

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



# CITY OF PORTLAND

# BUILDING PERMIT

This is to certify that EAST BROWN COW MANAGEMENT

Located At 425 FORE ST

Job ID: 2012-03-3585-ALTCOMM

CBL: 032- I-041-001

has permission to Add 120 Solar (PV) panels to parking garage roof

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

\_\_\_\_\_  
**Fire Prevention Officer**

 5/1/12  
\_\_\_\_\_  
**Code Enforcement Officer / Plan Reviewer**

**THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY  
PENALTY FOR REMOVING THIS CARD**

**City of Portland, Maine - Building or Use Permit Application**

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No: 2012-03-3585-ALTCOMM	Date Applied: 3/23/2012	CBL: 032- 1-041-001	
Location of Construction: 425 FORE ST	Owner Name: EAST BROWN COW MANAGEMENT	Owner Address: 100 COMMERCIAL ST PORTLAND, ME 04101	Phone: 207-650-0606
Business Name:	Contractor Name: Revision Energy - Jen Hatch	Contractor Address: 142 Presumpscot St., Portland, ME 04103	Phone: (207) 221-6342
Lessee/Buyer's Name:	Phone:	Permit Type: BLDG - Building	Zone: B-3
Past Use: Parking Garage	Proposed Use: Parking Garage - install 120 solar electric panels to existing roof structure	Cost of Work: 110000.00 Fire Dept: <input checked="" type="checkbox"/> Approved w/ conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A Signature: <i>By Andrew J. (SB)</i>	CEO District: Inspection: Use Group: S-2 Type: N/A IBC-2009 Signature: <i>[Signature]</i> 5/1/12
Proposed Project Description: Adding Solar panels to roof structure		Pedestrian Activities District (P.A.D.)	
Permit Taken By:	<b>Zoning Approval</b>		

1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
2. Building Permits do not include plumbing, septic or electrical work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work.

**Special Zone or Reviews**

- Shoreland  
 Wetlands  
 Flood Zone  
 Subdivision  
 Site Plan  
  
 Maj  Min  MM

Date: 3/26/12 OK  
*ABM***CERTIFICATION****Zoning Appeal**

- Variance  
 Miscellaneous  
 Conditional Use  
 Interpretation  
 Approved  
 Denied

Date:

**Historic Preservation**

- Not in Dist or Landmark  
 Does not Require Review  
 Requires Review  
 Approved  
 Approved w/Conditions  
 Denied

Date: 4/30/12

*D. Andrews*

SIGNATURE OF APPLICANT

ADDRESS

DATE

PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE

DATE

PHONE

## BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: [buildinginspections@portlandmaine.gov](mailto:buildinginspections@portlandmaine.gov)

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

Electrical prior to close in if needed

Final Inspection

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.



# PORTLAND MAINE

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Acting Director of Planning and Urban Development  
Gregory Mitchell

Job ID: 2012-03-3585-ALTCOMM

Located At: 425 FORE ST

CBL: 032- I-041-001

## **Conditions of Approval:**

### **Fire**

1. Installation shall comply with City Code Chapter 10.
2. Installation shall comply with NFPA 70, *National Electrical Code*, and the manufacturer's published instructions.

### **Building**

1. Application approval based upon information provided by applicant. Any deviation from approved plans requires separate review and approval prior to work.
2. Equipment shall be installed in compliance with the manufacturer's specifications and the UL listing.
3. Separate permits are required for any electrical, plumbing, sprinkler, fire alarm, HVAC systems, heating appliances, including pellet/wood stoves, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.

