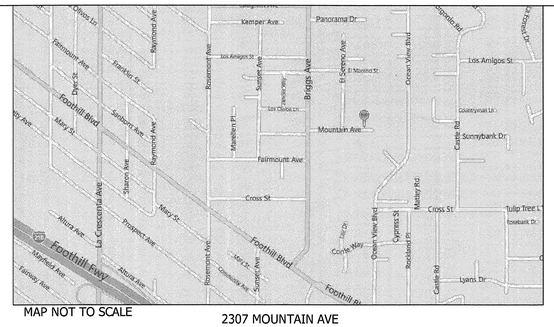
GLENDALE UNIFIED SCHOOL DISTRICT

107.52KW DC STC SOLAR PHOTOVOLTAIC SYSTEM

MOUNTAIN AVENUE ELEMENTARY SCHOOL - LA CRESCENTA, CA

VICINITY MAP



MAP NOT TO SCALE

2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214

N
W E
S

SCOPE OF WORK

WORK CONSISTS OF INSTALLING PHOTOVOLTAIC (PV) CANOPIES OVER EXISTING PLAYGROUND. SOLAR POWER SYSTEM CONSISTS OF PV CANOPIES, ELECTRICAL EQUIPMENT CONCRETE PAD, LIGHTING, PV MONITORING AND METERING COMMUNICATIONS AND POWER INTERCONNECT TO THE UTILITY GRID. THE PV CONTRACTOR SHALL COORDINATE WITH THE OTHER TRADES FOR UNDERGROUND UTILITIES ASSOCIATED WITH THE PV SOLAR SYSTEM.

SPECIAL NOTES

PROJECT TEAM

DESIGN PROFESSIONAL
IN RESPONSIBLE CHARGE:

DAVID STOKES
QUATRO DESIGN GROUP
923 E 3RD ST, SUITE 112
LOS ANGELES, CA 90013
TEL:(213) 625-1995
FAX:(213) 625-1997
EMAIL: dstokes@qdg-architects.com

OWNER:

GLENDALE UNIFIED SCHOOL DISTRICT
2223 N. JACKSON ST.
GLENDALE, CA 91206
TEL: (818) 241-3111

CIVIL/STRUCTURAL:

PAUL SCOTT, S.E.
CARUSO, TURLEY, SCOTT, INC.
1215 W. RIO SALADO PKWY
TEMPE, AZ 85281
TEL: (480) 774-1700

ELECTRICAL ENGINEER:

CARL BURATTI, P.E.
BURATTI & ASSOCIATES, INC.
6345 BALBOA BLVD, Ste 259
ENCINO, CA 91316
TEL: (818) 345-7130

ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
BLDG	BUILDING
CONC	CONCRETE
C	COMBINER BOX
D	DISTRIBUTION PANEL
DC	DIRECT CURRENT
EGC	EQUIPMENT GROUNDING CONDUCTOR
(E)	EXISTING
EMT	ELECTRICAL METALLIC TUBING
G	SOLAR GUARD METER
GALV	GALVANIZED
GEC	GROUNDING ELECTRODE CONDUCTOR
GND	GROUND
HDG	HOT DIPPED GALVANIZED
I	CURRENT
Imp	CURRENT AT MAX POWER
INVS	INVERTERS
Isc	SHORT CIRCUIT CURRENT
kVA	KILOVOLT AMPERE
kW	KILOWATT
LBW	LOAD BEARING WALL
MIN	MINIMUM
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OCP	OVERCURRENT PROTECTION
P	PANEL BOARD
PL	PROPERTY LINES
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
S	SUBPANEL
SCH	SCHEDULE
SS	STAINLESS STEEL
SSD	SEE STRUCTURAL DRAWINGS
STC	STANDARD TESTING CONDITIONS
SWH	SOLAR WATER HEATER
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLT
Vmp	VOLTAGE AT MAX POWER
Voc	VOLTAGE AT OPEN CIRCUIT
W	WATT
3R	NEMA 3R, RAINTIGHT

SHEET INDEX

THE BELOW LISTED DRAWINGS HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS WHO ARE LICENSED TO PREPARE SUCH DRAWINGS IN THIS STATE. THESE DRAWINGS HAVE BEEN REVIEWED FOR DESIGN INTENT AND APPEAR TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND THE PROJECT SPECIFICATIONS. THESE DRAWINGS ALSO COORDINATE WITH MY PLANS AND ARE ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT. THE DRAWINGS THAT HAVE BEEN PREPARE BY OTHERS ARE AS FOLLOWS:

PV 1 ELECTRICAL NOTES
PV 2 ELECTRICAL SITE PLAN
PV 3 LINE DRAWING
PV 4 STRING DIAGRAMS
PV 5 MONITORING
PV 6 ELECTRICAL DETAILS
PV 7 SIGNAGE
PV 8 LIGHTING DESIGNS
PV 9 TITLE 24 CONFORMANCE DOCUMENTS

SHEET INDEX FOR 02-111999

TL1	TEE LANDSCAPE GENERAL STRUCTURAL NOTES
TL2	TEE LANDSCAPE BOX BEAM
TL3	TEE LANDSCAPE BOX BEAM DETAILS
TL4	TEE LANDSCAPE BACK TO BACK
TP1	TEE PORTRAIT GENERAL STRUCTURAL NOTES
TP2	TEE PORTRAIT BOX BEAM
TP3	TEE PORTRAIT BOX BEAM DETAILS
TP4	TEE PORTRAIT BACK TO BACK

SHEET INDEX FOR 02-112000

FL1	FULL LANDSCAPE GENERAL STRUCTURAL NOTES
FL2	FULL LANDSCAPE BOX BEAM
FL3	FULL LANDSCAPE BOX BEAM DETAILS
FL4	FULL LANDSCAPE BACK TO BACK
FP1	FULL PORTRAIT GENERAL STRUCTURAL NOTES
FP2	FULL PORTRAIT BOX BEAM
FP3	FULL PORTRAIT BOX BEAM DETAILS
FP4	FULL PORTRAIT BACK TO BACK

CODES

GOVERNING CODES:

CALIFORNIA CODE OF REGULATIONS:

2010 CALIFORNIA ADMINISTRATIVE CODE (CAC).....(PART 1, TITLE 24, CCR)

2010 CALIFORNIA BUILDING CODE (CBC), VOLUMES 1, AND 2 (PART 2, TITLE 24, CCR)
(2009 EDITION INTERNATIONAL BUILDING CODE WITH 2010 CALIFORNIA AMENDMENTS)

2010 CALIFORNIA ELECTRICAL CODE.....(PART 3, TITLE 24, CCR)
(2008 EDITION NATIONAL ELECTRICAL CODE WITH 2010 CALIFORNIA AMENDMENTS)

2010 CALIFORNIA MECHANICAL CODE (CMC).....(PART 4, TITLE 24, CCR)
(2009 EDITION IAPMO UNIFORM PLUMBING CODE WITH 2010 CALIFORNIA AMENDMENTS)

2010 CALIFORNIA PLUMBING CODE (CPC).....(PART 5, TITLE 24, CCR)
(2009 EDITION IAPMO UNIFORM PLUMBING CODE WITH 2010 CALIFORNIA AMENDMENTS)

2010 CALIFORNIA PLUMBING CODE (CPC).....(PART 6, TITLE 24, CCR)
(2009 EDITION IAPMO UNIFORM PLUMBING CODE WITH 2010 CALIFORNIA AMENDMENTS)

2010 CALIFORNIA ENERGY CODE.....(PART 6, TITLE 24, CCR)
(2008 EDITION CALIFORNIA ENERGY COMMISSION BUILDING ENERGY EFFICIENCY STANDARDS)

2010 CALIFORNIA FIRE CODE (CFC).....(PART 9, TITLE 24, CCR)
(2009 EDITION OF INTERNATIONAL FIRE CODE WITH 2010 CALIFORNIA AMENDMENTS)

2010 CALIFORNIA GREEN CODE.....(PART 11, TITLE 24, CCR)

2010 CALIFORNIA REFERENCED STANDARDS CODE.....(PART 12, TITLE 24, CCR)

NFPA 13 - 2010

NFPA 72 - 2010

REFERENCE CODE SECTIONS FOR APPLICABLE STANDARDS:

2010 CBC, CHAPTER 35

2010 CFC, CHAPTER 45

INSPECTIONS:

ALL INDEPENDENT TESTING AND INSPECTIONS SHALL BE PAID FOR AND SCHEDULED BY THE OWNER (DISTRICT).

A PROJECT INSPECTOR EMPLOYED BY THE OWNER (DISTRICT) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTIONS OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, PART 1, TITLE 24, 2010 CALIFORNIA BUILDING CODE. A MINIMUM OF A CLASS II (TWO) INSPECTOR SHALL BE USED.

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).
2. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY ADDENA OR CHANGE ORDERS APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.
3. 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).
4. A DSA CERTIFIED INSPECTOR WITH CLASS 2 CERTIFICATION IS REQUIRED FOR THIS PROJECT.
5. A DSA CERTIFIED INSPECTOR WHO IS SPECIFICALLY QUALIFIED IN MECHANICAL AND ELECTRICAL WORK WILL BE REQUIRED FOR THIS PROJECT.
6. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE SCHOOL BOARD SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THIS PROJECT.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
02-114448
AC FLS SS
DATE APR 11 2012

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM

GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

LICENSED ARCHITECT
DAVID SCOTT STOKES
No.C 15700
REN 6-30-13
STATE OF CALIFORNIA

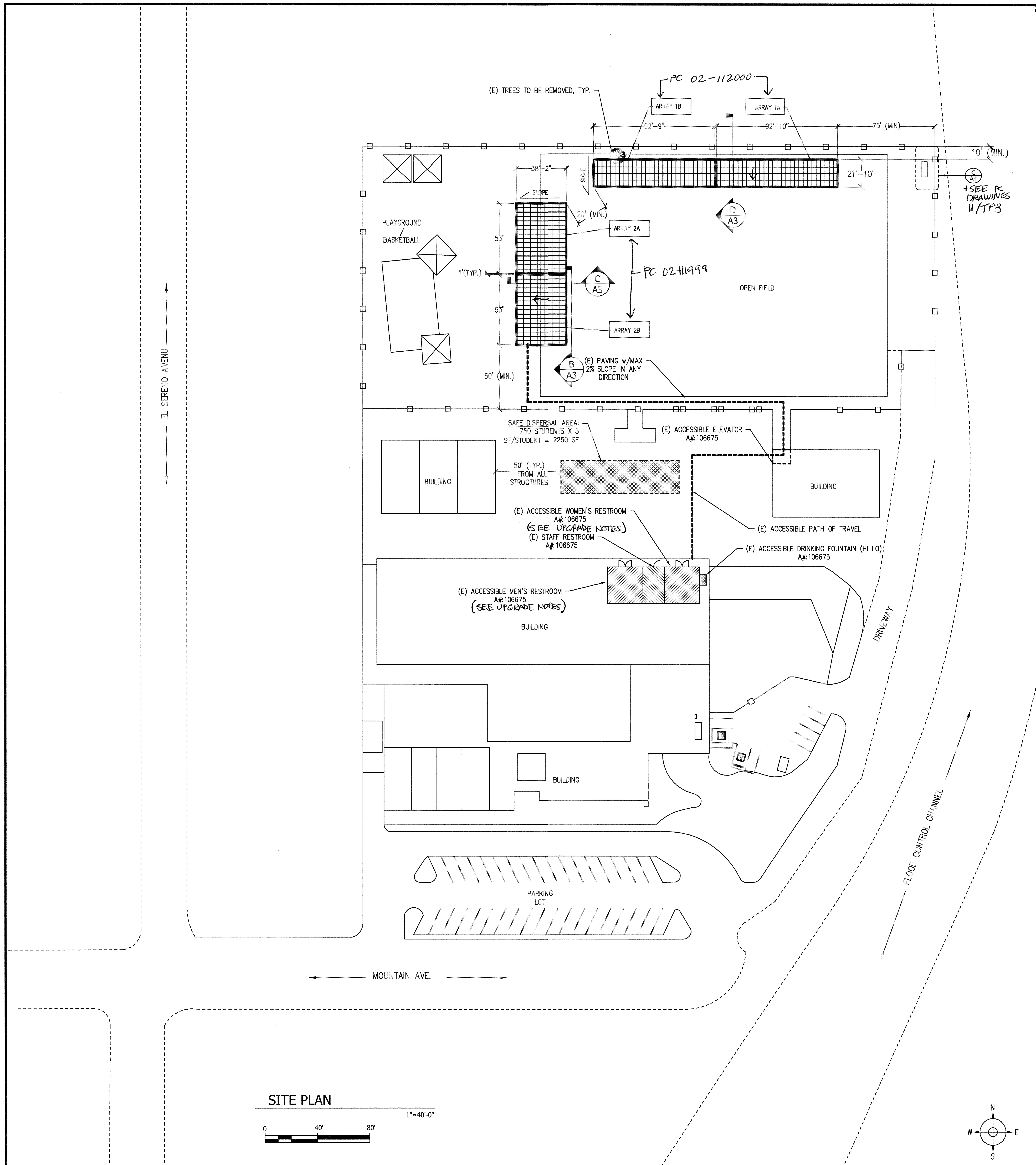
REVISIONS

REV	BY	DATE	COMMENTS
REV A	TPP	03/13/12	PER DSA COMMENTS

JOB DETAILS

AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOVT DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012 PAYMENT TYPE: CASH
PAGE NAME: TITLE PAGE PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00

PAGE: PV T0.0 REV: A



SITE PLAN

1"=40'-0"

PROJECT SUMMARY

THIS PROJECT WILL CONSIST OF THE INSTALLATION OF SOLAR PHOTOVOLTAIC CANOPIES OVER PLAYGROUND AREAS AT GLENDALE UNIFIED SCHOOL DISTRICT – MOUNTAIN AVENUE ELEMENTARY SCHOOL.

SOLAR MODULE: YINGLI YL240P-29b
INVERTER: XANTREX GT 100-208

	SUPPORT STRUCTURES:	PC#:
1A & 1B:	FULL CANTILEVER SOLAR SUPPORT STRUCTURE	02-112000
2A & 2B:	TEE SOLAR SUPPORT STRUCTURE	02-111999

CONSTRUCTION TYPE: IIB
OCCUPANCY GROUP: A-3
ALLOWABLE: 9500 SF

ARRAY	WIDTH	LENGTH	AREA	NO. MODULES	kW	TOTAL SQ. FOOTAGE
1A	21'-10"	92'-2"	2007.6 SQ. FT.	112	26.88	4036.5 SQ. FT.
1B	21'-10"	92'-2"	2007.6 SQ. FT.	112	26.88	
2A	38'-2"	53'-2"	2008.5 SQ. FT.	112	26.88	4044.8 SQ. FT.
2B	38'-2"	53'-2"	2008.5 SQ. FT.	112	26.88	
			TOTAL	448	107.52	

ACCESS PATH OF TRAVEL

1. ACCESSIBLE PATH OF TRAVEL AS INDICATED ON PLAN IS A BARRIER-FREE ACCESS ROUTE WITHOUT ANY ABRUPT LEVEL CHANGES EXCEEDING ½" IF BEVELED AT 1:2 MAX SLOPE, OR VERTICAL LEVEL CHANGES NOT EXCEEDING ¼" MAX, AND AT LEAST 48" IN WIDTH. SURFACE IS STABLE, FIRM, AND SLIP RESISTANT. CROSS SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL IS LESS THAN 5%M UNLESS OTHERWISE INDICATED. ACCESSIBLE PATH OF TRAVEL SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" AND LESS THAN 80" STRUCTURAL ENGINEER SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE PATH OF TRAVEL.

VERIFY AND/OR PROVIDE THE FOLLOWING MINIMUM UPGRADES TO THE TOILET ROOMS:
1I. ROOM IDENTIFICATION AND DOOR SIGNAGE AT ENTRY DOOR
2. SELF-CLOSING HINGE AT WHEELCHAIR ACCESSIBLE STALL DOOR.
3. SLIDE BOLT OR FLIP-OVER TYPE LATCH AT WHEELCHAIR ACCESSIBLE STALL DOOR.
4. LOOP OR U-SHAPED WIRE PULLS BOTH SIDES OF D.P. , STALL DOOR, 30'-44' A.F.F.
5. COAT HOOK AT 48" A.F F MAX. AT WHEELCHAIR ACCESSIBLE STALL.
7. ENTRY DOOR OPERATING PRESSURE TO OPEN 5 IBS. MAXIMUM.
8. DISPENSERS/WASTE DISPOSAL BINS CAN NOT PROJECT INTO CLEAR SPACE REQUIREMENTS OF ANY FLEXURE.
9. DISPENSERS AND OTHER PROTRUDING ELEMENTS, WITH LEADING EDGES BETWEEN 21" AND 80" AFF WITHIN THE CIRCULATION SPACE, MAY NOT PROJECT MORE THAN 4' FROM THE WALL.
10. LOCATE THE WASTE DISPOSAL BIN (INDICATE A SIZE) WHICH WILL NOT ENCROACH INTO ANY FIXTURE, MANEUVERING, OR DOOR CLEARANCE REQUIREMENT.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
03-114418
AC [illegible] FLS FC SS ED
DATE APR 11 2012

SolarCity

3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

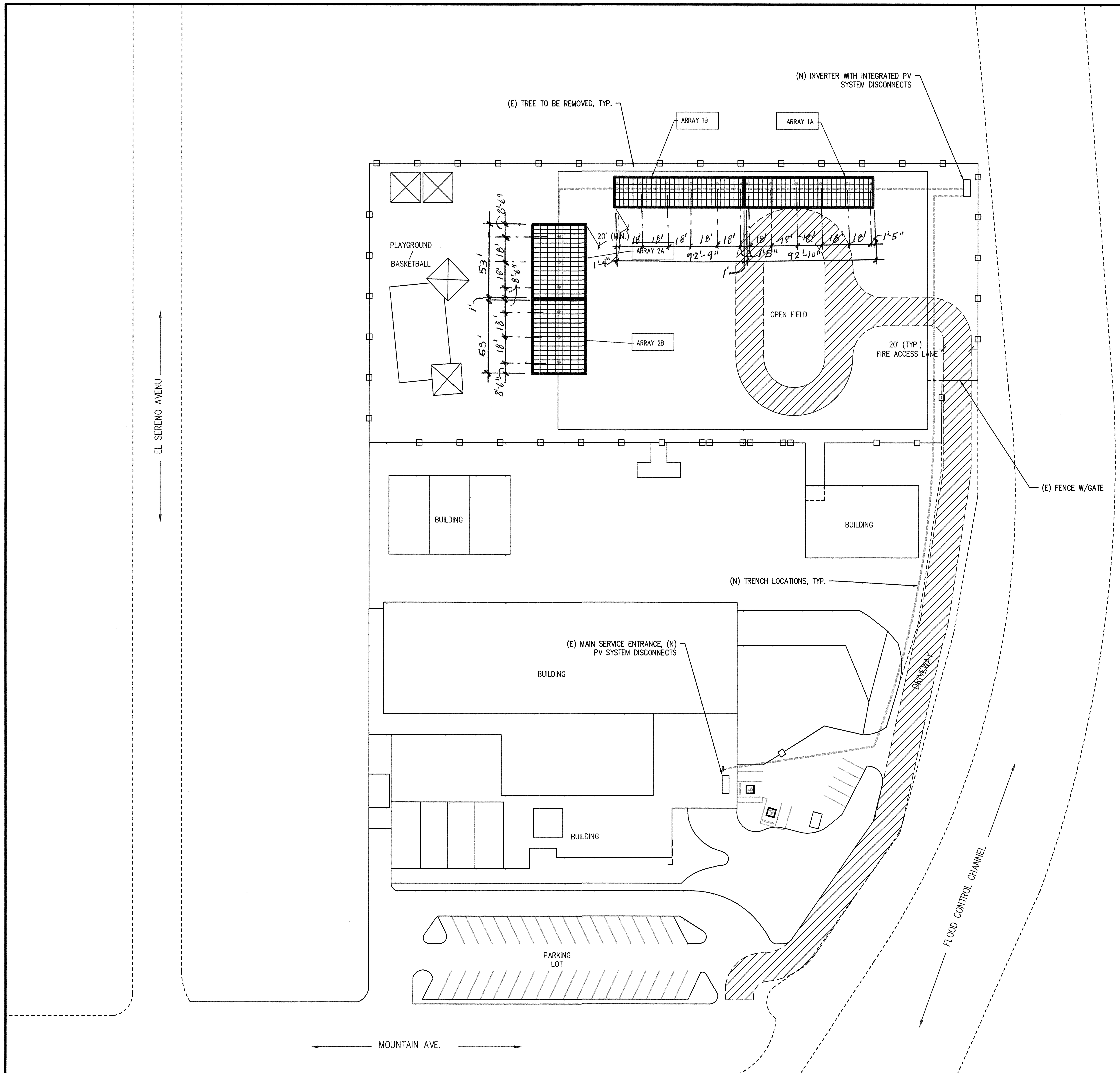
DESCRIPTION: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM
CUSTOMER: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

LICENSED ARCHITECT
DAVID SCOTT STOKES
[illegible]
No.C 15700
REN 6-30-13
STATE OF CALIFORNIA

REVISIONS

REV	BY	DATE	COMMENTS
REV A	TPP	03/12/12	PER DSA COMMENTS

JOB DETAILS
AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOV'T
DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012
PAYMENT TYPE: CASH
PAGE NAME: SITE PLAN
PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00
PAGE: PV A1
REV: A



LOCAL FIRE AUTHORITY APPROVAL

1"=40'-0"

0 40' 80'

ARRAY	WIDTH	LENGTH	AREA	NO. MODULES	kW	TOTAL SQ. FOOTAGE	OCCUPANCY CLASSIFICATION
1A	21'-10"	92'-2"	2007.6 SQ. FT.	112	26.88	4036.5 SQ. FT.	A-3
1B	21'-10"	92'-2"	2007.6 SQ. FT.	112	26.88		A-3
2A	38'-2"	53'-2"	2008.5 SQ. FT.	112	26.88	4044.8 SQ. FT.	A-3
2B	38'-2"	53'-2"	2008.5 SQ. FT.	112	26.88		A-3
			TOTAL	448	107.52		

SCOPE OF WORK

VERIFY EXISTING FIRE LANE MARKING AND/OR PROVIDE NEW FIRE LANE MARKING AS DIRECTED BY LOCAL FIRE AUTHORITY AND AS DESCRIBED BELOW.

FIRE LANE MARKING

SCOPE

The Fire Department is authorized to direct installation of approved signs or other approved notices for the identification of fire lanes. Identification may include one or more of the following:

REQUIREMENTS

Red Curb Marking:

Curb top and side shall be painted red, and the words, "FIRE LANE" shall be stenciled on the top and side of all red curbs at a maximum interval of 50 feet. Letters shall be three inches (3") in height with a minimum 3/4-inch in stroke.

Alternatively, if the roadway has no curbing, a 12-inch wide red stripe with the words "FIRE LANE" in white may be painted along and parallel with the edge of the roadway. The lettering shall be 8-inches high with a 3/4-inch stroke.

Signage:

Signs shall be of metal construction, measuring 12-inches wide and 18-inches high, and of a reflective type. Plastic or wooden signs are not acceptable. See detail 2.

Signs shall read: "NO STOPPING – FIRE LANE 22500.1 CVC." Lettering shall be not less than one-inch in height and clearly visible from a vehicle.

Signs shall be in visible locations and mounted on galvanized metal poles at a height of 80 inches. Signs shall be maintained unobstructed by foliage, etc.

The distance between signs posted along the fire lane shall not exceed 125 feet. Not less than two signs shall be posted for each fire lane. If traffic flows in two directions, signs must be posted so as to be readable from either direction.

Roadway Surface Marking:

Outlining or painting the fire lane area in red with the words "FIRE LANE" in white, at intervals of not more than 50 feet or as otherwise directed by the Fire Department. Size of lettering shall be not less than 24 inches in height and three inches (3") in stroke.

LEGEND

(N) STRUCTURE POST	⊠
(N) SOLAR MODULES	⊞
(E) PREVIOUSLY APPROVED FIRE LANES REMAINING UNCHANGED	▨
(E) FENCE	—□—

COUNTY OF LOS ANGELES
FIRE DEPARTMENT
FIRE PREVENTION ENGINEERING
NO REQUIREMENTS
By [illegible] Date 02/28/12
FIRE PREVENTION ENGINEER
☑ Subject to field inspection approval
The stamping of this plan and specification SHALL NOT be held to permit or to be an approval of the violation of any provisions of any County/City Ordinance or State Law.

NOT APPROVED RESUBMIT TO FIRE DEPT.
FIRE PREVENTION BUREAU
Date 02/28/12

N S E W

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP03 1 14418
AC [illegible] FLS 7C SS ED
DATE APR 11 2012

LICENSED ARCHITECT
DAVID SCOTT STOKES
No.C 15700
REN 6-30-13
STATE OF CALIFORNIA

SolarCity

3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

DESCRIPTION: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM

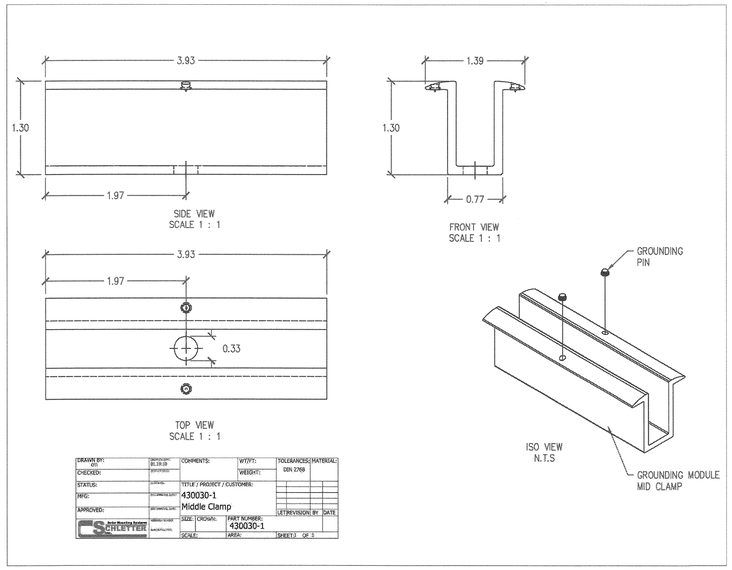
CUSTOMER: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

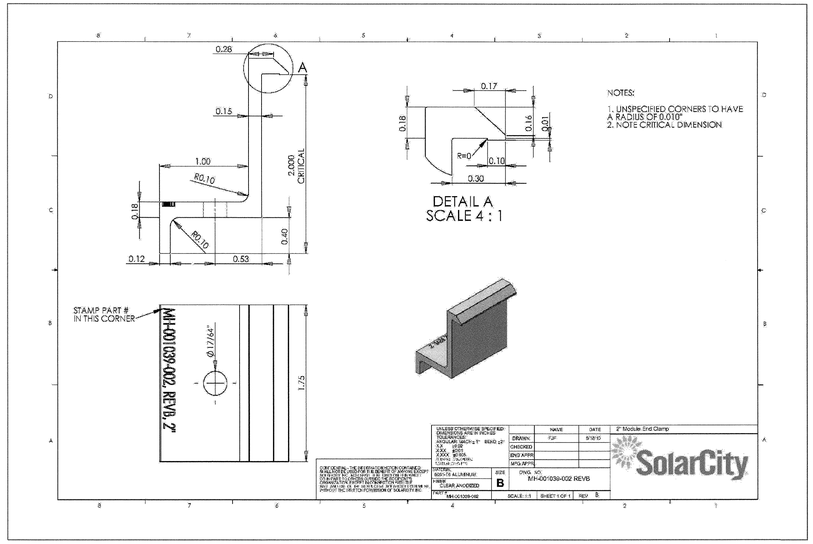
REVISIONS

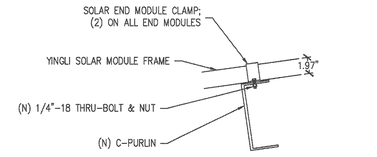
REV	BY	DATE	COMMENTS
REV A	BY	*/*/*	*

JOB DETAILS

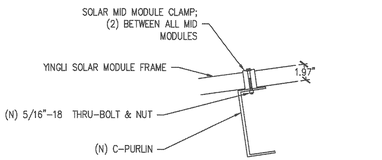
AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOV'T
DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012
PAYMENT TYPE: CASH
PAGE NAME: FIRE ACCESS PLAN
PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00
PAGE: PV A2
REV:



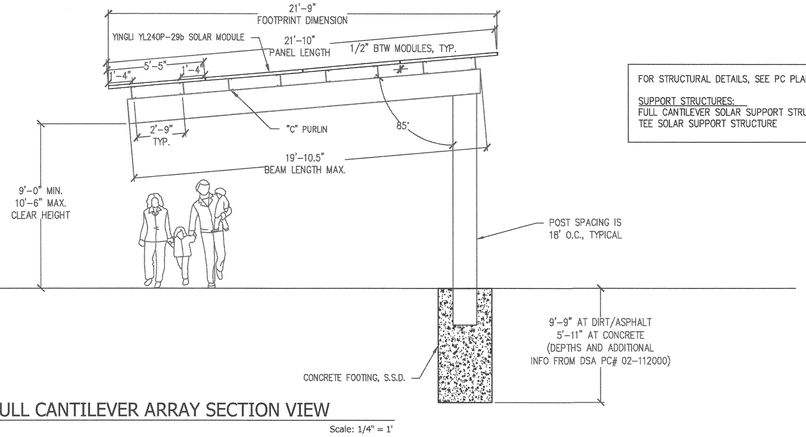




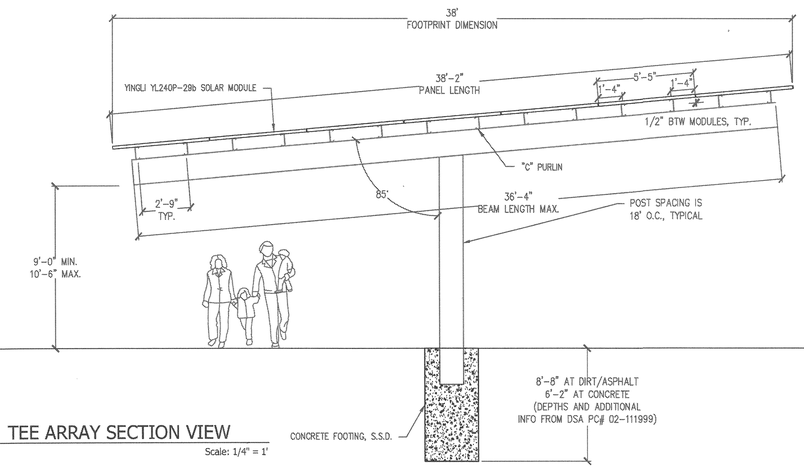
F END ATTACHMENT DETAIL
Scale: 1-1/2"=1'-0"



E MID ATTACHMENT DETAIL
Scale: 1-1/2"=1'-0"



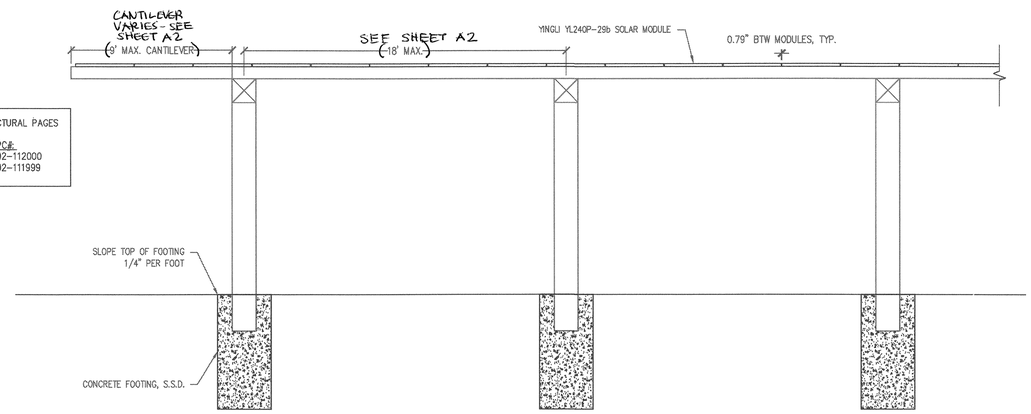
D FULL CANTILEVER ARRAY SECTION VIEW
Scale: 1/4" = 1'



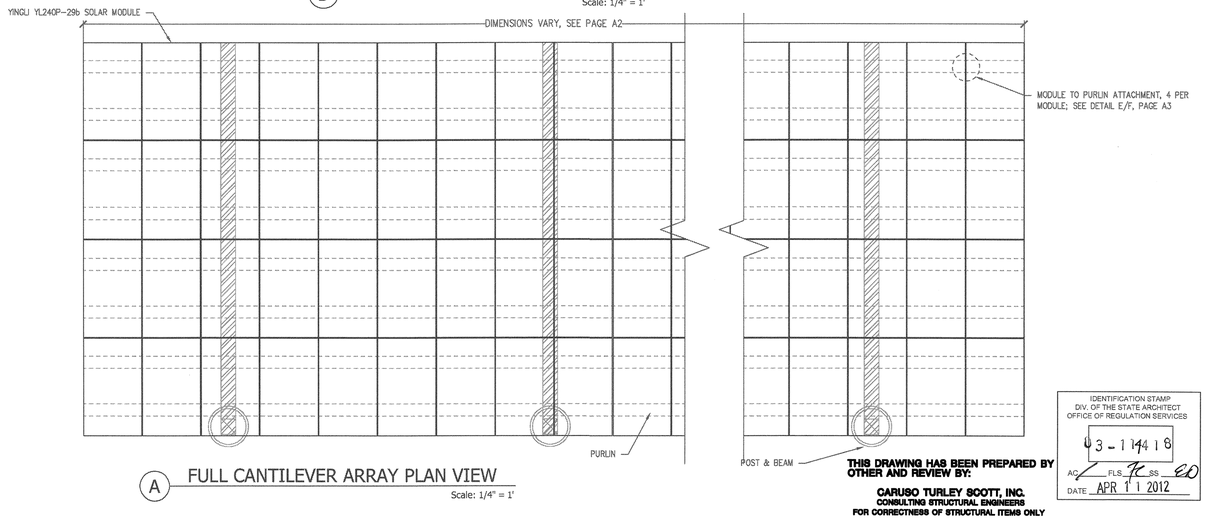
C TEE ARRAY SECTION VIEW
Scale: 1/4" = 1'

FOR STRUCTURAL DETAILS, SEE PC PLANS & STRUCTURAL PAGES

SUPPORT STRUCTURES:	PC#:
FULL CANTILEVER SOLAR SUPPORT STRUCTURE	02-112000
TEE SOLAR SUPPORT STRUCTURE	02-111999



B REAR ARRAY SECTION VIEW, TYP.
Scale: 1/4" = 1'



A FULL CANTILEVER ARRAY PLAN VIEW
Scale: 1/4" = 1'

THIS DRAWING HAS BEEN PREPARED BY OTHER AND REVIEW BY:
CARUSO TURLEY SCOTT, INC.
CONSULTING STRUCTURAL ENGINEERS
FOR CORRECTNESS OF STRUCTURAL ITEMS ONLY

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
43-11418
AC FLS SS EO
DATE APR 11 2012

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

DESCRIPTION:
GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM

OWNER:
GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

REGISTERED PROFESSIONAL ENGINEER
Paul G. Scott
S 3325
EXP. 12/31/13
4/6/12
STRUCTURAL
STATE OF CALIFORNIA

LICENSED ARCHITECT
DAVID SCOTT STOKES
No. C 15700
REN. 6-30-13
STATE OF CALIFORNIA

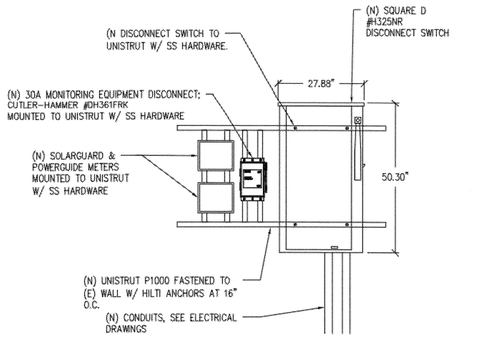
REVISIONS

REV	BY	DATE	COMMENTS
REV A	TPP	03/12/12	PER DSA COMMENTS

JOB DETAILS

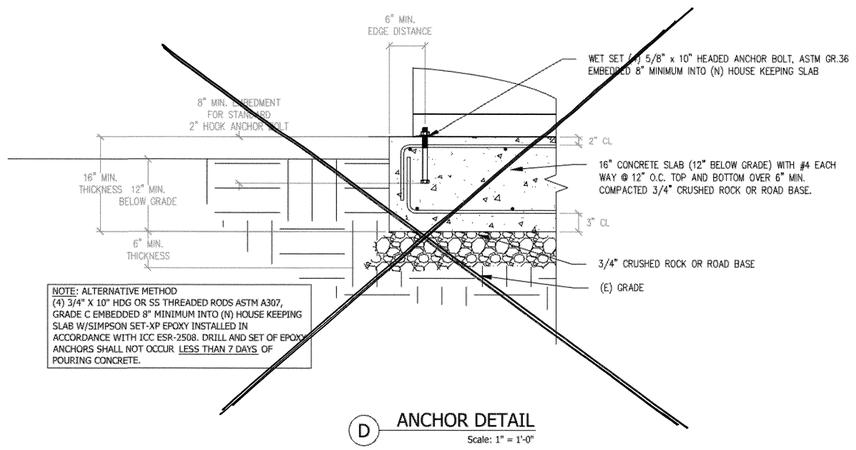
AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOVT
DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012
PAYMENT TYPE: CASH
PAGE NAME: SECTION VIEWS
PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00

PAGE: PV A3
REV: A



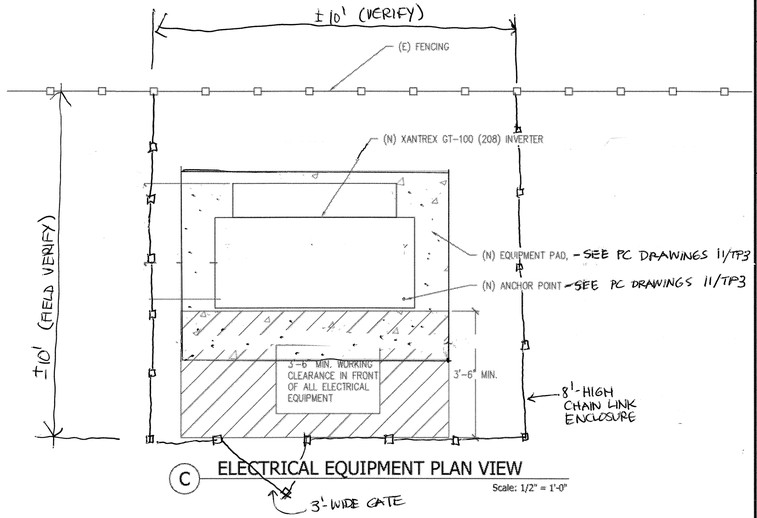
F DISCONNECT ELEVATION VIEW

Scale: 1/2" = 1'



D ANCHOR DETAIL

Scale: 1" = 1'-0"

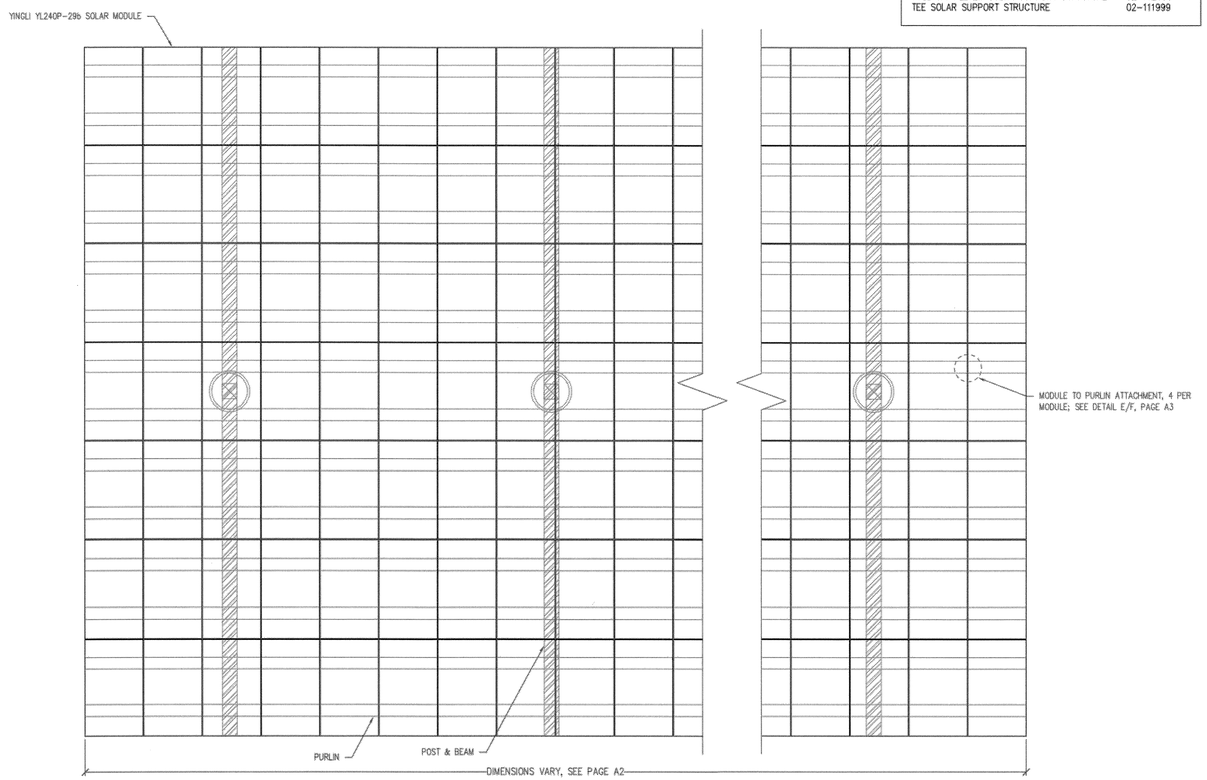


C ELECTRICAL EQUIPMENT PLAN VIEW

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

FOR STRUCTURAL DETAILS, SEE PC PLANS & STRUCTURAL PAGES

SUPPORT STRUCTURES:	PC#:
FULL CANTILEVER SOLAR SUPPORT STRUCTURE	02-112000
TEE SOLAR SUPPORT STRUCTURE	02-111999



E TEE ARRAY PLAN VIEW

Scale: 1/4" = 1'

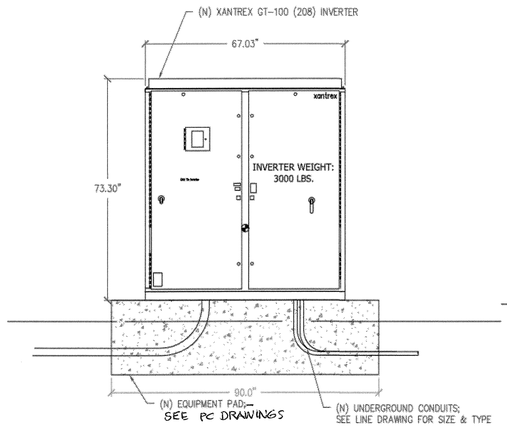
FOUNDATIONS FOR MOUNTAIN AVENUE:

SOIL REPORT BY GLOBAL GEO-ENGINEERING, INC.; JOB NO.4639-04; DATED FEBRUARY 22, 2012. ADDITIONAL GEOTECHNICAL RECOMMENDATIONS BY GLOBAL GEO-ENGINEERING, INC.; JOB NO. 4639.04; DATED MARCH 22, 2012.

DRILLED PIER FOOTING DESIGNS: ALLOWABLE LATERAL BEARING PRESSURE = 400 PSF/FT FOR DRILLED PIER FOOTINGS. THE ALLOWABLE LATERAL BEARING PRESSURE MAY BE MULTIPLIED BY TWO PER SECTION 1806A.3.4 AND THE SOILS REPORT SINCE THESE STRUCTURES ARE NOT ADVERSELY AFFECTED BY ½ INCH DEFLECTION. THE DRILLED PIER FOOTINGS ARE DESIGNED AS CONSTRAINED (SECTION 1807A.3.2.2, EQUATION 18A-2) WHERE PLACED IN CONCRETE PAVEMENT AREA AND AS UNCONSTRAINED (SECTION 1807A.3.2.2, EQUATION 18A-1 OR CZERNIAK, WHICHEVER GOVERNS) WHEN PLACED IN DIRT OR ASPHALT AREAS.

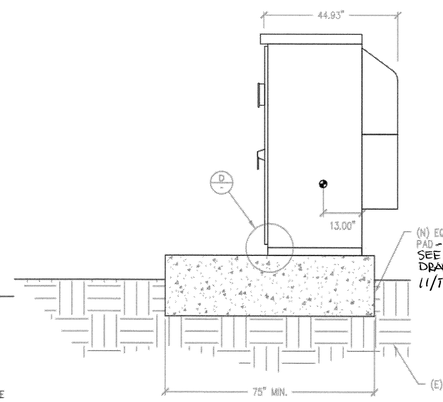
SPREAD FOOTING DESIGNS: SPREAD FOOTINGS SHALL BEAR ON COMPETENT NATIVE SOIL 2 FEET MINIMUM BELOW ADJACENT EXISTING GRADE. DESIGN SOIL BEARING VALUE = 2000 PSF. (DESIGN OF PRE-CHECK BASED ON 1500 PSF.)

