COMPONENTS SHALL BE DESIGNED TO SUPPORT PANEL WEIGHT PLUS SNOW, WIND, OR SEISMIC LOADING, WHICHEVER COMBINATION PRODUCES THE MOST SEVERE CONDITION IN ACCORDANCE WITH THE BUILDING CODE

PANEL MODEL	LENGTH	WIDTH
TSM-PD14.002	64.96"	31.97"

KEYNOTES

- 2 C9"x3"x14 GAUGE COLD FORMED STEEL PURLINS, TYPICAL. COORDINATE EXACT LOCATION WITH SOLAR PANEL MANUFACTURER SPECIFICATIONS. SEE DETAIL 9/S4.1 FOR MORE INFORMATION ON SECTION.
- 5 DO NOT SPLICE PURLINS AT SUPPORT AT CANTILEVER ENDS.
- 6 16 GAUGE END CAP WITH 2" LEGS EACH END OF STRUCTURE.
- 7 BEAM FLANGE BRACES AS SHOWN ON PLANS. REFERENCE DETAIL 6/S4.1 FOR MORE INFORMATION.



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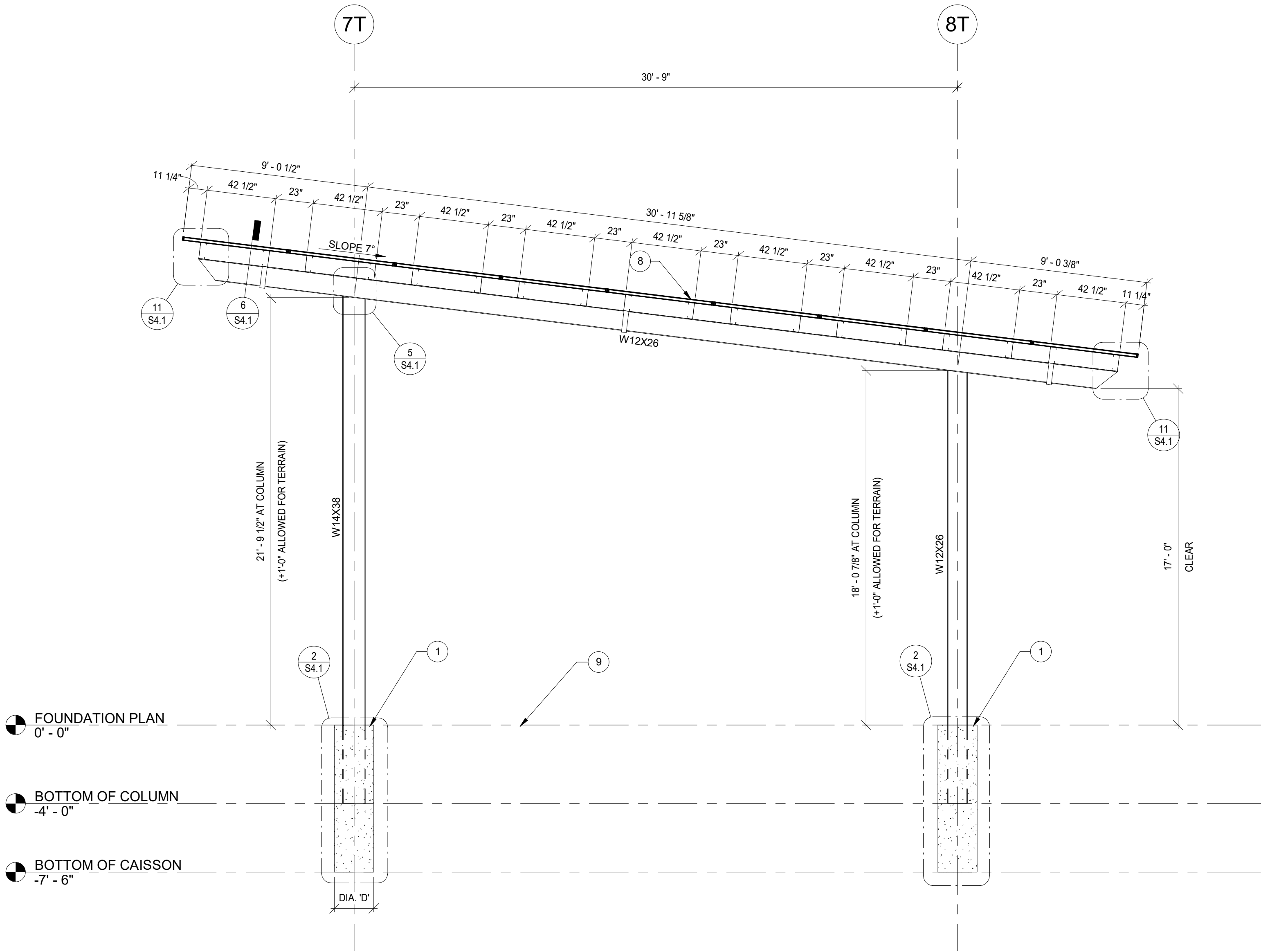
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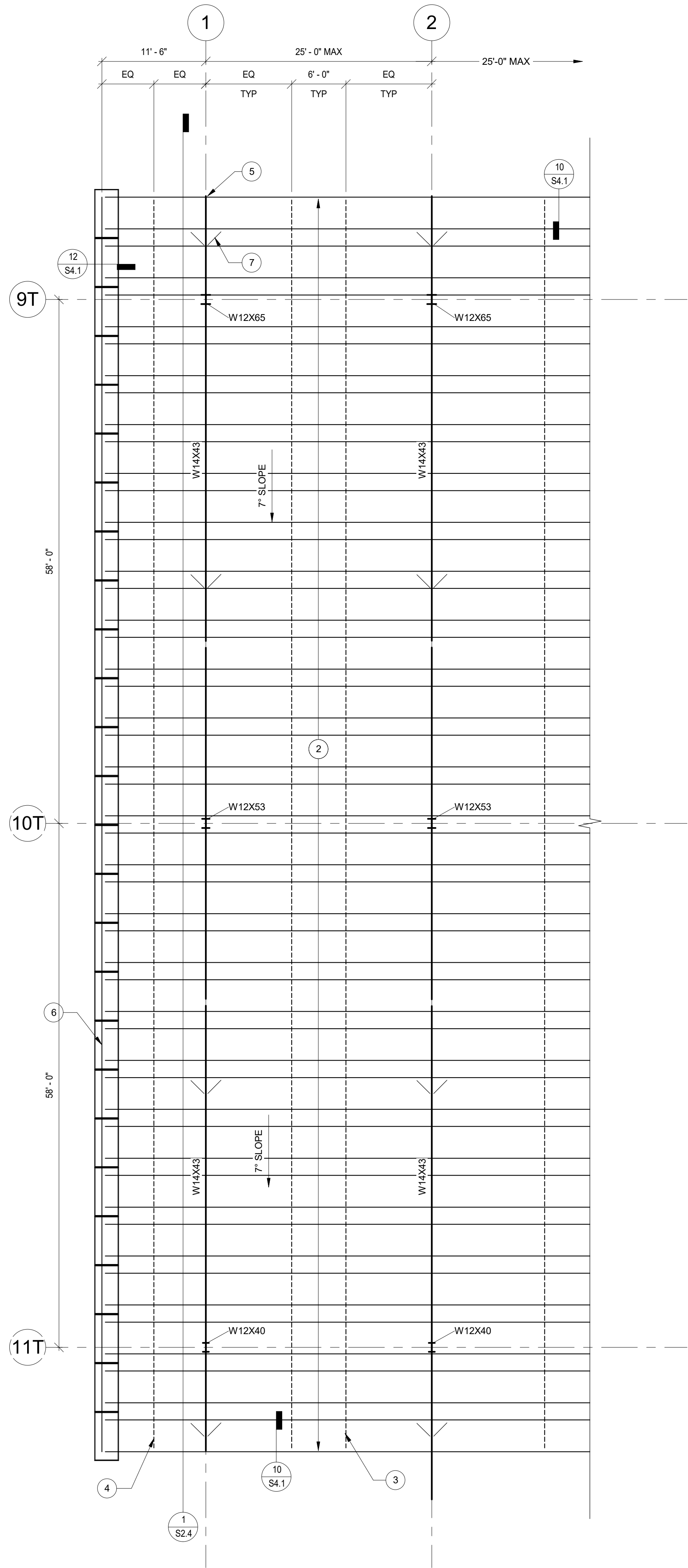
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- 8 PV MODULE BY OTHERS. ATTACH PER DETAILS.
- 9 FINISHED GRADE. FINISHED GRADE IS DEFINED AS THE LOWEST ADJACENT FINISHED GRADE WITHIN 5 FEET OF THE STRUCTURAL COLUMN.

