

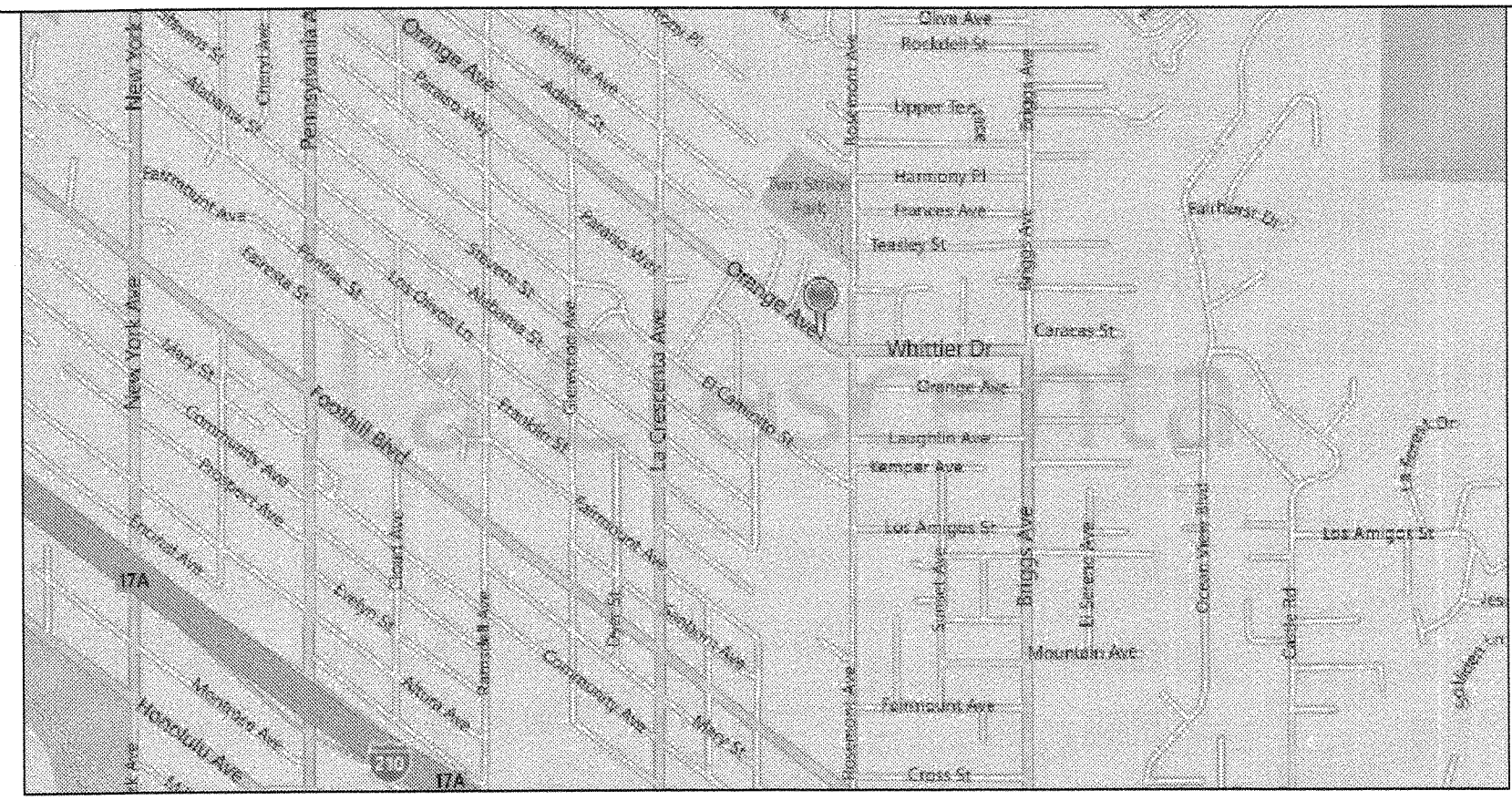
# GLENDALE UNIFIED SCHOOL DISTRICT

## 87.36KW DC STC SOLAR PHOTOVOLTAIC SYSTEM

### MONTE VISTA ELEMENTARY SCHOOL - LA CRESCENTA, CA

**SolarCity**  
 3055 Clearview Way, San Mateo, CA 94402  
 T: (650) 638-1028 | F: (650) 638-1029  
 (800)-SOL-CITY (753-2499) | www.solarcity.com

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MAP NOT TO SCALE  
 2620 ORANGE AVE  
 LA CRESCENTA, CA 91214

#### 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. **PV ARRAYS USE PC# 02-112-000.**

#### SPECIAL NOTES

#### PROJECT TEAM

**DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE:**  
 DAVID STOKES  
 QUATRO DESIGN GROUP  
 923 E 3RD ST, SUITE 115  
 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	PL	PROPERTY LINES
AC	ALTERNATING CURRENT	PV	PHOTOVOLTAIC
BLDG	BUILDING	PVC	POLYVINYL CHLORIDE
CONC	CONCRETE	S	SUBPANEL
C	COMBINER BOX	SCH	SCHEDULE
D	DISTRIBUTION PANEL	SS	STAINLESS STEEL
DC	DIRECT CURRENT	SSD	SEE STRUCTURAL DRAWINGS
EGC	EQUIPMENT GROUNDING CONDUCTOR	STC	STANDARD TESTING CONDITIONS
(E)	EXISTING	SWH	SOLAR WATER HEATER
EMT	ELECTRICAL METALLIC TUBING	TYP	TYPICAL
G	SOLAR GUARD METER	UON	UNLESS OTHERWISE NOTED
GALV	GALVANIZED	UPS	UNINTERRUPTIBLE POWER SUPPLY
GEC	GROUNDING ELECTRODE CONDUCTOR	V	VOLT
GND	GROUND	Vmp	VOLTAGE AT MAX POWER
HDC	HOT DIPPED GALVANIZED	Voc	VOLTAGE AT OPEN CIRCUIT
I	CURRENT	W	WATT
Imp	CURRENT AT MAX POWER	3R	NEMA 3R, RAIN TIGHT
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		
OCF	OVERCURRENT PROTECTION		
P	PANEL BOARD		

#### SHEET INDEX

T 0.0	TITLE SHEET
A 1	SITE PLAN
A 2	FIRE ACCESS PLAN
A 3	STRUCTURAL DETAILS
A 4	STRUCTURAL DETAILS

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 PREPARED BY OTHERS ARE AS FOLLOWS:

- E 1 ELECTRICAL NOTES
- E 2 ELECTRICAL SITE PLAN
- E 3 ELECTRICAL SECTION VIEWS
- E 4 LINE DRAWING
- E 5 STRING DIAGRAMS
- E 6 MONITORING
- E 7 ELECTRICAL DETAILS
- E 8 SIGNAGE
- E 9 LIGHTING DESIGNS
- E 10 TITLE 24 CONFORMANCE DOCUMENTS

- PRECHECK A# 02-112000
- FP 1 FULL PORTRAIT GENERAL STRUCTURAL NOTES
  - FP 2 FULL PORTRAIT BOX BEAM
  - FP 3 FULL PORTRAIT BOX BEAM DETAILS
  - FP 4 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.

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 ADDENDA 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.

GLENDALE USD - MONTE VISTA ELEMENTARY  
 87.36 PV SYSTEM  
 GLENDALE USD - MONTE VISTA ELEMENTARY  
 2620 ORANGE AVE  
 LA CRESCENTA, CA 91214  
 8182413111

IDENTIFICATION STAMP  
 DIV. OF THE STATE ARCHITECT  
 APP03 11 4 5 8 5  
 DATE MAY 29 2012

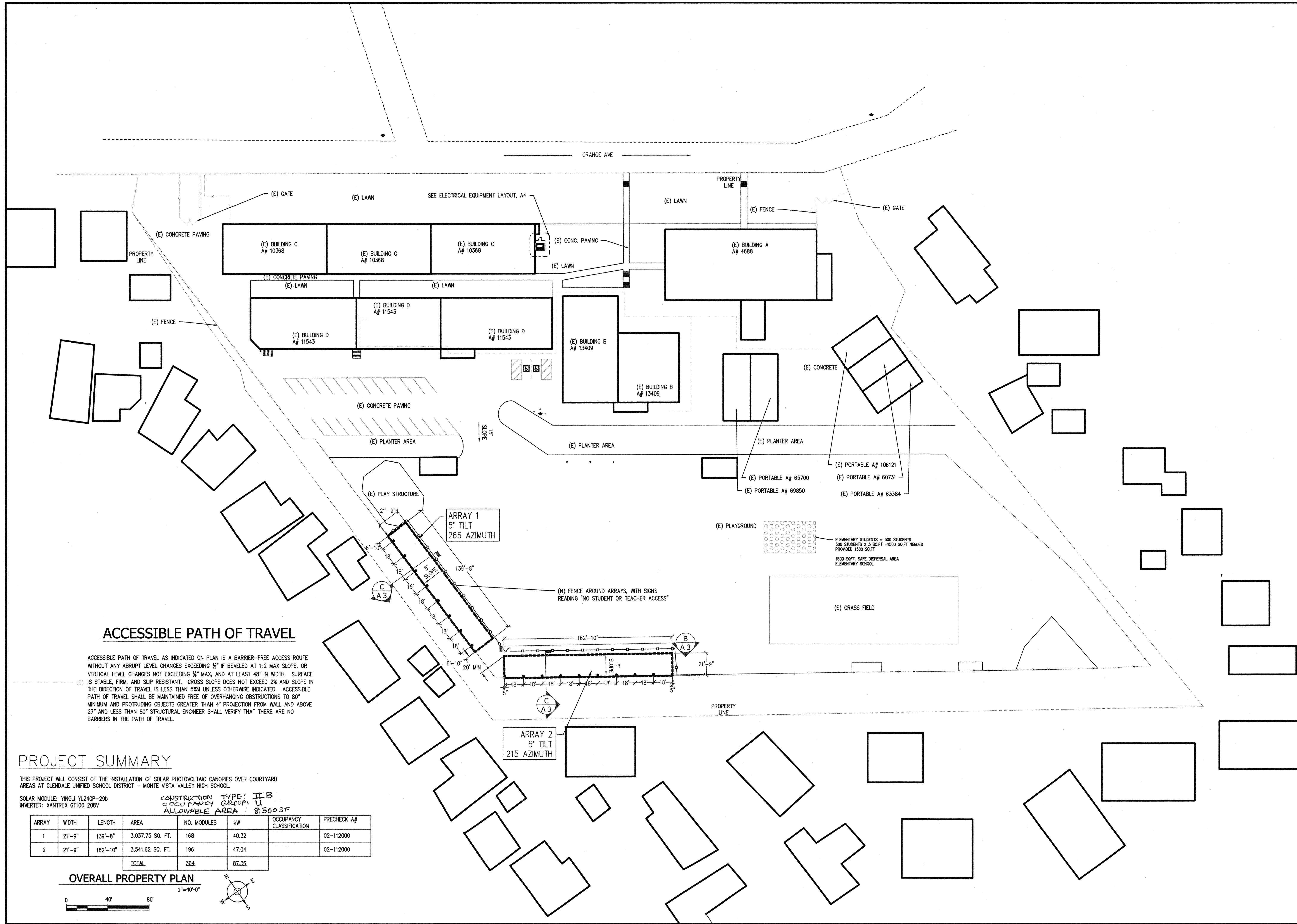
DAVID STOKES  
 ARCHITECT  
 NO. C 15700  
 STATE OF CALIFORNIA

REV	BY	DATE	COMMENTS
001	AS	5/29/12	

**JOB DETAILS**  
 City: Los Angeles County (LA)  
 ADDRESS: (364) YINGLI # YL240P-29b  
 WORKING SYSTEM: STEEL SUPPORT STRUCTURES  
 NUMBER: (1) XANTREX # GT100-208  
 MARKET: RESID-J TAYLOR  
 COVT ORDERED BY: JES  
 DATE: 1/6/2012  
 PAYMENT TYPE: CASH  
 PROJECT MANAGER: D NAVARRO  
 TITLE PAGE  
 JOB NUMBER: JB-912047-00  
 PAGE: T 0.0



Y:\Library\Common\SC\_logo\_black.jpg  
 3055 Clearview Way, San Mateo, CA 94402  
 T: (650) 638-1028 | F: (650) 638-1029  
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**ACCESSIBLE PATH OF TRAVEL**

ACCESSIBLE PATH OF TRAVEL AS INDICATED ON PLAN IS A BARRIER-FREE ACCESS ROUTE WITHOUT ANY ABRUPT LEVEL CHANGES EXCEEDING 1/8" IF BEVELED AT 1:2 MAX SLOPE, OR VERTICAL LEVEL CHANGES NOT EXCEEDING 1/4" 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% 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.

**PROJECT SUMMARY**

THIS PROJECT WILL CONSIST OF THE INSTALLATION OF SOLAR PHOTOVOLTAIC CANOPIES OVER COURTYARD AREAS AT GLENDALE UNIFIED SCHOOL DISTRICT - MONTE VISTA VALLEY HIGH SCHOOL.

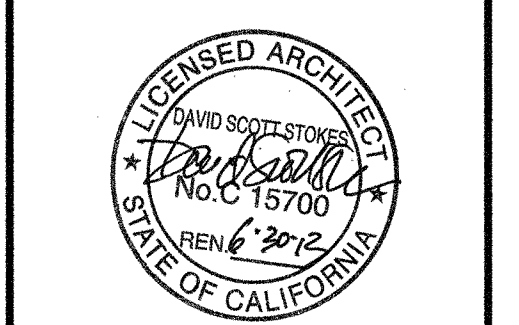
SOLAR MODULE: YINGLI YL240P-29b  
 INVERTER: XANTREX GT100 208V  
 CONSTRUCTION TYPE: II B  
 OCCUPANCY GROUP: U  
 ALLOWABLE AREA: 8,500 SF

ARRAY	WIDTH	LENGTH	AREA	NO. MODULES	KW	OCCUPANCY CLASSIFICATION	PRECHECK A#
1	21'-9"	139'-8"	3,037.75 SQ. FT.	168	40.32		02-112000
2	21'-9"	162'-10"	3,541.62 SQ. FT.	196	47.04		02-112000
<b>TOTAL</b>				<b>364</b>	<b>87.36</b>		

**OVERALL PROPERTY PLAN**



GLENDALE USD - MONTE VISTA ELEMENTARY  
 87.36 PV SYSTEM  
 GLENDALE USD - MONTE VISTA ELEMENTARY  
 2620 ORANGE AVE  
 LA GRESSENTA, CA 91214  
 8182413111



IDENTIFICATION STAMP  
 DIV. OF THE STATE ARCHITECT  
 APPCS 114585  
 DATE MAY 29 2012

REVISIONS

REV	BY	DATE	COMMENTS

**JOB DETAILS**  
 City: Los Angeles County (LA)  
 MAILING ADDRESS: (364) YINGLI # YL240P-29b  
 MAILING SYSTEM: STEEL SUPPORT STRUCTURES  
 INVERTER: (1) XANTREX # GT100-208  
 DESIGNED BY: J TAYLOR  
 CHECKED BY: ES  
 DATE: 1/6/2012  
 PAYEE NAME: SITE PLAN  
 PROJECT MANAGER: D NAVARRO  
 JOB NUMBER: JB-912047-00  
 PAGE: A 1

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 A.

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.

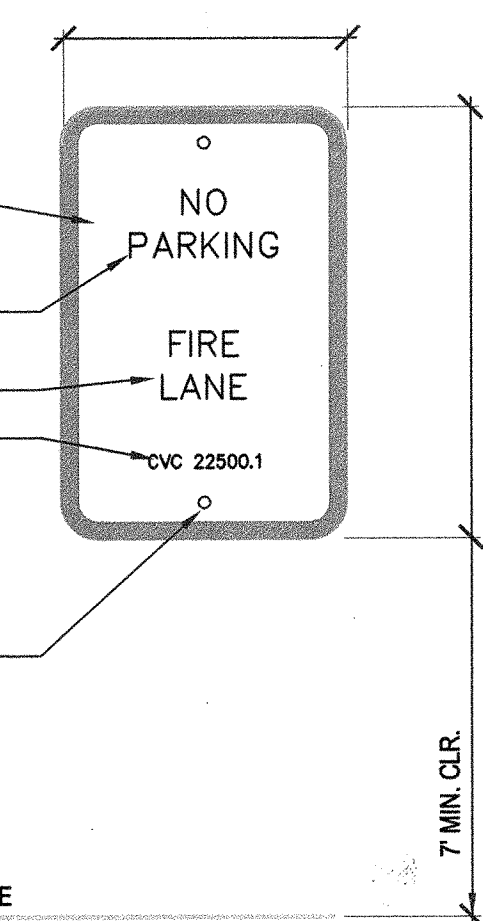
**Roadway Surface Marking:**

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.

SIGN GRAPHICS SHALL BE PRINTED ON REFLECTIVE PVC FILM AND LAMINATED TO ALUMINUM SUBSTRATE - SIMILAR TO SIGN AS MANUFACTURED BY COMPLIANCE SIGNS.COM, CHADWICK, IL. W/WHITE BACKGROUND AND 1" RED BORDER

3" MIN. RED LETTERS LOCATED IN TOP HALF OF SIGN  
3" MIN. RED LETTERS LOCATED IN LOWER HALF OF SIGN  
1" HIGH RED LETTERS

ATTACH SIGN TO PIPE OR WALL WITH NON-FERROUS BOLTS



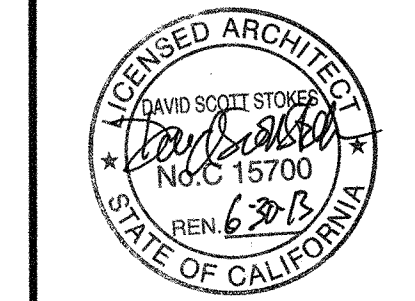
(A) FIRE LANE SIGN  
Scale: NTS



3055 Clearview Way, San Mateo, CA 94402  
7 (650) 436-1028 | F (650) 436-1029  
(888)-SOL-CITY (765-2489) | www.solarcity.com

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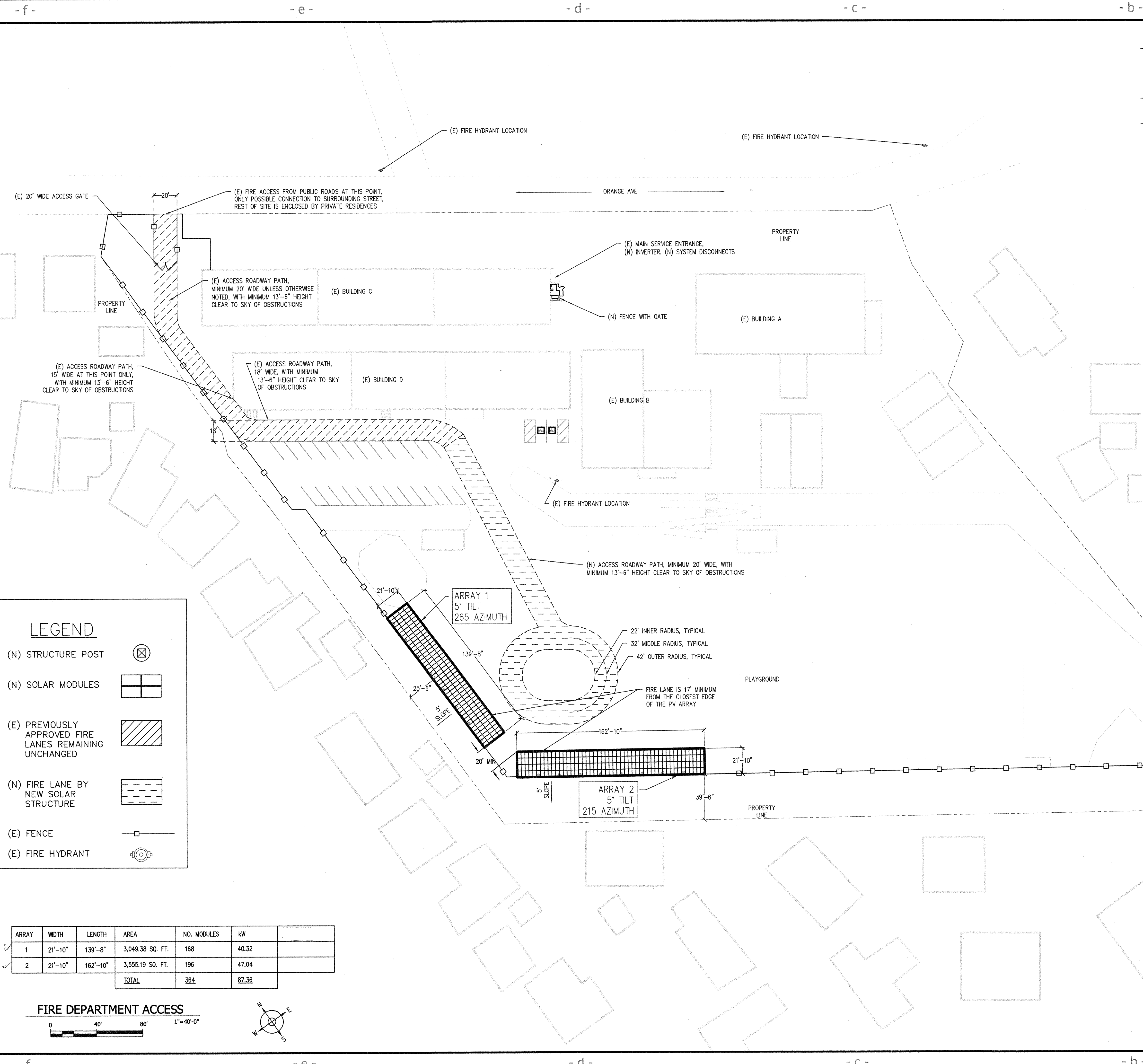
GLENDALE USD - MONTE VISTA ELEMENTARY  
87.36 PV SYSTEM  
GLENDALE USD - MONTE VISTA ELEMENTARY  
2620 ORANGE AVE  
LA CRESCENTA, CA 91214  
8182413111



COUNTY OF LOS ANGELES  
FIRE DEPARTMENT  
FIRE PREVENTION ENGINEERING  
NO REQUIREMENTS  
5-10-12

**JOB DETAILS**  
City: Los Angeles County (LA)  
WORKSHEET: (364) YINGLU # YL240P-29b  
DRAWING SYSTEM: STEEL SUPPORT STRUCTURES  
INVERTER: (1) XANTREX # GT100-208  
MARKET: GOVT  
DESIGNED BY: JES  
DATE: 1/6/2012  
PAYMENT TYPE: CASH  
PROJECT MANAGER: D NAVARRO  
JOB NUMBER: JB-912047-00

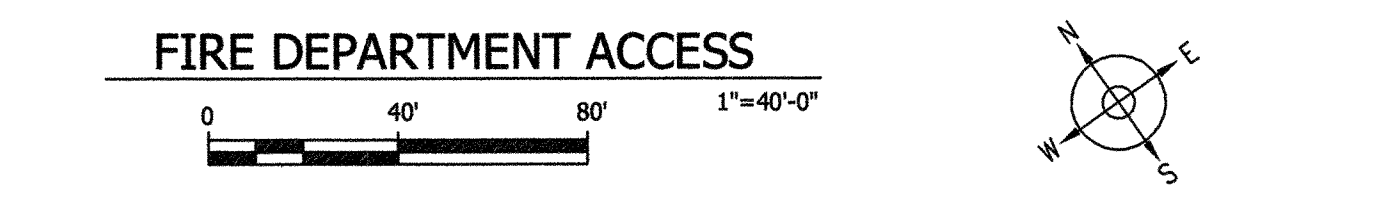
IDENTIFICATION STAMP  
DIV. OF THE STATE ARCHITECT  
APPROX 114585  
DATE MAY 29 2012