REFER TO SOILS REPORT FOR ADDITIONAL INFORMATION PRIOR TO COMMENCEMENT OF EARTHWORK. SOILS ENGINEER SHALL INSPECT FOUNDATION EXCAVATIONS PRIOR TO PLACEMENT OF CONCRETE.



A INVERTER FRONT VIEW

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



B INVERTER AND PAD (SIDE VIEW)

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

THIS DRAWING HAS BEEN PREPARED BY OTHER AND REVIEW BY:

CARUSO TURLEY SCOTT, INC.
CONSULTING STRUCTURAL ENGINEERS
FOR CORRECTNESS OF STRUCTURAL ITEMS ONLY

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
03-111418
AC FLS TC SS 80
DATE APR 11 2012

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

JOB NAME: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM
DESC: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

REGISTERED PROFESSIONAL ENGINEER
PAUL G. SCOTT
S 3325
EXP. 12/31/13
4/6/12
STRUCTURAL
STATE OF CALIFORNIA

LICENSED ARCHITECT
DAVID SCOTT STOKES
No.C 15700
REN 6/30/13
STATE OF CALIFORNIA

REVISIONS

REV	BY	DATE	COMMENTS
REV A	TPP	03/12/12	PER DSA COMMENTS

JOB DETAILS

AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOVT
DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012
PAYMENT TYPE: CASH
PAGE NAME: SECTION VIEWS
PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00
PAGE: PV A4
REV: A

ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2008 NATIONAL ELECTRIC CODE AS AMENDED BY THE 2010 CALIFORNIA ELECTRIC CODE.
2. EACH UNGROUNDED CONDUCTOR OF THE MULTIWIRE BRANCH CIRCUIT WILL BE IDENTIFIED BY PHASE AND SYSTEM PER ART 210.5.
3. A NATIONALLY-RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH ART 110.3.
4. CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH ART. 250.97, 250.92(B)
5. DC CONDUCTORS INSIDE BUILDING SHALL BE IN METALLIC RACEWAY PER ART 690.31(E).
6. ALL ABOVE GROUND CONDUIT SHALL BE EMT WITH RAINTIGHT FITTINGS, ALL CONDUIT EXPOSED TO VEHICULAR DAMAGE SHALL BE RMC. ALL BELOW GROUND CONDUIT SHALL BE SCHEDULE 40 PVC
7. ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY UL LISTING.
8. INSTALLATION SHALL COMPLY WITH ART. 250.52, 250.53
9. INSTALL PARALLEL CONDUCTORS PER ART 310.4
10. ALL VALUES FOR IMP AND ISC AND VMP ARE MANUFACTURER'S LISTED DATA UNCORRECTED BY NEC.
11. REFER TO CURRENT MANUFACTURER'S PLANNING AND INSTALLATION MANUAL FOR TORQUE SPECS FOR ALL BOLTS AND TERMINAL CONNECTIONS.
12. DC STRING CIRCUITS SHALL BE RUN IN OUTDOOR AMBIENT CONDITIONS.
13. PV INVERTER CONTAINS INTEGRATED AC AND DC DISCONNECTS AND GFDI.
14. BURIED CONDUCTORS SHALL BE BURIED TO THE MINIMUM DEPTH SPECIFIED IN ART. 300.50.
15. ALL CONDUCTORS ARE COPPER UNLESS NOTED OTHERWISE.

GROUNDING NOTES

16. SINGLE-CONDUCTOR CABLE USED AS A GROUNDED CONDUCTOR IN PHOTOVOLTAIC POWER SYSTEMS SHALL BE IDENTIFIED AT THE TIME OF INSTALLATION BY DISTINCTIVE WHITE MARKING AT ALL TERMINATIONS.
17. THE DC GEC SHALL BE CONTINUOUS FROM THE INVERTER GROUND BUSBAR TO THE MAIN ELECTRICAL SERVICE GROUNDING ELECTRODE SYSTEM. THE DC GEC SHALL BE ATTACHED TO THE GROUND ELECTRODE USING AN IRREVERSIBLE MEANS AS CALLED OUT IN ART. 250.64 AND 690.47.
18. PV INVERTER CONTAINS AN INTEGRATED GFDI CIRCUIT. DO NOT BOND THE GROUNDED DC CONDUCTOR TO GROUND EXCEPT THROUGH THE INVERTER GFDI.
19. ALL EXPOSED METAL PARTS (RAIL, PIPE, BOXES, ETC) SHALL BE GROUNDED USING PROPER GROUNDED METHODS APPROVED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
20. #10 BARE COPPER EGC AT SOURCE CIRCUITS SHALL BE ROUTED SECURELY TO MOUNTING HARDWARE IN A MANNER THAT PROTECTS FROM PHYSICAL HARM.
21. FERROUS METAL RACEWAYS ENCLOSING GEC CONDUCTORS SHALL BE ELECTRICALLY CONTINUOUS OR BONDED IN ACCORDANCE WITH ART. 250.64(E).
22. MODULE FRAMES, RAIL, AND POSTS SHALL BE BONDED WITH EQUIPMENT GROUND CONDUCTORS AND GROUNDED AT THE MAIN ELECTRIC PANEL.
23. BOTH ENDS OF ALL METALLIC CONDUIT CONTAINING GROUNDING ELECTRODE CONDUCTORS SHALL BE BONDED PER ART 250.64(E).
24. GROUNDING ELECTRODE CONDUCTOR TO BE BONDED TO (E) UFER PER ART 250.30(A)(4)(A).
25. DC GROUNDING ELECTRODE CONDUCTOR SIZED PER ART 250.166(D).

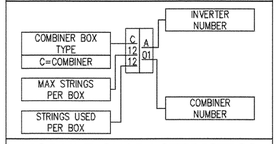
ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
BLDG	BUILDING
CONC	CONCRETE
C	COMBINER BOX
D	DISTRIBUTION PANEL
DC	DIRECT CURRENT
EGC	EQUIPMENT GROUNDING CONDUCTOR
(E)	EXISTING
EMT	ELECTRICAL METALLIC TUBING
G	SOLAR GUARD METER
GALV	GALVANIZED
GEC	GROUNDING ELECTRODE CONDUCTOR
GFDI	GROUND FAULT DETECTION & INTERRUPTION
GND	GROUND
HDG	HOT DIPPED GALVANIZED
I	CURRENT
Imp	CURRENT AT MAX POWER
INVS	INVERTERS
Isc	SHORT CIRCUIT CURRENT
kVA	KILOVOLT AMPERE
kW	KILOWATT
LBW	LOAD BEARING WALL
MIN	MINIMUM
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
P	PANEL BOARD
PL	PROPERTY LINES
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
S	SUBPANEL
SCH	SCHEDULE
SS	STAINLESS STEEL
SSD	SEE STRUCTURAL DRAWINGS
STC	STANDARD TESTING CONDITIONS
SWH	SOLAR WATER HEATER
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLT
Vmp	VOLTAGE AT MAX POWER
Voc	VOLTAGE AT OPEN CIRCUIT
W	WATT
3R	NEMA 3R, RAINTIGHT

LEGEND

- BREAKER, 2 POLE
- BREAKER, 3 POLE
- COMBINER BOX, DC (SEE BELOW FOR MORE INFO)
- CURRENT TRANSFORMER
- DISCONNECT, FUSED
- DISCONNECT, NON FUSED
- GROUND
- FUSE
- METER
- PHOTOVOLTAIC MODULE
- LINEAR FLUORESCENT FIXTURE

COMBINER BOX NUMBERING SYSTEM



MODULE CHARACTERISTICS

YINGLI YL240P-29b

Voc = 37.5 V
Vmp = 29.5 V
Isc = 8.65 A
Imp = 8.14 A
Tkvoc = -0.14V/°C
Tlow = 1 °C (FROM ASHRAE TABLE)

INDEX

SYSTEM COMPONENTS:

- (448) YINGLI YL240P-29b PHOTOVOLTAIC MODULES CONFIGURED INTO (32) SERIES STRINGS OF (14) MODULES PER STRING
- (1) XANTREX GT100-208 3ϕ GRID TIE INVERTER

TEMP DATA

ASHRAE EXTREME ANNUAL DRY BULB MEAN MINIMUM TEMPERATURE = 1° C
ASHRAE 2% DRY BULB = 35° C
(BURBANK-GLENDALE-PASADENA AP, CA)

MAX SYSTEM VOC CALCULATIONS

LOWEST EXPECTED AMBIENT TEMPERATURE FOR LA CRESCENTA, CA = 1°C
MAX VOLTAGE = # OF MODULES/STRING X (MODULE Voc -(Tstc-Trecord_low) X Tkvoc)

MAX VOC = 37.5 VDC - (25°C - 1°C)*-0.14
= 37.5 - -3.36 = 40.86 VDC
MAX SYSTEM VOC = 40.86 VDC * 14 MODULES IN SERIES = 572.04 VDC

ENGINEER OF RECORD

CARL BURATTI
BURATTI & ASSOCIATES, INC.
6345 BALBOA BLVD, STE 259
ENCINO, CA 91316
TEL: (818) 345-7130
FAX: (818) 345-7129
EMAIL: carl@buratti-pe.com

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

DESCRIPTION: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM

OWNER: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

LICENSED ARCHITECT
DAVID SCOTT STOREY
No.C 15700
REN 6-30-13
STATE OF CALIFORNIA

REVISIONS

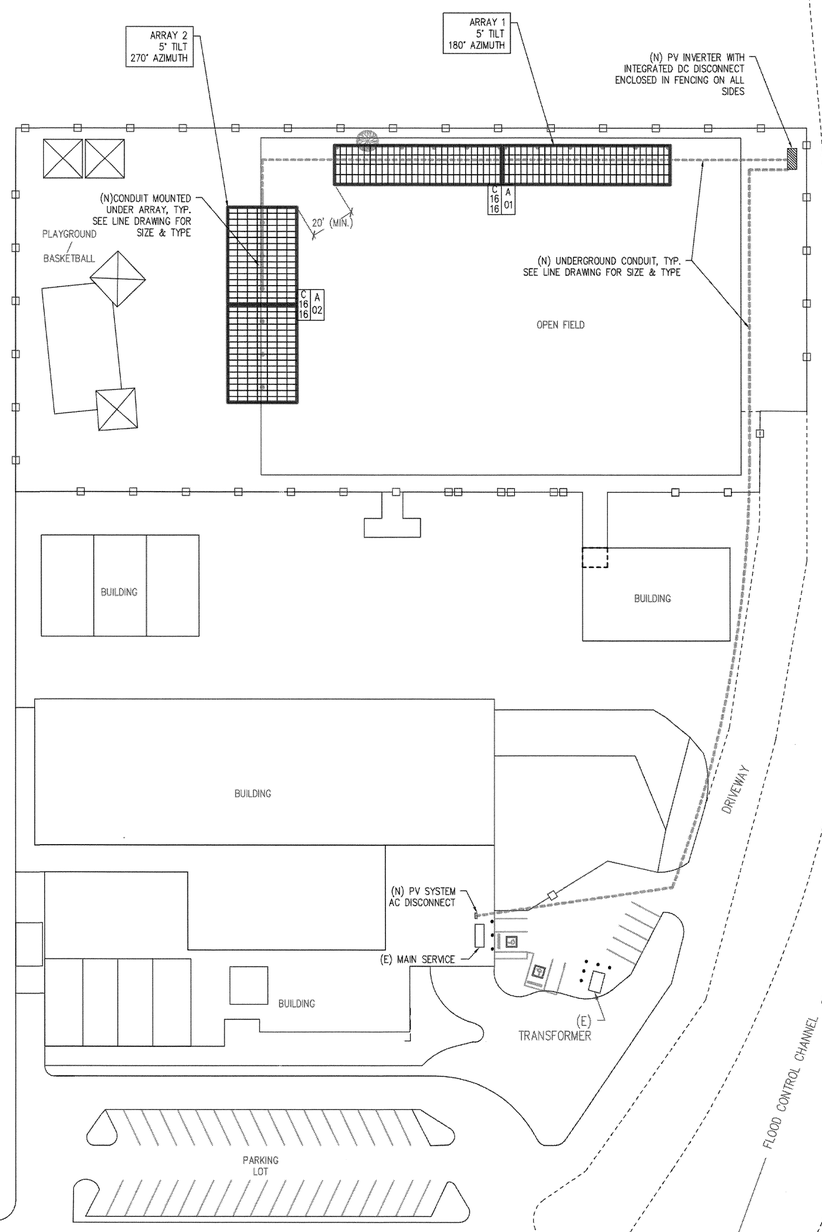
REV	BY	DATE	COMMENTS
REV A	TPP	03/12/12	PER DSA COMMENTS

JOB DETAILS

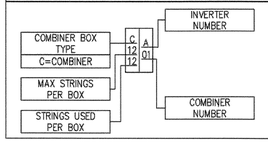
AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOV'T DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012
PAYMENT TYPE: CASH
PAGE NAME: ELECTRICAL NOTES
PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00
PAGE: PV 1
REV: A

CARL B. BURATTI
E-17127
EXP. 6-30-13
ELECTRICAL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
43-17418
AC. FLS. SS. ED
DATE APR 11 2012



COMBINER BOX NUMBERING SYSTEM



ELECTRICAL SITE PLAN

1"=40'-0"

0 40' 80'

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

03-114.18

AC FLS SS ED

DATE APR 11 2012

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

DESCRIPTION:
GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM

CODE:
GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

REVISIONS

REV	BY	DATE	COMMENTS
REV A	TPP	03/12/12	PER OSA COMMENTS

JOB DETAILS

AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
NAVANCE: GOVT
DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012
PAYMENT TYPE: CASH
PAGE NAME: ELECTRICAL SITE PLAN
PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00

PAGE: PV 2
REV: A

LEGEND

- BREAKER, 2 POLE
- BREAKER, 3 POLE
- COMBINER BOX, DC (SEE BELOW FOR MORE INFO)
- CURRENT TRANSFORMER
- DISCONNECT, FUSED
- DISCONNECT, NON FUSED
- GEC / GROUND
- FUSE
- METER (M)
- PHOTOVOLTAIC MODULE

MODULE CHARACTERISTICS

YINGLI YL-230P-29b

Voc = 37.5 V
Vmp = 29.5 V
Isc = 8.65 A
Imp = 8.14 A
Tkvoc = -.138V/°C
Tlow = 1 °C (ASHRAE DATA)

MOUNTAIN AVENUE ELEMENTARY SCHOOL - GLENDALE SCHOOL DISTRICT
107.52 KW

SYSTEM COMPONENTS:
- (448) YINGLI YL-240P-29b PHOTOVOLTAIC MODULES CONFIGURED INTO (16) SERIES STRINGS OF (14) MODULES PER STRING
- (1) XANTREX GT-100-208 GRID TIED INVERTER

MAX SYSTEM VOC CALCULATIONS

LOWEST EXPECTED AMBIENT TEMPERATURE FOR LA CRESCENTA, CA = 1°C BASED ON ASHRAE DATA

MAX VOLTAGE = # OF MODULES/STRING X (MODULE Voc -(Tstc-Trecord_low) X Tkvoc)

MAX VOC = 37.5 VDC - (25°C - 1°C)*-0.14
= 37.5 - -3.36 = 40.86 VDC
MAX SYSTEM VOC = 40.86 VDC * 14 MODULES IN SERIES = 572.04 VDC

COMBINER BOX NUMBERING SYSTEM

COMBINER BOX TYPE
C=COMBINER

MAX STRINGS PER BOX

STRINGS USED PER BOX

C 12 12 A 0 0 01

- INVERTER NUMBER
- RE-RECOMBINER NUMBER
- RECOMBINER NUMBER
- COMBINER NUMBER

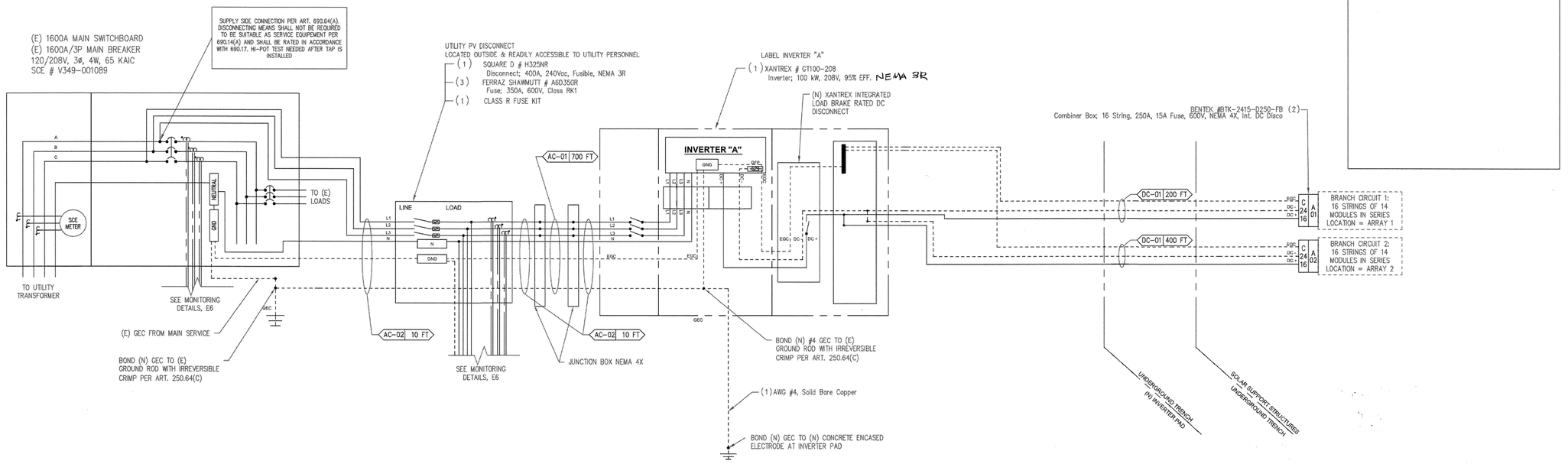
SHEET NOTES

INTERCONNECTION NOTES

1. SUPPLY SIDE CONNECTION SHALL BE MADE VIA A DEDICATED CIRCUIT BREAKER IN CONFORMANCE WITH ARTICLE 690.64(B)

MARKING AND SIGNAGE

2. PROVIDE A PLACARD ON THE AC DISCONNECT SWITCH WITH THE FOLLOWING INFORMATION IN 1/4" HIGH LETTERING PER NEC 690-54 (SEE LABEL #2, PV1):
   CAUTION - POSSIBLE BACKFEED FROM PHOTOVOLTAIC POWER SYSTEM:
   VNOM = XX VAC
   Inom = XX AAC
3. PROVIDE A PLACARD ON THE DC DISCONNECT SWITCHES WITH THE FOLLOWING INFORMATION IN 1/4" HIGH LETTERING PER NEC 690-53 (SEE LABEL #3, L-PV1):
   PHOTOVOLTAIC POWER SOURCE DISCONNECT
   OPERATING CURRENT: XX DC
   OPERATING VOLTAGE: XXDC
   MAXIMUM SYSTEM VOLTAGE: XXDC
   SHORT-CIRCUIT CURRENT: XX ADC
4. PROVIDE A SIGN ON DC DISCONNECTS PER ART 690.17 THAT SHALL READ:
   WARNING ELECTRIC SHOCK HAZARD. DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION.



AC FEEDER SCHEDULE

TAG	C SIZE	C TYPE	#W	W SIZE	WIRE TYPE	V	Imp Total	Imp Per Wire	AMPACITY DERATES TEMP	AMPACITY DERATES FILL
AC-01	(3) 3"	EMT	9	#600	THWN-2, Al	208	277.7	138.8	0.96	0.8
	(3) 3-1/2"	PVC-S40	3	#3 EGC	THWN-2, Cu					
	(3) 3-1/2"	RMC	1	#1/0 GEC	THWN-2, Cu					
			1	#1/0 GEC	THWN-2, Cu					
AC-02	(2) 2"	EMT	6	#3/0	THWN-2, Cu	208	277.7	138.8	0.96	0.8
	(2) 2"	PVC-S40	2	#3 EGC	THWN-2, Cu					
	(2) 2"	RMC	1	#1/0 GEC	THWN-2, Cu					
			1	#1/0 GEC	THWN-2, Cu					

DC FEEDER SCHEDULE

TAG	C SIZE	C TYPE	#W	W SIZE	WIRE TYPE	Voc	Vmp	Isc	Imp	AMPACITY DERATES TEMP	AMPACITY DERATES FILL
DC-01	2"	EMT	2	#4/0	THWN-2 Cu	525	413	138.4	130.24	.96	1
	2"	PVC-S40	1	#4	THWN-2 Cu						
	2"	RMC									

NOTES:
- ALL CIRCUITS ARE ADEQUATELY SIZED FOR TEMPERATURE & CONDUIT FILL DERATE SO THAT ANY (2) OR (3) CIRCUITS CAN BE ROUTED TOGETHER IN (1) CONDUIT, PROVIDED THE CONDUIT IS UPSIZED TO ACCOMODATE.
- (1) AWG #4 THWN-2 CU EGC MUST BE ROUTED IN EACH CONDUIT
- FOR CIRCUITS WHERE THE CONDUCTORS HAVE BEEN UPSIZED DUE TO VOLTAGE DROP LARGER THAN THE TERMINALS OF THE DEVICES WILL ALLOW, A JUNCTION BOX MUST BE INSTALLED NEAR EACH DEVICE WITH LISTED SPLICES AND/OR CONNECTORS. THE CONDUCTORS MUST TRANSITION TO THE LARGEST CONDUCTOR THE TERMINALS WILL ALLOW PRIOR TO ENTERING THE DEVICE.
- USE PVC SCH.40 WHERE CONDUIT IS TO BE BURIED
- USE RMC WHERE CONDUIT IS SUBJECT TO PHYSICAL DAMAGE FROM VEHICLES
- USE RMC BETWEEN SUPPLY SIDE CONNECTION AND PV UTILITY DISCONNECT.

LICENSED ARCHITECT
DAVID SCOTT STOKES
No. C 15700
RENEW 6-30-13
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
CARL R. BURATTI
E-19727
Exp. 6-30-13
ELECTRICAL
STATE OF CALIFORNIA

A PV LINE DRAWING 1 OF 2

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
03-114418
AC FLS SS ED
DATE APR 11 2012

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

DESCRIPTION: GLENDALE USD - MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM

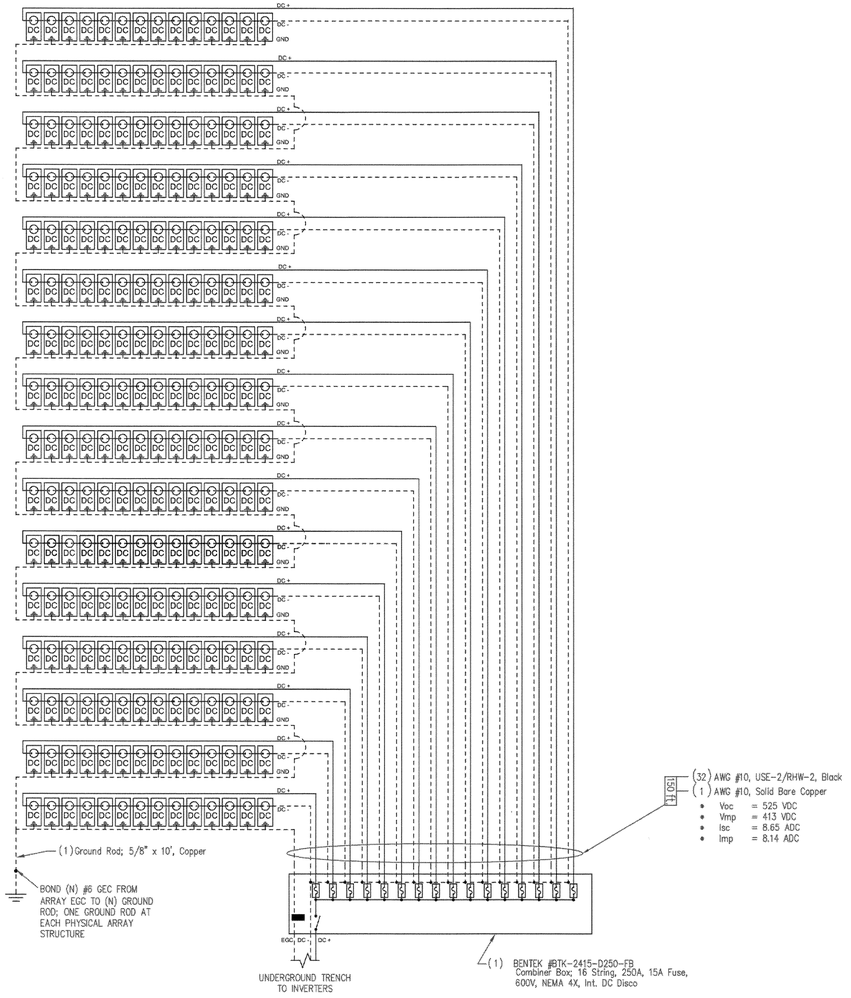
DESIGN: GLENDALE USD - MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

REVISIONS

REV	BY	DATE	COMMENTS
REV A	TPP	03/12/12	PER OSA COMMENTS

JOB DETAILS

AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOVT
DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012
PAYMENT TYPE: CASH
PAGE NAME: LINE DRAWING
PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00
PAGE: PV 3
REV: A



B PV LINE DRAWING 2 OF 2: 16 STRING BRANCH CIRCUIT, TYP. OF BRANCHES 1 & 2

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

DESCRIPTION: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM
CONTACT: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

LICENSED ARCHITECT
DAVID SCOTT STOKES
No. C-15700
REN 6-30-13
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
ANIL B. RUBATY
E-17721
EXP. 6-30-13
ELECTRICAL
STATE OF CALIFORNIA

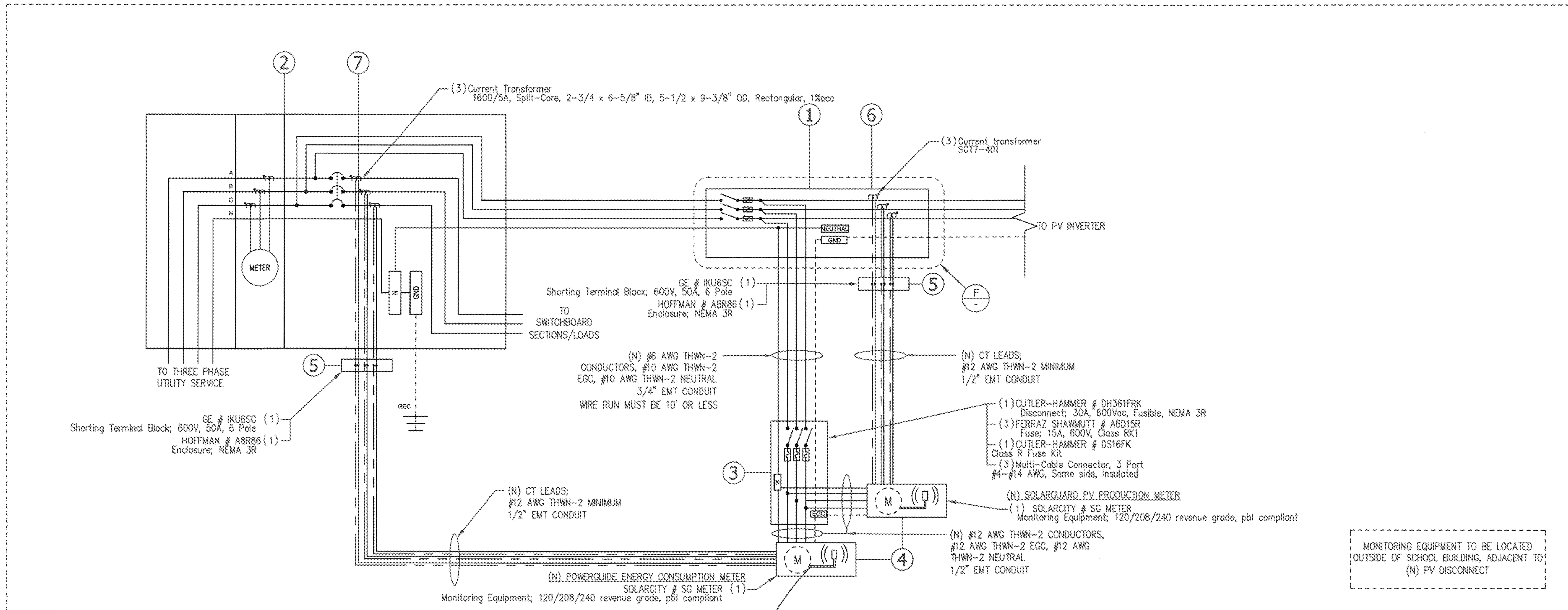
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
03-119418
AC FLS SS ED
DATE APR 11 2012

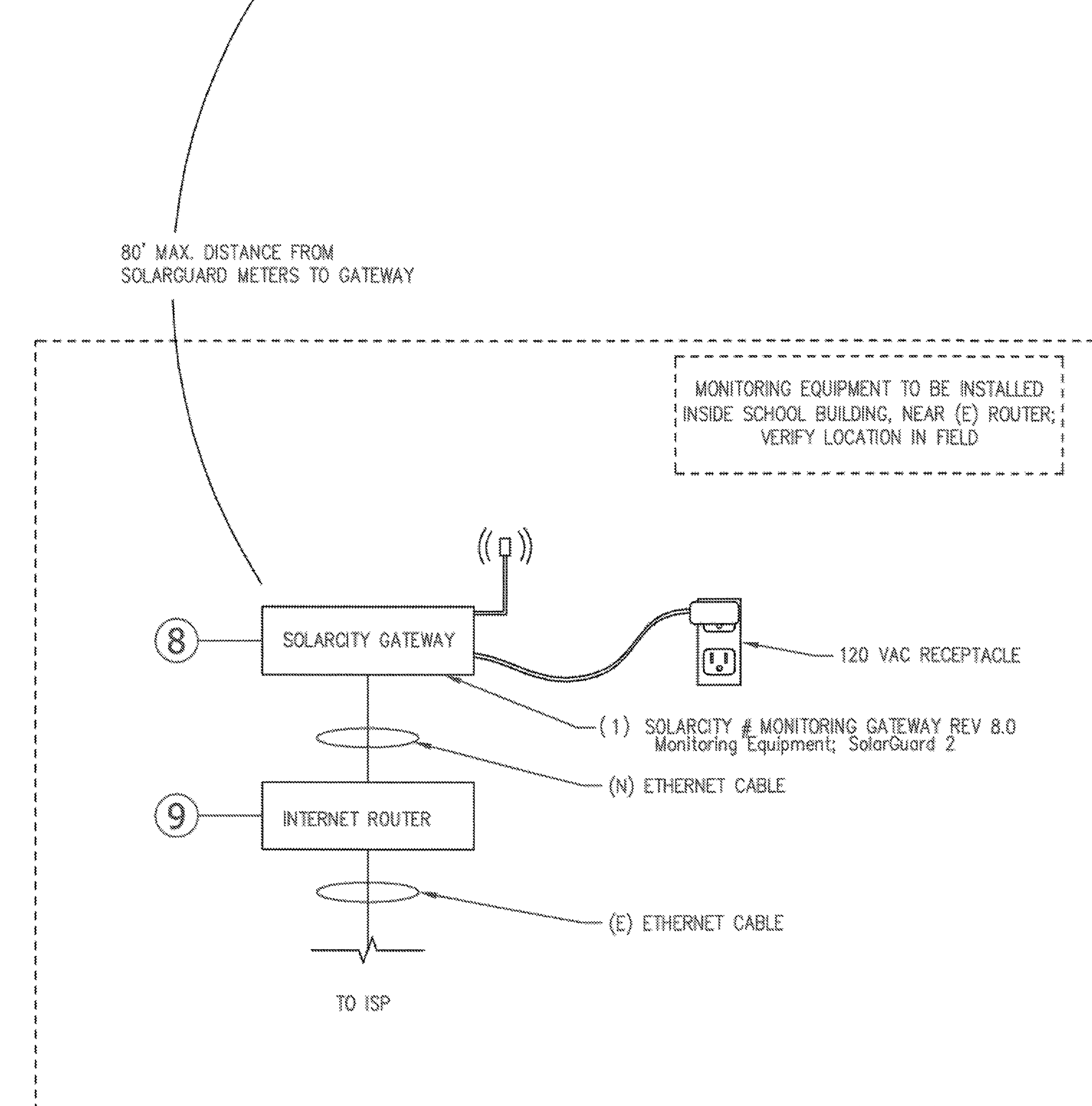
REVISIONS

REV	BY	DATE	COMMENTS
REV A	TPP	03/12/12	PER OSA COMMENTS

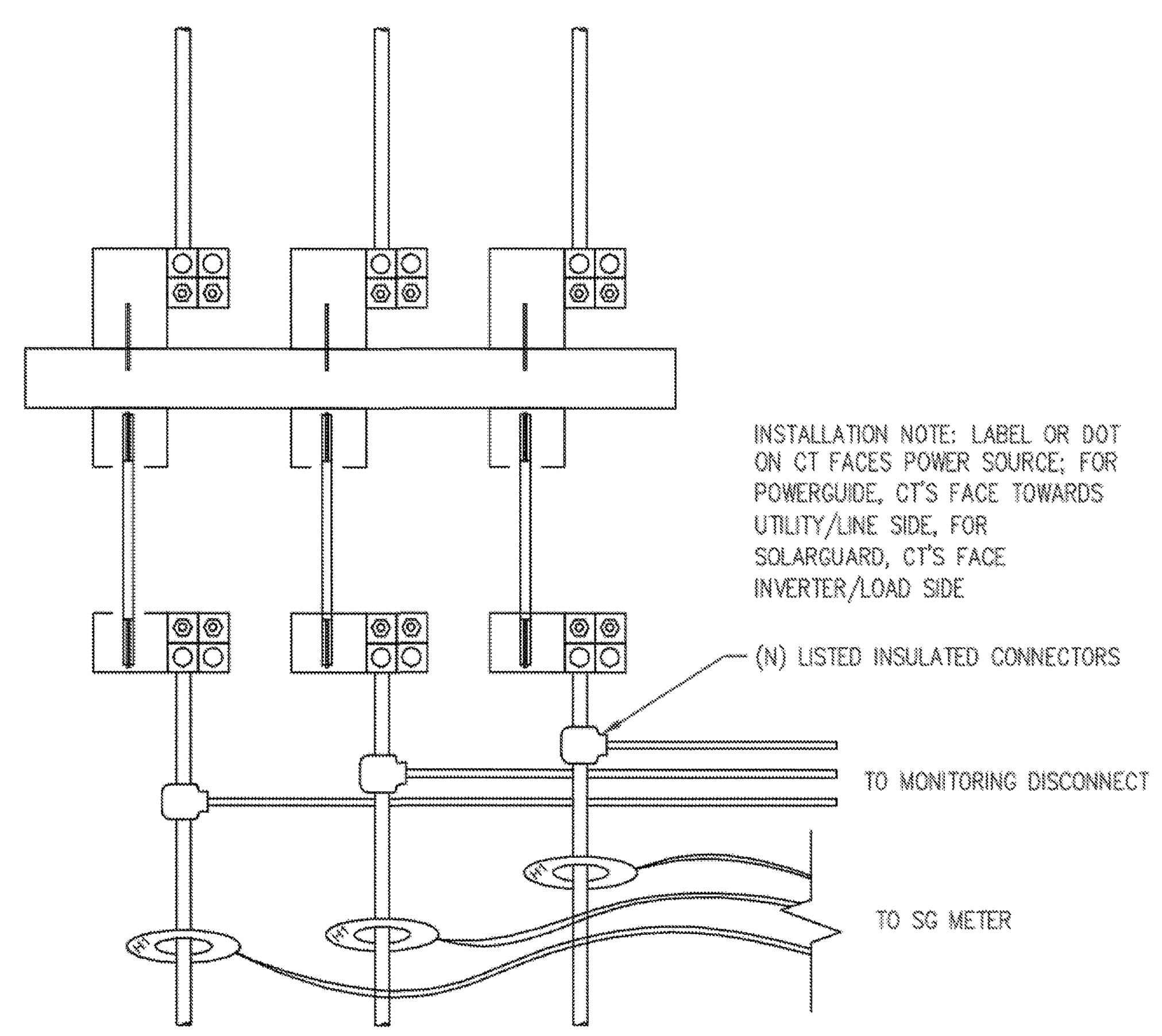
JOB DETAILS

AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOVT
DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012
PAYMENT TYPE: CASH
PAGE NAME: STRING DIAGRAMS
PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00
PAGE: PV 4
REV: A





A MONITORING DETAILS



B TERMINALS INSIDE AC DISCONNECT

NOTES:
1. (N) PV AC DISCONNECT; SEE LINE DRAWING FOR PRODUCT TYPE AND SPECIFICATIONS
2. (E) MAIN SERVICE ENTRANCE
3. (N) SOLARCITY MONITORING EQUIPMENT DISCONNECT; 30A, 600 VDC
4. (N) SOLARCITY SG AND PG METERS – REVENUE GRADE, CSI PBI COMPLIANT
5. (N) SHORTING TERMINAL BLOCK – 600V, 50A, 6 POLE; GE #1KU6SC
6. (N) SOLID CORE CURRENT TRANSFORMERS:
   - H1 LABEL FACES TOWARD SOURCE
   - WHITE WIRES TO lx1 TERMINALS IN SG METER
   - BLACK WIRES TO lx2 TERMINALS IN SG METER
7. (N) SPLIT CORE CURRENT TRANSFORMERS:
   - H1 LABEL FACES TOWARD SOURCE
   - BLACK WIRES TO lx1 TERMINALS IN PG METER
   - WHITE WIRES TO 1x2 TERMINALS IN PG METER
8. (N) SOLARCITY GATEWAY; LOCATED WITHIN 80' OF SG AND PG METERS, INDOORS, OR IN SHADED WEATHERPROOF, NON-METALLIC ENCLOSURE
9. (E) INTERNET ROUTER; ALWAYS ON INTERNET CONNECTION, AVAILABLE ETHERNET PORT (10BASE-T/100BASE-TX)

LICENSED ARCHITECT
DAVID SCOTT STOKES
No. C 15700
REN. 6.30.13
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
CARL R. BURAPP
E-14727
Exp. 6-30-13
ELECTRICAL
STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
03-114418
AC ___ FLS TC SS ED
DATE APR 11 2012

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

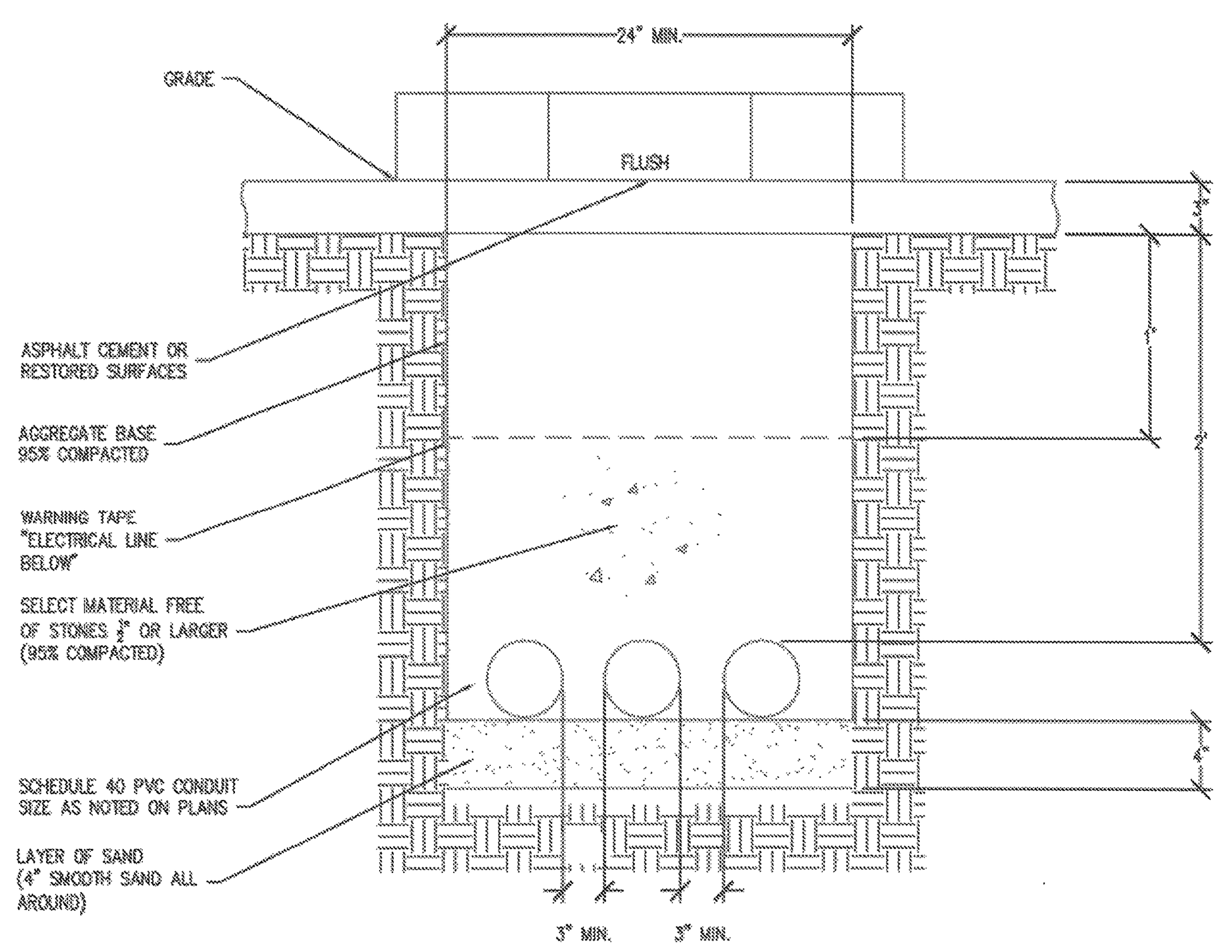
DESCRIPTION: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM
CUSTOMER: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

REVISIONS

REV	BY	DATE	COMMENTS
REV A	TPP	03/12/12	PER DSA COMMENTS

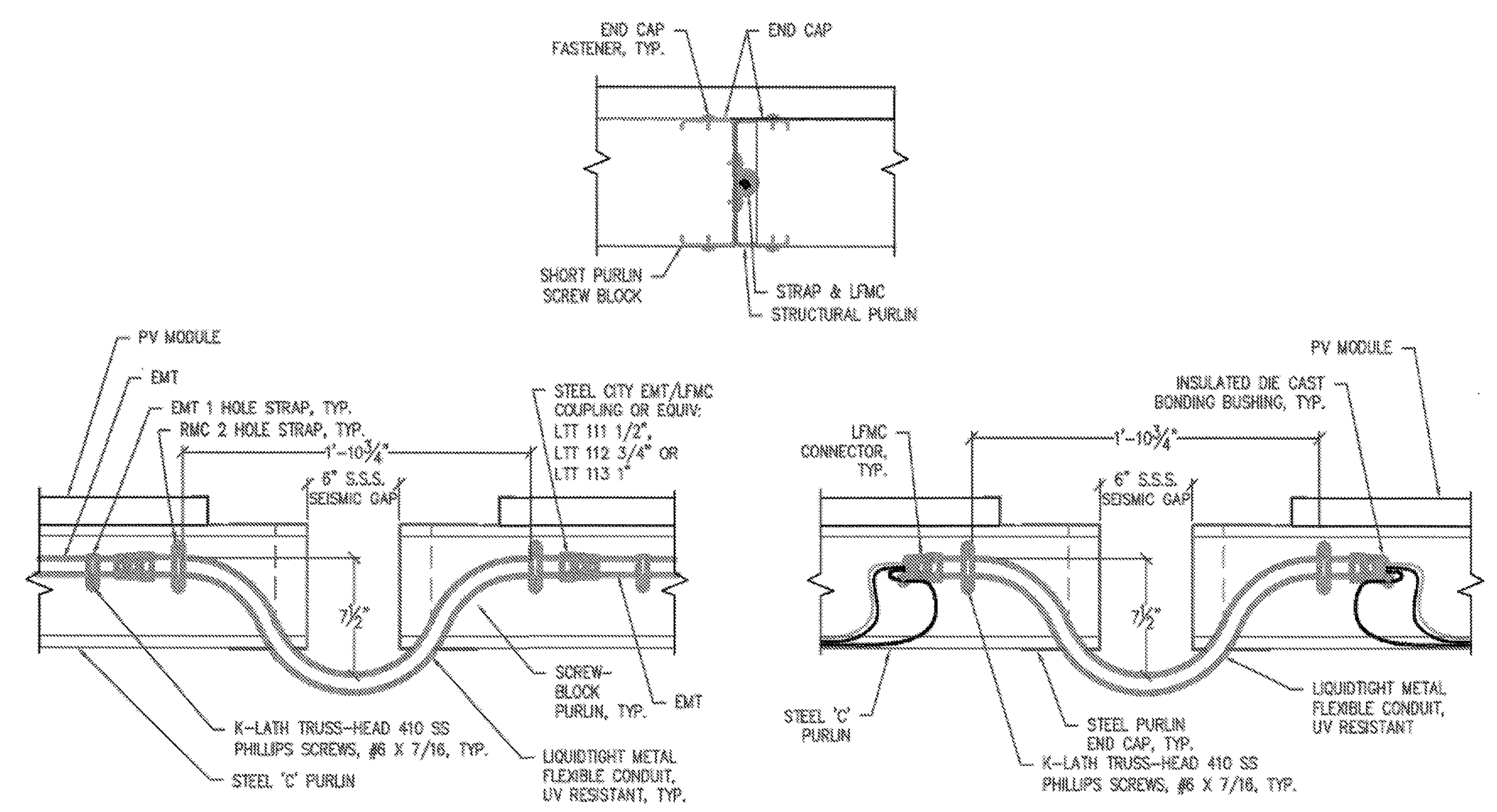
JOB DETAILS
AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOV'T DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012 PAYMENT TYPE: CASH
PAGE NAME: MONITORING DETAILS PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00
PAGE: PV 5 REV: A

- f - - e - - d - - c - - b - - a -



H TRENCHING DETAIL

Scale: NTS

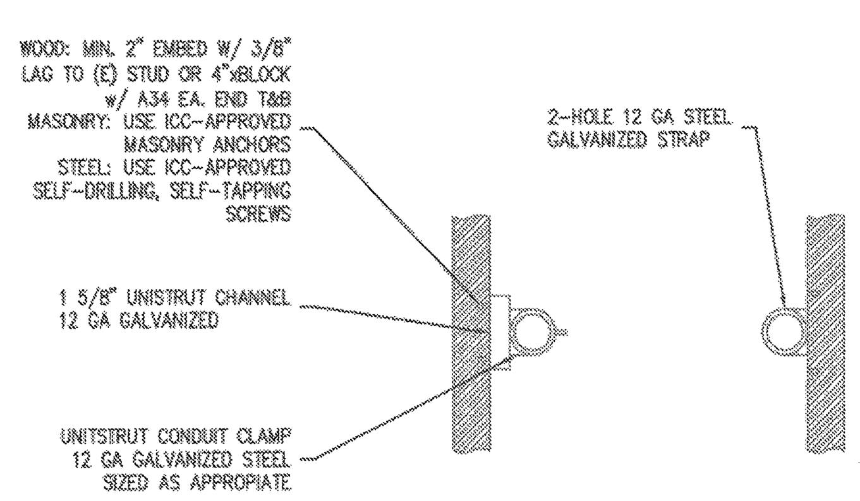


D WIRING BRIDGE

Scale: NTS

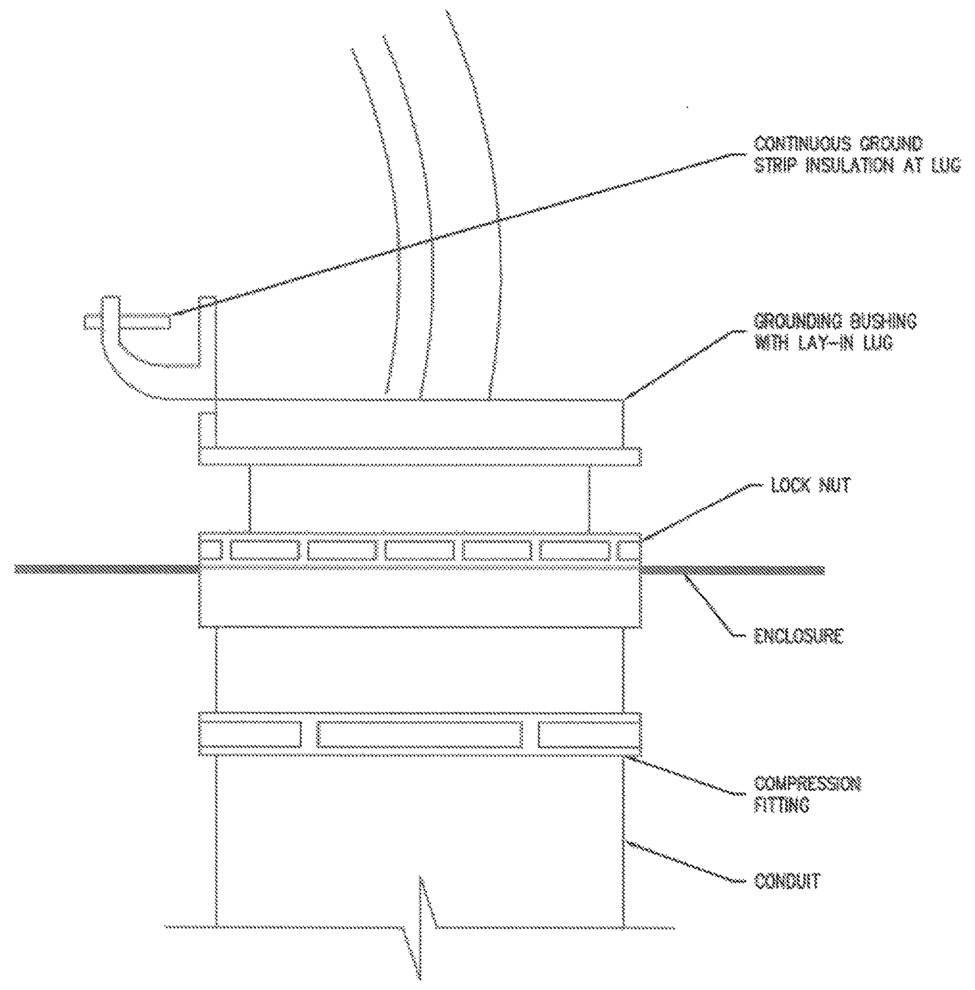
NOTE:

ALL HOLES FOR CONDUIT SHALL BE PROVIDED WITH CONDUIT FITTINGS HAVING AN ENVIRONMENTAL RATING APPROVED TO MAINTAIN NEMA 3R ENCLOSURE RATING (UL508A, TABLE 19.2). IN GENERAL COMPONETS MARKED "WEATHERPROOF" OR "RAINPROOF" SHALL BE INSTALLED ONLY BELOW THE LOWEST UNISULATED LIVE PARTS WITHIN THE ENCLOSURE CONDUIT OPENINGS ABOVE THE LOWEST UNISULATED LIVE PARTS SHALLE BE PROVIDED WITH CONDUIT FITTINGS MARKED "WET LOCATION" OR "RAINTIGHT".