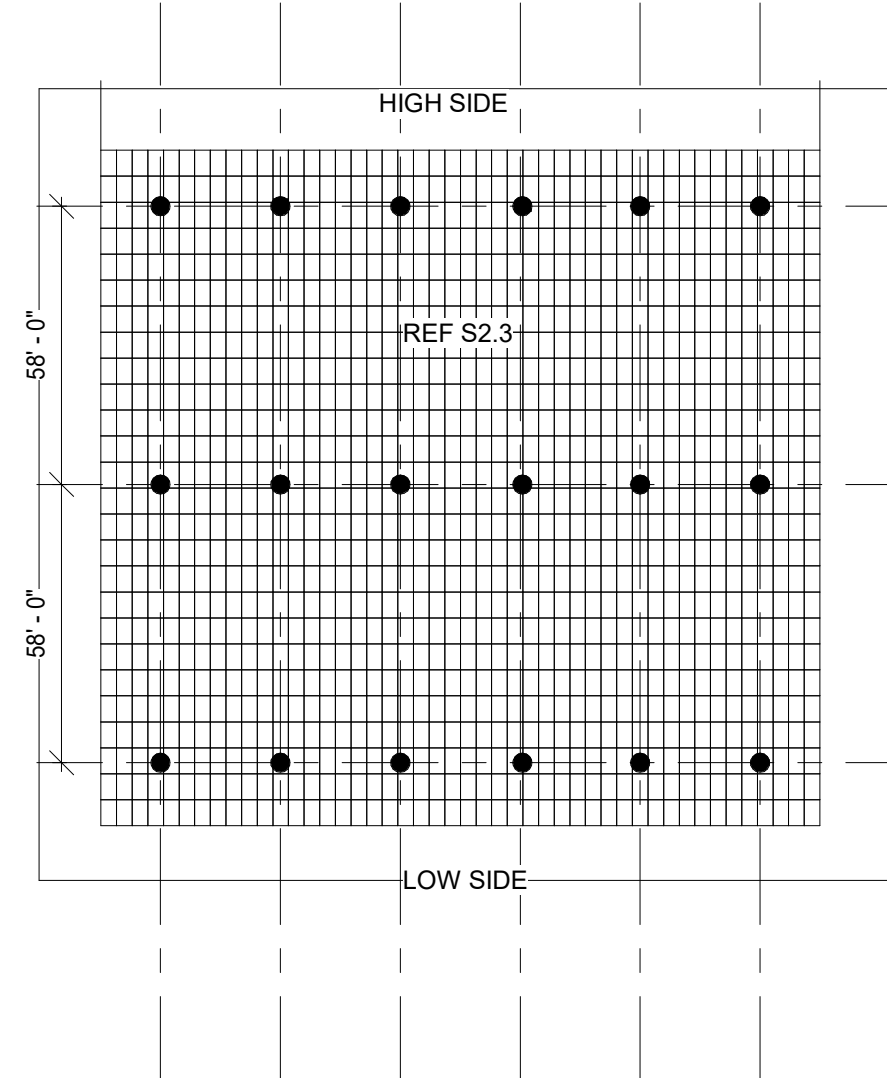
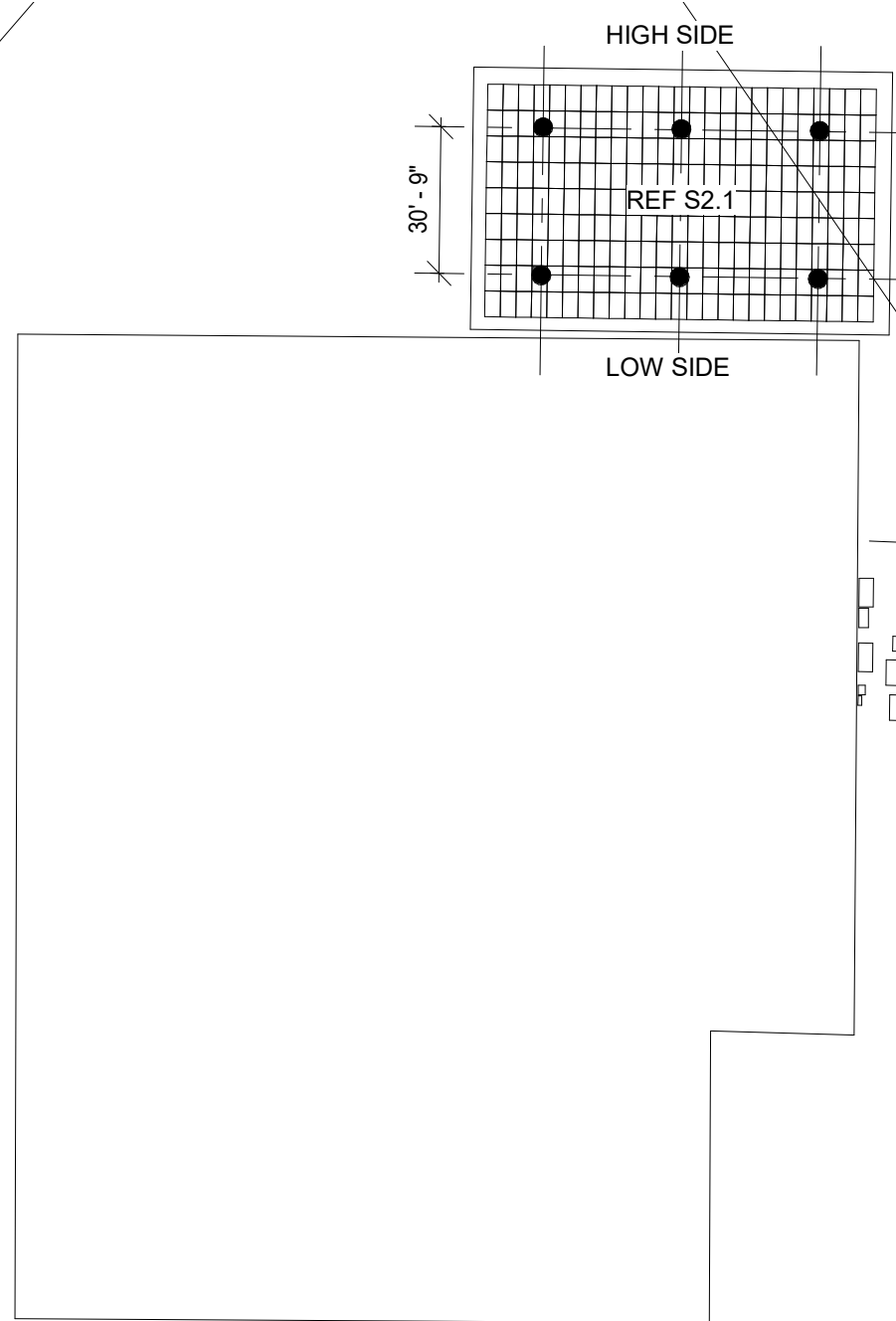


1 DOUBLE POST 7 DEG TEE SECTION  
1/4" = 1'-0"





2 OVERALL LAYOUT  
NO SCALE



## SHEET NOTES

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- FOR ADDITIONAL INFORMATION, REFERENCE GENERAL STRUCTURAL NOTES.

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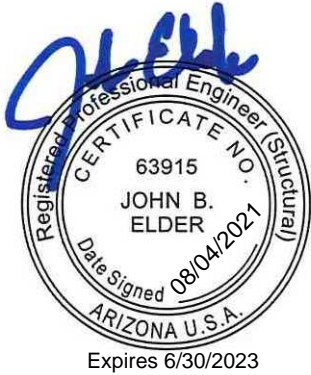
PANEL MODEL	LENGTH	WIDTH
TSM-PD14.002	64.96"	31.97"

## KEYNOTES

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- SAG ROD AS SHOWN ON PLANS. (1) MINIMUM AT SPANS LESS THAN 18'-0" AND (2) MINIMUM AT SPANS LESS THAN 27'-0". REFERENCE DETAIL 10/S4.1.
- (1) SAG ROD REQUIRED BETWEEN SUPPORT AND CANTILEVER END AS SHOWN. REFERENCE DETAIL 10/S4.1. SAG ROD NOT REQUIRED WHERE CANTILEVER IS LESS THAN 5'-0".
- DO NOT SPLICE PURLINS AT SUPPORT AT CANTILEVER ENDS.
- 16 GAUGE END CAP WITH 2" LEGS EACH END OF STRUCTURE.
- BEAM FLANGE BRACES AS SHOWN ON PLANS. REFERENCE DETAIL 6/S4.1 FOR MORE INFORMATION.