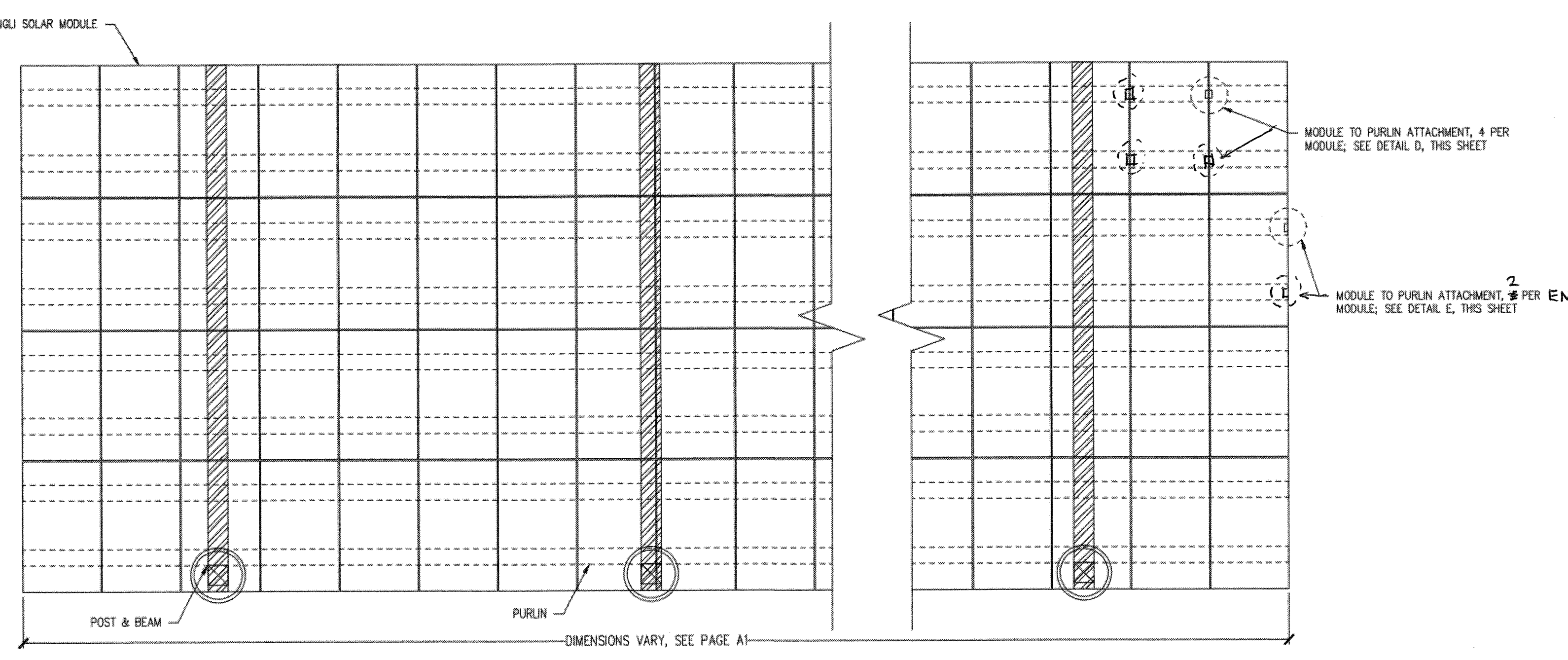
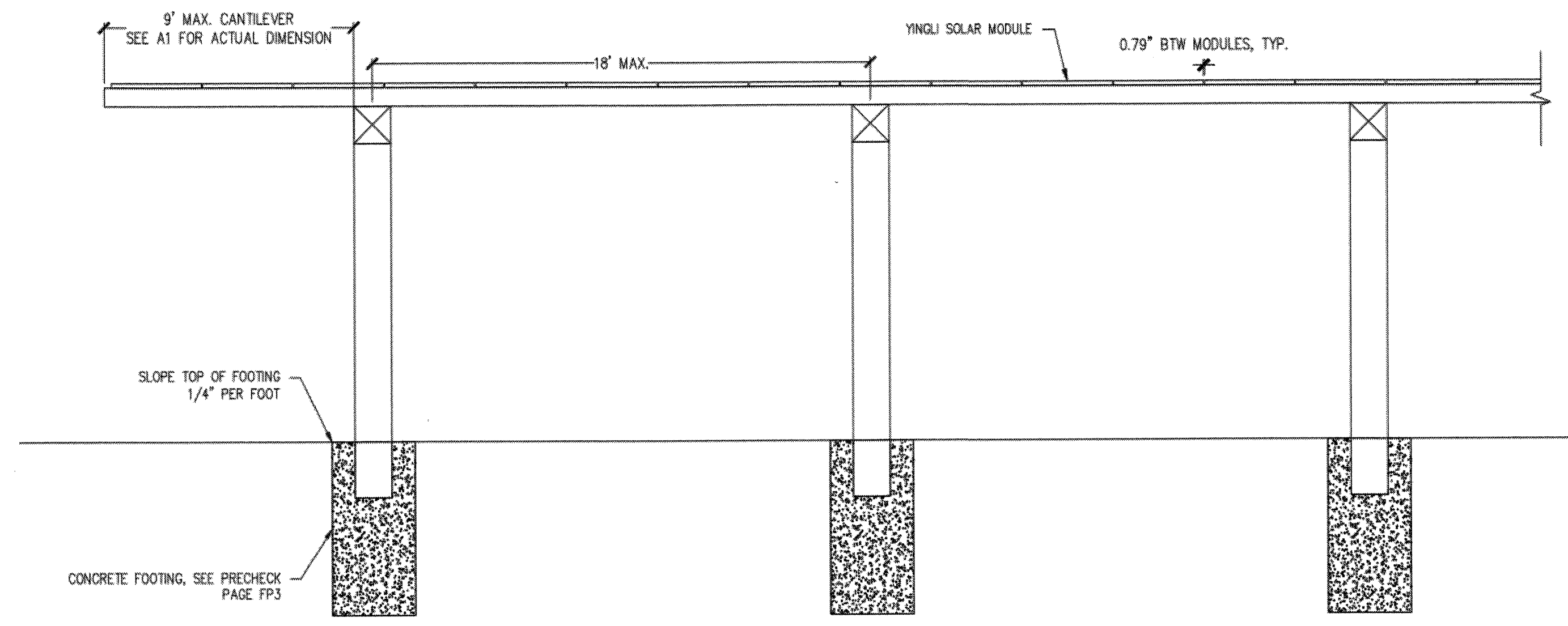
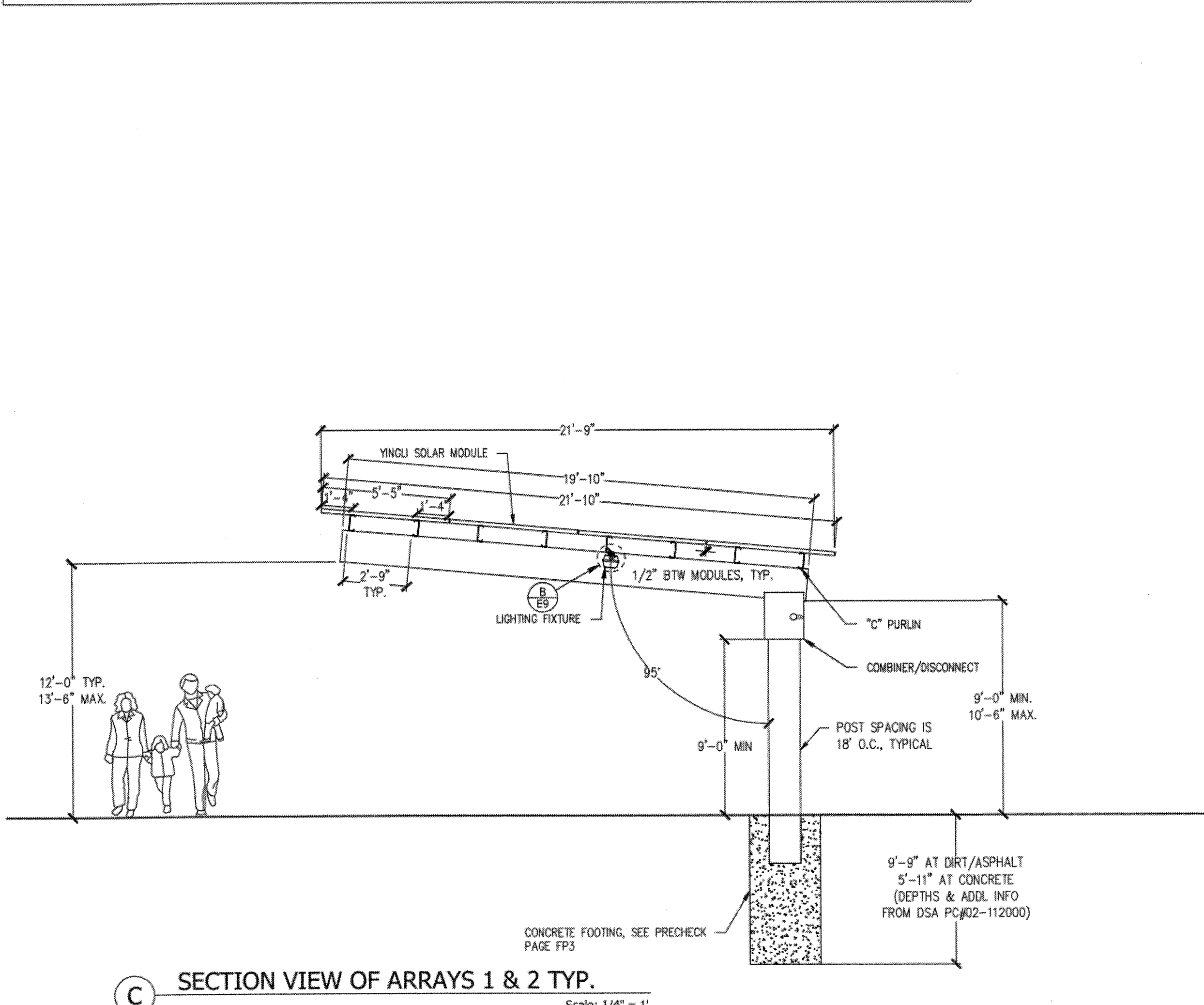
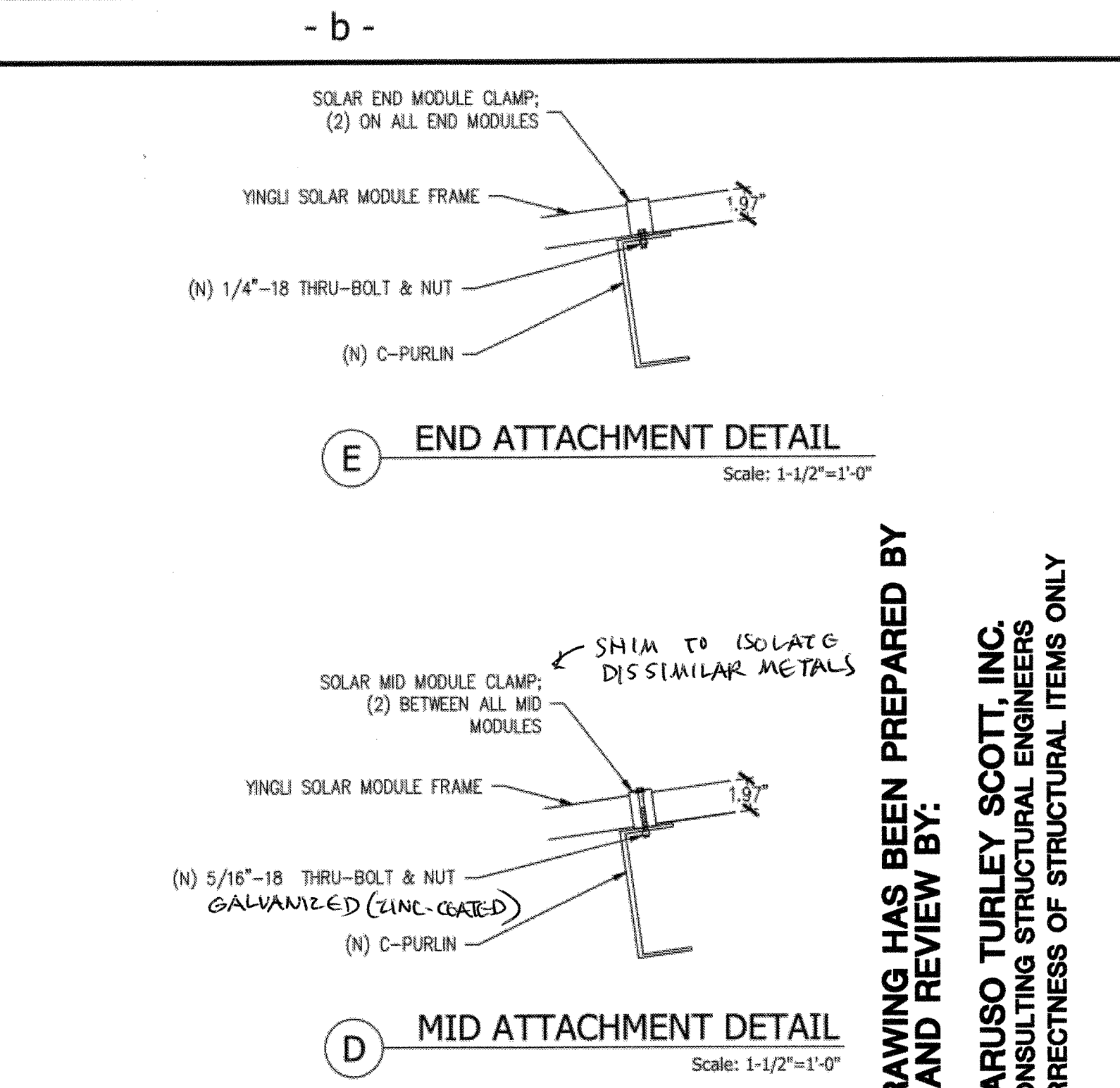
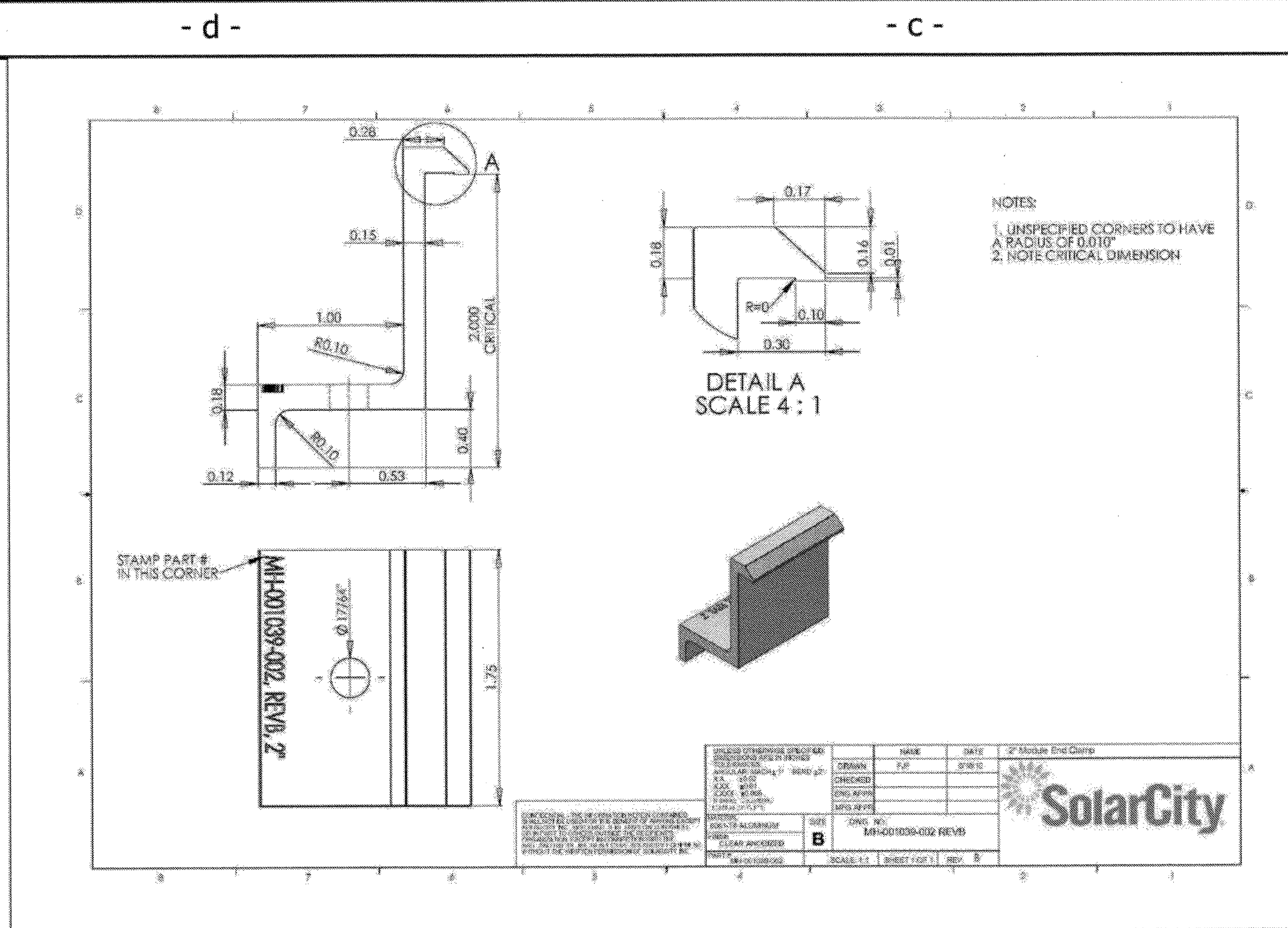
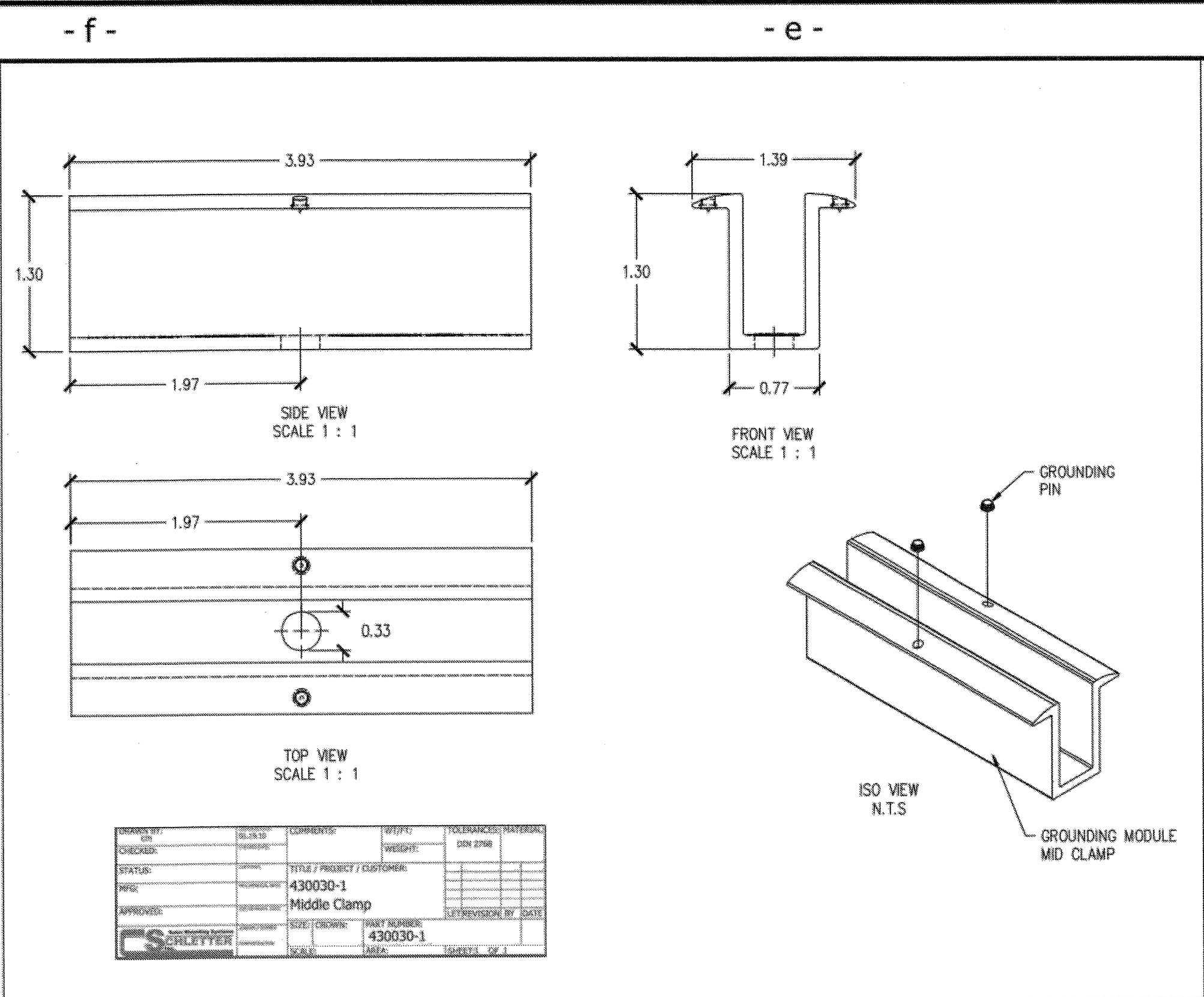
**LEGEND**

- (N) STRUCTURE POST
- (N) SOLAR MODULES
- (E) PREVIOUSLY APPROVED FIRE LANES REMAINING UNCHANGED
- (N) FIRE LANE BY NEW SOLAR STRUCTURE
- (E) FENCE
- (E) FIRE HYDRANT

ARRAY	WIDTH	LENGTH	AREA	NO. MODULES	KW
1	21'-10"	139'-8"	3,049.38 SQ. FT.	168	40.32
2	21'-10"	162'-10"	3,555.19 SQ. FT.	196	47.04
<b>TOTAL</b>				<b>364</b>	<b>87.36</b>







**FOUNDATIONS FOR MONTE VISTA ELEMENTARY SCHOOL:**

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 1/2 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.

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

**SolarCity**  
3055 Clearview Way, San Mateo, CA 94402  
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**REGISTERED PROFESSIONAL ENGINEER**  
S 3325  
EXP. 12/31/13  
5/24/12  
STRUCTURAL  
STATE OF CALIFORNIA

GLENDALE USD - MONTE VISTA ELEMENTARY  
87.36 PV SYSTEM  
GLENDALE USD - MONTE VISTA ELEMENTARY  
2620 ORANGE AVE  
LA CRESCENTA, CA 91214  
8182413111

IDENTIFICATION STAMP  
DIV. OF THE STATE ARCHITECT  
APPO3 114685  
AC/PLS/SS/EM  
DATE MAY 29 2012

**LICENSED ARCHITECT**  
DAVID SCOTT STOKER  
No. 15700  
REN 6-30-12  
STATE OF CALIFORNIA

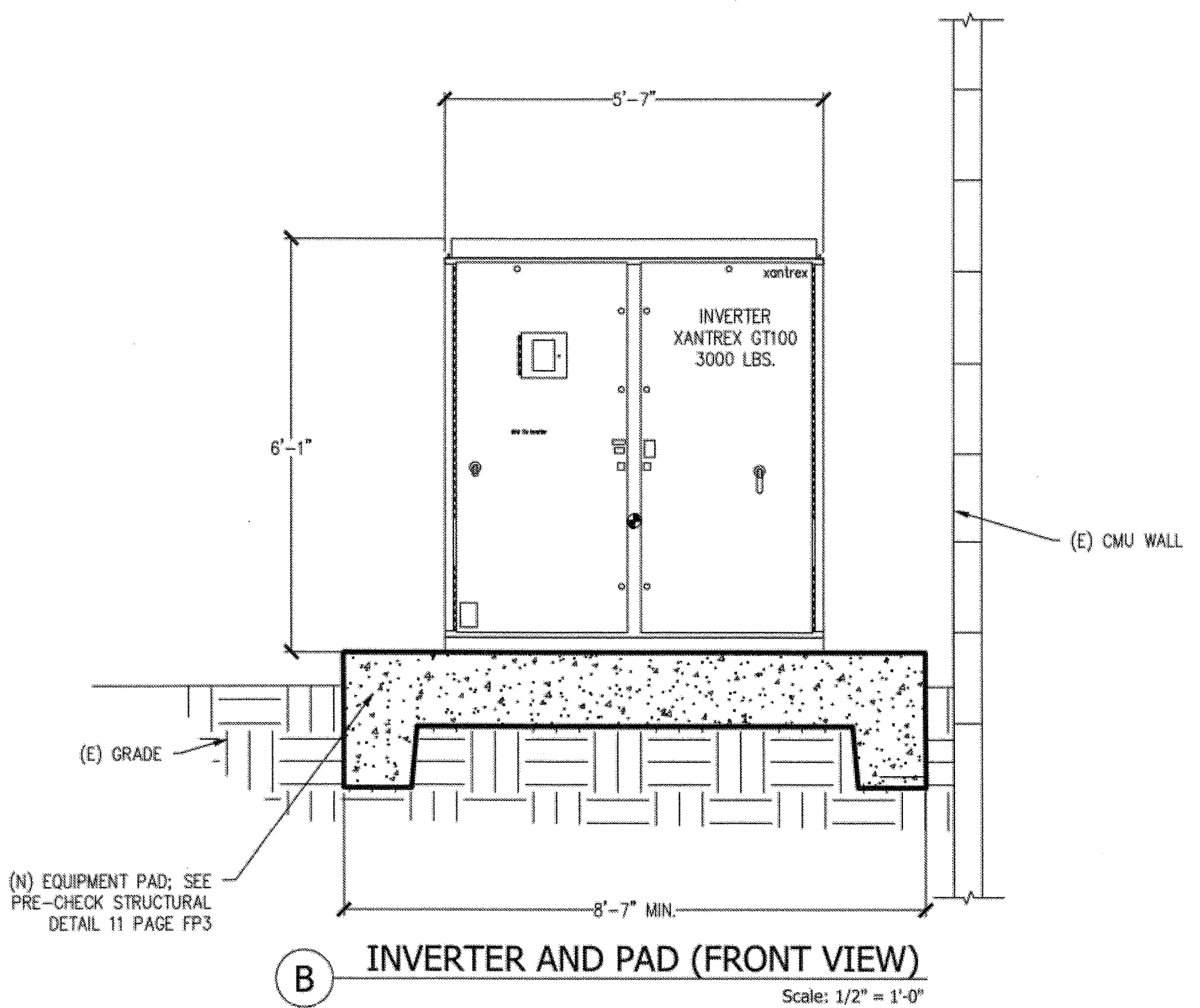
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**REVISIONS**

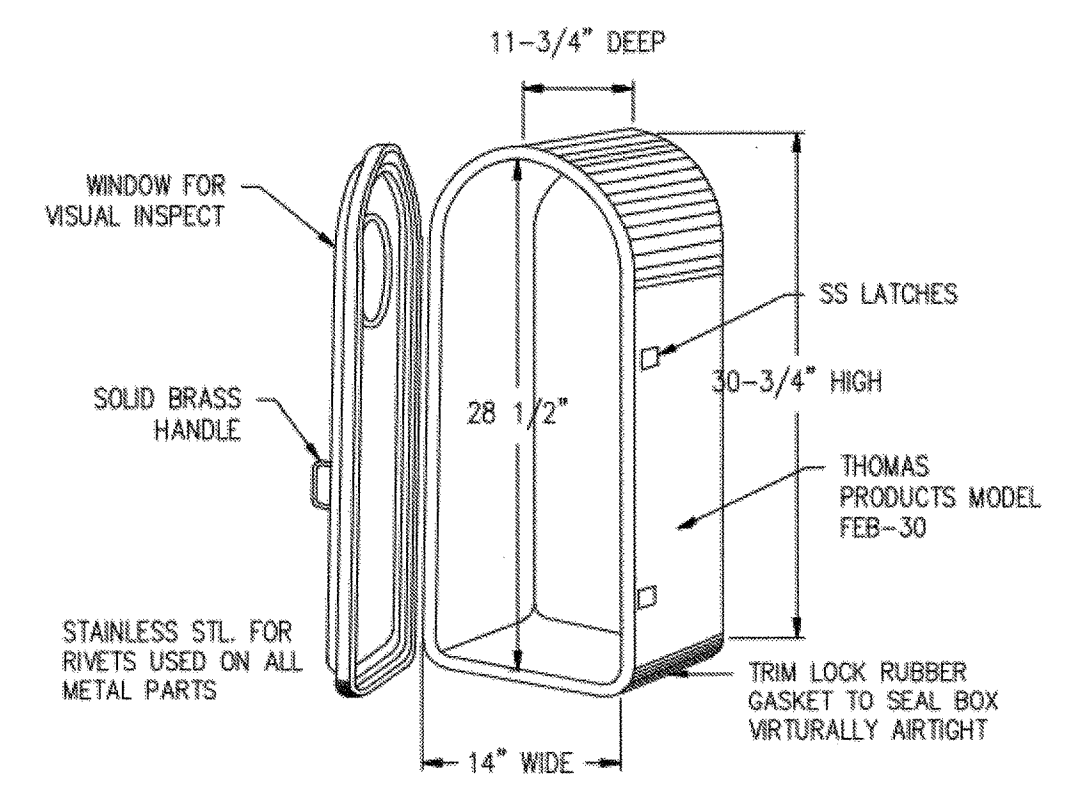
**JOB DETAILS**

City: Los Angeles County (LA)  
PROJECT: (364) YINGLI # YL240P-29b  
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES  
OWNER: (1) XANTREX # G7100-208  
MARKET: DESIGN J TAYLOR  
CHECKED BY: ES  
DATE: 1/6/2012  
PAGE NAME: STRUCTURAL DETAILS  
JOB NUMBER: JB-912047-00  
PAGE: A 3

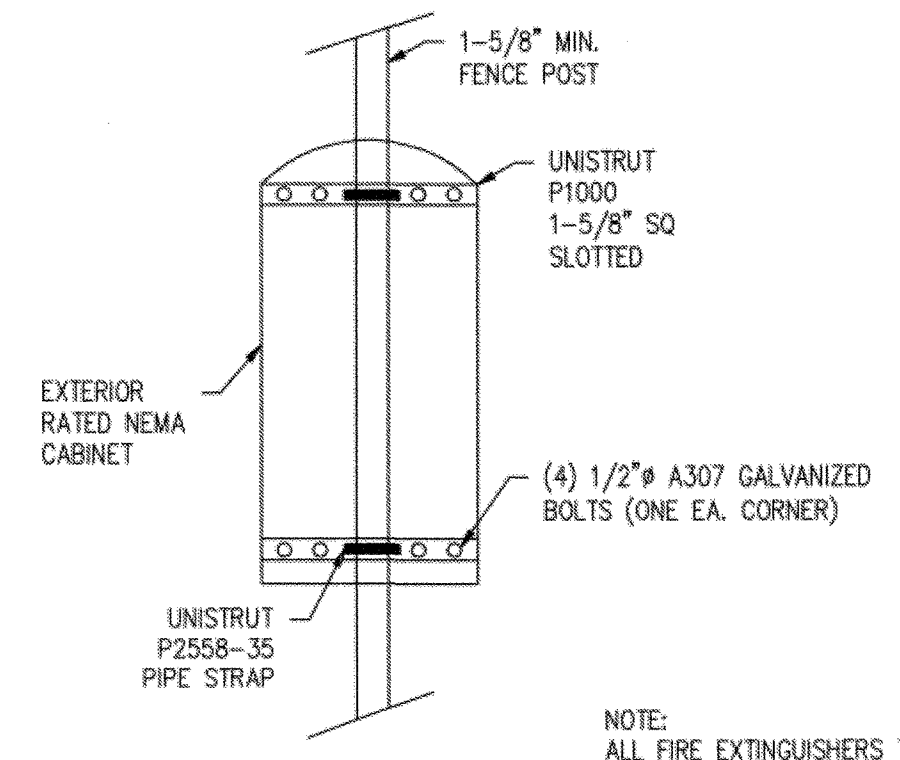




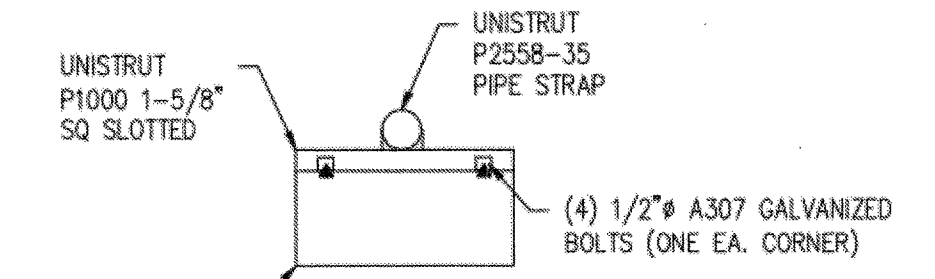
**B** INVERTER AND PAD (FRONT VIEW)  
Scale: 1/2" = 1'-0"



**F** NEMA EXTERIOR FIRE EXTINGUISHER CABINET  
Scale: NTS

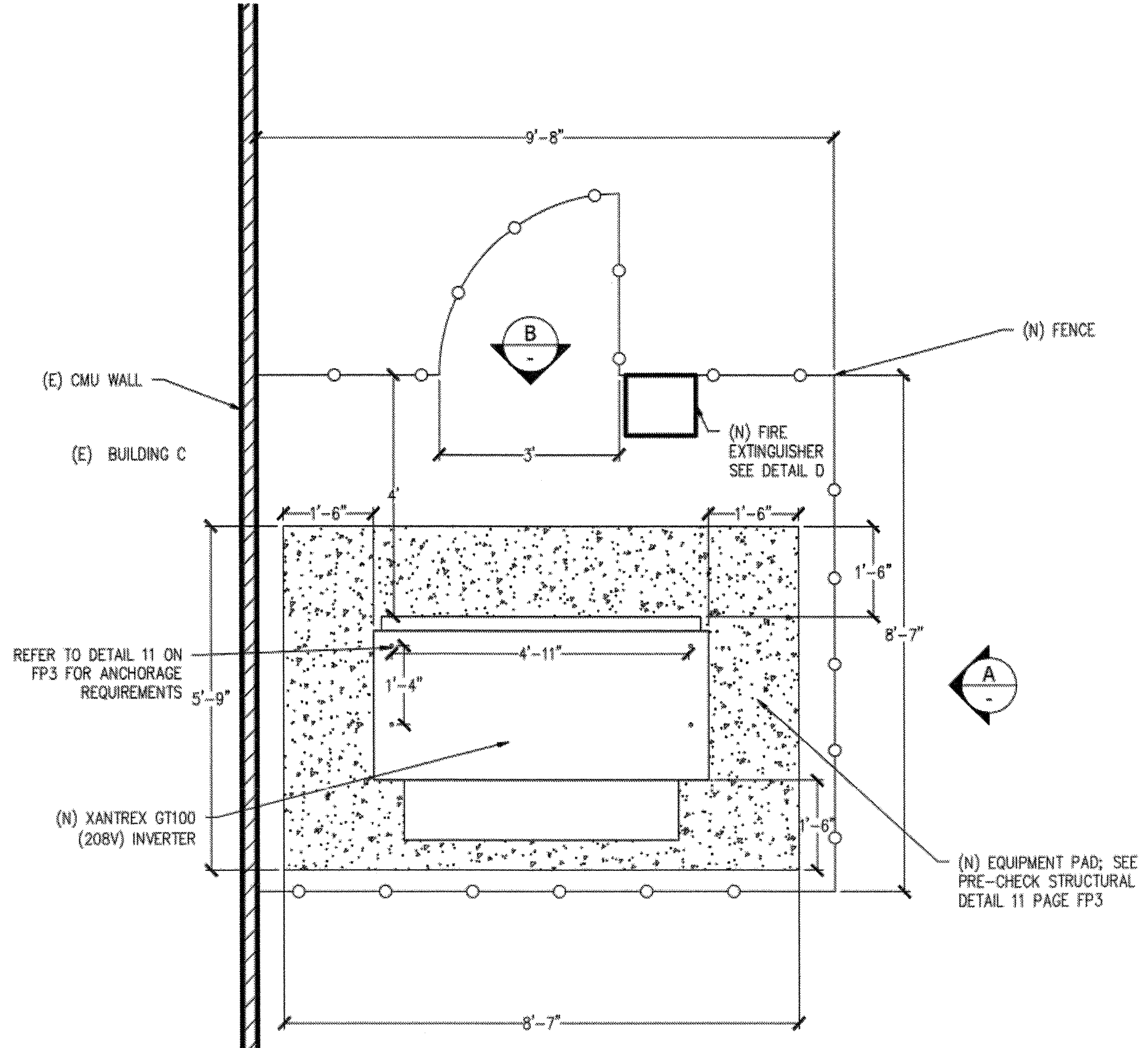


**E** REAR VIEW  
Scale: NTS

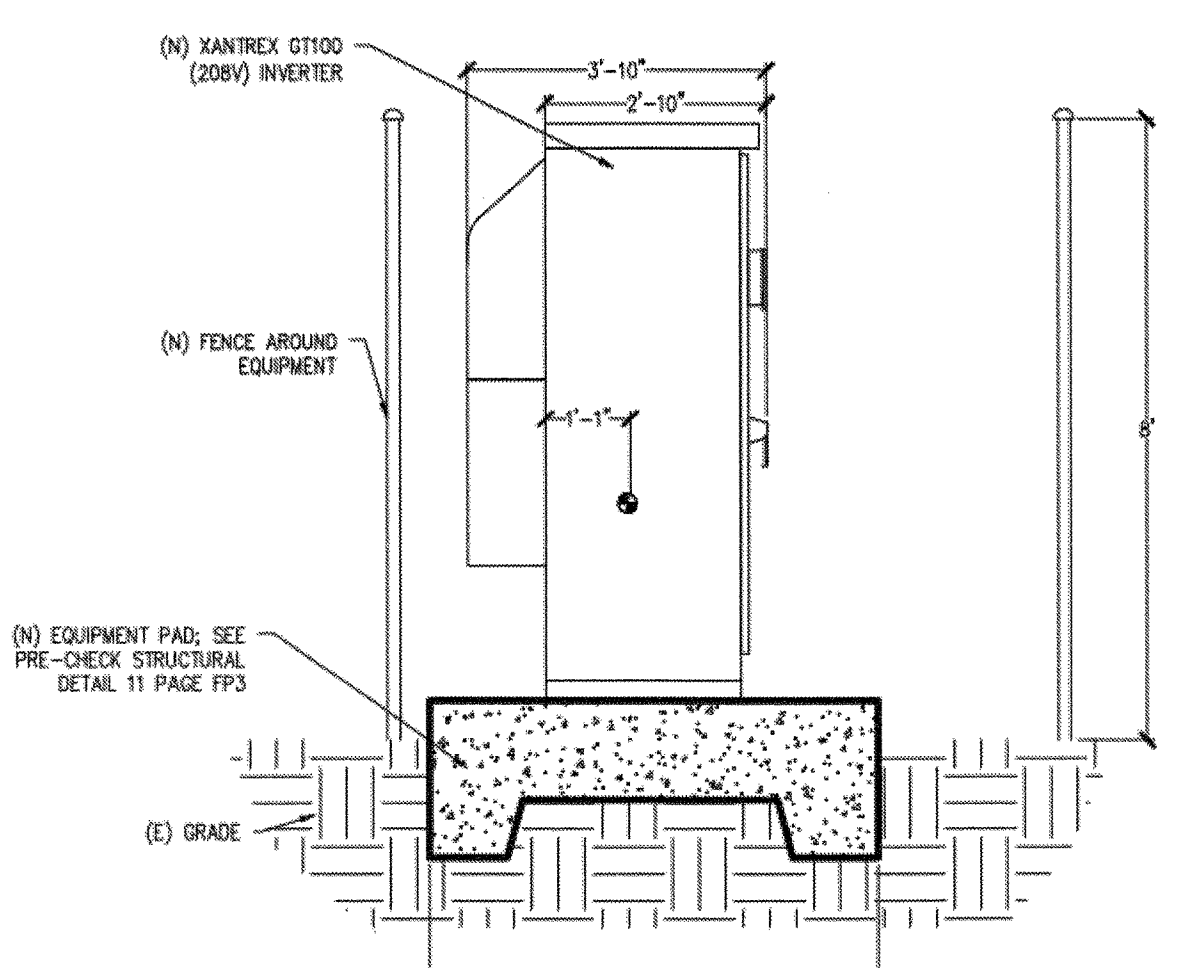


**D** OVERHEAD VIEW  
Scale: NTS

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CONSULTING STRUCTURAL ENGINEERS  
FOR CORRECTNESS OF STRUCTURAL ITEMS ONLY



**C** ELECTRICAL EQUIPMENT PLAN VIEW  
Scale: 1/2" = 1'-0"



**A** ELECTRICAL EQUIPMENT FRONT VIEW  
Scale: 1/2" = 1'-0"

GLENDALE USD - MONTE VISTA ELEMENTARY  
87.36 PV SYSTEM  
GLENDALE USD - MONTE VISTA ELEMENTARY  
2620 ORANGE AVE  
LA CRESCENTA, CA 91214  
8182413111

IDENTIFICATION STAMP  
DIV. OF THE STATE ARCHITECT  
APPOS 114585  
AG: [Signature]  
DATE: MAY 29 2012



REV	BY	DATE	COMMENTS

JOB DETAILS	
ALL:	Los Angeles County (LA)
WORKS:	(364) YINGLI # YL240P-29b
MOUNTING SYSTEM:	STEEL SUPPORT STRUCTURES
INVERTER:	(1) XANTREX # GT100-208
MARKET:	GOV'T
DESIGNER:	J TAYLOR
CHECKED BY:	
DATE:	1/6/2012
PAYMENT TYPE:	CASH
PAGE NAME:	STRUCTURAL DETAILS
PROJECT MANAGER:	D NAVARRO
JOB NUMBER:	JB-912047-00
PAGE:	A 4





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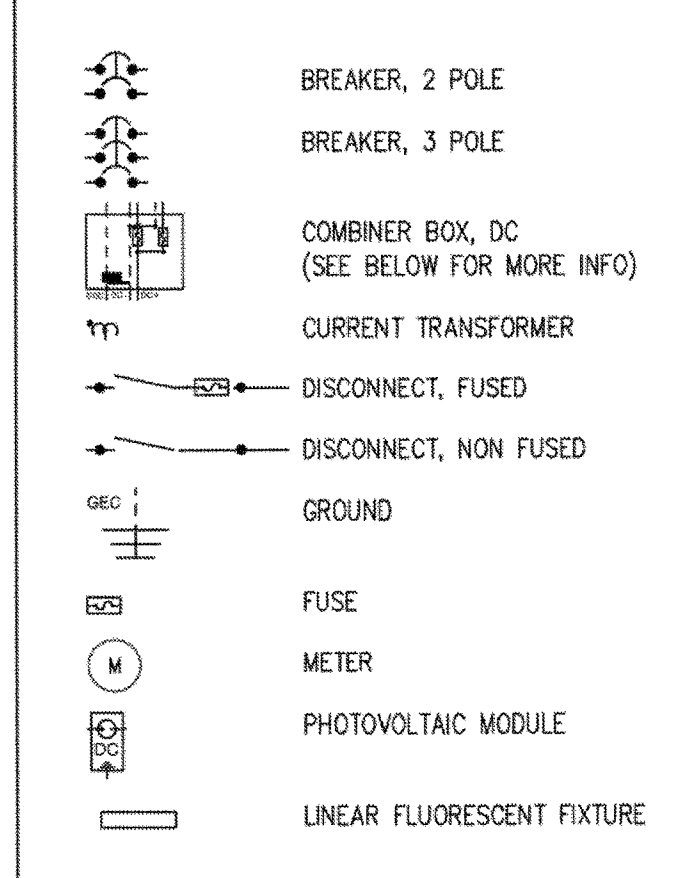
**ELECTRICAL NOTES**

- ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2008 NATIONAL ELECTRIC CODE AS AMENDED BY THE 2010 CALIFORNIA ELECTRIC CODE.
  - EACH UNGROUNDED CONDUCTOR OF THE MULTIWIRE BRANCH CIRCUIT WILL BE IDENTIFIED BY PHASE AND SYSTEM PER ART 210.5.
  - A NATIONALLY-RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH ART 110.3.
  - CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH ART. 250.97, 250.92(B).
  - DC CONDUCTORS INSIDE BUILDING SHALL BE IN METALLIC RACEWAY PER ART 690.31(E).
  - 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.
  - ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY UL LISTING.
  - INSTALLATION SHALL COMPLY WITH ART. 250.52, 250.53.
  - INSTALL PARALLEL CONDUCTORS PER ART 310.4
  - ALL VALUES FOR IMP AND ISC AND VMP ARE MANUFACTURER'S LISTED DATA UNCORRECTED BY NEC.
  - REFER TO CURRENT MANUFACTURER'S PLANNING AND INSTALLATION MANUAL FOR TORQUE SPECS FOR ALL BOLTS AND TERMINAL CONNECTIONS.
  - DC STRING CIRCUITS SHALL BE RUN IN OUTDOOR AMBIENT CONDITIONS.
  - PV INVERTER CONTAINS INTEGRATED AC AND DC DISCONNECTS AND GFDI.
  - BURIED CONDUCTORS SHALL BE BURIED TO THE MINIMUM DEPTH SPECIFIED IN ART. 300.50.
  - ALL CONDUCTORS ARE COPPER UNLESS NOTED OTHERWISE.
- GROUNDING NOTES**
- 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.
  - 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.
  - PV INVERTER CONTAINS AN INTEGRATED GFDI CIRCUIT. DO NOT BOND THE GROUNDED DC CONDUCTOR TO GROUND EXCEPT THROUGH THE INVERTER GFDI.
  - ALL EXPOSED METAL PARTS (RAIL, PIPE, BOXES, ETC) SHALL BE GROUNDED USING PROPER GROUNDED METHODS APPROVED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
  - #10 BARE COPPER EGC AT SOURCE CIRCUITS SHALL BE ROUTED SECURELY TO MOUNTING HARDWARE IN A MANNER THAT PROTECTS FROM PHYSICAL HARM.
  - FERROUS METAL RACEWAYS ENCLOSING GEC CONDUCTORS SHALL BE ELECTRICALLY CONTINUOUS OR BONDED IN ACCORDANCE WITH ART. 250.64(E).
  - MODULE FRAMES, RAIL, AND POSTS SHALL BE BONDED WITH EQUIPMENT GROUND CONDUCTORS AND GROUNDED AT THE MAIN ELECTRIC PANEL.
  - BOTH ENDS OF ALL METALLIC CONDUIT CONTAINING GROUNDING ELECTRODE CONDUCTORS SHALL BE BONDED PER ART 250.64(E).
  - GROUNDING ELECTRODE CONDUCTOR TO BE BONDED TO (E) UFER PER ART. 250.30(A)(4)(A).
  - DC GROUNDING ELECTRODE CONDUCTOR SIZED PER ART 250.168(D).