### **Historic**

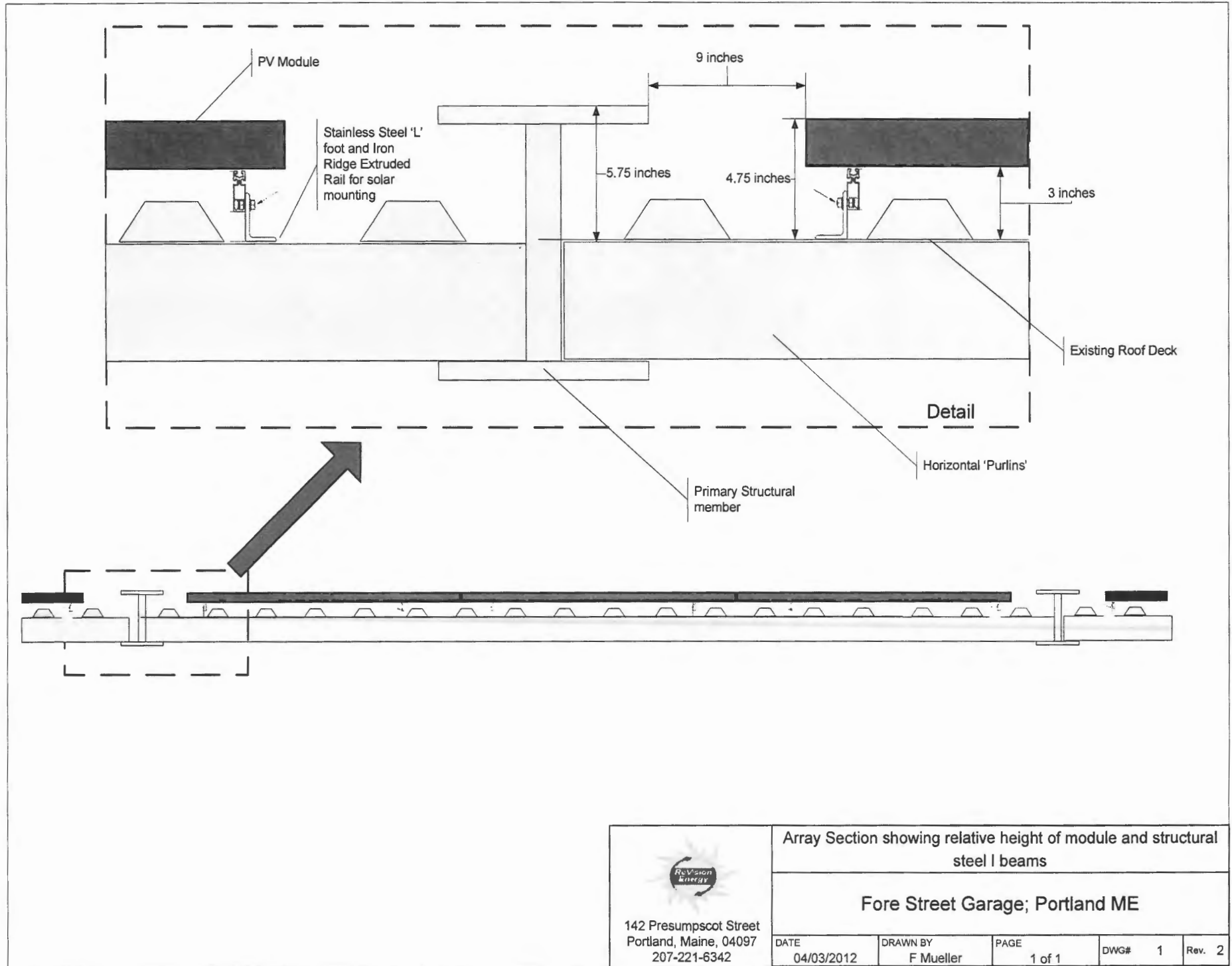
1. All panels, including those installed on the taller roof plane, to be installed in the same orientation/direction.
2. Panels to be installed between—not overlapping—projecting ribs of roof, as per attached computer generated photo and detail dated 4/03/12.
3. Exposed areas of underlying roofing to be repainted in advance of installing the panels


Approved  
installation  
method, as  
per HD  
conditions of  
approval -

See also  
detn 2

PUBLIC P

EXIT



 142 Presumpscot Street Portland, Maine, 04097 207-221-6342	Array Section showing relative height of module and structural steel I beams			
	Fore Street Garage; Portland ME			
DATE	DRAWN BY	PAGE	DWG#	Rev.
04/03/2012	F Mueller	1 of 1	1	2



