



March 2, 2012

Oregon Public Utilities Commission  
550 Capital St NE #215  
PO Box 2148  
Salem, OR 97308-2148

**RE: EXPIDITED REQUEST for a waiver of the 12-month installation requirement (OAR 860-084-2010 (1) for the Portland General Electric (PGE) Solar Payment Program.**

To Whom It May Concern:

Tanner Creek Energy is submitting this request on behalf of Grand Central Bakery which has a Portland General Electric Solar Payment Program reservation (8E3973) and a system completion date of April 12, 2012.

**Specifically, we are asking for a 30-day extension to each application to allow time for system completion.**

*General Information*

It is a 10kW roof mounted system will be located on the roof of the Grand Central Bakery Sawtooth building located at 2249 NW York, Portland, OR 97210.

*Circumstances in Request*

All things being equal, we are very confident in our ability to install the system in a timely manner. However, here were a few minor delays during the previous 12 months which, when added together, have caused us concern over timing. With our experience in the building and electrical permit process for this jurisdiction (City of Portland) along with the possibility of inclement weather during installation we feel a small extension is the prudent path for the ratepayer. These delays included the customer desire to see the results of the BETC rulemaking process. A favorable BETC process would have allowed them to build a larger system. But in the last few weeks, it became apparent that the new BETC rules were going to be very difficult. In addition, the building presented some unanticipated structural challenges which required glue-lam upgrades to the roof joists.

The following work has been completed:  
Interconnection application (attached)  
System design (attached)  
Structural engineering review (attached)  
Permit applications (attached)  
Structural upgrade quote (attached)  
Contract documents signed, down payment made (confidential)

We are hoping that these circumstances and along with the short extension request will help the commission find in our favor.

Please let us know if any further information would be helpful in your evaluation of our request.

On behalf of Grand Central Bakery,

Respectfully submitted,

Alan Hickenbottom  
General Manager, Energy Services Group

Solar Payment Option System  
Application for Level 1 Interconnection  
(Applies to a photovoltaic system with 25 kW or less DC nameplate capacity)



**Customer Information:**

Tracking No. (provided with notification of Capacity Reservation Date): 8E3973  
Name: BEN DAVIS  
Company Name (if applicable): GRAND CENTRAL BAKING  
Mailing Address: 2249 NW YORK ST.  
City: PORTLAND State: OR Zip Code: 97210  
Daytime Telephone: 503-808-8860 Cell/Evening: \_\_\_\_\_  
E-Mail: B.DAVIS@GRANDCENTRALBAKING.COM

**Facility Information:**

Existing Account where backfeed will occur (from PGE bill): 553552-437709  
Estimated Commissioning Date (when system will pass local authority inspection): \_\_\_\_\_  
Location (if different from Applicant's address listed above):  
Street Address: SAME  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Service Voltage: 480/277 Volts  Single-Phase  3-Phase  
Generator Nameplate Capacity (STC kW total for all panels): 10 DC kW

**System Installer Information (must be an Energy Trust Trade Ally):**

Company Name: CHRISTENSON ELECTRIC  
Contact Name: MAT ELMORE  
Contractor License No. 458 Electrical Supervisor: \_\_\_\_\_  
Mailing Address: 111 SW COLUMBIA ST. SUITE 480  
City: PORTLAND State: OR Zip Code: 97201  
Office Telephone: 503-892-5726 Cell: 503-333-5578  
E-Mail: MAT.ELMORE@CHRISTENSON.COM

(Continued on next page)

**Inverter Information:**

Inverter Manufacturer: SOLECTRIA Model: PVI 10KW  
Total Number of Inverters: 1 Max. Capacity per Inverter: 10 AC kW output  
Phase:  Single  Three Inverter Output Voltage: 480 AC Volts

*Inverter specifications sheet (manufacturer’s cut sheet).*  
*Note: If inverter is not lab-certified by a Nationally Recognized Testing Laboratory (NRTL), then a Level 3 Interconnection Application is required.*

**Additional Documents:**

**Disconnect Determination.**

Does AC generation capacity exceed 30 amps (see chart)?

yes  
 no

Service Type	Max. AC Output Allowed without a Disconnect
240 Volts, Single-Phase, 3 Wire:	7.2 kW
120/208 Volts, 3-Phase, 4 Wire:	10.5 kW
120/240 Volts, 3-Phase 4 Wire:	12.5 kW
277/480 Volts, 3-Phase 4 Wire:	25.0 kW

If yes, your site requires a readily accessible, lockable disconnect switch and Application will require two drawings:

- i) a **one-line electrical diagram** showing full circuit from solar panels to existing PGE meter, including new production meter, disconnect, all protective devices, etc., and
- ii) a **site plan** showing to-scale the proposed location of the disconnect, existing PGE meter, and new PGE production meter. Distance is to not exceed ten feet (10') unless other arrangements have been made with PGE.

**Estimated Energy Generation:**

Systems applying for participation in the Solar Payment Option must be sized to generate 90% or less than existing service’s annual usage. If annual usage is unavailable, it will be estimated by PGE based upon the rolling average of three years’ usage by a similarly situated site.<sup>1</sup>

*Annual kilowatt-hours (kWh) production estimate must use a forecasting methodology consistent with the methodologies used by the Energy Trust of Oregon and the Oregon Department of Energy.*

System Production Estimate (annual): 11,461 kWh

<sup>1</sup> The eligible system is limited to 90 percent of the electric site’s previous usage. You can find information about approximate expected generation by visiting the Energy Trust of Oregon web site at <http://energytrust.org/shared-resources/solar-calculator/>. The solar calculator helps you determine how much electricity you can expect to produce, although your Energy Trust Trade Ally will provide a more accurate estimate to complete this application.

**Customer Consent to Data Release**

I hereby acknowledge and agree that PGE may release information concerning my participation in the Pilot to the Oregon Department of Revenue, the Oregon Department of Energy, the Oregon Public Utility Commission and the Energy Trust of Oregon. PGE shall use reasonable efforts to pursue appropriate confidentiality terms with the above agencies and organizations.

**Customer Signature:**

I hereby attest that the information submitted on this application is accurate to the best of my knowledge. I certify that the system is to be constructed from new components and compliant with Oregon Public Utility Commission quality and reliability requirements for photovoltaic systems. I also certify that the system will be first operational and online after July 1, 2010.

Applicant Signature: [Signature] Date: 5/16/2011  
Printed Name: BEN DAVIS Title (if applicable): PRESIDENT - GRAND CENTRAL BAKERY

**Mail Completed Interconnection Application to:**

PGE Solar Payment Option  
PO Box 4079  
Portland, OR 97208-4079

**Interconnection Application Receipt Acknowledgement:**

Receipt of a completed application is hereby acknowledged.

Approval for a Level 1 Solar Payment Option System interconnection is contingent upon the Applicant's Generator Facility passing the Level 1 screens and completing the review process set forth in OPUC Rule AR 538, Division 084 and is not granted by the utility's receipt acknowledgement signature on this Application Form. The Applicant will be notified within ten (10) business days of receipt of this acknowledgment whether the interconnection application is approved or denied.

Utility Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

**Interconnection Application Approval:**

Utility Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_



## COMMERCIAL INVERTERS

PVI 10KW  
PVI 13KW  
PVI 15KW

## FEATURES

- Smallest true 3-Phase inverter
- Industrial grade
- Transformer isolated
- 208 VAC, 240 VAC, 480 VAC or 600 VAC
- MODBUS communications
- User interactive LCD display
- Ground or wall mount configurations

## OPTIONS

- Integrated DC fused string combiner
- Forward facing disconnects
- Web-based monitoring



## COMMERCIAL INVERTERS

Popular among schools and small business customers, Solectria Renewables' PVI 10KW, PVI 13KW, and PVI 15KW inverters are the smallest true three-phase PV Inverter series in the industry. This series of commercial grade inverters is available in 208 VAC, 240 VAC, 480 VAC, and 600 VAC versions and comes standard with integrated AC and DC disconnects, LCD display, and monitoring gateway. Options include an integrated 5 to 7 position fused string combiner, forward facing disconnects, and web-based monitoring.



Built for the real world

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SPECIFICATIONS	PVI 10KW	PVI 13KW	PVI 15KW	
<b>DC Input</b>				
Absolute Maximum Input Voltage		475 VDC		
MPPT Input Voltage Range		205-385 VDC		
Maximum Operating Input Current	52 A	69 A	77 A	
<b>AC Output</b>				
Nominal Output Voltage		208, 240, 480 or 600 VAC, 3-Ph		
AC Voltage Range (Standard)		-12%/+10%		
Continuous Output Power	208/240/480/600 VAC	10 kW	13.2 kW	15 kW
	208 VAC	28 A	37 A	42 A
	240 VAC	24 A	32 A	36 A
	480 VAC	12 A	16 A	18 A
Continuous Output Current	600 VAC	9.6 A	12.7 A	14.4 A
			0 A	
Maximum Backfeed Current			0 A	
Nominal Output Frequency			60 Hz	
Output Frequency Range			59.3-60.5 Hz	
Power Factor			Unity, >0.99	
Total Harmonic Distortion (THD)			<5%	
<b>Efficiency</b>				
Peak Efficiency		95.6%	95.8%	95.8%
CEC Efficiency	208 VAC	---	94.0%	94.0%
	480 VAC	---	94.5%	94.5%
Tare Loss	208 VAC		4 W	
	240 VAC		4 W	
	480 VAC		5 W	
	600 VAC		7 W	
<b>String Combiner Options</b>				
5, 6 or 7 Fused Positions		8 A, 10 A, 12 A or 15 A		
<b>Temperature</b>				
Ambient Temperature Range (full power)		-40°F to +122°F (-40°C to +50°C)		
Storage Temperature Range		-40°F to +158°F (-40°C to +70°C)		
Relative Humidity (non-condensing)		5-95%		
<b>Monitoring Options</b>				
Web-based Monitoring (Inverter Direct)		SolrenView		
Revenue Grade Monitoring		External		
Third Party Compatibility		Standard via MODBUS		
<b>Testing &amp; Certifications</b>				
Safety Listings & Certifications		UL 1741/IEEE 1547, IEEE 1547.1, IEEE 62.41.2, IEEE 62.45, IEEE C37.90.2, CSA C22.2#107.1, FCC part 15 B		
Testing Agency		ETL		
<b>Warranty</b>				
Standard		5 year		
Optional		10, 15, 20 year; extended service agreement		
<b>Enclosure</b>				
Transformer		Standard, fully-integrated (internal)		
AC/DC Disconnects		Standard, fully-integrated		
Dimensions (H x W x D)		26 in. x 34.5 in. x 13.6 in. (660 mm x 876 mm x 345 mm)		
Dimensions with forward facing disconnects (H x W x D)		26 in. x 47 in. x 13.6 in. (660 mm x 1194 mm x 345 mm)		
Weight	364 lbs (165 kg)	376 lbs (171 kg)	398 lbs (181 kg)	
Enclosure Rating		NEMA 3R		
Enclosure Finish		Polyester powder coated steel; Optional stainless steel		