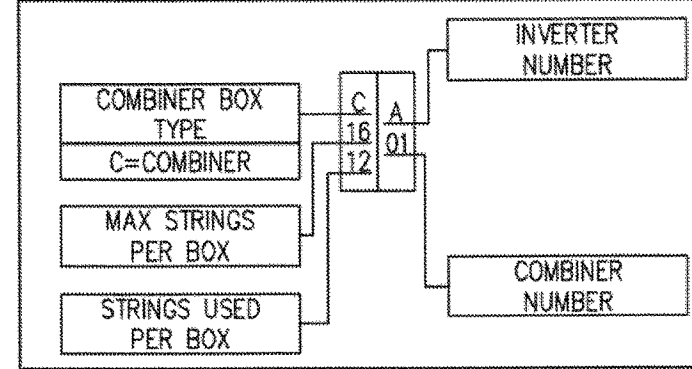
**ABBREVIATIONS**

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 DETECTOR INTERRUPTOR
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
DC	ON CENTER
P	PANEL BOARD
PL	PROPERTY LINES
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
S	SUBPANEL
SCH	SCHEDULE
SS	STAINLESS STEEL
S3D	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, RAIN TIGHT

**LEGEND**



**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**

- E1 ELECTRICAL NOTES
- E2 ELECTRICAL SITE PLAN
- E3 ELECTRICAL SECTION VIEWS
- E4 LINE DRAWING
- E5 STRING DIAGRAMS
- E6 MONITORING DETAILS
- E7 ELECTRICAL DETAILS
- E8 SIGNAGE
- E9 LIGHTING DIAGRAM
- E10 TITLE 24 COMPLIANCE

**SYSTEM COMPONENTS:**

- (364) YINGLI YL240P-29b PHOTOVOLTAIC MODULES CONFIGURED INTO (26) SERIES STRINGS OF (14) MODULES PER STRING
- (1) XANTREX GT100-208V 3ø GRID TIE INVERTER

**TIME 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**

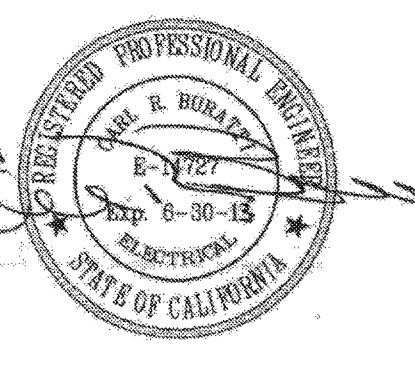
LOWEST EXPECTED AMBIENT TEMPERATURE FOR LA CRESCENTA, CA = 1° C  
 MAX VOLTAGE = # OF MODULES/STRING X (MODULE Voc - (Tact-Trecord\_low) X Tkvoc)  
 MAX VOC = 37.5 VDC - (25°C - 1°C) \* 0.14 = 37.5 - 3.38 = 40.86 VDC  
 MAX SYSTEM VOC = 40.86 VDC \* 14 MODULES IN SERIES = 572.04 VDC

**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

GLENDALE USD - MONTE VISTA ELEMENTARY  
 87.36 PV SYSTEM  
 GLENDALE USD - MONTE VISTA ELEMENTARY  
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 8182413111

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**REVISIONS**

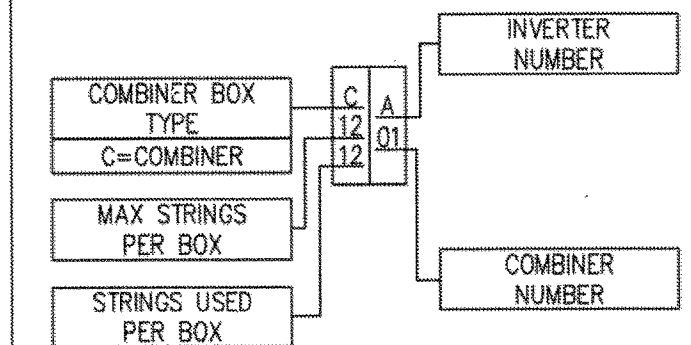
REV	BY	DATE	REVISION

**JOB DETAILS**

FILE: Los Angeles County (LA)  
 PROJECT: (364) YINGLI # YL240P-29b  
 MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES  
 INVERTER: (1) XANTREX # GT100-208  
 MARKET: GOVT  
 CHECKED BY: ES  
 DATE: 1/6/2012  
 PAYMENT TYPE: CASH  
 PROJECT MANAGER: D NAVARRO  
 JOB NUMBER: JB-912047-00  
 PAGE: 1

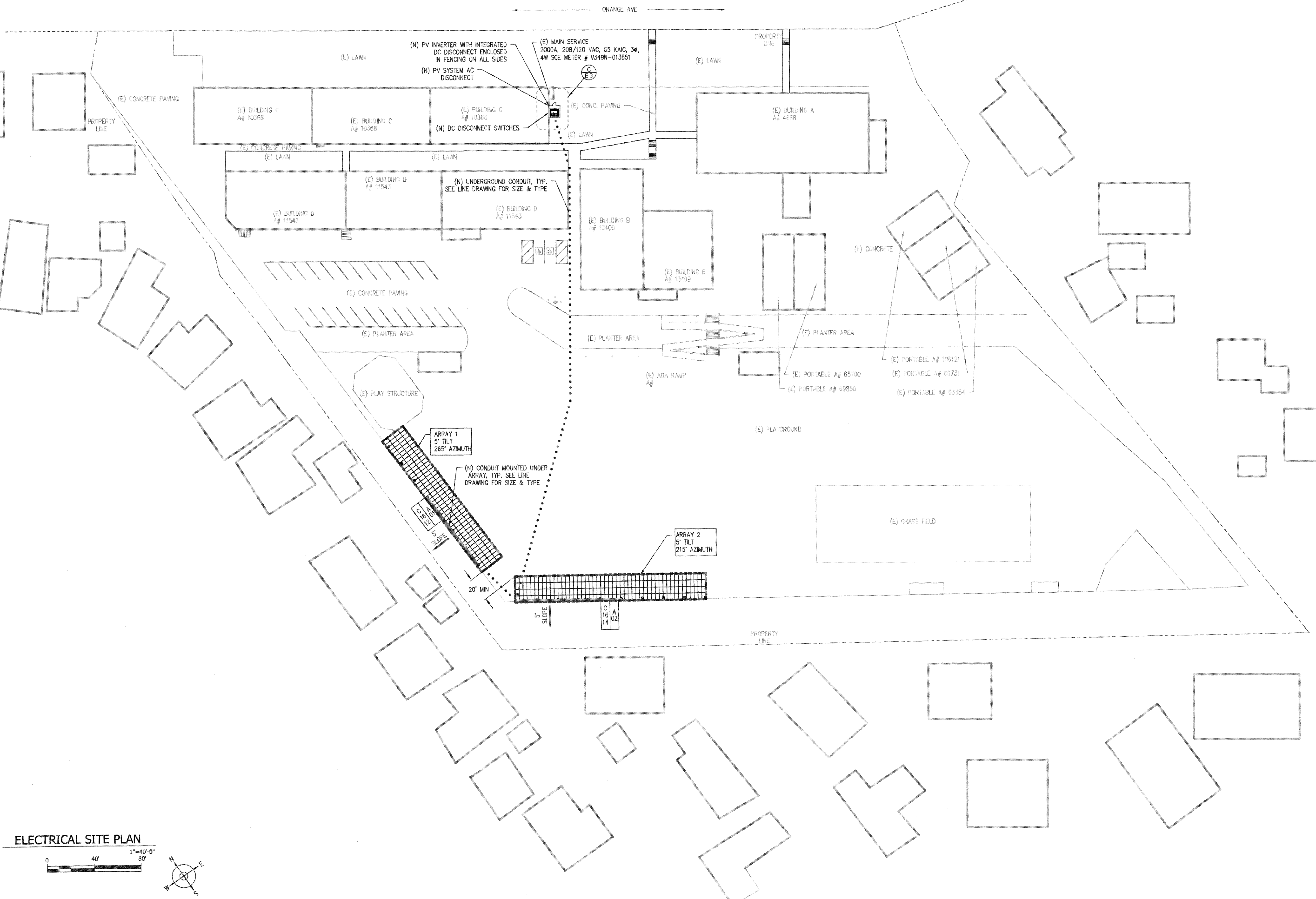


### COMBINER BOX NUMBERING SYSTEM



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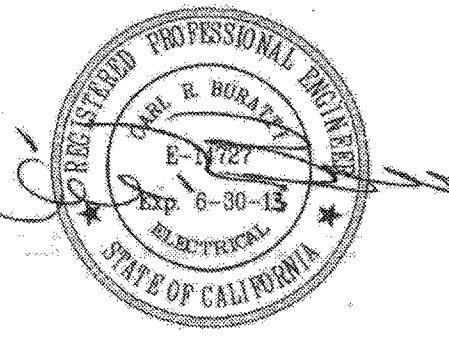
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 DATE MAY 29 2012



REVISIONS

REV	BY	DATE	COMMENTS

JOB DETAILS

PAR: Los Angeles County (LA)

MOBILES: (364) YINGLI # YL240P-29b

WORKING SYSTEM: STEEL SUPPORT STRUCTURES

INVERTER: (1) XANTREX # CT100-208

WARRANTY: GOVT ORDERED BY: ES

DATE: 1/6/2012

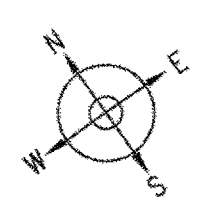
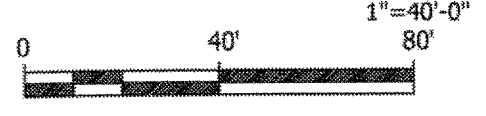
FASE NAME: ELECTRICAL SITE PLAN

PROJECT MANAGER: D NAVARRO

JOB NUMBER: JB-912047-00

PAGE: E 2

### ELECTRICAL SITE PLAN





- f -

- e -

- d -

- c -

- b -

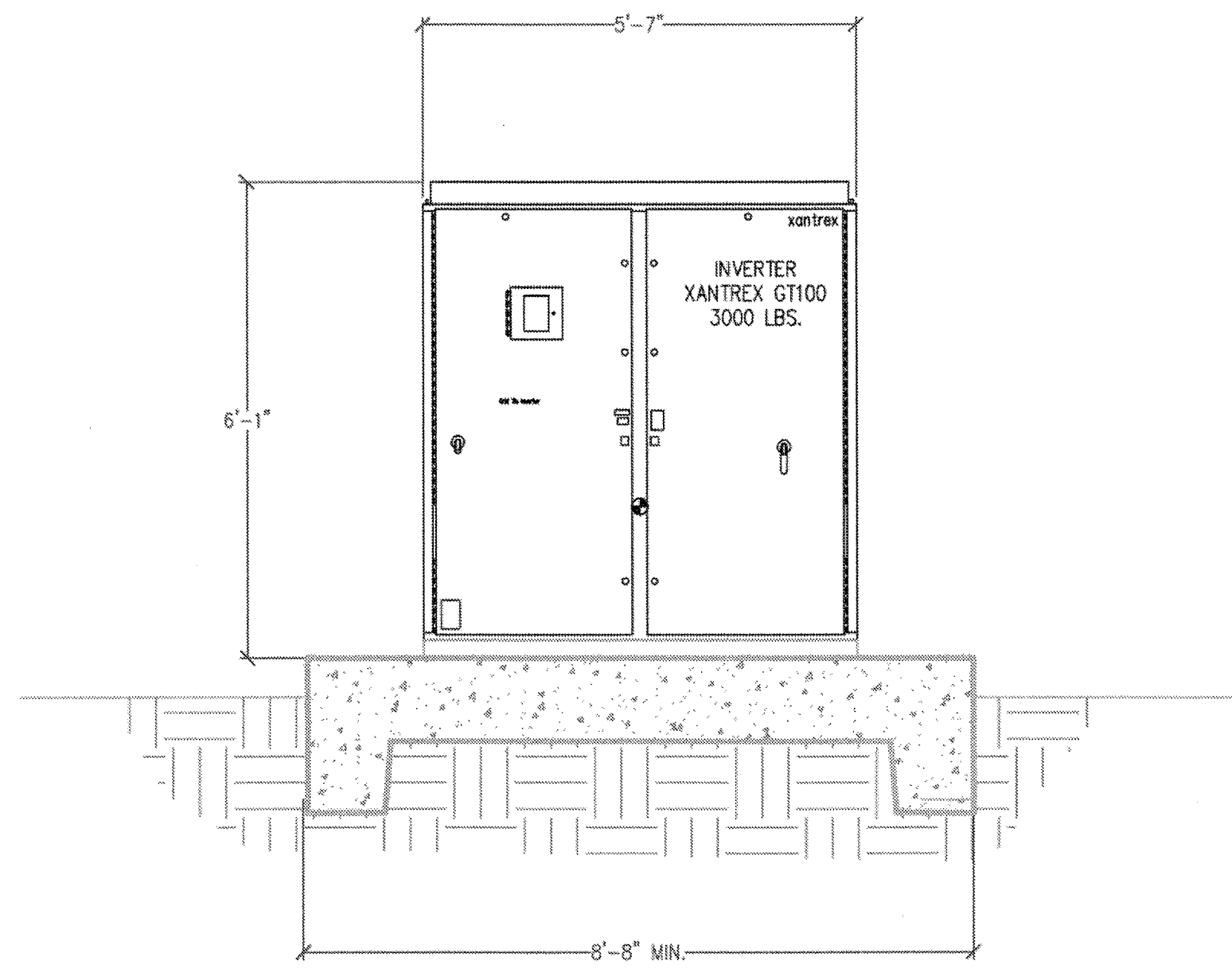
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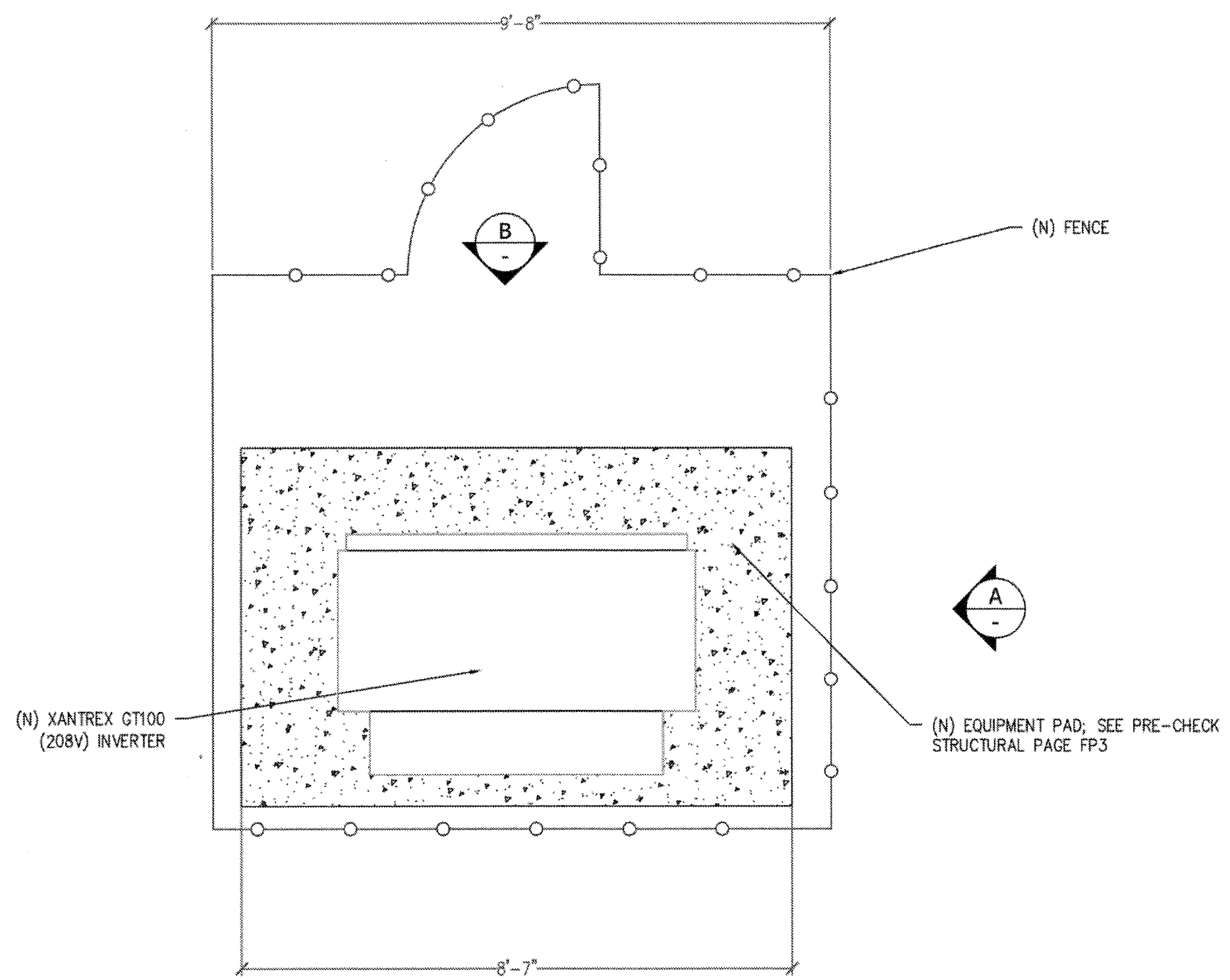
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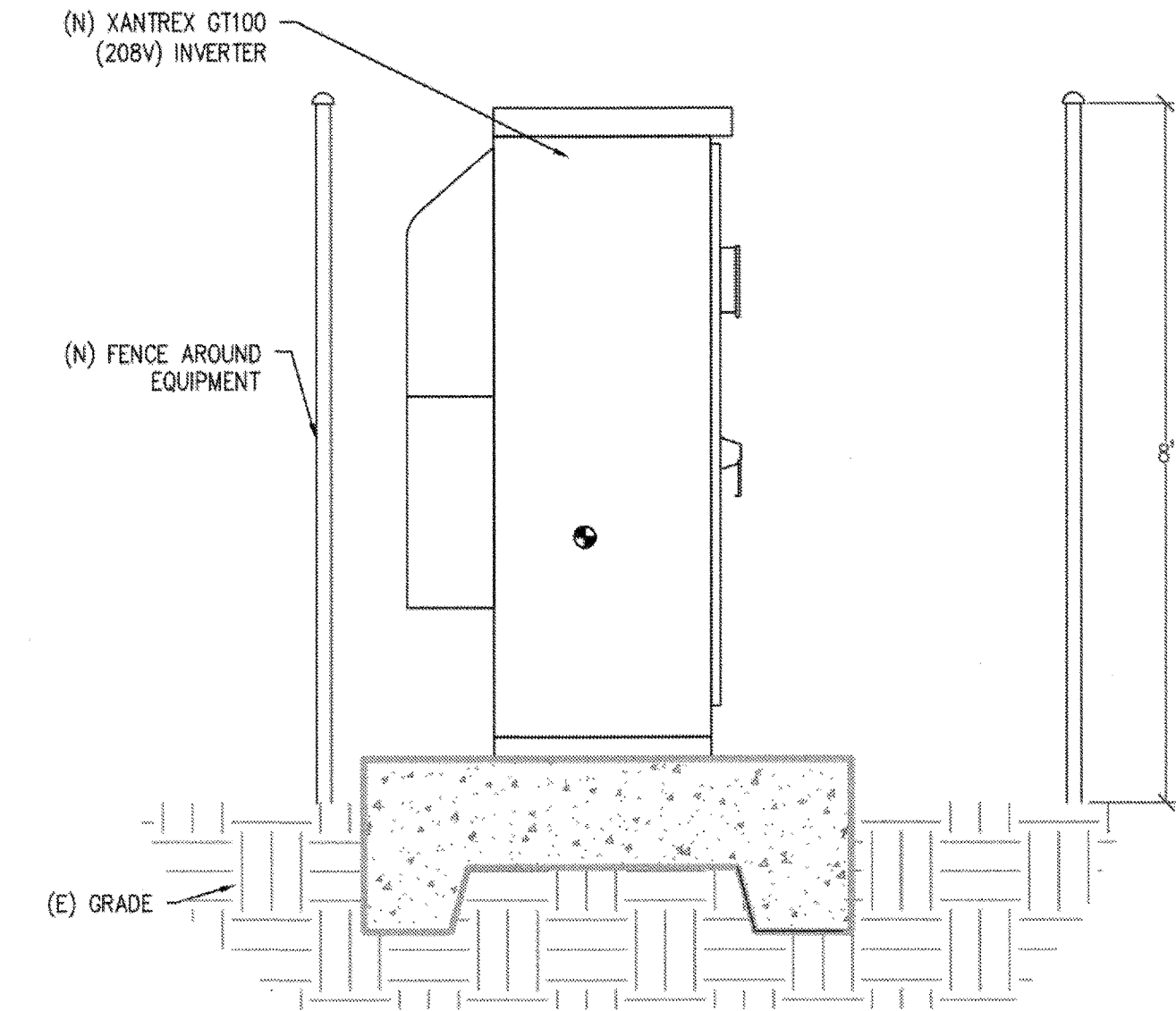
FOR STRUCTURAL DETAILS, SEE PC PLANS PAGE FP3 FOR EQUIPMENT PAD DETAILS



**B** INVERTER AND PAD (FRONT VIEW)  
Scale: 1/2" = 1'-0"



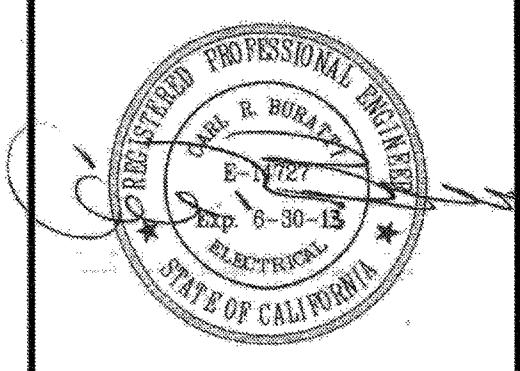
**C** ELECTRICAL EQUIPMENT PLAN VIEW  
Scale: 1/2" = 1'-0"



**A** ELECTRICAL EQUIPMENT FRONT VIEW  
Scale: 1/2" = 1'-0"

PROJECT: GLENDALE USD - MONTE VISTA ELEMENTARY  
SYSTEM: 87.36 PV SYSTEM  
OWNER: GLENDALE USD - MONTE VISTA ELEMENTARY  
2620 ORANGE AVE  
LA CRESCENTA, CA 91214  
8182413111

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REV A	JP		

JOB DETAILS  
PROJECT: Los Angeles County (LA)  
SHEET: (364) YINGLI # YL240P-29b  
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES  
INVERTER: (1) XANTREX # GT100-208  
MARKET: GOVT  
DESIGN BY: J TAYLOR  
DATE: 1/6/2012  
PAYMENT TYPE: CASH  
PAGE NAME: ELECTRICAL SECTION VIEWS D NAVARRO  
JOB NUMBER: JB-912047-00  
PAGE: E 3

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- d -

- c -

- b -

- a -



### 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

### MODULE CHARACTERISTICS

YINGLI YL-240P-29b

Voc = 37.5 V  
Vmp = 29.5 V  
Isc = 8.65 A  
Imp = 8.14 A  
T<sub>NOCT</sub> = -13.9V/°C  
Tlow = 1 °C (ASHRAE DATA)

MONTE VISTA ELEMENTARY SCHOOL - GLENDALE SCHOOL DISTRICT  
87.36 KW

SYSTEM COMPONENTS:

- (364) YINGLI YL-240P-29b PHOTOVOLTAIC MODULES CONFIGURED INTO (26) SERIES STRINGS OF (14) MODULES PER STRING
- (1) XANTREX GT100-208 GRID TIED INVERTER

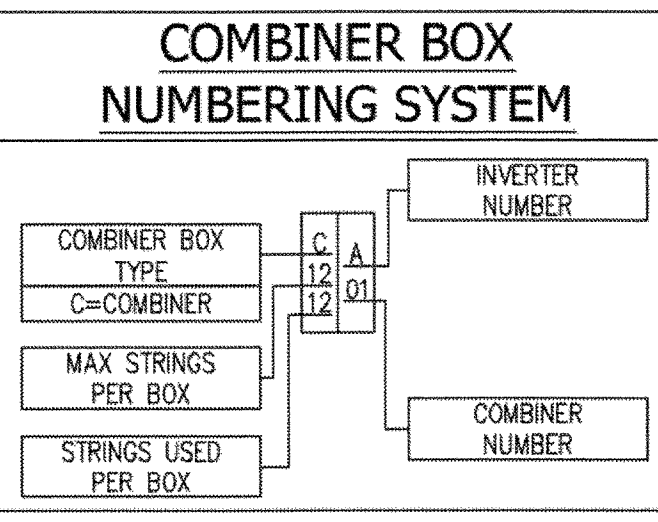
MAX SYSTEM VDC CALCULATIONS

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

MAX VOLTAGE = # OF MODULES/STRING X (MODULE Voc - (Tact-Trecord\_low) X T<sub>NOCT</sub>)

MAX VDC = 37.5 VDC - (25°C - 1°C) - 0.14 = 37.5 - 3.36 = 40.85 VDC

MAX SYSTEM VDC = 40.85 VDC X 14 MODULES IN SERIES = 572.04 VDC



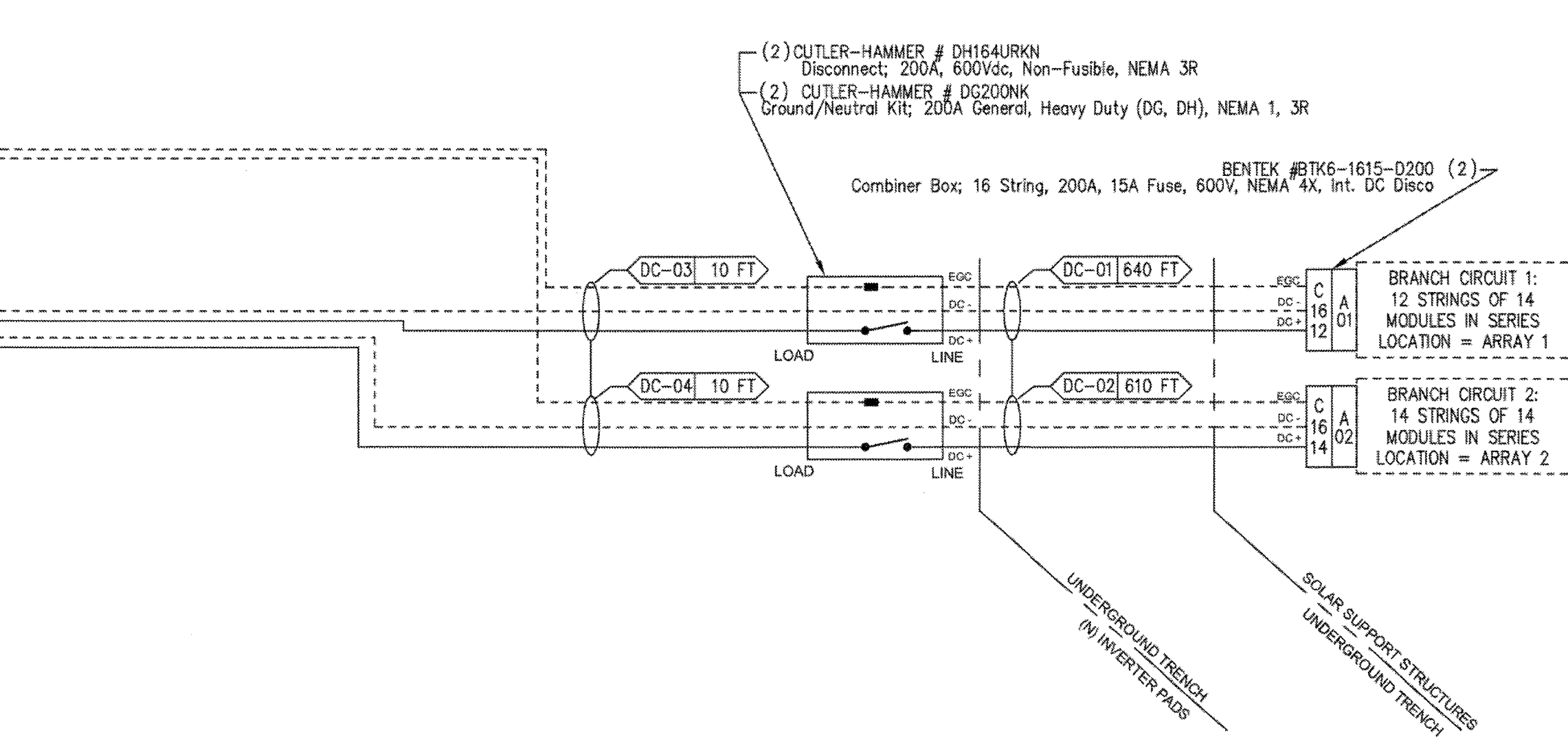
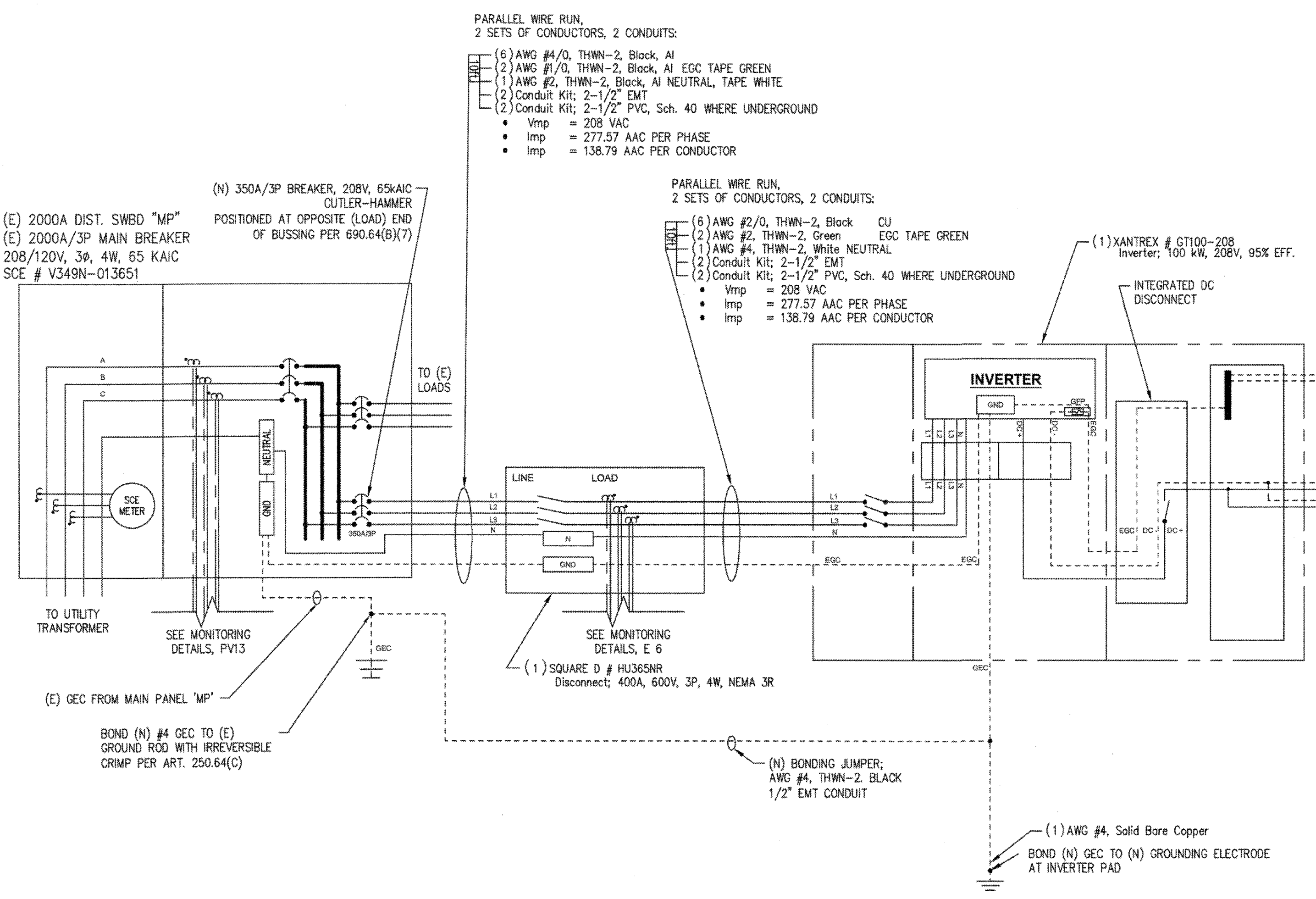
### SHEET NOTES