**UNITED**  
STRUCTURAL DESIGN LLC

2068 S. Dobson Rd, Suite 10  
Mesa, AZ 85202  
(480) 454-6406  
www.unitedstr.com



**FULCRUM STEEL**

3700 N 36th Ave  
Phoenix, AZ 85019  
(602) 512-4411

NEW FULCRUM CANOPIES

6839 W CHICAGO STREET  
CHANDLER, AZ 85226

No.	Description	Date
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PROJECT NUMBER:	21120
DRAWN BY:	KS
CHECKED BY:	JE
DATE:	05/06/2021

SHEET NAME  
TRIPLE POST  
STRUCTURE PLANS

S2.3

SHEET NOTES

- a. FOR STRUCTURE LOCATIONS REFERENCE PROJECT SITE PLAN. COLUMN SPACING AND LOCATIONS SHALL BE COORDINATED WITH PROJECT ARCHITECT OR PROFESSIONAL RESPONSIBLE FOR SITE PLAN.
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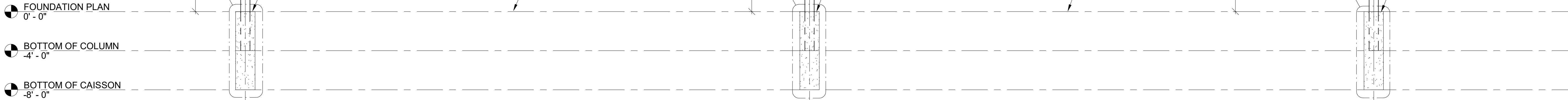
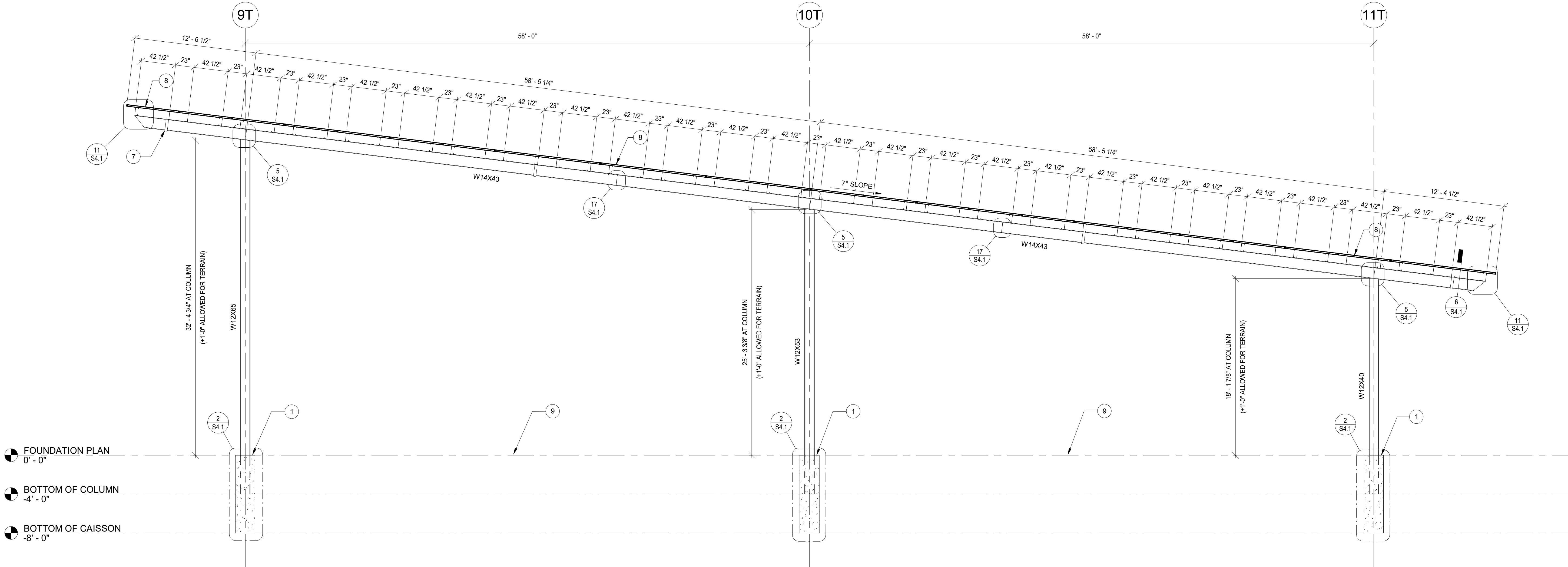
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PANEL MODEL	LENGTH	WIDTH
TSM-PD14.002	64.96"	31.97"

KEYNOTES

- 1 DRILLED CONCRETE POLE FOOTING. FOR DIAMETER AND EMBEDMENT OF FOOTING SEE FOUNDATION PLAN AND SECTION ON THIS SHEET. SEE DETAIL 2/SA.1 FOR REINFORCING AND STEEL COLUMN ANCHORAGE.
- 7 BEAM FLANGE BRACES AS SHOWN ON PLANS. REFERENCE DETAIL 6/S4.1 FOR MORE INFORMATION.
- 8 PV MODULE BY OTHERS. ATTACH PER DETAILS.
- 9 FINISHED GRADE. FINISHED GRADE IS DEFINED AS THE LOWEST ADJACENT FINISHED GRADE WITHIN 5 FEET OF THE STRUCTURAL COLUMN.