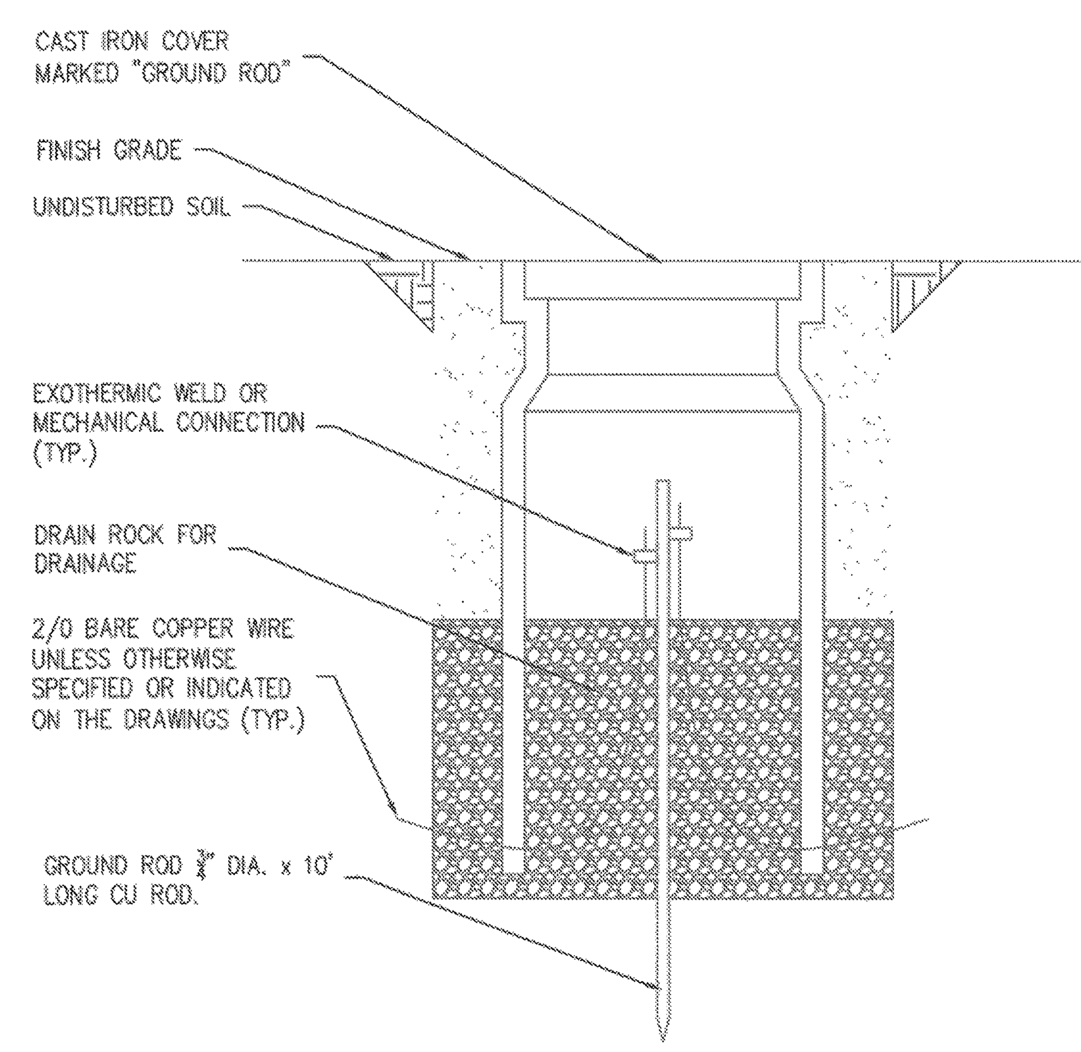
G CONDUIT ATTACHMENT

Scale: NTS



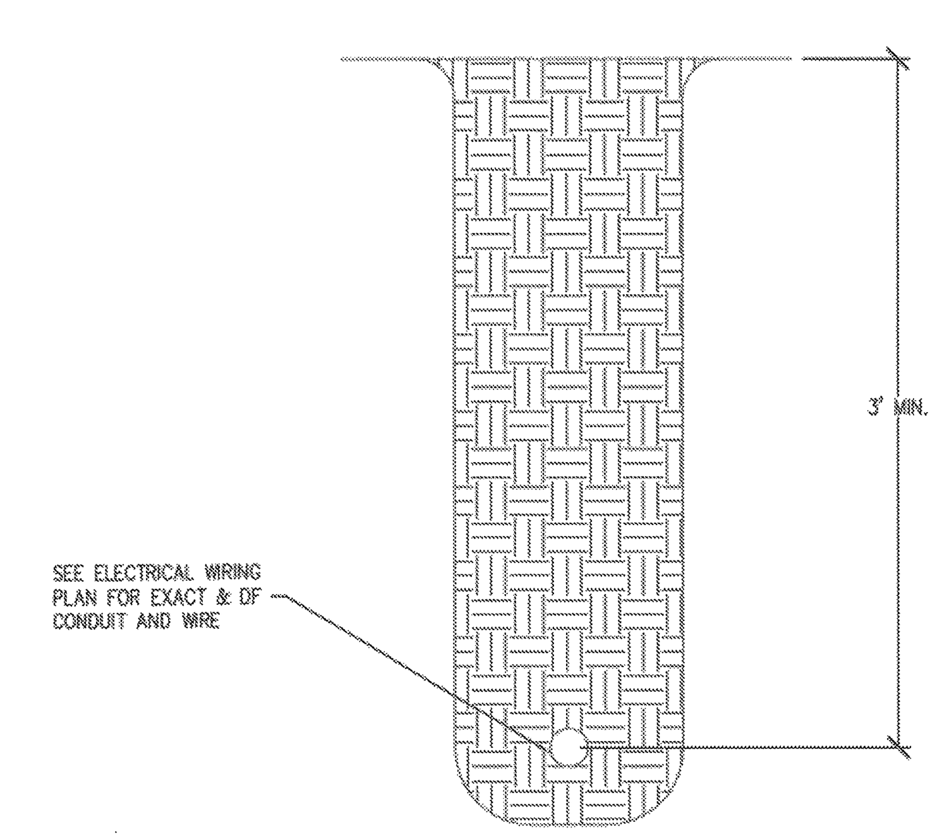
E CONDUIT GROUNDING

Scale: NTS



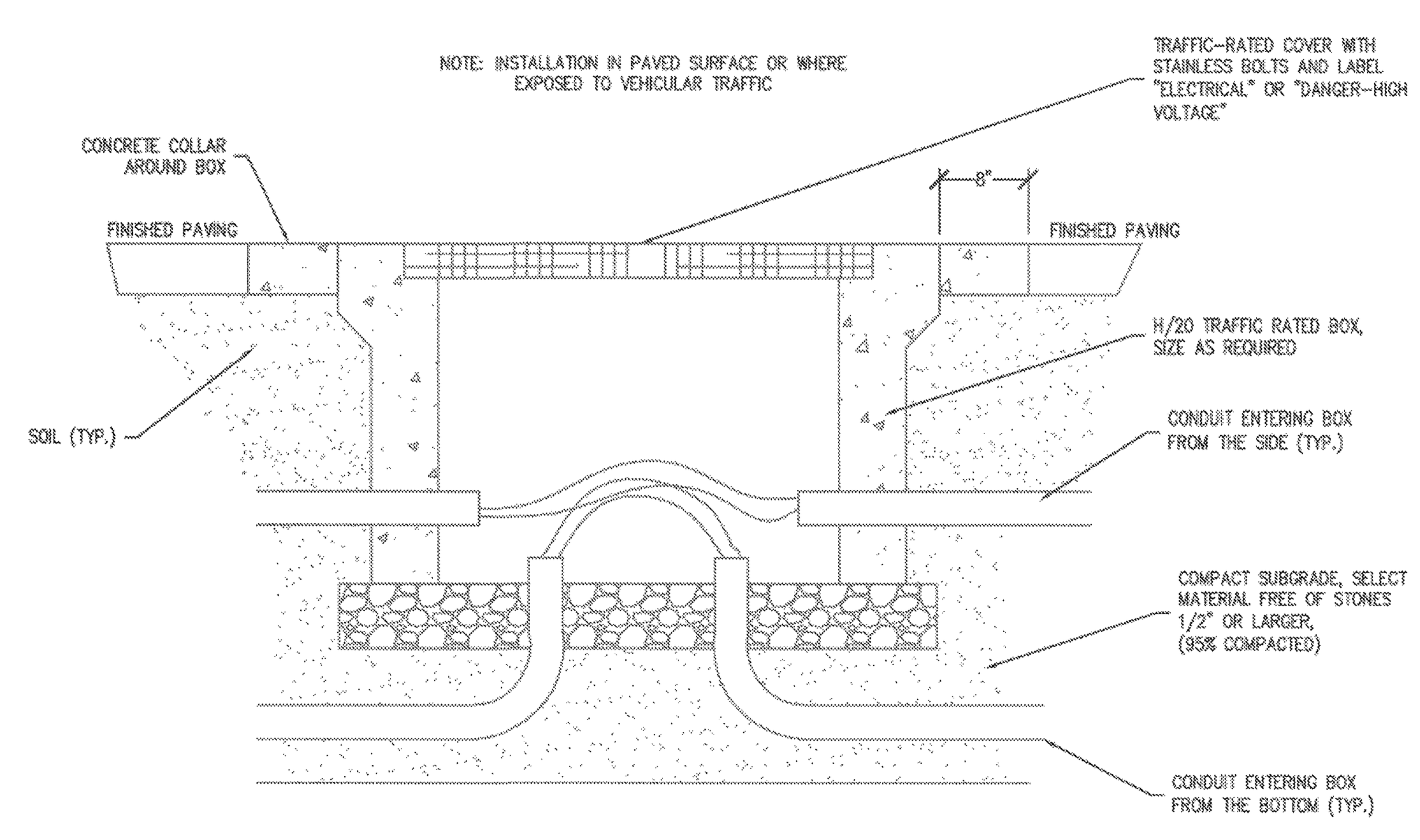
C GROUND ROD DETAIL

Scale: NTS



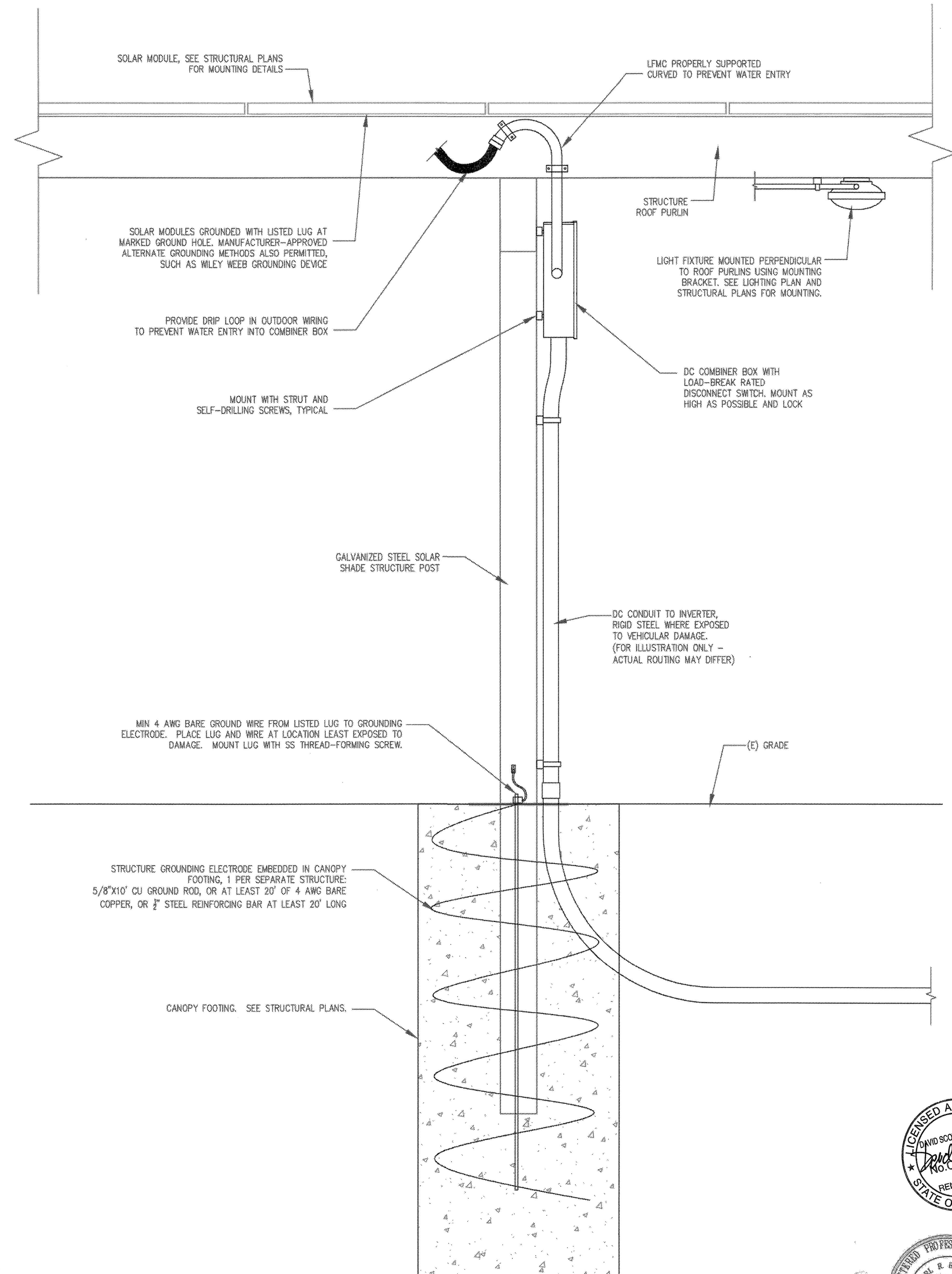
F BORING DETAIL

Scale: NTS



B TRAFFIC RATED PULL BOX

Scale: NTS



A CANOPY GROUNDING / EQUIPMENT MOUNTING

Scale: NTS

LICENSED ARCHITECT
DAVID SCOTT STOKES
No. C 15700
REN 6-30-13
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
CARL R. BURATTI
E-11727
Exp. 6-30-13
ELECTRICAL
STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
03-114418
AC [illegible] FLS [illegible] SS ED
DATE APR 11 2012

SolarCity

3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

DESCRIPTION: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM

CUSTOMER: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

REVISIONS

REV	BY	DATE	COMMENTS
REV A	TPP	03/12/12	PER DSA COMMENTS

JOB DETAILS

AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOV'T DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012 PAYMENT TYPE: CASH
PAGE NAME: ELECTRICAL DETAILS PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00
PAGE: PV 6 REV: A

3"
1.5"

WARNING:
ELECTRIC SHOCK HAZARD
AUTHORIZED PERSONNEL
ONLY NO STUDENT OR
FACULTY ACCESS.

NOTE:

1. TOP OF SIGN TEXT 5" MIN. CLEAR SPACE FROM GATE OR DOOR JAMB (STRIKE SIDE)
2. PROVIDE A BLANK PANEL FOR BACK SIDE
3. CONTRAST BETWEEN CHARACTER, SYMBOLS AND THEIR BACKGROUND SHALL BE 70% MINIMUM AND HAVE A NON-GLARE FINISH.
4. CHARACTERS SHALL HAVE A WIDTH-TO-HEIGHT RATIO OF BETWEEN 3:5 AND 1:1
5. SIGN SHALL BE 0.04" THK (MIN.) ALUMINUM SHEET
6. RAISED UPPERCASE LETTER 1/8" TALL, MIN.

4"
3"

PHOTOVOLTAIC DC DISCONNECT

WARNING! ELECTRIC SHOCK HAZARD!

Voc	V
Vmp	V
Isc	A
Imp	A

#CS - 00200-002

NOTE:

1. PV SYSTEM DC DISCONNECT
2. WHITE BACKGROUND
3. BLACK LETTERING
4. TEXT HEIGHT: 5/16", AND 1/8"
5. MATERIAL NOTE: TEXT PRINTED ON ALUMINUM BACKING WITH UV-RATED PLASTIC LAMINATE COATING AND OUTDOOR RATED ADHESIVE.

11 PV SYSTEM UTILITY DISCONNECT

Scale: NTS

4"
3"

PHOTOVOLTAIC AC DISCONNECT

WARNING! ELECTRIC SHOCK HAZARD!

OPERATING VOLTAGE	V
MAXIMUM OPERATING CURRENT	A

#CS - 000200-000

NOTE:

1. PV SYSTEM UTILITY AC DISCONNECT WARNING LABEL.
2. WHITE BACKGROUND
3. BLACK LETTERING
4. TEXT HEIGHT: 5/16", AND 1/8"
5. MATERIAL NOTE: TEXT PRINTED ON ALUMINUM BACKING WITH UV-RATED PLASTIC LAMINATE COATING AND OUTDOOR RATED ADHESIVE.

10 PV SYSTEM UTILITY AC DISCONNECT

Scale: NTS

6"
4"

PHOTOVOLTAIC POINT OF INTERCONNECTION

WARNING! ELECTRIC SHOCK HAZARD!

DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDE MAY BE ENERGIZED IN THE OPEN POSITION. FOR SERVICE DE-ENERGIZE BOTH SOURCE AND MAIN BREAKER.

PV POWER SOURCE	
MAXIMUM AC CIRCUIT OUTPUT OPERATING CURRENT	A
OPERATING AC VOLTAGE	V

#CS - 000200-008

NOTE:

1. IDENTIFICATION PLACARD PER NEC. 230.2(E)
2. TO BE PLACED ON EXISTING MAIN SWITCHGEAR
3. ALUMINUM BACKGROUND
4. BLACK LETTERING
5. TEXT HEIGHT: 1/2",3/8", AND 1/8"
6. MATERIAL NOTE: TEXT PRINTED ON ALUMINUM BACKING WITH UV-RATED PLASTIC LAMINATE COATING AND OUTDOOR RATED ADHESIVE.

9 POINT OF INTERCONNECTION

Scale: NTS

5"
1"

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

#CS - 000200-032

NOTE:

1. RED BACKGROUND
2. WHITE LETTERING
3. MINIMUM 3/8" LETTER HEIGHT
4. ALL CAPITAL LETTERS
5. ARIAL OR SIMILAR FONT, NON-BOLD
6. REFLECTIVE WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT.
(DURABLE ADHESIVE MATERIALS MAY MEET THIS REQUIREMENT)

8 MARKING FOR MAIN SERVICE DISCONNECT

Scale: NTS

4"
4"

DC DISCONNECT

WARNING - ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
Terminals on both Line and Load sides may be energized in the Open Position.

DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

#CS - 000200-006

NOTE:

1. RED BACKGROUND
2. WHITE LETTERING
3. MINIMUM 1/8" LETTER HEIGHT
4. ALL CAPITAL LETTERS
5. ARIAL OR SIMILAR FONT, NON-BOLD
6. REFLECTIVE WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT.
(DURABLE ADHESIVE MATERIALS MAY MEET THIS REQUIREMENT)

7 DC DISCONNECT

Scale: NTS

WARNING:
ELECTRIC SHOCK HAZARD
IF GROUND FAULT IS
INDICATED NORMALLY
GROUNDED CONDUCTORS
MAY BE UNGROUNDED AND
ENERGIZED.

#CS - 000200-009

NOTE:

1. RED BACKGROUND
2. WHITE LETTERING
3. MINIMUM 1/8" LETTER HEIGHT
4. ALL CAPITAL LETTERS
5. ARIAL OR SIMILAR FONT, NON-BOLD
6. REFLECTIVE WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIORNMENT. (DURABLE ADHESIVE MATERIALS MAY MEET THIS REQUIREMENT)
7. WARNING LABEL SHALL APPEAR ON THE UTILITY-INTERACTIVE INVERTER OR BE APPLIED BY THE INSTALLER NEAR THE GROUND-FAULT INDICATOR AT A VISIBLE LOCATION.

6 INVERTER GROUND-FAULT WARNING

Scale: NTS

7.5"
1"

CAUTION: SOLAR CIRCUIT

#CS - 000200-030

NOTE:

1. RED BACKGROUND
2. WHITE LETTERING
3. MINIMUM 3/8" LETTER HEIGHT
4. ALL CAPITAL LETTERS
5. ARIAL OR SIMILAR FONT, NON-BOLD
6. REFLECTIVE WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT.
(DURABLE ADHESIVE MATERIALS MAY MEET THIS REQUIREMENT)

MARKING FOR DC CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES, AND JUNCTION BOXES

5 SOLAR CIRCUIT

Scale: NTS

PV COMBINER BOX
WARNING
ELECTRIC SHOCK
HAZARD

#CS - 000200-010

NOTE:

1. RED BACKGROUND
2. WHITE LETTERING
3. MINIMUM 1/8" LETTER HEIGHT
4. ALL CAPITAL LETTERS
5. ARIAL OR SIMILAR FONT, NON-BOLD
6. REFLECTIVE WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT.
(DURABLE ADHESIVE MATERIALS MAY MEET THIS REQUIREMENT)

4 COMBINER BOX SIGNAGE

Scale: NTS

3"
1.5"

WARNING:
ELECTRIC SHOCK HAZARD
AUTHORIZED PERSONNEL
ONLY NO STUDENT OR
FACULTY ACCESS.

NOTE:

1. TOP OF SIGN TEXT 5" MIN. CLEAR SPACE FROM GATE OR DOOR JAMB (STRIKE SIDE)
2. PROVIDE A BLANK PANEL FOR BACK SIDE
3. CONTRAST BETWEEN CHARACTER, SYMBOLS AND THEIR BACKGROUND SHALL BE 70% MINIMUM AND HAVE A NON-GLARE FINISH.
4. CHARACTERS SHALL HAVE A WIDTH-TO-HEIGHT RATIO OF BETWEEN 3:5 AND 1:1
5. SIGN SHALL BE 0.04" THK (MIN.) ALUMINUM SHEET
6. RAISED UPPERCASE LETTER 1/8" TALL, MIN.

3 AUTHORIZED PERSONNEL SIGNAGE

Scale: NTS

4"
4"

SOLAR DISCONNECT

WARNING - ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
Terminals on both Line and Load sides may be energized in the Open Position.

#CS - 000200-003

NOTE:

1. RED BACKGROUND
2. WHITE LETTERING
3. MINIMUM 3/8" LETTER HEIGHT
4. ALL CAPITAL LETTERS
5. ARIAL OR SIMILAR FONT, NON-BOLD
6. REFLECTIVE WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT.
(DURABLE ADHESIVE MATERIALS MAY MEET THIS REQUIREMENT)

2 PV SYSTEM MAINTENANCE DISCONNECT

Scale: NTS

1"

INVERTER A

NOTE:

1. INVERTER IDENTIFICATION LABEL
2. BLACK BACKGROUND
3. WHITE LETTERING
4. TEXT HEIGHT: 1/2'
5. MATERIAL NOTE: ENGRAVED ON OUTDOOR-RATED PLASTIC LAMINATE WITH ADHESIVE BACKING SUITABLE ENVIRONMENT.

1 INVERTER LABEL

Scale: NTS

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

03-114118

AC PLS SS EO

DATE APR 11 2012

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

GLENDALE USD - MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM

GLENDALE USD - MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

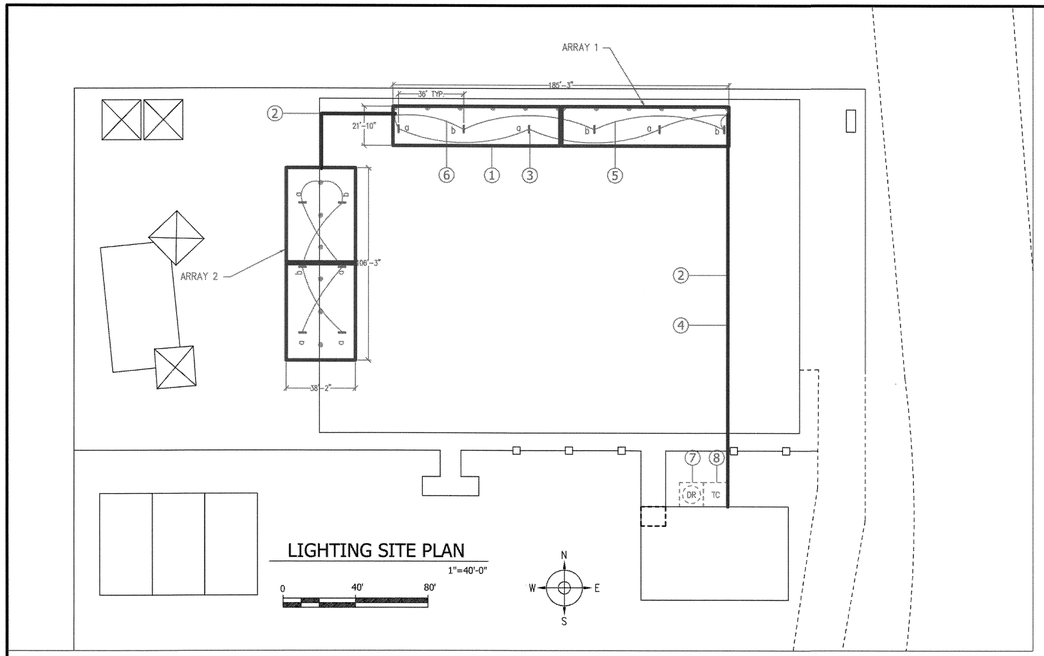
LICENSED ARCHITECT
DAVID SCOTT STOKES
No. C-15700
REN. 8-30-13
STATE OF CALIFORNIA

REVISIONS

REV	BY	DATE	COMMENTS
REV A	TPP	03/12/12	PER CSA COMMENTS

JOB DETAILS

AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
AUTHOR: GOVT DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012 PAYMENT TYPE: CASH
PAGE NAME: SIGNAGE PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00
PAGE: PV 7 REV: A



LIGHTING SITE PLAN

1"=40'-0"

SYMBOL	LABEL	DESCRIPTION	LAMP TYPE	WATTAGE	MANUFACTURER	CATALOG NUMBER	VOLTAGE	QUANTITY
	FCP	SURFACE MOUNTED 4 FOOT (2) LAMP T8 FLUORESCENT LUMINAIRE WITH SPECULAR REFLECTOR AND CLEAR WRAP LENS. POLYCARBONATE CONSTRUCTION WITH STAINLESS STEEL CLIPS AND TAMPER PROOF SCREWS.	TWO (2) 32W 4100K (MIN.) T8 FLUORESCENT LAMPS.	54.4W	BEGHELLI	BS100T84HT232W277VTPSS	120V & 277v	12

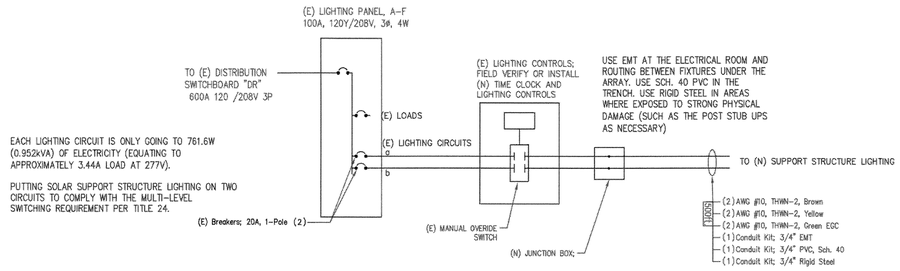
MANDATORY MEASURES - OUTDOOR LIGHTING CONTROLS AND EQUIPMENT

- OUTDOOR LIGHTING: All permanantly installed outdoor luminaires employing lamps rated over 100 watts shall either: have a lamp efficacy of at least 60 lumens per watt; or be controlled by a motion sensor unless exempted from the 8 possible exceptions. See Section 132.

- LUMINAIRE CUTOFF REQUIREMENT: All outdoor luminaires that use lamps rated greater than 175 watts in hardscape areas including parking lots, building entrances, sales and non-sales canopies, and all outdoor sales areas shall be designated Cutoff for light distribution. To comply with this requirement, the luminaire shall be rated Cutoff in a photometric test report that includes any tilt of other non-level mounting condition of the installed luminaire. Cutoff is a luminaire light distribution classification where the candela per 1000 lamp lumens does not numerically exceed 25 at of above a vertical angle of 90 degrees above nadir, and 100 at of above a vertical angle of 80 degrees above nadir. Nadir is in the direction of straight down, as would be indicated by a plumb line. 90 degrees above nadir is horizontal. 80 degrees above nadir is 10 degrees below horizontal unless exempted from the 6 possible exceptions. See Section 132(b).

- CONTROLS FOR OUTDOOR LIGHTING: All permanently installed outdoor lighting shall be controleld by a photocontrol or astronomical time switch that automatically turns off the outdoor lighting when daylight is available unless exempted from the exception. see section 132(c). For lighting of building facades, parking lots, sales and non-sales canopies, all outdoor sales areas, and student pick-up/drop-off zones where two or more luminaires are used, and automatic time switch shall be installed that is capable of (1) turning off the lighting when not needed and (2) reducing the lighting power (in watts) by at leasst 50 percent but not exceeding 80 percent or providing continuous dimming through a range that includes 50 percent through 80 percent reduction unless exempted from the 6 possible exceptions. See Section 132(c)2. This control shall meet the requirements of Section 119(c).

- CONNECT CANOPY LIGHTING CIRCUITS TO EXISTING EMS SYSTEM OR PROVIDE NEW ASTRONOMICAL TIMING CLOCK WITH MANUAL OVERRIDE. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND CONNECTION POINT. THE LIGHTING CONTROL CONFIGURATION SHALL ALLOW TO TURN OFF 50% OF LIGHTING FIXTURES WHEN LIGHTING IS NOT NEEDED (2 CIRCUITS REQUIRED) ALL OTHER EXISTING LIGHTING ON CAMPUS SHALL REMAIN OPERATIONAL.
- VERIFY EXISTING SYSTEM OPERATING VOLTAGE FOR LIGHTING FIXTURE AND CLOCK SELECTION
- PROVIDE J-BOX IN VARIOUS LOCATIONS AS REQUIRED TO DISTRIBUTE POWER TO LIGHTING FIXTURES. ANY LIGHTING BRANCH CIRCUIT SHALL BE MINIMUM (2) #10 AWG AND (1) #10 GROUND, BUT UPSIZED SO THAT MAXIMUM VOLTAGE DROP ACROSS THE CIRCUIT IS 5%. WIRING SHALL BE INSTALLED IN METAL RACEWAYS LISTED FOR WET LOCATION.



A SINGLE LINE DIAGRAM FOR LIGHTING CIRCUITS FROM SWITCHBOARD " DR"

SHEET NOTES

1. (N) SOLAR SUPPORT STRUCTURES
2. (N) SCH. 40 PVC CONDUIT IN TRENCH. DO NOT SHARE THE CONDUIT WITH PV LINES.
3. (N) SOLAR SUPPORT STRUCTURE LIGHTING FIXTURE (FIXTURE TYPE FCP). TYPICAL (32).
4. (E) HOME RUN FEEDER BACK TO LIGHTING PANEL.
5. (N) BRANCH FEEDERS BETWEEN LIGHTING CIRCUITS. CONNECT FIXTURES BACK TO CIRCUITS A AND B RESPECTIVELY. SEE CIRCUIT CALLOUT ON DRAWING FOR DETAILS.
6. LIGHTING FIXTURES TO BE WIRED IN STAGGERED FORMATION TO COMPLY WITH TITLE 24 MULTI-LEVEL SWITCHING.
7. (E) LIGHTING CIRCUIT SUB PANELS
8. (E) LIGHTING CONTROL TIMECLOCKS (VIF)

SITE LEGEND

- DATA
- TELEPHONE
- LIGHTING FIXTURE
- PC — PHOTOCELL
- TC — TIMECLOCK
- MS — MOTION SENSOR
- $ — SWITCH
- CANOPY POST/BEAM LOCATION
- (#) — DISTRIBUTION PANEL (#)

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
03-114418
AC FLS SS ED
DATE APR 11 2012

CERTIFIED PROFESSIONAL ENGINEER — JOSE R. BURAYA — E-17127 — EXP. 6-30-13 — ELECTRICAL — STATE OF CALIFORNIA

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

DESCRIPTION:
GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM

DESIGN:
GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

LICENSED ARCHITECT — DAVID SCOTT STOKES — No.C 15700 — REN 6-30-13 — STATE OF CALIFORNIA

REVISIONS

REV	BY	DATE	COMMENTS
REV A	TPP	03/12/12	PER DSA COMMENTS

JOB DETAILS

AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOVT
DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012
PAYMENT TYPE: CASH
PAGE NAME: LIGHTING DESIGNS
PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00

PAGE: PV 8
REV: A

Certificate of Compliance (Page 1 of 4) OLTG-1C

Project Name: GUSD - MOUNTAIN AVENUE ELEMENTARY SCHOOL | Date: 2/16/2012

Project Address: 2307 Mountain Ave. | Total Hardscape Illuminated Area: 8,032 sq ft

General Information

Phase of Construction: ☐ New Construction ☐ Addition ☒ Alteration

Documentation Author's Declaration Statement

- I certify that this Certificate of Compliance documentation is accurate and complete.

Name: Tsama Pineda | Signature:

Company: SolarCity | Date:

Address: 3055 Clearview Way | If Applicable CEA # CEPE #

City/State/Zip: San Mateo, CA, 94402 | Phone: 650-963-5867

Principal Lighting Designer's Declaration Statement

- I am eligible under Division 3 of the California Business and Professions Code to accept responsibility for the lighting design.
- This Certificate of Compliance identifies the lighting features and performance specifications required for compliance with Title 24, Pages 1 and 6 of the California Code of Regulations.
- The design features represented on this Certificate of Compliance are consistent with the information provided to document this design on the other applicable compliance forms, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Name: Carl Buratti | Signature:

Company: Buratti & Associates, Inc. | Phone: 818-345-7130

Address: 6345 Balboa Blvd, Ste. 259 | License #: E-14727

City/State/Zip: Encino, CA 91316 | Date: 2-16-2012

Principal Lighting Designer's Declaration

☒ I certify that this Certificate of Compliance documentation is accurate and complete, and accounts for all outdoor lighting power, including building mounted, pole mounted, as well as all other outdoor lighting designed for the site, and that Additional Lighting Power Allowances for Specific Applications or Additional Lighting Power Allowances for Ordinance Requirements have not been counted more than one time for the same area, in accordance with Section 147 of the Standards.

Outdoor Lighting Mandatory Measures
Indicate location on building plans of Mandatory Measures Note Block: _____

LIGHTING COMPLIANCE FORMS & WORKSHEETS (check box if worksheet is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, please refer to the Nonresidential Manual published by the California Energy Commission.

☒	OLTG-1C	Certificate of Compliance. All 4 pages required on plans for all submittals.
☒	OLTG-2C	(Page 1 of 3) Lighting Wattage Allowances for General Hardscape, Sales Frontage, or Ornamental Lighting. Optional on plans.
☒	OLTG-2C	(Page 2 of 3) Lighting Wattage Allowances for Per Application or Per Area. Optional on plans.
☐	OLTG-2C	(Page 3 of 3) Additional Lighting Power Allowance for Ordinance Requirements. Optional on plans.

Certificate of Compliance (Page 2 of 4) OLTG-1C

COMPLIANCE FIXTURE / LIGHTING CONTROL SCHEDULE and FIELD INSPECTION CHECKLIST

Project Name: GUSD - MOUNTAIN AVENUE ELEMENTARY SCHOOL | Date: 2/16/2012

INSTALLATION CERTIFICATE, OLTG-1-INST (Retain a copy and verify form is completed and signed.) **Field Inspection** ☐

CERTIFICATE OF ACCEPTANCE, OLTG-2A (Retain a copy and verify form is completed and signed.) **Field Inspection** ☐

Luminaire Schedule / **Installed Watts**

A	B	C	D	E	F		G	H	I
Name Or Item Tag	Luminaire Description [1] See footnote below (i.e.: 1 lamp pole/top shoe-box 400 watt metal halide)	Cutoff Designation	Watts per Luminaire	Special Features	How wattage was determined: Default from N.A.8	How wattage was determined: According to §130 (c) 1 or 2	Number of Luminaires	Installed Watts (D x G)	Field Inspector [2]: Pass / Fail
FA-D	2 32W T8 Wet Listed Fluorescent		62	☐	☐	☒	12	744	☐ ☐
				☐	☐	☐			☐ ☐
				☐	☐	☐			☐ ☐
				☐	☐	☐			☐ ☐
				☐	☐	☐			☐ ☐
				☐	☐	☐			☐ ☐
				☐	☐	☐			☐ ☐

Enter total into OLTG-1C; Page 4 of 4; Row H; Total Installed Watts: 1,984

1. Type of luminaire (i.e.: post top, wall pack, surface, shoe box); for non-incandescent luminaires, indicate nominal lamp wattage and lamp type (i.e.: fluorescent, incandescent, HID); ballast type (i.e.: electronic or magnetic); number of lamps and number of ballasts per luminaire. For incandescent luminaires, the luminaire wattage listed in column D shall be the maximum relamping rated wattage on a permanent factory-installed label on the luminaire, NOT the wattage of the lamp (bulb) used, in accordance with Section 130(d) or e).
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

EXEMPT LUMINAIRES **Field Inspection** ☐

Name or Symbol	Description of exempt luminaires in accordance with §147

MANDATORY CONTROLS **Field Inspection** ☐

#	Description	Location	#	Description	Location
1	Astronomical Timeclock	Subpanel 'DR' in adjacent building			

SPECIAL FEATURES INSPECTION CHECKLIST (See Page 2 of 4 of OLTG-1C)

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification. The local enforcement agency determines the adequacy of the justification, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

Field Inspector Notes or Discrepancies:

Certificate of Compliance (Page 3 of 4) OLTG-1C

Project Name: GUSD - MOUNTAIN AVENUE ELEMENTARY SCHOOL | Date: 2/16/2012

A. OUTDOOR LIGHTING ZONE

OUTDOOR LIGHTING ZONE: ☐ OLZ 1 ☐ OLZ 2 ☒ OLZ 3 ☐ OLZ 4

Is the Outdoor Lighting Zone: ☒ Default in accordance with §10-114, or ☐ Amended by JHA

Complete the information below if the default Outdoor Lighting Zone has been amended by the local jurisdiction having authority (JHA):

☐ The site is a government designated park, recreation area, wildlife preserve, or portion thereof, and has been designated as LZ2 or LZ3, in accordance with Table 10-114-A, because the site is contained within such a zone.
☐ The local jurisdiction having authority has officially adopted a change to the State Default Lighting Zone and has notified the Energy Commission by providing the materials required in §10-114(d) to the Executive Director.
☐ The adopted change is posted on the Energy Commission website.