**INTERCONNECTION NOTES**

- LOAD SIDE CONNECTION SHALL BE MADE VIA A DEDICATED CIRCUIT BREAKER IN CONFORMANCE WITH ARTICLE 690.64(B)
- PROVIDE A PLACARD ON THE AC DISCONNECT SWITCH WITH THE FOLLOWING INFORMATION IN 1/4" HIGH LETTERING PER NEC 690-54 (SEE LABEL #2, PVI):  
**CAUTION - POSSIBLE BACKFEED FROM PHOTOVOLTAIC POWER SYSTEM:**  
V<sub>NOM</sub> = 208 VAC  
I<sub>nom</sub> = 2077.6 AAC
- 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-PVI):  
FOR BRANCHES 1-2:  
**PHOTOVOLTAIC POWER SOURCE DISCONNECT**  
OPERATING CURRENT: 105.82 ADC  
OPERATING VOLTAGE: 413 VDC  
MAXIMUM SYSTEM VOLTAGE: 525 VDC  
SHORT-CIRCUIT CURRENT: 112.45 ADC
- 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.**

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**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 ACCOMMODATE.
- (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
- ALL WIRING TO/FROM ARRAY PANELS SHALL BE IN WATERTIGHT CONDUIT, TYPICAL

DC FEEDER SCHEDULE										AMPACITY DERATES		
TAG	C SIZE	C TYPE	#W	W SIZE	WIRE TYPE	Voc	Vmp	Isc	Imp	TEMP	FILL	Vdrop
DC-01	2-1/2"	EMT	2	500 KCML	THWN-2 AL	525	413	103.80	97.68	96%	100%	1.24%
		PVC-S40	1	#4	THWN-2 AL							
		RMC										
DC-02	2-1/2"	EMT	2	500 KCML	THWN-2 AL	525	413	121.10	113.96	96%	100%	1.38%
		PVC-S40	1	#4	THWN-2 AL							
		RMC										
DC-03	2"	EMT	2	#3/0	THWN-2 CU	525	413	103.80	97.68	96%	100%	0.04%
		PVC-S40	1	#6	THWN-2 CU							
		RMC										
DC-04	2"	EMT	2	#3/0	THWN-2 CU	525	413	121.10	113.96	96%	100%	0.04%
		PVC-S40	1	#6	THWN-2 CU							
		RMC										

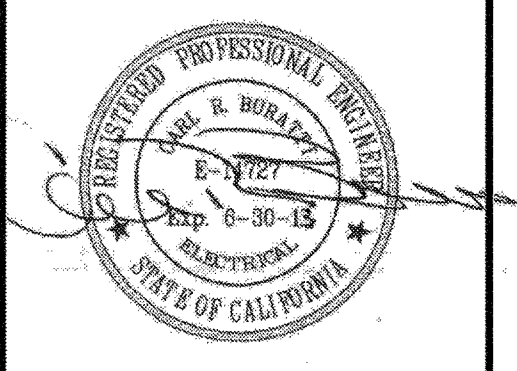
(A) LINE DRAWING 1 OF 4

GLENDALE USD - MONTE VISTA ELEMENTARY  
87.36 PV SYSTEM

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2620 ORANGE AVE  
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DIV. OF THE STATE ARCHITECT

APPROX 114585  
10/29/15  
DATE MAY 29 2017



REVISIONS			
REV	BY	DATE	COMMENTS
1	ES	5/29/17	

**JOB DETAILS**

PKT: Los Angeles County (LA)

MODULES: (364) YINGLI # YL240P-29b

MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES

INVERTER: (1) XANTREX # GT100-208

MARKET: GOVT  
DESIGN: J TAYLOR  
CREATED BY: ES

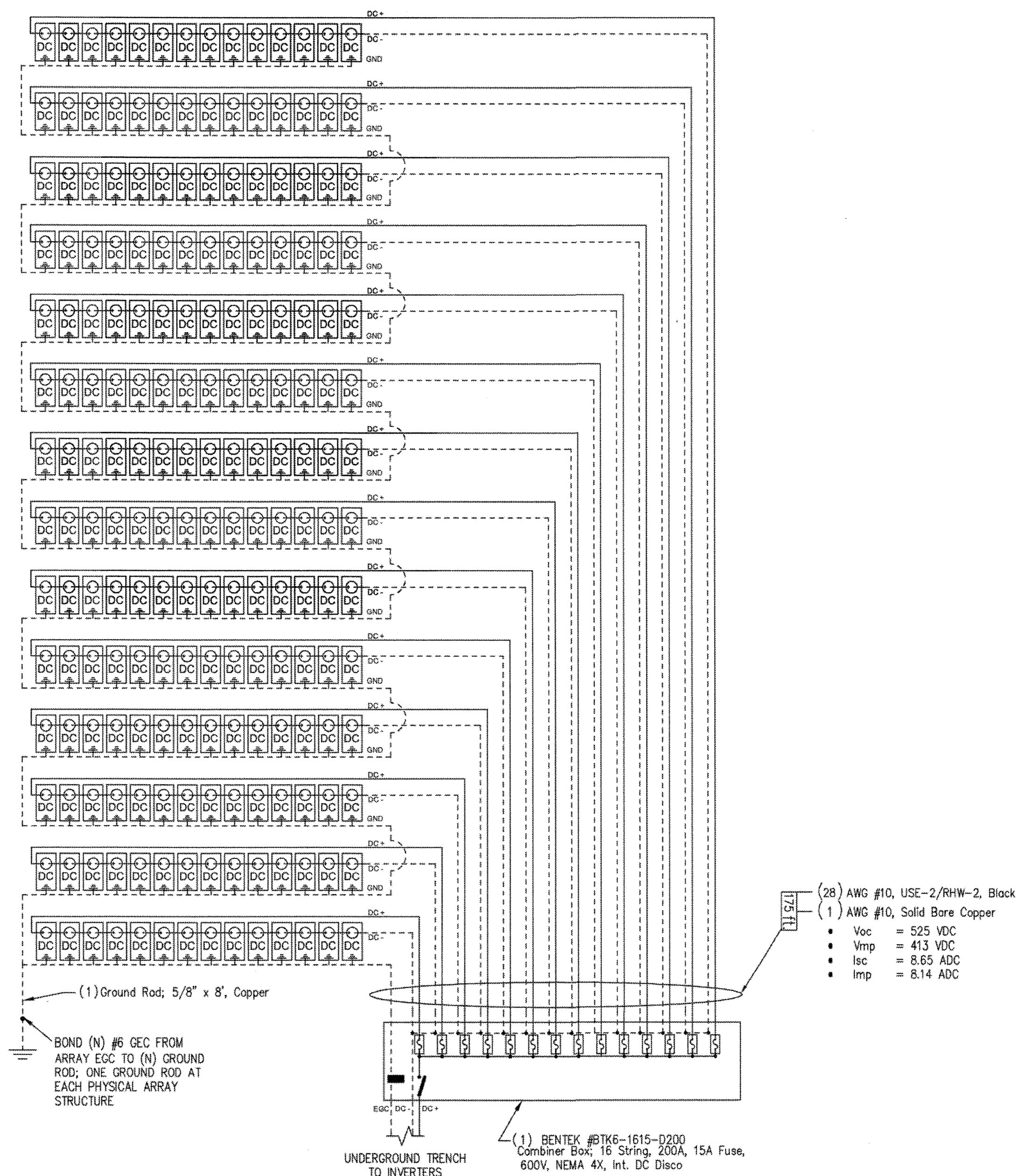
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PAYMENT TYPE: CASH

PROJECT NAME: LINE DRAWING  
PROJECT NUMBER: D NAVARRO

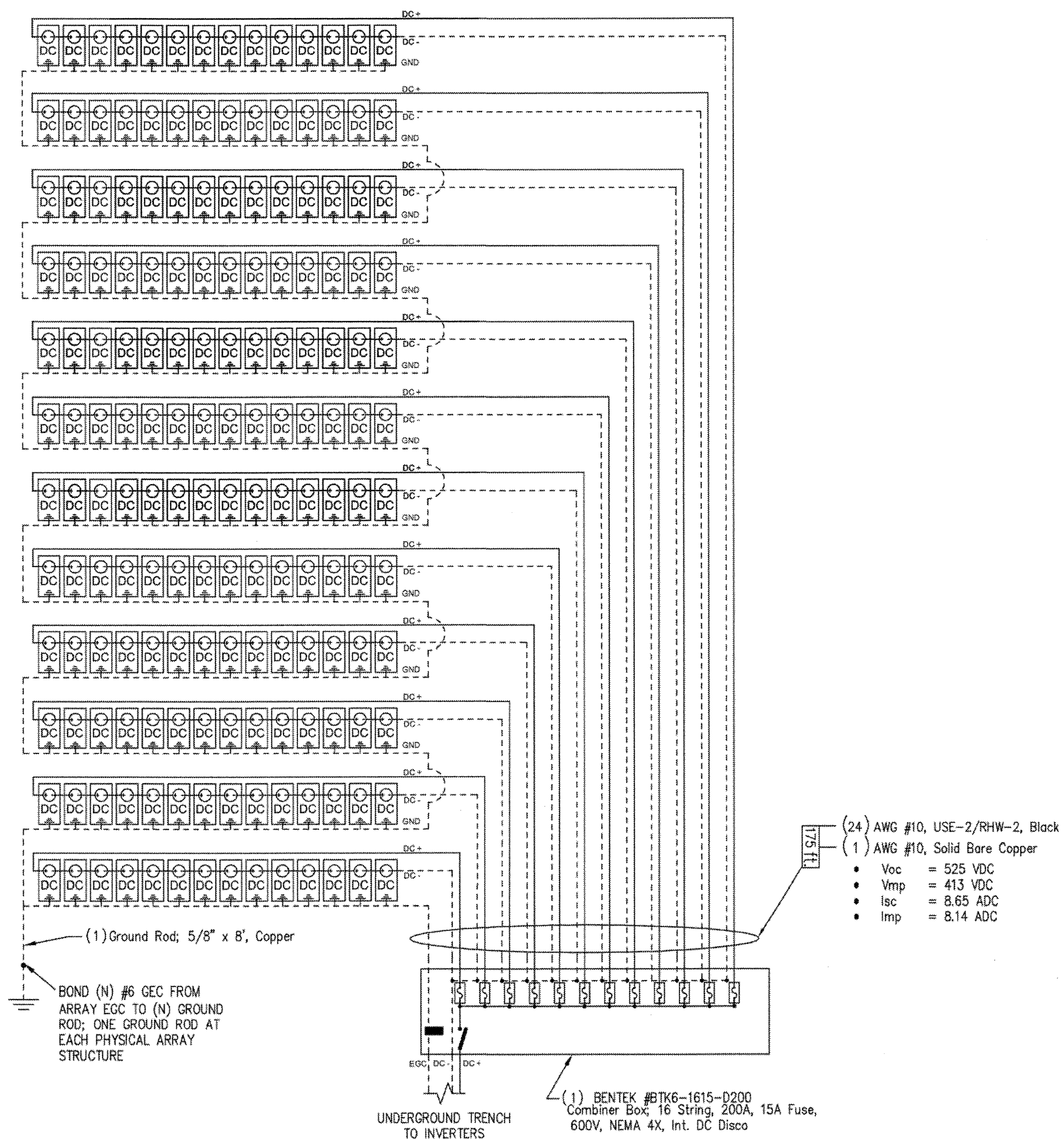
JOB NUMBER: JB-912047-00

PAGE: E 4





C LINE DRAWING 3 OF 4: 14 STRING BRANCH CIRCUIT, BRANCH 2



B LINE DRAWING 2 OF 4: 12 STRING BRANCH CIRCUIT, BRANCH 1

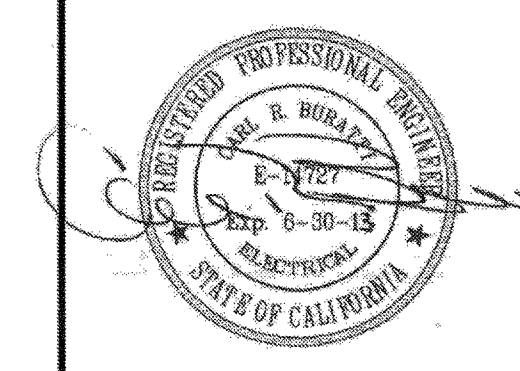


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APPROX 114585  
AC/FLS/PC/SS/CMU  
DATE MAY 29 2012



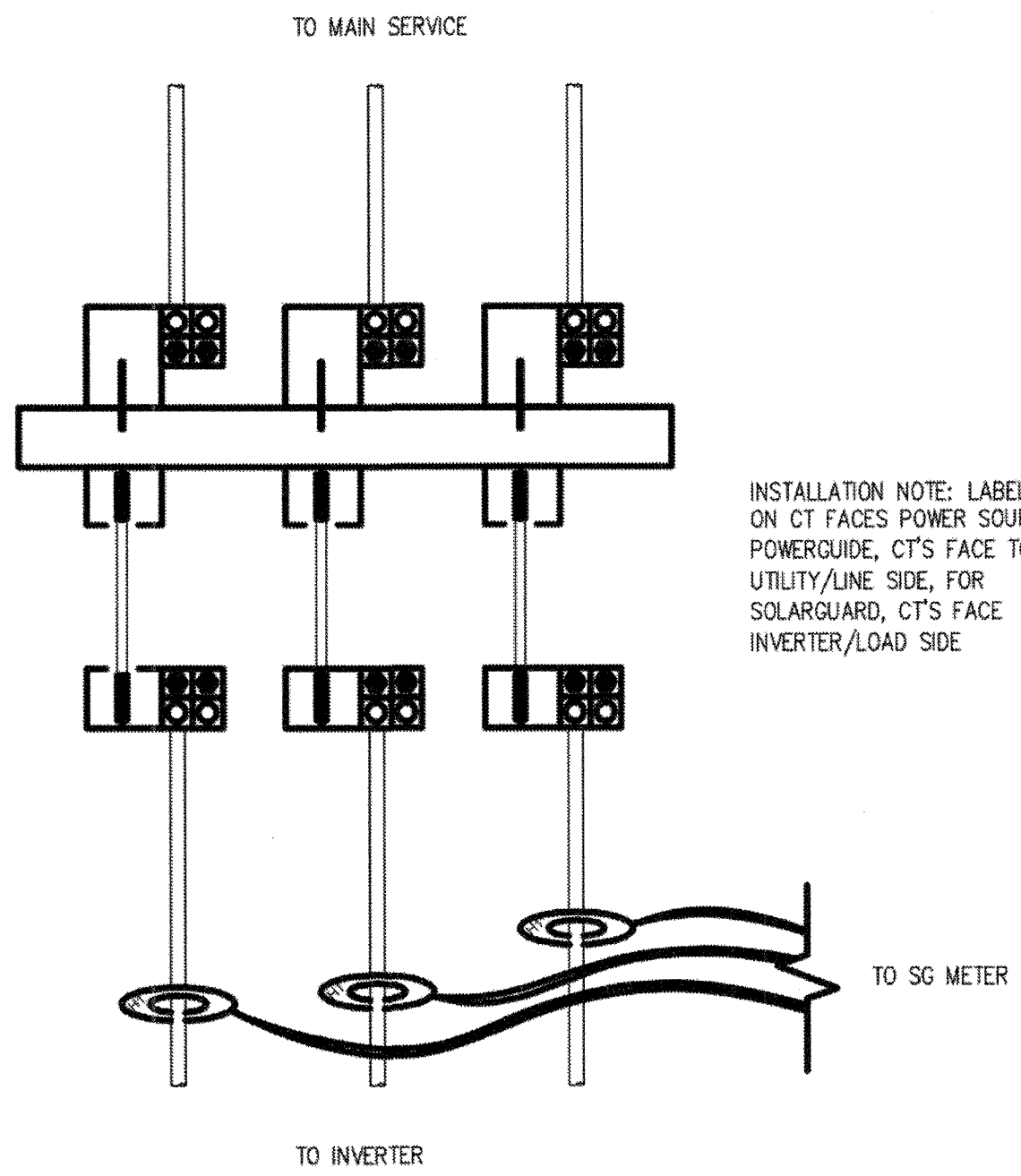
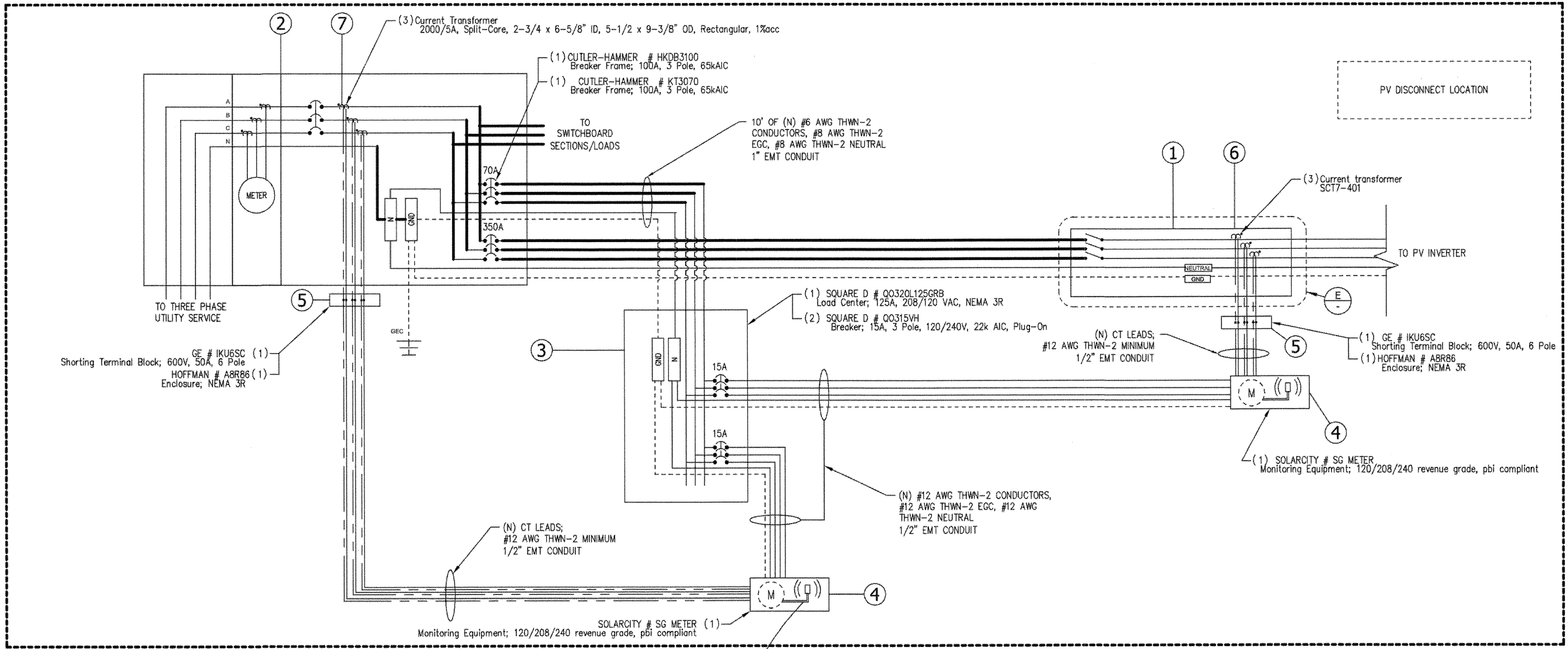
REVISIONS

REV	BY	DATE	COMMENTS
REV A	BY	DATE	COMMENTS

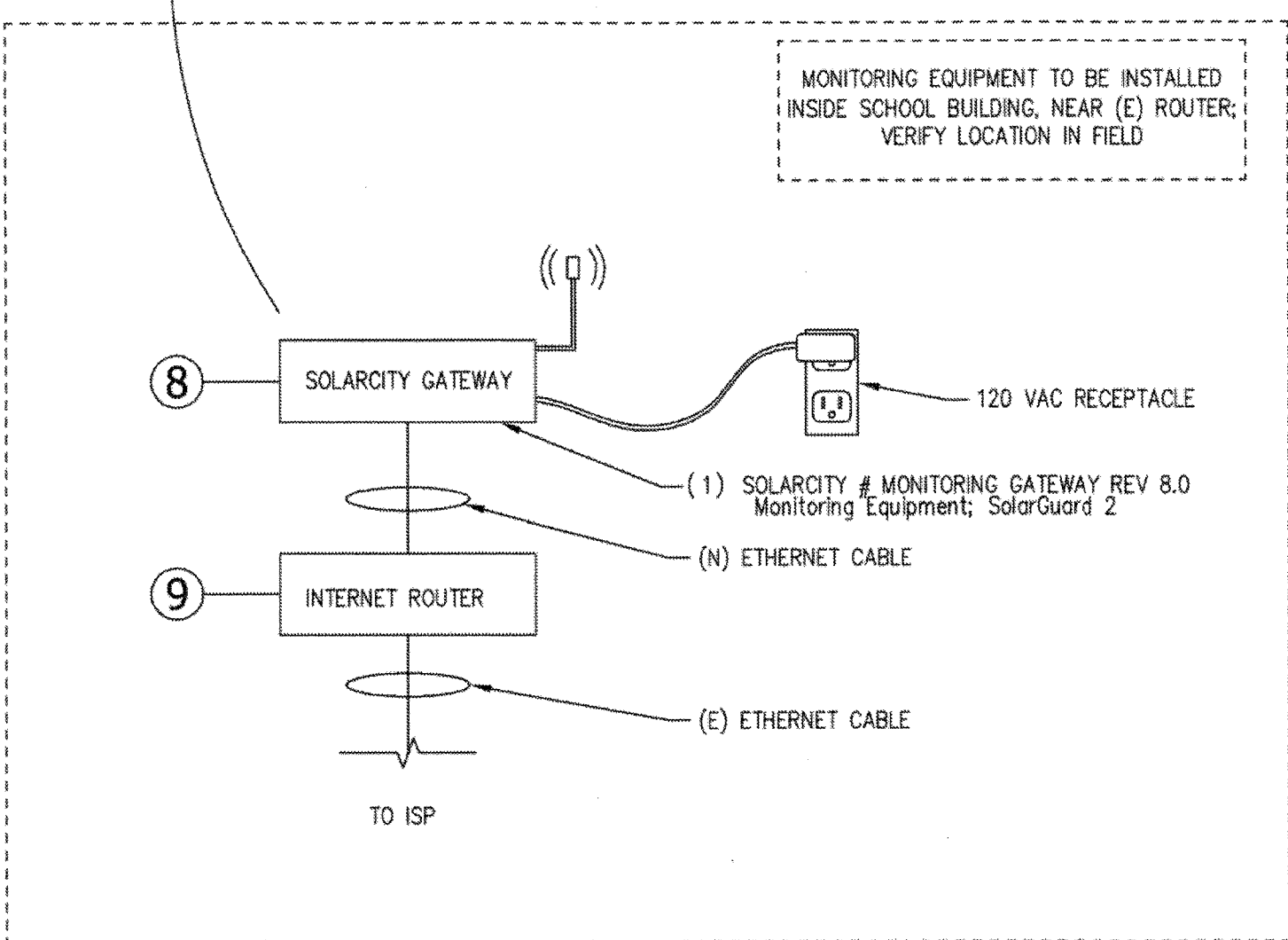
JOB DETAILS

AREA: Los Angeles County (LA)  
ADDRESS: (364) YNGLI # YL240P-296  
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES  
INVERTER: (1) XANTREX # GT100-208  
MARKET: GOVT  
DESIGN BY: J TAYLOR  
CHECKED BY: ES  
DATE: 1/6/2012  
PAYMENT TYPE: CASH  
PROJECT NAME: STRING DIAGRAMS  
PROJECT MANAGER: D NAVARRO  
JOB NUMBER: JB-912047-00  
PAGE: E 5





**E** TERMINALS INSIDE AC DISCONNECT



**D** LINE DRAWING 4 OF 4: MONITORING DETAILS

- NOTES:
- (N) PV AC DISCONNECT; SEE LINE DRAWING FOR PRODUCT TYPE AND SPECIFICATIONS
  - (E) MAIN SERVICE ENTRANCE
  - (N) MONITORING & LIGHTING SUB PANEL
  - (N) SOLARCITY SG AND PG METERS - REVENUE GRADE, CSI PBI COMPLIANT
  - (N) SHORTING TERMINAL BLOCK - 600V, 50A, 6 POLE; GE #IKU6SC
  - (N) SOLID CORE CURRENT TRANSFORMERS:
    - HI LABEL FACES TOWARD SOURCE
    - WHITE WIRES TO Ix1 TERMINALS IN SG METER
    - BLACK WIRES TO Ix2 TERMINALS IN SG METER
  - (N) SPLIT CORE CURRENT TRANSFORMERS:
    - HI LABEL FACES TOWARD SOURCE
    - BLACK WIRES TO Ix1 TERMINALS IN PG METER
    - WHITE WIRES TO Ix2 TERMINALS IN PG METER
  - (N) SOLARCITY GATEWAY; LOCATED WITHIN 80' OF SG AND PG METERS, INDOORS, OR IN SHADED WEATHERPROOF, NON-METALLIC ENCLOSURE
  - (E) INTERNET ROUTER; ALWAYS ON INTERNET CONNECTION, AVAILABLE ETHERNET PORT (10BASE-T/100BASE-TX)

**SolarCity**  
 3055 Clearview Way, San Mateo, CA 94402  
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PROJECT: GLENDALE USD - MONTE VISTA ELEMENTARY  
 SYSTEM: 87.36 PV SYSTEM  
 ADDRESS: GLENDALE USD - MONTE VISTA ELEMENTARY  
 2620 ORANGE AVE  
 LA CRESCENTA, CA 91214  
 8182413111

IDENTIFICATION STAMP  
 DIV. OF THE STATE ARCHITECT  
 APP03 114585  
 APPROVED: [Signature]  
 DATE: MAY 29 2012

REGISTERED PROFESSIONAL ENGINEER  
 JOHN E. BURDA  
 E-7227  
 Exp. 9-30-15  
 STATE OF CALIFORNIA

REVISIONS			
REV	BY	DATE	COMMENTS
1	ES	5/29/12	

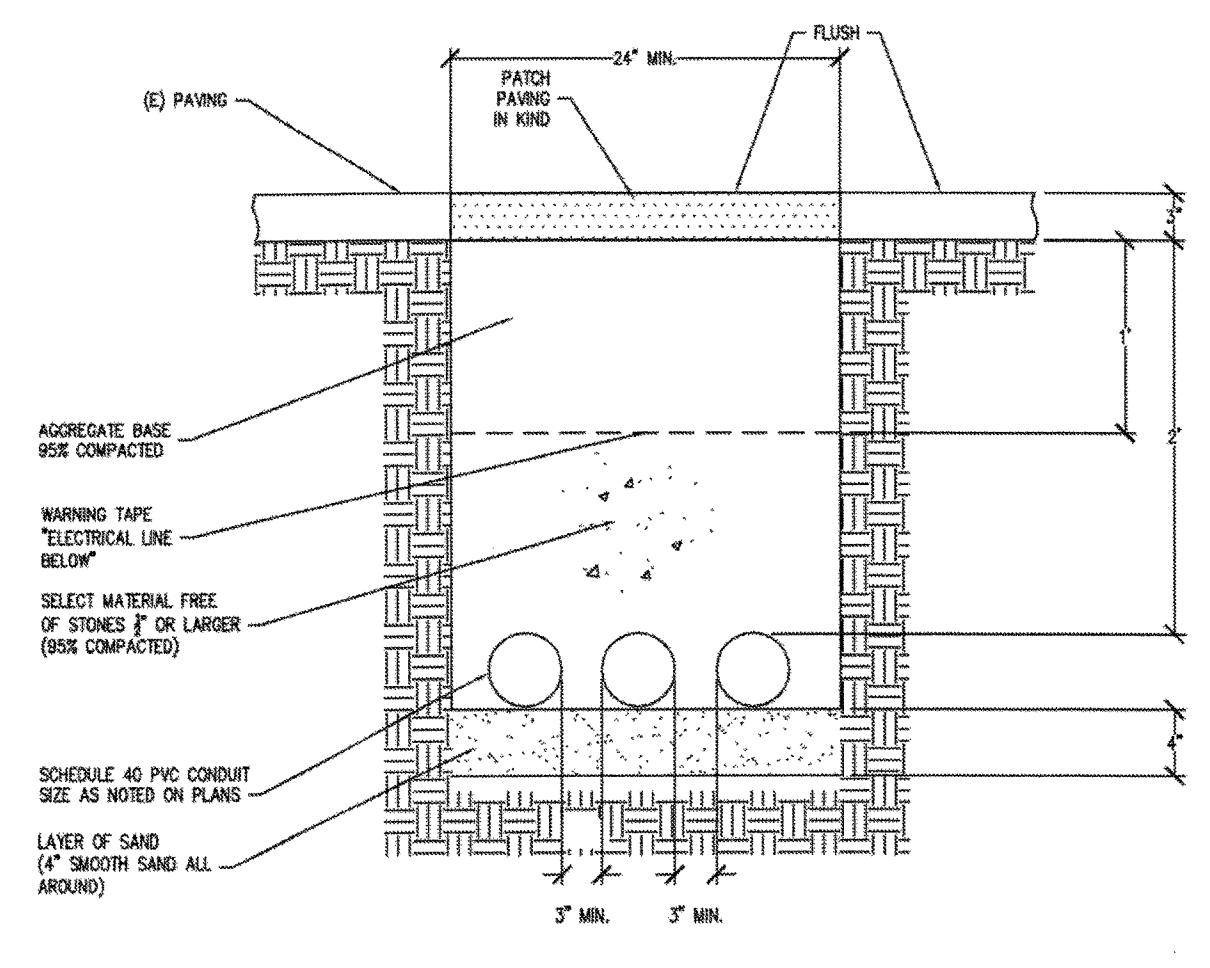
JOB DETAILS  
 A/E: Los Angeles County (LA)  
 W/FILES: (364) YINGLI # YL240P-29b  
 MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES  
 INVERTER: (1) XANTREX # GT100-208  
 MARKET: GOVT  
 CHECKED BY: ES  
 DATE: 1/6/2012  
 PAYEE NAME: MONITORING DETAILS  
 PROJECT MANAGER: D NAVARRO  
 JOB NUMBER: JB-912047-00  
 PAGE: 6