**PHOTOVOLTAIC SYSTEM  
GRAND CENTRAL BAKING COMPANY  
2249 NW YORK  
PORTLAND, OREGON 97210**

**OWNER**

GRAND CENTRAL BAKING COMPANY  
2249 NW YORK  
PORTLAND, OREGON 97210  
503.808.9860

**PROJECT MANAGER**

CHRISTENSON ELECTRIC  
111 SW COLUMBIA, SUITE 480  
PORTLAND, OREGON 97201  
503.419.3330

**GENERAL/ELECTRICAL CONTRACTOR**

CHRISTENSON ELECTRIC  
111 SW COLUMBIA, SUITE 480  
PORTLAND, OREGON 97201  
503.419.3330

**STRUCTURAL ENGINEER**

KPFF CONSULTING ENGINEERS  
111 SW FIFTH AVENUE, SUITE 2500  
PORTLAND, OREGON 97204  
503.227.3251

**SYSTEM DESIGN**

TANNER CREEK ENERGY  
111 SW COLUMBIA, SUITE 480  
PORTLAND, OREGON 97201  
503.892.5726

**SYSTEM DESCRIPTION**

- (44) SOLARWORLD 225 POLY PV MODULES
- (1) POWER-ONE AURORA TRIO 10kW INVERTER
- 9,900 WATTS DC STC

**SCOPE OF WORK**

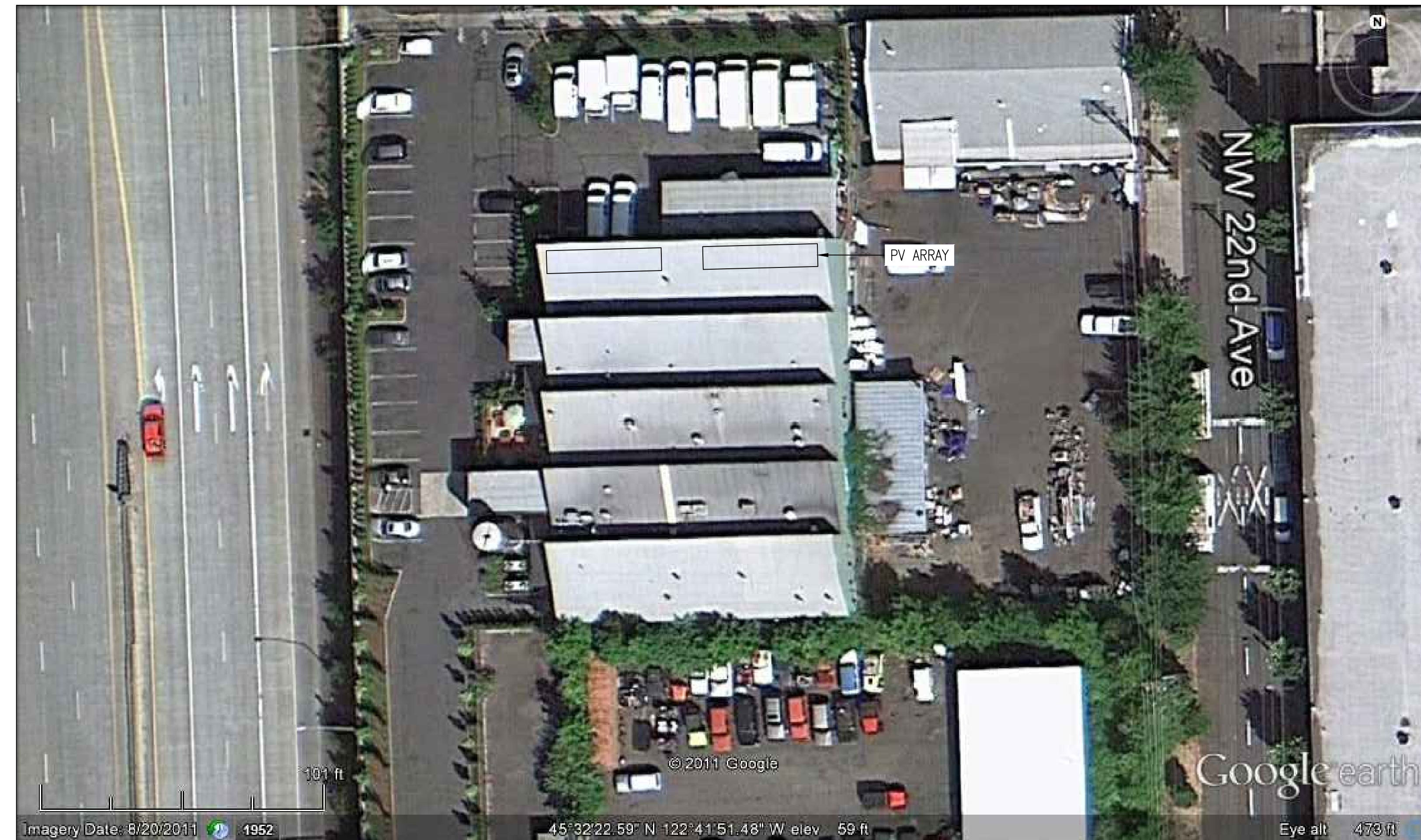
THE PROJECT SCOPE INCLUDES THE DESIGN AND INSTALLATION OF A 9,900 W DC GRID-TIED SOLAR PHOTOVOLTAIC (PV) SYSTEM AT GRAND CENTRAL BAKING COMPANY IN PORTLAND, OREGON.

THE PV SYSTEM CONSISTS OF ONE NON-COMBUSTIBLE ROOF MOUNTED SOLAR ARRAY, ONE INVERTER AND RELATED ELECTRICAL EQUIPMENT.

DURING DAYLIGHT HOURS THIS PV SYSTEM WILL PROVIDE ELECTRICITY IN PARALLEL WITH THE LOCAL ELECTRIC UTILITY SERVICE PROVIDER.

ALL EQUIPMENT WILL BE INSTALLED AS REQUIRED BY APPLICABLE CODES (2010 OREGON SOLAR INSTALLATION SPECIALTY CODE) AND PORTLAND GENERAL ELECTRIC SOLAR PAYMENT REQUIREMENTS.

SHEET LIST TABLE	
T	TITLE PAGE & SITE PLAN
A	LAYOUT & ELEVATION
E.1	ELECTRICAL NOTES & PLAN
E.2	ELECTRICAL DIAGRAM
E.3	SIGNAGE
S.1	RACKING SUPPORT
S.2	RAIL & MODULE LAYOUT
S.3	RACKING DETAILS



1 SITE PLAN  
T SCALE: N/A

**Christenson**  
ELECTRICAL, POWER & TECHNOLOGICAL SERVICES  
111 SW Columbia Street, Ste. 480  
Portland, OR 97201  
main: 503.419.3300  
fax: 503.419.3333  
www.christenson.com

Revisions:

**GRAND CENTRAL BAKING COMPANY  
PHOTOVOLTAIC PROJECT**  
2249 NW York  
Portland, Oregon 97210

Sheet Title:  
**TITLE PAGE +  
SITE PLAN**

Date: 02/24/2012  
CEI Project No.  
CEI Project Manager: JZ  
Designed By: KK  
Drawn By: KK  
Checked By:  
Project Type: 230