1 SUPER STRUCTURE SECTION  
3/16" = 1'-0"



NEW FULCRUM CANOPIES

6839 W CHICAGO STREET  
CHANDLER, AZ 85226

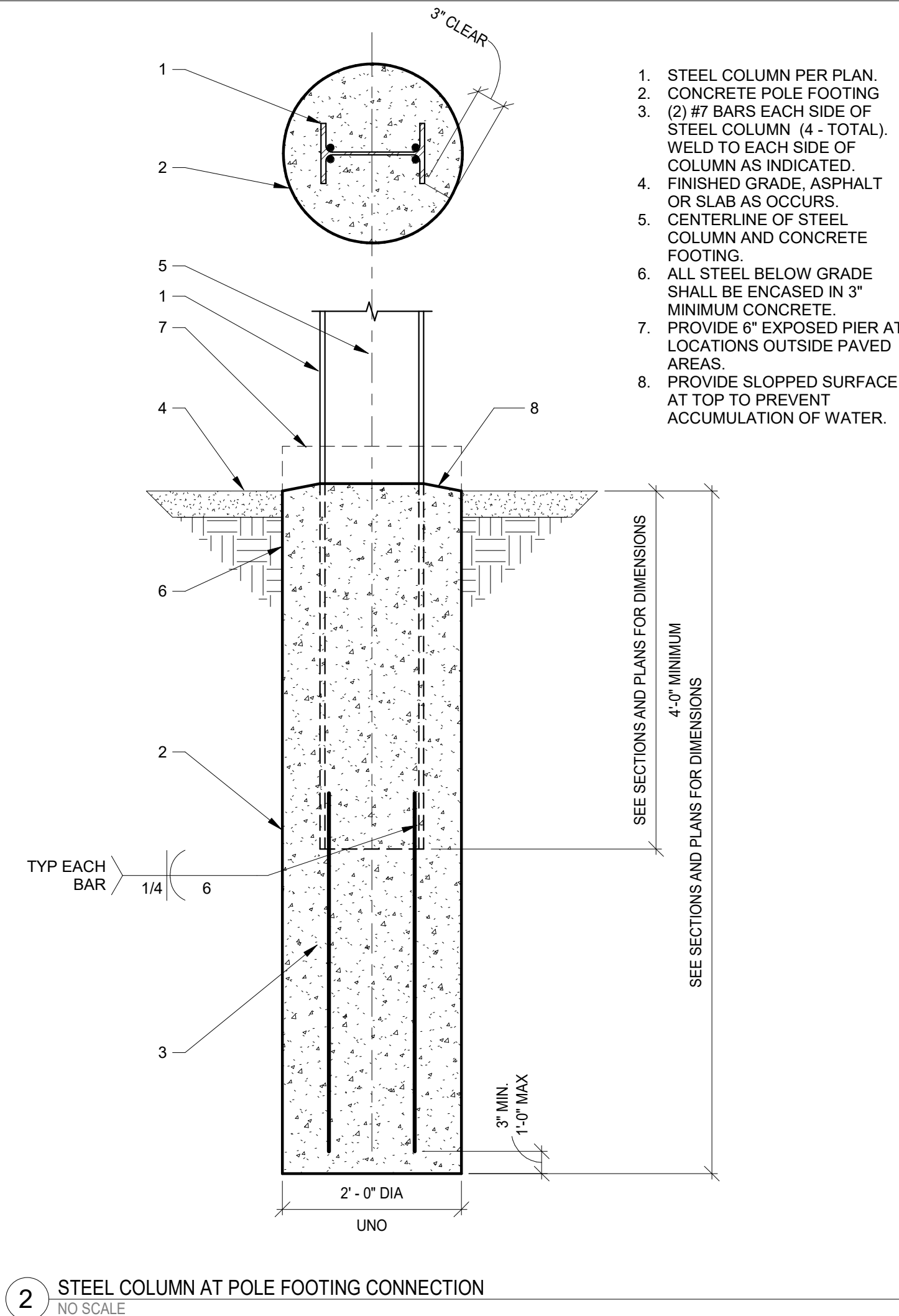
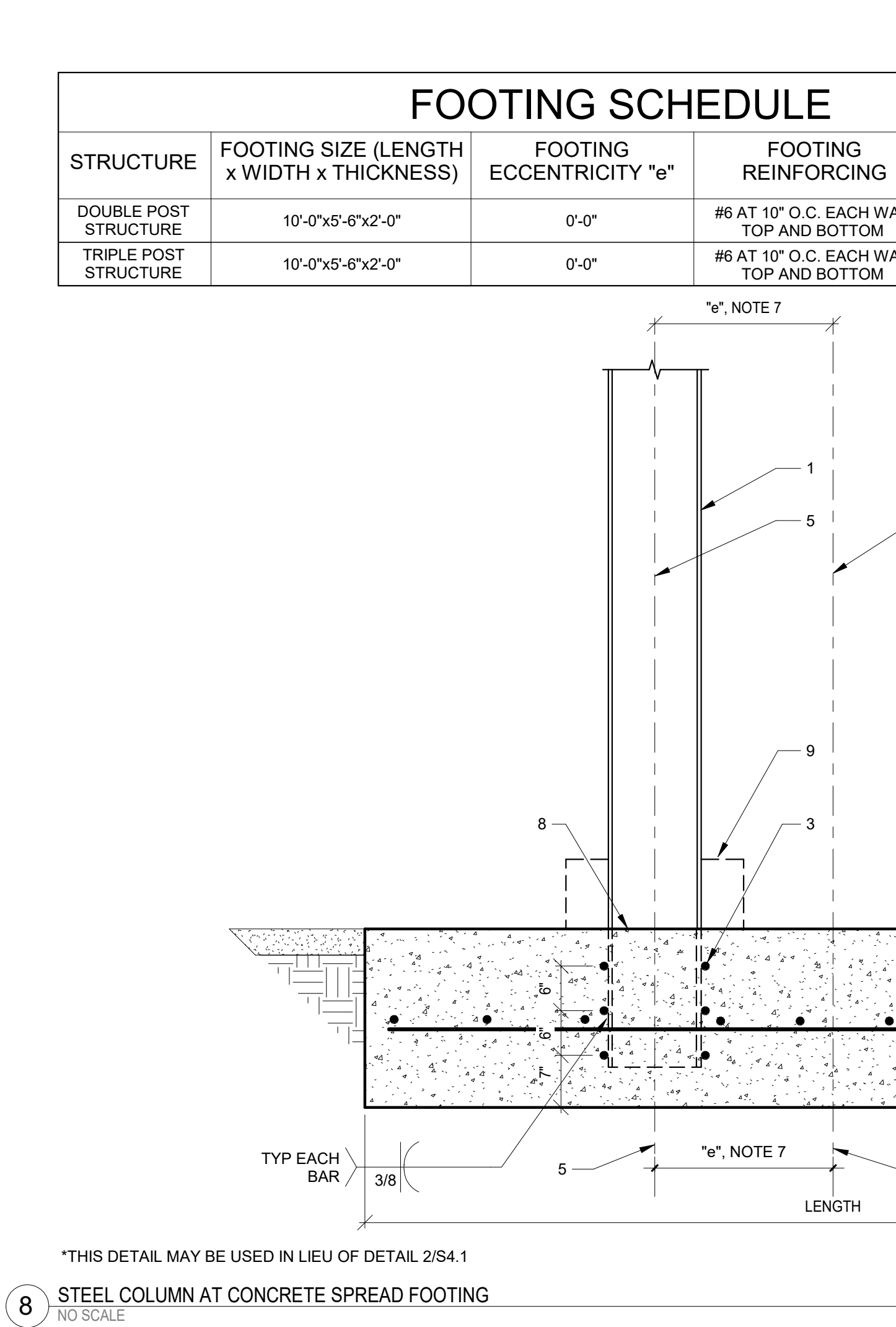