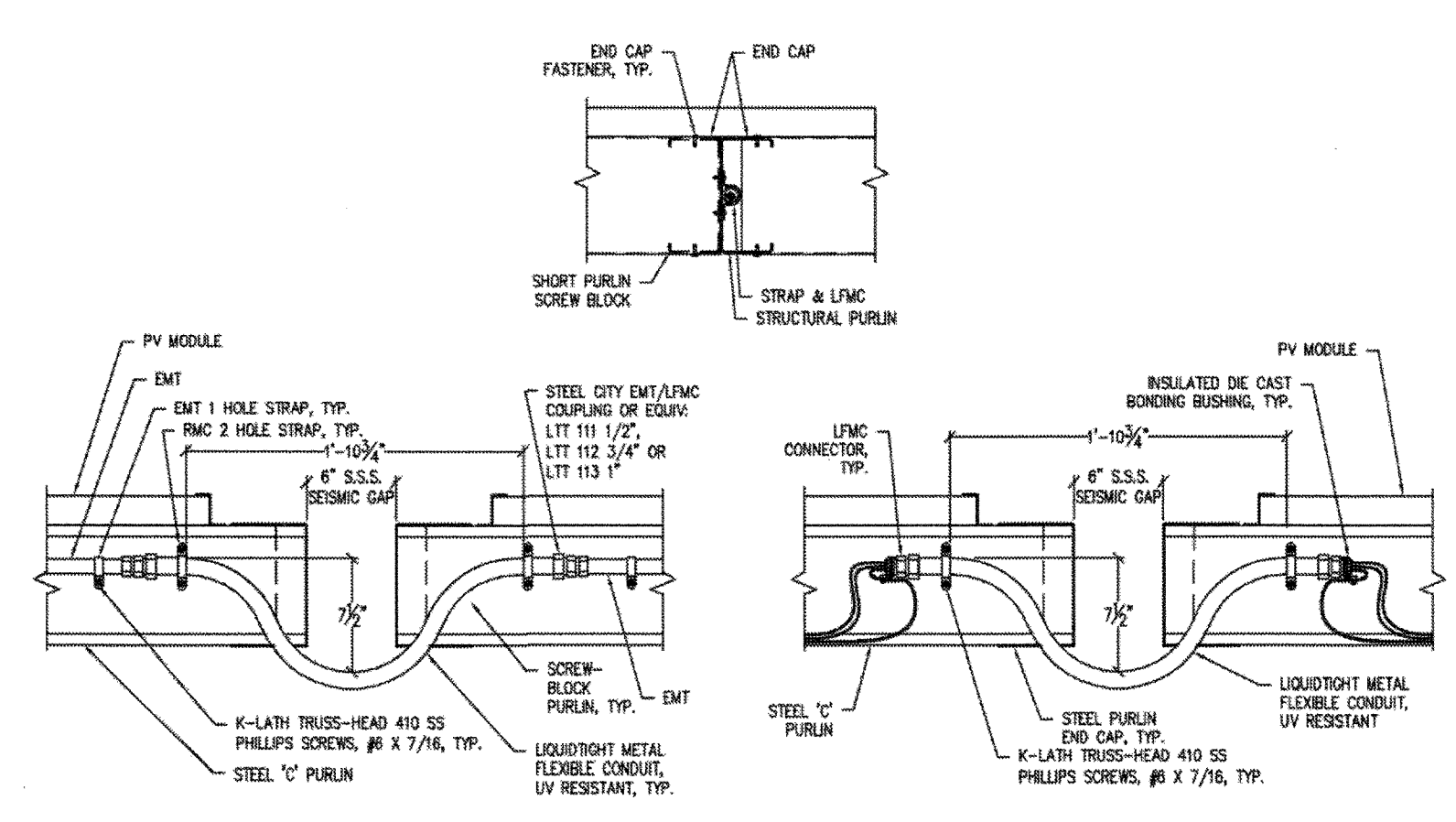


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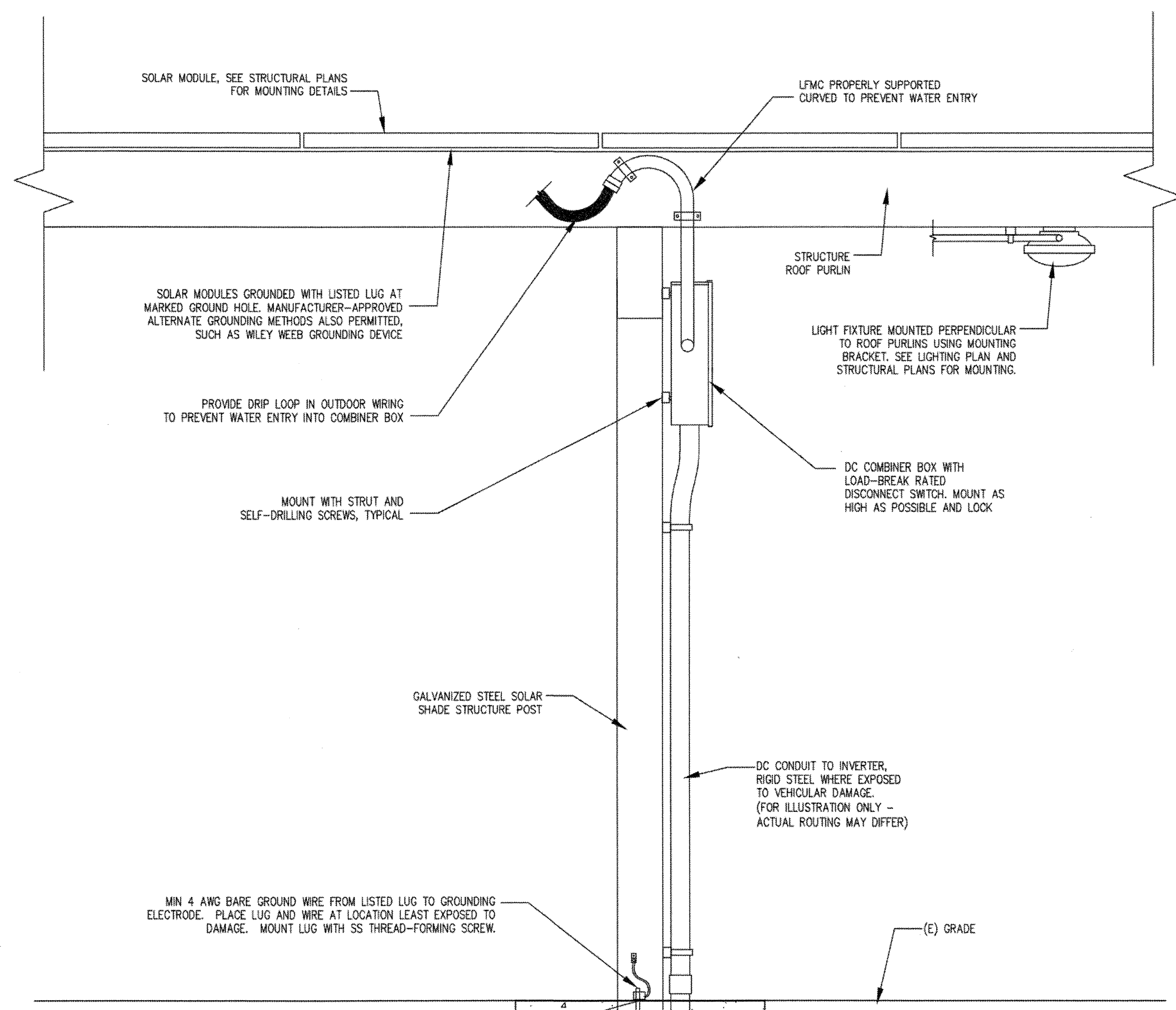
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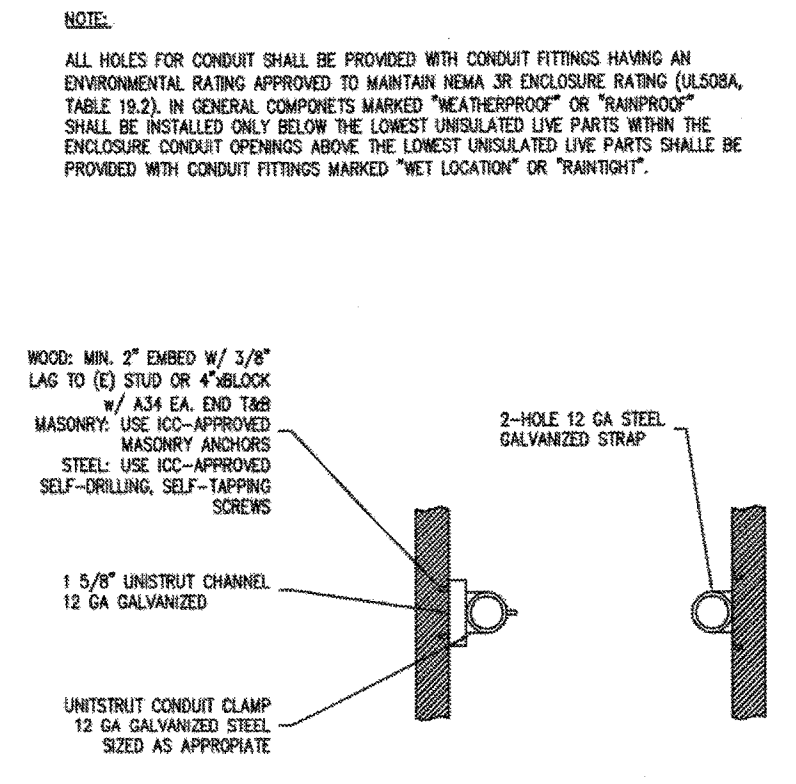
**H TRENCHING DETAIL** Scale: NTS



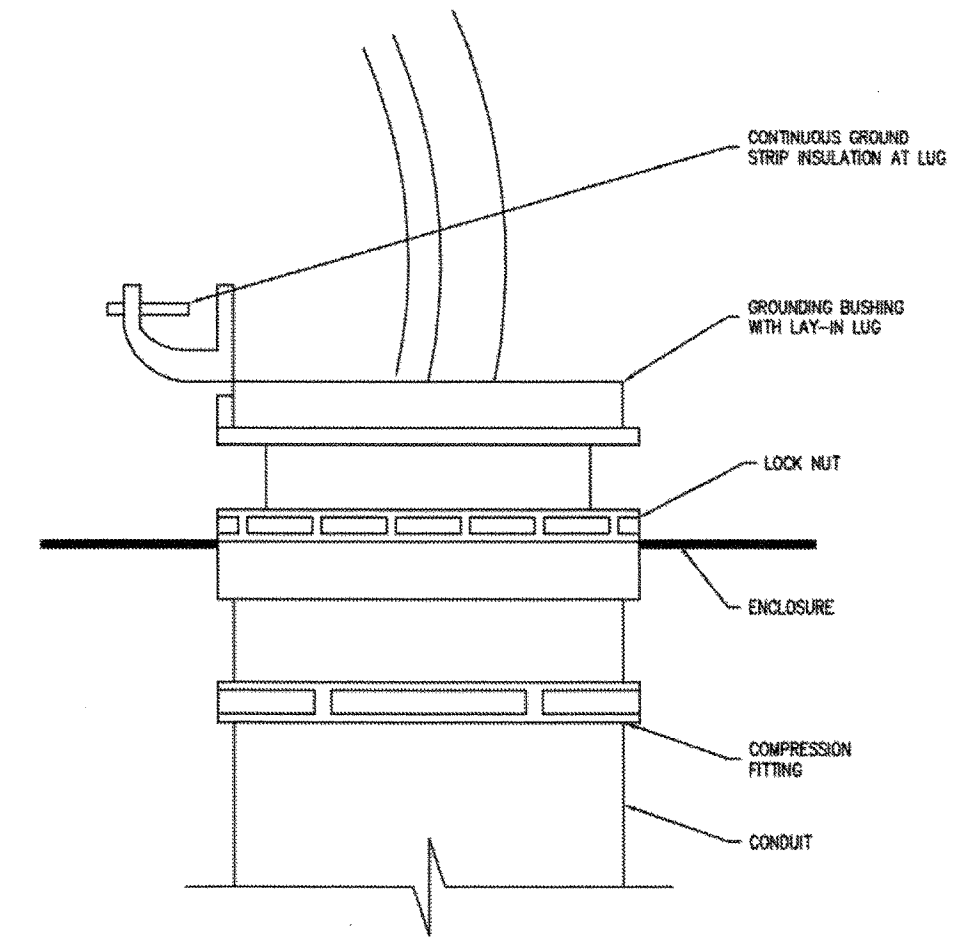
**D WIRING BRIDGE** Scale: NTS



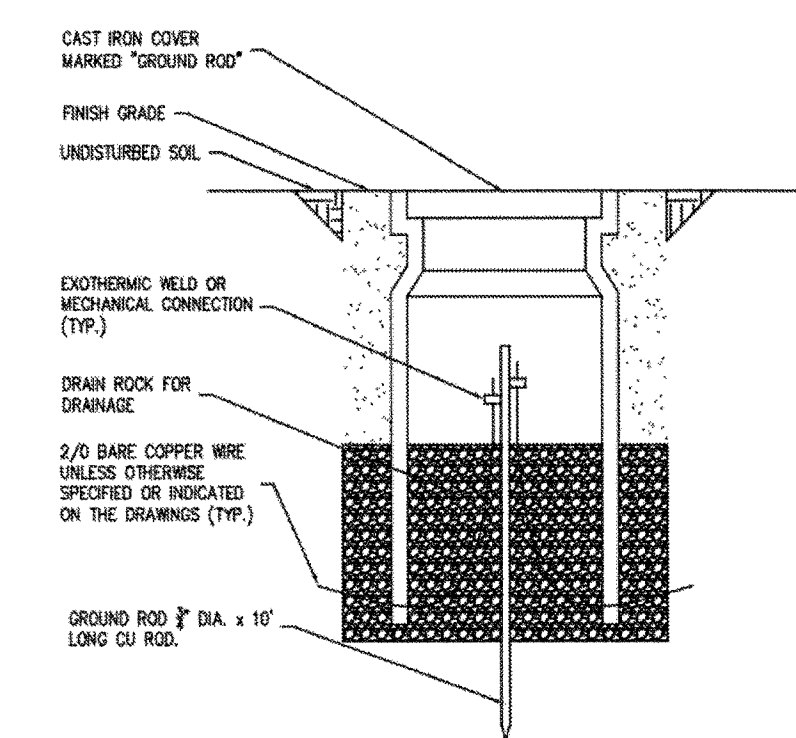
**A CANOPY GROUNDING / EQUIPMENT MOUNTING** Scale: NTS



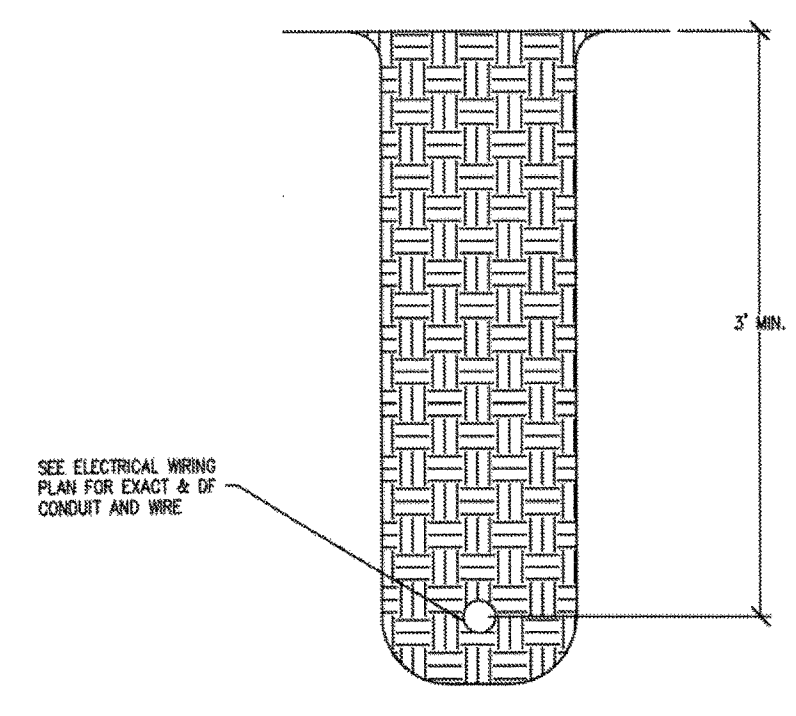
**G CONDUIT ATTACHMENT** Scale: NTS



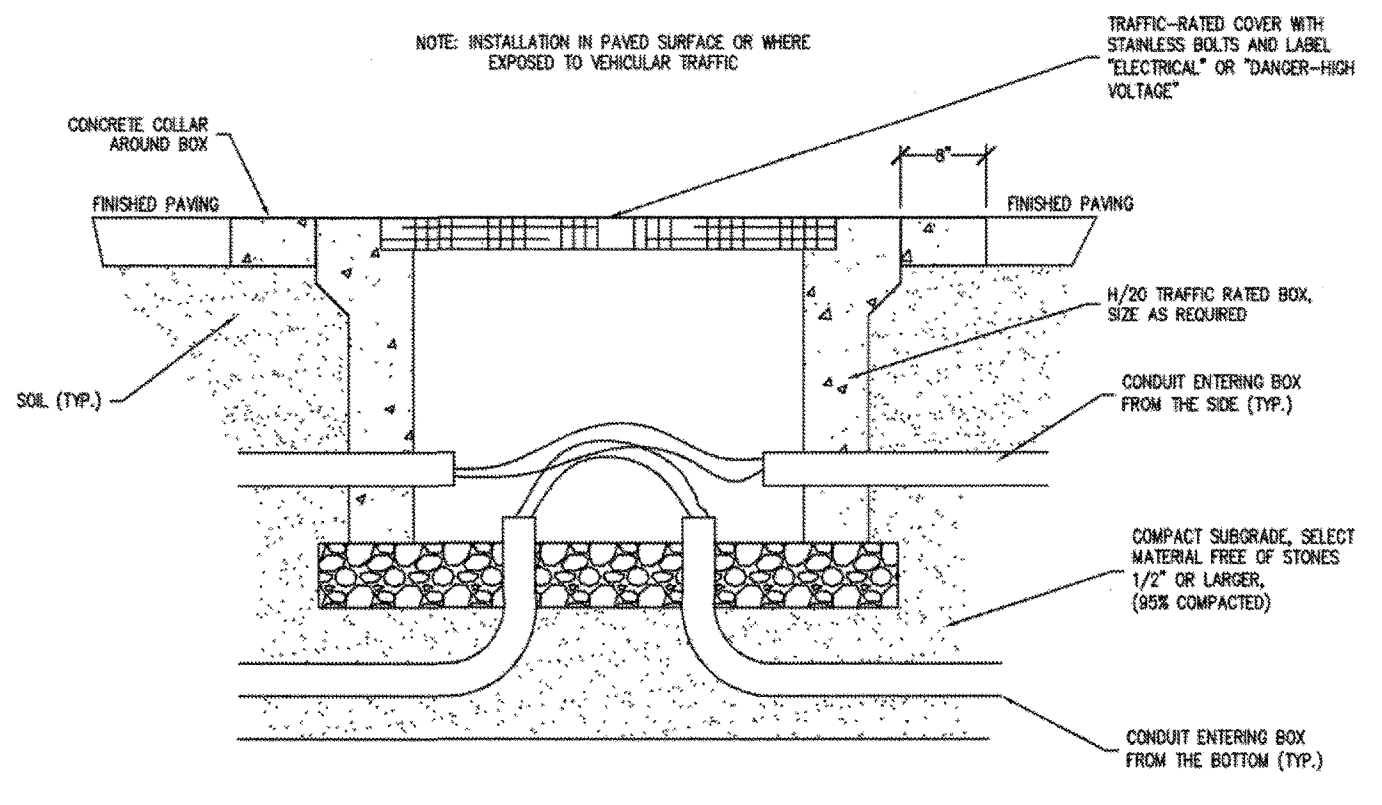
**E CONDUIT GROUNDING** Scale: NTS



**C GROUND ROD DETAIL** Scale: NTS



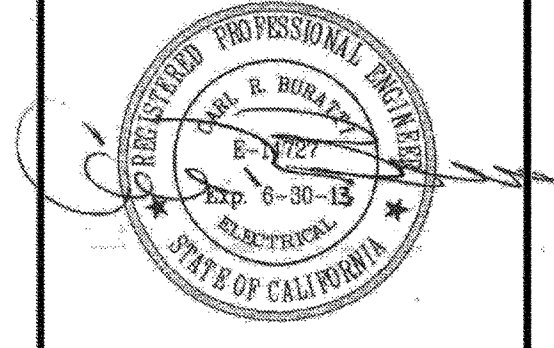
**F BORING DETAIL** Scale: NTS



**B TRAFFIC RATED PULL BOX** Scale: NTS

REVISIONS  
GLENDALE USD - MONTE VISTA ELEMENTARY  
87.36 PV SYSTEM  
GLENDALE USD - MONTE VISTA ELEMENTARY  
2620 ORANGE AVE  
LA CRESCENTA, CA 91214  
8182413111

IDENTIFICATION STAMP  
DIV. OF THE STATE ARCHITECT  
APPOS 114585  
AC/PLS/SS/CM  
DATE MAY 29 2012



REVISIONS

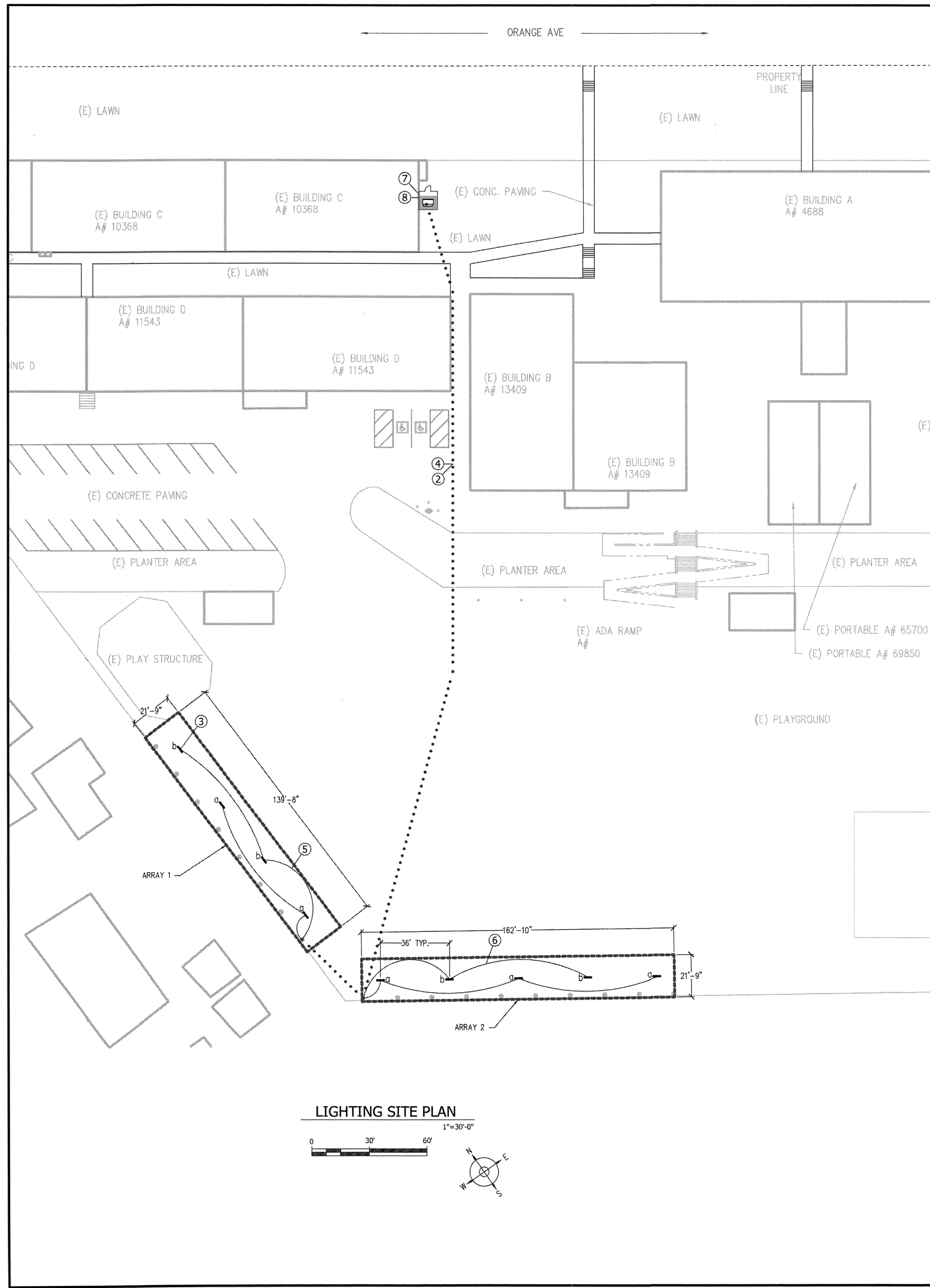
REV	BY	DATE	COMMENTS
1	ES	5/29/12	

JOB DETAILS  
FILE: Los Angeles County (LA)  
SHEET: (364) YINGLI # YL240P-29b  
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES  
INVERTER: (1) XANTREX # GT100-208  
MARKET: GOV'T DESIGN: J TAYLOR  
CHECKED BY: ES  
DATE: 1/6/2012  
PAGE NAME: ELECTRICAL DETAILS  
JOB NUMBER: JB-912047-00  
PAGE: E 7

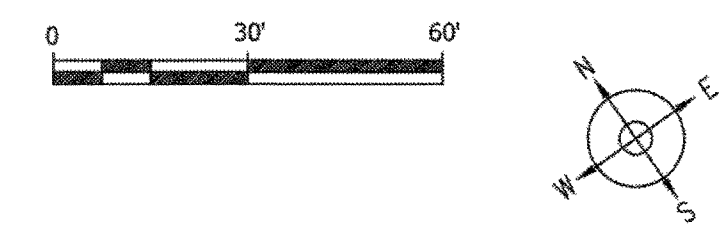






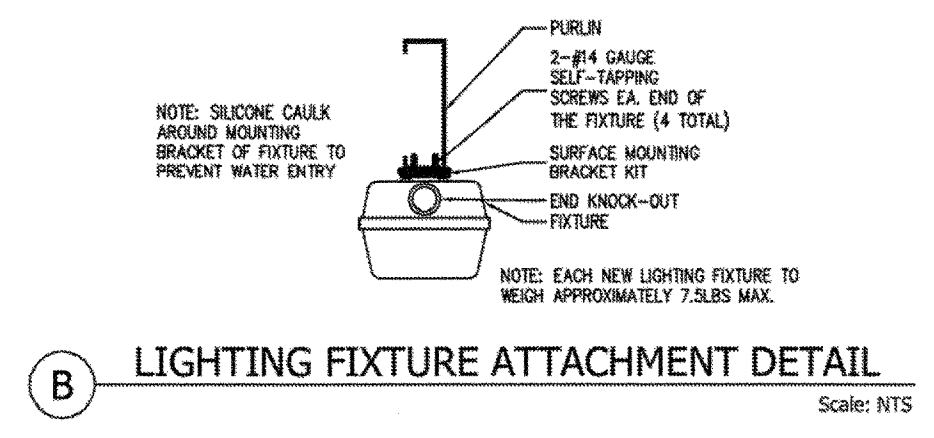


**LIGHTING SITE PLAN**  
1"=30'-0"



- SHEET NOTES**
- (N) SOLAR SUPPORT STRUCTURES
  - (N) SCH. 40 PVC CONDUIT IN TRENCH. DO NOT SHARE THE CONDUIT WITH PV LINES.
  - (N) SOLAR SUPPORT STRUCTURE LIGHTING FIXTURE (FIXTURE TYPE FCP). TYPICAL (9), REFER TO DETAIL B FOR MOUNTING DETAILS.
  - (E) HOME RUN FEEDER BACK TO LIGHTING PANEL.
  - (N) BRANCH FEEDERS BETWEEN LIGHTING CIRCUITS. CONNECT FIXTURES BACK TO CIRCUITS A AND B RESPECTIVELY. SEE CIRCUIT CALLOUT ON DRAWING FOR DETAILS.
  - LIGHTING FIXTURES TO BE WIRED IN STAGGERED FORMATION TO COMPLY WITH TITLE 24 MULTI-LEVEL SWITCHING.
  - (N) LIGHTING CIRCUIT
  - (N) LIGHTING CONTROL TIMECLOCK

- SITE LEGEND**
- ▽ DATA
  - ▼ TELEPHONE
  - LIGHTING FIXTURE
  - ⊙ PC PHOTOCELL
  - ⊙ TC TIMECLOCK
  - ⊙ MS MOTION SENSOR
  - ⊙ S SWITCH
  - ⊙ P CANOPY POST/BEAM LOCATION
  - ⊙ DP DISTRIBUTION PANEL (#)



SYMBOL	LABEL	DESCRIPTION	LAMP TYPE	WATTAGE	MANUFACTURER	CATALOG NUMBER	VOLTAGE	QUANTITY
⊙	FCP	SURFACE MOUNTED 4 FOOT (2) LAMP TB FLUORESCENT LUMINAIRE WITH SPECULAR REFLECTOR AND CLEAR WRAP LENS. POLYCARBONATE CONSTRUCTION WITH STAINLESS STEEL CLIPS AND TAMPER PROOF SCREWS.	TWO (2) 32W 4100K (MIN.) TB FLUORESCENT LAMPS.	62W	BEGHELLI	BS100T84HT232W277VTPSS	120V & 277v	9

**MANDATORY MEASURES - OUTDOOR LIGHTING CONTROLS AND EQUIPMENT**

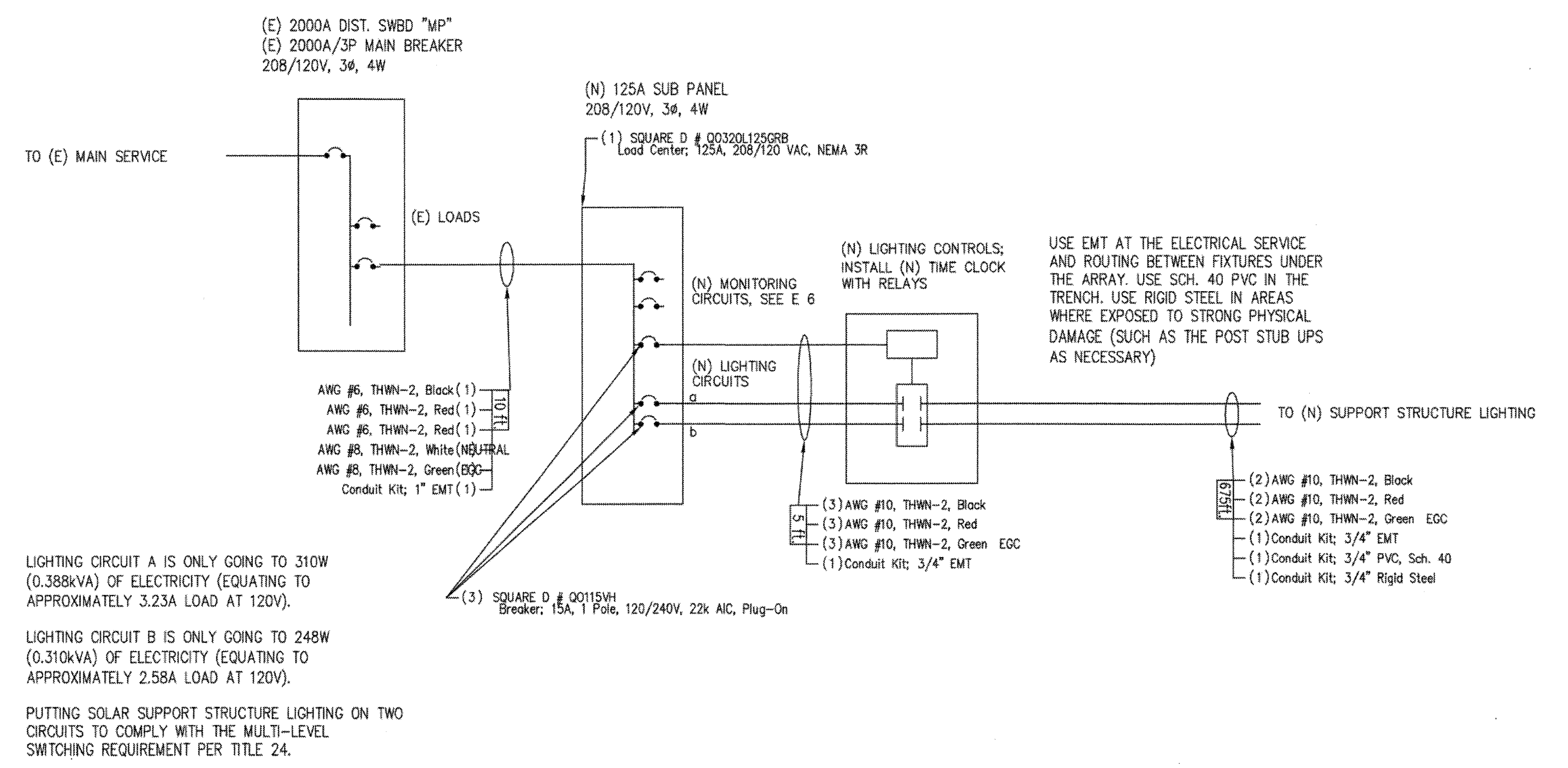
- OUTDOOR LIGHTING: All permanently installed outdoor luminaires employing lamps rated over 100 watts shall either: have a lamp efficacy of at least 60 lumens per watt; or be controlled by a motion sensor unless exempted from the 6 possible exceptions. See Section 132.