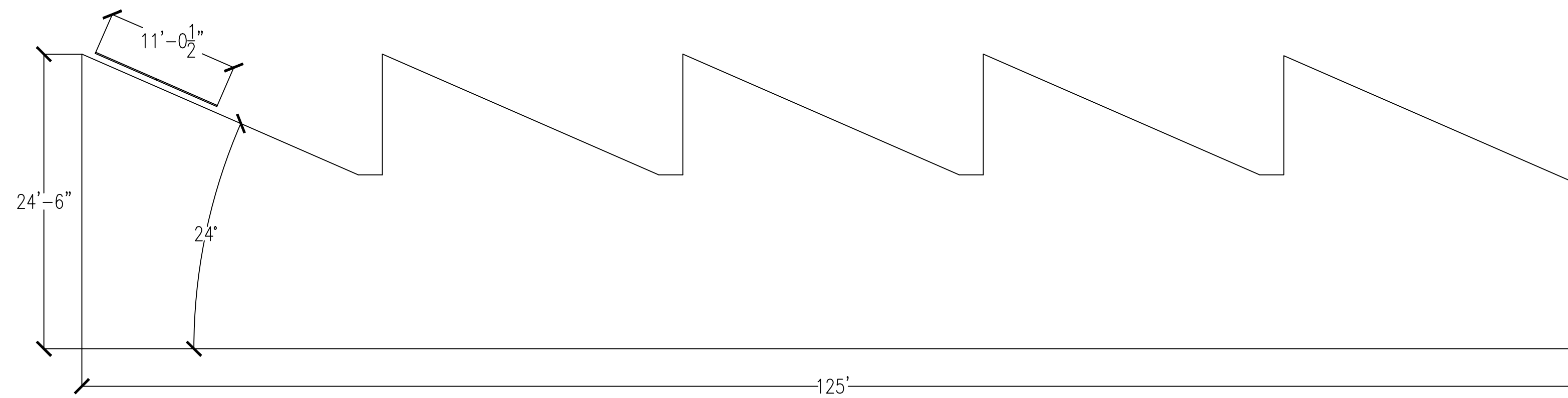
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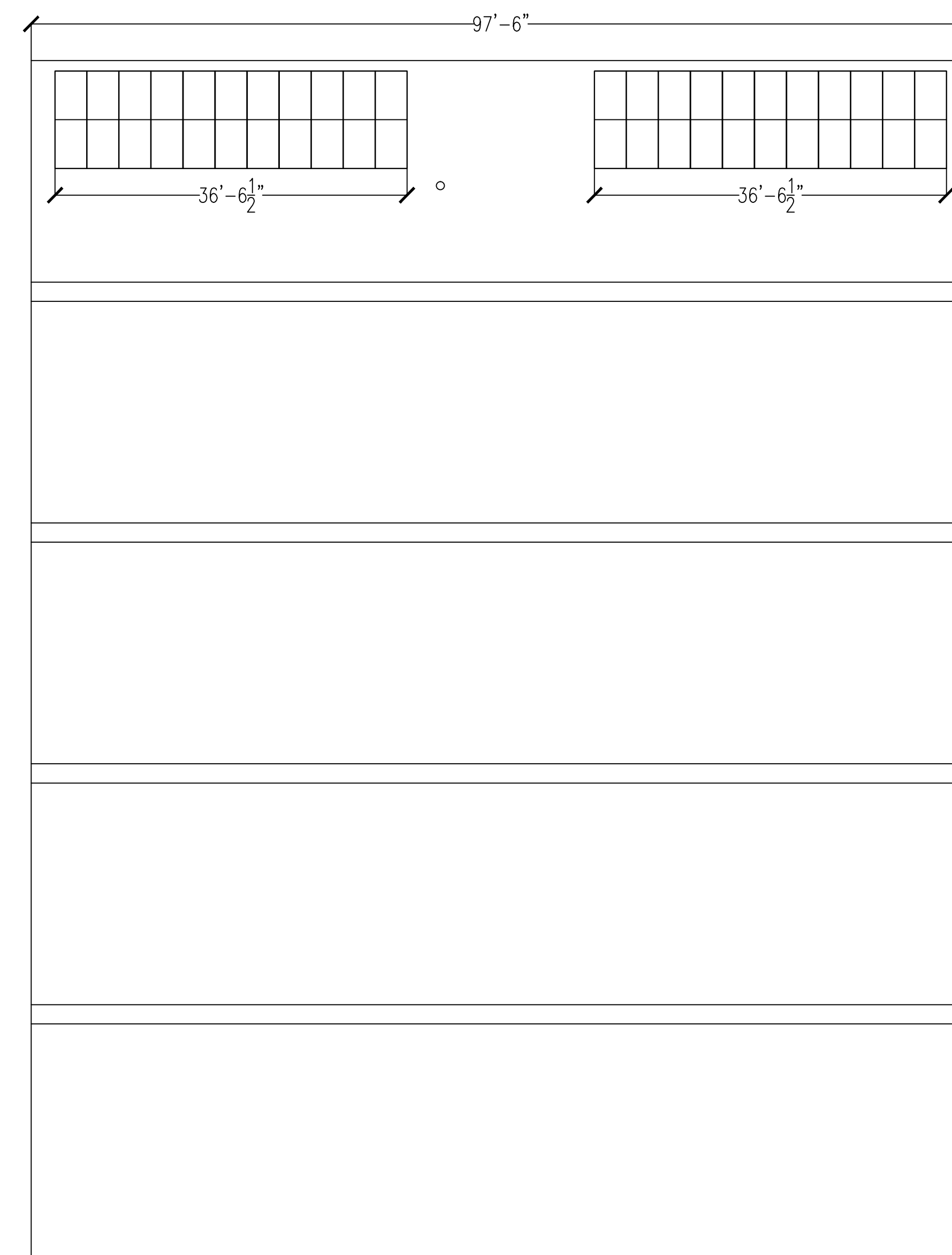
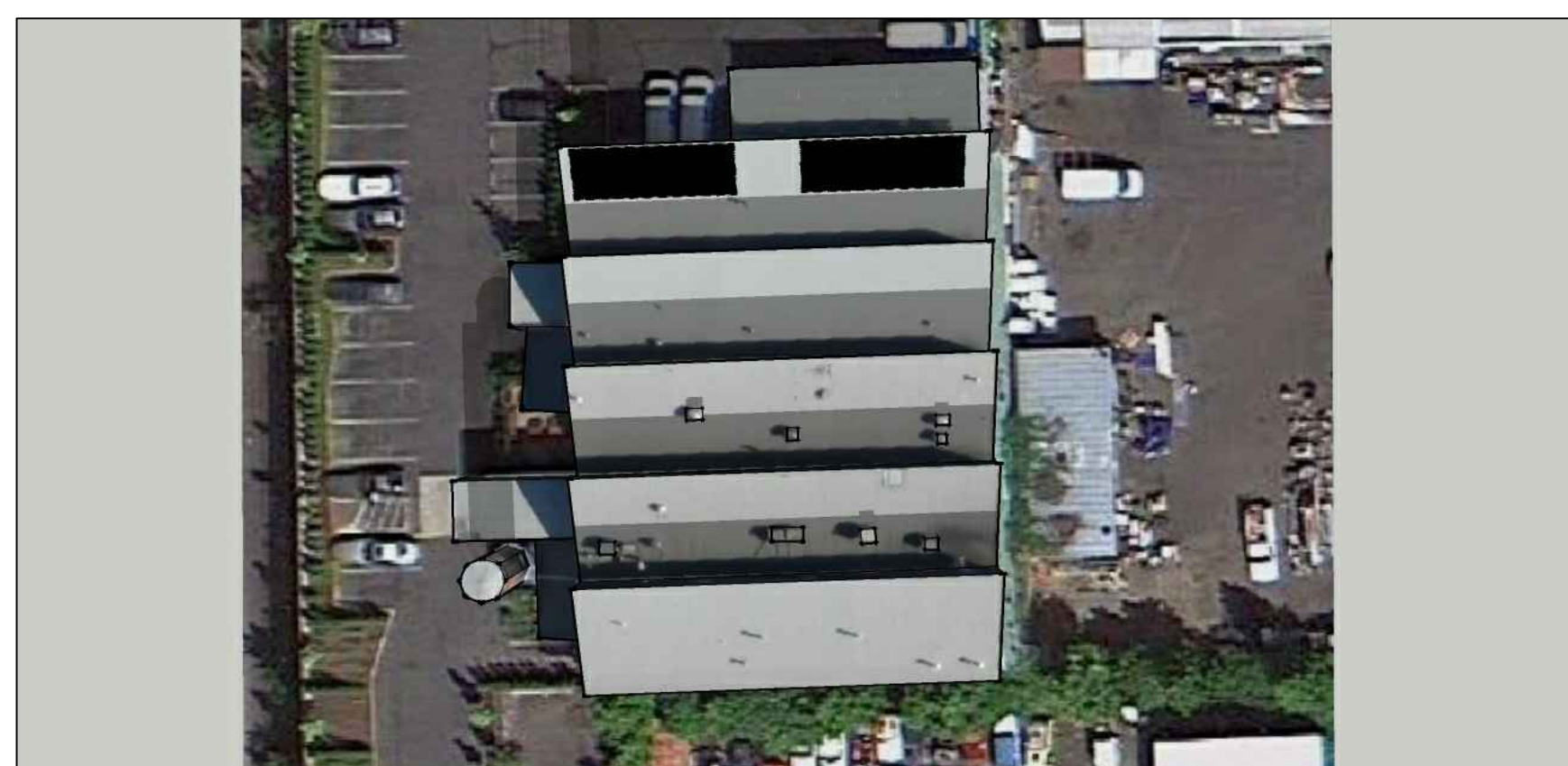
DESIGN



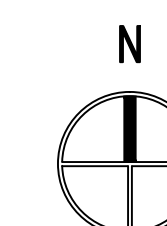
SYSTEM DESCRIPTION	
MODULE TYPE	SOLARWORLD 225 POLY
QUANTITY	44 MODULES
SYSTEM SIZE	9.9 kW DC STC
TILT ANGLE	24°
AZIMUTH	180°
INVERTER	POWER-ONE AURORA TRIO 10kW



1 WEST ELEVATION  
A SCALE: 1/8" = 1' - 0"



2 PV LAYOUT  
A SCALE: 3/32" = 1' - 0"



Revisions:

GRAND CENTRAL BAKING COMPANY  
PHOTOVOLTAIC PROJECT  
2249 NW York  
Portland, Oregon 97210

Sheet Title:  
LAYOUT +  
ELEVATION

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Checked By:  
Project Type: 230

Sheet Number:

A

**SYSTEM DESCRIPTION**

1 ARRAY, 44 MODULES TOTAL  
 1 INVERTER (POWER-ONE AURORA TRIO 10kW) – 480VAC/14A)  
 SIZE – 9,900 W DC STC  
 EST. ANNUAL PRODUCTION – 11,508 kWh AC

**SOURCE CIRCUIT**

PHOTOVOLTAIC MODULE:  
 SOLARWORLD 225 POLY, 225 W STC  
 Voc = 36.8V (40.7V @ -6°C – ASHRAE MEAN EXTREME LOW TEMP)  
 Vmp = 29.5V (23V @ 36°C – ASHRAE 0.4% HIGH TEMP)  
 Isc = 8.17A  
 Imp = 7.63A

**PHOTOVOLTAIC ARRAY**

44 MODULES, 11 MODULES/STRING (4 STRINGS TOTAL)  
 Voc = 447.5V @ -6°C  
 Vmp = 324.5V TYPICAL (252.9V @ 36°C)  
 Isc = 8.17A  
 Imp = 7.63A

**OUTPUT CIRCUITS**

- MODULES MOUNTED TO PROSOLAR RACKING SYSTEM ON CUSTOM GROUND MOUNT SYSTEM.
- INVERTER WITH DC DISCONNECT & AC DISCONNECT MOUNTED OUTSIDE ON NORTH WALL OPPOSITE OF SWITCHGEAR INSIDE (UTILITY METER AT SWITCHGEAR).
- INVERTER OUTPUT CONDUIT ROUTED TO UTILITY REQUIRED PV PRODUCTION METER ADJACENT TO INVERTER.
- POINT OF COMMON CONNECTION (POCC) AT CIRCUIT BREAKER IN SWITCHGEAR.