B. ADDITIONAL LIGHTING POWER ALLOWANCE FOR ORDINANCE REQUIREMENTS

Are additional lighting power allowances for ordinance in Table 147-C used? ☐ Yes ☒ No

Complete the information below if additional lighting power allowances for ordinance requirements are used:

☐ The local jurisdiction having authority has officially adopted specific outdoor light levels, which are expressed as average or minimum footcandle levels, by following a public process that allowed for formal public notification, review, and comment about the proposed change.
☐ The local jurisdiction having authority which adopted specific outdoor light levels and has notified the Commission by providing the following materials required §10-114(f) to the Executive Director.

C. ACCEPTANCE FORMS

Required Acceptance Tests

Designer:

*This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for the Lighting system, **OLTG-2A**. The designer is required to check the acceptance tests and list all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance. If all the lighting system or control of a certain type requires a test, list the different lighting and the number of systems. The NA7 Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. Since this form will be part of the plans, completion of this section will allow the responsible party to budget for the scope of work appropriately. **Forms can be grouped by type of Luminaire controlled.***

Enforcement Agency:

***Systems Acceptance.** Before Occupancy Permit is granted for a newly constructed building or space or when ever new lighting system with controls is installed in the building or space shall be certified as meeting the Acceptance Requirements.*
*The **OLTG-2A** form is not considered a complete form and is not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance forms shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the **OLTG-2A** for each different lighting luminaire control(s) must be provided to the owner of the building for their records.*

Certificate of Acceptance

Luminaires Controlled				OLTG-2A [1]
Equipment Requiring Testing	Description	Number of Like Controls	Location	Outdoor Lighting Acceptance Tests
Time Clock	Astronomical Time Clock	1	Subpanel 'DR' in adjacent building	

*1. Insert: **OMS** for Outdoor Motion Sensor; **OLSC** for Outdoor Lighting Shutoff Controls; **OP** for Outdoor Photocontrol; **ATS** for Astronomical Time Switch; and, **STS** for Standard (non-astronomical) Time Switch acceptance.*

CERTIFICATE OF COMPLIANCE (Page 4 of 4) OLTG-1C

Project Name: GUSD - MOUNTAIN AVENUE ELEMENTARY SCHOOL | Date: 2/16/2012

ALLOWED AND INSTALLED OUTDOOR LIGHTING POWER

		Lighting Wattage Power Allowance
A	Lighting power allowance for general hardscape (from OLTG-2C Page 1 of 3)	
B	Specific application lighting wattage allowance per unit length (from OLTG-2C Page 1 of 3)	
C	Specific application wattage allowance for ornamental lighting (from OLTG-2C Page 1 of 3)	
D	Specific application wattage allowance per application (from OLTG-2C Page 2 of 3)	
E	Specific application lighting wattage allowance per area (from OLTG-2C Page 2 of 3)	744
F	Additional lighting power allowance for ordinance requirements (from OLTG-2C Page 3 of 3)	
G	Total Allowed Wattage = Sum of rows A through F:	744
H	Total Installed Watts (from Luminaire Schedule, (from OLTG-1C (Page 2 of 4)	744

Provided that the lighting wattage power allowances listed in rows A through F are identical to the lighting wattage power allowances taken from OLTG-2C Pages 1 through 3, complies if Installed Wattage in row H is less than or equal to the Total Installed Wattage in row G ☒ Yes ☐ No

NOTES:

OUTDOOR LIGHTING WORKSHEET (Page 1 of 3) OLTG-2C

Project Name: GUSD - Mountain Avenue Elementary School | Date: 2/16/2012

A. LIGHTING POWER ALLOWANCE FOR GENERAL HARDSCAPE

AREA WATTAGE ALLOWANCE (AWA)			LINEAR WATTAGE ALLOWANCE (LWA)			INITIAL WATTAGE ALLOWANCE	TOTAL GENERAL HARDSCAPE LIGHTING ALLOWANCE
A	B	C	D	E	F	G	H
ILLUMINATED HARDSCAPE AREA	AWA PER SQUARE FOOT	AWA (A X B)	PERIMETER LENGTH OF GENERAL HARDSCAPE	LWA PER LINEAR FOOT	LWA (D X E)	IWA (WATTS)	C + F + G
N/A							

Enter total into OLTG-1C; Page 4 of 4; Row A; Lighting Power Allowance for General Hardscape: 0

☒ **Yes**: AWA, LWA, and IWA from Table 147-A was used as appropriate for the Outdoor Lighting Zone

B. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER UNIT LENGTH (Available only for sales frontage)

DETERMINE WATTAGE ALLOWANCE				LUMINAIRE TYPE		DESIGN WATTS			
A	B	C	D	E	F	G	H	I	J
Specific Lighting Application	Linear Feet of Frontage	Sales Frontage allowance for OLZ (watts per lf)	Wattage Allowance (B x C)	Name or Symbol	Luminaire Type	Luminaire Quantity	Watts per Luminaire	Design Watts (G x H)	Allowed Watts Minimum of D or I
N/A									

Enter total into OLTG-1C; Page 4 of 4; Row B; Specific Application Lighting Wattage Allowance Per Unit Length: 0

C. SPECIFIC APPLICATION WATTAGE ALLOWANCE FOR ORNAMENTAL LIGHTING

DETERMINE WATTAGE ALLOWANCE				LUMINAIRE TYPE		DESIGN WATTS			
A	B	C	D	E	F	G	H	I	J
Specific Lighting Application	Square feet of Hardscape	Ornamental Lighting Allowance for OLZ (watts per ft^2)	Wattage Allowance (B x C)	Name or Symbol	Luminaire Type	Luminaire Quantity	Watts per Luminaire	Design Watts (G x H)	Allowed Watts Minimum of D or I
N/A									

Enter total into OLTG-1C; Page 4 of 4; Row C; Specific Application Wattage Allowance for Ornamental Lighting: 0

OUTDOOR LIGHTING WORKSHEET (Page 2 of 3) OLTG-2C

Project Name: | Date:

D. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER APPLICATION

DETERMINE WATTAGE ALLOWANCE						DESIGN WATTS			ALLOWANCE
A	B	C	D	E	F	G	H	I	J
Specific Lighting Application	Number of Applications	Specific Application Allowance (watts)	Wattage Allowance (B x C)	Luminaire Symbol	Luminaire Type	Luminaire Quantity	Watts per Luminaire	Design Watts (G x H)	Allowed Watts Minimum of D or I
N/A									

Enter total into OLTG-1C; Page 4 of 4; Row D; Specific Application Wattage Allowance Per Application: 0

E. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER AREA

DETERMINE WATTAGE ALLOWANCE				LUMINAIRE TYPE		DESIGN WATTS			
A	B	C	D	E	F	G	H	I	J
Specific Lighting Application	Illuminated Area of Application	Specific Application Allowance (watts per ft^2)	Wattage Allowance (B x C)	Code for Luminaire Type	Luminaire Type	Luminaire Quantity	Watts per Luminaire	Design Watts (G x H)	Allowed Watts Minimum of D or I
Non-Sales Canopy	8,032	0.408	3277	FA-D	2-32WT8-Fluorescent	12	62	744	744

Enter total into OLTG-1C; Page 4 of 4; Row E; Specific Application Lighting Wattage Allowance Per Area: 744

SolarCity
3055 Clearview Way, San Mateo, CA 94402
T:(650) 638-1028 | F:(650) 638-1029
(888)-SOL-CITY (765-2489) | www.solarcity.com

DESCR: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
ROOF MOUNT PV SYSTEM
DESCR: GLENDALE USD – MOUNTAIN AVENUE ELEMENTARY
2307 MOUNTAIN AVE
LA CRESCENTA, CA 91214
8182413111

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP03 1 1 4 4 1 8
AC FLS SS
DATE APR 1 1 2012

REVISIONS

REV	BY	DATE	COMMENTS
REV A	BY	1/1/1	1

JOB DETAILS

AHJ: Los Angeles County (LA)
MODULES: (448) YINGLI # YL240P-29b
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES
INVERTER: (1) XANTREX # GT100-208
MARKET: GOV'T | DESIGN: T.PINEDA
CHECKED BY: ES
DATE: 2/10/2012 | PAYMENT TYPE: CASH
PAGE NAME: TITLE 24 DOCS | PROJECT MANAGER: D NAVARRO
JOB NUMBER: JB-912048-00
PAGE: PV 9 | REV:

LICENSED ARCHITECT — DAVID SCOTT STOKES — No. C-15700 — REN. 6-30-13 — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — CARL R. BURATTI — E-14727 — exp. 6-30-13 — ELECTRICAL — STATE OF CALIFORNIA

PATENTS PENDING

ABBREVIATIONS

NOTE: ABBREVIATIONS MAY OR MAY NOT HAVE PERIODS, BUT SHALL BE READ AS SAME.

A.B. — ANCHOR BOLT
A.B.C. — AGGREGATE BASE COURSE
ACI — AMERICAN CONCRETE INSTITUTE
A/C — AIR CONDITIONER
A.F.F. — ABOVE FINISHED FLOOR
AISC — AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI — AMERICAN IRON AND STEEL INSTITUTE
AITC — AMERICAN INSTITUTE OF TIMBER CONSTRUCTION
ALT. — ALTERNATE
ANSI — AMERICAN NATIONAL STANDARDS INSTITUTE
APA — AMERICAN PLYWOOD ASSOCIATION
ARCH'L — ARCHITECTURAL
ASTM — AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS — AMERICAN WELDING SOCIETY
A.W.T.S. — AUTOMATIC WELDED THREADED STUDS
BM — BEAM
B.F.F — BELOW FINISHED FLOOR
BLK — BLOCK
B.O.B. — BOTTOM OF BEAM
B.O.D. — BOTTOM OF DECK
B.O.F. — BOTTOM OF FOOTING
BRG — BEARING
C — CAMBER
C.C. — CENTERLINE TO CENTERLINE
C & C — COMPONENTS & CLADDING
CBC — CALIFORNIA BUILDING CODE
CFS — COLD FORMED STEEL
C.G. — CENTER OF GRAVITY
C.I.P. — CAST IN PLACE
C.L. — CENTERLINE
C.L.B. — CENTERLINE OF BEAM
C.L.C. — CENTERLINE OF COLUMN
C.L.F. — CENTERLINE OF FOOTING
C.L.W. — CENTERLINE OF WALL
CLR — CLEAR
CONC — CONCRETE
CONC C.J. — CONCRETE CONTROL JOINT
CONC S.J. — CONCRETE SAWCUT JOINT
C.M.U. — CONCRETE MASONRY UNIT
CONN — CONNECTION
CONT — CONTINUOUS
CRSI — CONCRETE REINFORCING STEEL INSTITUTE
D.F. (D.F.L.) — DOUGLAS FIR LARCH
DL — DEAD LOAD
DIA — DIAMETER
DN — DOWN
DSA — DIVISION OF STATE ARCHITECT
DWG(S) — DRAWING(S)
E.C. — END TO CENTERLINE
E.E. — END TO END
E.O.S. — EDGE OF SLAB
EQ — EQUAL
EQUIP — EQUIPMENT
EXP. BOLT (E.B.) — EXPANSION BOLT
EXP. JT (E.J.) — EXPANSION JOINT
E.W. — EACH WAY
F.F. — FINISHED FLOOR
F.O.M. — FACE OF MEMBER
F.O.S. — FACE OF STEEL
F.O.W. — FACE OF WALL
GA — GAGE (UNIT OF MEASUREMENT)
GALV — GALVANIZED
G.S.N. — GENERAL STRUCTURAL NOTES
GLB (GLULAM) — GLUED-LAMINATED BEAM
H.F. — HEM FIR
HORIZ — HORIZONTAL REINFORCING
H.S. — HEADED STUDS
IBC — INTERNATIONAL BUILDING CODE
ICBO — INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
ICC — INTERNATIONAL CODE COUNCIL
I.F.W. — INSIDE FACE OF WALL
I.O.D. — INTERPRETATION OF DRAWINGS

JST — JOIST
K(KIP) — 1000 POUNDS
KLF — KIPS PER LINEAR FOOT
LBS (#) — POUNDS
LGR — LEDGER
LGS — LIGHT GAGE STEEL
LGSEA — LIGHT GAGE STEEL ENGINEERS ASSOCIATION
L.O.D. — LOCATION OF DETAILS
LL — LIVE LOAD
LLH — LONG LEG HORIZONTAL
LLV — LONG LEG VERTICAL
MAS — MASONRY
MAS C.J. — MASONRY CONTROL JOINT
MAX — MAXIMUM
MBMA — METAL BUILDING MANUFACTURERS ASSOCIATION
MECH'L — MECHANICAL
MFR'D — MANUFACTURED
MFR('S) — MANUFACTURER('S)
MIN — MINIMUM
MWFRS — MAIN WIND FORCE RESISTANCE SYSTEM
N/A — NOT APPLICABLE
N.T.S. — NOT TO SCALE
O.C. — ON CENTER
O.F.W. — OUTSIDE FACE OF WALL
OPP — OPPOSITE
OSHA — OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PCI — PRECAST/PRESTRESSED CONCRETE INSTITUTE
P.C. — PRECAST CONCRETE
PCF — POUNDS PER CUBIC FOOT
PLF — POUNDS PER LINEAR FOOT
± — PLUS OR MINUS
PREFAB — PREFABRICATED
PSF — POUNDS PER SQUARE FOOT
PSI — POUNDS PER SQUARE INCH
PT — POST-TENSIONED
PTI — POST-TENSIONING INSTITUTE
REINF — REINFORCING
SDI — STEEL DECK INSTITUTE
SLH — SHORT LEG HORIZONTAL
SLV — SHORT LEG VERTICAL
SJI — STEEL JOIST INSTITUTE
SIM — SIMILAR
SQ. — SQUARE
SSMA — STEEL STUD MANUFACTURERS ASSOCIATION
STD — STANDARD
STL — STEEL
TL — TOTAL LOAD
T.O.B. — TOP OF BEAM
T.O.C.T. — TOP OF CONCRETE TOPPING
T.O.D. — TOP OF DECK
T.O.F. — TOP OF FOOTING
T.O.L. — TOP OF LEDGER
T.O.M. — TOP OF MASONRY
T.O.P. — TOP OF PLATE
T.O.P.C. — TOP OF PRECAST CONCRETE
T.O.S. — TOP OF STEEL
T.O.W. — TOP OF WALL
TPI — TRUSS PLATE INSTITUTE
TYP — TYPICAL
T&G — TONGUE AND GROOVE
UBC — UNIFORM BUILDING CODE
U.N.O. — UNLESS NOTED OTHERWISE
VERT — VERTICAL REINFORCING
WCLA — WEST COAST LUMBER ASSOCIATION
WCLIB — WEST COAST LUMBER INSPECTION BUREAU
W.W.F. — WELDED WIRE FABRIC
WWPA — WESTERN WOOD PRODUCTS ASSOCIATION
W/ — WITH
W/C — WATER TO CEMENT RATIO
W/O — WITHOUT

GENERAL STRUCTURAL NOTES

Applies unless noted otherwise on drawings

BUILDING CODE:

2010 EDITION OF THE CALIFORNIA BUILDING CODE.

OCCUPANCY GROUP PER SITE-SPECIFIC DOCUMENTS. ALLOWABLE AREA AND MINIMUM SEPARATION BETWEEN STRUCTURES TO BE DETERMINED AT EACH SPECIFIC LOCATION PER CBC WHICH IS TO BE CHECKED AT BACKCHECK.

II-B CONSTRUCTION

LOADS:

ROOFS:
ROOF DEAD LOAD = ACTUAL WEIGHT OF MEMBER:
SOLAR PANEL = 3 PSF (MAX)
PURLIN = 4 PLF
FOR 10 DEGREE ROOF SLOPE:
C&C WIND LOAD = 18.9 PSF (TOWARD THE SURFACE).
C&C WIND LOAD = 20.8 PSF (AWAY FROM THE SURFACE).
MWFRS WIND LOAD = 18.9 PSF / 4.4 PSF (TOWARD THE SURFACE).
MWFRS WIND LOAD = 17.8 PSF / 0.0 PSF (AWAY FROM THE SURFACE).
ROOF LIVE LOAD = 10 PSF. DESIGN FOR 300 POUND POINT LOAD LOCATED TO CAUSE MAXIMUM MOMENTS AND SHEAR. USE THE 300 POUND LOAD WITH WIND, BUT NOT WITH 10 PSF ROOF LIVE LOAD.
NO STEEL DECK IS TO BE PLACED ON THE STRUCTURE – NOW OR IN THE FUTURE.

LATERAL:
OCCUPANCY CATEGORY II
WIND:
3 SECOND WIND GUST = 85 MPH.
WIND IMPORTANCE FACTOR = 1.0.
EXPOSURE C.
THIS DESIGN CAN BE USED FOR ANY ROOF SLOPE FROM 0 DEGREES TO 10 DEGREES.

SEISMIC:
SEISMIC IMPORTANCE FACTOR = 1.0.
SHORT PERIOD SPECTRAL ACCELERATION Ss = 2.85.
ONE SECOND SPECTRAL ACCELERATION S1 = 1.15.
REDUNDANCY FACTOR p = 1.3.
Sds = 1.005 (MAX.).
Sd1 = 1.16 (MAX.).
SEISMIC DESIGN CATEGORY D.
BASIC SEISMIC-FORCE RESISTING SYSTEM = CANTILEVERED COLUMN SYSTEMS DETAILED TO CONFORM TO THE REQUIREMENTS FOR ORDINARY STEEL MOMENT FRAMES.
RESPONSE MODIFICATION FACTOR (R)= 1.25.
ANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE PROCEDURE.
Cs = 1.52.
DESIGN BASE SHEAR (6 PANEL) = 5250 LBS.
DESIGN BASE SHEAR (7 PANEL) = 6270 LBS.

FOUNDATIONS:

ALL FOOTINGS SHALL BE DESIGNED FOR THE SPECIFIC SITE. DRILLED PIER FOOTING DESIGNS ARE BASED ON THE ALLOWABLE LATERAL BEARING PRESSURES SHOWN IN DETAIL 2. THE ALLOWABLE LATERAL BEARING PRESSURE MAY BE MULTIPLIED BY 2.0 PER CBC SECTION 1806A.3.4. THE DRILLED PIER FOOTINGS ARE DESIGNED AS CONSTRAINED (SECTION 1807A.3.2.2, EQUATION 18A-2) WHERE PLACED IN A CONCRETE PAVEMENT AREA AND AS UNCONSTRAINED (SECTION 1807A.3.2.2, EQUATION 18A-1 OR CZERNIAK, WHICHEVER IS DEEPER) WHERE PLACED IN ASPHALT PAVEMENT AREAS OR DIRT AREAS.

SPREAD FOOTING DESIGNS ARE BASED ON CBC SECTION 1806A, CLASS 5 SOILS. SPREAD FOOTINGS SHALL BEAR ON FIRM, UNDISTURBED SOIL 2 FEET MINIMUM BELOW ADJACENT EXISTING GRADE. DESIGN SOIL BEARING VALUE = 1500 PSF. SOILS ENGINEER MUST VERIFY THAT 1500 PSF SOILS (MINIMUM) ARE PRESENT AT SITE.

CONCRETE:

SPECIFIED 28 DAY COMPRESSIVE STRENGTH F'c:

FOUNDATIONS -- 3,000 PSI

GENERAL:

ALL CAST-IN-PLACE CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ACI. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED UNLESS NOTED OTHERWISE. ADMIXTURES CONTAINING CHLORIDES SHALL NOT BE USED. NO OTHER ADMIXTURES PERMITTED WITHOUT APPROVAL. FOR CONCRETE WITHOUT PLASTICIZER, MAXIMUM SLUMP 4 1/2" AT POINT OF PLACEMENT U.N.O. IF PLASTICIZER IS USED, A HIGHER FINAL SLUMP MAY BE ALLOWED UPON STRUCTURAL ENGINEER'S APPROVAL.

FOR REINFORCING INFORMATION, SEE REINFORCING SECTION OF G.S.N., PLANS, SCHEDULES AND DETAILS.

FLY ASH – SHALL BE LIMITED TO 50% OF TOTAL CEMENTITIOUS MATERIALS BY WEIGHT.

TEST DATA FOR EACH CONCRETE MIX SHALL BE SUBMITTED FOR REVIEW PER CHAPTER 5 OF ACI 318. REFERENCE FIGURE R5.3 FOR SUBMITTAL REQUIREMENTS AND OPTIONS. CONCRETE MIX DESIGNS THAT ARE SUBMITTED WITHOUT THE APPROPRIATE TEST DATA CANNOT BE REVIEWED.

IT IS ACCEPTABLE AND INTENDED TO USE EARTH CUTS FOR THE DRILLED PIER FOOTING AND SPREAD FOOTING. THE FOOTING DESIGNS INDICATED ON THIS SHEET DO NOT APPLY IF THE EARTH CUTS ARE UNSTABLE AND/OR DO NOT STAND ON THEIR OWN.

THE FOOTINGS INDICATED ON THIS SHEET DO NOT APPLY WHERE ORGANIC FILL MATERIALS EXIST.

CONCRETE SHALL BE ADEQUATELY VIBRATED AROUND THE EMBEDDED STEEL COLUMNS TO ENSURE THE CONCRETE HAS COMPLETELY SURROUNDED THE STEEL COLUMN AND TO ENSURE THE CONCRETE AT THE INSIDE OF THE STEEL COLUMN HAS RISEN TO THE LEVEL OF THE CONCRETE IN THE REMAINDER OF THE DRILLED PIER OR SPREAD FOOTING. CONCRETE SHALL SLOPE UP SLIGHTLY TOWARDS COLUMNS TO PREVENT WATER FROM PONDING AROUND COLUMNS.

IT IS ACCEPTABLE FOR CONCRETE TO FREE FALL INTO FOOTINGS.

REINFORCING:

ALL REINFORCING PER CRSI SPECIFICATIONS AND HANDBOOK. ASTM A615 (Fy = 60 KSI / GRADE 60) DEFORMED BARS FOR ALL BARS. WHERE SHOWN ON DRAWINGS ALL GRADE 60 REINFORCING TO BE WELDED SHALL BE ASTM A706. NO TACK WELDING OF REINFORCING BARS ALLOWED WITHOUT PRIOR REVIEW OF PROCEDURE WITH THE STRUCTURAL ENGINEER. LATEST ACI CODE AND DETAILING MANUAL APPLY. CLEAR CONCRETE COVERAGES AS FOLLOWS:

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ---------------------- 3"
EXPOSED TO EARTH OR WEATHER
#6 OR LARGER -- 2"
#5 AND SMALLER -- 1 1/2"
ALL OTHER PER LATEST EDITION OF ACI 318

ALL REINFORCING SHALL BE CHAIRED TO ENSURE PROPER CLEARANCES. SUPPORT OF FOUNDATION REINFORCING MUST PROVIDE ISOLATION FROM MOISTURE/CORROSION BY USE OF A PLASTIC OR CONCRETE CHAIR. DUCT-TAPE COVERED REINFORCING IS NOT AN ACCEPTABLE CHAIR.

ALL DIMENSIONS REFERENCED IN DRAWINGS AS "CLEAR" SHALL BE FROM FACE OF STRUCTURE TO EDGE OF REINFORCING, AND SHALL NOT BE LESS THAN STATED, NOR GREATER THAN "CLEAR" DIMENSION PLUS 3/8". ALL OTHERS SHALL BE PLUS OR MINUS 1/4" TYPICAL UNLESS NOTED OTHERWISE.

FIELD BENDING OR STRAIGHTENING OF DEFORMED BARS SHALL BE LIMITED TO #5 BARS AND SMALLER AND SHALL BE FIELD BENT OR STRAIGHTENED ONLY ONCE. ANY BEND SHALL BE LIMITED TO 90 DEGREES. IF FIELD BENDING OR STRAIGHTENING OF #6 BARS OR LARGER IS REQUIRED, OR IF A SECOND BEND IS REQUIRED FOR #5 BARS AND SMALLER, HEAT SHALL BE APPLIED FOR BENDING OR STRAIGHTENING. CONTRACTOR SHALL SUBMIT PROCEDURE FOR APPLYING HEAT TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO BENDING OR STRAIGHTENING BARS.

STRUCTURAL STEEL:

GENERAL:

ALL CONSTRUCTION PER LATEST AISC STEEL CONSTRUCTION

ALL CONSTRUCTION PER LATEST AISC STEEL CONSTRUCTION MANUAL. ALL WIDE FLANGE STEEL SHALL BE ASTM A992 (Fy = 50 KSI). ALL PIPE STEEL SHALL BE ASTM A500 (Fy = 42 KSI) OR ASTM A53, TYPE E OR S, GRADE B (Fy = 35 KSI). ALL MISCELLANEOUS STEEL UNLESS NOTED OTHERWISE SHALL BE ASTM A36 (Fy = 36 KSI). IF CALLED OUT ON PLANS, Fy = 50 KSI PLATE STEEL SHALL BE ASTM A529 OR A572.

ALL STRUCTURAL ROLLED STEEL MEMBERS WITH Fy GREATER THAN 36 KSI ARE TO BE IDENTIFIED WITH AN ASTM SPECIFICATION MARK OR TAG PER IBC SEC. 2203.1.

HOLLOW STRUCTURAL SHAPE (HSS):

HSS COLUMNS ARE CALLED OUT ON THE DRAWINGS AS EITHER ASTM A500 (Fy = 46 KSI) OR ASTM A572 (Fy = 65 KSI).

ASTM A500 (Fy = 46 KSI) HSS SECTIONS ARE TO BE PRODUCED PER THE SPECIFICATIONS SET FORTH IN AISC.

ASTM A572 (Fy = 65 KSI) HSS SECTIONS ARE TO BE PRODUCED BY DIRECT-FORMING OR FOLDING OF THE PLATE FOLLOWED BY AN ELECTRIC RESISTANCE WELD ALONG THE SEAM. INLINE INSPECTION OF THE WELD ZONE DURING PRODUCTION BY NON-DESTRUCTIVE TESTING (NDT) (ULTRASONIC INSPECTION) IS REQUIRED.

THE TERMS PIPE AND ROUND HOLLOW STRUCTURAL SHAPE (HSS) ARE USED SYNONYMOUSLY THROUGHOUT THESE DOCUMENTS ALONG WITH THE TERMS TUBE STEEL AND RECTANGULAR OR SQUARE HSS.

BOLTS:

ALL BOLTS SHALL BE ASTM A325 AND SHALL BE INSTALLED AS SLIP CRITICAL CONNECTIONS WITH THREADS INCLUDED IN SHEAR PLANE. TIGHTEN BOLTS PER AISC SPECIFICATIONS. IT IS ACCEPTABLE TO USE OVERSIZE HOLES OR SLOTTED HOLES PER AISC SPECIFICATIONS.

PATENTS PENDING

WELDING:

UNLESS NOTED OTHERWISE, ALL WELDS PER LATEST EDITION OF THE AWS STANDARDS. ALL WELDING SHALL BE PERFORMED BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN THE TYPE OF WELD SHOWN ON THE DRAWINGS OR NOTES. CERTIFICATES SHALL BE THOSE ISSUED BY AN ACCEPTED TESTING AGENCY. ALL WELDING DONE BY E70 SERIES LOW HYDROGEN RODS UNLESS NOTED OTHERWISE. FOR GRADE 60 REINFORCING BARS, USE E90 SERIES. THESE DRAWINGS DO NOT DISTINGUISH BETWEEN SHOP AND FIELD WELDS; THE CONTRACTOR MAY SHOP WELD OR FIELD WELD AT THEIR DISCRETION. SHOP WELDS AND FIELD WELDS SHALL BE SHOWN ON THE SHOP DRAWINGS SUBMITTED FOR REVIEW.

ALL FULL (COMPLETE) PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY.

ALL SPOT WELDS SHALL BE PER LATEST AISI AND AWS STANDARDS.

STEEL CONNECTORS:

SCREW FASTENERS:

ALL STEEL SCREWS SHALL BE IN ACCORDANCE WITH AISI-GENERAL AND AISI-NAS.
Fy = 50 ksi AND Ft = 70 ksi FOR ALL SCREWS.

1. MINIMUM SPACING OF SCREWS SHALL NOT BE LESS THAN 3 TIMES THE NOMINAL DIAMETER. MINIMUM EDGE DISTANCE FOR SCREWS SHALL NOT BE LESS THAN 1.5 TIMES THE NOMINAL SCREW DIAMETER.
2. THE HEAD OF THE SCREW OR WASHER SHALL HAVE A DIAMETER, DW, OF NOT LESS THAN 5/16". WASHERS SHALL BE AT LEAST 0.05" THICK.

SCREW NUMBER DESIGNATION	8	10	12 (12-14)	14
NOMINAL DIAMETER	0.164"	0.190"	0.216"	0.250"

COLD FORMED STRUCTURAL STEEL FRAMING:

GENERAL:

ALL COLD FORMED STEEL COMPONENTS INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH THE LATEST EDITION OF "SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" BY THE AISI.

FRAMING:

ALL STRUCTURAL STEEL FRAMING MATERIAL AND ITS ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN IRON AND STEEL INSTITUTE "SPECIFICATIONS FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBER".

ALL WELDING TO BE PERFORMED BY WELDERS HOLDING A VALID CERTIFICATE AND HAVING CURRENT EXPERIENCE IN LIGHT GAUGE STEEL. CERTIFICATES SHALL BE ISSUED BY AN ACCEPTED TESTING AGENCY. DO NOT NOTCH FLANGES OF MEMBERS WITHOUT EXPRESSED APPROVAL OF THE ENGINEER OF RECORD. ALL WELDING TO BE PERFORMED IN AN APPROVED FABRICATORS SHOP.

STRUCTURAL STEEL MEMBERS ARE FURNISHED TO A SPECIFIED MINIMUM Fy = 55,000 PSI. U.N.O. THE GRADE AND THE ASTM SPECIFICATION NUMBER OR OTHER SPECIFICATION DESIGNATION SHALL BE INDICATED BY PAINTING, DECAL, TAGGING OR OTHER SUITABLE MEANS ON EACH BUNDLE OF FABRICATED ELEMENTS. IT IS ACCEPTABLE TO USE THE Fy SHOWN ON THE MILL CERTIFICATION IN LIEU OF THE "ORDERED" Fy. IT IS ACCEPTABLE TO USE STEEL WITH Fy = 70 KSI IF THE STEEL USED IS IN THE AISI AND/OR AISC SPECIFICATION, THE ELONGATION IN A 2" COUPON IS A MINIMUM OF 10% AND THE RATIO OF Ft OVER Fy IS AT LEAST 1.08.

MILS	GAGE NO.	MIN DELIVERED THICKNESS	DESIGN THICKNESS
12	30	0.0120"	0.0126"
14	29	0.0132"	0.0139"
16	26	0.0174"	0.0183"
33	20	0.0336"	0.0354"
43	18	0.0447"	0.0470"
54	16	0.0561"	0.0590"
68	14	0.0713"	0.0750"
97	12	0.0998"	0.1050"
118	10	0.1283"	0.1350"

GENERAL NOTES:

THE STRUCTURAL CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. EXCEPT WHERE NOTED, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE STRUCTURAL ENGINEER OF RECORD SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES FOR PROCEDURE OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND THE PROGRAMS INCIDENT THERETO (NOR SHALL OBSERVATION VISITS TO THE SITE INCLUDE INSPECTION OF THESE ITEMS).

WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDA. ANY ENGINEERING DESIGN, PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW, SHALL BEAR THE SEAL OF A REGISTERED ENGINEER RECOGNIZED BY THE BUILDING CODE JURISDICTION OF THIS PROJECT.

NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN.

CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH THE ARCHITECT. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING AND ELECTRICAL ITEMS WITH THE APPROPRIATE TRADE DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.

TYPICAL DETAILS MAY NOT NECESSARILY BE CUT ON PLANS, BUT APPLY UNLESS NOTED OTHERWISE.

CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED CONSTRUCTION. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.

OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. IF AN OPTION IS CHOSEN, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CHANGES, APPROVALS AND THE COORDINATION OF THE WORK WITH ALL RELATED TRADES AND SUPPLIERS.

SPECIAL INSPECTION – STRUCTURAL ONLY:

SPECIAL INSPECTION IS REQUIRED PER CHAPTER 17A OF THE CBC FOR THE FOLLOWING:

CONCRETE CONSTRUCTION:

1. CONCRETE:
A. DURING THE TAKING OF TEST SPECIMENS.
B. THE PLACEMENT OF ALL FOUNDATION CONCRETE.

2. REINFORCING STEEL: INSPECTION OF IN-PLACE REINFORCING FOR CONFORMANCE PRIOR TO THE CLOSING OF FORMS OR THE DELIVERY OF CONCRETE TO THE JOBSITE FOR THE FOLLOWING:
A. REINFORCING FOR SPREAD FOOTING AND DRILLED PIER CONCRETE FOUNDATIONS.
B. REINFORCING FOR INVERTER SLABS ON THE GROUND.

STEEL CONSTRUCTION:

1. WELDING:
A. PERIODIC VISUAL INSPECTION OF ALL FIELD WELDS.
B. CONTINUOUS INSPECTION OF ALL MULTIPASS FILLET WELDS OR SINGLE PASS FILLET WELDS LARGER THAN 5/16".
C. NON-DESTRUCTIVE TESTING OF ALL COMPLETE PENETRATION WELDS BY AN AWS CERTIFIED INDEPENDENT TESTING LABORATORY AT THE CONTRACTORS EXPENSE.
D. VERIFICATION OF VALID WELDER'S CERTIFICATES.
E. ALL STRUCTURAL STEEL FABRICATORS SHALL EMPLOY AN AWS CERTIFIED INDEPENDENT TESTING LAB TO PROVIDE SHOP WELD INSPECTIONS PER CODE. INSPECTION REPORTS SHALL BE SUBMITTED TO ENGINEER OF RECORD PRIOR TO STEEL INSTALLATION.

2. STEEL FRAMES: VERIFICATION OF BRACING, STIFFENING, MEMBER LOCATIONS, AND PROPER JOINT DETAIL APPLICATION AT ALL STEEL FRAME CONNECTIONS.

3. HIGH STRENGTH BOLTING:
A. VERIFICATION OF SLIP CRITICAL BOLT INSTALLATION FOR ASTM A325 BOLTS.

DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:

A. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO BE CERTAIN IT CONFORMS TO THE APPROVED DESIGN DRAWINGS AND SPECIFICATION.
B. THE SPECIAL INSPECTOR IS NOT AUTHORIZED TO APPROVE DEVIATIONS FROM THE DESIGN DRAWINGS OR SPECIFICATIONS, AND ALL DEVIATIONS MUST BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD AND/OR DSA PRIOR TO PROCEEDING WITH THE WORK. ALL REQUESTS FOR DEVIATIONS SHALL BE INITIATED BY THE CONTRACTOR VIA WRITTEN REQUEST FOR INFORMATION (RFI).
C. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE DSA AND TO THE ENGINEER OR ARCHITECT OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE DSA AND/OR THE ARCHITECT OR ENGINEER OF RECORD.
D. CONTRACTOR SHALL PROVIDE THE SPECIAL INSPECTOR ACCESS TO ALL ITEMS REQUIRING SPECIAL INSPECTION. ACCESS SHALL BE PROVIDED BY IN-PLACE LADDERS, SCAFFOLDS, LIFTS AND/OR OTHER EQUIPMENT OPERATED BY THE CONTRACTOR'S PERSONNEL AS REQUIRED FOR SAFE OBSERVATION. INSPECTOR IS NOT RESPONSIBLE OR AUTHORIZED TO OPERATE CONTRACTOR'S EQUIPMENT.
E. UPON COMPLETION OF THE ASSIGNED WORK THE ENGINEER OR ARCHITECT SHALL COMPLETE AND SIGN THE APPROPRIATE FORMS CERTIFYING THAT TO THE BEST OF THEIR KNOWLEDGE THE WORK IS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.

THE SOLAR PANELS AND THEIR ANCHORAGE SYSTEMS ARE DEFERRED ITEMS. PER TITLE 24, PART 1, SECTION 4-317 (g), THEIR DESIGNS SHALL BE REVIEWED AND APPROVED BY DSA PRIOR TO INSTALLATION. THE DEFERRED SUBMITTAL DOCUMENTS SHALL BE STAMPED AND SIGNED BY EITHER AN ARCHITECT OR REGISTERED ENGINEER WITH A VALID CALIFORNIA LICENSE. PLEASE NOTE THAT ADDITIONAL CANOPY FRAMING AND BEARING BLOCKS MAY BE REQUIRED FOR CONNECTING THE SOLAR PANEL ANCHORAGE SYSTEM TO THE CANOPY.

NOTES FOR SITE SPECIFIC PHOTOVOLTAIC (PV) INSTALLATION:

1. THESE DRAWINGS ARE FOR THE STEEL STRUCTURES SUPPORTING PV PANELS. NO PROVISIONS ARE INCLUDED IN THESE DRAWINGS FOR THE PV PANELS OR THE PV PANEL INSTALLATION.
2. THE PV PANELS AND THE PV PANEL INSTALLATION SHALL BE SUBMITTED AS A SITE SPECIFIC APPLICATION. (REFER TO THE BOX NOTE REGARDING THE SOLAR PANELS AND THEIR ANCHORAGE BEING A DEFERRED ITEM).
3. PV PANELS SHALL BE INSTALLED PER DRAWINGS THAT HAVE BEEN SUBMITTED TO AND REVIEWED/PERMITTED BY DSA. THE PV DRAWINGS SHALL PROVIDE THE MINIMUM FOLLOWING INFORMATION.

A. LOCATION ALL ELECTRICAL EQUIPMENT.
B. WIRING DIAGRAMS TO AND FROM ALL PV PANELS AND ELECTRICAL EQUIPMENT.
C. ALL GROUNDING DETAILS FOR STRUCTURES AND EQUIPMENT.
D. ALL DISCONNECTION LOCATIONS AND DETAILS.
E. EQUIPMENT WARNING LABELS FOR INVERTER OVER VOLTAGE. SINGLE 120 VOLT SUPPLY WITHOUT MULTI BRANCH CIRCUITS AND ELECTRICAL SHOCK HAZARD.

4. REFER TO CEC ARTICLE 690 FOR ADDITIONAL REQUIREMENTS AND DETAILS.

NOTE: PV SYSTEM SHALL BE MARKED. MARKING IS NEEDED TO PROVIDE EMERGENCY RESPONDERS WITH APPROPRIATE WARNING AND GUIDANCE WITH RESPECT TO ISOLATING THE SOLAR ELECTRIC SYSTEM. THIS CAN FACILITATE IDENTIFYING ENERGIZED ELECTRICAL LINES THAT CONNECT THE SOLAR PANELS TO THE INVERTER AND MAIN SERVICE DISCONNECT. THE LABEL SHALL BE OF A WEATHER-RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT. MARKING CONTENT SHALL READ: "CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED". THIS LABEL SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED.

ADDITIONAL MARKING IS REQUIRED OF THE DC CIRCUIT. MARKING IS REQUIRED ON ALL INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES AND JUNCTION BOXES TO ALERT FIRE SERVICE TO AVOID CUTTING THEM. MARKING SHALL BE PLACED EVERY 10 FEET, AT TURNS AND ABOVE AND/OR BELOW PENETRATIONS AND AT ALL DC COMBINER AND JUNCTION BOXES. MARKING FOR CIRCUIT SHALL READ: "CAUTION: SOLAR CIRCUIT".

PATENTS PENDING

	GOVERNING LOAD COMBOS		M MAX(K')	V MAX(K)
	PURLIN	DL + 0.75W + 0.75Lr	4.05	0.68
	~~BEAM 6P~~	~~DL + 0.75W + 0.75Lr~~	~~67.12~~	~~8.17~~
	BEAM 7P	DL + 0.75W + 0.75Lr	91.88	9.59
10.5' CLR.	COLUMN AND FOOTING STRONG AXIS 6P	(1 + .14 SDS) DL + 0.7pE	68.11	5.18
10.5' CLR.	COLUMN AND FOOTING STRONG AXIS 7P	(1 + .14 SDS) DL + 0.7pE	84.41	6.19
10.5' CLR.	COLUMN AND FOOTING WEAK AXIS 6P	(1 + .14 SDS) DL + 0.7pE	68.88	5.24
10.5' CLR.	COLUMN AND FOOTING WEAK AXIS 7P	(1 + .14 SDS) DL + 0.7pE	85.47	6.27
12' CLR.	~~COLUMN AND FOOTING STRONG AXIS 6P~~	~~(1 + .14 SDS) DL + 0.7pE~~	~~75.92~~	~~5.19~~
12' CLR.	~~COLUMN AND FOOTING STRONG AXIS 7P~~	~~(1 + .14 SDS) DL + 0.7pE~~	~~93.70~~	~~6.19~~
12' CLR.	~~COLUMN AND FOOTING WEAK AXIS 6P~~	~~(1 + .14 SDS) DL + 0.7pE~~	~~76.86~~	~~5.25~~
12' CLR.	~~COLUMN AND FOOTING WEAK AXIS 7P~~	~~(1 + .14 SDS) DL + 0.7pE~~	~~94.88~~	~~6.27~~

6P = 6 PANELS, 7P = 7 PANELS

SHEET INDEX FOR 02-111999	
~~TL1~~	~~TEE LANDSCAPE GENERAL STRUCTURAL NOTES~~
~~TL2~~	~~TEE LANDSCAPE BOX BEAM~~
~~TL3~~	~~TEE LANDSCAPE BOX BEAM DETAILS~~
~~TL4~~	~~TEE LANDSCAPE BACK TO BACK~~
TP1	TEE PORTRAIT GENERAL STRUCTURAL NOTES
TP2	TEE PORTRAIT BOX BEAM
TP3	TEE PORTRAIT BOX BEAM DETAILS
TP4	TEE PORTRAIT BACK TO BACK

IDENTIFY THE OPTIONS TO BE USED BY CROSSING OUT OPTIONS NOT USED IN ANY SPECIFIC PROJECT.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP03 1 1 4 4 1 8
AC ✓ FLS [signature] SS ED
DATE 4-11-2012

LICENSED ARCHITECT
DAVID SCOTT STOKES
No.C 15700
REN. 6.30.13
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
PAUL G. SCOTT
S 3325
3/20/12
STRUCTURAL
STATE OF CALIFORNIA

PATENTS PENDING

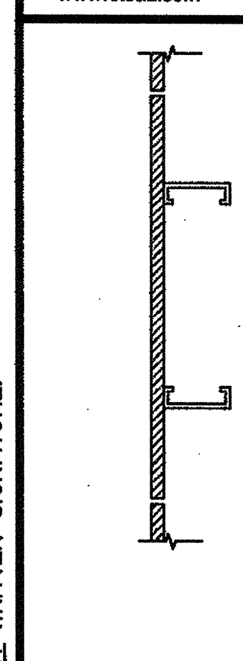
PRE-CHECK (PC) DOCUMENT
CODE: 2010 CBC
A SEPARATE PROJECT APPLICATION FOR CONSTRUCTION IS REQUIRED

DSA APP. NO 02-111999

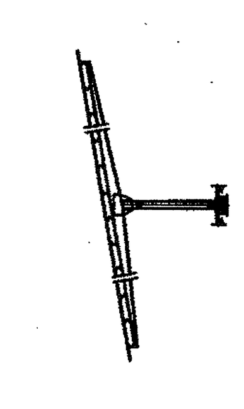
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
02-111999
AC [signature] FLS [signature] SS KB
DATE 3.22.12

THESE DRAWINGS/CALCULATIONS ARE CONSIDERED PRELIMINARY –NOT FOR CONSTRUCTION OR RECORDING UNLESS THE STRUCTURAL ENGINEER OF RECORD'S SEAL IS AFFIXED WITH WRITTEN SIGNATURE.