- 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 or above a vertical angle of 90 degrees above nadir, and 100 at or 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 controlled 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 least 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 (N) LIGHTING CIRCUITS**



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GLENDALE USD - MONTE VISTA ELEMENTARY  
87.36 PV SYSTEM  
GLENDALE USD - MONTE VISTA ELEMENTARY  
2620 ORANGE AVE  
LA CRESCENTA, CA 91214  
8182413111

IDENTIFICATION STAMP  
CIV. OF THE STATE ARCHITECT  
APPOS 114585  
NO. 114585 P.C. SS CMV  
DATE MAY 29 2012

REGISTERED PROFESSIONAL ENGINEER  
JOSE E. HERRERA  
No. 9-90-13  
EXPIRES 12/31/15  
STATE OF CALIFORNIA

REV	BY	DATE	COMMENTS
1	ES	5/29/12	

**JOB DETAILS**

PROJECT: Los Angeles County (LA)  
DRAWINGS: (364) YINGLI # YL240P-29b  
MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES  
INVERTER: (1) XANTREX # GT100-20B  
MARKET: GOV  
DESIGN: J TAYLOR  
CREATED BY: ES

DATE: 1/6/2012  
PAYMENT TYPE: CASH  
PROJECT MANAGER: D NAVARRO  
JOB NUMBER: JB-912047-00  
PAGE: 9



**Certificate of Compliance** (Page 1 of 4) OLTG-1C  
 Project Name: GUSD - MONTE VISTA VALLEY ELEMENTARY Date: 4/17/2012  
 Project Address: 2900 COMMUNITY AVE. Field Number: 6,579 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: James Taylor Signature: [Signature] Date: 5-29-2012  
 Company: SolarCity  
 Address: 3055 Clearview Way  
 City/State/Zip: San Mateo, CA, 94402 Phone: 650-963-5830

**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: [Signature] Date: 5-29-2012  
 Company: Buratti & Associates, Inc.  
 Address: 6345 Balboa Blvd, Ste. 259  
 City/State/Zip: Encino, CA 91316 Phone: 818-345-7130 License #: E-14272

**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 Handicap, 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  
 Project Name: GUSD - MONTE VISTA VALLEY ELEMENTARY Date: 4/17/2012

**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**

A	B	C	D	E	F	G	H	I	J	
Name or Tag	Luminaire Description <sup>1</sup> (i.e., 1 lamp pole-top white box 400 watt metal halide)	Quantity	Watts per Luminaire	Code for Luminaire	Code for Application	Code for Area	Code for Control	Code for Feature	Code for Note	
FA-D	2 32W T8 Wet Listed Fluorescent	62								
Enter total into OLTG-1C, Page 4 of 4; Row H; Total Installed Watts: 558										

**Field Inspector's Notes or Discrepancies:**

**Certificate of Compliance** (Page 3 of 4) OLTG-1C  
 Project Name: GUSD - MONTE VISTA VALLEY ELEMENTARY Date: 4/17/2012

**A. OUTDOOR LIGHTING ZONE**  
 OUTDOOR LIGHTING ZONE:  OLZ 1  OLZ 2  OLZ 3  OLZ 4

**B. ADDITIONAL LIGHTING POWER ALLOWANCE FOR ORDINANCE REQUIREMENTS**  
 Are additional lighting power allowances for ordinance requirements required?  Yes  No

**C. ACCEPTANCE FORMS**  
 Required Acceptance Tests:  
 Designer: [Blank]  
 Enforcement Agency: [Blank]

**MANDATORY CONTROLS**

#	Description	Location	#	Description	Location
1	Astronomical Timeclock	At Main Service			

**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 Inspection**

Equipment Requiring Testing	Description	Location	Code for Feature	Code for Note
Time Clock	Astronomical Time Clock	At Main Service		

**Field Inspector's Notes or Discrepancies:**

**Certificate of Compliance** (Page 4 of 4) OLTG-1C  
 Project Name: GUSD - MONTE VISTA VALLEY ELEMENTARY Date: 4/17/2012

**ALLOWED AND INSTALLED OUTDOOR LIGHTING POWER**

	Lighting Wattage	Power Allowance
A		Lighting power allowance for general handscape (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)
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: 558
H		Total Installed Watts (from Luminaire Schedule, from OLTG-1C, Page 2 of 4): 558

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, complete 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 - MONTE VISTA VALLEY ELEMENTARY Date: 4/17/2012

**A. LIGHTING POWER ALLOWANCE FOR GENERAL HANDSCAPE**

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

Enter total into OLTG-1C, Page 4 of 4; Row A; Lighting Power Allowance for General Handscape.

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	ALLOWED WATTS
A	B	C	D
Specific Lighting Application	Linear Feet of Frontage	Watts per Foot	Minimum of D or I
N/A			

Enter total into OLTG-1C, Page 4 of 4; Row D; Specific Application Lighting Wattage Allowance Per Unit Length.

**C. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE FOR ORNAMENTAL LIGHTING**

DETERMINE WATTAGE ALLOWANCE	LUMINAIRE TYPE	DESIGN WATTS	ALLOWED WATTS
A	B	C	D
Specific Lighting Application	Square Feet of Handscape	Watts per Square Foot	Minimum of D or I
N/A			

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

**OUTDOOR LIGHTING WORKSHEET** (Page 2 of 3) OLTG-2C  
 Project Name: GUSD - MONTE VISTA VALLEY ELEMENTARY Date: 4/17/2012

**D. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER APPLICATION**

DETERMINE WATTAGE ALLOWANCE	LUMINAIRE TYPE	DESIGN WATTS	ALLOWED WATTS
A	B	C	D
Specific Lighting Application	Number of Applications	Watts per Application	Minimum of D or I
N/A			

Enter total into OLTG-1C, Page 4 of 4; Row D; Specific Application Lighting Wattage Allowance Per Application.

**E. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER AREA**

DETERMINE WATTAGE ALLOWANCE	LUMINAIRE TYPE	DESIGN WATTS	ALLOWED WATTS
A	B	C	D
Specific Lighting Application	Illuminated Area of Application	Watts per Square Foot	Minimum of D or I
Non-Sales Canopy	6579.4	0.408	2684.4
			FA-D
			2-32W T8-Fluorescent
			9
			62
			558

Enter total into OLTG-1C, Page 4 of 4; Row E; Specific Application Lighting Wattage Allowance Per Area: 558

**OUTDOOR LIGHTING WORKSHEET** (Page 3 of 3) OLTG-2C  
 Project Name: GUSD - MONTE VISTA VALLEY ELEMENTARY Date: 4/17/2012

**F. ADDITIONAL LIGHTING POWER ALLOWANCE FOR ORDINANCE REQUIREMENTS**  
 Note: The additional lighting power allowance for ordinance requirements may be used only if the jurisdiction having authority has officially adopted specific outdoor light levels, which are expressed as average or minimum footcandle (fc) levels, by following a public process that allowed for formal public notification, review, and comment about the proposed change.  
 Information in OLTG-1C, Page 3 of 4, Section B has been completed.

A	B	C	D	E	F
Handscape Application Having Official Lighting Ordinance	Illuminated Handscape Area (ft <sup>2</sup> )	Avg. or Min. Ordinance	Number Horizontal Foot Candles required by Ordinance	Wattage Allowance (W/ft <sup>2</sup> )	Wattage Allowance (B x E)

1. Total additional lighting power allowance for ordinance requirements (sum of column F)  
 2. Enter actual additional incremental wattage used to meet local ordinance requirements  
 3. Enter smaller of row 1 or row 2

Enter wattage from row 3 above into OLTG-1C, Page 4 of 4; Row F; Item: Additional lighting power allowance for ordinance requirements

**MANDATORY MEASURES:**

**Outdoor Lighting Mandatory Measures**

**A) Certification:**  
 All outdoor lighting control devices must be certified by the manufacturer before they can be installed. Certified lighting control devices must be listed in the Directory of Automatic Lighting Control Devices. Call the Energy Institute at 1-800-772-2300 to obtain more information. All control devices must have instructions for installation and start-up information, must be installed in accordance with manufacturer's instructions, and must have a status signal (visual or audible) that warns of failure or malfunction. Photocell sensors and other devices may be consistent with this requirement if the status signal is inoperative because of inadequate power.

**B) Minimum Lamp Efficacy:**  
 All outdoor luminaires with lamps rated over 100 watts must either have a lamp efficacy of at least 60 lumens per watt or be controlled by a motion sensor. Lamp efficacy, for the purposes of complying with Section 152 (a), is the rated initial lamp lumens divided by the rated lamp power (watts), without including ballast loss in ballasts. This requirement will apply to all lamps that are designed for mercury vapor lamps and larger wattage incandescent lamps. Most linear fluorescent, metal halide, and high-pressure sodium lamps have a lamp efficacy greater than 80 lumens per watt and will easily comply. A motion sensor is a device that automatically turns lights off soon after an area is occupied. The minimum lamp efficacy does not apply, however, to the following applications:  
 1. Lighting required by a health or life safety statute, ordinance, or regulation, including but not limited to, emergency lighting.  
 2. Lighting used in or around swimming pools, water features, or other locations subject to Article 680 of the California Electrical Code.  
 3. Searchlights.  
 4. Theme lighting for use in theme parks.  
 5. Lighting for film or live performance.  
 6. Temporary outdoor lighting.  
 7. Light-emitting diode, neon and cold cathode lighting.

**C) Cut-Off Luminaires:**  
 Outdoor luminaires that use lamps rated greater than 175 watts in the following areas are required to be of the cutoff type:  
 1. Handicap areas including parking lots and service bays/entrances.  
 2. Building entrance.  
 3. All sales and non-sales canopies.  
 4. Outdoor dining.  
 5. All outdoor sales areas.

To comply with this requirement the luminaire must be rated as "cutoff" in a photometric test report that includes any fill or non-view mounting condition of the installed luminaire. Cutoff is not required for outdoor luminaires when they are used to illuminate the following:  
 1. Internally illuminated, externally illuminated, and diffused signs.  
 2. Lighting for building facades, public monuments, artfairs, and vertical surfaces of bridges.  
 3. Lighting required by a health or life safety statute, ordinance, or regulation, including but not limited to, emergency lighting.  
 4. Temporary outdoor lighting.  
 5. Lighting used in or around swimming pools, water features, or other locations subject to Article 680 of the California Electrical Code.

**D) Automatic Shutoff Controls:**  
 All permanently installed outdoor lighting must be controlled by a photocell or astronomical time switch that automatically turns off the outdoor lighting when daylight is available. Automatic time switch control devices used to control outdoor lighting shall:  
 1. Be capable of programming different activation for weekdays and weekends, and  
 2. Have program backup capabilities that prevent the loss of the device's program and time setting for at least 10 hours if power is interrupted. Outdoor astronomical time-switch controls used to control outdoor lighting shall:  
 1. Control at least 2 separately programmable channels per function area, and  
 2. Have the ability to independently offset the on and off times for each channel by 0 to 99 minutes before or after sunrise or sunset, and  
 3. Have sunrise and sunset prediction accuracy within +/- 15 minutes and sleepwake accuracy within 8 minutes per year, and  
 4. Store time zone, longitude and latitude in non-volatile memory, and  
 5. Display latitude, sunrise and sunset, and  
 6. Have an automatic daylight savings time adjustment, and  
 7. Have accurate time sensor capabilities specified in Section 119 (c).

This requirement does not apply for lighting in parking garages, tunnels, and large covered areas that require illumination during daylight hours.

**E) Multi-Level Switching:**  
 For parking facilities, parking lots, garages, sales and non-sales canopies, and all outdoor sales areas, where two or more luminaires are used, automatic controls are required to provide the owner with the ability to turn off the lighting or reduce the lighting power by at least 50% but not exceeding 80% when the lighting is not needed. This wattage reduction is sometimes referred to as multi-level switching. Continuous dimming control strategies also satisfy this requirement as long as that dimming range encompasses the 50% to 80% power reduction range.

Exception: signs to:  
 1. Lighting required by a health or life safety statute, ordinance, or regulation, including but not limited to, emergency lighting.  
 2. Lighting for building facades, public monuments, artfairs, and vertical surfaces of bridges.  
 3. Lighting that is controlled by a motion sensor and photocell.  
 4. Lighting for facilities that have special lighting requirements at all hours and are designed to operate continuously.  
 5. Temporary outdoor lighting.  
 6. Internally illuminated, externally illuminated, and diffused signs.

**SolarCity**  
 3055 Clearview Way, San Mateo, CA 94402  
 T: (650) 638-1028 F: (650) 638-1029  
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GLENDALE USD - MONTE VISTA ELEMENTARY  
 87.36 PV SYSTEM  
 GLENDALE USD - MONTE VISTA ELEMENTARY  
 2620 ORANGE AVE  
 LA CRESCENTA, CA 91214  
 8182413111

IDENTIFICATION STAMP  
 DIV. OF THE STATE ARCHITECT  
 APPG 114585  
 APPROVED BY: [Signature]  
 DATE: MAY 29 2012

REVISIONS

REV	BY	DATE	COMMENTS
1	BY	DATE	COMMENTS

**JOB DETAILS**

AK: Los Angeles County (LA)  
 BUSSES: (364) YINGLI # YL240P-23b  
 MOUNTING SYSTEM: STEEL SUPPORT STRUCTURES  
 INVERTER: (1) XANTREX # GT100-208  
 MARKER: DESIGN: J TAYLOR  
 CHECKED BY: [Signature]  
 DATE: 1/6/2012  
 PAYMENT TYPE: CASH  
 PROJECT NUMBER: D NAVARRO  
 JOB NUMBER: JB-912047-00  
 PAGE: 10



ABBREVIATIONS table listing various construction materials and terms with their corresponding abbreviations.

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.

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.

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.

GOVERNING LOAD COMBOS table with columns for PURLIN, BEAM 3P, BEAM 4P, 10.5' CLR., and 12' CLR., listing load combinations and maximum values.

3P = 3 PANELS, 4P = 4 PANELS

COLD FORMED STRUCTURAL STEEL FRAMING: GENERAL table listing screw number designations and nominal diameters.

CONCRETE: SPECIFIED 28 DAY COMPRESSIVE STRENGTH table listing various concrete grades and their strengths.

GENERAL NOTES: THE STRUCTURAL CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. EXCEPT WHERE NOTED, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION.

REINFORCING: ALL REINFORCING PER CRSI SPECIFICATIONS AND HANDBOOK. ASTM A615 (Fy = 60 KSI / GRADE 60) DEFORMED BARS FOR ALL BARS.

SPECIAL INSPECTION - STRUCTURAL ONLY: SPECIAL INSPECTION IS REQUIRED PER CHAPTER 17A OF THE CBC FOR THE FOLLOWING: CONCRETE CONSTRUCTION.

STRUCTURAL STEEL: GENERAL: ALL CONSTRUCTION PER LATEST AISC STEEL CONSTRUCTION. ALL CONSTRUCTION PER LATEST AISC STEEL CONSTRUCTION MANUAL.

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.

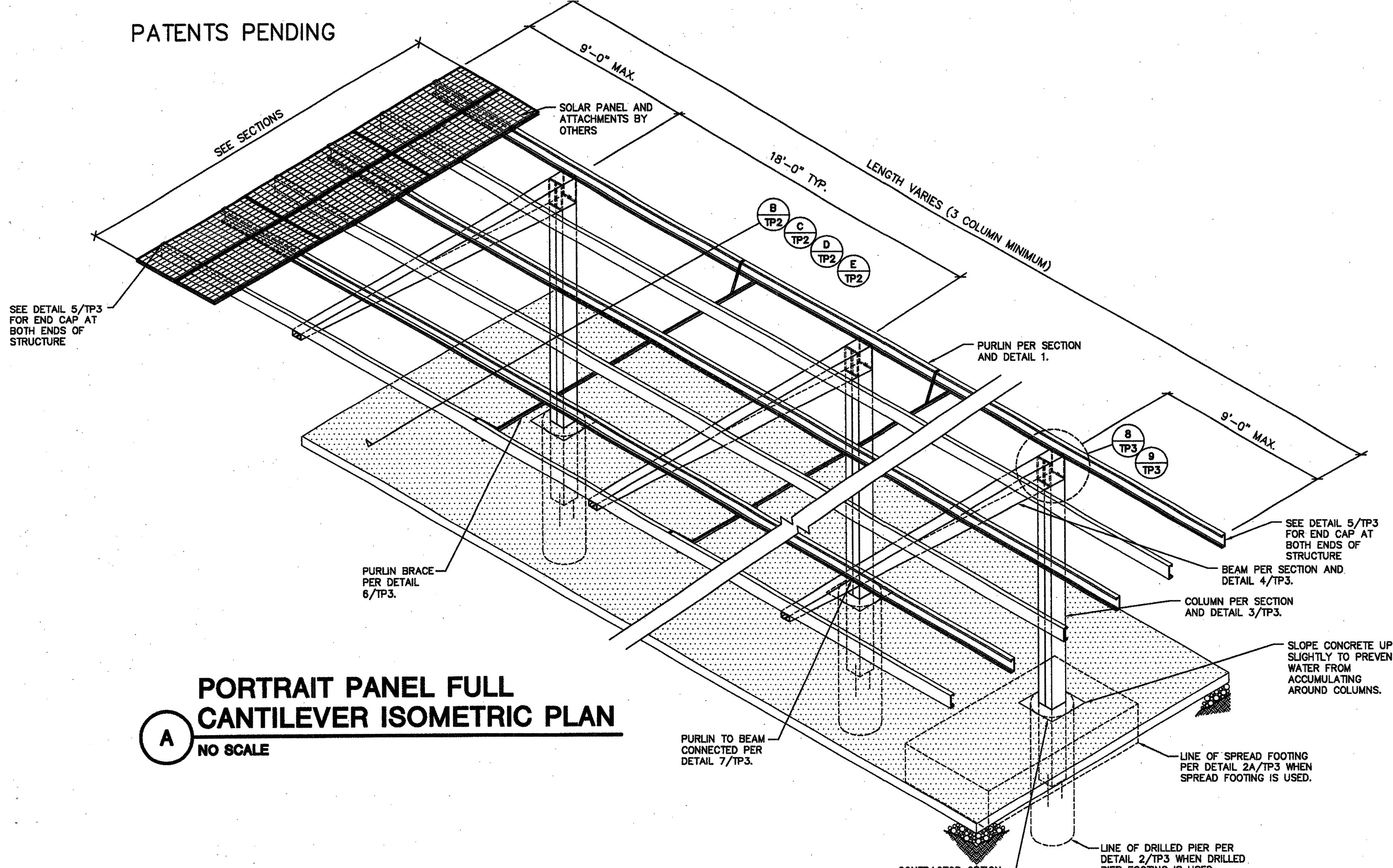
SHEET INDEX FOR 02-112000 table listing sheet numbers (FL1-FL4, FP1-FP4) and their corresponding titles.

PRE-CHECK (PC) DOCUMENT section containing identification stamps, codes, and project information.

Vertical sidebar containing CARUSO TURLEY SCOTT INC. logo, contact information, and a vertical signature line.



PATENTS PENDING



**PORTRAIT PANEL FULL CANTILEVER ISOMETRIC PLAN**

**A** NO SCALE

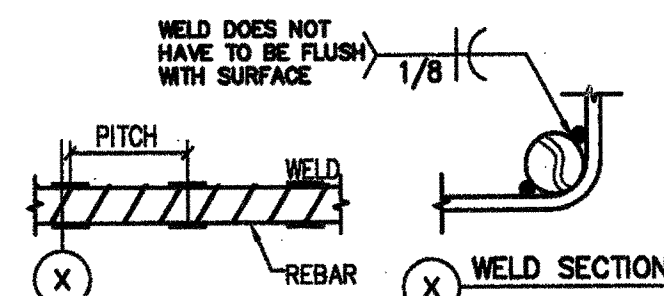
MEMBER TYPE	3 PANELS 16'-7"	4 PANELS 22'-1 1/2"
	6 PURLINS	8 PURLINS
BEAM SIZES	85 MPH/EXPOSURE C	85 MPH/EXPOSURE C
BEAM WITH WELDED CONNECTION PER DETAIL 8/TP3		
BEAM WITH BOLTED CONNECTION PER DETAIL 9/TP3		
CLEAR HEIGHT		
COLUMN SIZES		

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

CONTRACTOR OPTION: 24" SQUARE TOP OF DRILLED PIER DUE TO SAW CUTTING ASPHALT TO ALLOW DRILLING OF FOOTING.

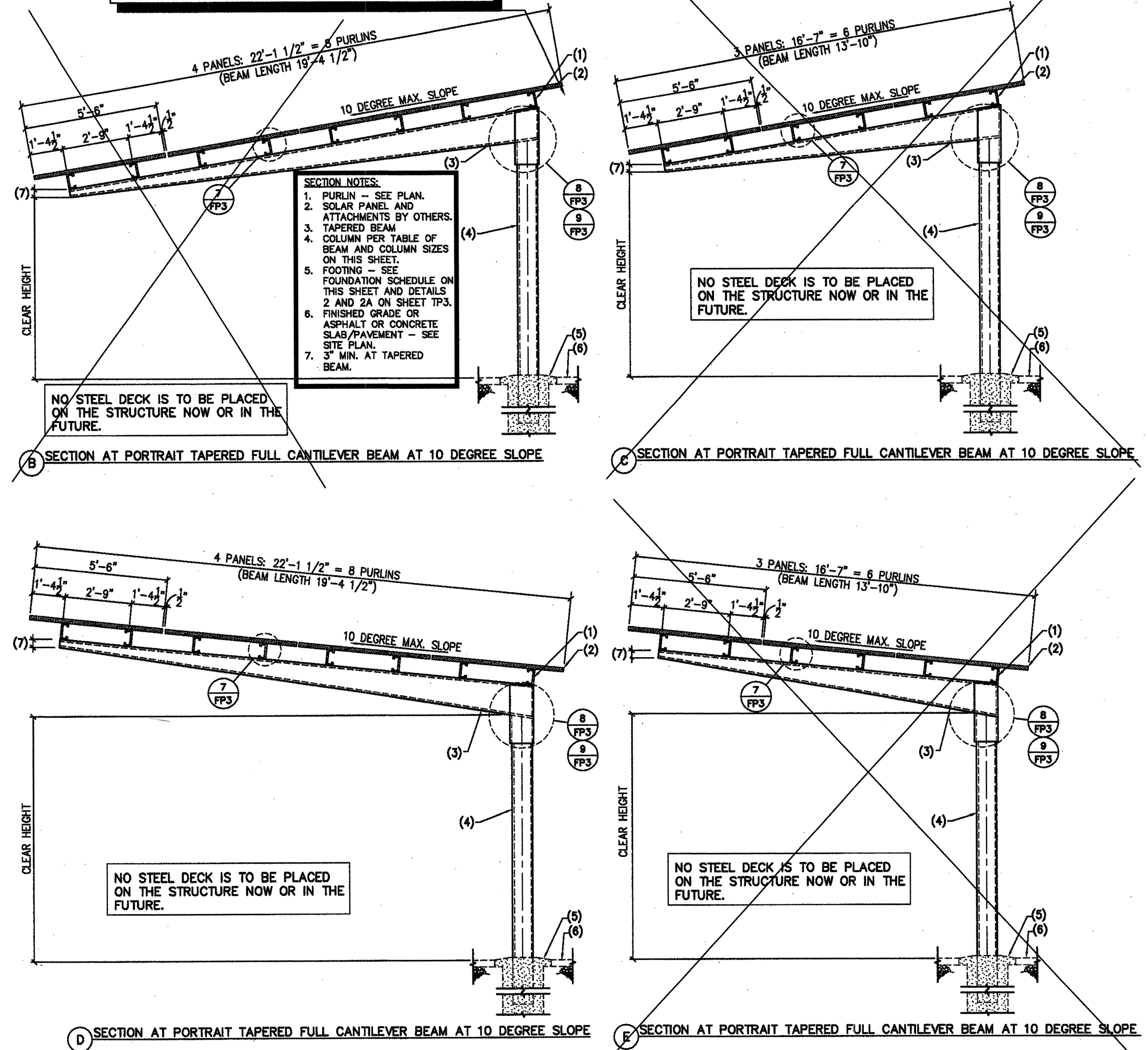
REBAR SIZE	WELD LENGTH (IN) - PITCH (C TO C SPACING) (IN)	MINIMUM NUMBER OF 2" LONG WELDS
#8	2 - 13	7

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.



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.



**B** SECTION AT PORTRAIT TAPERED FULL CANTILEVER BEAM AT 10 DEGREE SLOPE  
**C** SECTION AT PORTRAIT TAPERED FULL CANTILEVER BEAM AT 10 DEGREE SLOPE  
**D** SECTION AT PORTRAIT TAPERED FULL CANTILEVER BEAM AT 10 DEGREE SLOPE  
**E** SECTION AT PORTRAIT TAPERED FULL CANTILEVER BEAM AT 10 DEGREE SLOPE

FULL-CANT FOUNDATION SCHEDULE													
PANEL ORIENTATION	# OF PANELS	CLEAR HEIGHT (MAX.)	DRILLED PIER EMBEDMENT DEPTH (32" DIAMETER)				SPREAD FOOTING SIZE						
			PASSIVE = 100PSF/FT	PASSIVE = 200PSF/FT	PASSIVE = 300PSF/FT	PASSIVE = 400PSF/FT	THICKNESS	WIDTH	LENGTH				
P	3	10'-6"	12'-7"	7'-11"	10'-0"	8'-4"	8'-9"	5'-0"	7'-11"	5'-0"	56"	9'-0"	9'-6"
P	3	12'-0"	12'-8"	10'-2"	10'-1"	8'-8"	8'-10"	5'-8"	8'-0"	4'-8"	56"	9'-6"	9'-6"
P	4	10'-6"	15'-5"	8'-5"	12'-3"	7'-6"	10'-8"	6'-6"	9'-9"	5'-11"	56"	9'-6"	11'-6"
P	4	12'-0"	15'-6"	9'-6"	12'-1"	7'-6"	10'-9"	6'-7"	9'-8"	6'-0"	56"	10'-0"	11'-6"

FOUNDATION SCHEDULE

IDENTIFICATION STAMP  
 DIV. OF THE STATE ARCHITECT  
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 DATE MAY 29 2012

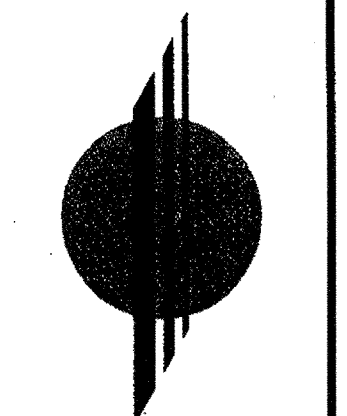


PATENTS PENDING

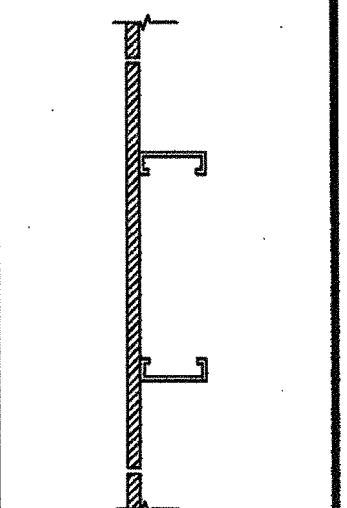
**PRE-CHECK (PC) DOCUMENT**  
 CODE: 2010 CBC  
 A SEPARATE PROJECT APPLICATION FOR CONSTRUCTION IS REQUIRED

DSA APP. NO 02-112000

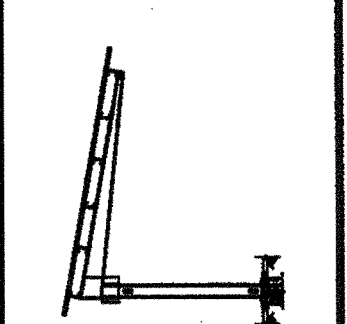
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 DIV. OF THE STATE ARCHITECT  
 OFFICE OF REGULATION SERVICES  
 02-112000  
 DATE 3.22.12



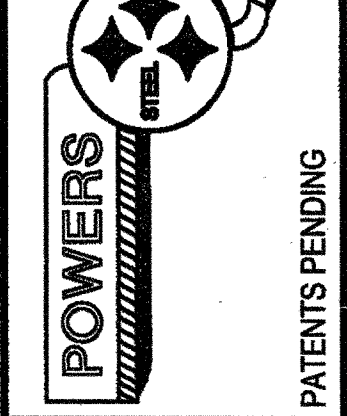
**CARUSO TURLEY SCOTT INC.**  
 consulting structural engineers  
 1215 W. Rio Salado Pkwy  
 Suite 200  
 Tempe, Arizona 85281  
 (480) 774-1700  
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PORTRAIT SOLAR PANELS ON FULL CANTILEVER SOLAR SUPPORT STRUCTURE DSA-PRE CHECK



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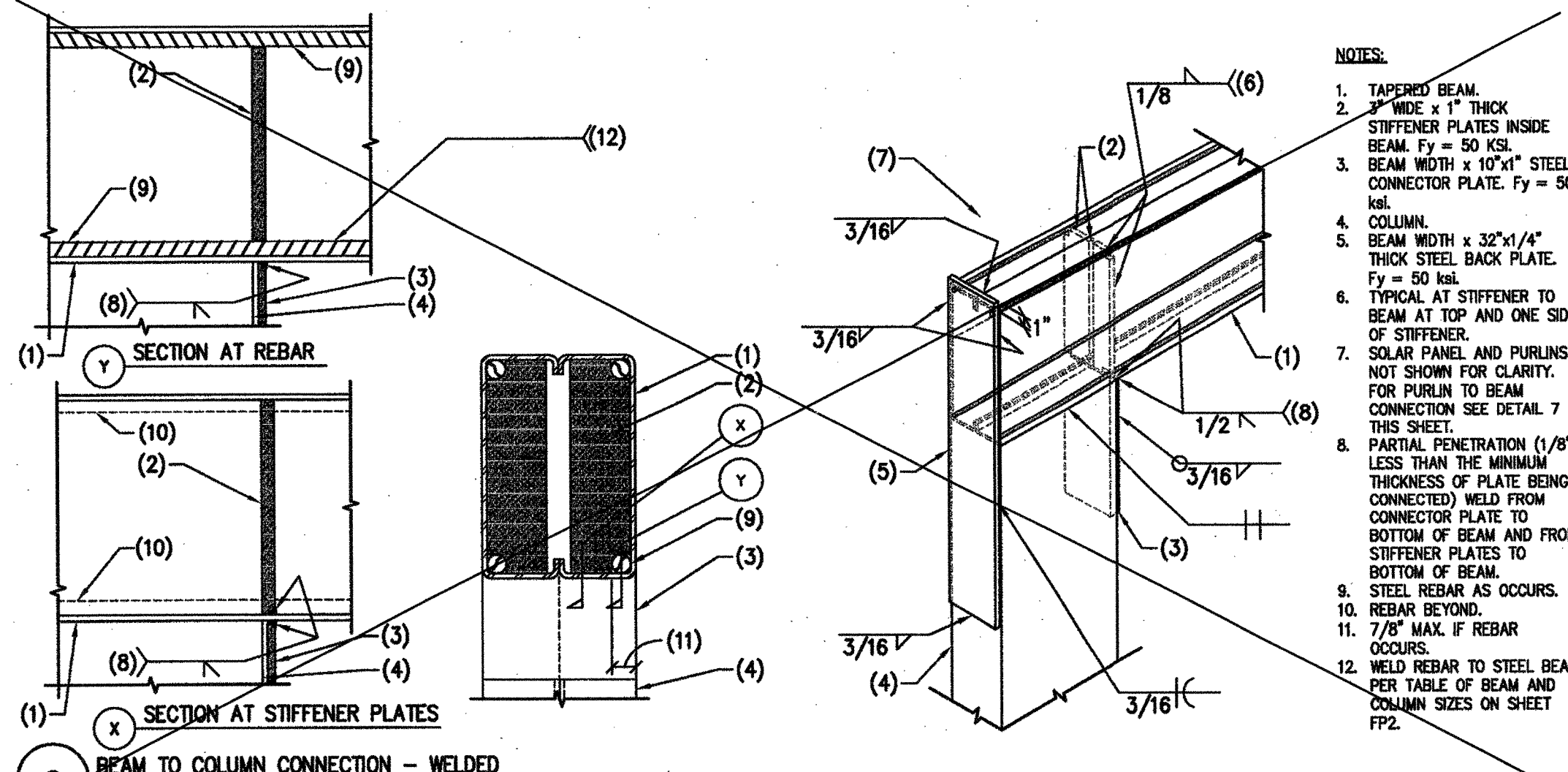


THESE DRAWINGS/CALCULATIONS ARE CONSIDERED PRELIMINARY - NOT FOR CONSTRUCTION OR RECORDING UNLESS THE STRUCTURAL ENGINEER OF RECORD'S SEAL IS AFFIXED WITH WRITTEN SIGNATURE.  
 DRAWING EDITION/REF JOB #  
 REVISIONS:  
 JOB NUMBER: 11-071  
 DRAWN: ENGINEER CHECKED: BLP PGS DST  
 DATE: 3/15/12  
 SHEET: FP2