**ELECTRICAL NOTES FOR NEW PV SYSTEM**

- THIS PROPOSED SOLAR ELECTRIC SYSTEM IS INTENDED TO OPERATE IN PARALLEL DURING THE DAY WITH POWER RECEIVED FROM THE UTILITY SERVICE PROVIDER.
- ALL EQUIPMENT IS UL APPROVED AND IDENTIFIED FOR USE IN THE PV SYSTEM.
- THIS SYSTEM IS INTENDED TO CONNECT TO THE EXISTING FACILITY POWER SYSTEM AT ONE POINT, POINT OF COMMON COUPLING (POCC). THIS CONNECTION SHALL BE IN COMPLIANCE WITH THE NEC ARTICLE 705.12 "POINT OF CONNECTION".

**WIRING + WIRING METHODS**

ALL WIRING METHODS AND INSTALLATION PRACTICES CONFORM TO THE NATIONAL ELECTRIC CODE, OREGON SOLAR INSTALLATION SPECIALTY CODE, AND OTHER APPLICABLE LOCAL CODES.

**GROUNDING**

SEE E.2 – ELECTRICAL DIAGRAM FOR MORE GROUNDING INFORMATION.

**GROUND FAULT PROTECTION**

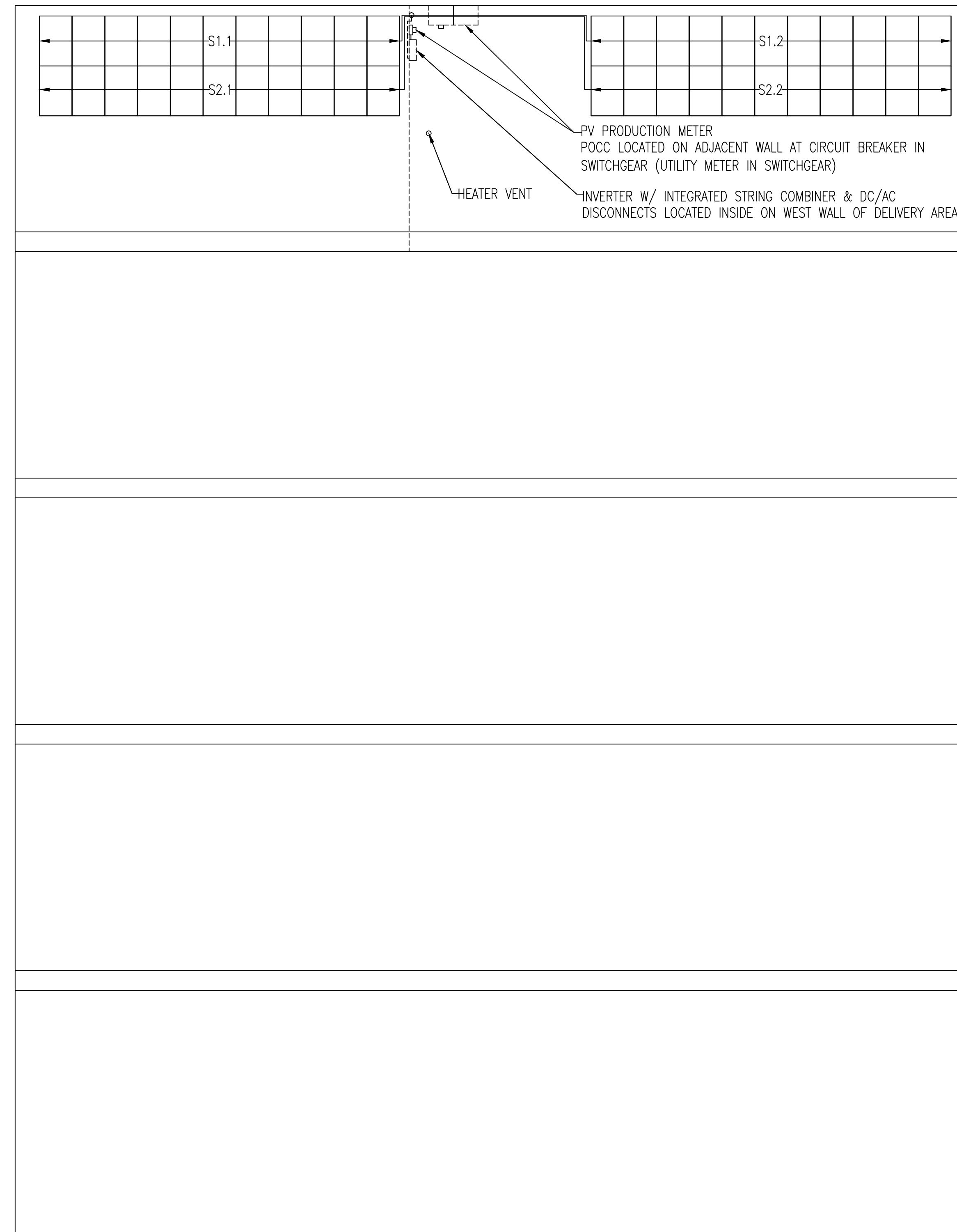
PHOTOVOLTAIC INVERTERS ARE EQUIPPED WITH DC GROUND FAULT PROTECTION TO REDUCE FIRE HAZARDS. INVERTERS ARE ALSO EQUIPPED WITH ANTI-ISLANDING CIRCUITRY.

**DISCONNECTING MEANS**

MEANS ARE PROVIDED TO DISCONNECT ALL CURRENT CARRYING CONDUCTORS OF THE PHOTOVOLTAIC POWER SOURCE FROM ALL OTHER CONDUCTORS AT THE LOCATION.

**REQUIRED SAFETY SWITCHES, LABELS + MARKINGS**

REQUIRED SAFETY SIGNS AND LABELS ARE PERMANENTLY ATTACHED BY ADHESIVE, OR OTHER MECHANICAL MEANS. LABELS COMPLY WITH ARTICLE 690 OF THE NEC OR OTHER APPLICABLE STATE AND LOCAL CODES. SEE E.3 FOR MORE DETAILS.



SYSTEM DESCRIPTION	
MODULE TYPE	SOLARWORLD 225 POLY
QUANTITY	44 MODULES
SOURCE CIRCUITS	(4) TOTAL
JUNCTION BOXES	(1) TOTAL
INVERTERS	(1) TOTAL

1 ELECTRICAL NOTES  
 E.1 SCALE: N/A

2 ELECTRICAL PLAN  
 E.1 SCALE: 1/8" = 1' - 0"



DESIGN

**Christenson**  
 ELECTRICAL POWER & TECHNOLOGICAL SERVICES  
 111 SW Clatsop Street, Ste. 480  
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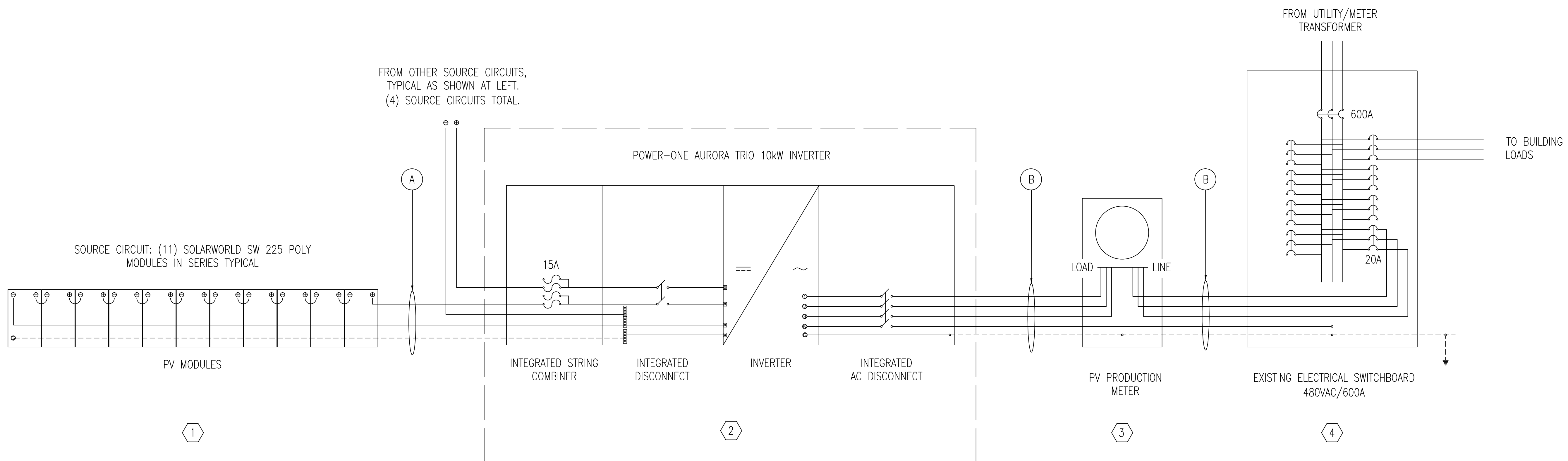
GRAND CENTRAL BAKING COMPANY  
 PHOTOVOLTAIC PROJECT  
 2249 NW York  
 Portland, Oregon 97210

Sheet Title:  
 ELEC NOTES +  
 PLAN

Date: 02/24/2012  
 CEI Project No.  
 CEI Project Manager: JZ  
 Designed By: KK  
 Drawn By: KK  
 Checked By:  
 Project Type: 230

Sheet Number:

E.1



FROM OTHER SOURCE CIRCUITS,  
TYPICAL AS SHOWN AT LEFT.  
(4) SOURCE CIRCUITS TOTAL.

SOURCE CIRCUIT: (11) SOLARWORLD SW 225 POLY  
MODULES IN SERIES TYPICAL

**SHEET NOTES**

- 1 SOLARWORLD 225 POLY PV MODULES W/ MC TYPE 4 CONNECTORS. GROUNDING W/ WEEB GROUNDING CLIPS TO RAILS, GROUNDING LUGS ON RAILS AND CONNECTED TO INVERTER GROUND LUG. FURNISHED BY CEI.
- 2 POWER-ONE AURORA TRIO 10kW INVERTER W/ INTEGRATED STRING COMBINER & DC/AC DISCONNECTS (PVI-10.0-I-OUTD-S2-US-408-NG W/ STRING COMBINER) - (1) TOTAL INVERTERS. SEE DATASHEET FOR DETAILED BLOCK DIAGRAM. FURNISHED BY CEI.
- 3 PV PRODUCTION METER (COOPER B-LINE 1171B) - METER BASE TO BE FURNISHED BY CEI, METER TO BE FURNISHED & INSTALLED BY UTILITY.
- 4 EXISTING ELECTRICAL SWITCHBOARD (EATON POW-R-LINE) - 480Y/277V, 600A, 20A/3P CIRCUIT BREAKER (EATON FD3020) FOR PV SYSTEM FURNISHED BY CEI.