# General Building Permit Application

ID#: 2012-03-3585-ALT COMM

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

425

Location/Address of Construction: <u>427 Fore Street</u>		
Total Square Footage of Proposed Structure/Area	Square Footage of Lot	Number of Stories
Tax Assessor's Chart, Block & Lot Chart#      Block#      Lot#	Applicant * <b>must be owner, Lessee or Buyer*</b> Name <u>EAST Brown Cow Management</u> Address <u>100 Commercial St # 36</u> City, State & Zip <u>Portland, ME 04101</u>	Telephone: <u>650-0606</u> <u>Todd Dominski</u>
032      1041		
Lessee/DBA (If Applicable)	Owner (if different from Applicant) Name <u>1,100</u> <u>109,000</u> Address <u>30</u> <u>1090</u> City, State & Zip <u>1,130</u> <u>30</u> <u>1120</u>	Cost Of <u>110,000</u> Work: \$ <u>109,860</u> C of O Fee: \$ _____ Total Fee: \$ <u>1130</u>
Current legal use (i.e. single family) <u>parking garage</u> Number of Residential Units _____		
If vacant, what was the previous use? _____		
Proposed Specific use: _____		
Is property part of a subdivision? _____ If yes, please name _____		
Project description: <u>Adding 120 solar electric panels to existing structure.</u>		
<b>RECEIVED MAR 23 2012</b> Dept. of Building Inspections City of Portland, Maine		
Contractor's name: <u>REVISION ENERGY</u>		
Address: <u>142 PRESUMPTOT ST</u>		
City, State & Zip: <u>PORTLAND, ME 04103</u>		Telephone: _____
Who should we contact when the permit is ready: <u>Jen Hatch</u>		Telephone: <u>221-6342</u>
Mailing address: <u>above</u>		

Please submit all of the information outlined on the applicable Checklist. Failure to do so will result in the automatic denial of your permit.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at [www.portlandmaine.gov](http://www.portlandmaine.gov), or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature: [Signature]      Date: 3/23/2012

**This is not a permit; you may not commence ANY work until the permit is issued**



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## Receipts Details:

**Tender Information:** Check , Check Number: 25098  
**Tender Amount:** 55.00

## Receipt Header:

**Cashier Id:** bsaucier  
**Receipt Date:** 3/23/2012  
**Receipt Number:** 42161

## Receipt Details:

Referance ID:	5795	Fee Type:	BP Elec Comm
Receipt Number:	0	Payment Date:	
Transaction Amount:	55.00	Charge Amount:	55.00
Job ID: Job ID: 2012-03-3585-ALTCOMM - Adding Solar panels to roof			
Additional Comments: 425 Fore; 2 of 3 (same charge)			

**Thank You for your Payment!**





Professional design, installation and service of renewable energy systems

March 23, 2012

City of Portland  
389 Congress Street  
Portland, ME 04101

RE: ReVision Energy Solar Installation at Fore Street Garage  
Address: 427 Fore Street

Dear Code Enforcement,

ReVision Energy has been contracted to design and install a solar electric (PV) system at the Fore Street Garage, at the above address in Portland. This letter is to confirm that all work will be performed by licensed and qualified installers, expert in the field and in compliance with both manufacturer's recommendations and all applicable local and state codes and standards. This also confirms that the roof structure can handle the weight of the panel load, in addition to snow load. The weight of the panels does not change the structural integrity of the building.

ReVision Energy employs licensed engineers, plumbers, and electricians and carries the solar industries highest certifications (NABCEP) in both solar thermal and photovoltaic installation. We're committed to high quality, code compliant work and look forward to working together with the city and the CEO to ensure that all your requirements and needs are met and that our customer ends up with a system that is beautiful, functional and safe.

Electrical and grounding:

All electrical work to be performed by a licensed ME electrician and will conform to NEC 2011 revision as well as NABCEP standards. Specifically, wiring and grounding of the photovoltaic system will be governed by manufacturer's recommendations and article 690. All installed metal components are grounded via the grounding electrode conductor.

If you have any questions or concerns, we'd like to address them as quickly and completely as possible. Please don't hesitate to call or e mail anytime.

Respectfully,

  
Fortunat Mueller, P.E.