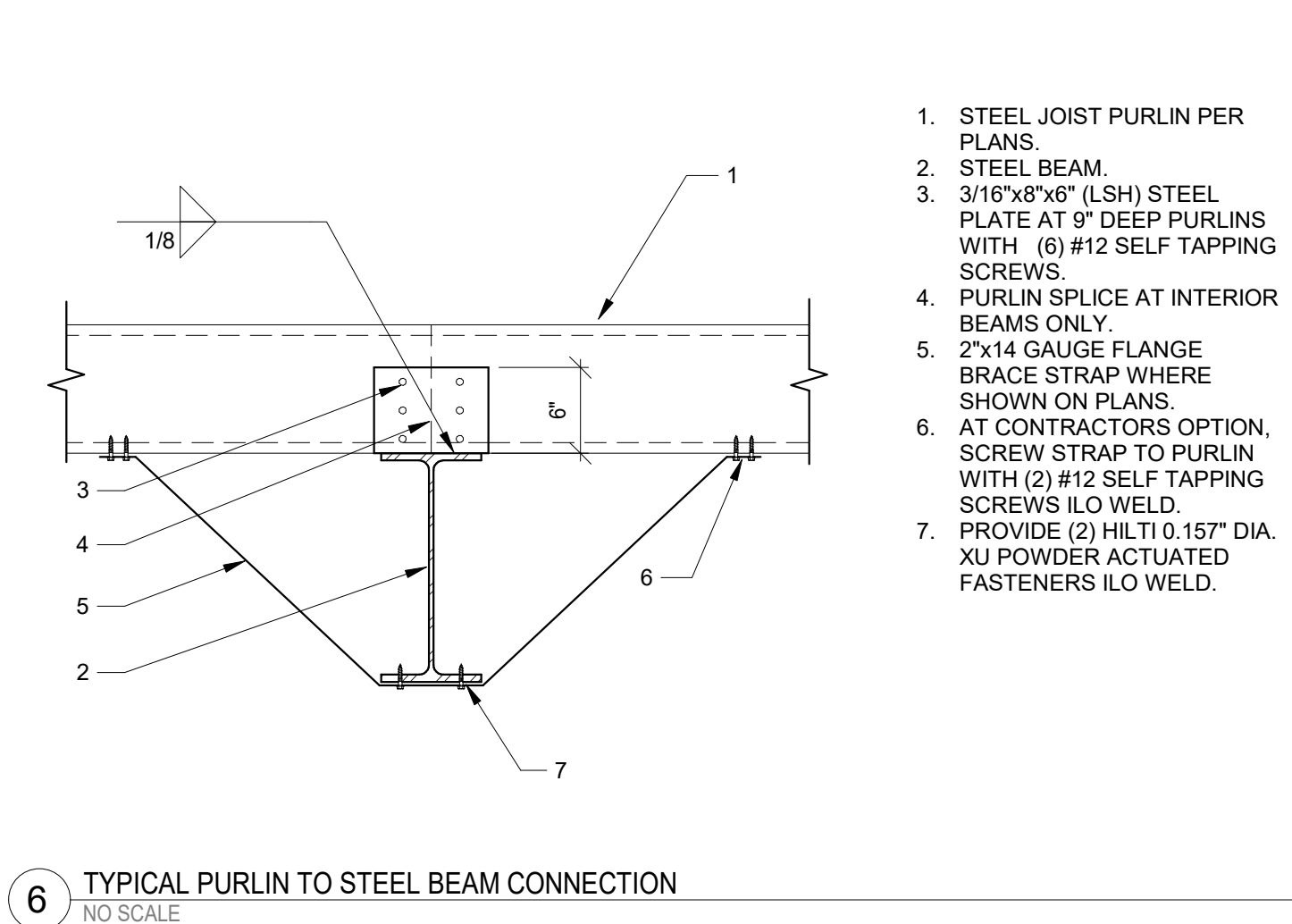
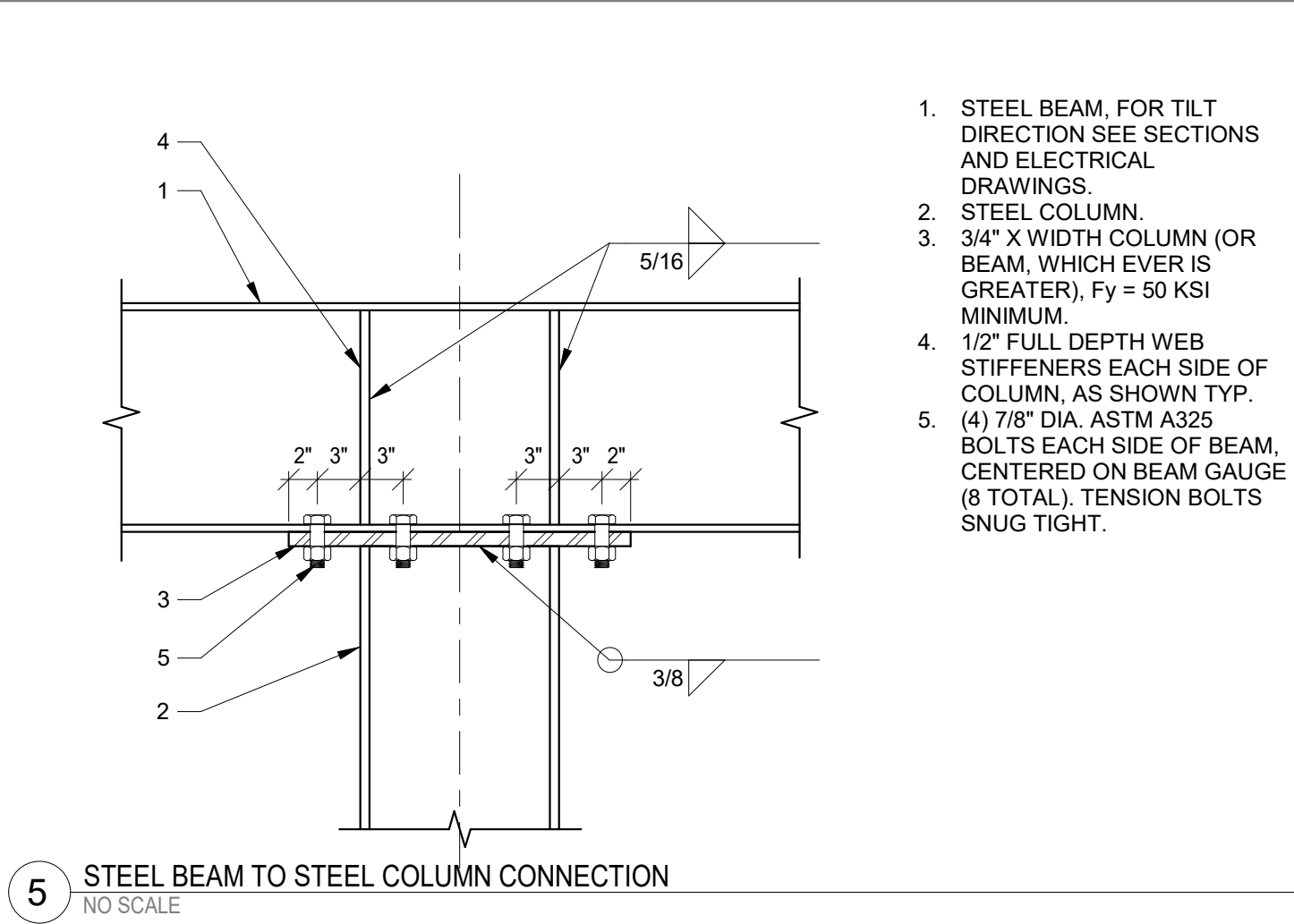
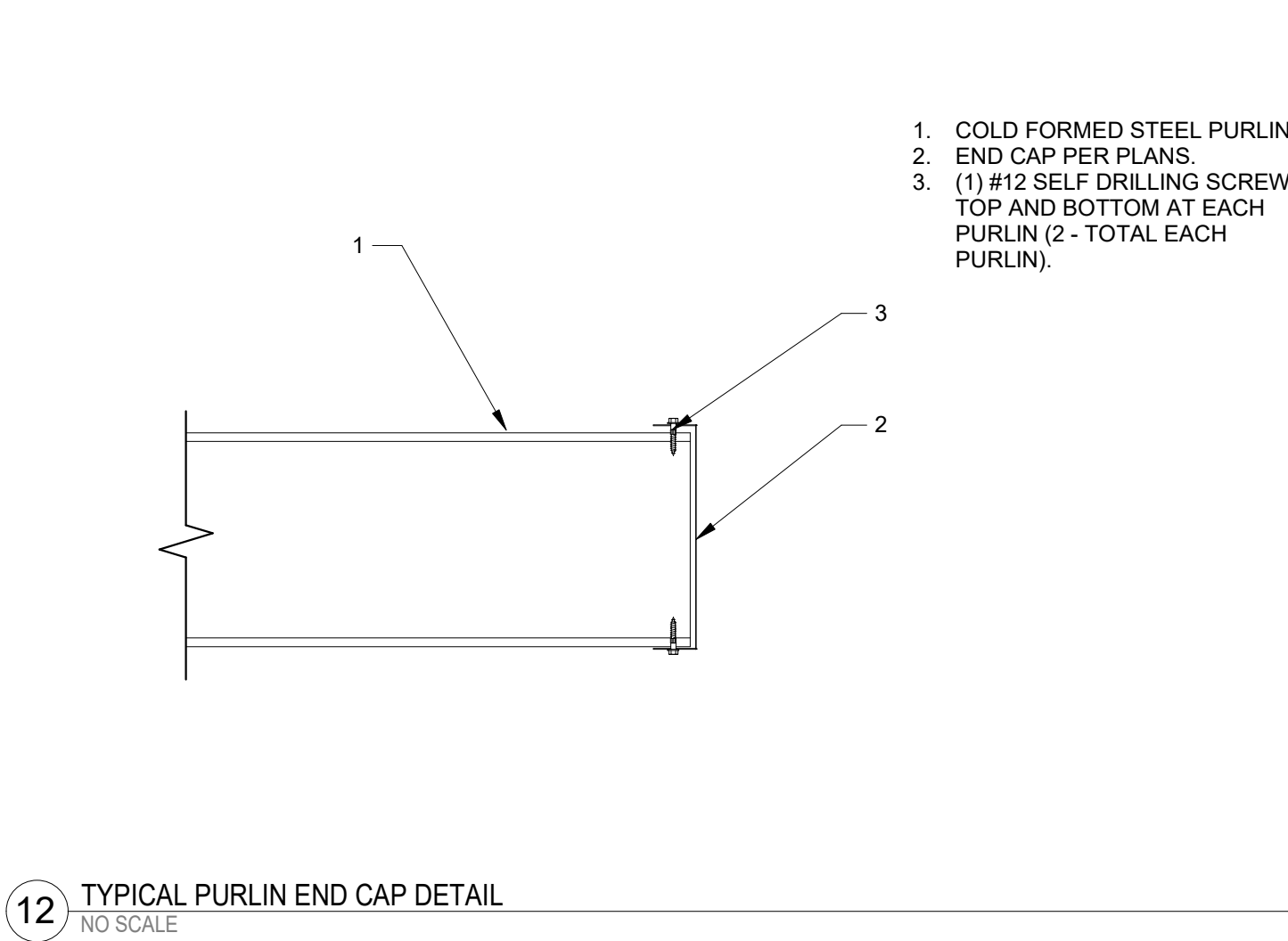
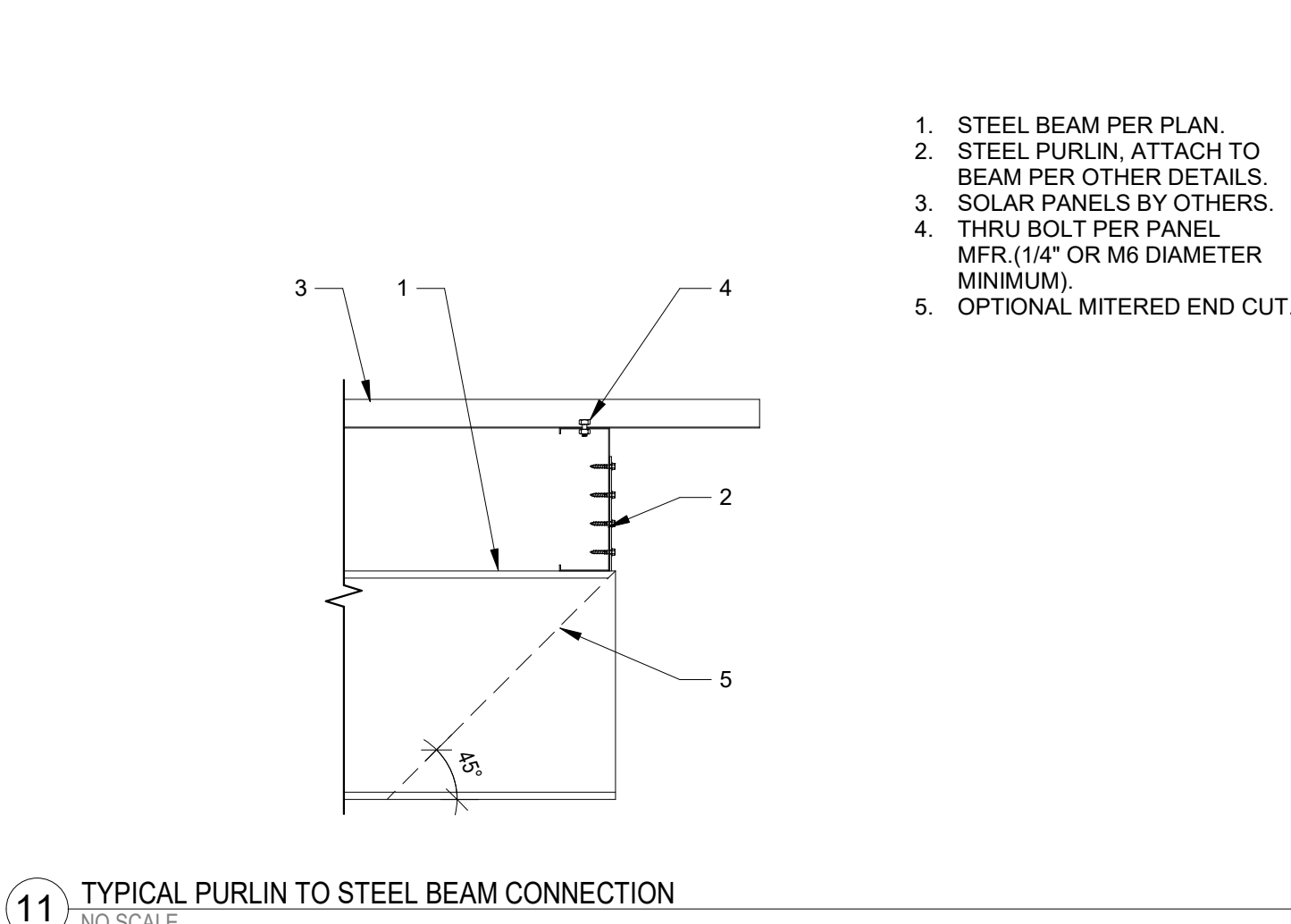