TABLE A: PV SOURCE CIRCUIT CONDUCTOR & CONDUIT IDENTIFICATION

CONDUCTOR LOCATION A	# OF MODULES IN SERIES	Isc (A)	Imp (A)	Voc (VDC)	Vmp (VDC)	MAX. ONE WAY LENGTH (FT.)	VOLTAGE DROP %	CURRENT CARRYING CONDUCTOR SIZE	CONDUCTOR TYPE	BONDING CONDUCTOR	CONDUIT
MODULES TO INVERTER	11	8.17	7.63	447.5	324.5	100'-0"	0.60%	#10	USE-2	#6	N/A

TABLE B: INVERTER OUTPUT CIRCUIT CONDUCTOR & CONDUIT IDENTIFICATION

CONDUCTOR LOCATION	NOMINAL VOLTAGE (VAC)	PHASES	GENERATION AMPACITY (A)	DISTANCE	VOLTAGE DROP %	CURRENT CARRYING CONDUCTOR SIZE	CONDUCTOR TYPE	GROUNDING CONDUCTOR	CONDUIT
B	480	3	14.0	20'-0"	0.20%	#12	THWN-2	#6	½" EMT

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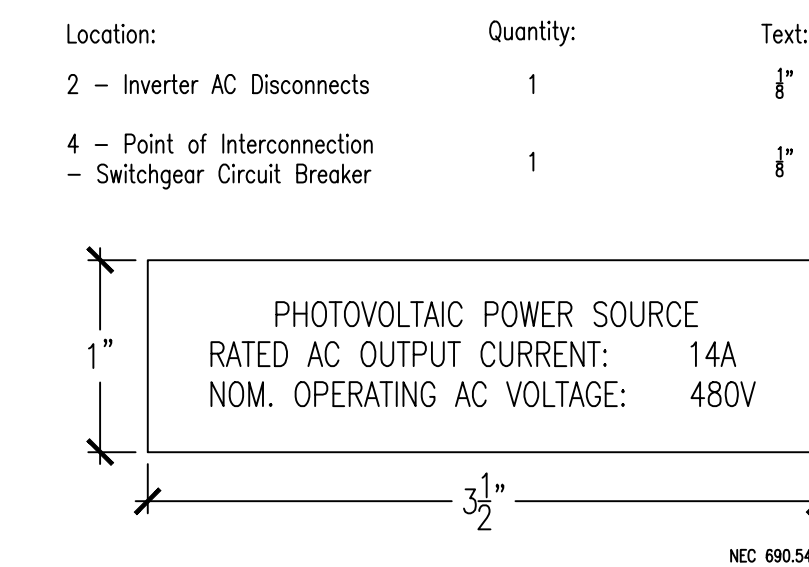
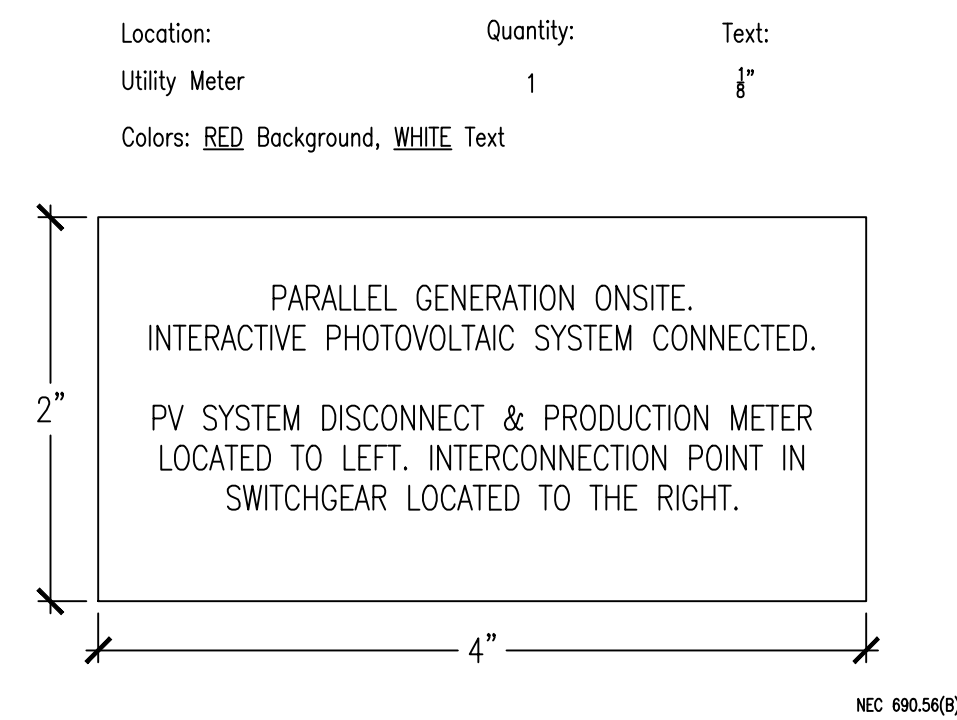
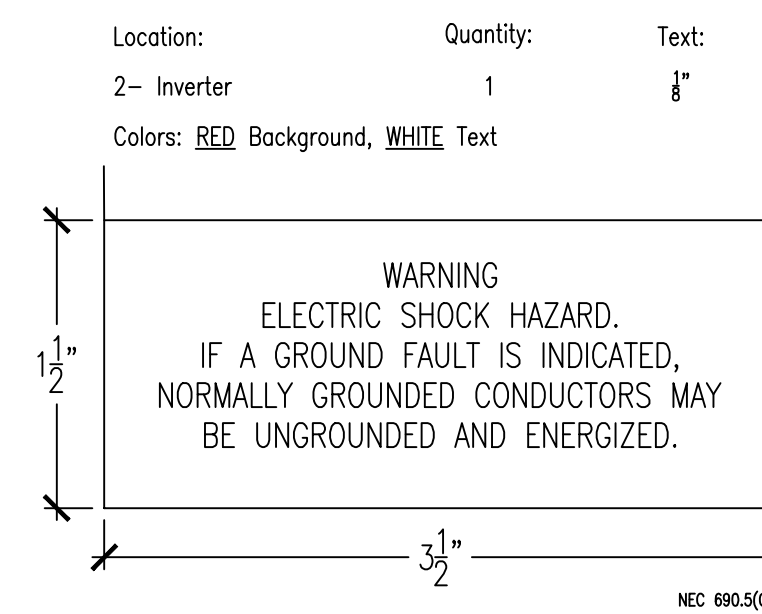
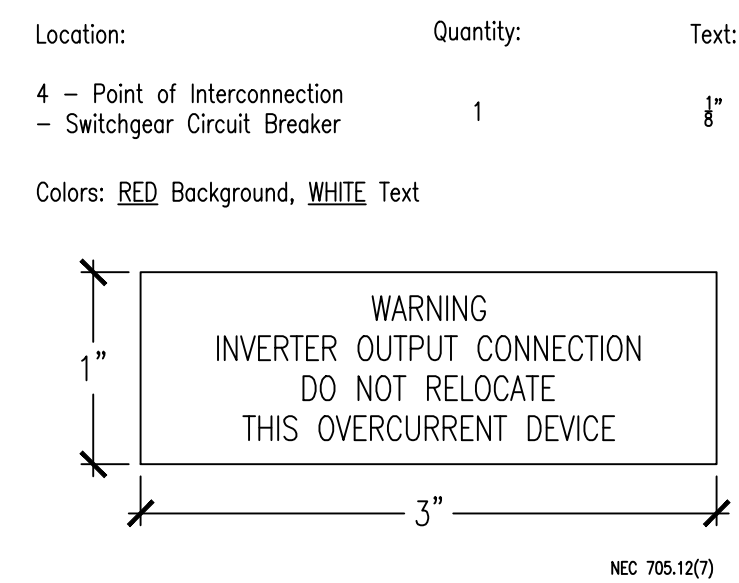
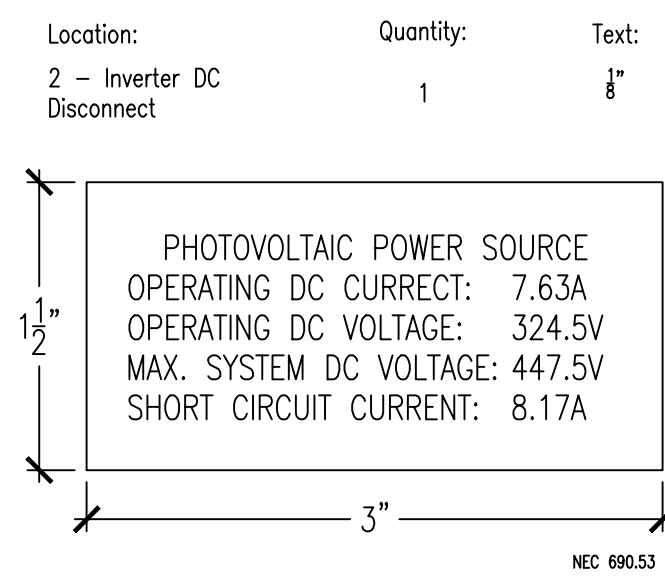
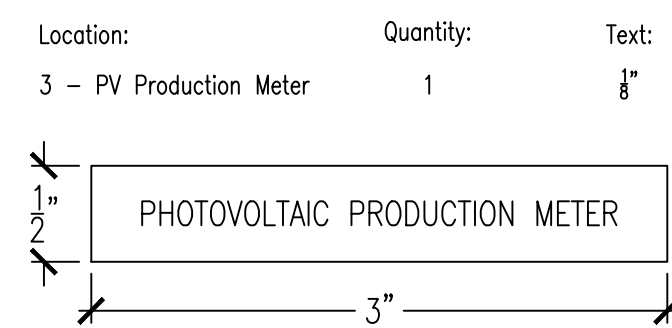
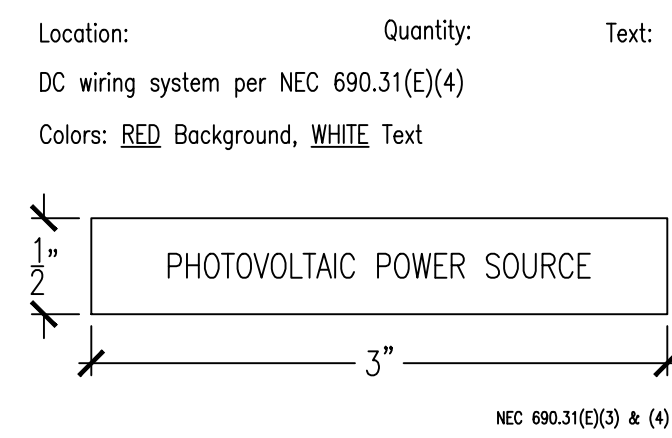
**GRAND CENTRAL BAKING COMPANY  
PHOTOVOLTAIC PROJECT**  
2249 NW York  
Portland, Oregon 97210