Co-owner

ReVision Energy

(207) 752-6358

fortunat@revisionenergy.com

---

**Bangor**  
207-570-4222

**Liberty**  
207-589-4171

**Portland**  
207-221-6342

**Portsmouth**  
603-486-7170





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## 28.8 Kilowatt Grid-Tied Photovoltaic System Proposal

Client: East Brown Cow  
 Address: Fore Street Garage, Portland, ME  
 Date: March 1, 2012



**Array Location**

**Roof Orientation:**  
 165 degrees  
 (south-southeast)

**Array Pitch:**  
 Attached directly to  
 existing metal awning  
 deck ~ 35 degree angle

### Project Summary

System	Performance	Cost	Incentives	Net Cost
28.8 kilowatt solar electric array coupled with Solectria grid tied inverters.	<ul style="list-style-type: none"> <li>Produce roughly 37,760 kilowatt hours of clean, renewable electricity annually.* <i>Based on PV watts</i></li> <li>Offset roughly 50,600 lbs. of CO2 emissions annually.</li> </ul>	\$109,860 Installed	<b>30% fed tax credit</b> -(\$32,958)  <b>5yr Depreciation*</b> -(\$28,014*)  <b>State Rebate</b> -(\$2,000) <small>* assumes 30% tax rate</small>	\$46,888

### System Overview

Based on an evaluation of the building's electrical infrastructure, electricity demand and ideal solar gain, ReVision Energy is proposing a 28.8 kw grid-tied solar electric system for the Fore Street Garage in Portland, Maine. The system will generate approximately 37,760 kilowatt hours of electricity annually (**or roughly enough energy to drive a Chevy Volt 151,000 miles per year**) and eliminating approximately 50,600 pounds of CO2 emissions per year. The solar

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array will be mounted on the existing metal awnings which face Fore Street and will cover nearly the entire surface of that roof.

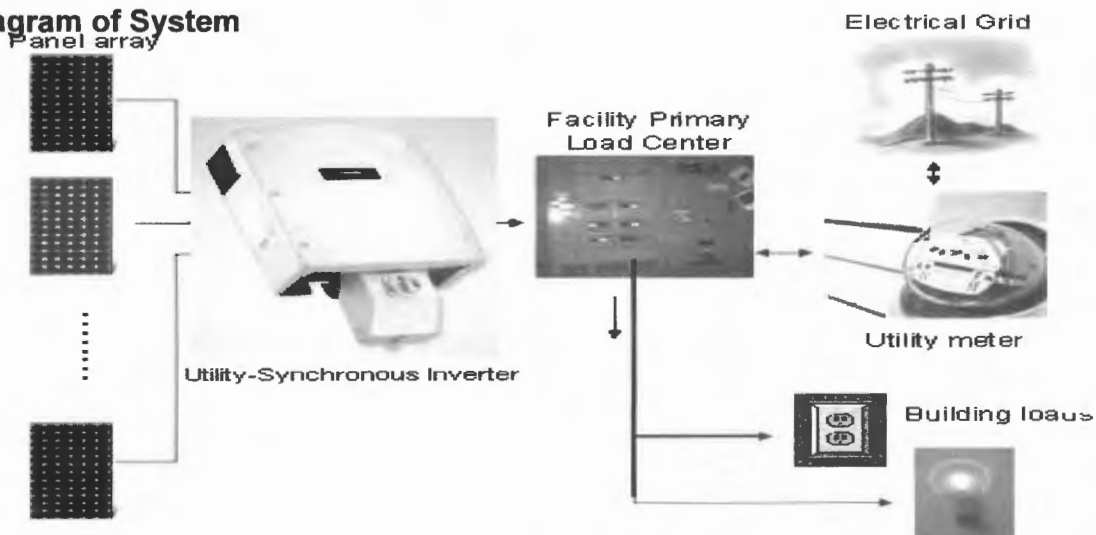
### Array Layout

The solar electric system consists of two major components; the solar panels (or photovoltaic array) and the inverters. The system is comprised of 120 individual panels with a rated power of 240 watts each. Using stainless steel hardware, the panels will be mounted on extruded aluminum rail which will be fastened to the existing steel roof and structure.

### System Operation

The panels are wired in a series, parallel arrangement to a pair of inverters which is in turn connected to the facility's load centers as shown below. Whenever the sun is shining, the panels produce direct current (DC) electricity. This electricity is wired in conduit to the inverters which converts the panels' DC current to AC current at the voltage and waveform to match the incoming utility. In most cases, this electricity will then be fed directly to the various building loads which are in operation at the time (lighting, water heating, etc.). In the case when the solar system is producing more electricity than the building is using, the excess will be fed back through the buildings' electrical meter and onto the electrical grid. Your utility company will install a meter capable of recording the surplus power production, which will result in carry-forward credits on the utility billing. The credits, at full retail value, can be carried forward for 13 months, after which any unused credits expire.