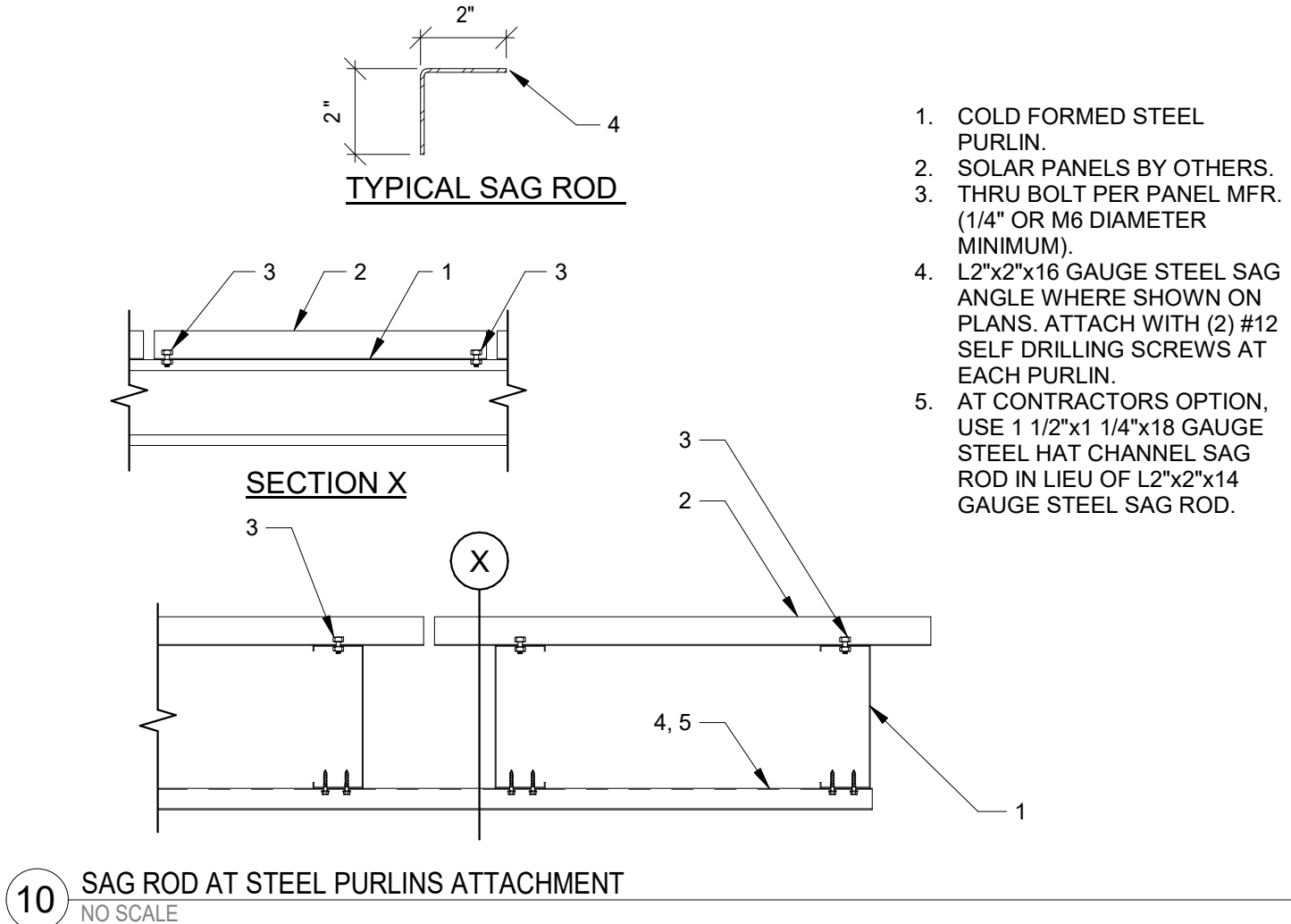
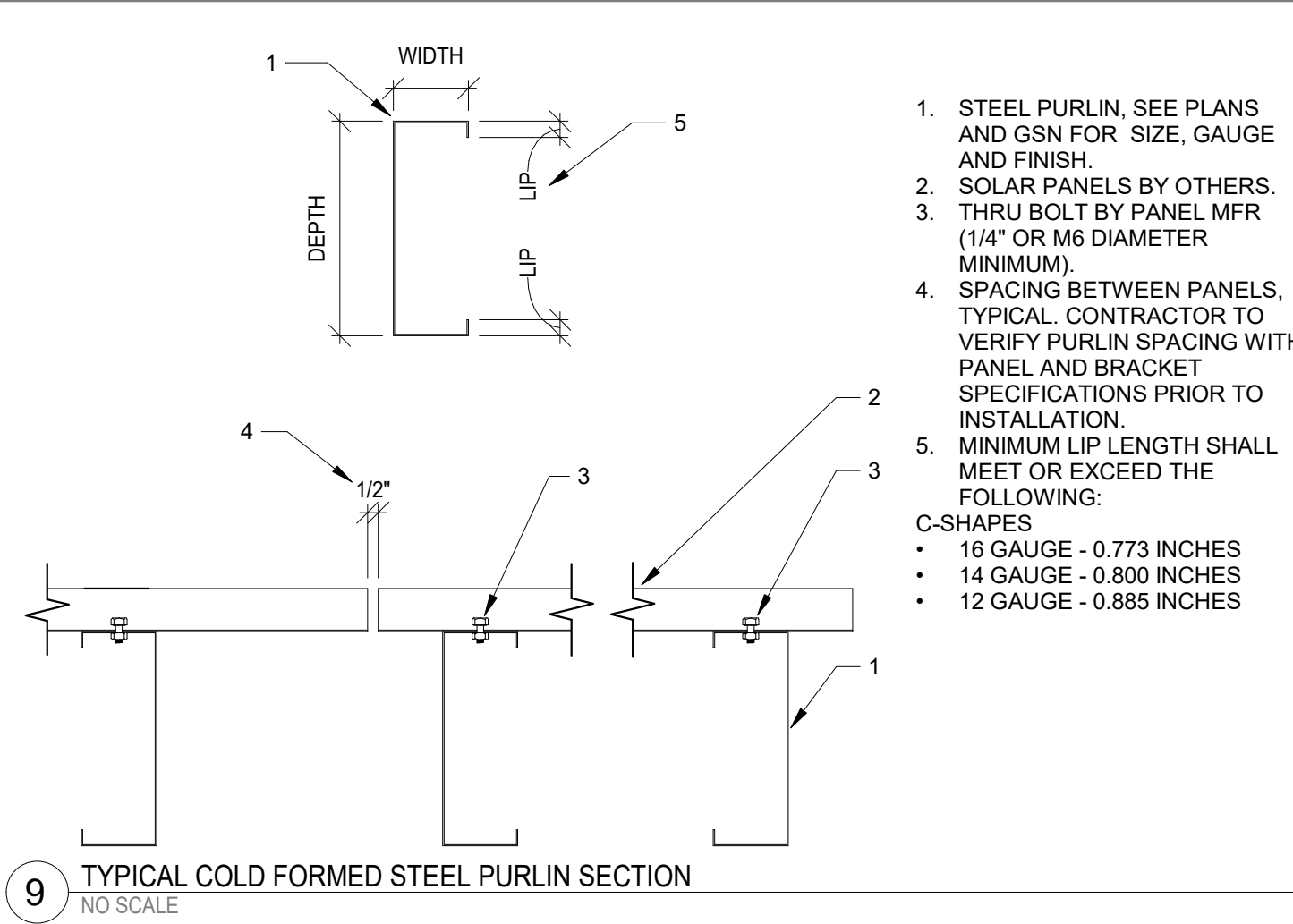
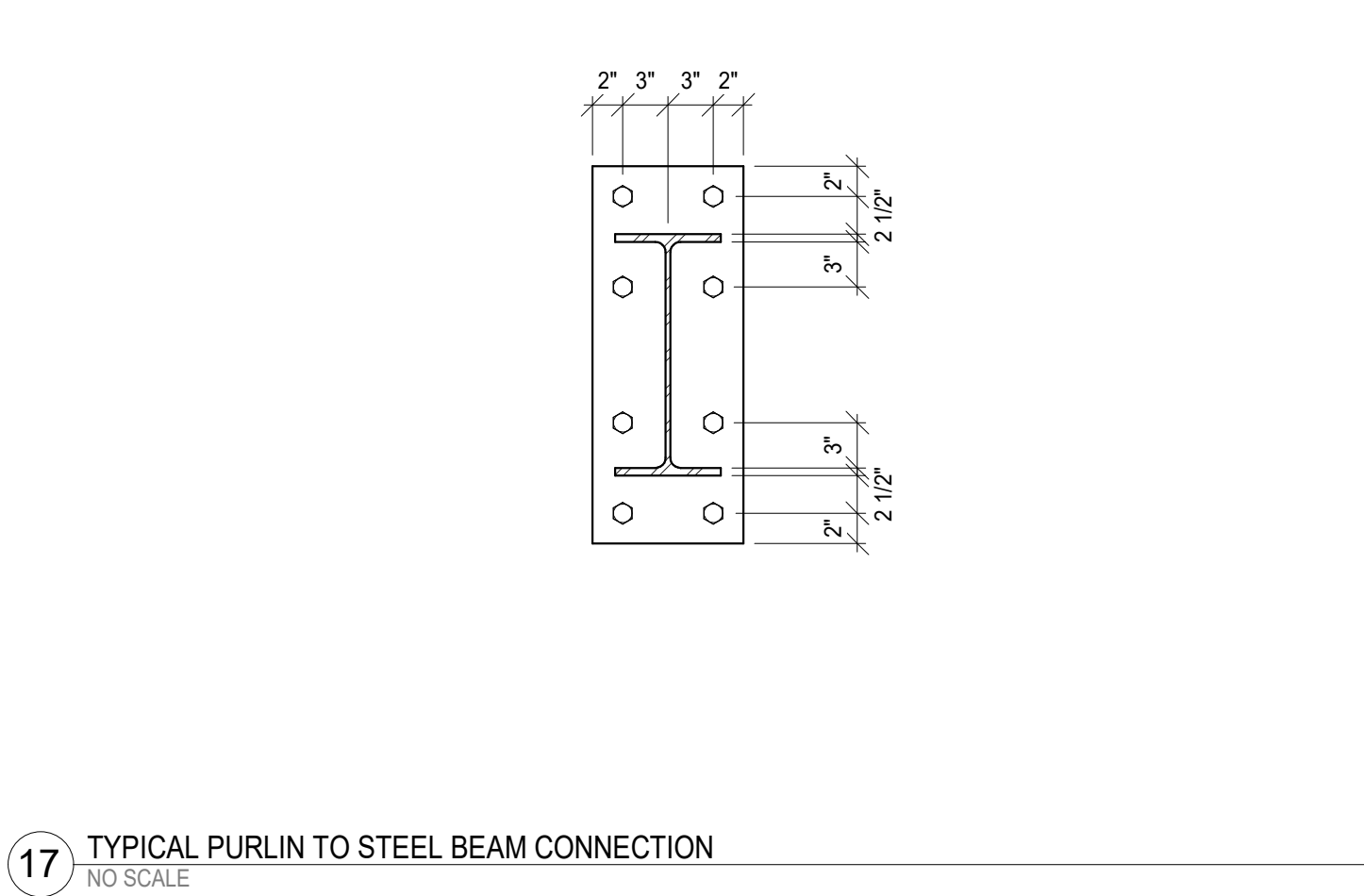
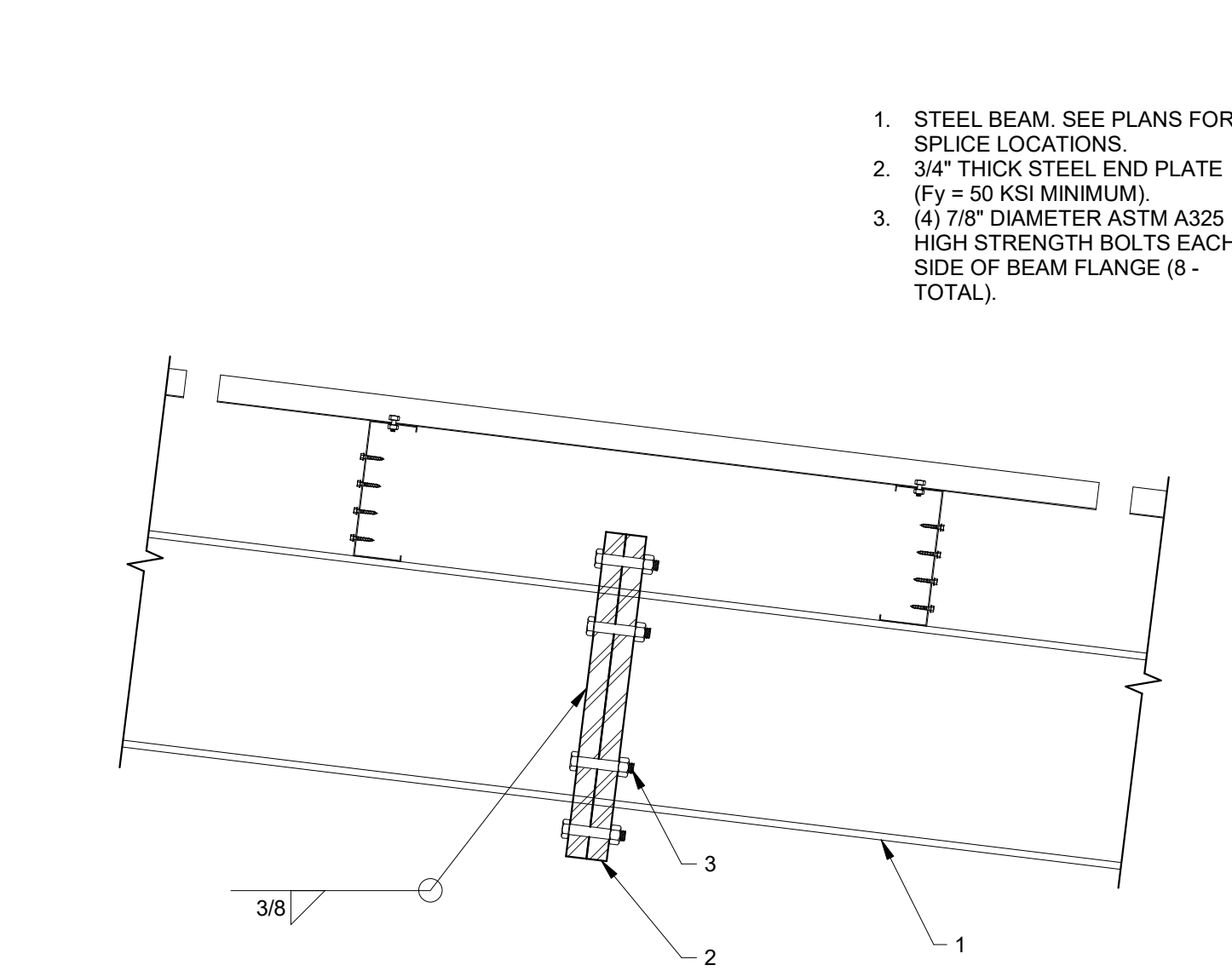
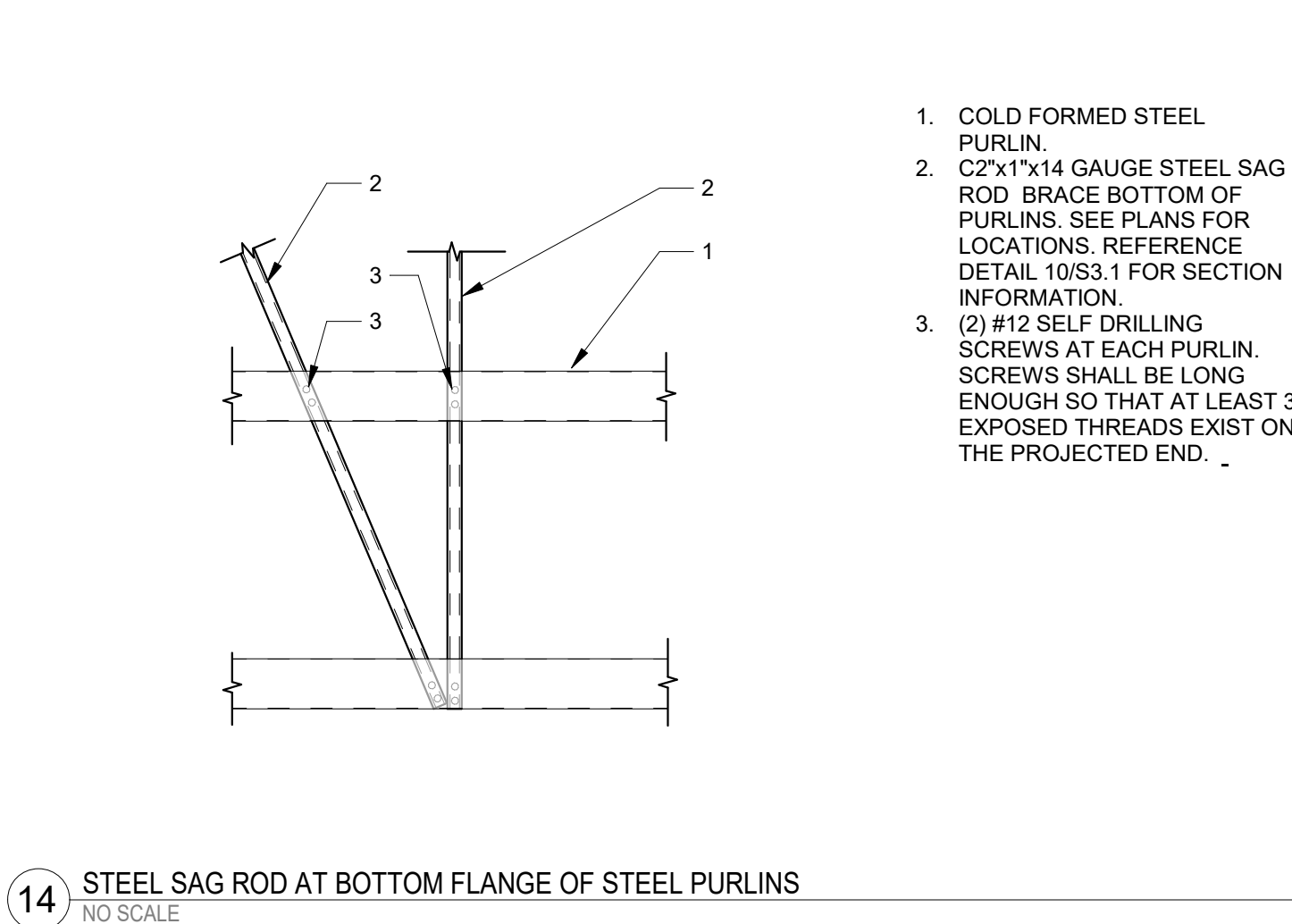