CARUSO TURLEY SCOTT INC.
consulting structural engineers
1215 W. Rio Salado Pkwy
Suite 200
Tempe, Arizona 85281
(480) 774-1700
(480) 774-1701 FAX
www.ctsaz.com



PORTRAIT SOLAR PANELS ON TEE
SOLAR SUPPORT STRUCTURE
DSA PRE-CHECK



WWW.POWERSSTEEL.COM
POWERS STEEL & WIRE
PATENTS PENDING

DRAWING EDITION/REF JOB #:

SITE PROJECT:

REVISIONS:

JOB NUMBER: 11-071

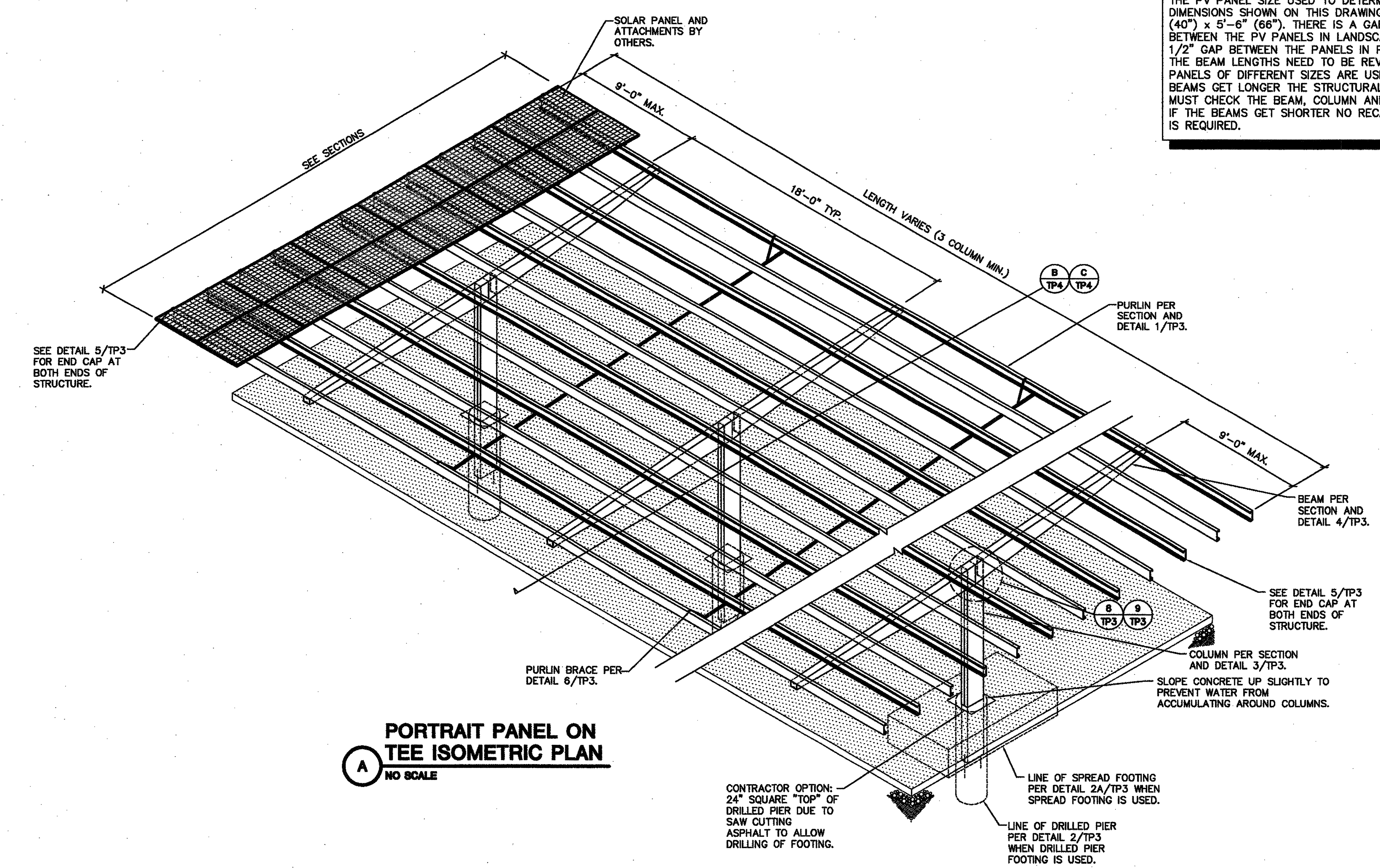
DRAWN:	ENGINEER:	CHECKED:
BLP	PGS	DST

DATE: 3/15/12

SHEET: TP1

PATENTS PENDING

NOTE:
THE PV PANEL SIZE USED TO DETERMINE THE DIMENSIONS SHOWN ON THIS DRAWING WERE 3'-4" (40") x 5'-6" (66"). THERE IS A GAP OF 1/2" BETWEEN THE PV PANELS IN LANDSCAPE AND 1/2" GAP BETWEEN THE PANELS IN PORTRAIT. THE BEAM LENGTHS NEED TO BE REVISED IF PV PANELS OF DIFFERENT SIZES ARE USED. IF THE BEAMS GET LONGER THE STRUCTURAL ENGINEER MUST CHECK THE BEAM, COLUMN AND FOOTING. IF THE BEAMS GET SHORTER NO RECALCULATION IS REQUIRED.

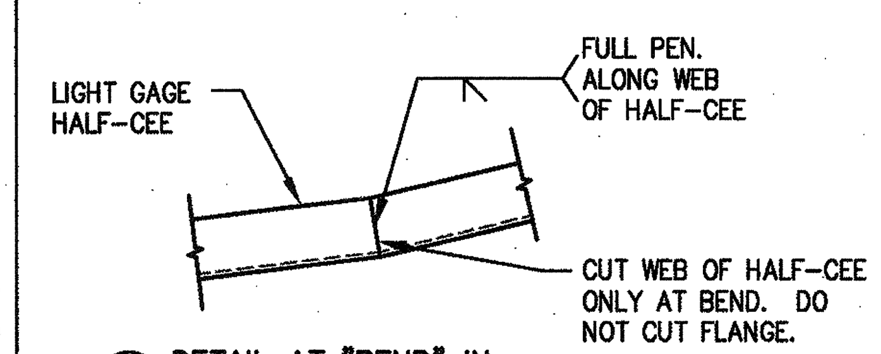


A PORTRAIT PANEL ON TEE ISOMETRIC PLAN
NO SCALE

MEMBER TYPE		6 PANELS 33'-2 1/2"	7 PANELS 38-9"
		12 PURLINS	14 PURLINS
		85 MPH/EXPOSURE C	85 MPH/EXPOSURE C
BEAM SIZES	BEAM WITH WELDED CONNECTION PER DETAIL 8/TP3	10 GA. 16" 8" 1" NO REINFORCING REQ'D. FOR Fy=70ksi 10 GAGE STEEL 4 #4 BEAM REINFORCING 4'-0"	10 GA. 16" 8" 1" 4 #6 BEAM REINFORCING 4'-0" FOR Fy=55ksi 6'-0" FOR Fy=70ksi
BEAM SIZES	BEAM WITH BOLTED CONNECTION PER DETAIL 9/TP3	10 GA. 16" 8" 1" 4" 2" NO REINFORCING REQ'D. FOR Fy=70ksi 10 GAGE STEEL 14 GA. LIGHT GAGE HALF-CEE (A CEE SHAPE CUT IN HALF) 4'-0" Y/TP2	10 GA. 16" 8" 1" 4" 2" 12 GA. LIGHT GAGE HALF-CEE (A CEE SHAPE CUT IN HALF) 14'-0" FOR Fy=55ksi 6'-0" FOR Fy=70ksi Y/TP2
COLUMN SIZES	CLEAR HEIGHT 10'-6"	8" 16" HSS 16"x8"x5/16" Fy= 46 ksi HSS 16"x8"x1/4" Fy= 65 ksi	8" 16" HSS 16"x8"x3/8" Fy= 46 ksi HSS 16"x8"x5/16" Fy= 65 ksi
COLUMN SIZES	12'-0"	8" 16" HSS 16"x8"x3/8" Fy= 46 ksi HSS 16"x8"x5/16" Fy= 65 ksi	8" 16" HSS 16"x8"x1/2" Fy= 46 ksi HSS 16"x8"x3/8" Fy= 65 ksi

NOTES:
1. FOR BEAM REINFORCING INFORMATION NOT SHOWN, SEE DETAIL 4/TP3.
2. BEAM REINFORCING WITH REBAR OPTION MAY ALSO BE USED WITH BOLTED CONNECTION.

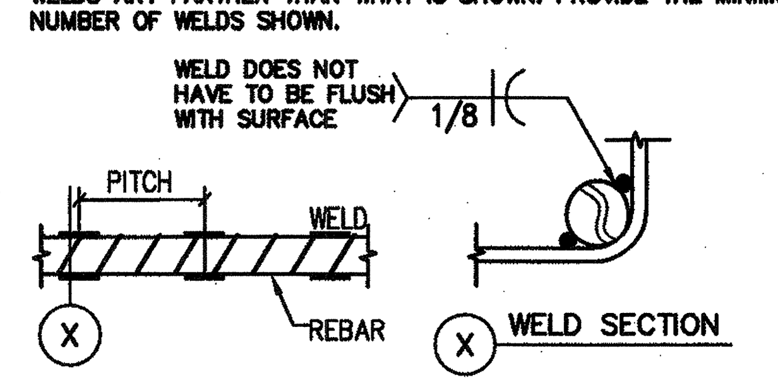
TABLE OF BEAM AND COLUMN SIZES
NO SCALE:



Y DETAIL AT "BEND" IN LIGHT GAGE HALF-CEE

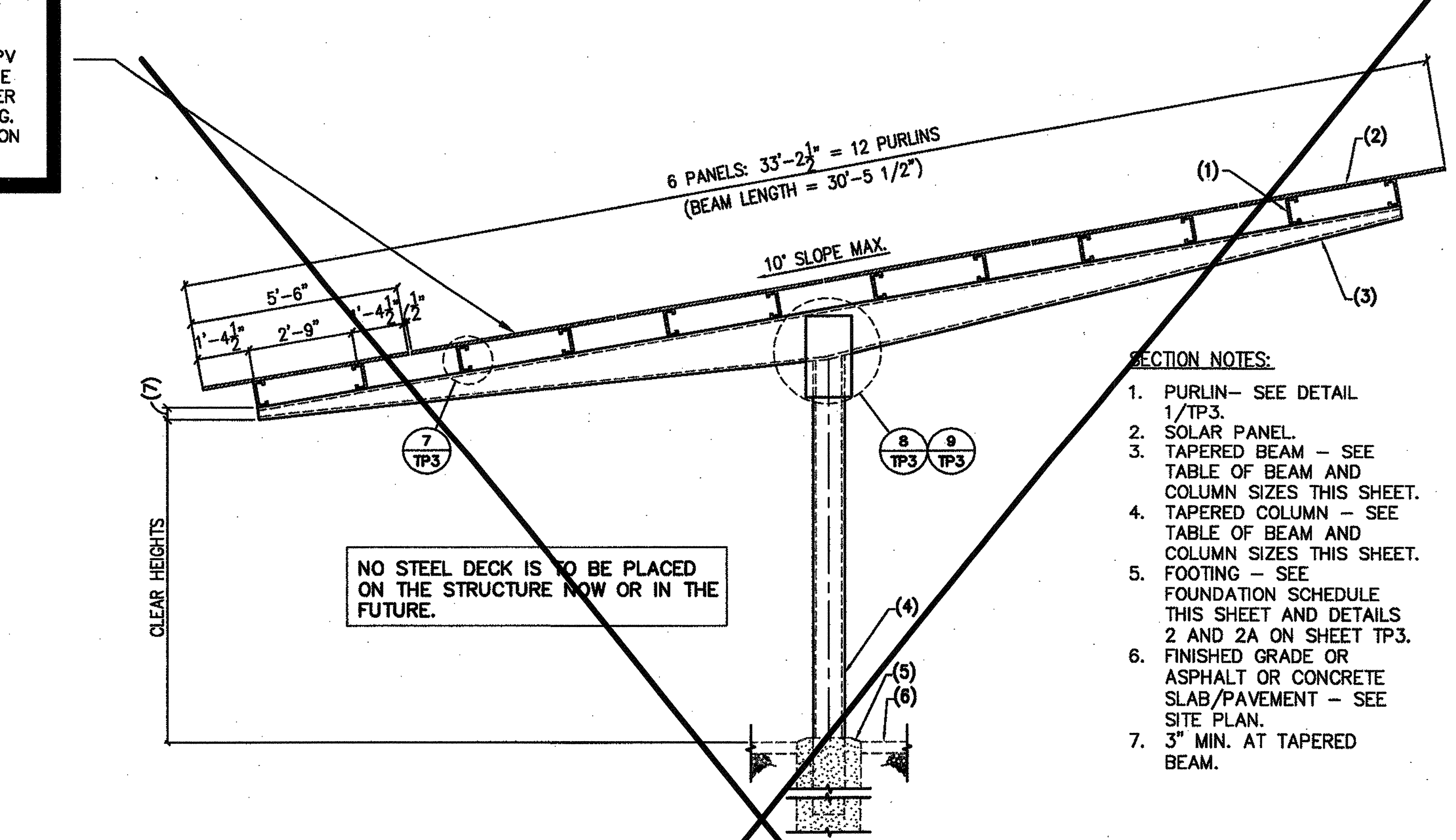
REBAR SIZE	WELD LENGTH (IN) – PITCH (C.TO C. SPACING) (IN)	MINIMUM NUMBER OF 2" LONG WELDS
#4	2 – 7	2
#6	2 – 10	4

NOTE:
IT IS ACCEPTABLE TO USE A CLOSER CENTER TO CENTER SPACING THAN WHAT IS SHOWN, BUT IT IS NOT ACCEPTABLE TO SPACE THE WELDS ANY FARTHER THAN WHAT IS SHOWN. PROVIDE THE MINIMUM NUMBER OF WELDS SHOWN.



X WELD SECTION

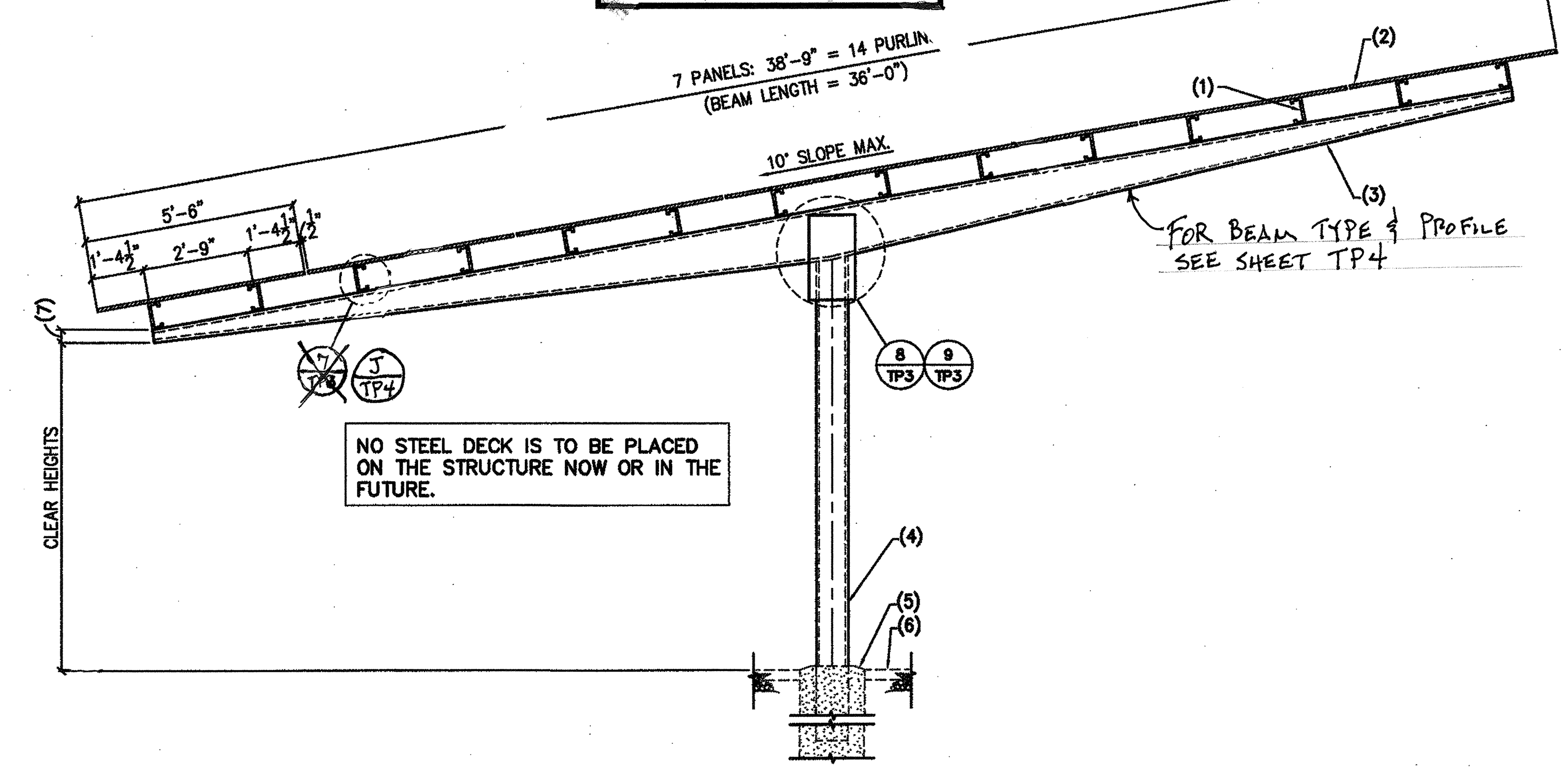
PATENTS PENDING



B SECTION AT PORTRAIT TAPERED TEE BEAM AT 10 DEGREE SLOPE

SECTION NOTES:
1. PURLIN– SEE DETAIL 1/TP3.
2. SOLAR PANEL.
3. TAPERED BEAM – SEE TABLE OF BEAM AND COLUMN SIZES THIS SHEET.
4. TAPERED COLUMN – SEE TABLE OF BEAM AND COLUMN SIZES THIS SHEET.
5. FOOTING – SEE FOUNDATION SCHEDULE THIS SHEET AND DETAILS 2 AND 2A ON SHEET TP3.
6. FINISHED GRADE OR ASPHALT OR CONCRETE SLAB/PAVEMENT – SEE SITE PLAN.
7. 3" MIN. AT TAPERED BEAM.

SEE SHEET TP4 FOR
ADD'L INFORMATION



C SECTION AT PORTRAIT TAPERED TEE BEAM AT 10 DEGREE SLOPE

LICENSED ARCHITECT DAVID SCOTT STOKES No. C 15700 REN. 6-30-13 STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP03 1 1 4 4 1 8
AC ✓ FLS ✓ SS ED
DATE APR 1 1 2012

REGISTERED PROFESSIONAL ENGINEER [illegible] SCOTT S 3325 STRUCTURAL STATE OF CALIFORNIA
3/15/12

TEE FOUNDATION SCHEDULE

NOTE: DRILLED PIER SIZE BASED ON THE ALLOWABLE LATERAL SOIL BEARING (PASSIVE) PRESSURE PER SOILS REPORT. IF NO SOILS REPORT IS PROVIDED, USE PASSIVE PRESS = 100 PSF/FT. SPREAD FOOTINGS SHALL BEAR 24" MIN. BELOW LOWEST ADJACENT FINISHED GRADE. SEE GSN AND DETAIL FOR ADDITIONAL INFORMATION.

			DRILLED PIER EMBEDMENT DEPTH (32" DIAMETER)								SPREAD FOOTING SIZE		
			PASSIVE = 100PSF/FT		PASSIVE = 200PSF/FT		PASSIVE = 300PSF/FT		PASSIVE = 400PSF/FT				
PANEL ORIENTATION	# OF PANELS	CLEAR HEIGHT (MAX.)	DIRT AND/OR ASPHALT PAVEMENT (UNCONSTRAINED)	CONCRETE PAVEMENT (CONSTRAINED)	DIRT AND/OR ASPHALT PAVEMENT (UNCONSTRAINED)	CONCRETE PAVEMENT (CONSTRAINED)	DIRT AND/OR ASPHALT PAVEMENT (UNCONSTRAINED)	CONCRETE PAVEMENT (CONSTRAINED)	DIRT AND/OR ASPHALT PAVEMENT (UNCONSTRAINED)	CONCRETE PAVEMENT (CONSTRAINED)	THICKNESS	WIDTH	LENGTH
P	6	10'-6"	12'-8"	9'-1"	10'-0"	7'-3"	8'-8"	6'-4"	7'-11"	5'-9"	56"	8'-0"	12'-6"
P	6	12'-0"	12'-11"	9'-5"	10'-1"	7'-6"	8'-9"	6'-7"	8'-0"	5'-11"	56"	8'-0"	14'-0"
[✓ P]	[✓ 7]	[✓ 10'-6"]	13'-9"	9'-9"	10'-11"	7'-9"	9'-7"	6'-9"	[✓ 8'-8"]	[✓ 6'-2"]	[✓ 56"]	[✓ 8'-6"]	[✓ 13'-6"]
P	7	12'-0"	14'-0"	10'-1"	11'-0"	8'-0"	9'-8"	7'-0"	8'-9"	6'-4"	56"	9'-0"	13'-6"

FOUNDATION SCHEDULE

PATENTS PENDING

PRE-CHECK (PC) DOCUMENT
CODE: 2010 CBC
A SEPARATE PROJECT APPLICATION FOR CONSTRUCTION IS REQUIRED

DSA APP. NO 02-111999

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
02-111999
AC [illegible] FLS [illegible] SS KB
DATE 3-22-12

THESE DRAWINGS/CALCULATIONS ARE CONSIDERED PRELIMINARY –NOT FOR CONSTRUCTION OR RECORDING UNLESS THE STRUCTURAL ENGINEER OF RECORD'S SEAL IS AFFIXED WITH WRITTEN SIGNATURE.

CARUSO TURLEY SCOTT INC.
consulting structural engineers
1215 W. Rio Salado Pkwy
Suite 200
Tempe, Arizona 85281
(480) 774-1700
(480) 774-1701 FAX
www.ctsaz.com

PORTRAIT SOLAR PANELS ON TEE SOLAR SUPPORT STRUCTURE DSA PRE-CHECK

WWW.POWERSSTEEL.COM
POWERS STEEL & WIRE
PATENTS PENDING

DRAWING EDITION/REF JOB #

SITE PROJECT:

REVISIONS:

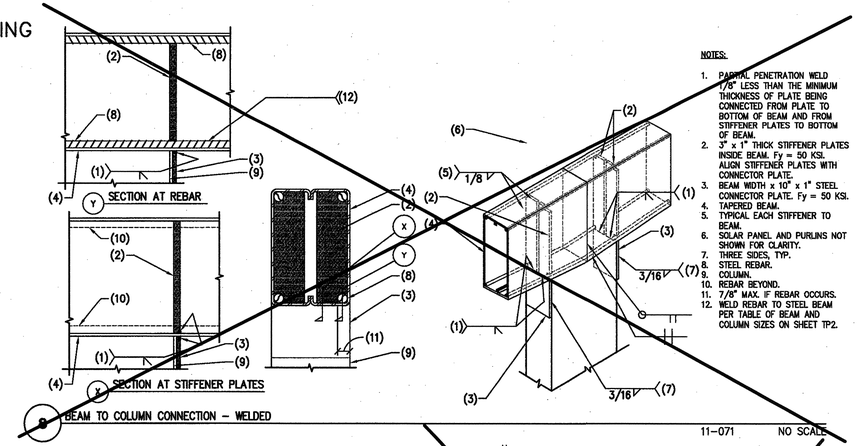
JOB NUMBER: 11-071

DRAWN:	ENGINEER:	CHECKED:
BLP	PGS	DST

DATE: 3/15/12

SHEET: TP2

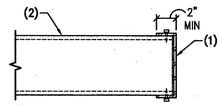
PATENTS PENDING



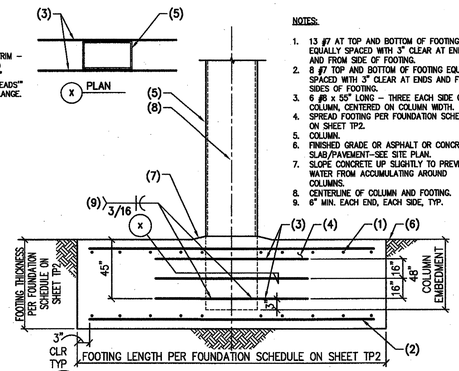
NOTES:
1. PARTIAL PENETRATION WELD 7/8" LESS THAN THE MINIMUM THICKNESS OF PLATE BEING CONNECTED FROM PLATE TO BOTTOM OF BEAM AND FROM STIFFENER PLATES TO BOTTOM OF BEAM.
2. 3" x 1" THICK STIFFENER PLATES INSIDE BEAM. Fy = 50 KSI. ALIGN STIFFENER PLATES WITH CONNECTOR PLATE.
3. BEAM WIDTH x 10" x 1" STEEL CONNECTOR PLATE. Fy = 50 KSI.
4. TAPERED BEAM.
5. TYPICAL EACH STIFFENER TO BEAM.
6. SOLAR PANEL AND PURLINS NOT SHOWN FOR CLARITY.
7. THREE SIDES, TYP.
8. STEEL REBAR.
9. COLUMN.
10. REBAR BEYOND.
11. 7/8" MAX. IF REBAR OCCURS.
12. WELD REBAR TO STEEL BEAM PER TABLE OF BEAM AND COLUMN SIZES ON SHEET TP2.

9 BEAM TO COLUMN CONNECTION – WELDED — 11-071 NO SCALE

NOTES:
1. CONTINUOUS END CAP TRIM – 16 GA MIN. ATTACH TO PURLIN WITH #12 x 3/4" SCREWS WITH "WAFER HEADS" AT TOP AND BOTTOM FLANGE.
2. PURLIN.



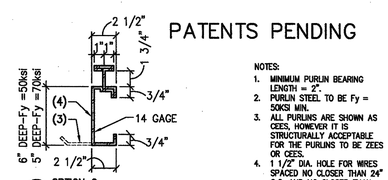
5 END CAP AT PURLIN — 10-788 NO SCALE



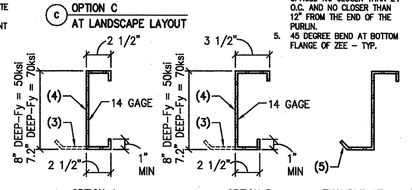
NOTES:
1. 13 #7 AT TOP AND BOTTOM OF FOOTING EQUALLY SPACED WITH 3" CLEAR AT ENDS AND FROM SIDE OF FOOTING.
2. 8 #7 TOP AND BOTTOM OF FOOTING EQUALLY SPACED WITH 3" CLEAR AT ENDS AND FROM SIDES OF FOOTING.
3. 6 #8 x 55" LONG – THREE EACH SIDE OF COLUMN, CENTERED ON COLUMN WIDTH.
4. SPREAD FOOTING PER FOUNDATION SCHEDULE ON SHEET TP2.
5. COLUMN.
6. FINISHED GRADE OR ASPHALT OR CONCRETE SLAB/PAVEMENT–SEE SITE PLAN.
7. SLOPE CONCRETE UP SLIGHTLY TO PREVENT WATER FROM ACCUMULATING AROUND COLUMNS.
8. CENTERLINE OF COLUMN AND FOOTING.
9. 6" MIN. EACH END, EACH SIDE, TYP.

2A TEE OPTIONAL SPREAD FOOTING — NO SCALE

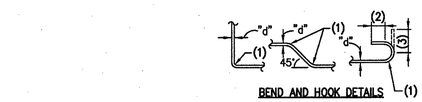
PATENTS PENDING



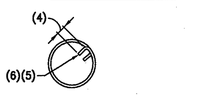
NOTES:
1. MINIMUM PURLIN BEARING LENGTH = 2".
2. PURLIN STEEL TO BE Fy = 50KSI MIN.
3. ALL PURLINS ARE SHOWN AS CEES, HOWEVER IT IS STRUCTURALLY ACCEPTABLE FOR THE PURLINS TO BE ZEES OR CEES.
4. 1 1/2" DIA. HOLE FOR WIRES SPACED NO CLOSER THAN 24" O.C. AND NO CLOSER THAN 12" FROM THE END OF THE PURLIN.
5. 45 DEGREE BEND AT BOTTOM FLANGE OF ZEE – TYP.



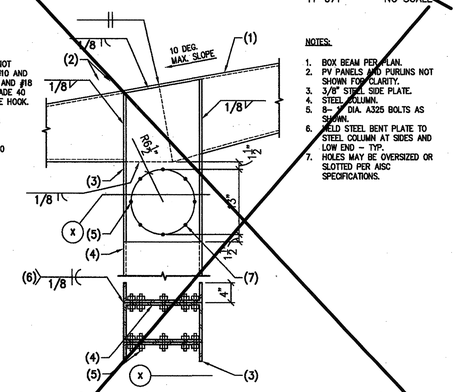
1 PURLIN — 11-071 NO SCALE



NOTES:
1. RADIUS=3d FOR BARS NOT OVER #8; 4d FOR #9, #10 AND #11 BARS; 5d FOR #14 AND #18 BARS. 5d FOR ALL GRADE 40 BARS WITH 180 DEGREE HOOK.
2. 4d (4" MINIMUM).
3. 12d (90 DEGREE HOOK).
4. 6d (4" MINIMUM).
5. 135 DEGREE BEND.
6. ROTATE TIE LOCATION 90 DEGREES EACH TIE.

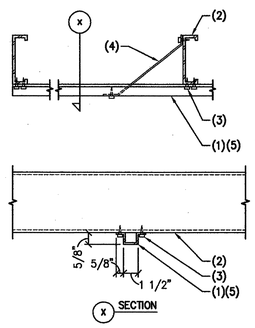


10 TYPICAL REINFORCING BAR DETAILS AT DRILLED PIER REINFORCING — 201-32M NO SCALE



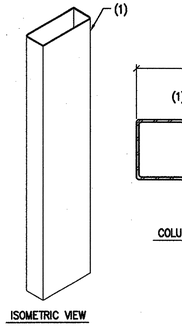
NOTES:
1. BOX BEAM PER PLAN.
2. PV PANELS AND PURLINS NOT SHOWN FOR CLARITY.
3. 3/8" STEEL SIDE PLATE.
4. STEEL COLUMN.
5. 8– 3/4" DIA. A325 BOLTS AS SHOWN.
6. WELD STEEL BENT PLATE TO STEEL COLUMN AT SIDES AND LOW END – TYP.
7. HOLES MAY BE OVERSIZED OR SLOTTED PER AISC SPECIFICATIONS.

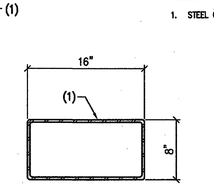
8 BEAM TO COLUMN CONNECTION – BOLTED — 11-071 NO SCALE



NOTES:
1. 16 GAUGE STEEL HAT CHANNEL BRACE. LOCATE AT MIDSPAN BETWEEN COLUMNS.
2. PURLIN.
3. 2 #12 x 3/4" LONG SCREWS AT EACH PURLIN.
4. 1" x 20 GA STRAP AT EACH END OF CANOPY. ATTACH WITH 1 #12 x 3/4" LONG SCREW AS SHOWN.
5. OPTIONS TO NOTE 1 HAT CHANNEL:

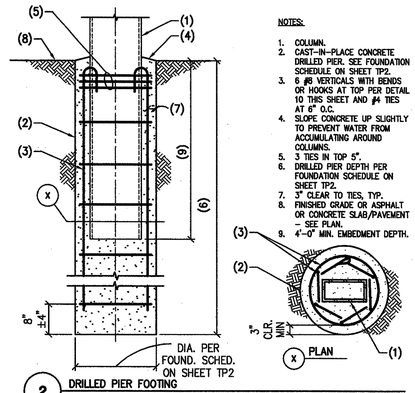
6 STEEL BRACING AT PURLINS — 09-506 NO SCALE





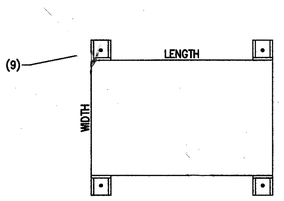
NOTES:
1. STEEL COLUMN.

3 COLUMN — 10-788 NO SCALE



NOTES:
1. COLUMN.
2. CAST–IN–PLACE CONCRETE DRILLED PIER. SEE FOUNDATION SCHEDULE ON SHEET TP2.
3. 6 #8 VERTICALS WITH BENDS OR HOOKS AT TOP PER DETAIL 10 THIS SHEET AND #4 TIES AT 6" O.C.
4. SLOPE CONCRETE UP SLIGHTLY TO PREVENT WATER FROM ACCUMULATING AROUND COLUMNS.
5. 3 TIES IN TOP 5".
6. DRILLED PIER DEPTH PER FOUNDATION SCHEDULE ON SHEET TP2.
7. 3" CLEAR TO TIES, TYP.
8. FINISHED GRADE OR ASPHALT OR CONCRETE SLAB/PAVEMENT – SEE PLAN.
9. 4'–0" MIN. EMBEDMENT DEPTH.

2 DRILLED PIER FOOTING — 11-071 NO SCALE

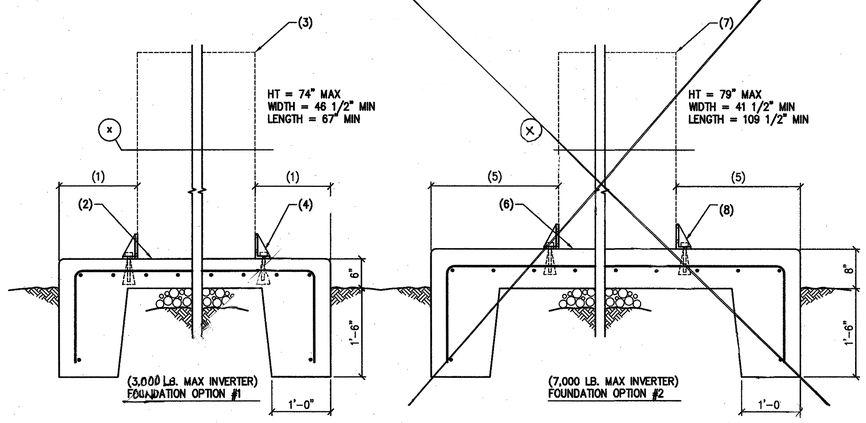


TEST LOAD FOR TZ BOLTS = 3.0K x 1.6 = 4.8K

NOTE:
MINIMUM CLEARANCE ALL AROUND TO BE AT LEAST EQUAL TO THE HEIGHT OF THE UNIT.

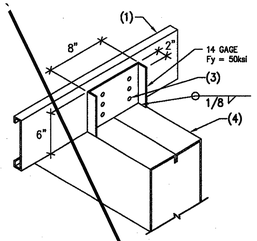
NOTES:
1. 18" MIN ALL AROUND.
2. 7" SLAB WITH #4 AT 12" O.C. EACH WAY IN SLAB CENTER, LAP = 24" AT #4 AS REQUIRED.
3. INVERTER (3,000 lbs MAX.).
4. 5/8" DIA. HILTI KWIK BOLT TZ (ICC ESR–1917) WITH 3 9/16" EMBEDMENT.
5. 33" MIN. ALL AROUND.
6. 9" SLAB WITH #5 @ 12" O.C. EACH WAY IN SLAB CENTER, LAP = 47" AT #5 AS REQUIRED.
7. INVERTER (7,000 lbs MAX.).
8. 5/8" DIA HILTI KWIK BOLT TZ (ICC ESR–1917) WITH 4 7/16" EMBEDMENT.
9. CONNECTION CLIP PER MFR, OR MFR. MAY PROVIDE ALTERNATE CONNECTION AND CALCULATIONS ON INVERTER ATTACHMENT TO SLAB/FOOTING.

X PLAN VIEW AT INVERTER

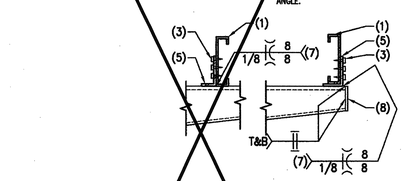


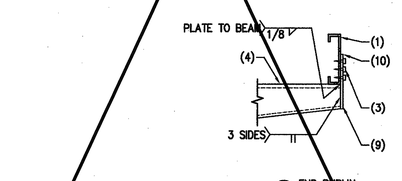
NOTE: INVERTERS TO BE SURROUNDED BY A FENCE TO RESTRICT ACCESS TO THE INVERTER. INVERTERS TO BE A MINIMUM OF 30" FROM ANY INHABITABLE BUILDING.

11 INVERTER/SLAB FOUNDATION — 11-071 NO SCALE



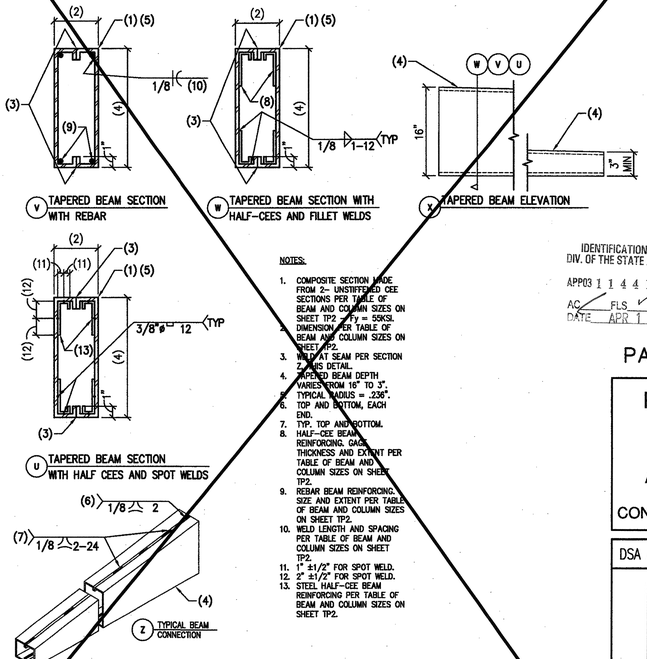
NOTES:
1. PURLIN.
2. STEEL END PLATE 1/4"x10" WIDE x 30" LONG AS OCCURS.
3. 6 – #12 x 3/4" LONG SCREWS TO PURLIN – TYP.
4. BEAM.
5. 6"x4"x0.25" STEEL CLIP ANGLE (LLV) x 8" LONG OR 1/4"x6"x4"x6"LONG. Fy = 50 KSI (MIN) OR 14 GAGE CLIP SHOWN IN DETAIL F THIS DETAIL.
6. COLUMN.
7. WELD CLIP ANGLE TO BEAM.
8. 16 GA NON–STRUCURAL END PLATE.
9. 1/4"x8" HIGH x10" LONG END PLATE.
10. INCREASE LENGTH OF PLATE SO IT EXTENDS 6" ABOVE TOP OF STEEL BEAM AND ATTACH PURLIN TO STEEL END PLATE IN LIEU OF USING STEEL CLIP ANGLE.





NOTE:
A. ANY OF THESE CONNECTIONS SHOWN MAY BE USED AT CONTRACTOR'S OPTION.

7 PURLIN TO BEAM CONNECTION — 09-506 NO SCALE



NOTES:
1. COMPOSITE SECTION MADE FROM 2– UNSTIFFENED CEE SECTIONS PER TABLE OF BEAM AND COLUMN SIZES ON SHEET TP2 – Fy = 55KSI.
2. DIMENSION PER TABLE OF BEAM AND COLUMN SIZES ON SHEET TP2.
3. WELD AT SEAM PER SECTION 7 – THIS DETAIL.
4. TAPERED BEAM DEPTH VARIES FROM 16" TO 3".
5. TYPICAL RADIUS = 2.25".
6. TOP AND BOTTOM, EACH END.
7. TYP. TOP AND BOTTOM.
8. HALF–CEE BEAM REINFORCING. GAGE, THICKNESS AND EXTENT PER TABLE OF BEAM AND COLUMN SIZES ON SHEET TP2.
9. REBAR BEAM REINFORCING. SIZE AND EXTENT PER TABLE OF BEAM AND COLUMN SIZES ON SHEET TP2.
10. WELD LENGTH AND SPACING PER TABLE OF BEAM AND COLUMN SIZES ON SHEET TP2.
11. 1" ±1/2" FOR SPOT WELD.
12. 2" ±1/2" FOR SPOT WELD.
13. STEEL HALF–CEE BEAM REINFORCING PER TABLE OF BEAM AND COLUMN SIZES ON SHEET TP2.

4 TAPERED BEAM — NO SCALE

PATENTS PENDING

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP03 1 1 4 4 1 8
AC FLS SS EP
DATE APR 1 1 2012

PRE-CHECK (PC) DOCUMENT
CODE: 2010 CBC
A SEPARATE PROJECT APPLICATION FOR CONSTRUCTION IS REQUIRED

DSA APP. NO 02-111999

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
02-111999
AC FLS SS KB
DATE 3-28-12

THESE DRAWINGS/CALCULATIONS ARE CONSIDERED PRELIMINARY –NOT FOR CONSTRUCTION OR RECORDING UNLESS THE STRUCTURAL ENGINEER OF RECORD'S SEAL IS AFFIXED WITH WRITTEN SIGNATURE.

CARUSO TURLEY SCOTT INC.
consulting structural engineers
1215 W. Rio Salado Pkwy
Suite 200
Tempe, Arizona 85281
(480) 774-1700
(480) 774-1701 FAX
www.ctsaz.com

PORTRAIT SOLAR PANELS ON TEE
SOLAR SUPPORT STRUCTURE
DSA PRE–CHECK

WWW.POWERSSTEEL.COM
POWERS STEEL & WIRE
PATENTS PENDING

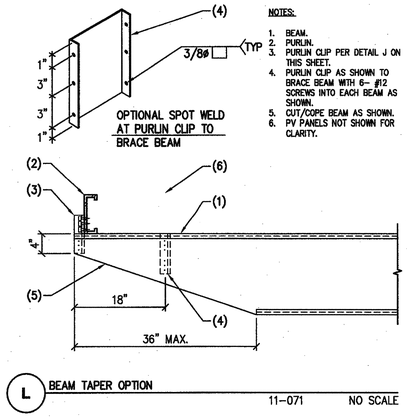
DRAWING EDITION/REF JOB #

SITE PROJECT:

REVISIONS:

JOB NUMBER: 11-071
DRAWN: BLP | ENGINEER: PGS | CHECKED: DST
DATE: 3/15/12
SHEET: TP3

PATENTS PENDING



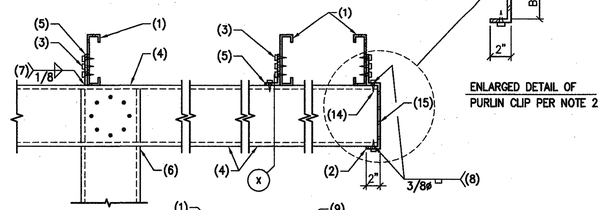
NOTES:

1. BEAM.
2. PURLIN.
3. PURLIN CLIP PER DETAIL J ON THIS SHEET.
4. PURLIN CLIP AS SHOWN TO BRACE BEAM WITH 6– ø12 SCREWS INTO EACH BEAM AS SHOWN.
5. CUT/COPE BEAM AS SHOWN.
6. PV PANELS NOT SHOWN FOR CLARITY.

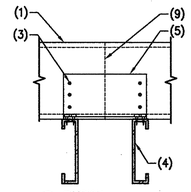
L BEAM TAPER OPTION — 11–071 NO SCALE

NOTES:

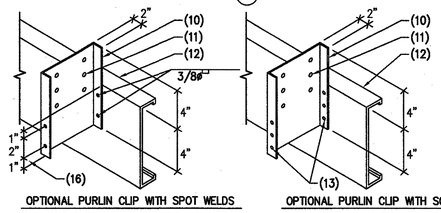
1. PURLIN.
2. 10 GA BEAM CAP PLATE W/ (4) ø12 TO BOTTOM OF BEAM AND (6) ø12 TO PURLIN.
3. (3) ø12 x 3/4" LONG SCREWS TO PURLIN.
4. STEEL BEAM.
5. 16"LONG x4"x10 GAUGE STEEL CLIP OR 16" LONG x 4" x6" (LLV) ANGLE WITH (2) ø12 SCREWS AT EACH BEAM MEMBER. Fy = 50 ksi (MIN).
6. STEEL COLUMN.
7. WELD PLATE TO BEAM.
8. OPTIONAL SPOT WELD.
9. OPTIONAL PURLIN SPLICE LOCATION AT NON–CANTILEVERED PURLINS.
10. 16 GA CLIP.
11. (3) ø12 SCREWS TO PURLIN.
12. TOP OF PURLIN.
13. (3) ø12 SCREWS TO BEAM.
14. 2 ø12 SCREWS AT EACH BEAM MEMBER.
15. IF CLIP OPTION Z IS USED, THE END CAP BECOMES NON–STRUCTURAL AND MAY BE 22 GAGE.
16. ALL DIMENSIONS TO BE ± 1/2".



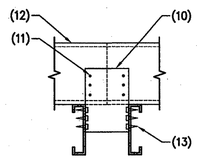
ENLARGED DETAIL OF PURLIN CLIP PER NOTE 2



X SECTION



OPTIONAL PURLIN CLIP WITH SPOT WELDS — OPTIONAL PURLIN CLIP WITH SCREWS

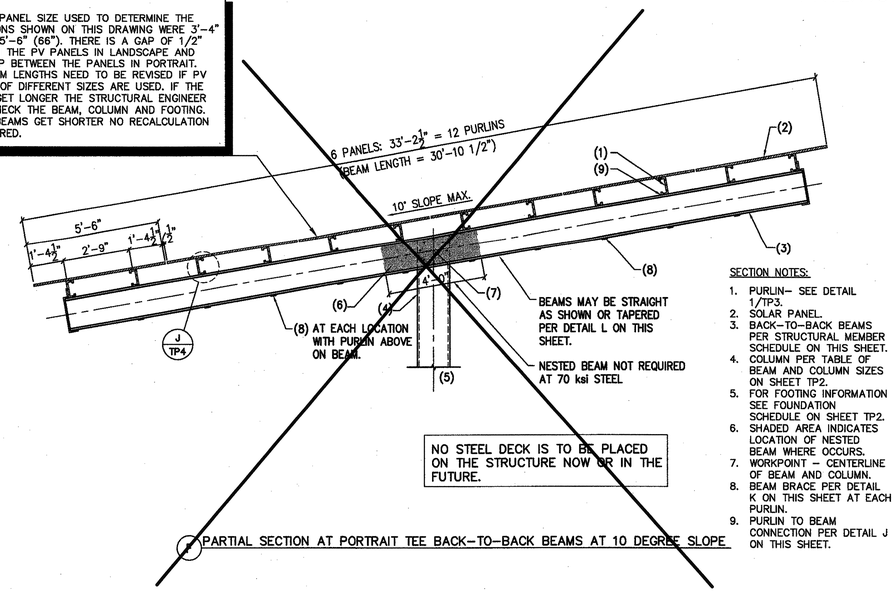


OPTIONAL PURLIN CLIP

Z PURLIN CLIP OPTION Z

J PURLIN TO BEAM CONNECTION — 11–071 NO SCALE

NOTE:
THE PV PANEL SIZE USED TO DETERMINE THE DIMENSIONS SHOWN ON THIS DRAWING WERE 3'–4" (40") x 5'–6" (66"). THERE IS A GAP OF 1/2" BETWEEN THE PV PANELS IN LANDSCAPE AND 1/2" GAP BETWEEN THE PANELS IN PORTRAIT. THE BEAM LENGTHS NEED TO BE REVISED IF PV PANELS OF DIFFERENT SIZES ARE USED. IF THE BEAMS GET LONGER THE STRUCTURAL ENGINEER MUST CHECK THE BEAM, COLUMN AND FOOTING. IF THE BEAMS GET SHORTER NO RECALCULATION IS REQUIRED.