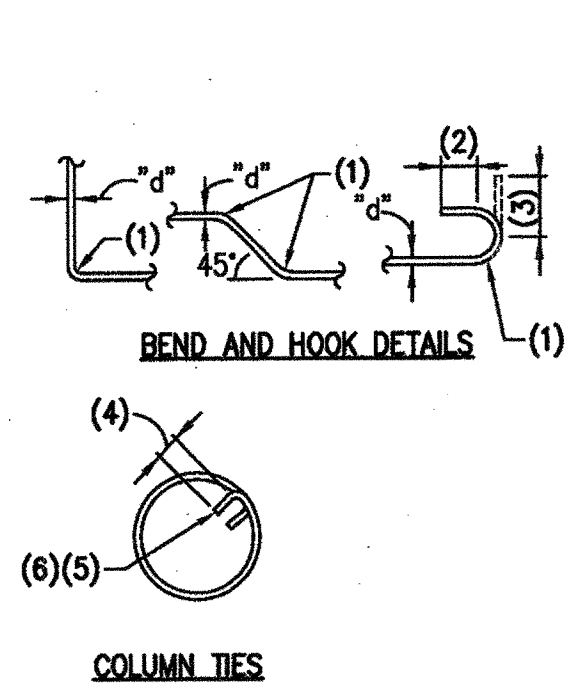
PATENTS PENDING

TABLE OF BEAM AND COLUMN SIZES

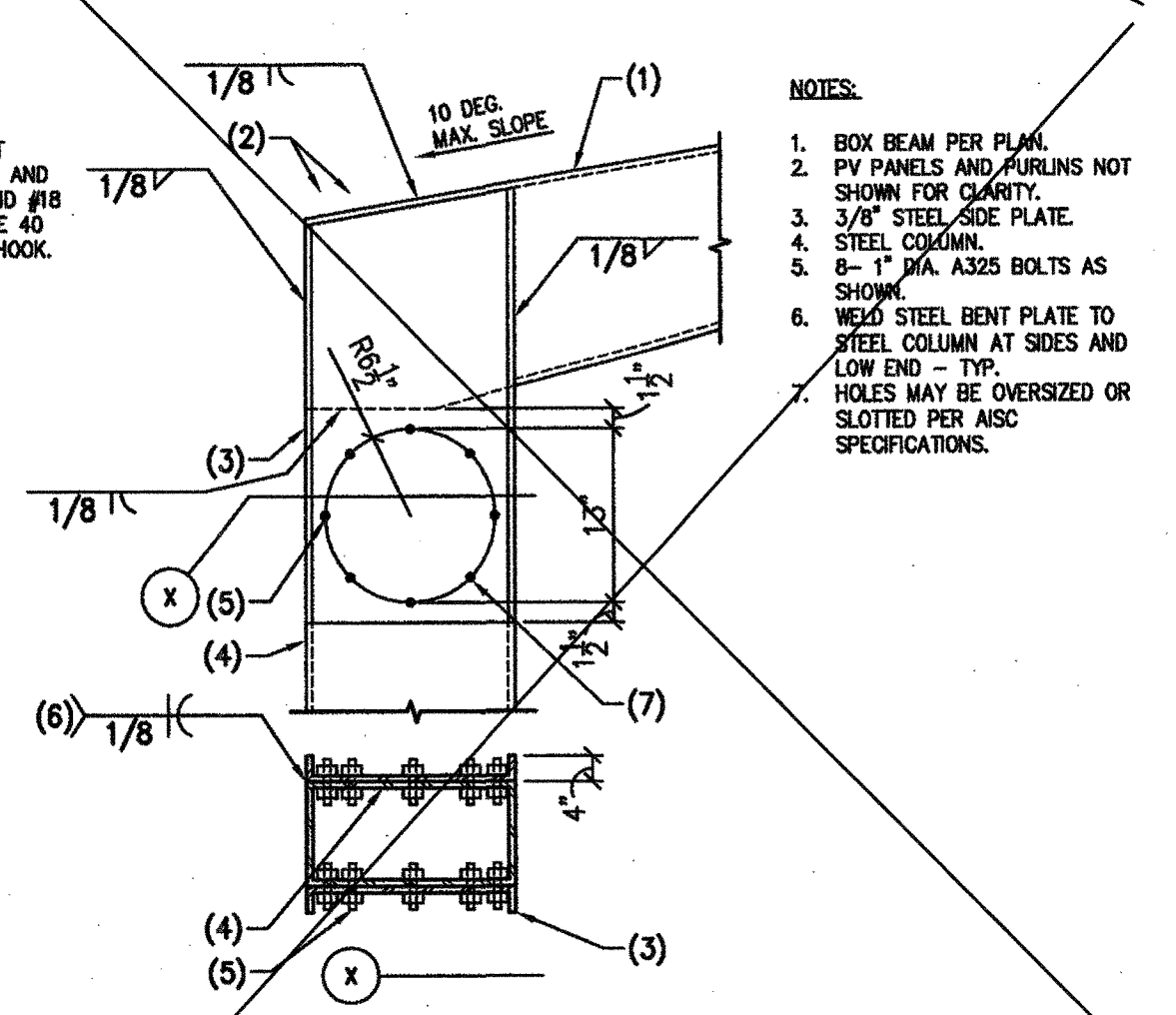




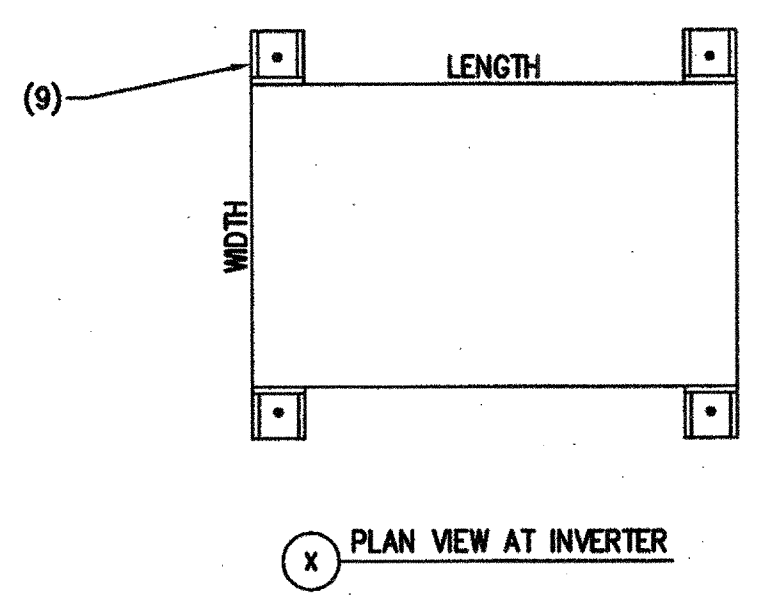
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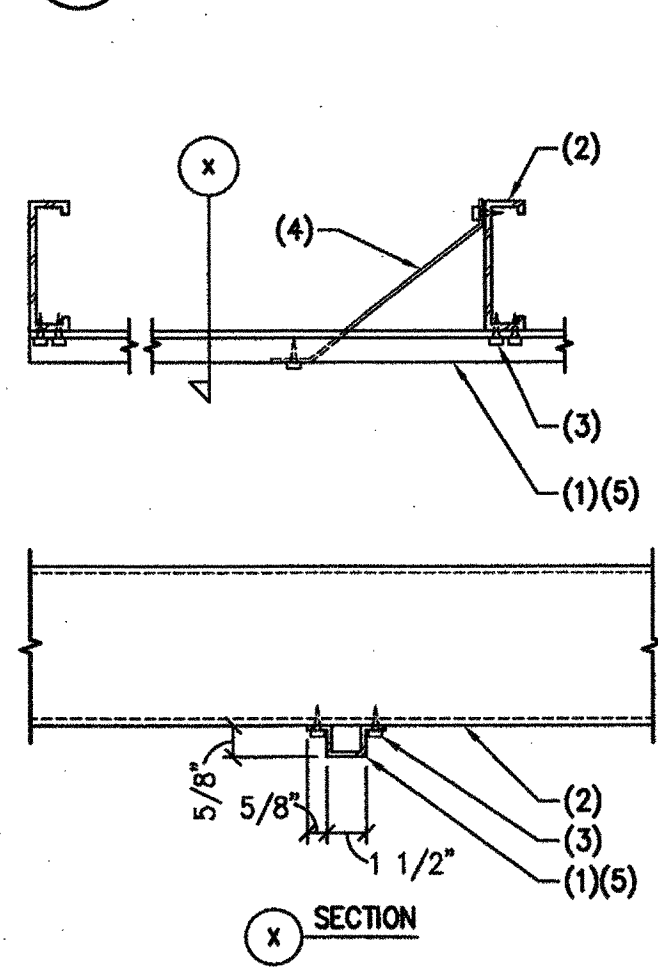
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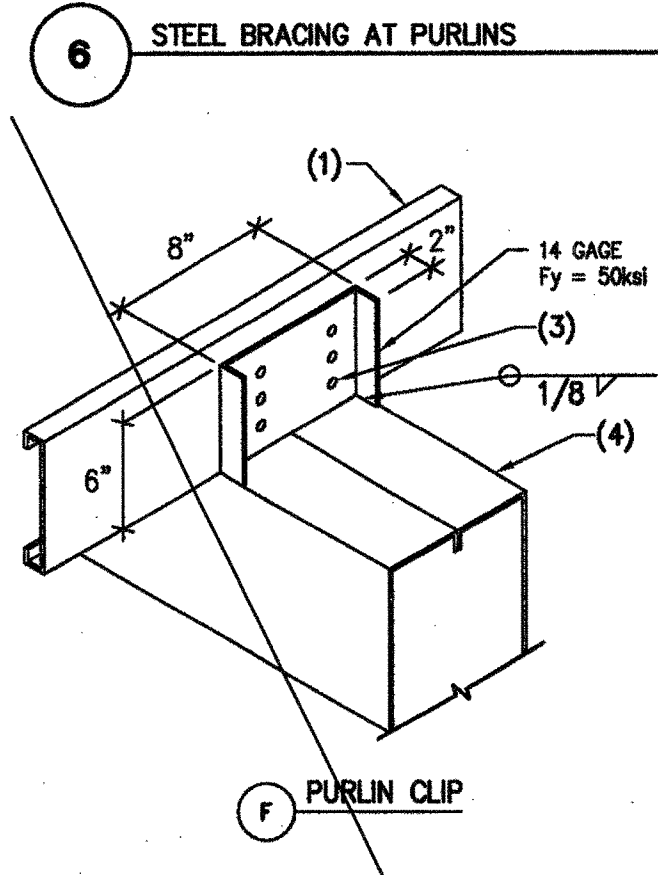
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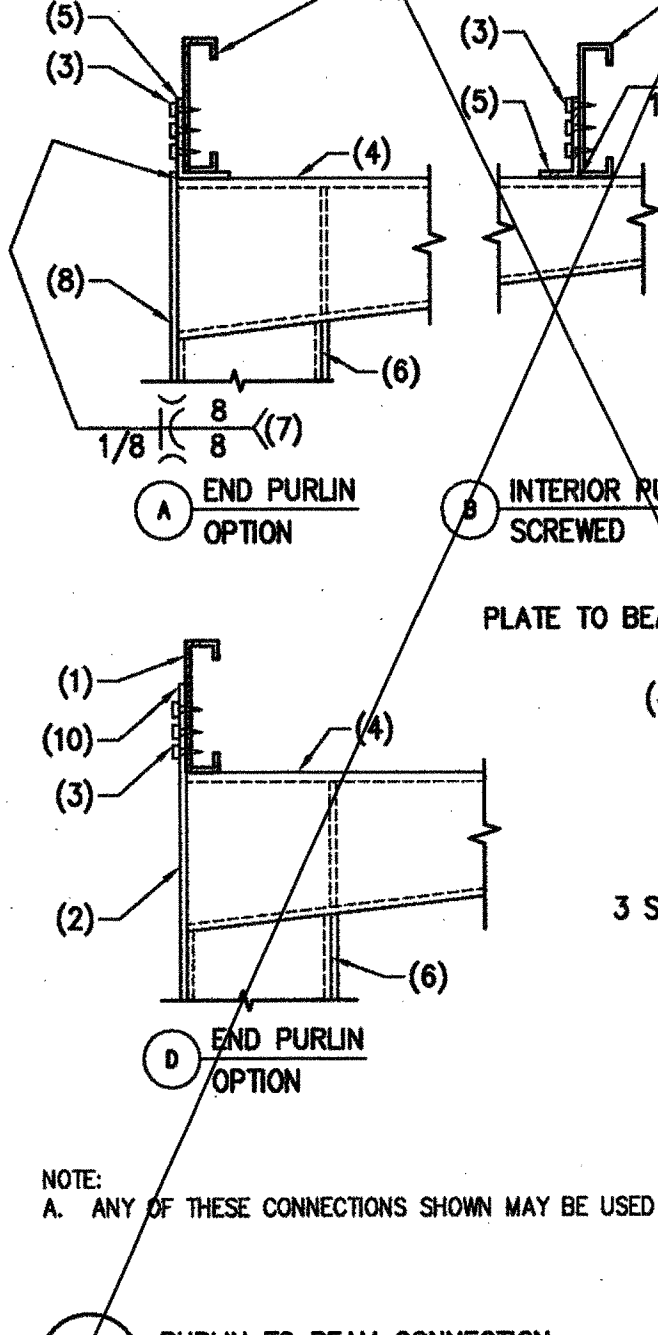
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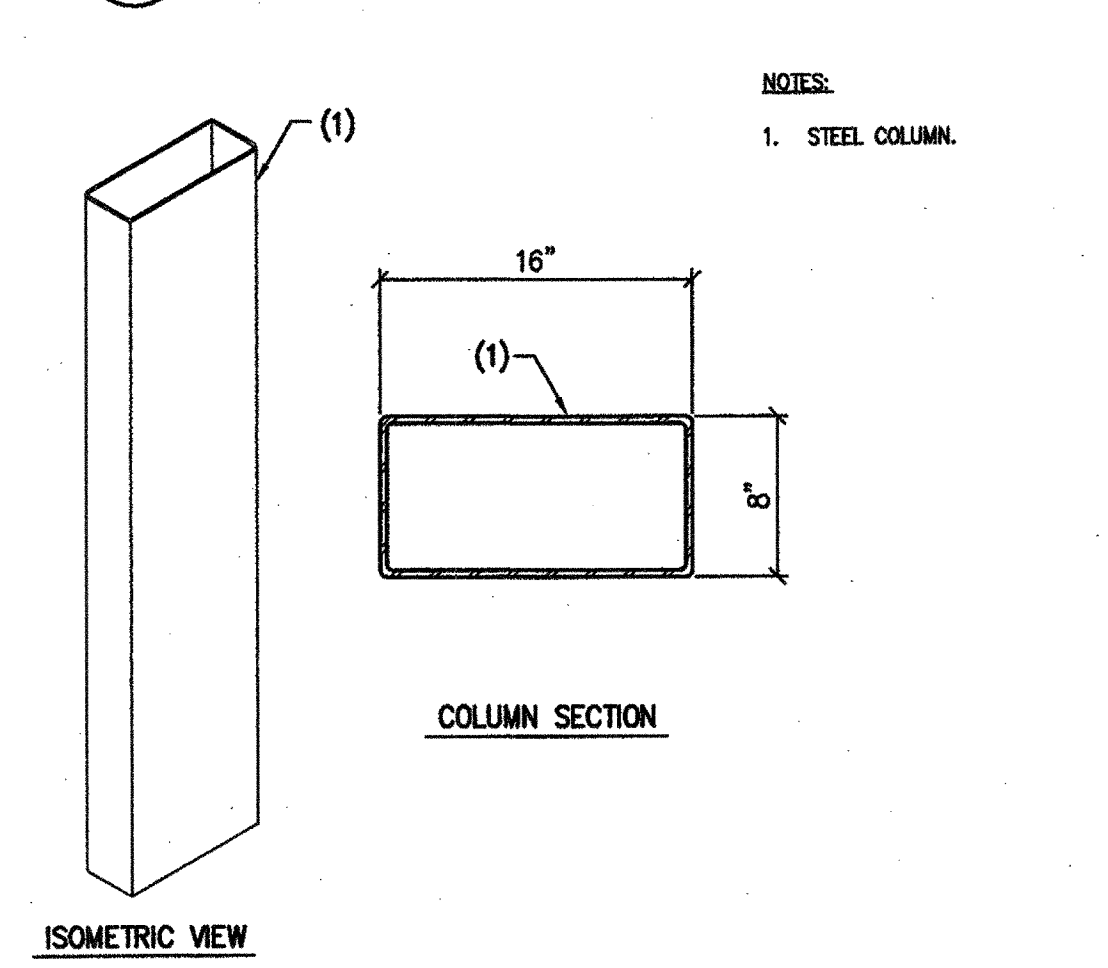
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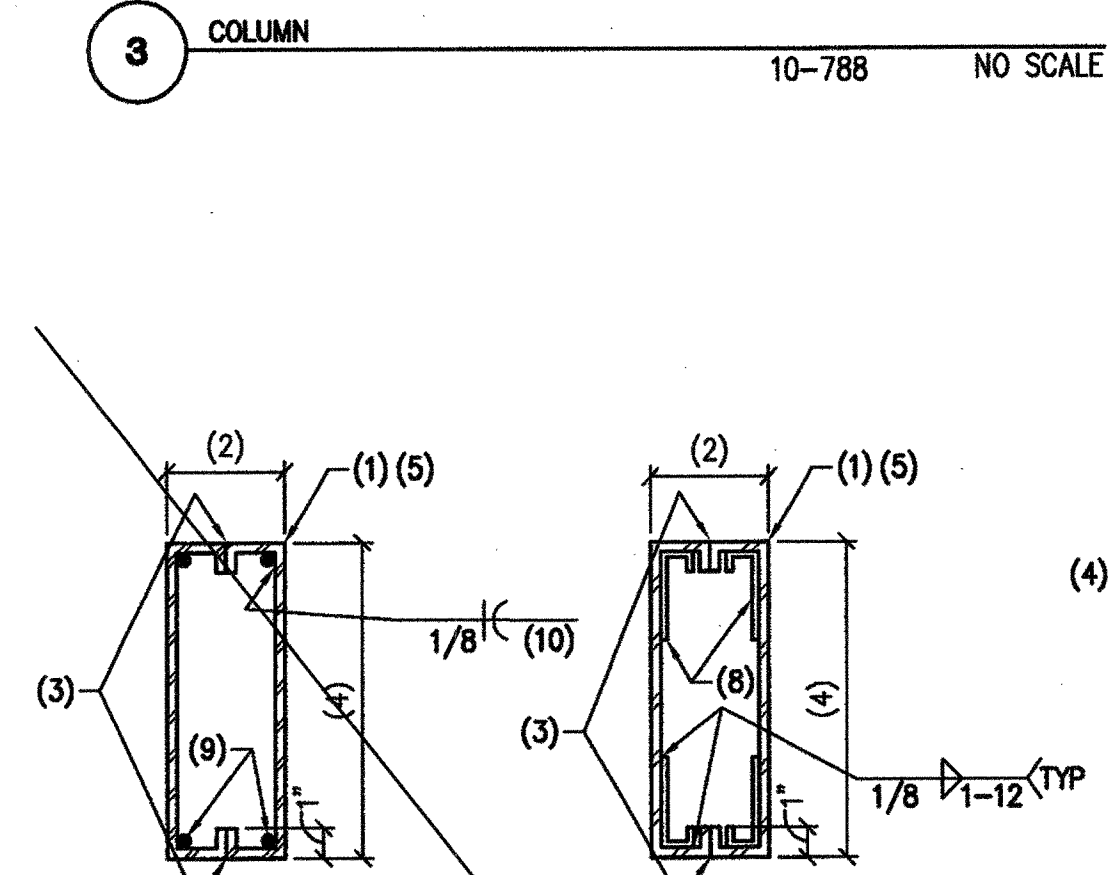
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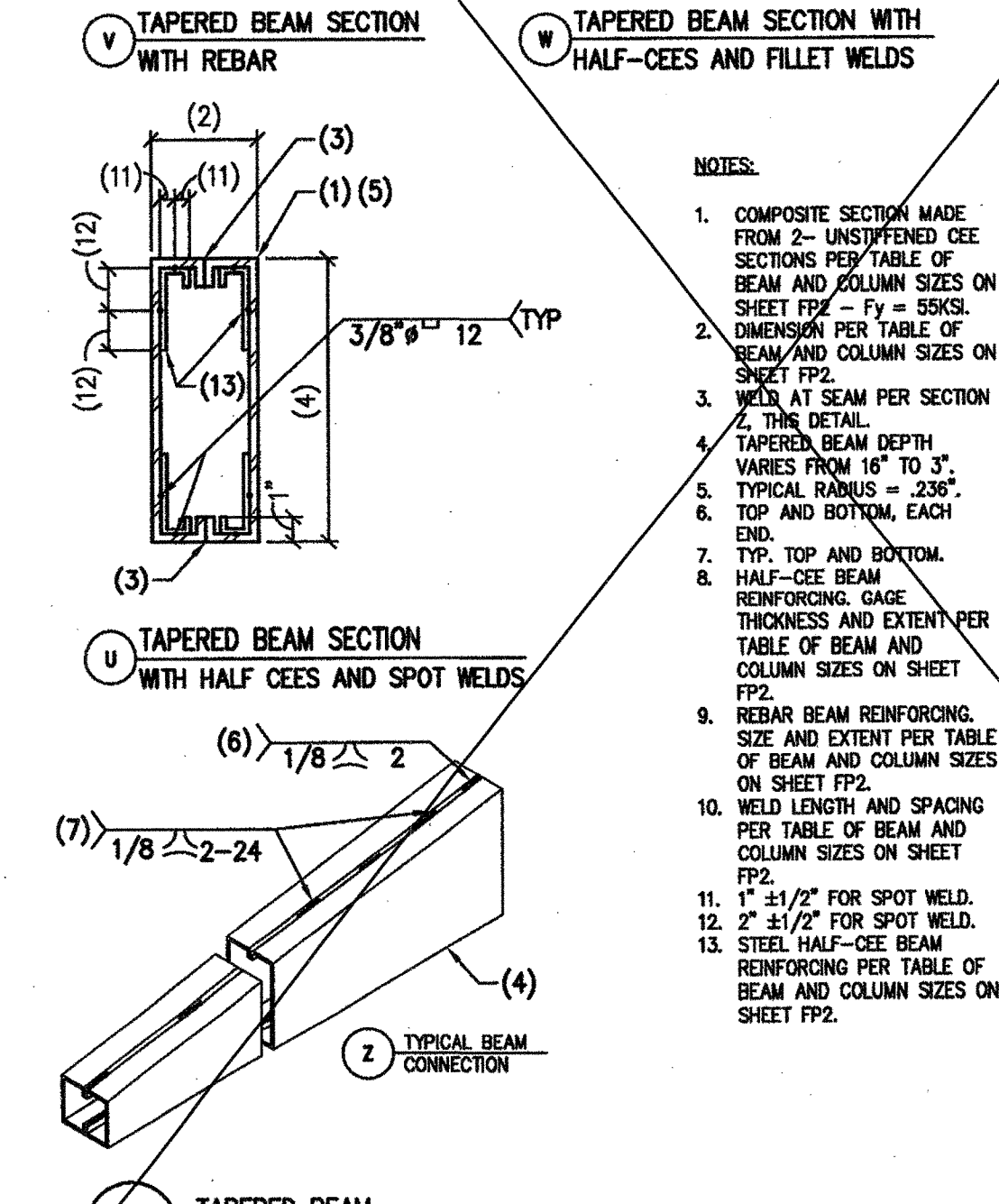
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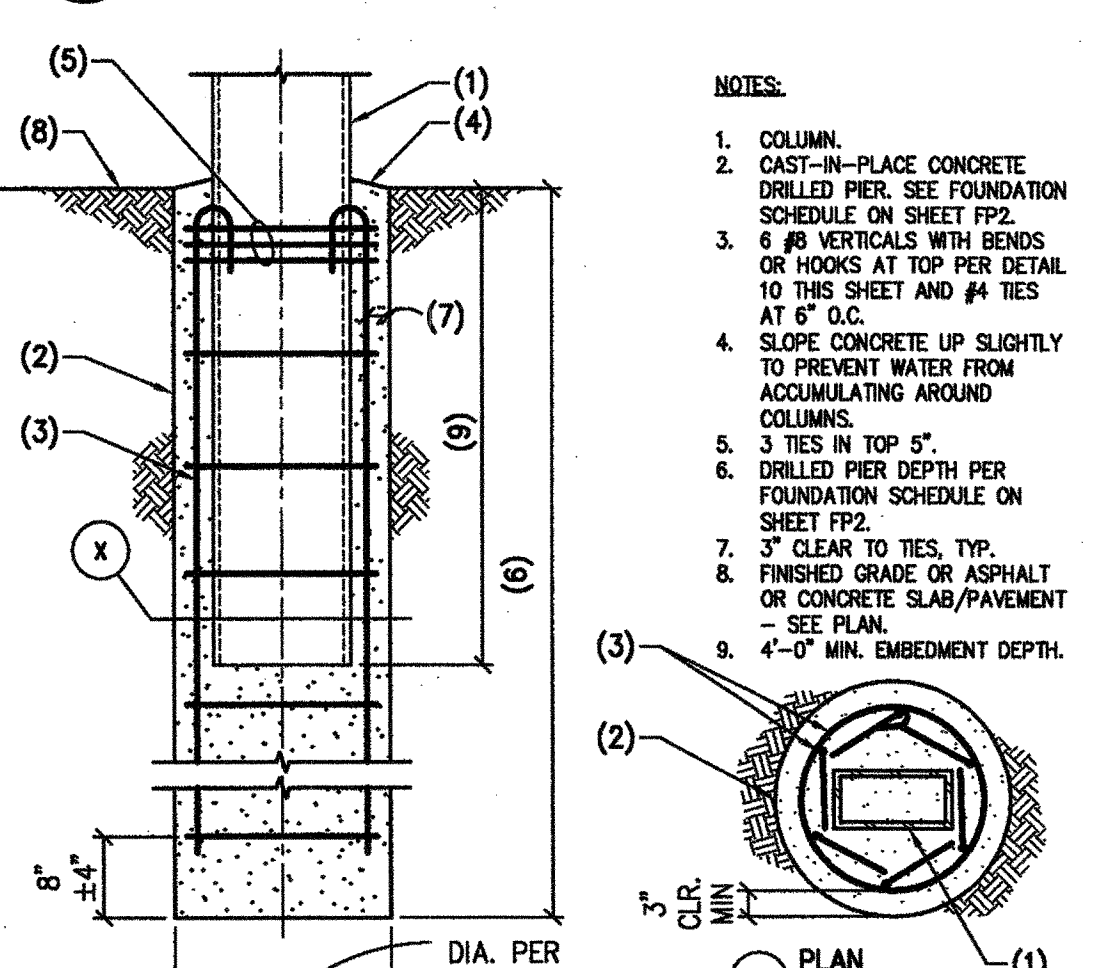
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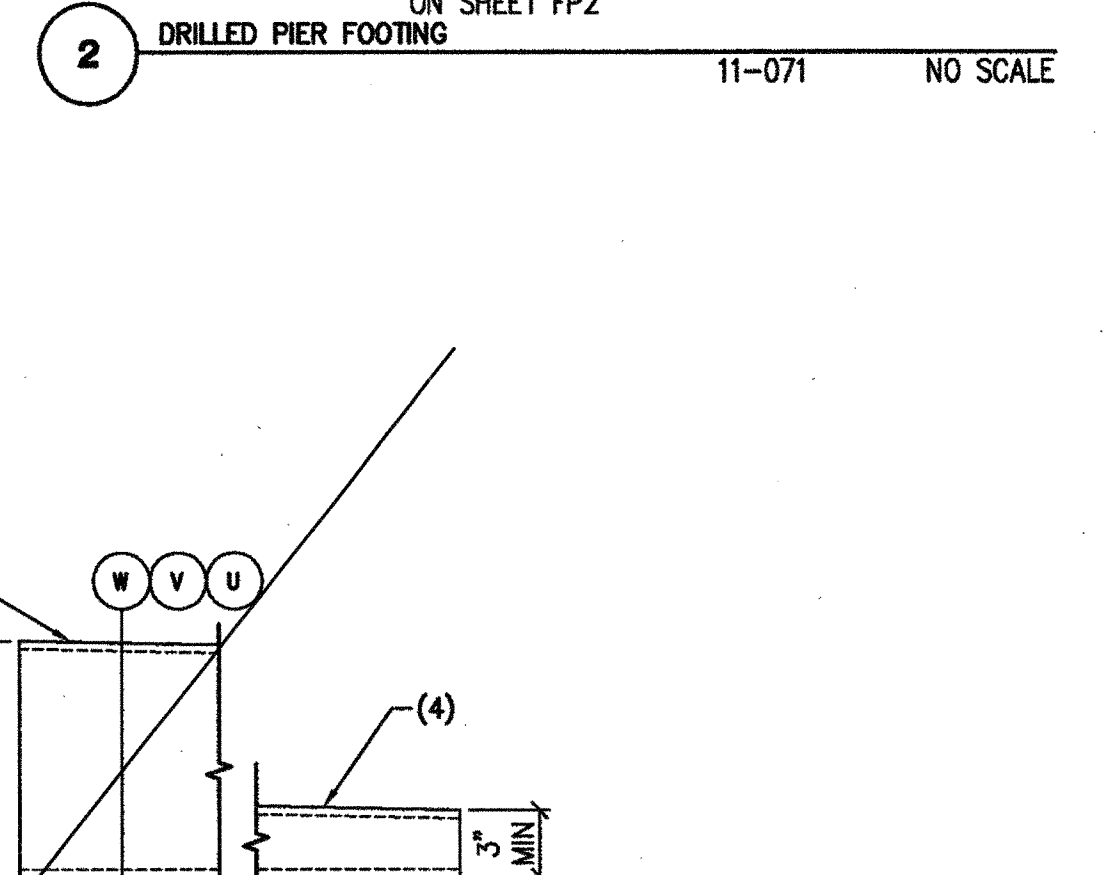
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NO SCALE



11-071 NO SCALE

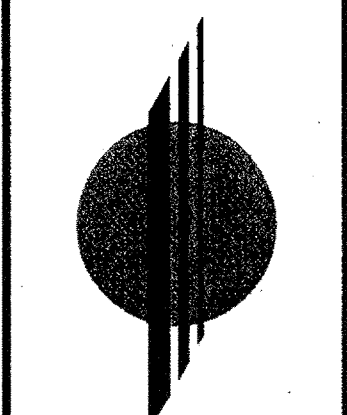


11-071 NO SCALE

IDENTIFICATION STAMP  
 DIV. OF THE STATE ARCHITECT  
 APPOS 114585  
 MAY 29 2017

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

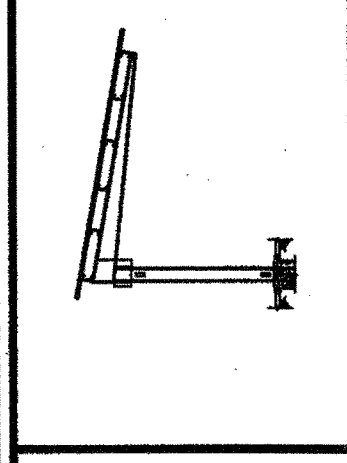
DSA APP. NO 02-112000  
 IDENTIFICATION STAMP  
 DIV. OF THE STATE ARCHITECT  
 OFFICE OF REGULATION SERVICES  
**02-112000**  
 AC: FLS SS KB  
 DATE: 3.22.12



**CARUSO TURLEY SCOTT INC.**  
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PORTRAIT SOLAR PANELS ON FULL CANTILEVER SOLAR SUPPORT STRUCTURE DSA PRE-CHECK



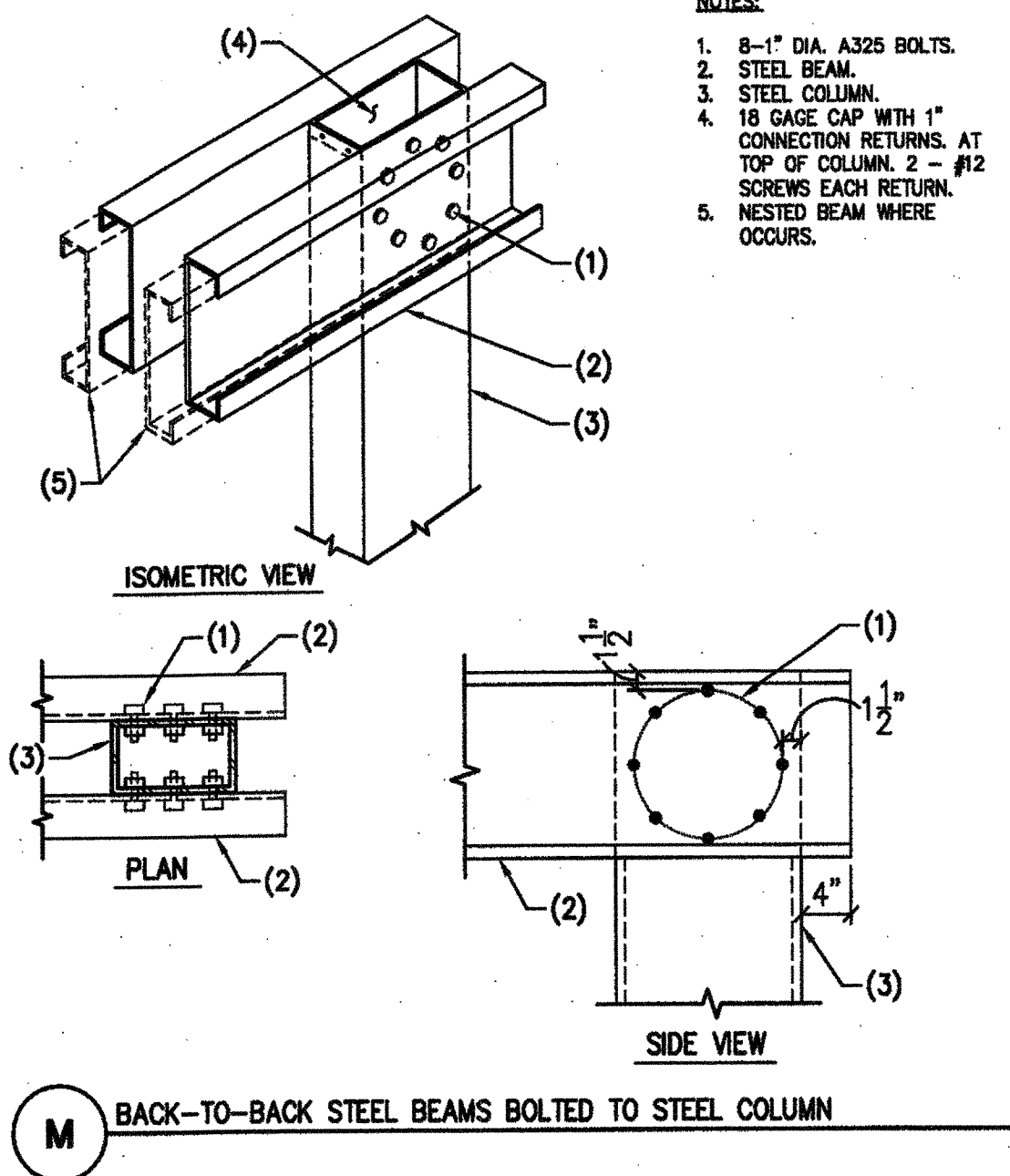
POWERS  
 STEEL & WIRE  
 PATENTS PENDING