### Block Diagram of System



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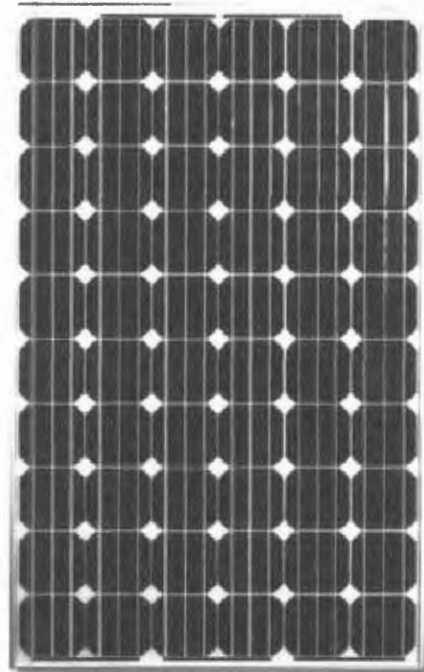
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## Component Specification

### Photovoltaic Panels

The array consists of 120 - 240 watt panels wired in a series, parallel arrangement to match the voltage and current requirements of the inverters. The panels are manufactured for Canadian Solar ([www.canadiansolar.com](http://www.canadiansolar.com))

Canadian Solar was founded in Canada in 2001 and has a strong history of very high production quality combined with very high module performance. The modules carry a 25 year power production warranty and are expected to continue to produce power over five decades.



The system will use a pair of Solectria PVI inverters (one 10 kW and one 15 kW inverter). The Solectria PVI inverter is US made (right in Massachusetts) and the five year warranty provides for in-the-field replacement for any service issue, minimizing downtime, should there ever be a fault. The inverters take the DC power from the panels and convert it to Alternating Current (AC). This AC power is then fed to the house load center and provides power for the buildings loads. The inverter is a world leader in efficient design, with over 95% peak efficiency for the inverter, and overall efficiency including transformer losses, in excess of 92%. An advanced MPPT (Maximum Power Point Tracking) algorithm maximizes PV array output in a variety of sunlight conditions.

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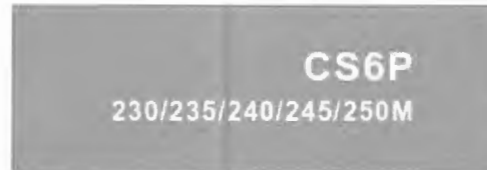
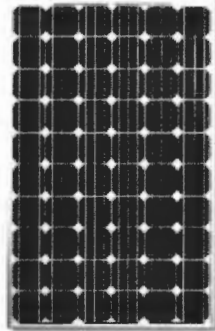
**Exeter, NH**  
(603) 501-1822

[www.revisionenergy.com](http://www.revisionenergy.com)



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## Component Specifications



### On-grid Module

CS6P is a robust 60-watt module with 60 solar cells. These modules can be used for on-grid solar applications. Our meticulous design and production techniques ensure a high-yield, long-term performance for every module produced. Our rigorous quality control and in-house testing facilities guarantee Canadian Solar's modules meet the highest quality standards possible.

### Key Features

- Industry first comprehensive warranty insurance by AM Best rated leading insurance companies in the world
- Industry leading plus only power tolerance 0 - +3W
- Strong framed module, passing mechanical load test of 5400Pa to withstand heavier snow load
- The 1st manufacturer in the PV industry certified for ISO TS16949 (The automotive quality management system) in module production since 2003
- ISO 17025 qualified manufacturer owned testing lab fully complying to IEC, TUV, UL testing standards
- Backed By Our New 10/25 Linear Power Warranty Plus our added 25 year insurance coverage



- 10 year product warranty on materials and workmanship
- 25 year linear power output warranty

### Applications

- On-grid residential roof tops
- On-grid commercial residential load
- Solar power stations
- Other on-grid applications