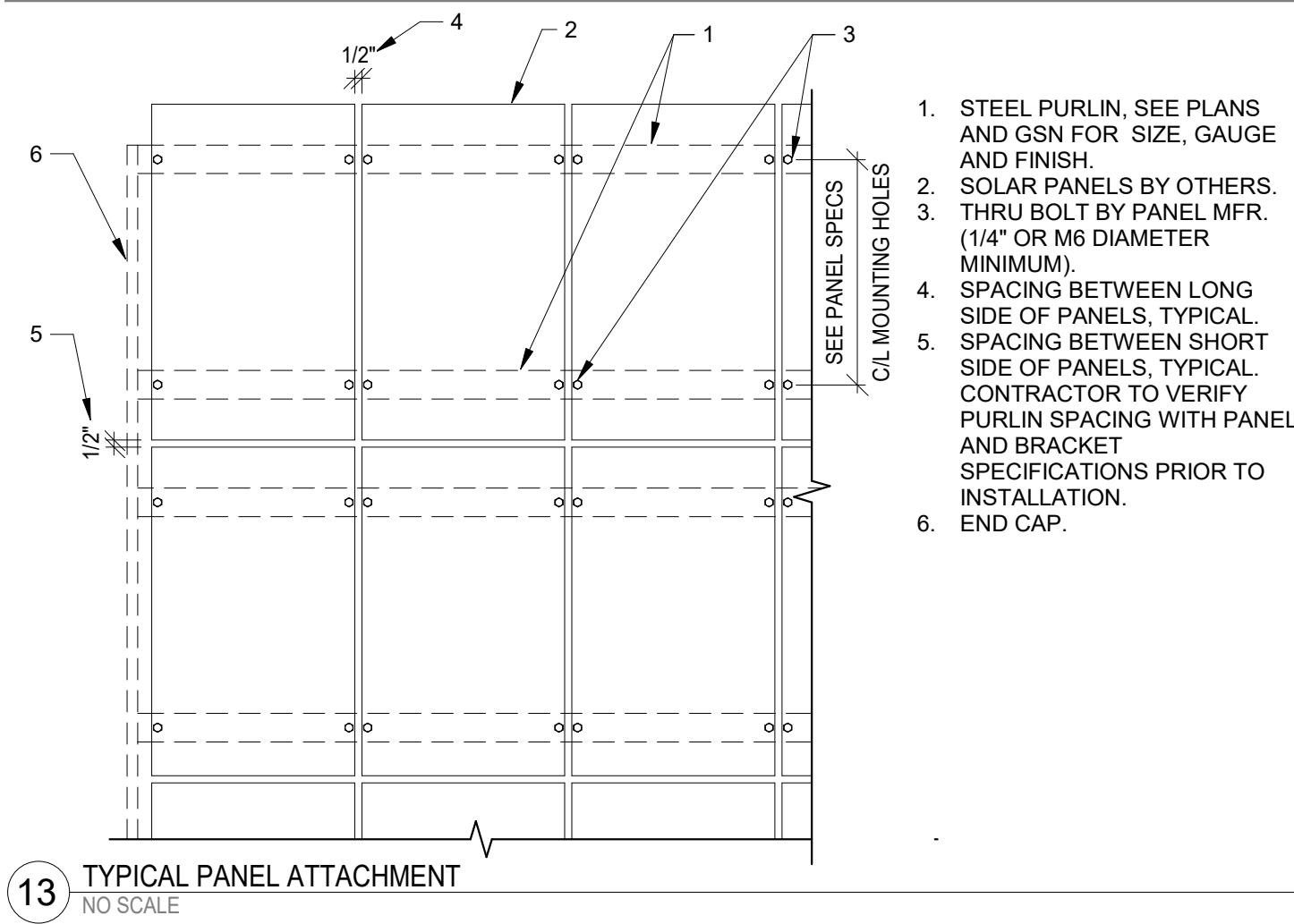
No.	Description	Date
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PROJECT NUMBER: 21120  
DRAWN BY: KS  
CHECKED BY: JE  
DATE: 05/06/2021