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 OFFICE OF REGULATION SERVICES  
**02-112000**  
 AC: FLS SS KB  
 DATE: 3.22.12

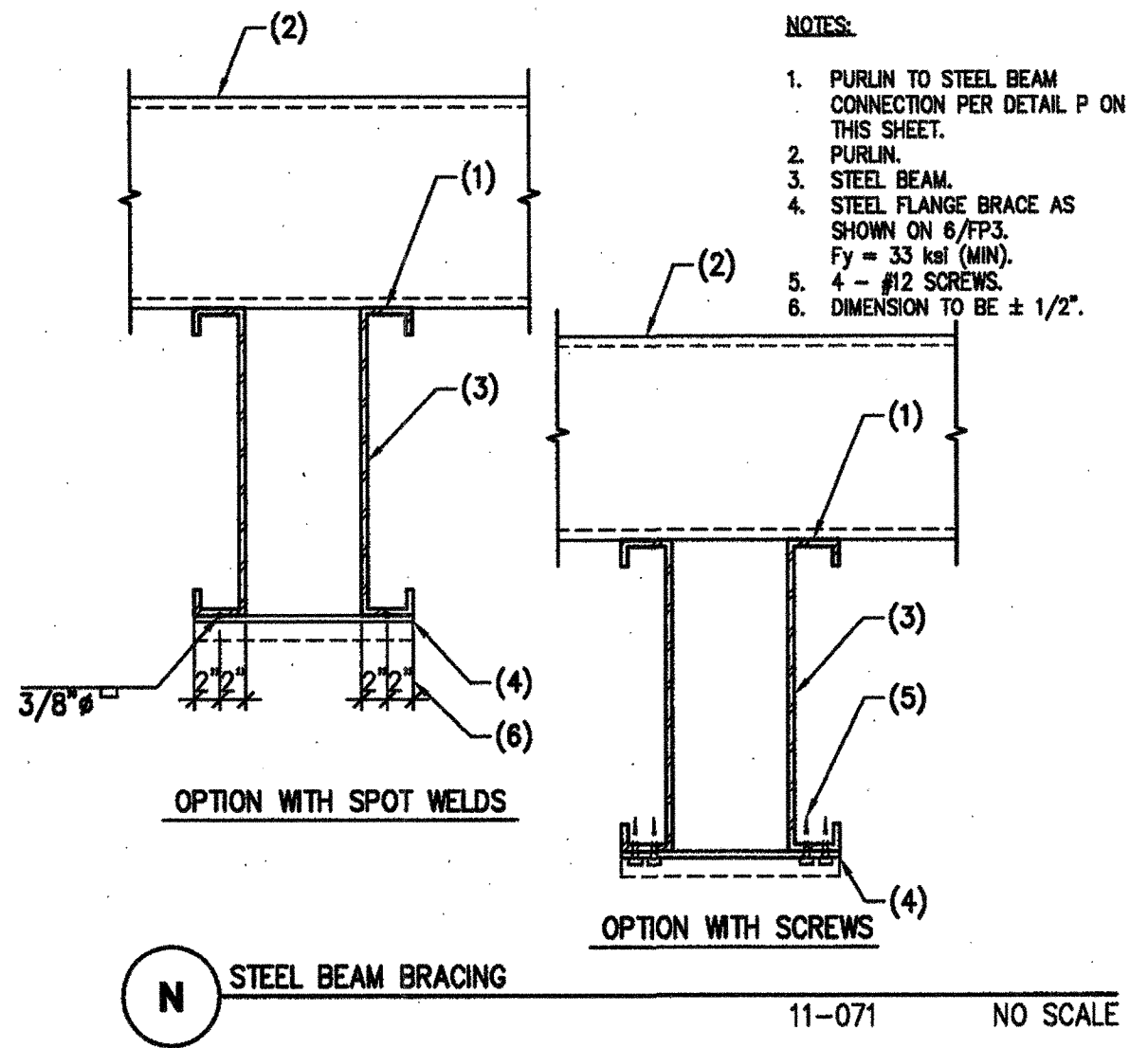
JOB NUMBER: 11-071  
 DRAWN: ENGINEER CHECKED: BLP PGS DST  
 DATE: 3/15/12  
 SHEET: FP3



PATENTS PENDING

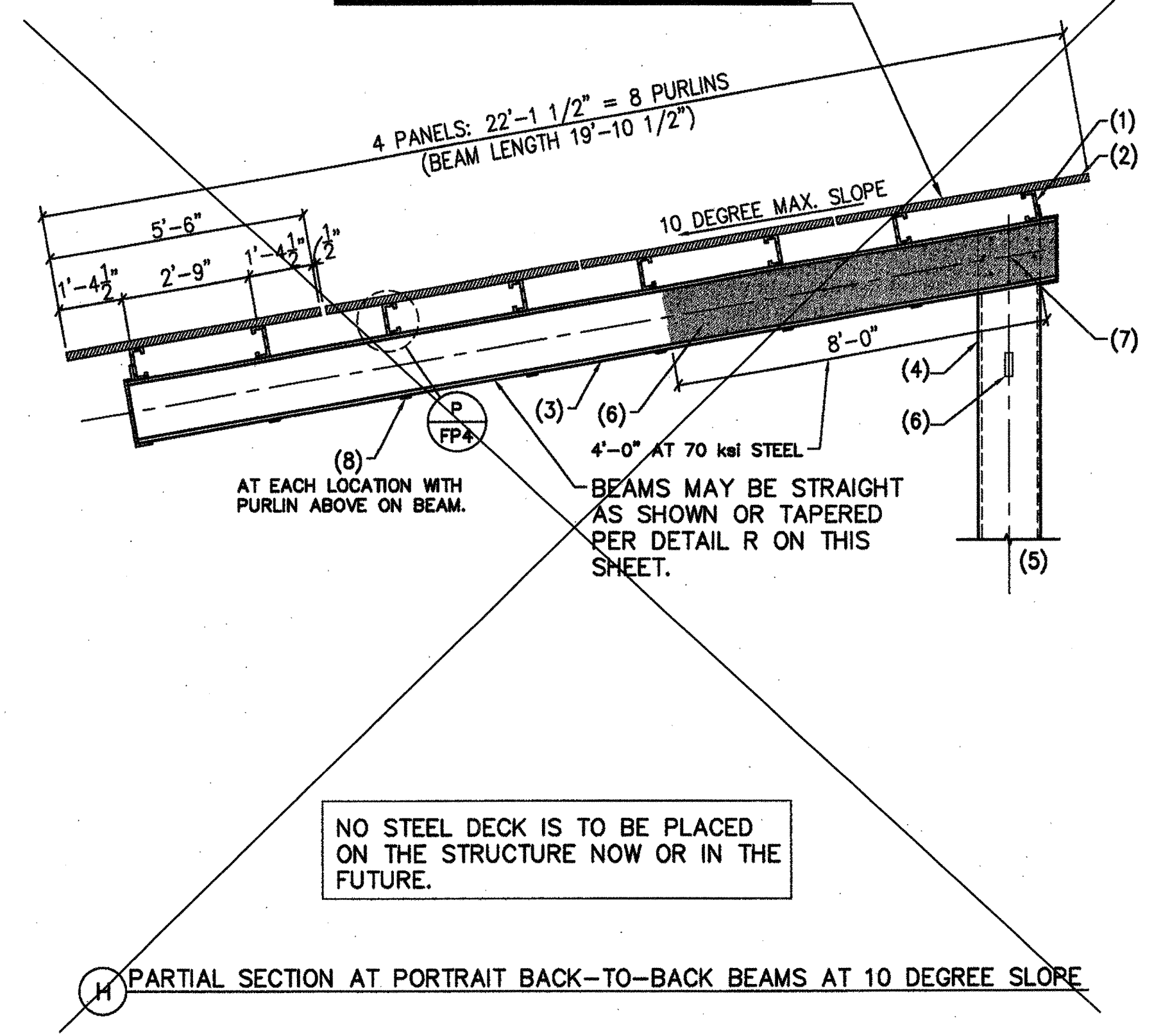


- NOTES:
- 8-1" DIA. A325 BOLTS.
  - STEEL BEAM.
  - STEEL COLUMN.
  - 16 GAUGE CAP WITH 1" CONNECTION RETURNS. AT TOP OF COLUMN. 2 - #12 SCREWS EACH RETURN. NESTED BEAM WHERE OCCURS.



- NOTES:
- PURLIN TO STEEL BEAM CONNECTION PER DETAIL P ON THIS SHEET.
  - PURLIN.
  - STEEL BEAM.
  - STEEL FLANGE BRACE AS SHOWN ON 6/FP3.  $F_y = 33 \text{ ksi (MIN)}$ .
  - 4 - #12 SCREWS.
  - DIMENSION TO BE  $\pm 1/2"$ .

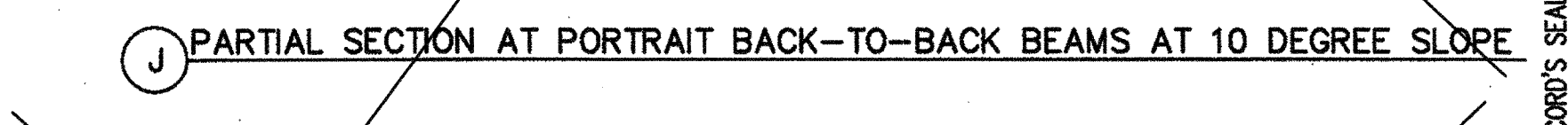
NOTE:  
THE PV PANEL SIZE USED TO DETERMINE THE DIMENSIONS SHOWN ON THIS DRAWING WERE 3'-4" (40") x 5'-6" (66"). THERE IS A GAP OF 1/2" BETWEEN THE PV PANELS IN LANDSCAPE AND 1/2" GAP BETWEEN THE PANELS IN PORTRAIT. THE BEAM LENGTHS NEED TO BE REVISED IF PV PANELS OF DIFFERENT SIZES ARE USED. IF THE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



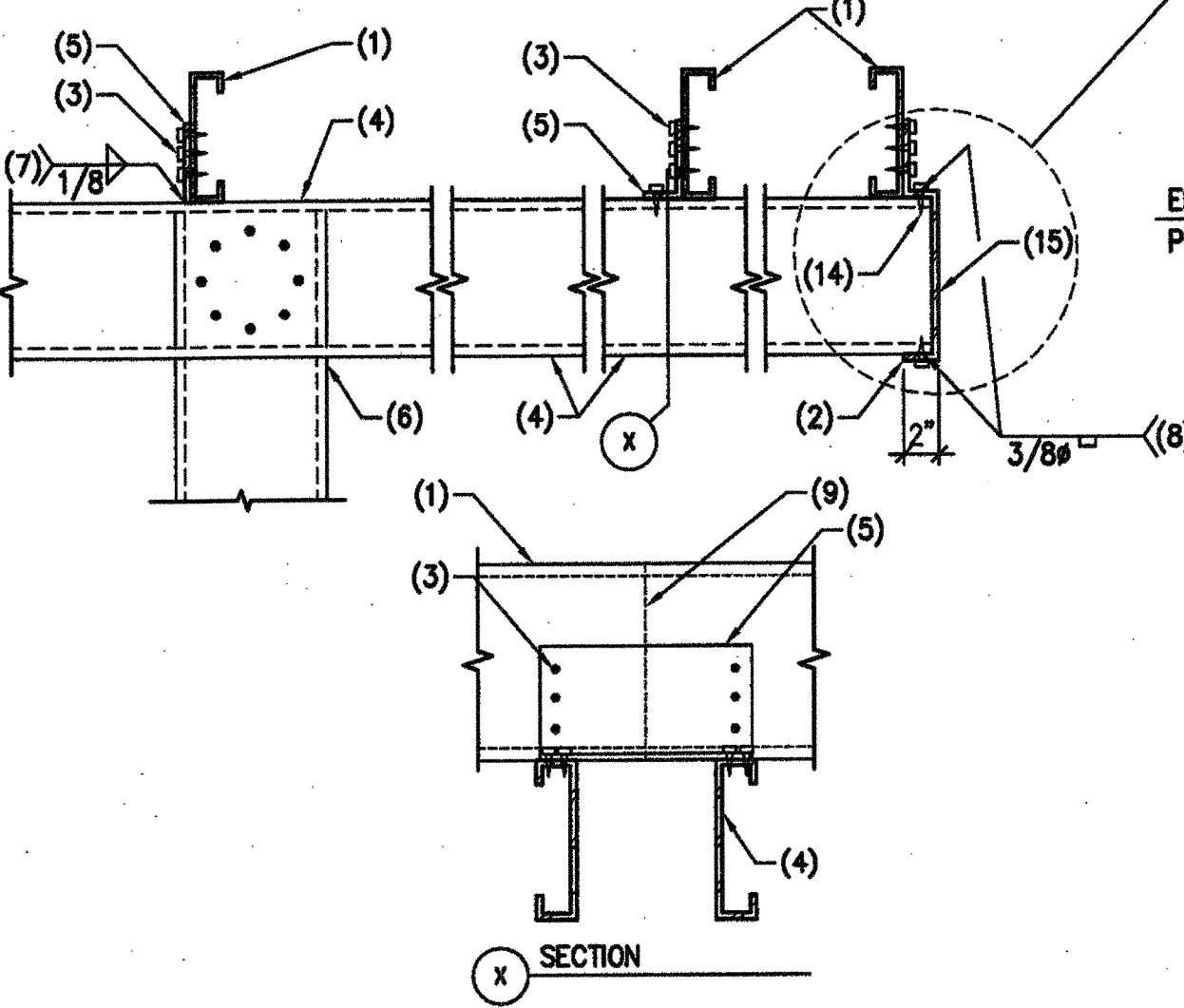
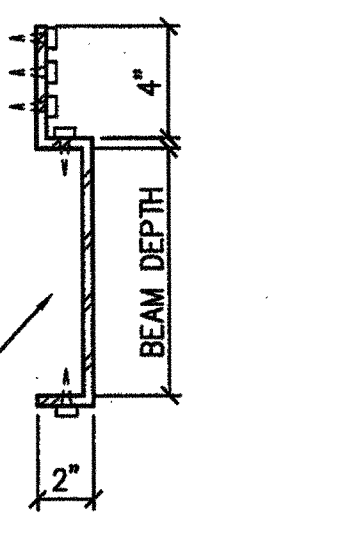
NO STEEL DECK IS TO BE PLACED ON THE STRUCTURE NOW OR IN THE FUTURE.

- SECTION NOTES:
- PURLIN - SEE DETAIL 1/FP3.
  - SOLAR PANEL.
  - BACK-TO-BACK BEAMS PER STRUCTURAL MEMBER SCHEDULE ON THIS SHEET.
  - COLUMN PER TABLE OF BEAM AND COLUMN SIZES ON SHEET FP2.
  - FOR FOOTING INFORMATION SEE FOUNDATION SCHEDULE ON SHEET FP2.
  - SHADED AREA INDICATES LOCATION OF NESTED BEAM WHERE OCCURS.
  - WORKPOINT - CENTERLINE OF BEAM AND COLUMN.
  - 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.

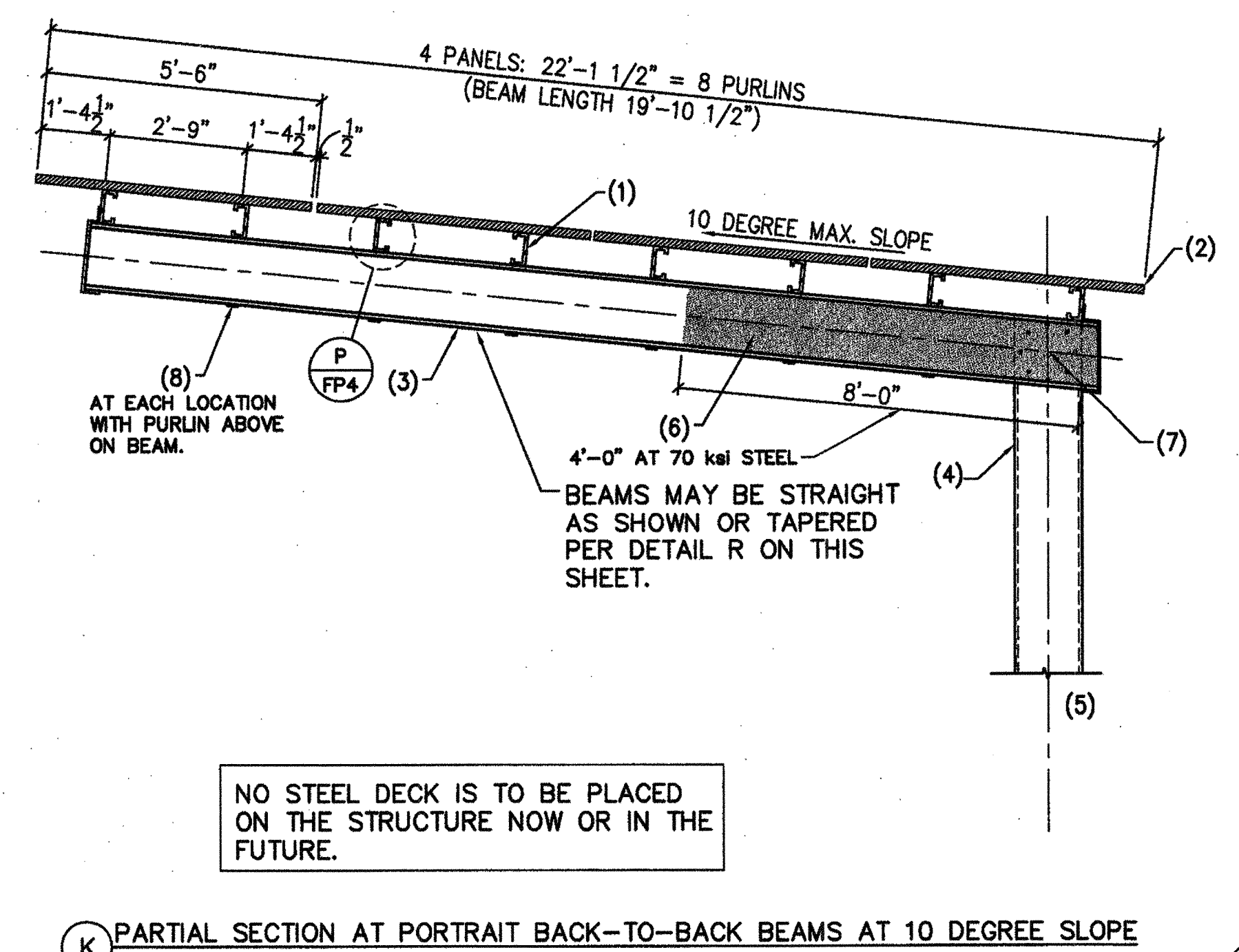


- NOTES:
- PURLIN.
  - 10 GA BEAM CAP PLATE W/ (4) #12 TO BOTTOM OF BEAM AND (6) #12 TO PURLIN.
  - (3) #12 x 3/4" LONG SCREWS TO PURLIN.
  - STEEL BEAM.
  - 16" LONG x 4" x 10 GAUGE STEEL CLIP OR 16" LONG x 4"x6" (LLV) ANGLE WITH (2) #12 SCREWS AT EACH BEAM MEMBER.  $F_y = 50 \text{ ksi (MIN)}$ .
  - STEEL COLUMN.
  - WELD PLATE TO BEAM.
  - OPTIONAL SPOT WELD.
  - OPTIONAL PURLIN SPLICE LOCATION AT NON-CANTILEVERED PURLINS.
  - 16 GA CLIP.
  - (3) #12 SCREWS TO PURLIN.
  - TOP OF PURLIN.
  - (3) #12 SCREWS TO BEAM.
  - 2 #12 SCREWS AT EACH BEAM MEMBER.
  - IF CLIP OPTION Z IS USED, THE END CAP BECOMES NON-STRUCTURAL AND MAY BE 22 GAUGE.
  - ALL DIMENSIONS TO BE  $\pm 1/2"$ .

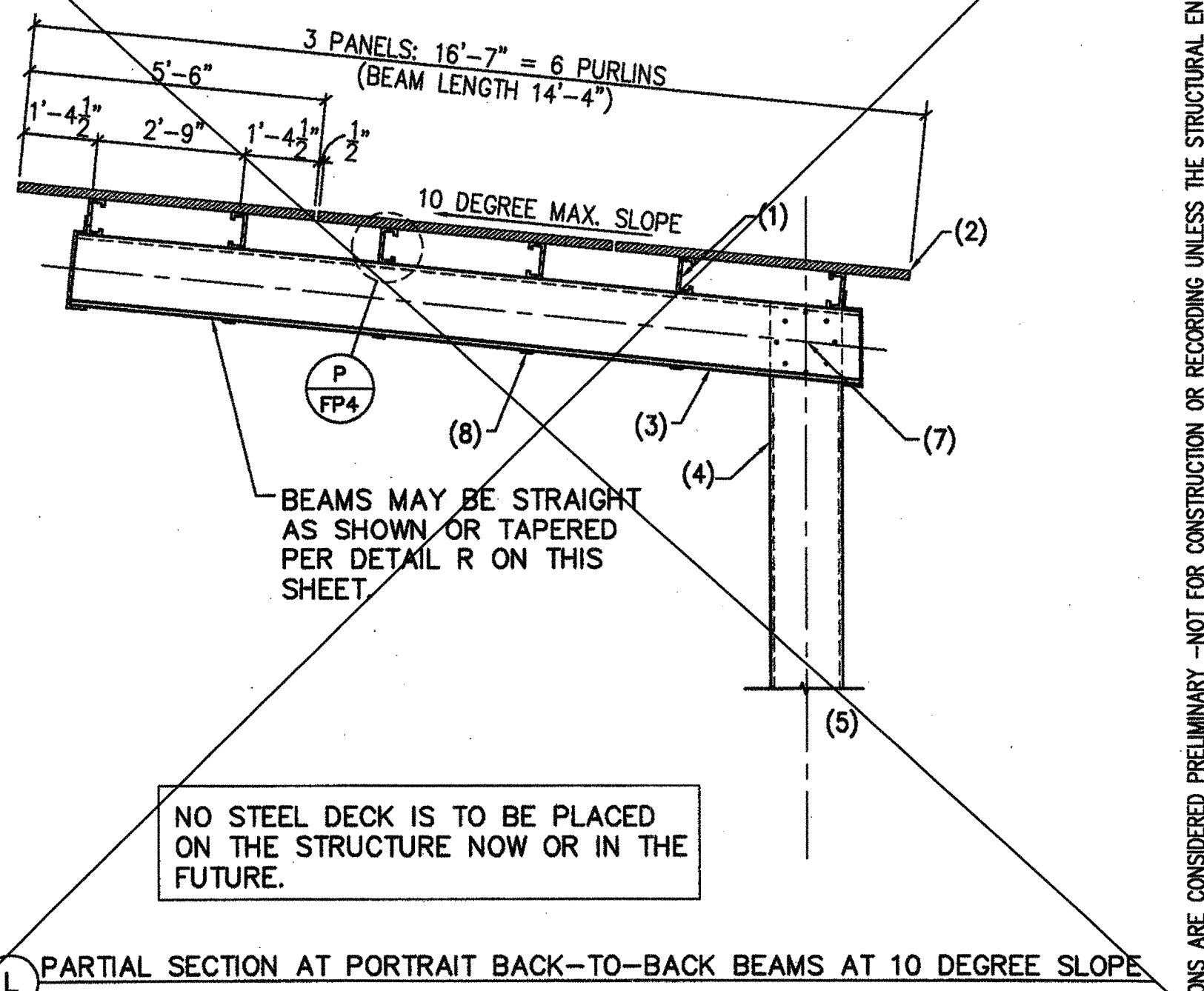


STRUCTURAL MEMBER SCHEDULE		
SOLAR CANOPY TYPE	STEEL BEAM SIZE ( $F_y=55 \text{ KSI}$ )	NESTED BEAM SIZE (OPTION) ( $F_y=55 \text{ KSI}$ )
3 PANEL FULL	(2) 16"x4"x10 GA	
4 PANEL FULL	(2) 16"x4"x10 GA	(2) 16"x4"x10 GA WITH 10 GA. NESTED BEAM (SEE DETAILS H AND K ON THIS SHEET FOR LENGTH AND LOCATION)

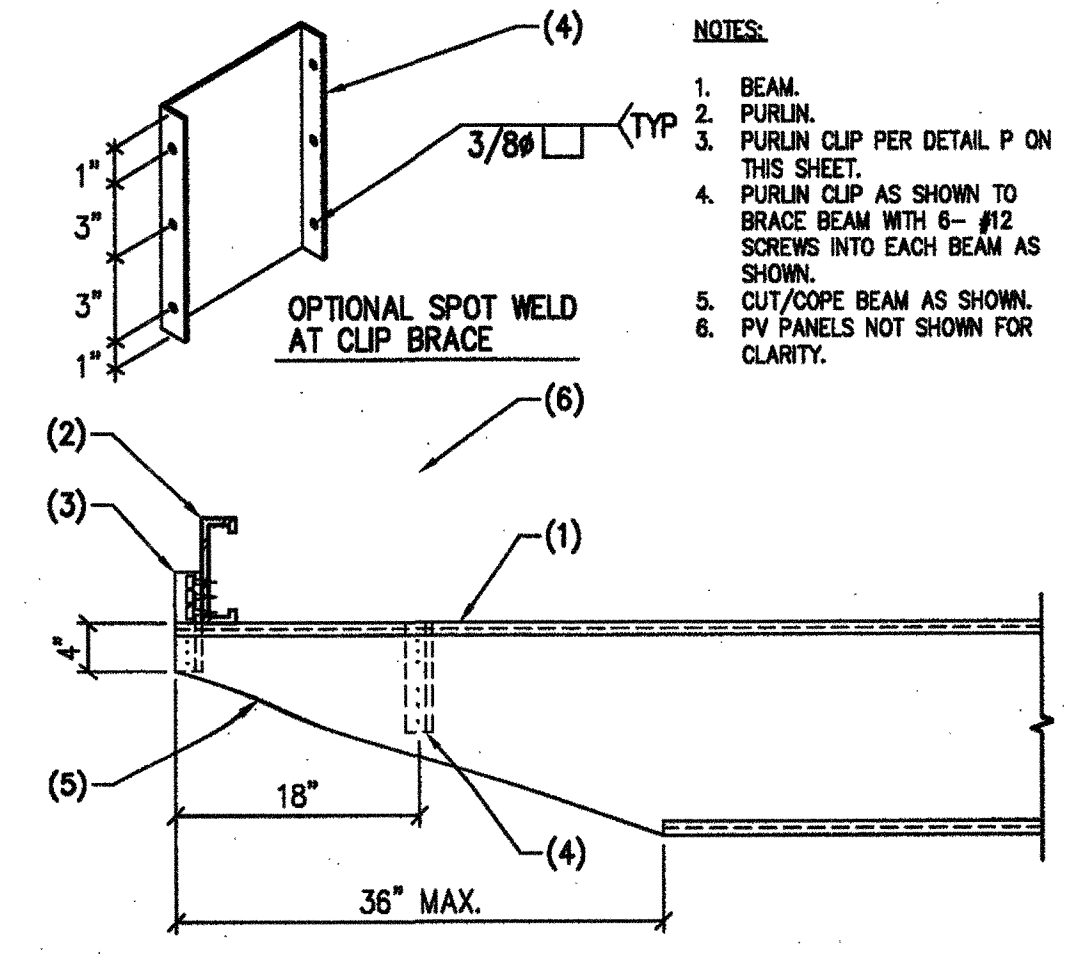
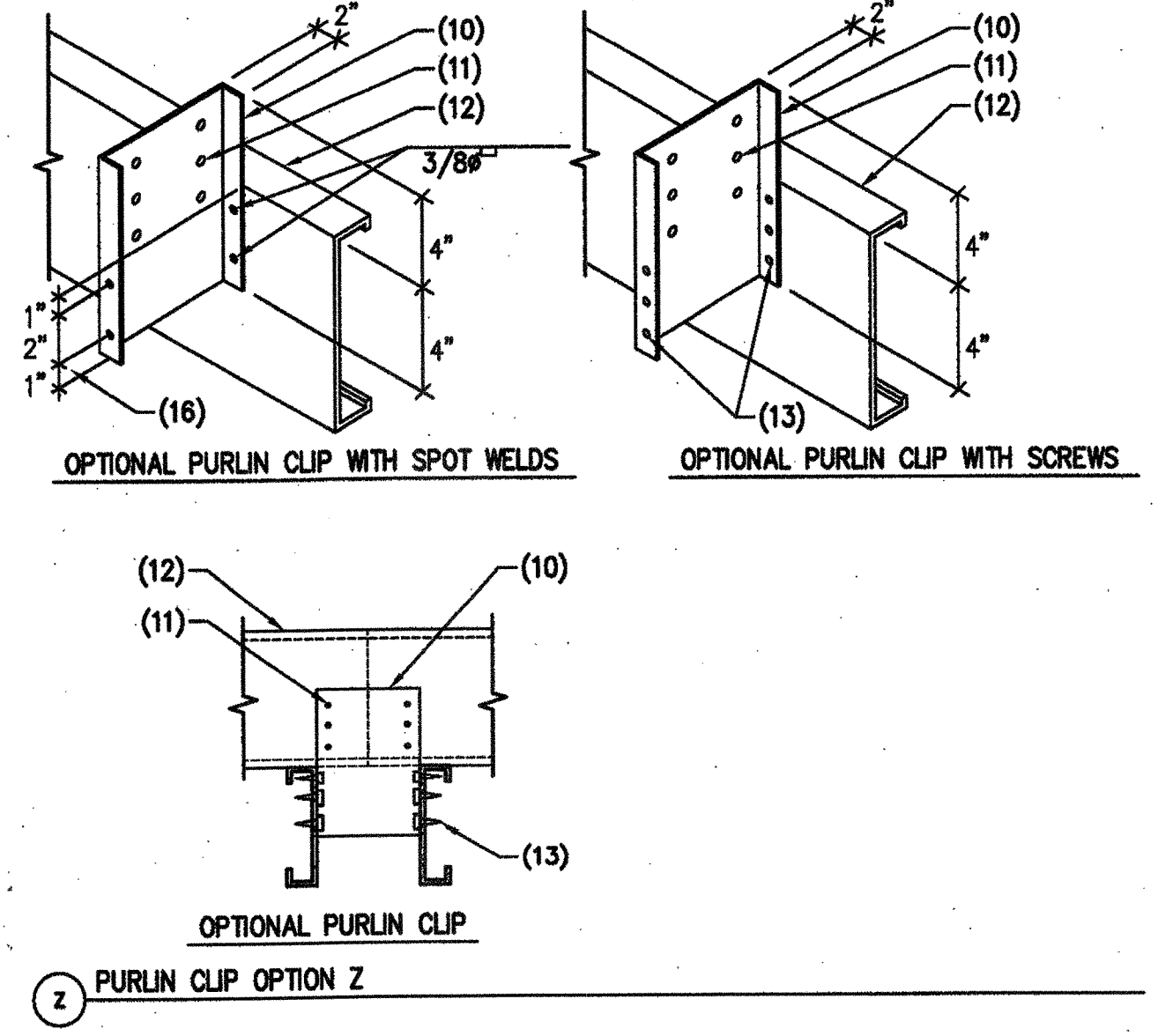
STRUCTURAL MEMBER SCHEDULE



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



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

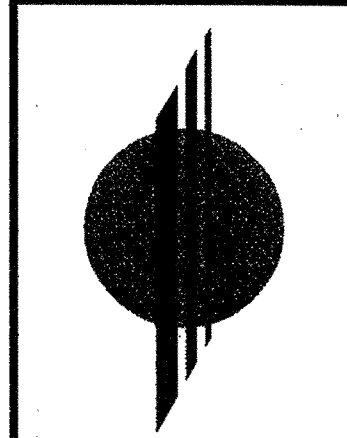


- NOTES:
- BEAM.
  - PURLIN.
  - PURLIN CLIP PER DETAIL P ON THIS SHEET.
  - PURLIN CLIP AS SHOWN TO BRACE BEAM WITH 6 - #12 SCREWS INTO EACH BEAM AS SHOWN.
  - CUT/COPE BEAM AS SHOWN. PV PANELS NOT SHOWN FOR CLARITY.

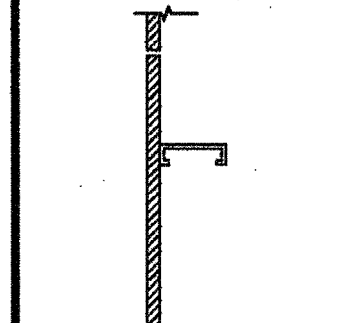
P PURLIN TO BEAM CONNECTION 11-071 NO SCALE PATENTS PENDING

R BEAM TAPER OPTION 11-071 NO SCALE

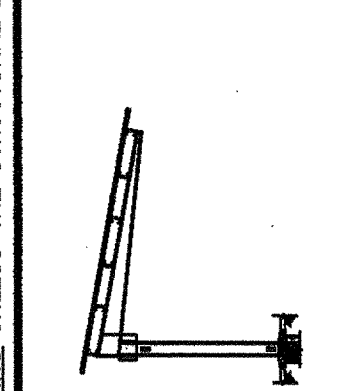
PATENTS PENDING



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



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**POWERS** STEEL & WIRE

PATENTS PENDING  
DRAWING EDITION/REF JOB #

IDENTIFICATION STAMP  
DIV. OF THE STATE ARCHITECT  
APPROX 114585  
AC/PLS ✓ SS CML  
DATE MAY 29 2017



**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/PLS ✓ SS CML  
DATE 3.22.12

PATENTS PENDING

REVISIONS:  
JOB NUMBER: 11-071  
DRAWN: [ENGINEER] CHECKED: BLP PGS DST  
DATE: 3/15/12  
SHEET: FP4