### Quality Certificates

- IEC 61215 IEC 61730 UL 791 CEUL listed M.S.C.E
- ISO 9001:2008 Standard for quality management systems
- ISO TS16949:2009 The automotive quality management system

### Environmental Certificates

- ISO 14001:2004 Standards for Environmental management systems
- QC030000 HSPM The Certification for Hazardous Substances Regulation
- Reach Compliance



[www.canadiansolar.com](http://www.canadiansolar.com)

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# CS6P-230/235/240/245/250M

## Electrical Data

STC	CS6P-230M	CS6P-235M	CS6P-240M	CS6P-245M	CS6P-250M
Nominal Maximum Power (Pmax)	230W	235W	240W	245W	250W
Optimum Operating Voltage (Vmp)	29.9V	30.1V	30.2V	30.3V	30.4V
Optimum Operating Current (Imp)	7.70A	7.82A	7.95A	8.09A	8.22A
Open Circuit Voltage (Voc)	37.1V	37.2V	37.3V	37.4V	37.5V
Short Circuit Current (Isc)	8.22A	8.34A	8.46A	8.61A	8.74A
Module Efficiency	14.30%	14.61%	14.92%	15.23%	15.54%
Operating Temperature	-40°C~+85°C				
Maximum System Voltage	1000V (IEC) /600V (UL)				
Maximum Series Fuse Rating	15A				
Application Classification	Class A				
Power Tolerance	0 ~ +5W				

Under Standard Test Conditions (STC) of irradiance of 1000W/m<sup>2</sup>, spectrum AM 1.5 and cell temperature of 25°C

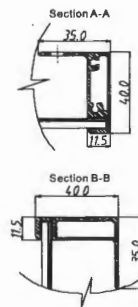
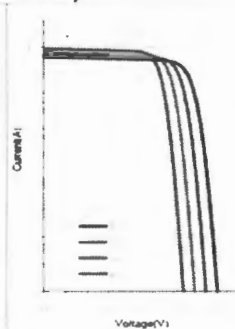
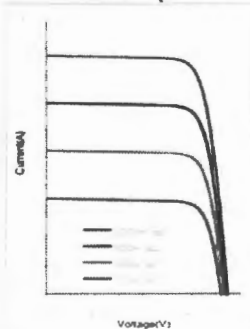
NOCT	CS6P-230M	CS6P-235M	CS6P-240M	CS6P-245M	CS6P-250M
Nominal Maximum Power (Pmax)	166W	170W	173W	177W	180W
Optimum Operating Voltage (Vmp)	27.3V	27.5V	27.5V	27.6V	27.7V
Optimum Operating Current (Imp)	6.09A	6.18A	6.29A	6.40A	6.51A
Open Circuit Voltage (Voc)	34.0V	34.1V	34.2V	34.3V	34.4V
Short Circuit Current (Isc)	6.65A	6.75A	6.85A	6.97A	7.08A

Under Normal Operating Cell Temperature, Irradiance of 800 W/m<sup>2</sup>, spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s

## Mechanical Data

Cell Type	Mono-crystalline 156 x 156mm, 2 or 3 Busbars
Cell Arrangement	60 (6 x 10)
Dimensions	1638 x 982 x 40mm (64.5 x 38.7 x 1.57in)
Weight	20kg (44.1 lbs)
Front Cover	3.2mm Tempered glass
Frame Material	Anodized aluminium alloy
J-BOX	IP65, 3 diodes
Cable	4mm <sup>2</sup> (IEC)/12AWG(UL), 1100mm
Connectors	MC4 or MC4 Comparable
Standard Packaging (Modules per Pallet)	24pcs
Module Pieces per container (40 ft. Container)	672pcs (40'HQ)

## I-V Curves (CS6P-250M)



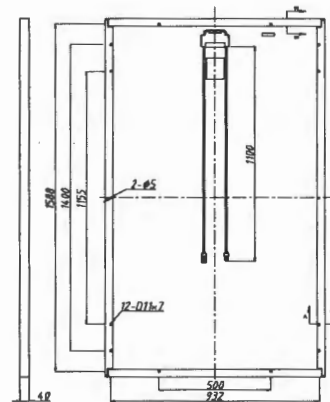
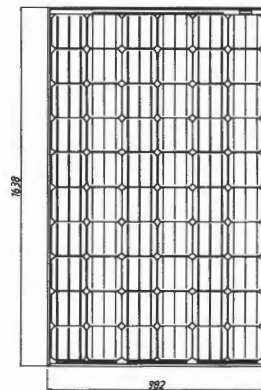
## Temperature Characteristics