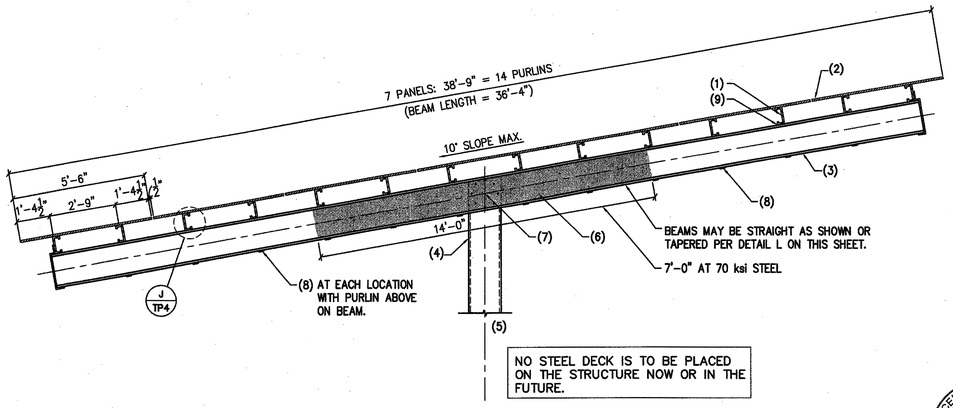


NO STEEL DECK IS TO BE PLACED ON THE STRUCTURE NOW OR IN THE FUTURE.

SECTION NOTES:

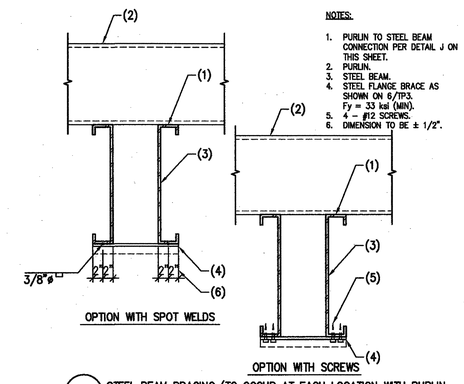
1. PURLIN– SEE DETAIL 1/TP3.
2. SOLAR PANEL.
3. BACK–TO–BACK BEAMS PER STRUCTURAL MEMBER SCHEDULE ON THIS SHEET.
4. COLUMN PER TABLE OF BEAM AND COLUMN SIZES ON SHEET TP2.
5. FOR FOOTING INFORMATION SEE FOUNDATION SCHEDULE ON SHEET TP2.
6. SHADED AREA INDICATES LOCATION OF NESTED BEAM WHERE OCCURS.
7. WORKPOINT – CENTERLINE OF BEAM AND COLUMN.
8. BEAM BRACE PER DETAIL K ON THIS SHEET AT EACH PURLIN.
9. PURLIN TO BEAM CONNECTION PER DETAIL J ON THIS SHEET.

F PARTIAL SECTION AT PORTRAIT TEE BACK–TO–BACK BEAMS AT 10 DEGREE SLOPE



NO STEEL DECK IS TO BE PLACED ON THE STRUCTURE NOW OR IN THE FUTURE.

G PARTIAL SECTION AT PORTRAIT TEE BACK–TO–BACK BEAMS AT 10 DEGREE SLOPE



OPTION WITH SPOT WELDS — OPTION WITH SCREWS

K STEEL BEAM BRACING (TO OCCUR AT EACH LOCATION WITH PURLIN ABOVE ON BEAM) — 11–071 NO SCALE

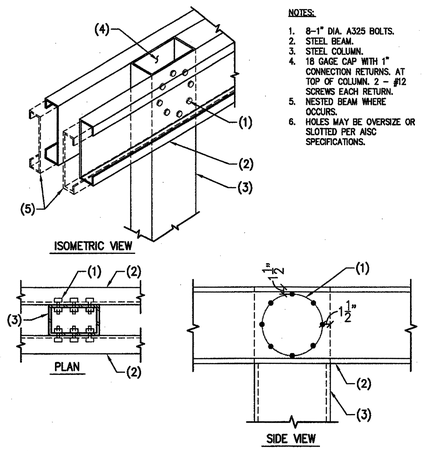
NOTES:

1. PURLIN TO STEEL BEAM CONNECTION PER DETAIL J ON THIS SHEET.
2. PURLIN.
3. STEEL BEAM.
4. STEEL FLANGE BRACE AS SHOWN ON 6/TP3. Fy = 33 ksi (MIN).
5. 4 – ø12 SCREWS.
6. DIMENSION TO BE ± 1/2".

STRUCTURAL MEMBER SCHEDULE

SOLAR CANOPY TYPE	STEEL BEAM SIZE (Fy=55 KSI)	NESTED BEAM SIZE (OPTION) (Fy=55 KSI)
6 PANEL TEE	(2) 16"x4"x1"x10 GA	(2) 16"x4"x1"x10 GA. WITH 14 GA. NESTED BEAM (SEE DETAIL F ON THIS SHEET FOR LENGTH AND LOCATION)
7 PANEL TEE	(2) 16"x4"x1"x10 GA	(2) 16"x4"x1"x10 GA. WITH 12 GA. NESTED BEAM (SEE DETAIL G ON THIS SHEET FOR LENGTH AND LOCATION)

STRUCTURAL MEMBER SCHEDULE



H BACK–TO–BACK STEEL BEAMS BOLTED TO STEEL COLUMN

NOTES:

1. 8–1" DIA. A325 BOLTS.
2. STEEL BEAM.
3. STEEL COLUMN.
4. 18 GAGE CAP WITH 1" CONNECTION RETURNS. AT TOP OF COLUMN. 2 – ø12 SCREWS EACH RETURN.
5. NESTED BEAM WHERE OCCURS.
6. HOLES MAY BE OVERSIZE OR SLOTTED PER AISC SPECIFICATIONS.

LICENSED ARCHITECT — DAVID SCOTT STOKES — No.C 15700 — REN. 6-30-13 — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL GT SCOTT — S 3325 — STRUCTURAL — STATE OF CALIFORNIA

11/15/12

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP# 03 11 4 4 18
AC FLS SS ED
DATE APR 11 2012

PATENTS PENDING

PRE-CHECK (PC) DOCUMENT
CODE: 2010 CBC
A SEPARATE PROJECT APPLICATION FOR CONSTRUCTION IS REQUIRED

DSA APP. NO 02-111999

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
02-111999
AC FLS SS KB
DATE 3-22-12

PATENTS PENDING

CARUSO TURLEY SCOTT INC.
consulting structural engineers
1215 W. Rio Salado Pkwy
Suite 200
Tempe, Arizona 85281
(480) 774-1700
(480) 774-1701 FAX
www.ctssz.com

PORTRAIT SOLAR PANELS ON TEE
SOLAR SUPPORT STRUCTURE
DSA PRE–CHECK

DRAWING EDITION/REF JOB #:
SITE PROJECT:
REVISIONS:
JOB NUMBER: 11–071
DRAWN: BLP | ENGINEER: PGS | CHECKED: DST
DATE: 3/15/12
SHEET: TP4

PATENTS PENDING

ABBREVIATIONS

NOTE: ABBREVIATIONS MAY OR MAY NOT HAVE PERIODS, BUT SHALL BE READ AS SAME.

A.B. — ANCHOR BOLT
A.B.C. — AGGREGATE BASE COURSE
ACI — AMERICAN CONCRETE INSTITUTE
A/C — AIR CONDITIONER
A.F.F. — ABOVE FINISHED FLOOR
AISC — AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI — AMERICAN IRON AND STEEL INSTITUTE
AITC — AMERICAN INSTITUTE OF TIMBER CONSTRUCTION
ALT. — ALTERNATE
ANSI — AMERICAN NATIONAL STANDARDS INSTITUTE
APA — AMERICAN PLYWOOD ASSOCIATION
ARCH'L — ARCHITECTURAL
ASTM — AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS — AMERICAN WELDING SOCIETY
A.W.T.S. — AUTOMATIC WELDED THREADED STUDS
BM — BEAM
B.F.F — BELOW FINISHED FLOOR
BLK — BLOCK
B.O.B. — BOTTOM OF BEAM
B.O.D. — BOTTOM OF DECK
B.O.F. — BOTTOM OF FOOTING
BRG — BEARING
C — CAMBER
C.C. — CENTERLINE TO CENTERLINE
C & C — COMPONENTS & CLADDING
CBC — CALIFORNIA BUILDING CODE
CFS — COLD FORMED STEEL
C.G. — CENTER OF GRAVITY
C.I.P. — CAST IN PLACE
C.L. — CENTERLINE
C.L.B. — CENTERLINE OF BEAM
C.L.C. — CENTERLINE OF COLUMN
C.L.F. — CENTERLINE OF FOOTING
C.L.W. — CENTERLINE OF WALL
CLR — CLEAR
CONC — CONCRETE
CONC C.J. — CONCRETE CONTROL JOINT
CONC S.J. — CONCRETE SAWCUT JOINT
C.M.U. — CONCRETE MASONRY UNIT
CONN — CONNECTION
CONT — CONTINUOUS
CRSI — CONCRETE REINFORCING STEEL INSTITUTE
D.F. (D.F.L.) — DOUGLAS FIR LARCH
DL — DEAD LOAD
DIA — DIAMETER
DN — DOWN
DSA — DIVISION OF STATE ARCHITECT
DWG(S) — DRAWING(S)
E.C. — END TO CENTERLINE
E.E. — END TO END
E.O.S. — EDGE OF SLAB
EQ — EQUAL
EQUIP — EQUIPMENT
EXP. BOLT (E.B.) — EXPANSION BOLT
EXP. JT (E.J.) — EXPANSION JOINT
E.W. — EACH WAY
F.F. — FINISHED FLOOR
F.O.M. — FACE OF MEMBER
F.O.S. — FACE OF STEEL
F.O.W. — FACE OF WALL
GA — GAGE (UNIT OF MEASUREMENT)
GALV — GALVANIZED
G.S.N. — GENERAL STRUCTURAL NOTES
GLB (GLULAM) — GLUED-LAMINATED BEAM
H.F. — HEM FIR
HORIZ — HORIZONTAL REINFORCING
H.S. — HEADED STUDS
IBC — INTERNATIONAL BUILDING CODE
ICBO — INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
ICC — INTERNATIONAL CODE COUNCIL
I.F.W. — INSIDE FACE OF WALL
I.O.D. — INTERPRETATION OF DRAWINGS

JST — JOIST
K(KIP) — 1000 POUNDS
KLF — KIPS PER LINEAR FOOT
LBS (#) — POUNDS
LGR — LEDGER
LGS — LIGHT GAGE STEEL
LGSEA — LIGHT GAGE STEEL ENGINEERS ASSOCIATION
L.O.D. — LOCATION OF DETAILS
LL — LIVE LOAD
LLH — LONG LEG HORIZONTAL
LLV — LONG LEG VERTICAL
MAS — MASONRY
MAS C.J. — MASONRY CONTROL JOINT
MAX — MAXIMUM
MBMA — METAL BUILDING MANUFACTURERS ASSOCIATION
MECH'L — MECHANICAL
MFR'D — MANUFACTURED
MFR('S) — MANUFACTURER('S)
MIN — MINIMUM
MWFRS — MAIN WIND FORCE RESISTANCE SYSTEM
N/A — NOT APPLICABLE
N.T.S. — NOT TO SCALE
O.C. — ON CENTER
O.F.W. — OUTSIDE FACE OF WALL
OPP — OPPOSITE
OSHA — OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PCI — PRECAST/PRESTRESSED CONCRETE INSTITUTE
P.C. — PRECAST CONCRETE
PCF — POUNDS PER CUBIC FOOT
PLF — POUNDS PER LINEAR FOOT
± — PLUS OR MINUS
PREFAB — PREFABRICATED
PSF — POUNDS PER SQUARE FOOT
PSI — POUNDS PER SQUARE INCH
PT — POST-TENSIONED
PTI — POST-TENSIONING INSTITUTE
REINF — REINFORCING
SDI — STEEL DECK INSTITUTE
SLH — SHORT LEG HORIZONTAL
SLV — SHORT LEG VERTICAL
SJI — STEEL JOIST INSTITUTE
SIM — SIMILAR
SQ. — SQUARE
SSMA — STEEL STUD MANUFACTURERS ASSOCIATION
STD — STANDARD
STL — STEEL
TL — TOTAL LOAD
T.O.B. — TOP OF BEAM
T.O.C.T. — TOP OF CONCRETE TOPPING
T.O.D. — TOP OF DECK
T.O.F. — TOP OF FOOTING
T.O.L. — TOP OF LEDGER
T.O.M. — TOP OF MASONRY
T.O.P. — TOP OF PLATE
T.O.P.C. — TOP OF PRECAST CONCRETE
T.O.S. — TOP OF STEEL
T.O.W. — TOP OF WALL
TPI — TRUSS PLATE INSTITUTE
TYP — TYPICAL
T&G — TONGUE AND GROOVE
UBC — UNIFORM BUILDING CODE
U.N.O. — UNLESS NOTED OTHERWISE
VERT — VERTICAL REINFORCING
WCLA — WEST COAST LUMBER ASSOCIATION
WCLIB — WEST COAST LUMBER INSPECTION BUREAU
W.W.F. — WELDED WIRE FABRIC
WWPA — WESTERN WOOD PRODUCTS ASSOCIATION
W/ — WITH
W/C — WATER TO CEMENT RATIO
W/O — WITHOUT

GENERAL STRUCTURAL NOTES

Applies unless noted otherwise on drawings

BUILDING CODE:

2010 EDITION OF THE CALIFORNIA BUILDING CODE.

OCCUPANCY GROUP PER SITE-SPECIFIC DOCUMENTS. ALLOWABLE AREA AND MINIMUM SEPARATION BETWEEN STRUCTURES TO BE DETERMINED AT EACH SPECIFIC LOCATION PER CBC WHICH IS TO BE CHECKED AT BACKCHECK.

II-B CONSTRUCTION

LOADS:

ROOFS:
ROOF DEAD LOAD = ACTUAL WEIGHT OF MEMBER:
SOLAR PANEL = 3 PSF (MAX)
PURLIN = 4 PLF
FOR 10 DEGREE ROOF SLOPE:
C&C WIND LOAD = 18.9 PSF (TOWARD THE SURFACE).
C&C WIND LOAD = 20.8 PSF (AWAY FROM THE SURFACE).
MWFRS WIND LOAD = 18.9 PSF / 4.4 PSF (TOWARD THE SURFACE).
MWFRS WIND LOAD = 17.8 PSF / 0.0 PSF (AWAY FROM THE SURFACE).
ROOF LIVE LOAD = 10 PSF. DESIGN FOR 300 POUND POINT LOAD LOCATED TO CAUSE MAXIMUM MOMENTS AND SHEAR. USE THE 300 POUND LOAD WITH WIND, BUT NOT WITH 10 PSF ROOF LIVE LOAD.
NO STEEL DECK IS TO BE PLACED ON THE STRUCTURE – NOW OR IN THE FUTURE.

LATERAL:
OCCUPANCY CATEGORY II
WIND:
3 SECOND WIND GUST = 85 MPH.
WIND IMPORTANCE FACTOR = 1.0.
EXPOSURE C.
THIS DESIGN CAN BE USED FOR ANY ROOF SLOPE FROM 0 DEGREES TO 10 DEGREES.

SEISMIC:
SEISMIC IMPORTANCE FACTOR = 1.0.
SHORT PERIOD SPECTRAL ACCELERATION Ss = 2.85.
ONE SECOND SPECTRAL ACCELERATION S1 = 1.15.
REDUNDANCY FACTOR p = 1.3.
Sds = 1.005 (MAX.).
Sd1 = 1.16 (MAX.).
SEISMIC DESIGN CATEGORY D.
BASIC SEISMIC-FORCE RESISTING SYSTEM = CANTILEVERED COLUMN SYSTEMS DETAILED TO CONFORM TO THE REQUIREMENTS FOR ORDINARY STEEL MOMENT FRAMES.
RESPONSE MODIFICATION FACTOR (R)= 1.25.
ANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE PROCEDURE.
Cs = 1.52.
DESIGN BASE SHEAR (3 PANEL) = 2690 LBS.
DESIGN BASE SHEAR (4 PANEL) = 3680 LBS.

FOUNDATIONS:

ALL FOOTINGS SHALL BE DESIGNED FOR THE SPECIFIC SITE. DRILLED PIER FOOTING DESIGNS ARE BASED ON THE ALLOWABLE LATERAL BEARING PRESSURES SHOWN IN DETAIL 2. THE ALLOWABLE LATERAL BEARING PRESSURE MAY BE MULTIPLIED BY 2.0 PER CBC SECTION 1806A.3.4. THE DRILLED PIER FOOTINGS ARE DESIGNED AS CONSTRAINED (SECTION 1807A.3.2.2, EQUATION 18A-2) WHERE PLACED IN A CONCRETE PAVEMENT AREA AND AS UNCONSTRAINED (SECTION 1807A.3.2.2, EQUATION 18A-1 OR CZERNIAK, WHICHEVER IS DEEPER) WHERE PLACED IN ASPHALT PAVEMENT AREAS OR DIRT AREAS.

SPREAD FOOTING DESIGNS ARE BASED ON CBC SECTION 1806A, CLASS 5 SOILS. SPREAD FOOTINGS SHALL BEAR ON FIRM, UNDISTURBED SOIL 2 FEET MINIMUM BELOW ADJACENT EXISTING GRADE. DESIGN SOIL BEARING VALUE = 1500 PSF. SOILS ENGINEER MUST VERIFY THAT 1500 PSF SOILS (MINIMUM) ARE PRESENT AT SITE.

CONCRETE:

SPECIFIED 28 DAY COMPRESSIVE STRENGTH F'c:

FOUNDATIONS -- 3,000 PSI

GENERAL:

ALL CAST-IN-PLACE CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ACI. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED UNLESS NOTED OTHERWISE. ADMIXTURES CONTAINING CHLORIDES SHALL NOT BE USED. NO OTHER ADMIXTURES PERMITTED WITHOUT APPROVAL. FOR CONCRETE WITHOUT PLASTICIZER, MAXIMUM SLUMP 4 1/2" AT POINT OF PLACEMENT U.N.O. IF PLASTICIZER IS USED, A HIGHER FINAL SLUMP MAY BE ALLOWED UPON STRUCTURAL ENGINEER'S APPROVAL.

FOR REINFORCING INFORMATION, SEE REINFORCING SECTION OF G.S.N., PLANS, SCHEDULES AND DETAILS.

FLY ASH – SHALL BE LIMITED TO 50% OF TOTAL CEMENTITIOUS MATERIALS BY WEIGHT.

TEST DATA FOR EACH CONCRETE MIX SHALL BE SUBMITTED FOR REVIEW PER CHAPTER 5 OF ACI 318. REFERENCE FIGURE R5.3 FOR SUBMITTAL REQUIREMENTS AND OPTIONS. CONCRETE MIX DESIGNS THAT ARE SUBMITTED WITHOUT THE APPROPRIATE TEST DATA CANNOT BE REVIEWED.

IT IS ACCEPTABLE AND INTENDED TO USE EARTH CUTS FOR THE DRILLED PIER FOOTING AND SPREAD FOOTING. THE FOOTING DESIGNS INDICATED ON THIS SHEET DO NOT APPLY IF THE EARTH CUTS ARE UNSTABLE AND/OR DO NOT STAND ON THEIR OWN.

THE FOOTINGS INDICATED ON THIS SHEET DO NOT APPLY WHERE ORGANIC FILL MATERIALS EXIST.

CONCRETE SHALL BE ADEQUATELY VIBRATED AROUND THE EMBEDDED STEEL COLUMNS TO ENSURE THE CONCRETE HAS COMPLETELY SURROUNDED THE STEEL COLUMN AND TO ENSURE THE CONCRETE AT THE INSIDE OF THE STEEL COLUMN HAS RISEN TO THE LEVEL OF THE CONCRETE IN THE REMAINDER OF THE DRILLED PIER OR SPREAD FOOTING. CONCRETE SHALL SLOPE UP SLIGHTLY TOWARDS COLUMNS TO PREVENT WATER FROM PONDING AROUND COLUMNS.

IT IS ACCEPTABLE FOR CONCRETE TO FREE FALL INTO FOOTINGS.

REINFORCING:

ALL REINFORCING PER CRSI SPECIFICATIONS AND HANDBOOK. ASTM A615 (Fy = 60 KSI / GRADE 60) DEFORMED BARS FOR ALL BARS. WHERE SHOWN ON DRAWINGS ALL GRADE 60 REINFORCING TO BE WELDED SHALL BE ASTM A706. NO TACK WELDING OF REINFORCING BARS ALLOWED WITHOUT PRIOR REVIEW OF PROCEDURE WITH THE STRUCTURAL ENGINEER. LATEST ACI CODE AND DETAILING MANUAL APPLY. CLEAR CONCRETE COVERAGES AS FOLLOWS:

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ---------------- 3"
EXPOSED TO EARTH OR WEATHER
#6 OR LARGER ---------------- 2"
#5 AND SMALLER ---------------- 1 1/2"
ALL OTHER PER LATEST EDITION OF ACI 318

ALL REINFORCING SHALL BE CHAIRED TO ENSURE PROPER CLEARANCES. SUPPORT OF FOUNDATION REINFORCING MUST PROVIDE ISOLATION FROM MOISTURE/CORROSION BY USE OF A PLASTIC OR CONCRETE CHAIR. DUCT-TAPE COVERED REINFORCING IS NOT AN ACCEPTABLE CHAIR.

ALL DIMENSIONS REFERENCED IN DRAWINGS AS "CLEAR" SHALL BE FROM FACE OF STRUCTURE TO EDGE OF REINFORCING, AND SHALL NOT BE LESS THAN STATED, NOR GREATER THAN "CLEAR" DIMENSION PLUS 3/8". ALL OTHERS SHALL BE PLUS OR MINUS 1/4" TYPICAL UNLESS NOTED OTHERWISE.

FIELD BENDING OR STRAIGHTENING OF DEFORMED BARS SHALL BE LIMITED TO #5 BARS AND SMALLER AND SHALL BE FIELD BENT OR STRAIGHTENED ONLY ONCE. ANY BEND SHALL BE LIMITED TO 90 DEGREES. IF FIELD BENDING OR STRAIGHTENING OF #6 BARS OR LARGER IS REQUIRED, OR IF A SECOND BEND IS REQUIRED FOR #5 BARS AND SMALLER, HEAT SHALL BE APPLIED FOR BENDING OR STRAIGHTENING. CONTRACTOR SHALL SUBMIT PROCEDURE FOR APPLYING HEAT TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO BENDING OR STRAIGHTENING BARS.

STRUCTURAL STEEL:

GENERAL:

ALL CONSTRUCTION PER LATEST AISC STEEL CONSTRUCTION

ALL CONSTRUCTION PER LATEST AISC STEEL CONSTRUCTION MANUAL. ALL WIDE FLANGE STEEL SHALL BE ASTM A992 (Fy = 50 KSI). ALL PIPE STEEL SHALL BE ASTM A500 (Fy = 42 KSI) OR ASTM A53, TYPE E OR S, GRADE B (Fy = 35 KSI). ALL MISCELLANEOUS STEEL UNLESS NOTED OTHERWISE SHALL BE ASTM A36 (Fy = 36 KSI). IF CALLED OUT ON PLANS, Fy = 50 KSI PLATE STEEL SHALL BE ASTM A529 OR A572.

ALL STRUCTURAL ROLLED STEEL MEMBERS WITH Fy GREATER THAN 36 KSI ARE TO BE IDENTIFIED WITH AN ASTM SPECIFICATION MARK OR TAG PER IBC SEC. 2203.1.

HOLLOW STRUCTURAL SHAPE (HSS):

HSS COLUMNS ARE CALLED OUT ON THE DRAWINGS AS EITHER ASTM A500 (Fy = 46 KSI) OR ASTM A572 (Fy = 65 KSI).

ASTM A500 (Fy = 46 KSI) HSS SECTIONS ARE TO BE PRODUCED PER THE SPECIFICATIONS SET FORTH IN AISC.

ASTM A572 (Fy = 65 KSI) HSS SECTIONS ARE TO BE PRODUCED BY DIRECT-FORMING OR FOLDING OF THE PLATE FOLLOWED BY AN ELECTRIC RESISTANCE WELD ALONG THE SEAM. INLINE INSPECTION OF THE WELD ZONE DURING PRODUCTION BY NON-DESTRUCTIVE TESTING (NDT) (ULTRASONIC INSPECTION) IS REQUIRED.

THE TERMS PIPE AND ROUND HOLLOW STRUCTURAL SHAPE (HSS) ARE USED SYNONYMOUSLY THROUGHOUT THESE DOCUMENTS ALONG WITH THE TERMS TUBE STEEL AND RECTANGULAR OR SQUARE HSS.

BOLTS:

ALL BOLTS SHALL BE ASTM A325 AND SHALL BE INSTALLED AS SLIP CRITICAL CONNECTIONS WITH THREADS INCLUDED IN SHEAR PLANE. TIGHTEN BOLTS PER AISC SPECIFICATIONS. IT IS ACCEPTABLE TO USE OVERSIZE HOLES OR SLOTTED HOLES PER AISC SPECIFICATIONS.

PATENTS PENDING

WELDING:

UNLESS NOTED OTHERWISE, ALL WELDS PER LATEST EDITION OF THE AWS STANDARDS. ALL WELDING SHALL BE PERFORMED BY WELDERS HOLDING VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN THE TYPE OF WELD SHOWN ON THE DRAWINGS OR NOTES. CERTIFICATES SHALL BE THOSE ISSUED BY AN ACCEPTED TESTING AGENCY. ALL WELDING DONE BY E70 SERIES LOW HYDROGEN RODS UNLESS NOTED OTHERWISE. FOR GRADE 60 REINFORCING BARS, USE E90 SERIES. THESE DRAWINGS DO NOT DISTINGUISH BETWEEN SHOP AND FIELD WELDS; THE CONTRACTOR MAY SHOP WELD OR FIELD WELD AT THEIR DISCRETION. SHOP WELDS AND FIELD WELDS SHALL BE SHOWN ON THE SHOP DRAWINGS SUBMITTED FOR REVIEW.

ALL FULL (COMPLETE) PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY.

ALL SPOT WELDS SHALL BE PER LATEST AISI AND AWS STANDARDS.

STEEL CONNECTORS:

SCREW FASTENERS:

ALL STEEL SCREWS SHALL BE IN ACCORDANCE WITH AISI-GENERAL AND AISI-NAS.
Fy = 50 ksi AND Ft = 70 ksi FOR ALL SCREWS.

1. MINIMUM SPACING OF SCREWS SHALL NOT BE LESS THAN 3 TIMES THE NOMINAL DIAMETER. MINIMUM EDGE DISTANCE FOR SCREWS SHALL NOT BE LESS THAN 1.5 TIMES THE NOMINAL SCREW DIAMETER.
2. THE HEAD OF THE SCREW OR WASHER SHALL HAVE A DIAMETER, DW, OF NOT LESS THAN 5/16". WASHERS SHALL BE AT LEAST 0.05" THICK.

SCREW NUMBER DESIGNATION	8	10	12 (12-14)	14
NOMINAL DIAMETER	0.164"	0.190"	0.216"	0.250"

COLD FORMED STRUCTURAL STEEL FRAMING:

GENERAL:

ALL COLD FORMED STEEL COMPONENTS INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH THE LATEST EDITION OF "SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" BY THE AISI.

FRAMING:

ALL STRUCTURAL STEEL FRAMING MATERIAL AND ITS ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN IRON AND STEEL INSTITUTE "SPECIFICATIONS FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBER".

ALL WELDING TO BE PERFORMED BY WELDERS HOLDING A VALID CERTIFICATE AND HAVING CURRENT EXPERIENCE IN LIGHT GAUGE STEEL. CERTIFICATES SHALL BE ISSUED BY AN ACCEPTED TESTING AGENCY. DO NOT NOTCH FLANGES OF MEMBERS WITHOUT EXPRESSED APPROVAL OF THE ENGINEER OF RECORD. ALL WELDING TO BE PERFORMED IN AN APPROVED FABRICATORS SHOP.

STRUCTURAL STEEL MEMBERS ARE FURNISHED TO A SPECIFIED MINIMUM Fy = 55,000 PSI. U.N.O. THE GRADE AND THE ASTM SPECIFICATION NUMBER OR OTHER SPECIFICATION DESIGNATION SHALL BE INDICATED BY PAINTING, DECAL, TAGGING OR OTHER SUITABLE MEANS ON EACH BUNDLE OF FABRICATED ELEMENTS. IT IS ACCEPTABLE TO USE THE Fy SHOWN ON THE MILL CERTIFICATION IN LIEU OF THE "ORDERED" Fy. IT IS ACCEPTABLE TO USE STEEL WITH Fy = 70 KSI IF THE STEEL USED IS IN THE AISI AND/OR AISC SPECIFICATION, THE ELONGATION IN A 2" COUPON IS A MINIMUM OF 10% AND THE RATIO OF Ft OVER Fy IS AT LEAST 1.08.

MILS	GAGE NO.	MIN DELIVERED THICKNESS	DESIGN THICKNESS
12	30	0.0120"	0.0126"
14	29	0.0132"	0.0139"
16	26	0.0174"	0.0183"
33	20	0.0336"	0.0354"
43	18	0.0447"	0.0470"
54	16	0.0561"	0.0590"
68	14	0.0713"	0.0750"
97	12	0.0998"	0.1050"
118	10	0.1283"	0.1350"

GENERAL NOTES:

THE STRUCTURAL CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. EXCEPT WHERE NOTED, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE STRUCTURAL ENGINEER OF RECORD SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES FOR PROCEDURE OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND THE PROGRAMS INCIDENT THERETO (NOR SHALL OBSERVATION VISITS TO THE SITE INCLUDE INSPECTION OF THESE ITEMS).

WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDA. ANY ENGINEERING DESIGN, PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW, SHALL BEAR THE SEAL OF A REGISTERED ENGINEER RECOGNIZED BY THE BUILDING CODE JURISDICTION OF THIS PROJECT.

NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN.

CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH THE ARCHITECT. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING AND ELECTRICAL ITEMS WITH THE APPROPRIATE TRADE DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.

TYPICAL DETAILS MAY NOT NECESSARILY BE CUT ON PLANS, BUT APPLY UNLESS NOTED OTHERWISE.

CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED CONSTRUCTION. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.

OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. IF AN OPTION IS CHOSEN, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CHANGES, APPROVALS AND THE COORDINATION OF THE WORK WITH ALL RELATED TRADES AND SUPPLIERS.

SPECIAL INSPECTION – STRUCTURAL ONLY:

SPECIAL INSPECTION IS REQUIRED PER CHAPTER 17A OF THE CBC FOR THE FOLLOWING:

CONCRETE CONSTRUCTION:

1. CONCRETE:
A. DURING THE TAKING OF TEST SPECIMENS.
B. THE PLACEMENT OF ALL FOUNDATION CONCRETE.

2. REINFORCING STEEL: INSPECTION OF IN-PLACE REINFORCING FOR CONFORMANCE PRIOR TO THE CLOSING OF FORMS OR THE DELIVERY OF CONCRETE TO THE JOBSITE FOR THE FOLLOWING:
A. REINFORCING FOR SPREAD FOOTING AND DRILLED PIER CONCRETE FOUNDATIONS.
B. REINFORCING FOR INVERTER SLABS ON THE GROUND.

STEEL CONSTRUCTION:

1. WELDING:
A. PERIODIC VISUAL INSPECTION OF ALL FIELD WELDS.
B. CONTINUOUS INSPECTION OF ALL MULTIPASS FILLET WELDS OR SINGLE PASS FILLET WELDS LARGER THAN 5/16".
C. NON-DESTRUCTIVE TESTING OF ALL COMPLETE PENETRATION WELDS BY AN AWS CERTIFIED INDEPENDENT TESTING LABORATORY AT THE CONTRACTORS EXPENSE.
D. VERIFICATION OF VALID WELDER'S CERTIFICATES.
E. ALL STRUCTURAL STEEL FABRICATORS SHALL EMPLOY AN AWS CERTIFIED INDEPENDENT TESTING LAB TO PROVIDE SHOP WELD INSPECTIONS PER CODE. INSPECTION REPORTS SHALL BE SUBMITTED TO ENGINEER OF RECORD PRIOR TO STEEL INSTALLATION.

2. STEEL FRAMES: VERIFICATION OF BRACING, STIFFENING, MEMBER LOCATIONS, AND PROPER JOINT DETAIL APPLICATION AT ALL STEEL FRAME CONNECTIONS.

3. HIGH STRENGTH BOLTING:
A. VERIFICATION OF SLIP CRITICAL BOLT INSTALLATION FOR ASTM A325 BOLTS.

DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:

A. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO BE CERTAIN IT CONFORMS TO THE APPROVED DESIGN DRAWINGS AND SPECIFICATION.
B. THE SPECIAL INSPECTOR IS NOT AUTHORIZED TO APPROVE DEVIATIONS FROM THE DESIGN DRAWINGS OR SPECIFICATIONS, AND ALL DEVIATIONS MUST BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD AND/OR DSA PRIOR TO PROCEEDING WITH THE WORK. ALL REQUESTS FOR DEVIATIONS SHALL BE INITIATED BY THE CONTRACTOR VIA WRITTEN REQUEST FOR INFORMATION (RFI).
C. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE DSA AND TO THE ENGINEER OR ARCHITECT OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE DSA AND/OR THE ARCHITECT OR ENGINEER OF RECORD.
D. CONTRACTOR SHALL PROVIDE THE SPECIAL INSPECTOR ACCESS TO ALL ITEMS REQUIRING SPECIAL INSPECTION. ACCESS SHALL BE PROVIDED BY IN-PLACE LADDERS, SCAFFOLDS, LIFTS AND/OR OTHER EQUIPMENT OPERATED BY THE CONTRACTOR'S PERSONNEL AS REQUIRED FOR SAFE OBSERVATION. INSPECTOR IS NOT RESPONSIBLE OR AUTHORIZED TO OPERATE CONTRACTOR'S EQUIPMENT.
E. UPON COMPLETION OF THE ASSIGNED WORK THE ENGINEER OR ARCHITECT SHALL COMPLETE AND SIGN THE APPROPRIATE FORMS CERTIFYING THAT TO THE BEST OF THEIR KNOWLEDGE THE WORK IS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.

THE SOLAR PANELS AND THEIR ANCHORAGE SYSTEMS ARE DEFERRED ITEMS. PER TITLE 24, PART 1, SECTION 4-317 (g), THEIR DESIGNS SHALL BE REVIEWED AND APPROVED BY DSA PRIOR TO INSTALLATION. THE DEFERRED SUBMITTAL DOCUMENTS SHALL BE STAMPED AND SIGNED BY EITHER AN ARCHITECT OR REGISTERED ENGINEER WITH A VALID CALIFORNIA LICENSE. PLEASE NOTE THAT ADDITIONAL CANOPY FRAMING AND BEARING BLOCKS MAY BE REQUIRED FOR CONNECTING THE SOLAR PANEL ANCHORAGE SYSTEM TO THE CANOPY.

NOTES FOR SITE SPECIFIC PHOTOVOLTAIC (PV) INSTALLATION:

1. THESE DRAWINGS ARE FOR THE STEEL STRUCTURES SUPPORTING PV PANELS. NO PROVISIONS ARE INCLUDED IN THESE DRAWINGS FOR THE PV PANELS OR THE PV PANEL INSTALLATION.
2. THE PV PANELS AND THE PV PANEL INSTALLATION SHALL BE SUBMITTED AS A SITE SPECIFIC APPLICATION. (REFER TO THE BOX NOTE REGARDING THE SOLAR PANELS AND THEIR ANCHORAGE BEING A DEFERRED ITEM).
3. PV PANELS SHALL BE INSTALLED PER DRAWINGS THAT HAVE BEEN SUBMITTED TO AND REVIEWED/PERMITTED BY DSA. THE PV DRAWINGS SHALL PROVIDE THE MINIMUM FOLLOWING INFORMATION.

A. LOCATION ALL ELECTRICAL EQUIPMENT.
B. WIRING DIAGRAMS TO AND FROM ALL PV PANELS AND ELECTRICAL EQUIPMENT.
C. ALL GROUNDING DETAILS FOR STRUCTURES AND EQUIPMENT.
D. ALL DISCONNECTION LOCATIONS AND DETAILS.
E. EQUIPMENT WARNING LABELS FOR INVERTER OVER VOLTAGE. SINGLE 120 VOLT SUPPLY WITHOUT MULTI BRANCH CIRCUITS AND ELECTRICAL SHOCK HAZARD.

4. REFER TO CEC ARTICLE 690 FOR ADDITIONAL REQUIREMENTS AND DETAILS.

NOTE: PV SYSTEM SHALL BE MARKED. MARKING IS NEEDED TO PROVIDE EMERGENCY RESPONDERS WITH APPROPRIATE WARNING AND GUIDANCE WITH RESPECT TO ISOLATING THE SOLAR ELECTRIC SYSTEM. THIS CAN FACILITATE IDENTIFYING ENERGIZED ELECTRICAL LINES THAT CONNECT THE SOLAR PANELS TO THE INVERTER AND MAIN SERVICE DISCONNECT. THE LABEL SHALL BE OF A WEATHER-RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT. MARKING CONTENT SHALL READ: "CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED". THIS LABEL SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED.

ADDITIONAL MARKING IS REQUIRED OF THE DC CIRCUIT. MARKING IS REQUIRED ON ALL INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES AND JUNCTION BOXES TO ALERT FIRE SERVICE TO AVOID CUTTING THEM. MARKING SHALL BE PLACED EVERY 10 FEET, AT TURNS AND ABOVE AND/OR BELOW PENETRATIONS AND AT ALL DC COMBINER AND JUNCTION BOXES. MARKING FOR CIRCUIT SHALL READ: "CAUTION: SOLAR CIRCUIT".

PATENTS PENDING

	GOVERNING LOAD COMBOS		M MAX(K')	V MAX(K)
	PURLIN	DL + 0.75W + 0.75Lr	4.05	0.68
	~~BEAM 3P~~	~~DL + 0.75W + 0.75Lr~~	~~50.53~~	~~8.73~~
	BEAM 4P	DL + 0.75W + 0.75Lr	99.07	9.65
10.5' CLR.	COLUMN AND FOOTING STRONG AXIS 3P	DL + 0.75W (MWFRS) + 0.75Lr	56.75	2.68
10.5' CLR.	COLUMN AND FOOTING STRONG AXIS 4P	DL + 0.75W (MWFRS) + 0.75Lr	104.46	3.64
10.5' CLR.	COLUMN AND FOOTING WEAK AXIS 3P	(1 + .14 SDS) DL + 0.7pE	37.80	2.69
10.5' CLR.	COLUMN AND FOOTING WEAK AXIS 4P	(1 + .14 SDS) DL + 0.7pE	56.71	3.67
~~12' CLR.~~	~~COLUMN AND FOOTING STRONG AXIS 3P~~	~~DL + 0.75W (MWFRS) + 0.75Lr~~	~~57.84~~	~~2.68~~
~~12' CLR.~~	~~COLUMN AND FOOTING STRONG AXIS 4P~~	~~DL + 0.75W (MWFRS) + 0.75Lr~~	~~106.04~~	~~3.65~~
~~12' CLR.~~	~~COLUMN AND FOOTING WEAK AXIS 3P~~	~~(1 + .14 SDS) DL + 0.7pE~~	~~41.95~~	~~2.69~~
~~12' CLR.~~	~~COLUMN AND FOOTING WEAK AXIS 4P~~	~~(1 + .14 SDS) DL + 0.7pE~~	~~62.39~~	~~3.68~~

3P = 3 PANELS, 4P = 4 PANELS

SHEET INDEX FOR 02-112000	
~~FL1~~	~~FULL LANDSCAPE GENERAL STRUCTURAL NOTES~~
~~FL2~~	~~FULL LANDSCAPE BOX BEAM~~
~~FL3~~	~~FULL LANDSCAPE BOX BEAM DETAILS~~
~~FL4~~	~~FULL LANDSCAPE BACK TO BACK~~
FP1	FULL PORTRAIT GENERAL STRUCTURAL NOTES
FP2	FULL PORTRAIT BOX BEAM
FP3	FULL PORTRAIT BOX BEAM DETAILS
FP4	FULL PORTRAIT BACK TO BACK

IDENTIFY THE OPTIONS TO BE USED BY CROSSING OUT OPTIONS NOT USED IN ANY SPECIFIC PROJECT.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP03 1 1 4 4 1 8
AC ____ FLS FC SS ED
DATE APR 11 2012

LICENSED ARCHITECT — DAVID SCOTT STOKES — No.C 15700 — REN. 6-30-13 — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — PAUL G. SCOTT — S 3325 — STRUCTURAL — STATE OF CALIFORNIA

3/20/12

PATENTS PENDING

PRE-CHECK (PC) DOCUMENT

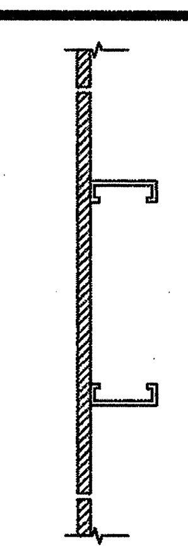
CODE: 2010 CBC
A SEPARATE PROJECT APPLICATION FOR CONSTRUCTION IS REQUIRED

DSA APP. NO 02-112000

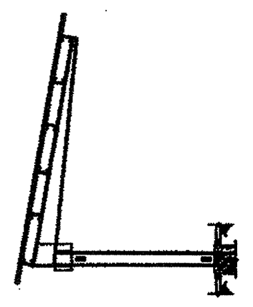
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
02-112000
AC ____ FLS ____ SS KB
DATE 3.22.12

THESE DRAWINGS/CALCULATIONS ARE CONSIDERED PRELIMINARY —NOT FOR CONSTRUCTION OR RECORDING UNLESS THE STRUCTURAL ENGINEER OF RECORD'S SEAL IS AFFIXED WITH WRITTEN SIGNATURE.