Sheet Title:  
**ELEC DIAGRAM**

Date: 02/24/2012  
CEI Project No.  
CEI Project Manager: JZ  
Designed By: KK  
Drawn By: KK  
Checked By:  
Project Type: 230

Sheet Number:





ALL TEXT UNLESS SPECIFIED TO BE:  
COLOR: WHITE TEXT, BLACK BACKGROUND  
MATERIAL: ABS UV  
FONT: ARIAL

1 SIGNAGE  
E.3 SCALE: 1" = 1"

Revisions:

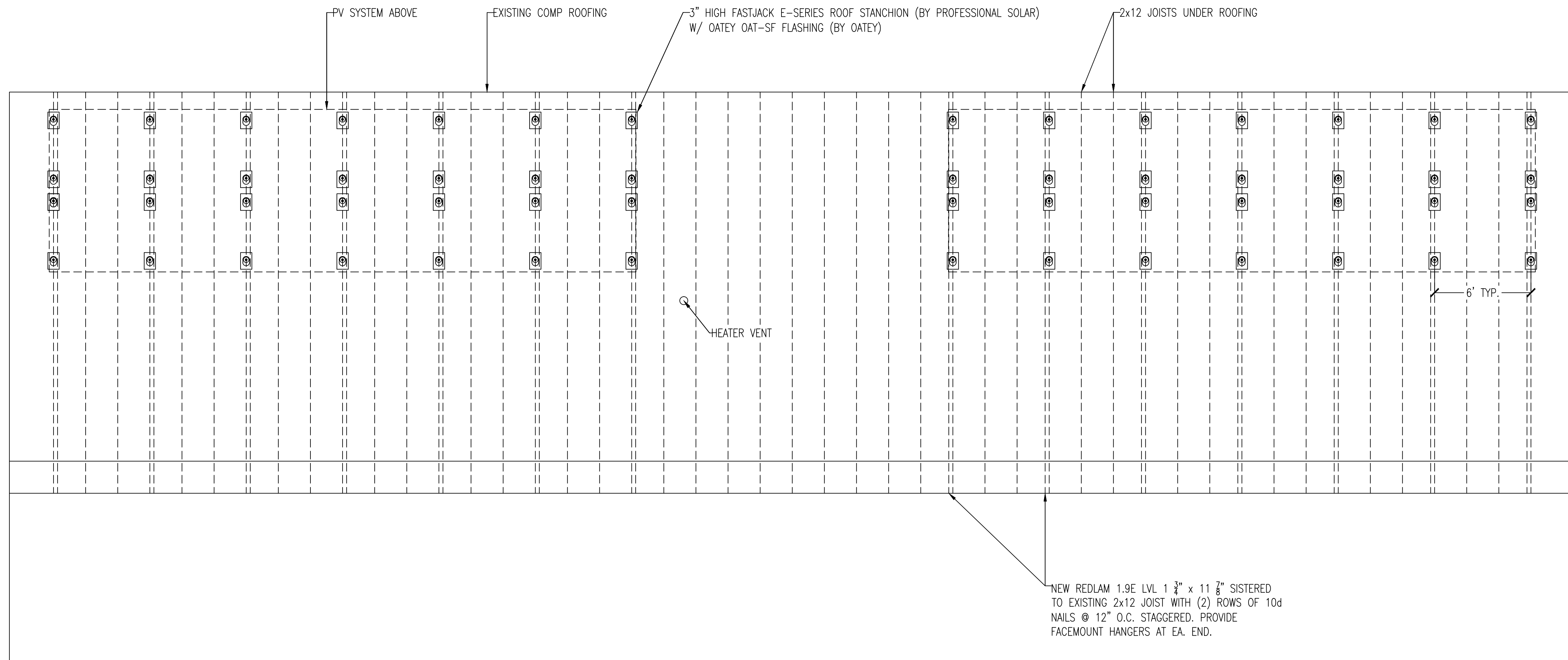
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Sheet Title:  
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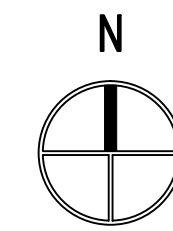
Date: 02/24/2012  
CEI Project No.  
CEI Project Manager: JZ  
Designed By: KK  
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Project Type: 230

Sheet Number:

**E.3**



1 RACKING SUPPORT  
S.1 SCALE: 1/8" = 1' - 0"



Revisions:

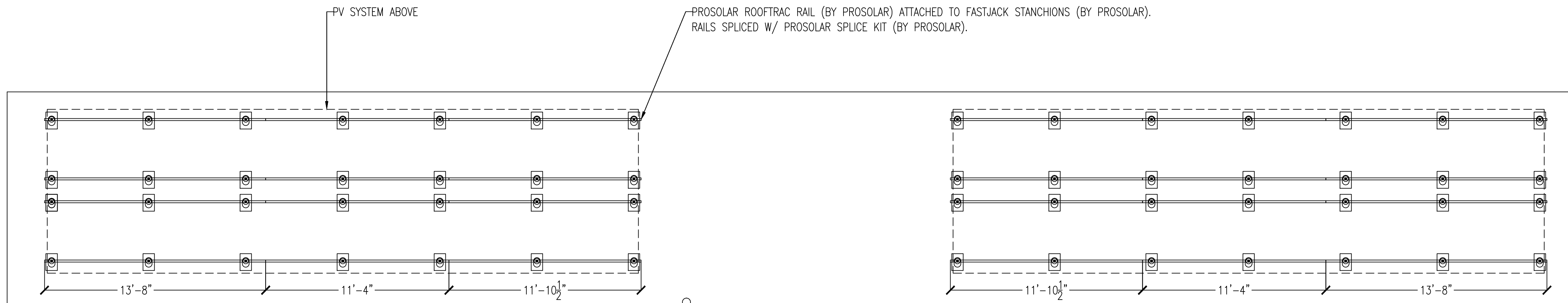
GRAND CENTRAL BAKING COMPANY  
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Sheet Title:  
RACKING SUPPORT

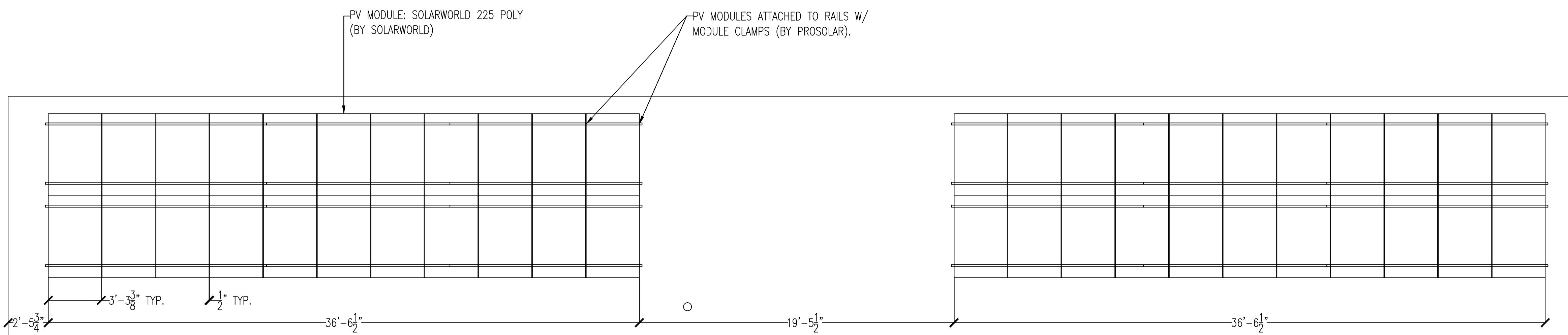
Date: 02/24/2012  
CEI Project No.  
CEI Project Manager: JZ  
Designed By: KK  
Drawn By: KK  
Checked By:  
Project Type: 230

Sheet Number:

S.1

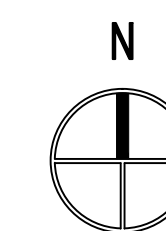


1 RAIL LAYOUT  
S.2 SCALE: 1/4" = 1' - 0"



2 MODULE LAYOUT  
S.2 SCALE: 1/4" = 1' - 0"

SYSTEM DESCRIPTION	
MODULE TYPE	SOLARWORLD 225 POLY
QUANTITY	44 MODULES
SYSTEM SIZE	9.9 kW DC STC
TILT ANGLE	24°
AZIMUTH	180°



Revisions:

GRAND CENTRAL BAKING COMPANY  
PHOTOVOLTAIC PROJECT  
2249 NW York  
Portland, Oregon 97210

Sheet Title:  
RAIL + MODULE  
LAYOUT

Date: 02/24/2012  
CEI Project No.  
CEI Project Manager: JZ  
Designed By: KK  
Drawn By: KK  
Checked By:  
Project Type: 230

Sheet Number:

S.2



Revisions:

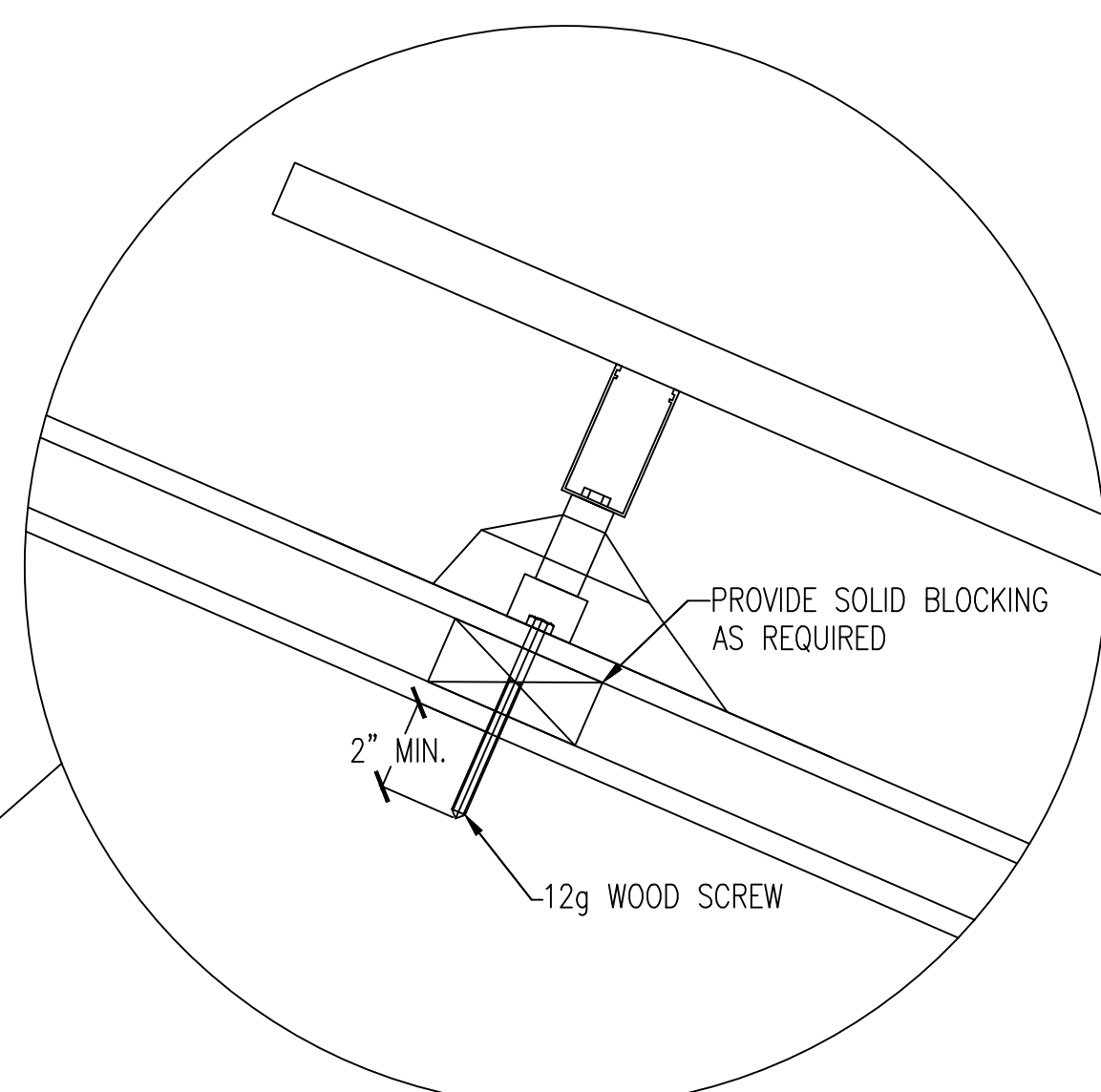
**GRAND CENTRAL BAKING COMPANY  
PHOTOVOLTAIC PROJECT**  
2249 NW York  
Portland, Oregon 97210

Sheet Title:  
**RACKING DETAILS**

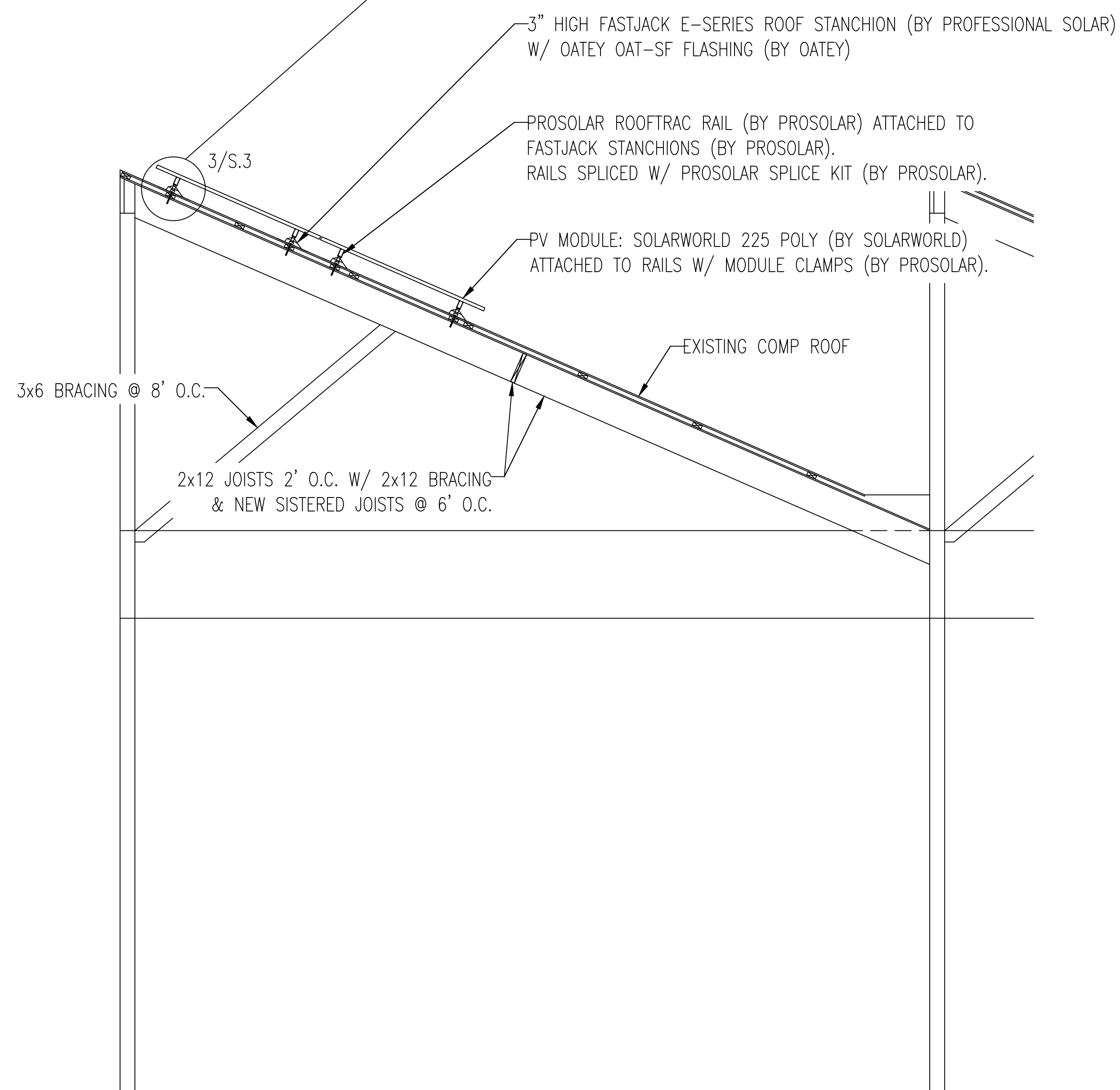
Date: 02/24/2012  
CEI Project No.  
CEI Project Manager: JZ  
Designed By: KK  
Drawn By: KK  
Checked By:  
Project Type: 230

Sheet Number:

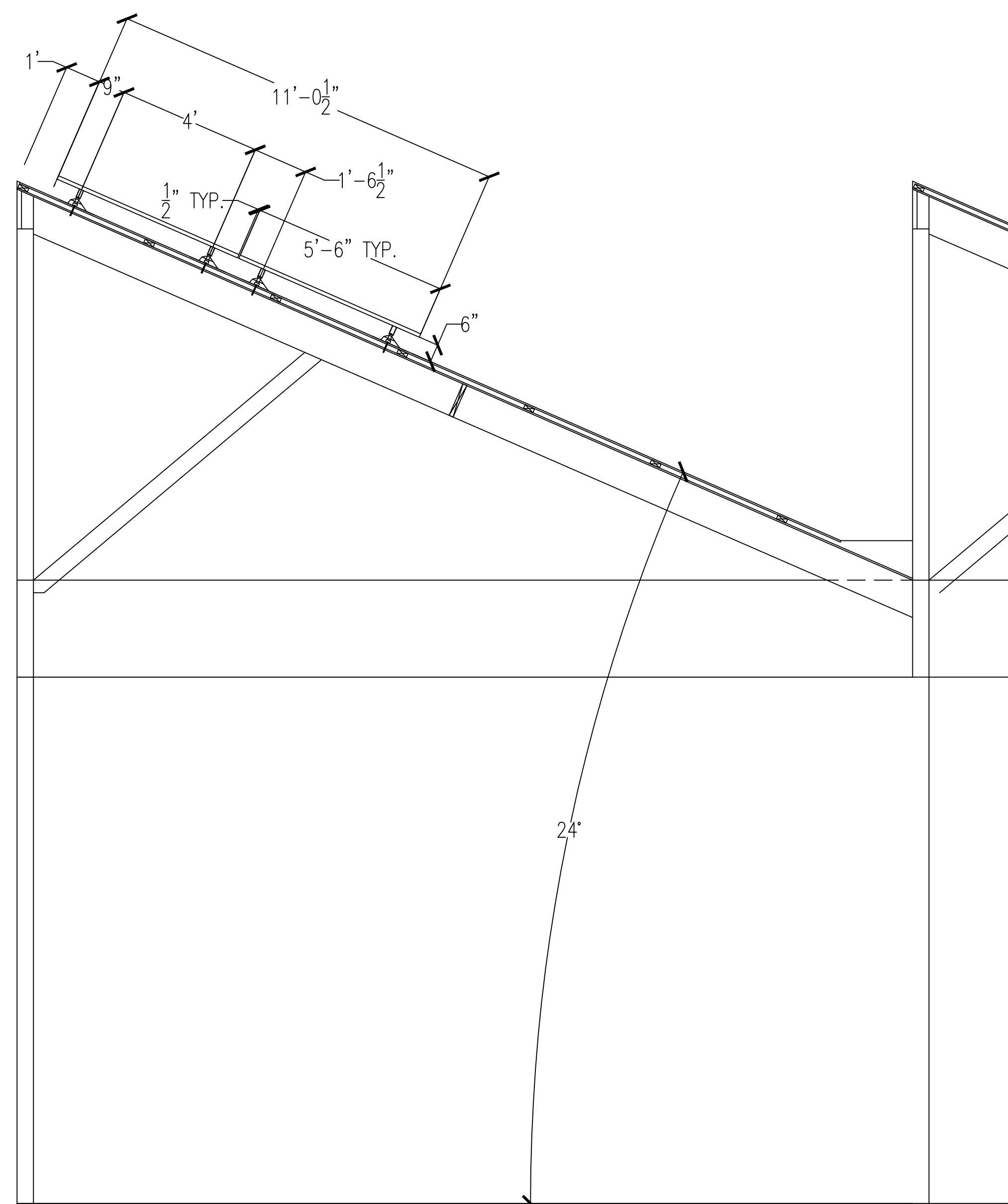
**S.3**



**3 DETAILS**  
S.3 SCALE: 3" = 1' - 0"



**1 WEST ELEVATION (NOTES)**  
S.3 SCALE: 3/8" = 1' - 0"



**2 WEST ELEVATION (DIMS)**  
S.3 SCALE: 3/8" = 1' - 0"



**Building Permit Application**  
**City of Portland, Oregon - Bureau of Development Services**

1900 SW 4th Avenue, Portland, Oregon 97201 • 503-823-7310 • TTY 503-823-6868 • www.portlandoregon.gov/bds

**Type of work**

- New construction                       Addition/alteration/replacement  
 Demolition                                       Other:

**Category of construction**

- 1 & 2 family dwelling                       Commercial/industrial                       Accessory building  
 Multifamily                                       Master builder                                       Other:

**Job site information and location**

Job no.: 24554      Job address: 2249 NW York  
 City/State/ZIP: Portland, OR 97210  
 Suite/bldg./apt. no.:      Project name: Grand Central Baking Solar Array  
 Cross street/directions to job site: NW 22nd Ave.  
 Subdivision:      Lot no.      Tax map/parcel no.

**Description of work**

Install racking and structural supports for PV array on roof

- Reference RS / Combination      Permit no. \_\_\_\_\_  
 **Property owner**                       **Tenant**

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City/State/ZIP: \_\_\_\_\_  
 Phone: \_\_\_\_\_      FAX: \_\_\_\_\_  
 Owner installation: This installation is being made on property that I own, which is not intended for sale, lease, rent, or exchange.  
 Owner signature: \_\_\_\_\_      Date: \_\_\_\_\_

**Contractor**

Business name: Christenson Electric, Inc.  
 Address: 111 SW Columbia, Suite 480  
 City/State/ZIP: Portland, OR 97201  
 Phone: 503.419.3300      FAX: 503.419.3695  
 CCB lic. no. 458  
 Authorized signature: *Robert Dwyer*      Date: \_\_\_\_\_  
 Print name: \_\_\_\_\_      Date: \_\_\_\_\_

- Applicant**                                       **Contact Person**

Business name: Christenson Electric, Inc.  
 Contact name: Jeff Zimmerman  
 Address: \_\_\_\_\_  
 City/State/ZIP: \_\_\_\_\_  
 Phone: 503.419.3643      FAX: 503.419.3743  
 E-mail: jeff.zimmerman@christenson.com  
 Authorized signature: \_\_\_\_\_  
 Print name: \_\_\_\_\_      Date: \_\_\_\_\_

This permit application expires if a permit is not obtained within 180 days after it has been accepted as complete.

**Office Use Only**

Permit no: \_\_\_\_\_  
 Date received: \_\_\_\_\_  
 By: \_\_\_\_\_

**Required Data: One and Two Family Dwelling**

Permit fees\* are based on the value of the work performed. Indicate the value (rounded to the nearest dollar) of all equipment, materials, labor, overhead, and the profit for the work indicated on this application.

Valuation:	
Number of bedrooms:	
Number of bathrooms:	
Total number of floors:	
New dwelling area:	square feet
Garage/carport area:	square feet
Covered porch area:	square feet
Deck area:	square feet
Other structure area:	square feet

**Required Data: Commercial Use**

Permit fees\* are based on the value of the work performed. Indicate the value (rounded to the nearest dollar) of all equipment, materials, labor, overhead, and the profit for the work indicated on this application.

Valuation:	\$15,503
Existing building area:	square feet
New building area:	square feet
Number of stories:	
Type of construction:	
Occupancy groups	
Existing:	
New:	

**Notice**

All contractors and subcontractors are required to be licensed with the Oregon Construction Contractors Board under ORS 701 and may be required to be licensed in the jurisdiction in which work is being performed. If the applicant is exempt from licensing, the following reasons apply.

**Statement of Fact:** I certify that the facts and information set forth in this application are true and complete to the best of my knowledge. I understand that any falsification, misrepresentation or omission of fact (whether intentional or not) in this application or any other required document, as well as any misleading statement or omission, may be cause for revocation of permit and/or certificate of occupancy, regardless of how or when discovered.

**Building Permit Fees\***

Please refer to fee schedule

Fees due upon application	\$1,047.46
Amount received	
Date received	

Sub-contractor information can be faxed to 503-823-7693.



**Renewable Electrical Energy Permit Application**  
**City of Portland, Oregon - Bureau of Development Services**

1900 SW 4th Avenue, Portland, Oregon 97201 • 503-823-7363 • FAX 503-823-4172 • TTY 503-823-6868 • www.portlandoregon.gov/bds

Type of work	
<input type="checkbox"/> New construction	<input checked="" type="checkbox"/> Addition/alteration/replacement
<input type="checkbox"/> Demolition	<input type="checkbox"/> Other:
Category of construction	
<input type="checkbox"/> 1 & 2 family dwelling	<input checked="" type="checkbox"/> Commercial/Industrial
<input type="checkbox"/> Multifamily	<input type="checkbox"/> Accessory building
<input type="checkbox"/> Master builder	<input type="checkbox"/> Other:
Job site information and location	
Job no.: 24554	Job address: 2249 NW York
City/State/ZIP: Portland, OR 97210	
Suite/bldg./apt. no.:	Project name: Grand Central Baking Co. PV Array
Cross street/directions to job site: NW 22nd Ave.	
Subdivision:	Lot no.
Tax map/parcel no.	
Description of work	
Install 9.9kW Solar array on roof, interconnect to building electrical system	
<input type="checkbox"/> Reference RS / Combination	Permit no.
<input checked="" type="checkbox"/> Property owner <input type="checkbox"/> Tenant	
Name:	
Address:	
City/State/ZIP:	
Phone:	FAX:
Owner installation: This installation is being made on property that I own, which is not intended for sale, lease, rent, or exchange.	
Owner signature:	Date:
<input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Subcontractor	
Business name: Christenson Electric, Inc.	
Address: 111 SW Columbia, Suite 480	
City/State/ZIP: Portland, OR 97201	
Phone: 503.419.3300	FAX: 503.419.3695
Elec. lic. no. 26-34C	CCB lic. no. 458
Metro or City lic no. 8737	Date:
Supervising electrician Signature, required:	
Print name:	License no. 62155
Authorized signature: <i>Robert Brune</i>	
Print name:	Date:
<input type="checkbox"/> Applicant <input checked="" type="checkbox"/> Contact Person	
Business name: Christenson Electric, Inc.	
Contact name: Jeff Zimmerman	
Address:	
City/State/ZIP:	
Phone: 503-419-3643	FAX:
E-mail: jeff.zimmerman@christenson.com	

This permit application expires if a permit is not obtained within 180 days after it has been accepted as complete.

Fee Schedule				
Description	Qty.	Fee	Total	**
<b>Renewable energy installation per system total</b>				
5 kva or less		\$130		2
5.01 to 15 kva	1	\$186	186.	2
15.01 to 25 kva		\$243		2
<b>Miscellaneous</b>				
Describe:				
Hourly rate:		\$151		
<b>Each additional inspection over allowable in any of the above</b>				
Per inspection		\$92		
Investigation fee				
Other				
<b>Electrical permit fees*</b>				
Subtotal			186.00	
Plan review (25% of permit fee)				
State surcharge (12% of permit fee)			22.32	
<b>TOTAL PERMIT FEE</b>			<b>208.32</b>	

\*\* Number of inspections allowed per permit.

RS Permit/No Fees Due

Sub-contractor information can be faxed to 503-823-7693.



# Product Proposal/Purchase Agreement

<b>PA No.</b>	<b>Date</b>
Q-157159	2/28/2012

<b>Project</b>	<b>Proj. No.</b>	<b>Payment Terms</b>	<b>Shipments</b>
Grand Central Banking	076867	Cash in Advance	0
<b>Customer</b>	<b>Phone</b>	<b>Tech. Rep.</b>	<b>Phone</b>
		Schubert, Dave	(503) 819-4424
<b>Address</b>	<b>Fax</b>	<b>Address</b>	<b>Fax</b>
		Dave Schubert 19363 Willamette Drive #344 West Linn OR 97068RICE	(971) 285-9048

**Sales Terms**

This proposal is subject to the TERMS AND CONDITIONS OF SALES available at [www.RedBuilt.com](http://www.RedBuilt.com), and is effective for 15 days after the date shown. If accepted within that period, the prices shown are guaranteed for all materials delivered within 120 days from acceptance. Thereafter, prices are subject to change. Expedited services may result in additional costs. Price is F.O.B. truck bed jobsite based on the assumed number of shipments indicated. No on-site assembly, erection, or truck unloading is included. This Purchase Agreement includes materials only. Design calculations and product placement diagrams are NOT included with this order. Sales and use tax are not included in the total price unless shown otherwise, but will be added to the invoice when applicable. PAYMENT TERMS are listed above and are subject to approved credit.

**Scope of Work / Project Notes**

price per list below.  
Price is FOB Stayton plant, OR.

Description	Pieces	Length	Total
1.75"x11.875" 2.0E RedLam LVL	14	25	350 1
<b>Total</b>			<b>\$1,575.00</b>

RedBuilt Representative \_\_\_\_\_ (Date)

Purchaser \_\_\_\_\_ (Date)