Temperature Coefficient	Pmax	-0.45%/°C
	Voc	-0.35%/°C
	Isc	0.060%/°C
Normal Operating Cell Temperature	45±2°C	

## Performance at Low Irradiance

Industry leading performance at low irradiation environment, +95.5% module efficiency from an irradiance of 1000w/m<sup>2</sup> to 200w/m<sup>2</sup> (AM 1.5, 25 °C)

## Engineering Drawings



\*Specifications included in this datasheet are subject to change without prior notice.

## About Canadian Solar

Canadian Solar Inc. is one of the world's largest solar companies. As a leading vertically-integrated manufacturer of ingots, wafers, cells, solar modules and solar systems. Canadian Solar delivers solar power products of uncompromising quality to worldwide customers. Canadian Solar's world class team of professionals works closely with our customers to provide them with solutions for all their solar needs.

Canadian Solar was founded in Canada in 2001 and was successfully listed on NASDAQ Exchange (symbol: CSIQ) in November 2006. Canadian Solar has already expanded its module manufacturing capacity to 2.05GW and cell manufacturing capacity to 1.3GW in 2011.

Headquarters | 650 Riverbend Drive, Suite B  
Kitchener, Ontario | Canada N2K 3S2  
Tel: +1-519-954-2057  
Fax: +1-519-578-2097  
inquire.ca@canadiansolar.com  
www.canadiansolar.com

RECEIVED  
APR 12 2012  
Dept. of Building Inspections  
City of Portland Maine





Professional design, installation and service of renewable energy systems



COMMERCIAL INVERTERS

PVI 10KW  
PVI 13KW  
PVI 15KW

- FEATURES**
- Three-phase 3-Phase inverter
  - Industrial grade
  - Real-time monitoring
  - 100 VAC, 240 VAC, 480 VAC or 600 VAC
  - IP65 rating
  - User friendly LCD display
  - Compact in wall mount configuration
- OPTIONS**
- Remote monitoring
  - Forward facing & reverse facing
  - Web-based monitoring



*In Electrical Room*

### 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 100 VAC, 240 VAC, 480 VAC, and 600 VAC versions and offers standard with integrated AC and DC disconnects, SPD fuses, and monitoring gateway. Options include an integrated fire protection, wind string combiner, forward facing disconnects, and web-based monitoring.



 Built for the real world

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**Portland, ME**  
(207) 221-6342

**Exeter, NH**  
(603) 501-1822

[www.revisionenergy.com](http://www.revisionenergy.com)





# Professional design, installation and service of renewable energy systems

SPECIFICATIONS	PV5-20KW	PV5-15KW	PV5-10KW
<b>DC Array</b>			
Maximum Maximum Power Point		~1000W	
Maximum Voltage (Voc)		~1000V	
Maximum Current (Imp)	~20A	~15A	~10A
<b>AC Output</b>			
AC Output Voltage		~240V AC	
AC Output Power (Max)		~15KW	
Efficiency	~95%	~95%	~95%
Grid Tied	Yes	Yes	Yes
Grid Voltage	~120V	~240V	~240V
Grid Frequency	~60Hz	~60Hz	~60Hz
Grid Phase	~1-Phase	~3-Phase	~3-Phase
Grid Metering	Yes	Yes	Yes
Grid Metering Interval	~15min	~15min	~15min
Grid Metering Accuracy	~±0.5%	~±0.5%	~±0.5%
Grid Metering Resolution	~1kWh	~1kWh	~1kWh
Grid Metering Range	~0-10000kWh	~0-10000kWh	~0-10000kWh
Grid Metering Accuracy Class	~Class 1	~Class 1	~Class 1
<b>Monitoring</b>			
Monitoring System	~SolarEdge	~SolarEdge	~SolarEdge
Monitoring Interval	~15min	~15min	~15min
Monitoring Accuracy	~±0.5%	~±0.5%	~±0.5%
Monitoring Resolution	~1kWh	~1kWh	~1kWh
Monitoring Range	~0-10000kWh	~0-10000kWh	~0-10000kWh
<b>Setting &amp; Configuration</b>			
Grid Voltage	~120V	~240V	~240V
Grid Frequency	~60Hz	~60Hz	~60Hz
Grid Phase	~1-Phase	~3-Phase	~3-Phase
Grid Metering	Yes	Yes	Yes
Grid Metering Interval	~15min	~15min	~15min
Grid Metering Accuracy	~±0.5%	~±0.5%	~±0.5%
Grid Metering Resolution	~1kWh	~1kWh	~1kWh
Grid Metering Range	~0-10000kWh	~0-10000kWh	~0-10000kWh
Grid Metering Accuracy Class	~Class 1	~Class 1	~Class 1