CARUSO TURLEY SCOTT INC.
consulting structural engineers
1215 W. Rio Salado Pkwy
Suite 200
Tempe, Arizona 85281
(480) 774-1700
(480) 774-1701 FAX
www.ctsaz.com



PORTRAIT SOLAR PANELS ON FULL CANTILEVER SOLAR SUPPORT STRUCTURE DSA PRE-CHECK



WWW.POWERSSTEEL.COM
POWERS STEEL & WIRE

PATENTS PENDING

DRAWING EDITION/REF JOB #

SITE PROJECT:

REVISIONS:

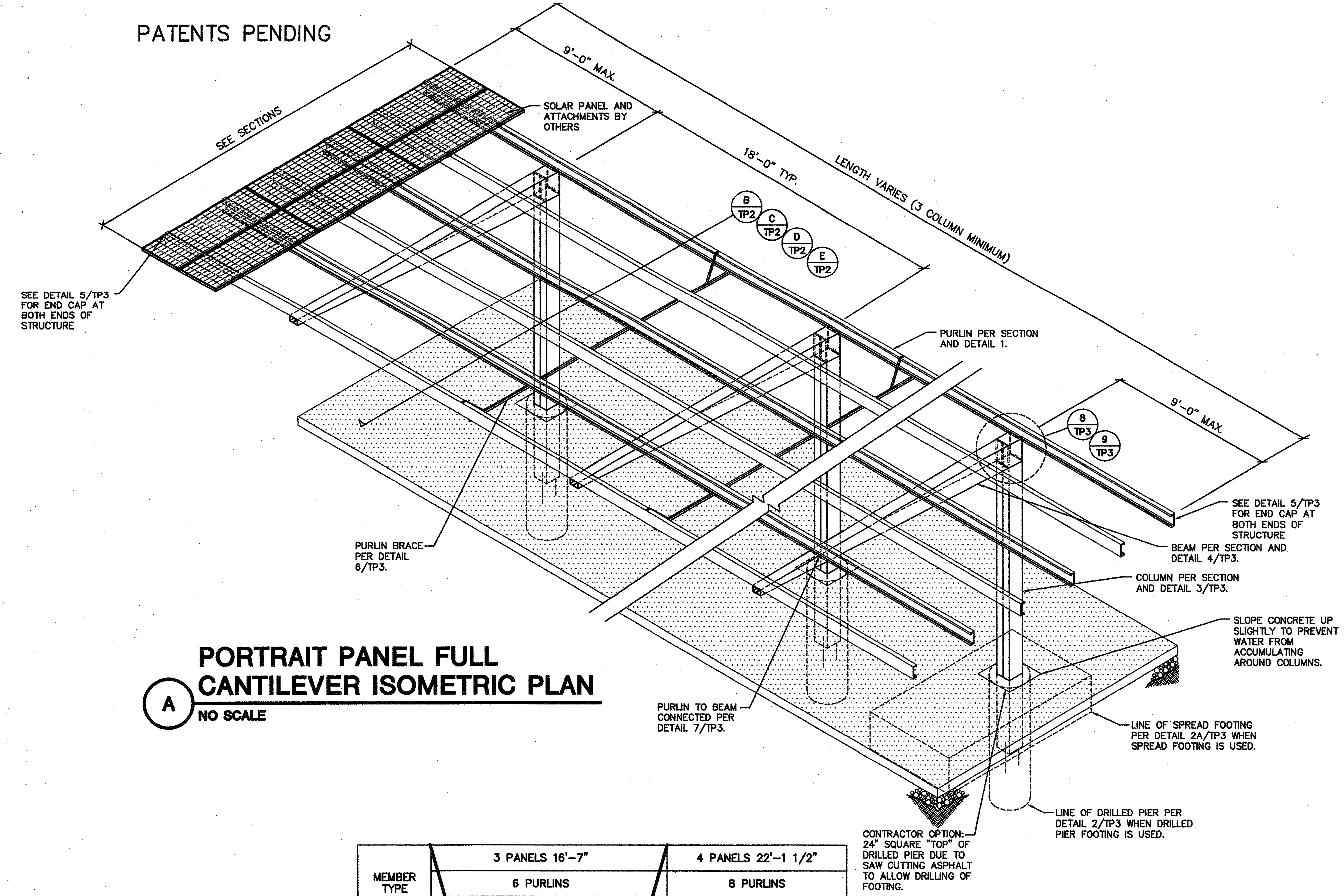
JOB NUMBER: 11-071

DRAWN:	ENGINEER:	CHECKED:
BLP	PGS	DST

DATE: 3/15/12

SHEET: FP1

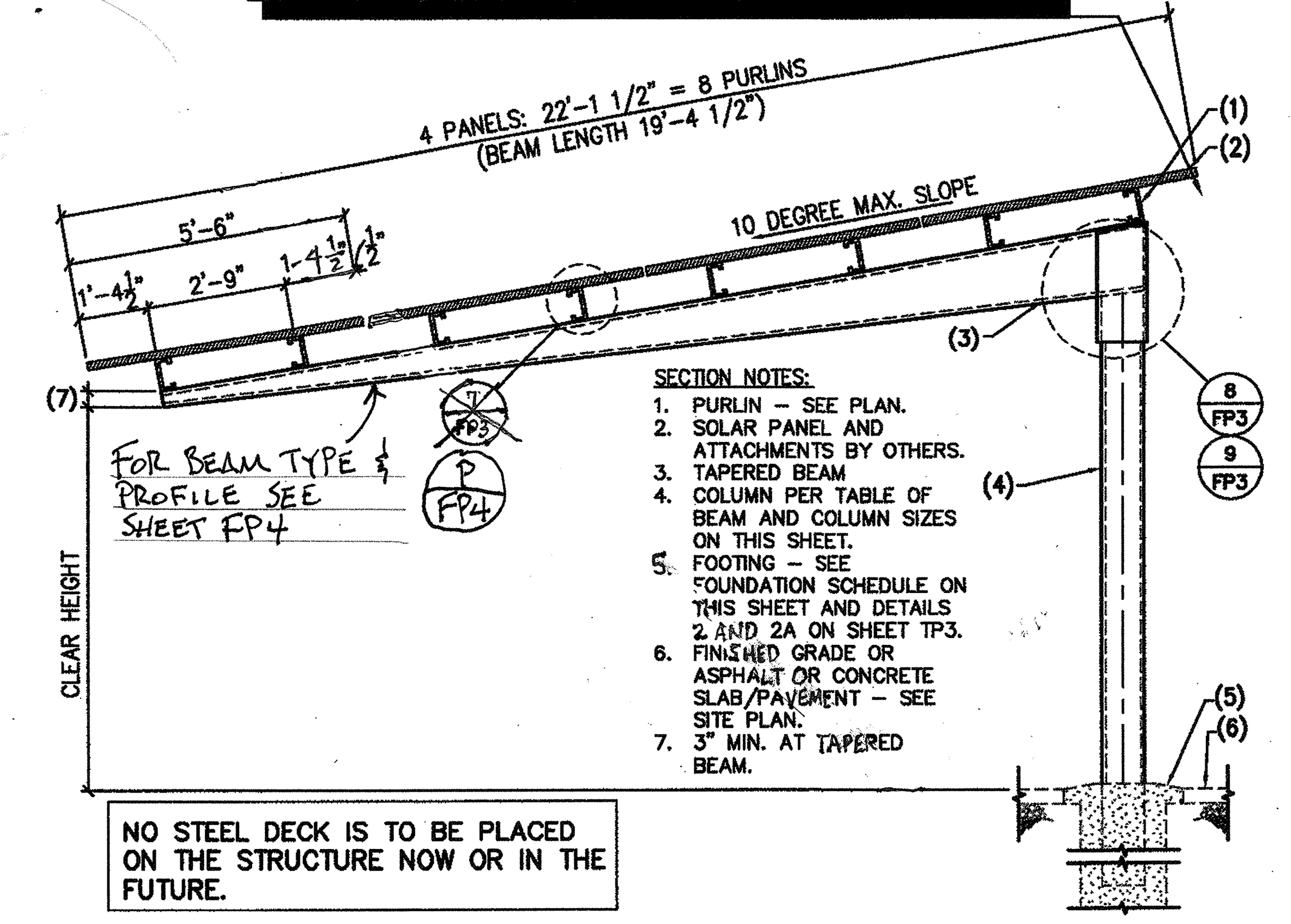
PATENTS PENDING



PORTRAIT PANEL FULL CANTILEVER ISOMETRIC PLAN

(A) NO SCALE

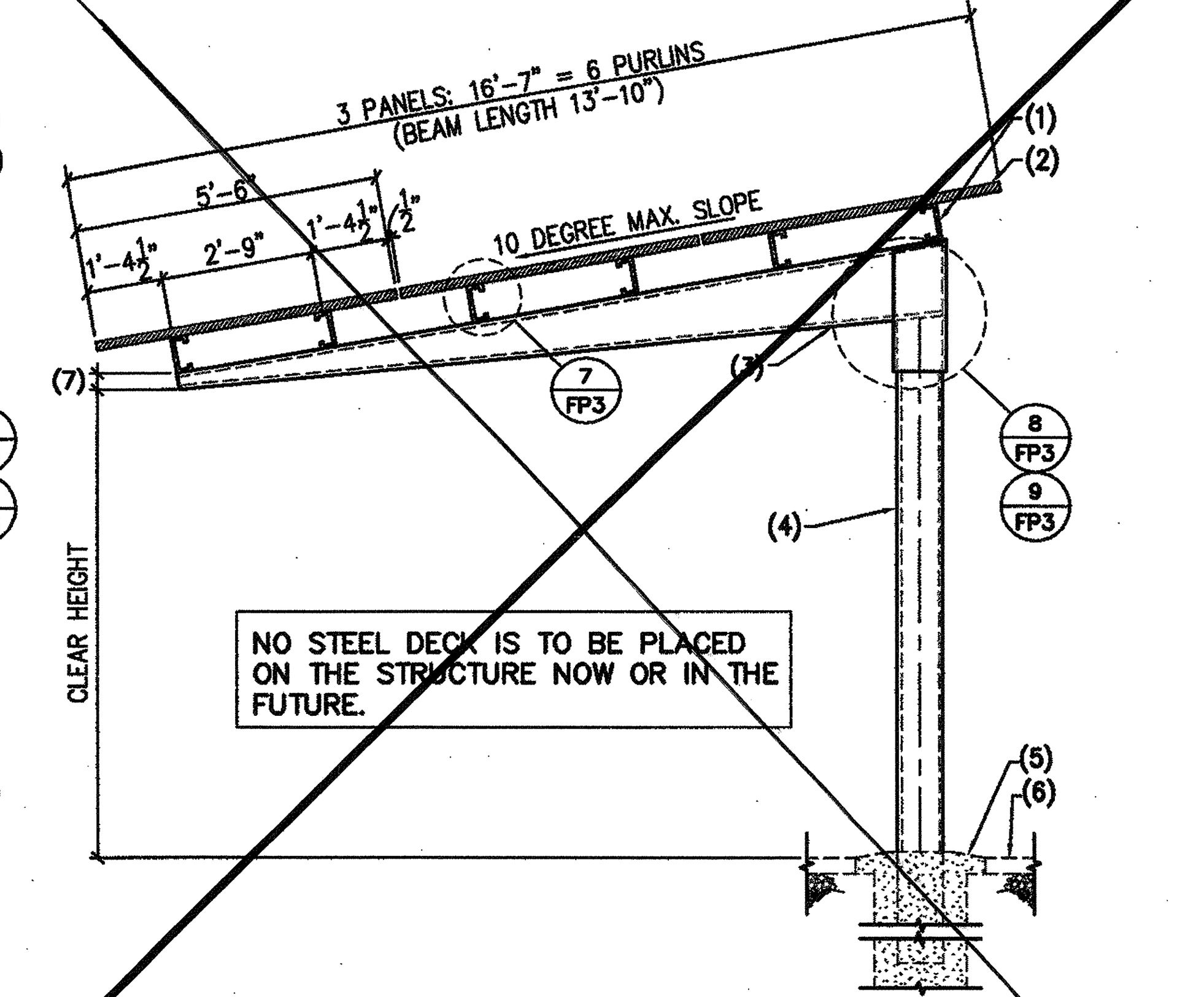
NOTE:
THE PV PANEL SIZE USED TO DETERMINE THE DIMENSIONS SHOWN ON THIS DRAWING WERE 3'-4" (40") x 5'-6" (66"). THERE IS A GAP OF 1/2" BETWEEN THE PV PANELS IN LANDSCAPE AND 1/2" GAP BETWEEN THE PANELS IN PORTRAIT. THE BEAM LENGTHS NEED TO BE REVISED IF PV PANELS OF DIFFERENT SIZES ARE USED. IF THE BEAMS GET LONGER THE STRUCTURAL ENGINEER MUST CHECK THE BEAM, COLUMN AND FOOTING. IF THE BEAMS GET SHORTER NO RECALCULATION IS REQUIRED.



SECTION NOTES:
1. PURLIN – SEE PLAN.
2. SOLAR PANEL AND ATTACHMENTS BY OTHERS.
3. TAPERED BEAM
4. COLUMN PER TABLE OF BEAM AND COLUMN SIZES ON THIS SHEET.
5. FOOTING – SEE FOUNDATION SCHEDULE ON THIS SHEET AND DETAILS 2 AND 2A ON SHEET TP3.
6. FINISHED GRADE OR ASPHALT OR CONCRETE SLAB/PAVEMENT – SEE SITE PLAN.
7. 3" MIN. AT TAPERED BEAM.

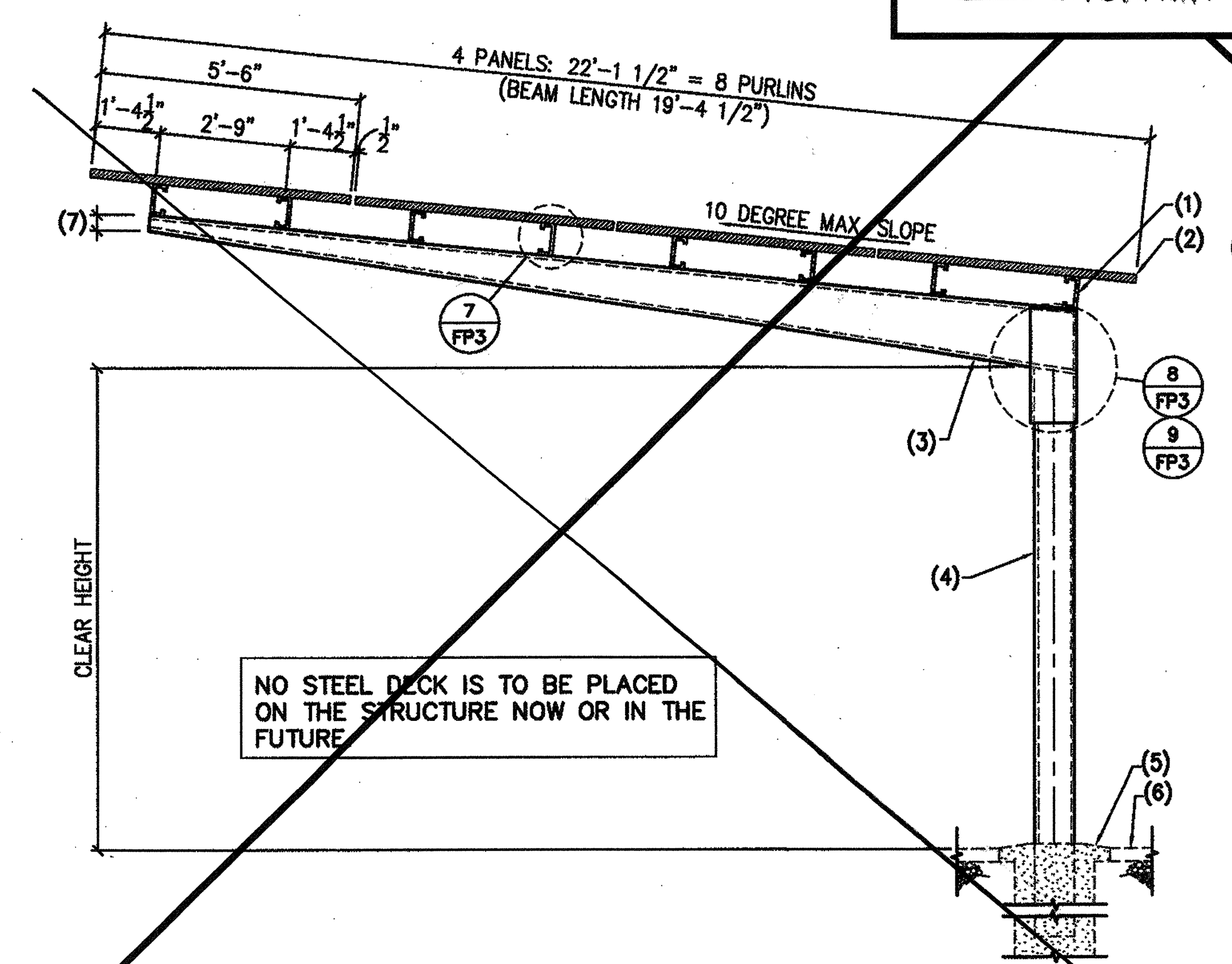
NO STEEL DECK IS TO BE PLACED ON THE STRUCTURE NOW OR IN THE FUTURE.

(B) SECTION AT PORTRAIT TAPERED FULL CANTILEVER BEAM AT 10 DEGREE SLOPE

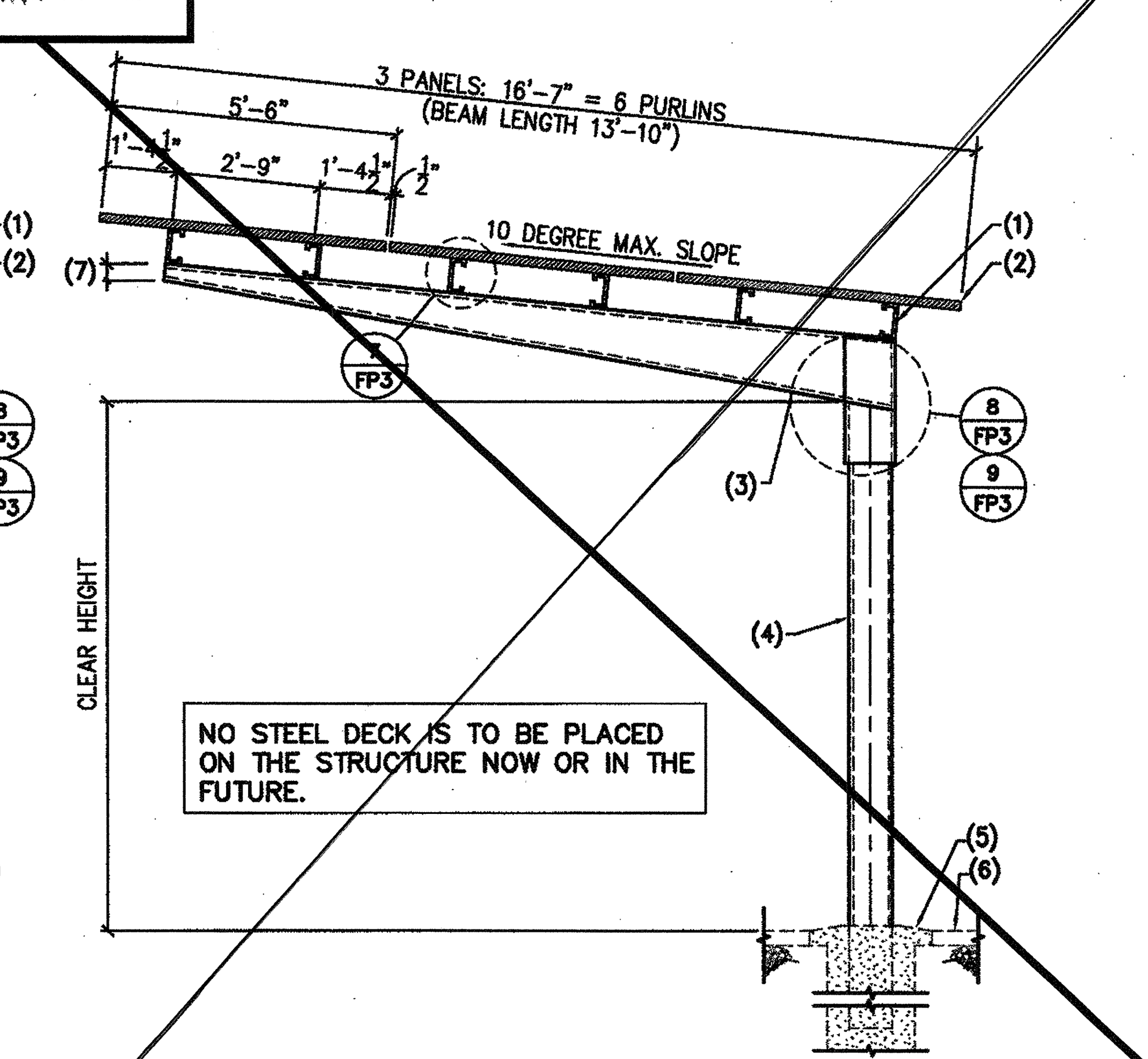


(C) SECTION AT PORTRAIT TAPERED FULL CANTILEVER BEAM AT 10 DEGREE SLOPE

SEE SHEET FP4 FOR ADD'L INFORMATION



(D) SECTION AT PORTRAIT TAPERED FULL CANTILEVER BEAM AT 10 DEGREE SLOPE



(E) SECTION AT PORTRAIT TAPERED FULL CANTILEVER BEAM AT 10 DEGREE SLOPE

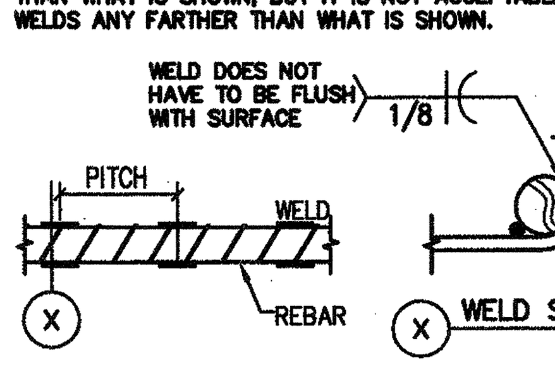
MEMBER TYPE		3 PANELS 16'-7"	4 PANELS 22'-1 1/2"
		6 PURLINS	8 PURLINS
		85 MPH/EXPOSURE C	85 MPH/EXPOSURE C
BEAM SIZES	BEAM WITH WELDED CONNECTION PER DETAIL 8/FP3	10 GA. 16" 8" 1"	10 GA. 16" 8" 1" 4 #8 BEAM REINFORCING; 8'-0" FOR Fy=55ksi; 4'-0" FOR Fy=70ksi; 4 #8 BEAM REINFORCING
	BEAM WITH BOLTED CONNECTION PER DETAIL 9/FP3	10 GA. 16" 8" 1"	10 GA. 16" 8" 1" 4" 2"; 10 GA. LIGHT GAGE HALF-CEE (A CEE SHAPE CUT IN HALF); 8'-0" FOR Fy=55ksi; 4'-0" FOR Fy=70ksi
COLUMN SIZES	CLEAR HEIGHT		
	10'-6"	8" 16" HSS 16"x8"x1/4" Fy= 46 ksi; HSS 16"x8"x1/4" Fy= 65 ksi	8" 16" HSS 16"x8"x3/8" Fy= 46 ksi; HSS 16"x8"x5/16" Fy= 65 ksi
	12'-0"	8" 16" HSS 16"x8"x1/4" Fy= 46 ksi; HSS 16"x8"x1/4" Fy= 65 ksi	8" 16" HSS 16"x8"x3/8" Fy= 46 ksi; HSS 16"x8"x5/16" Fy= 65 ksi

NOTES:
1. FOR BEAM REINFORCING INFORMATION NOT SHOWN, SEE DETAIL 4/FP3.
2. BEAM REINFORCEMENT WITH REBAR OPTION MAY ALSO BE USED WITH BOLTED CONNECTION.

TABLE OF BEAM AND COLUMN SIZES

REBAR SIZE	WELD LENGTH (IN) – PITCH (C.TO C. SPACING) (IN)	MINIMUM NUMBER OF 2" LONG WELDS
#8	2 – 13	7

NOTE:
IT IS ACCEPTABLE TO USE A CLOSER CENTER TO CENTER SPACING THAN WHAT IS SHOWN, BUT IT IS NOT ACCEPTABLE TO SPACE THE WELDS ANY FARTHER THAN WHAT IS SHOWN.



(X) WELD SECTION

FULL-CANT FOUNDATION SCHEDULE													
NOTE: DRILLED PIER SIZE BASED ON THE ALLOWABLE LATERAL SOIL BEARING (PASSIVE) PRESSURE PER SOILS REPORT. IF NO SOILS REPORT IS PROVIDED, USE PASSIVE PRESS = 100 PSF/FT. SPREAD FOOTINGS SHALL BEAR 24" MIN. BELOW LOWEST ADJACENT FINISHED GRADE. SEE GSN AND DETAIL FOR ADDITIONAL INFORMATION.													
			DRILLED PIER EMBEDMENT DEPTH (32" DIAMETER)								SPREAD FOOTING SIZE		
			PASSIVE = 100PSF/FT		PASSIVE = 200PSF/FT		PASSIVE = 300PSF/FT		PASSIVE = 400PSF/FT				
PANEL ORIENTATION	# OF PANELS	CLEAR HEIGHT (MAX.)	DIRT AND/OR ASPHALT PAVEMENT (UNCONSTRAINED)	CONCRETE PAVEMENT (CONSTRAINED)	DIRT AND/OR ASPHALT PAVEMENT (UNCONSTRAINED)	CONCRETE PAVEMENT (CONSTRAINED)	DIRT AND/OR ASPHALT PAVEMENT (UNCONSTRAINED)	CONCRETE PAVEMENT (CONSTRAINED)	DIRT AND/OR ASPHALT PAVEMENT (UNCONSTRAINED)	CONCRETE PAVEMENT (CONSTRAINED)	THICKNESS	WIDTH	LENGTH
~~P~~	~~3~~	~~10'-6"~~	~~12'-7"~~	~~7'-11"~~	~~10'-0"~~	~~6'-4"~~	~~8'-9"~~	~~5'-6"~~	~~7'-11"~~	~~5'-0"~~	~~56"~~	~~9'-0"~~	~~9'-6"~~
~~P~~	~~3~~	~~12'-0"~~	~~12'-8"~~	~~8'-2"~~	~~10'-1"~~	~~6'-8"~~	~~8'-10"~~	~~5'-8"~~	~~8'-0"~~	~~5'-2"~~	~~56"~~	~~9'-6"~~	~~9'-6"~~
P	4	10'-6"	~~13'-5"~~	~~9'-5"~~	~~12'-3"~~	~~7'-6"~~	~~10'-8"~~	~~6'-6"~~	9'-9"	5'-11"	56"	9'-6"	11'-6"
~~P~~	~~4~~	~~12'-0"~~	~~13'-8"~~	~~9'-8"~~	~~12'-1"~~	~~7'-8"~~	~~10'-9"~~	~~6'-7"~~	~~8'-8"~~	~~6'-8"~~	~~56"~~	~~10'-0"~~	~~11'-6"~~

FOUNDATION SCHEDULE

LICENSED ARCHITECT
DAVID SCOTT STOKES
No.C 15700
REN. 6-30-13
STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP03 1 1 4 4 1 8
AC ✓ FLS ✓ SS ED
DATE APR 11 2012

REGISTERED PROFESSIONAL ENGINEER
PAUL G. SCOTT
S 3325
3/15/12
STRUCTURAL
STATE OF CALIFORNIA

PATENTS PENDING

PRE-CHECK (PC) DOCUMENT
CODE: 2010 CBC
A SEPARATE PROJECT APPLICATION FOR CONSTRUCTION IS REQUIRED

DSA APP. NO 02-112000

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
02-112000
AC [illegible] FLS [illegible] SS KB
DATE 3.22.12

THESE DRAWINGS/CALCULATIONS ARE CONSIDERED PRELIMINARY –NOT FOR CONSTRUCTION OR RECORDING UNLESS THE STRUCTURAL ENGINEER OF RECORD'S SEAL IS AFFIXED WITH WRITTEN SIGNATURE.

PATENTS PENDING

CARUSO TURLEY SCOTT INC.
consulting structural engineers
1215 W. Rio Salado Pkwy
Suite 200
Tempe, Arizona 85281
(480) 774-1700
(480) 774-1701 FAX
www.ctsaz.com

PORTRAIT SOLAR PANELS ON FULL CANTILEVER SOLAR SUPPORT STRUCTURE DSA–PRE CHECK

WWW.POWERSSTEEL.COM
POWERS STEEL & WIRE
PATENTS PENDING

DRAWING EDITION/REF JOB #

SITE PROJECT:

REVISIONS:

JOB NUMBER: 11-071

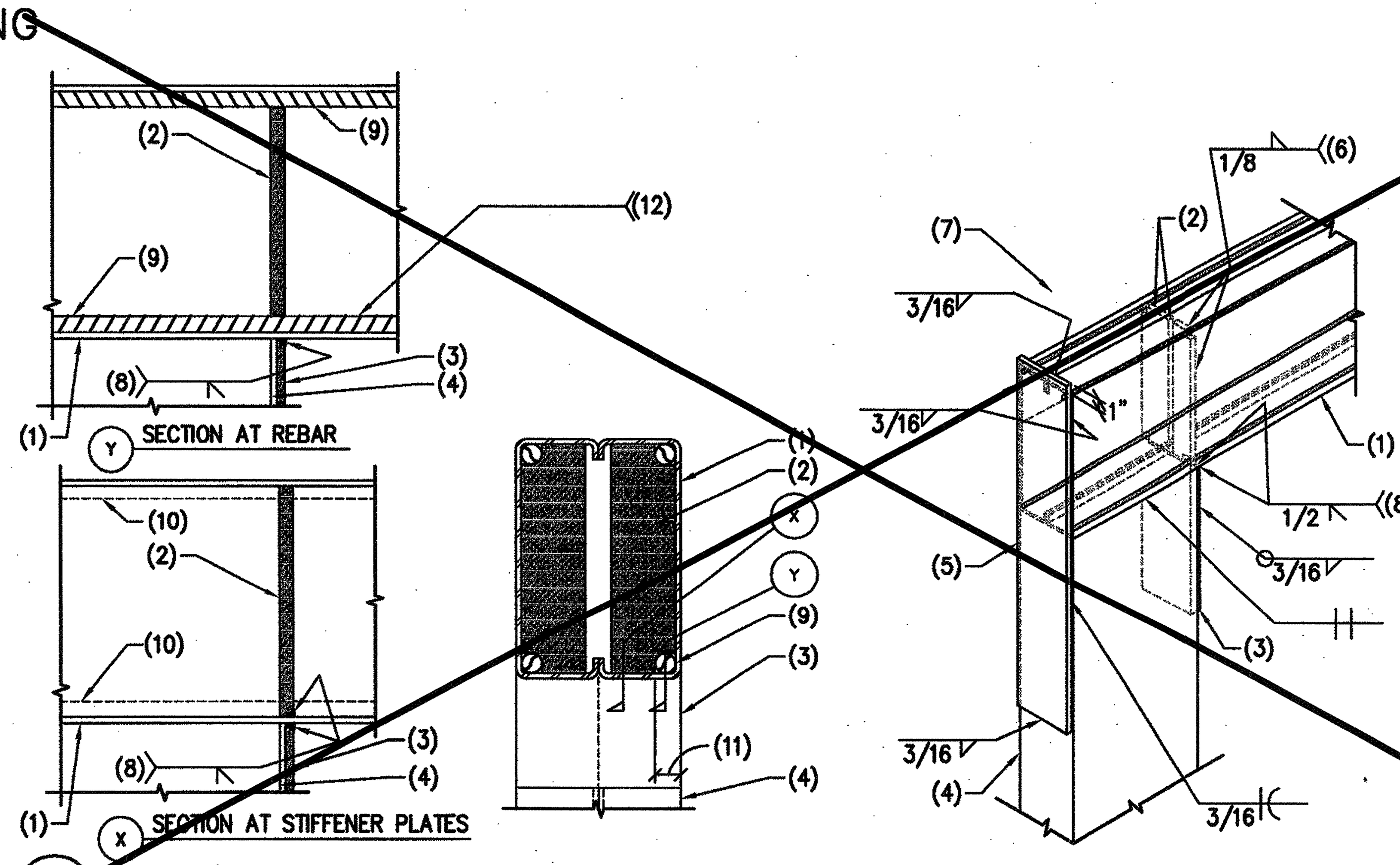
DRAWN:	ENGINEER:	CHECKED:
BLP	PGS	DST

DATE: 3/15/12

SHEET: FP2

PATENTS PENDING

PATENTS PENDING



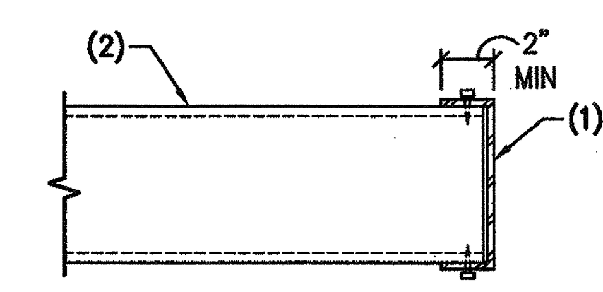
(Y) SECTION AT REBAR

(X) SECTION AT STIFFENER PLATES

NOTES:

1. TAPERED BEAM.
2. 3" WIDE x 1" THICK STIFFENER PLATES INSIDE BEAM. Fy = 50 KSI.
3. BEAM WIDTH x 10"x1" STEEL CONNECTOR PLATE. Fy = 50 ksi.
4. COLUMN.
5. BEAM WIDTH x 32"x1/4" THICK STEEL BACK PLATE. Fy = 50 ksi.
6. TYPICAL AT STIFFENER TO BEAM AT TOP AND ONE SIDE OF STIFFENER.
7. SOLAR PANEL AND PURLINS NOT SHOWN FOR CLARITY. FOR PURLIN TO BEAM CONNECTION SEE DETAIL 7 THIS SHEET.
8. PARTIAL PENETRATION (1/8" LESS THAN THE MINIMUM THICKNESS OF PLATE BEING CONNECTED) WELD FROM CONNECTOR PLATE TO BOTTOM OF BEAM AND FROM STIFFENER PLATES TO BOTTOM OF BEAM.
9. STEEL REBAR AS OCCURS.
10. REBAR BEYOND.
11. 7/8" MAX. IF REBAR OCCURS.
12. WELD REBAR TO STEEL BEAM PER TABLE OF BEAM AND COLUMN SIZES ON SHEET FP2.

8 BEAM TO COLUMN CONNECTION – WELDED 11–071 NO SCALE

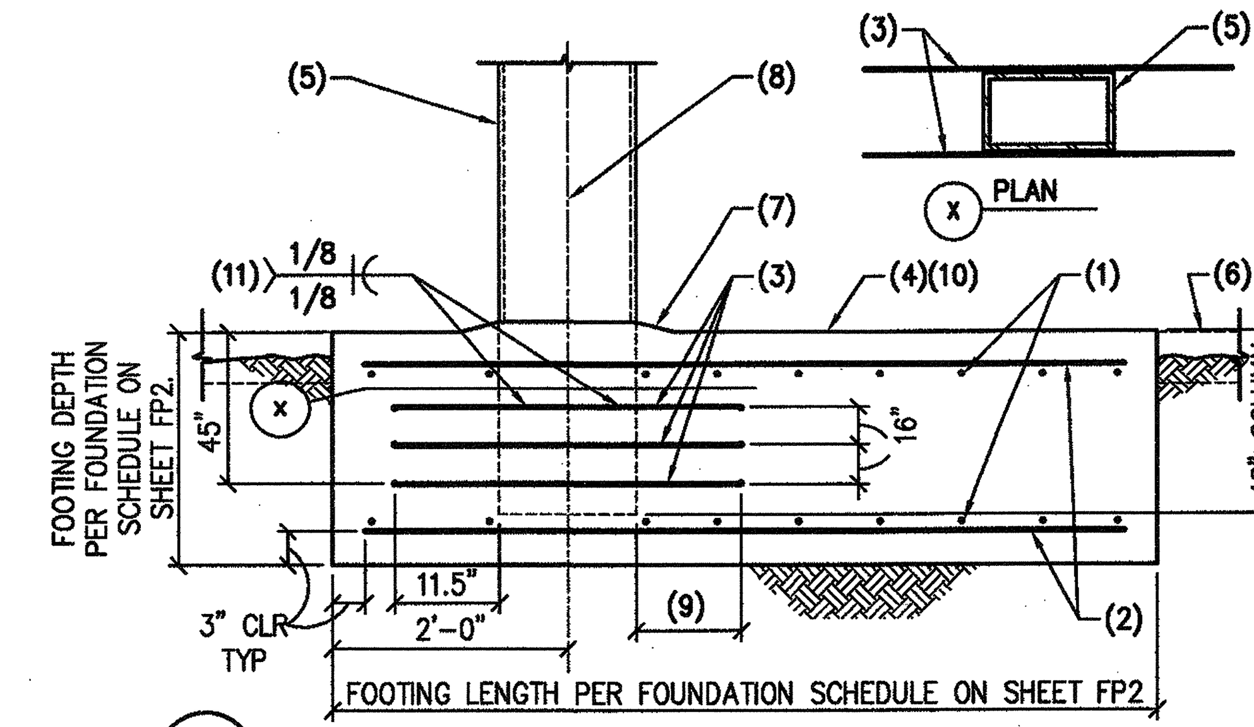


NOTES:

1. CONTINUOUS END CAP TRIM – 16 GA MIN. ATTACH TO PURLIN WITH #12 x 3/4" SCREWS WITH "WAFER HEADS" AT TOP AND BOTTOM FLANGE.
2. PURLIN.

5 END CAP AT PURLIN 10–788 NO SCALE

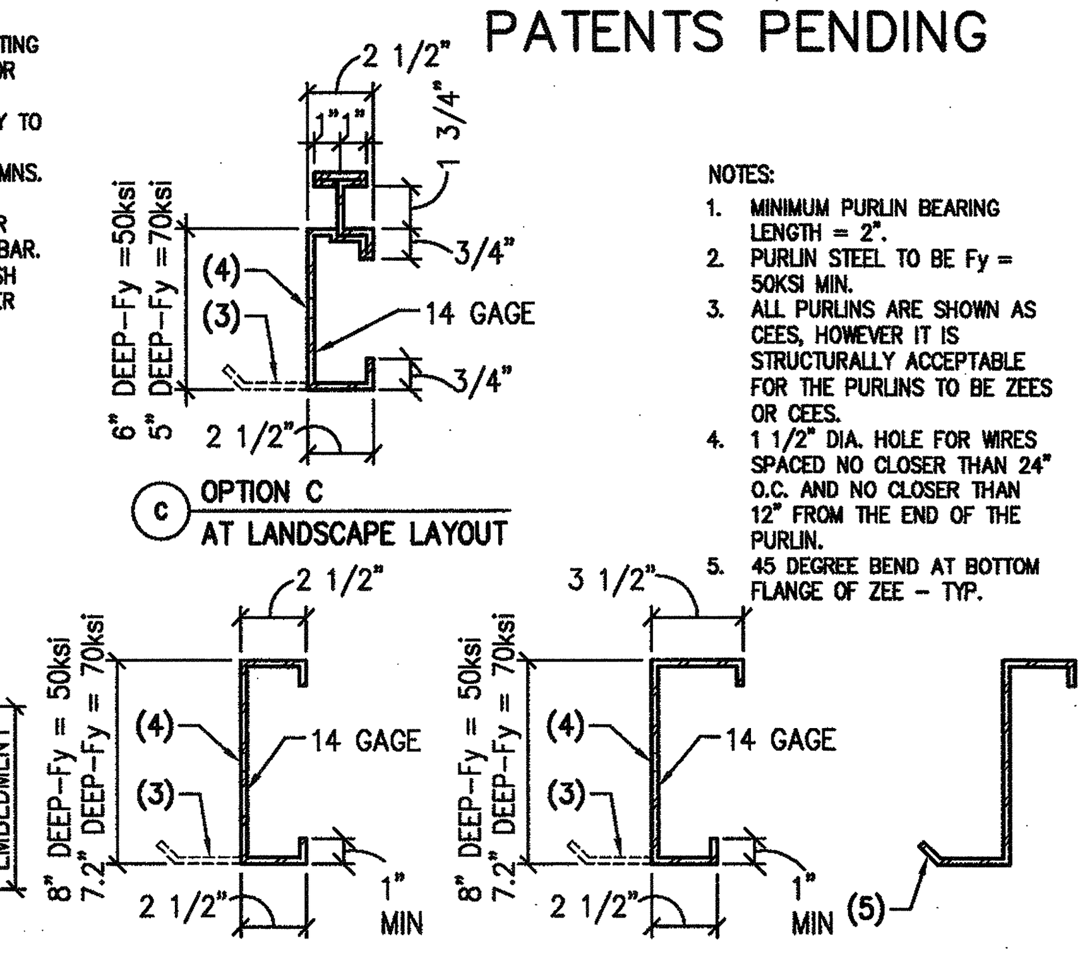
1. 10 #7 TRANSVERSE REINFORCING TOP AND BOTTOM IN FOOTING EQUALLY SPACED WITH 3" CLEAR AT ENDS AND FROM SIDE OF FOOTING.
2. 10 #7 LONGITUDINAL REINFORCING TOP AND BOTTOM IN FOOTING EQUALLY SPACED WITH 3" CLEAR AT ENDS AND FROM SIDES OF FOOTING.
3. 6 #8 HOOKED BARS – THREE EACH SIDE OF COLUMN. 12" 39" | 12" OR 12" 48"
4. CONCRETE FOOTING PER FOUNDATION SCHEDULE ON SHEET FP2.
5. COLUMN.
6. FINISHED GRADE OR CONCRETE OR ASPHALT SLAB. TOP OF FOOTING AT TOP OF FINISHED GRADE OR SLAB.
7. SLOPE CONCRETE UP SLIGHTLY TO PREVENT WATER FROM ACCUMULATING AROUND COLUMNS.
8. CENTERLINE OF COLUMN.
9. 11.5" AT DOUBLE HOOKED BAR AND 20" AT SINGLE HOOKED BAR.
10. PROVIDE MEDIUM SALTED FINISH OR SLIP-RESISTANT FINISH PER CBC SECTION 1133B.7.
11. 4" MIN. TYP.



(X) PLAN

2A FULL CANTILEVER OPTIONAL SPREAD FOOTING NO SCALE

PATENTS PENDING



(C) OPTION C AT LANDSCAPE LAYOUT

(A) OPTION A AT PORTRAIT LAYOUT

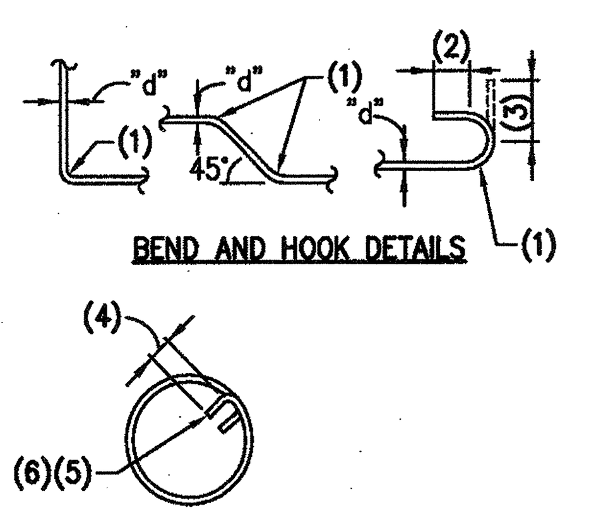
(B) OPTION B AT LANDSCAPE LAYOUT

EXAMPLE AT FLANGE OF ZEE

NOTES:

1. MINIMUM PURLIN BEARING LENGTH = 2".
2. PURLIN STEEL TO BE Fy = 50KSI MIN.
3. ALL PURLINS ARE SHOWN AS CEES, HOWEVER IT IS STRUCTURALLY ACCEPTABLE FOR THE PURLINS TO BE ZEES OR CEES.
4. 1 1/2" DIA. HOLE FOR WIRES SPACED NO CLOSER THAN 24" O.C. AND NO CLOSER THAN 12" FROM THE END OF THE PURLIN.
5. 45 DEGREE BEND AT BOTTOM FLANGE OF ZEE – TYP.

1 PURLIN 11–071 NO SCALE



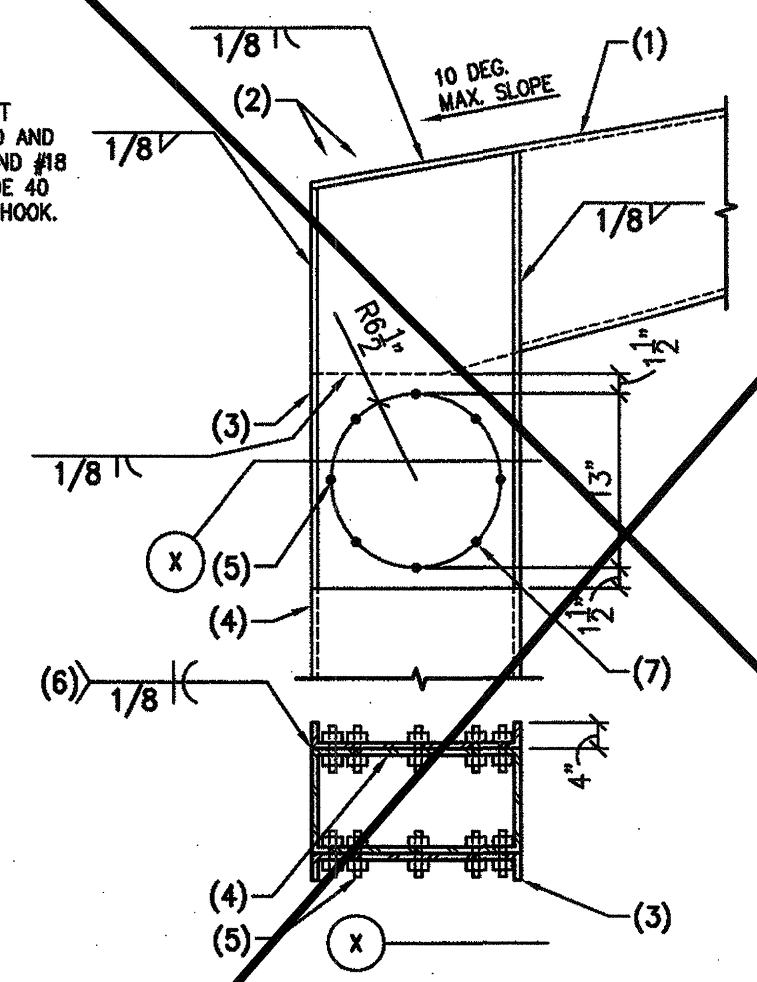
BEND AND HOOK DETAILS

COLUMN TIES

NOTES:

1. RADIUS=3d FOR BARS NOT OVER #8; 4d FOR #9, #10 AND #11 BARS; 5d FOR #14 AND #18 BARS. 5d FOR ALL GRADE 40 BARS WITH 180 DEGREE HOOK.
2. 4d (4" MINIMUM).
3. 12d (90 DEGREE HOOK).
4. 6d (4" MINIMUM).
5. 135 DEGREE BEND.
6. ROTATE TIE LOCATION 90 DEGREES EACH TIE.