SHEET NAME  
TRIPLE POST  
STRUCTURE PLANS

S2.4





FOOTING SCHEDULE				
STRUCTURE	FOOTING SIZE (LENGTH x WIDTH x THICKNESS)	FOOTING ECCENTRICITY "e"	FOOTING REINFORCING	CONCRETE STRENGTH
DOUBLE POST STRUCTURE	10'-0"x5'-6"x2'-0"	0'-0"	#6 AT 10" O.C. EACH WAY TOP AND BOTTOM	3,000 PSI
TRIPLE POST STRUCTURE	10'-0"x5'-6"x2'-0"	0'-0"	#6 AT 10" O.C. EACH WAY TOP AND BOTTOM	3,000 PSI

- STEEL COLUMN PER PLAN.
- CONCRETE SPREAD FOOTING, SEE SCHEDULE THIS DETAIL FOR SIZE AND REINFORCING.
- (3) #9 x 5'-0" BARS AT 6" O.C. VERTICAL WELDED TO EACH SIDE OF COLUMN FLANGE (6 TOTAL PER COLUMN).
- FINISHED GRADE OR SLAB AS OCCURS.
- CENTERLINE OF STEEL COLUMN AND CONCRETE FOOTING WIDTH.
- CENTERLINE OF FOOTING LENGTH.
- OFFSET COLUMN PER FOOTING SCHEDULE. WHERE FOOTING ECCENTRICITY EXISTS, LONGER FOOTING TOE SHALL OCCUR ON THE SAME SIDE OF THE COLUMN.
- PROVIDE SLOPPED SURFACE AT COLUMN TO PREVENT ACCUMULATION OF WATER AGAINST STEEL.
- PROVIDE 6" EXPOSED PIER AT LOCATIONS OUTSIDE PAVED AREAS.

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Professional Engineer  
JOHN B. ELDER  
License No. 63915  
State of Arizona  
Expires 6/30/2023

FULCRUM STEEL

3700 N 36th Ave  
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NEW FULCRUM CANOPIES

6839 W CHICAGO STREET  
CHANDLER, AZ 85226

No.	Description	Date

PROJECT NUMBER: 21120

DRAWN BY: KS

CHECKED BY: JE

DATE: 05/06/2021

SHEET NAME  
SOLAR CANOPY  
DETAILS

S4.1