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## IRONRIDGE XR ROOF MOUNT PLATFORM

### KEY FEATURES

- ◆ Extruded aluminum components are lightweight for easy handling yet strong enough for most roof mount applications
- ◆ Choice of XRL (lightweight) and XRS (standard) rails
- ◆ Both XRL and XRS rails come with slots for attaching L-feet and top slots for attaching panel clamps
- ◆ XRS rails has slot for bottom mounting clamps
- ◆ Hidden internal splice bars are aesthetically pleasing
- ◆ Internal splices provide superior strength and flexibility with L-feet placement
- ◆ Adjustable L-feet have vertical extension slots for easy adjustability of up to 1-3/8"
- ◆ Standoffs provide increased airflow and ventilation and enable precise placement of flashings
- ◆ Standoffs come in four standard heights: 3", 4", 6", and 7"
- ◆ XR platform compatible with popular flashings including QuickMount and Oatey
- ◆ Panel clamps for both top and bottom mounting
- ◆ Panel clamps for most popular photovoltaic modules
- ◆ Mid-clamp design maximizes panel density
- ◆ Ground clips eliminate the need for copper wire between modules
- ◆ The XR Roof Mount components are covered with an industry-leading 10 year limited product warranty and a 5 year limited finish warranty
- ◆ All XR Roof Mount components are PE certified



The IronRidge XR platform is a reliable, comprehensive, and feature rich photovoltaic mounting solution. Anchored by the XRS (Standard) and XRL (Light) rails, the XR platform includes all of the components necessary for supporting virtually any commercial or residential roof mount installation, regardless of surface material or roof grade.

The XRS and XRL rails are manufactured from extruded aluminum to maximize spans while minimizing weight for improved handling. The graceful curves of the XRS rail will please even the most aesthetically demanding customers. Rails can be extended with the IronRidge patent-pending internal splice bars, providing a strong support connection and ultimate flexibility in footing attachment locations. Installers have a variety of options in attaching IronRidge rails to the roof, including adjustable L-feet, aluminum standoffs, and tilt legs for optimizing power. In addition, IronRidge accommodates modules from most major manufacturers. Top-down panel clamps securely grip the outside frame of the module, freeing the installer from the constraints of panel mounting holes. The XRS rail has an additional side slot to enable the option of bottom mounting. Lastly, grounding clips pierce the anodized rails, creating a ground path through the equipment and eliminating the need to run copper wire between every module.

IronRidge provides a complete technical support system that includes step-by-step installation guides, engineering certification documentation, easy-to-read span charts, and on-line configurator software.

See reverse for product specifications and ordering information. Please contact your local distributor for configuration assistance.



# PORTLAND MAINE

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## Receipts Details:

**Tender Information:** Check , Check Number: 25098

**Tender Amount:** 1130.00

## Receipt Header:

**Cashier Id:** bsaucier

**Receipt Date:** 3/23/2012

**Receipt Number:** 42159

## Receipt Details:

Referance ID:	5794	Fee Type:	BP-Constr
Receipt Number:	0	Payment Date:	
Transaction Amount:	1120.00	Charge Amount:	1120.00
Job ID: Job ID: 2012-03-3585-ALTCOMM - Adding Solar panels to roof			
Additional Comments: 425 Fore			

Referance ID:	356	Fee Type:	MISC-Over Payment
Receipt Number:	0	Payment Date:	
Transaction Amount:	10.00	Charge Amount:	10.00
Job ID: Miscellaneous charges			