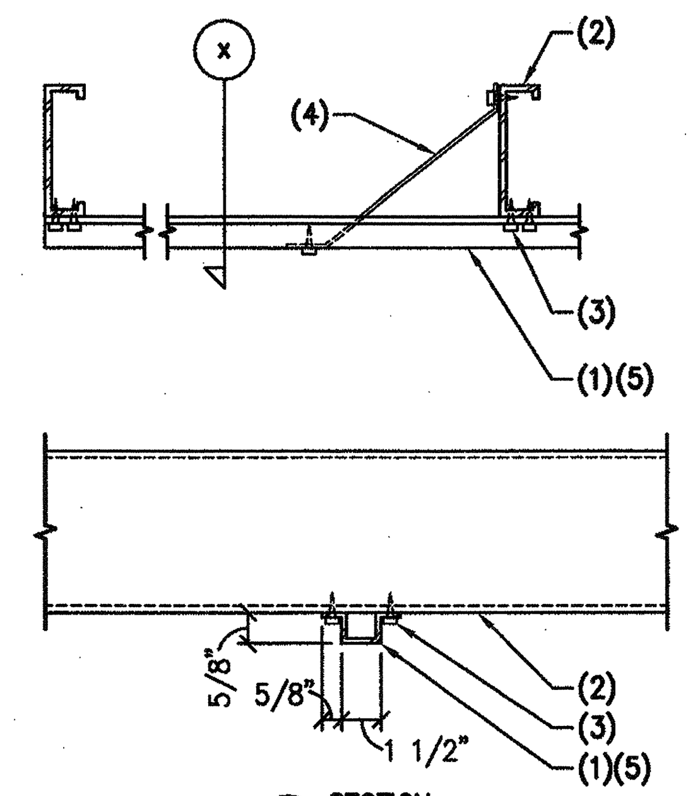
10 TYPICAL REINFORCING BAR DETAILS AT DRILLED PIER REINFORCING 201–32M NO SCALE



NOTES:

1. BOX BEAM PER PLAN.
2. PV PANELS AND PURLINS NOT SHOWN FOR CLARITY.
3. 3/8" STEEL SIDE PLATE.
4. STEEL COLUMN.
5. 8– DIA. A325 BOLTS AS SHOWN.
6. WELD STEEL BENT PLATE TO STEEL COLUMN AT SIDES AND LOW END – TYP.
7. HOLES MAY BE OVERSIZED OR SLOTTED PER AISC SPECIFICATIONS.

9 BEAM TO COLUMN CONNECTION – BOLTED 11–071 NO SCALE



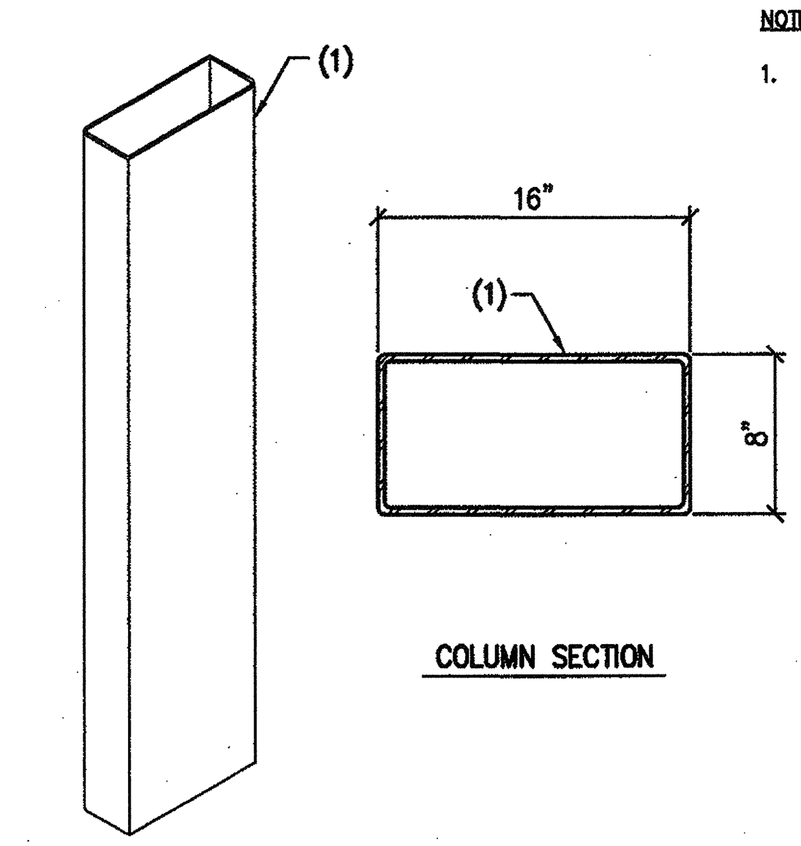
(X) SECTION

NOTES:

1. 16 GAUGE STEEL HAT CHANNEL BRACE. LOCATE AT MIDSPAN BETWEEN COLUMNS.
2. PURLIN.
3. 2 #12 x 3/4" LONG SCREWS AT EACH PURLIN.
4. 1" x 20 GA STRAP AT EACH END OF CANOPY. ATTACH WITH 1 #12 x 3/4" LONG SCREW AS SHOWN.
5. OPTIONS TO NOTE 1 HAT CHANNEL.:

1.35" MIN. ANGLE 14 GAGE 1.35" MIN.

6 STEEL BRACING AT PURLINS 09–506 NO SCALE



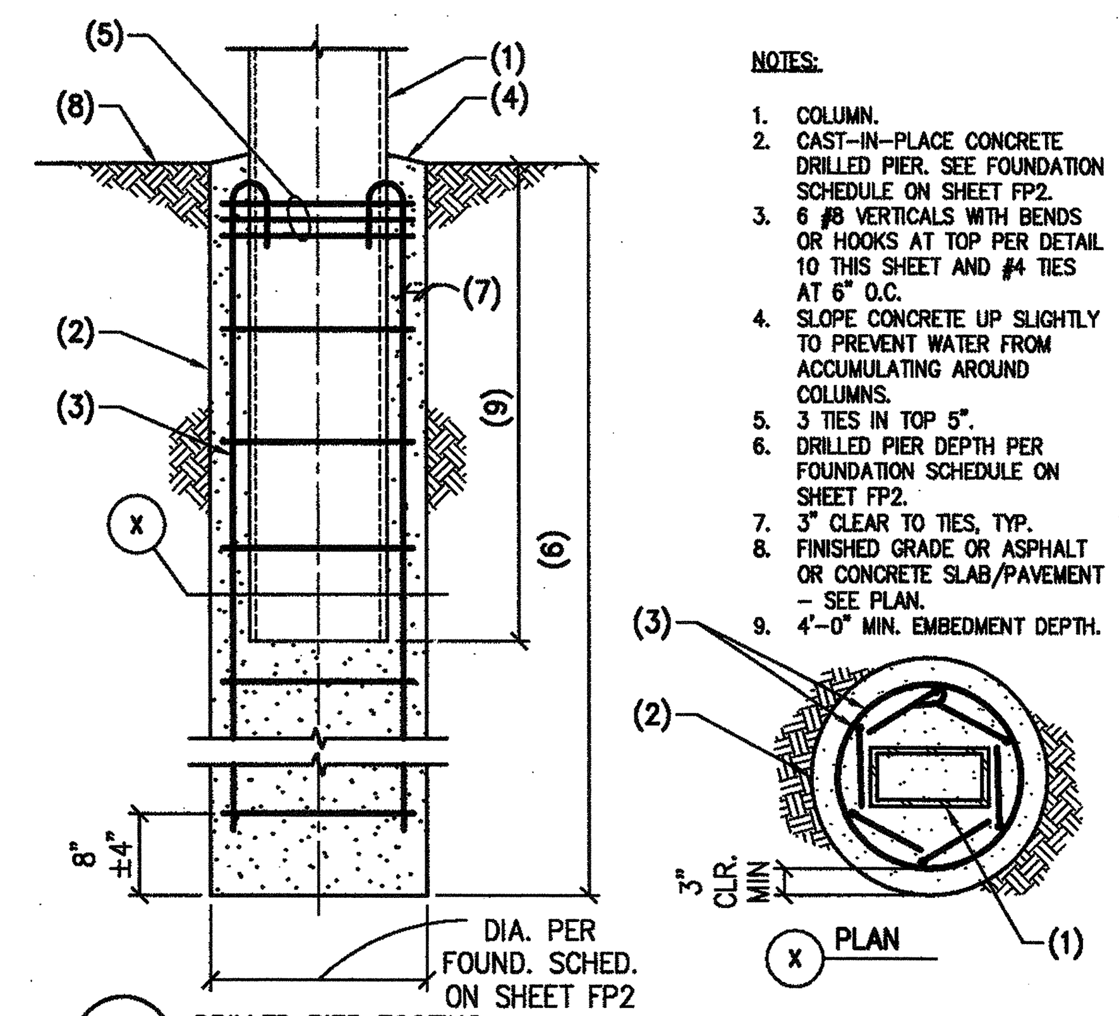
ISOMETRIC VIEW

COLUMN SECTION

NOTES:

1. STEEL COLUMN.

3 COLUMN 10–788 NO SCALE

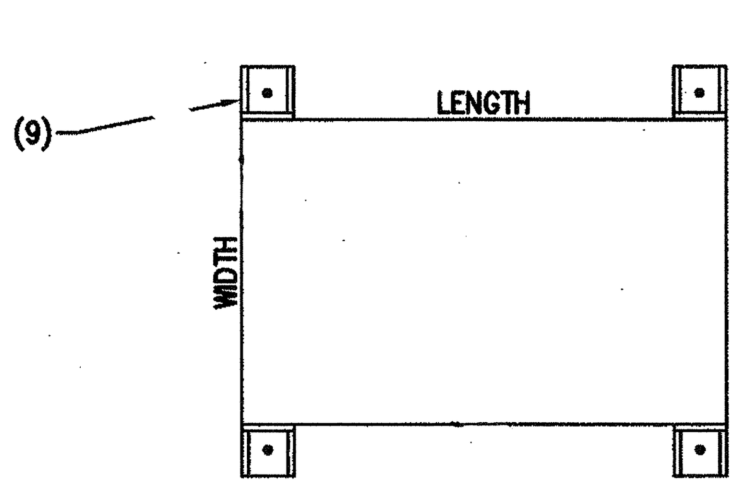


(X) PLAN

NOTES:

1. COLUMN.
2. CAST-IN-PLACE CONCRETE DRILLED PIER. SEE FOUNDATION SCHEDULE ON SHEET FP2.
3. 6 #8 VERTICALS WITH BENDS OR HOOKS AT TOP PER DETAIL 10 THIS SHEET AND #4 TIES AT 6" O.C.
4. SLOPE CONCRETE UP SLIGHTLY TO PREVENT WATER FROM ACCUMULATING AROUND COLUMNS.
5. 3 TIES IN TOP 5".
6. DRILLED PIER DEPTH PER FOUNDATION SCHEDULE ON SHEET FP2.
7. 3" CLEAR TO TIES, TYP.
8. FINISHED GRADE OR ASPHALT OR CONCRETE SLAB/PAVEMENT – SEE PLAN.
9. 4'-0" MIN. EMBEDMENT DEPTH.

2 DRILLED PIER FOOTING 11–071 NO SCALE



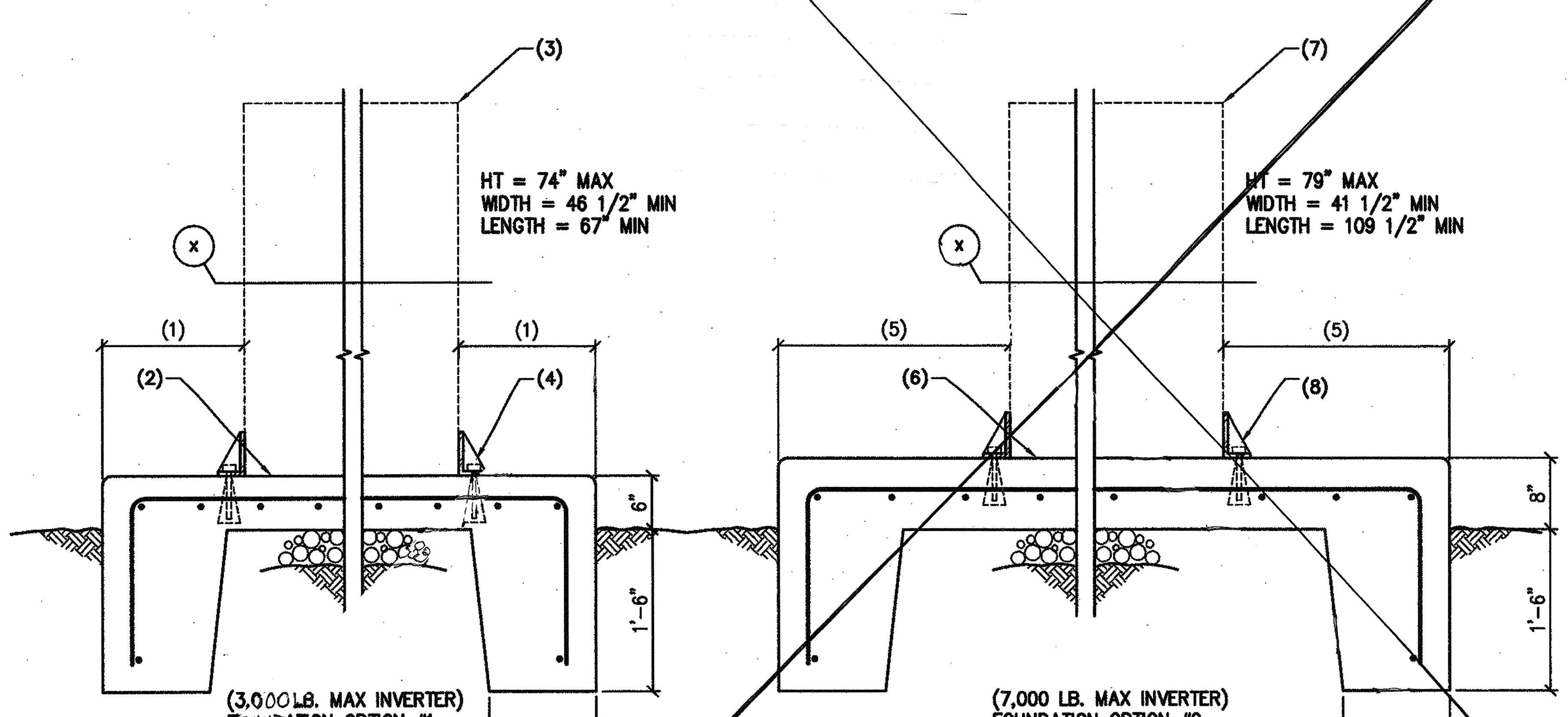
(X) PLAN VIEW AT INVERTER

TEST LOAD FOR TZ BOLTS = 3.0K x 1.6 = 4.8K

NOTE:
MINIMUM CLEARANCE ALL AROUN TO BE AT LEAST EQUAL TO T HEIGHT OF THE UNIT.

NOTES:

1. 18" MIN ALL AROUND.
2. 7" SLAB WITH #4 AT 12" O.C. EACH WAY IN SLAB CENTER, LAP = 24" AT #4 AS REQUIRED.
3. INVERTER (3,000 lbs MAX.).
4. 5/8" DIA. HILTI KWIK BOLT TZ (ICC ESR-1917) WITH 3 9/16" EMBEDMENT.
5. 32" MIN. ALL AROUND.
6. 9" SLAB WITH #6 @ 12" O.C. EACH WAY IN SLAB CENTER, LAP = 47" AT #6 AS REQUIRED.
7. INVERTER (7,000 lbs MAX.).
8. 5/8" DIA HILTI KWIK BOLT TZ (ICC ESR-1917) WITH 4 7/16" EMBEDMENT.
9. CONNECTION CLIP PER MFR, OR MFR. MAY PROVIDE ALTERNATE CONNECTION AND CALCULATIONS ON INVERTER ATTACHMENT TO SLAB/FOOTING.



HT = 74" MAX
WIDTH = 46 1/2" MIN
LENGTH = 67" MIN

(3,000 LB. MAX INVERTER) FOUNDATION OPTION #1

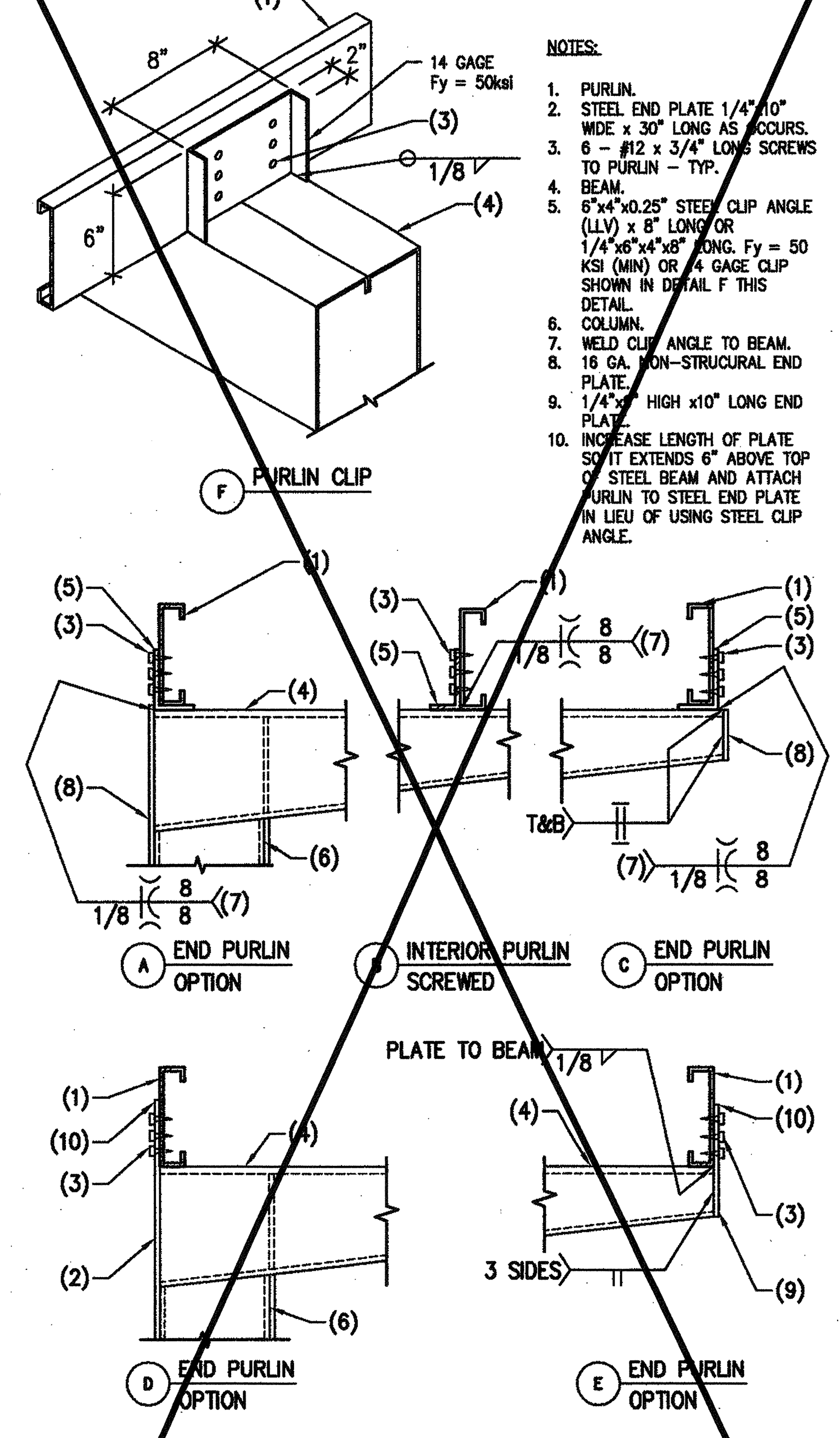
HT = 79" MAX
WIDTH = 41 1/2" MIN
LENGTH = 109 1/2" MIN

(7,000 LB. MAX INVERTER) FOUNDATION OPTION #2

NOTE: INVERTERS TO BE SURROUNDED BY A FENCE TO RESTRICT ACCESS TO THE INVERTER. INVERTERS TO BE A MINIMUM OF 30' FROM ANY INHABITABLE BUILDING.

PATENTS PENDING

11 INVERTER/SLAB FOUNDATION 11–071 NO SCALE



(F) PURLIN CLIP

(A) END PURLIN OPTION

(B) INTERIOR PURLIN SCREWED

(C) END PURLIN OPTION

(D) END PURLIN OPTION

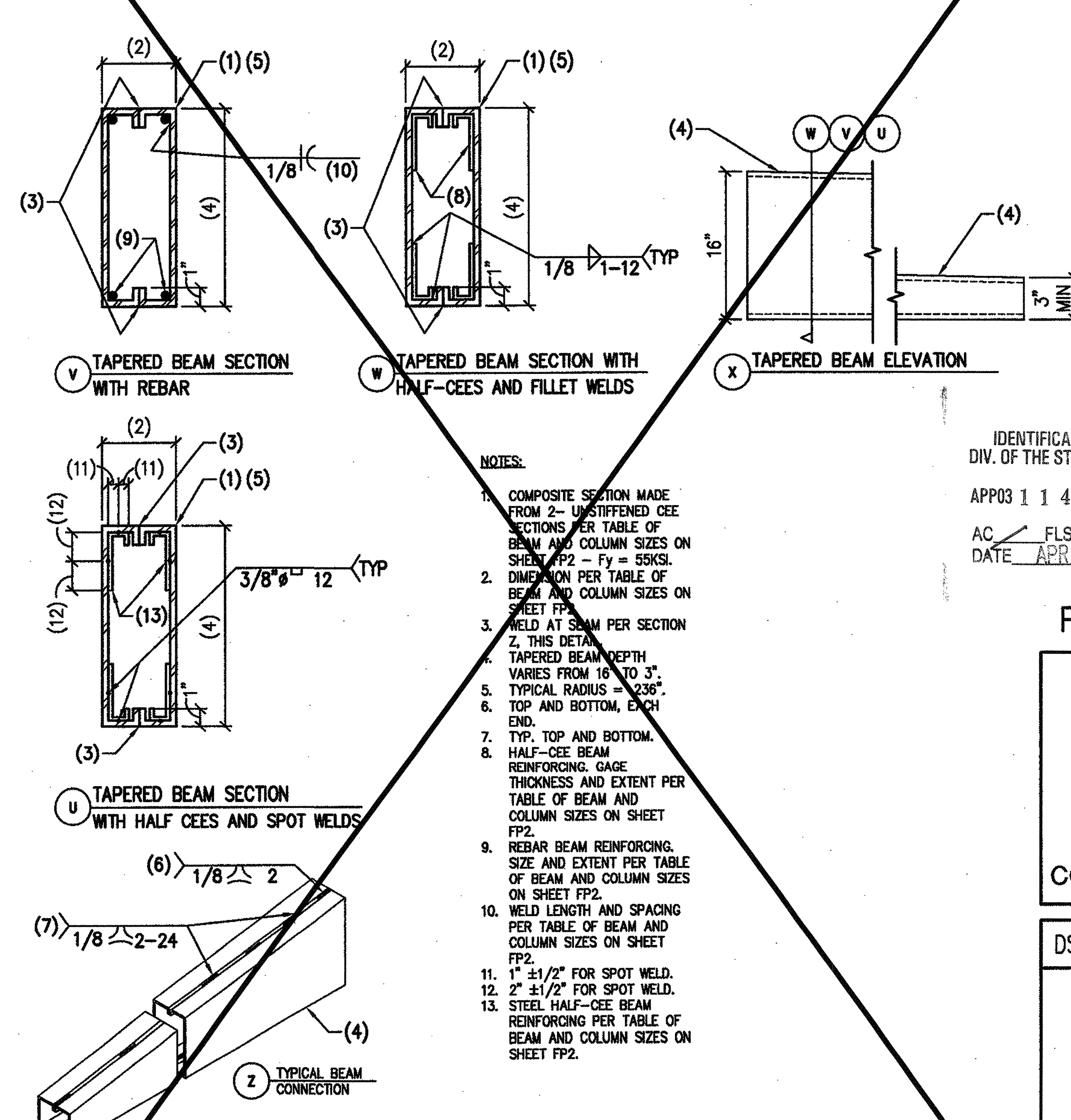
(E) END PURLIN OPTION

NOTES:

1. PURLIN.
2. STEEL END PLATE 1/4"x10" WIDE x 30" LONG AS OCCURS.
3. 6 – #12 x 3/4" LONG SCREWS TO PURLIN – TYP.
4. BEAM.
5. 6"x4"x0.25" STEEL CLIP ANGLE (LLV) x 8" LONG OR 1/4"x6"x4"x8" LONG. Fy = 50 KSI (MIN) OR 14 GAGE CLIP SHOWN IN DETAIL F THIS DETAIL.
6. COLUMN.
7. WELD CLIP ANGLE TO BEAM.
8. 16 GA. NON-STRUCURAL END PLATE.
9. 1/4"x6" HIGH x10" LONG END PLATE.
10. INCREASE LENGTH OF PLATE SO IT EXTENDS 6" ABOVE TOP OF STEEL BEAM AND ATTACH PURLIN TO STEEL END PLATE IN LIEU OF USING STEEL CLIP ANGLE.

NOTE:
A. ANY OF THESE CONNECTIONS SHOWN MAY BE USED AT CONTRACTOR'S OPTION.

7 PURLIN TO BEAM CONNECTION 09–506 NO SCALE



(V) TAPERED BEAM SECTION WITH REBAR

(W) TAPERED BEAM SECTION WITH HALF-CEES AND FILLET WELDS

(X) TAPERED BEAM ELEVATION

(U) TAPERED BEAM SECTION WITH HALF CEES AND SPOT WELDS

(Z) TYPICAL BEAM CONNECTION

NOTES:

1. COMPOSITE SECTION MADE FROM 2– UNSTIFFENED CEE SECTIONS PER TABLE OF BEAM AND COLUMN SIZES ON SHEET FP2 – Fy = 55KSI.
2. DIMENSION PER TABLE OF BEAM AND COLUMN SIZES ON SHEET FP2.
3. WELD AT SEAM PER SECTION Z, THIS DETAIL.
4. TAPERED BEAM DEPTH VARIES FROM 16" TO 3".
5. TYPICAL RADIUS = .236".
6. TOP AND BOTTOM, EACH END.
7. TYP. TOP AND BOTTOM.
8. HALF-CEE BEAM REINFORCING. GAGE THICKNESS AND EXTENT PER TABLE OF BEAM AND COLUMN SIZES ON SHEET FP2.
9. REBAR BEAM REINFORCING. SIZE AND EXTENT PER TABLE OF BEAM AND COLUMN SIZES ON SHEET FP2.
10. WELD LENGTH AND SPACING PER TABLE OF BEAM AND COLUMN SIZES ON SHEET FP2.
11. 1" ±1/2" FOR SPOT WELD.
12. 2" ±1/2" FOR SPOT WELD.
13. STEEL HALF-CEE BEAM REINFORCING PER TABLE OF BEAM AND COLUMN SIZES ON SHEET FP2.

4 TAPERED BEAM NO SCALE

LICENSED ARCHITECT DAVID SCOTT STOKES No.C 15700 REN. 6-30-13 STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP03 1 1 4 4 1 8
AC ✓ FLS ✓ SS ED
DATE APR 1 1 2012

REGISTERED PROFESSIONAL ENGINEER PAUL G. SCOTT S 3325 STRUCTURAL STATE OF CALIFORNIA

7/15/12

PATENTS PENDING

PRE-CHECK (PC) DOCUMENT
CODE: 2010 CBC
A SEPARATE PROJECT APPLICATION FOR CONSTRUCTION IS REQUIRED

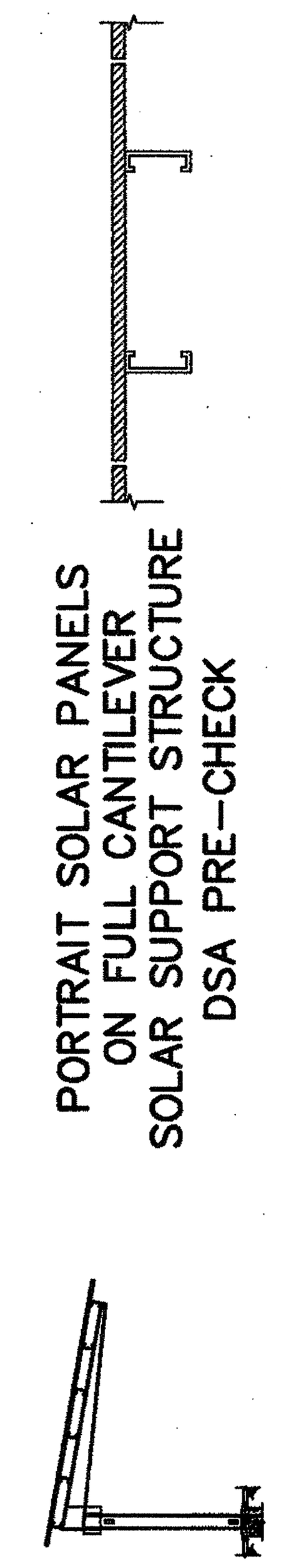
DSA APP. NO 02–112000

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
02-112000
AC ✓ FLS SS KB
DATE 3.22.12

THESE DRAWINGS/CALCULATIONS ARE CONSIDERED PRELIMINARY –NOT FOR CONSTRUCTION OR RECORDING UNLESS THE STRUCTURAL ENGINEER OF RECORD'S SEAL IS AFFIXED WITH WRITTEN SIGNATURE.

CARUSO TURLEY SCOTT INC.
consulting structural engineers
1215 W. Rio Salado Pkwy
Suite 200
Tempe, Arizona 85281
(480) 774-1700
(480) 774-1701 FAX
www.ctsaz.com

PORTRAIT SOLAR PANELS ON FULL CANTILEVER SOLAR SUPPORT STRUCTURE DSA PRE-CHECK

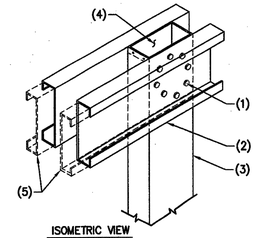


WWW.POWERSSTEEL.COM
POWERS STEEL & WIRE

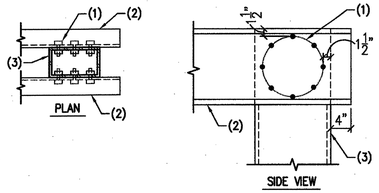
PATENTS PENDING

DRAWING EDITION/REF JOB #		
SITE PROJECT:		
REVISIONS:		
JOB NUMBER: 11–071		
DRAWN: BLP	ENGINEER: PGS	CHECKED: DST
DATE: 3/15/12		
SHEET: FP3		

PATENTS PENDING



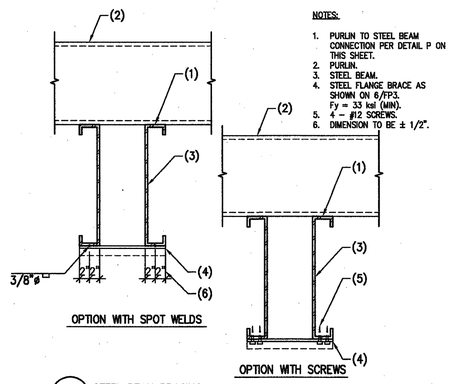
ISOMETRIC VIEW



NOTES:

1. 8–1" DIA. A325 BOLTS.
2. STEEL BEAM.
3. STEEL COLUMN.
4. 16 GAGE CAP WITH 1" CONNECTION RETURNS. AT TOP OF COLUMN, 2 – #12 SCREWS EACH RETURN.
5. NESTED BEAM WHERE OCCURS.

M BACK–TO–BACK STEEL BEAMS BOLTED TO STEEL COLUMN



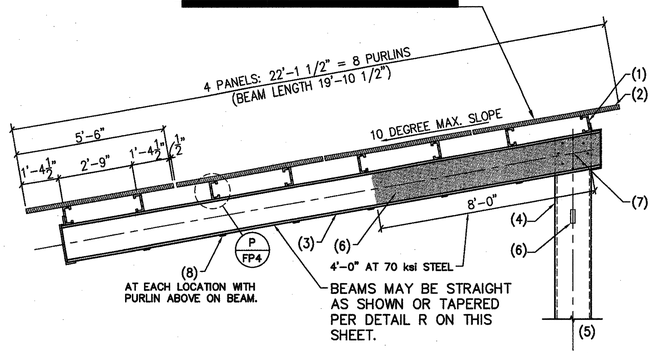
NOTES:

1. PURLIN TO STEEL BEAM CONNECTION PER DETAIL P ON THIS SHEET.
2. PURLIN.
3. STEEL BEAM.
4. STEEL FLANGE BRACE AS SHOWN ON 6/FP3. Fy = 33 ksi (MIN).
5. 4 – #12 SCREWS.
6. DIMENSION TO BE ± 1/2".

N STEEL BEAM BRACING

11–071 NO SCALE

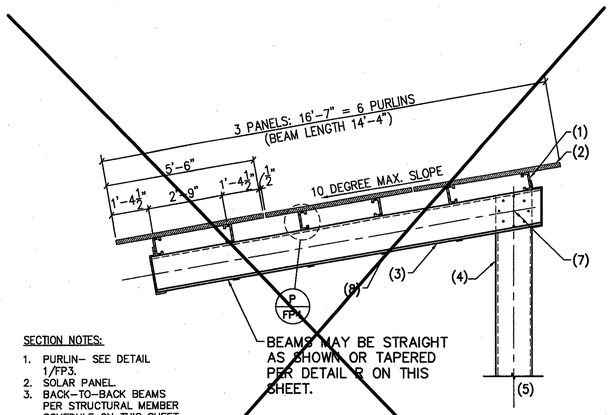
NOTE:
THE PV PANEL SIZE USED TO DETERMINE THE DIMENSIONS SHOWN ON THIS DRAWING WERE 3'–4" (40") x 5'–6" (66"). THERE IS A GAP OF 1/2" BETWEEN THE PV PANELS IN LANDSCAPE AND 1/2" GAP BETWEEN THE PANELS IN PORTRAIT. THE BEAM LENGTHS NEED TO BE REVISED IF PV PANELS OF DIFFERENT SIZES ARE USED. IF THE BEAMS GET LONGER THE STRUCTURAL ENGINEER MUST CHECK THE BEAM, COLUMN AND FOOTING. IF THE BEAMS GET SHORTER NO RECALCULATION IS REQUIRED.



NO STEEL DECK IS TO BE PLACED ON THE STRUCTURE NOW OR IN THE FUTURE.

H PARTIAL SECTION AT PORTRAIT BACK–TO–BACK BEAMS AT 10 DEGREE SLOPE

PATENTS PENDING



SECTION NOTES:

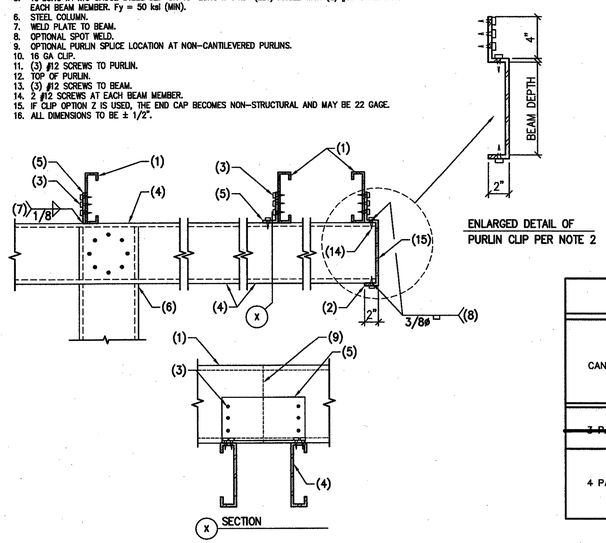
1. PURLIN– SEE DETAIL 1/FP3.
2. SOLAR PANEL.
3. BACK–TO–BACK BEAMS PER STRUCTURAL MEMBER SCHEDULE ON THIS SHEET.
4. COLUMN PER TABLE OF BEAM AND COLUMN SIZES ON SHEET FP2.
5. FOR FOOTING INFORMATION SEE FOUNDATION SCHEDULE ON SHEET FP2.
6. SHADED AREA INDICATES LOCATION OF NESTED BEAM WHERE OCCURS.
7. WORKPOINT – CENTERLINE OF BEAM AND COLUMN.
8. BEAM BRACE PER DETAIL N ON THIS SHEET AT EACH PURLIN.

NO STEEL DECK IS TO BE PLACED ON THE STRUCTURE NOW OR IN THE FUTURE.

J PARTIAL SECTION AT PORTRAIT BACK–TO–BACK BEAMS AT 10 DEGREE SLOPE

NOTES:

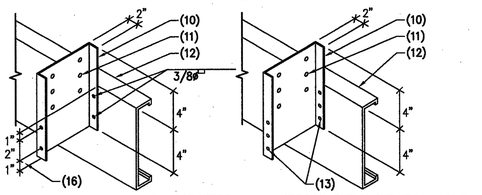
1. PURLIN.
2. 10 GA BEAM CAP PLATE W/ (4) #12 TO BOTTOM OF BEAM AND (6) #12 TO PURLIN.
3. (3) #12 x 3/4" LONG SCREWS TO PURLIN.
4. STEEL BEAM.
5. 16"LONG x4"x10 GAUGE STEEL CLIP OR 16" LONG x 4"x6" (LLV) ANGLE WITH (2) #12 SCREWS AT EACH BEAM MEMBER. Fy = 50 ksi (MIN).
6. STEEL COLUMN.
7. WELD PLATE TO BEAM.
8. OPTIONAL SPOT WELD.
9. OPTIONAL PURLIN SPLICE LOCATION AT NON–CANTILEVERED PURLINS.
10. 16 GA CLIP.
11. (3) #12 SCREWS TO PURLIN.
12. TOP OF PURLIN.
13. (3) #12 SCREWS TO BEAM.
14. 2 #12 SCREWS AT EACH BEAM MEMBER.
15. IF CLIP OPTION Z IS USED, THE END CAP BECOMES NON–STRUCTURAL AND MAY BE 22 GAGE.
16. ALL DIMENSIONS TO BE ± 1/2".

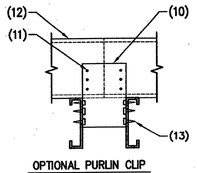


ENLARGED DETAIL OF PURLIN CLIP PER NOTE 2

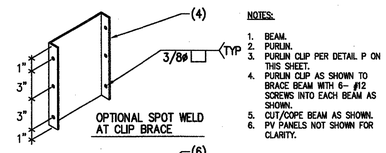
STRUCTURAL MEMBER SCHEDULE		
SOLAR CANOPY TYPE	STEEL BEAM SIZE (Fy=55 KSI)	NESTED BEAM SIZE (OPTION) (Fy=55 KSI)
~~3 PANEL FULL~~	~~(2) 16"x4"x1"x10 GA~~	
4 PANEL FULL	(2) 16"x4"x1"x10 GA	(2) 16"x4"x1"x10 GA. WITH 10 GA. NESTED BEAM (SEE DETAILS H AND K ON THIS SHEET FOR LENGTH AND LOCATION)

STRUCTURAL MEMBER SCHEDULE



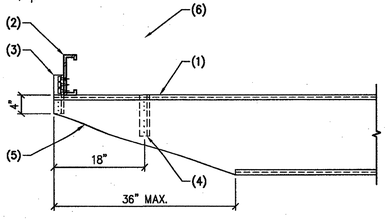


Z PURLIN CLIP OPTION Z



NOTES:

1. BEAM.
2. PURLIN.
3. PURLIN CLIP PER DETAIL P ON THIS SHEET.
4. PURLIN CLIP AS SHOWN TO BRACE BEAM WITH 6– #12 SCREWS INTO EACH BEAM AS SHOWN.
5. CUT/COPE BEAM AS SHOWN.
6. PV PANELS NOT SHOWN FOR CLARITY.



P PURLIN TO BEAM CONNECTION

11–071 NO SCALE

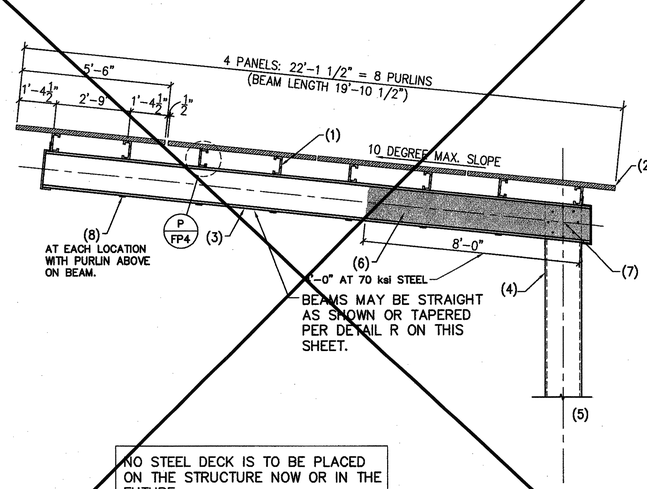
R BEAM TAPER OPTION

11–071 NO SCALE

PATENTS PENDING

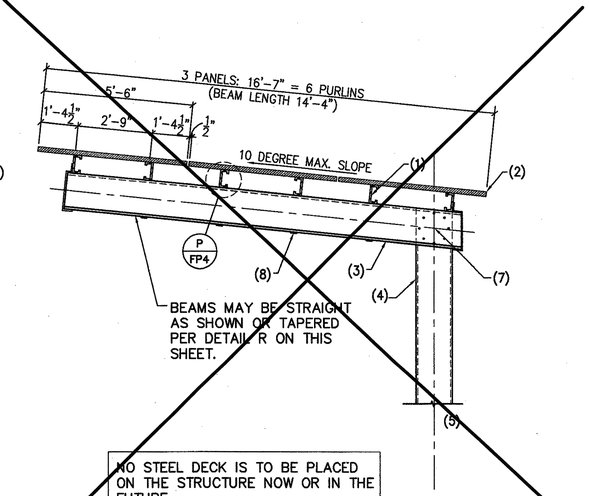
NO STEEL DECK IS TO BE PLACED ON THE STRUCTURE NOW OR IN THE FUTURE.

K PARTIAL SECTION AT PORTRAIT BACK–TO–BACK BEAMS AT 10 DEGREE SLOPE



NO STEEL DECK IS TO BE PLACED ON THE STRUCTURE NOW OR IN THE FUTURE.

L PARTIAL SECTION AT PORTRAIT BACK–TO–BACK BEAMS AT 10 DEGREE SLOPE



NO STEEL DECK IS TO BE PLACED ON THE STRUCTURE NOW OR IN THE FUTURE.

L PARTIAL SECTION AT PORTRAIT BACK–TO–BACK BEAMS AT 10 DEGREE SLOPE

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP03 1 1 4 4 1 8
AC FLS SS
DATE APR 1 1 2012

LICENSED ARCHITECT
DAVID SCOTT STOKES
No.C 15700
REN 6-30-13
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
S3325
STRUCTURAL
STATE OF CALIFORNIA
7/15/14

PRE-CHECK (PC) DOCUMENT
CODE: 2010 CBC
A SEPARATE PROJECT APPLICATION FOR CONSTRUCTION IS REQUIRED

DSA APP. NO 02–112000

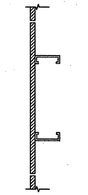
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
02-112000
AC
DATE 3.22.12

PATENTS PENDING

THESE DRAWINGS/CALCULATIONS ARE CONSIDERED PRELIMINARY – NOT FOR CONSTRUCTION OR RECORDING UNLESS THE STRUCTURAL ENGINEER OF RECORD'S SEAL IS AFFIXED WITH WRITTEN SIGNATURE.

CARUSO TURLEY SCOTT INC.
consulting structural engineers
1215 W. Rio Salado Pkwy
Suite 200
Tempe, Arizona 85281
(480) 774-1700
(480) 774-1701 FAX
www.ctsaz.com

PORTRAIT SOLAR PANELS ON FULL CANTILEVER SOLAR SUPPORT STRUCTURE DSA PRE–CHECK



WWW.POWERSSTEEL.COM
POWERS STEEL & WIRE
PATENTS PENDING

DRAWING EDITION/REF JOB #

SITE PROJECT:

REVISIONS:

JOB NUMBER: 11–071

DRAWN:	ENGINEER:	CHECKED:
BLP	PGS	DST

DATE: 3/15/12

SHEET: FP4