DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING PERMIT

This is to certify that MICHAEL F CONLEY **Located At** 116 PENNELL AVE

Job ID: 2012-09-5076-SF **CBL:** 347- A-002-001

has permission to twelve electric panels on roof, grid connected

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 **Code Enforcement Officer / Plan Reviewer**

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

BUILDING PERMIT INSPECTION PROCEDURES

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

or email: 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.**

Footings/Setbacks prior to pouring concrete

Close In Elec/Plmb/Frame prior to insulate or gyp

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

Strengthening a Remarkable City, Building a Community for Life • *www.portlandmaine.gov*

Director of Planning and Urban Development
Jeff Levine

Job ID: 2012-09-5076-SF **Located At:** 116 PENNELL AVE **CBL:** 347- A-002-001

Conditions of Approval:

Building

Equipment shall be installed in compliance with the manufacturer's specifications and the UL listing.

City of Portland, Maine - Building or Use Permit Application

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

Job No:	Date Applied:	CBL:	
2012-09-5076-SF	9/28/2012	347- A-002-001	
Location of Construction: 116 PENNELL AVE	Owner Name: MICHAEL F CONLEY	Owner Address: 116 PENNELL AVE PORTLAND, ME 04103	Phone:
Business Name:	Contractor Name: ReVision Energy	Contractor Address: 91 W MAIN ST LIBERTY MAINE 04949	Phone: (207) 221-6342
Lessee/Buyer's Name:	Phone:	Permit Type: BLDG ALT	Zone: R-3
Past Use: Single Family Dwelling	Proposed Use: Same: Single Family Dwelling – to install 12 solar electric panels on existing roof	Cost of Work: $14,000.00	CEO District:
		Fire Dept: ___ Approved ___ Denied ___ N/A Signature:	Inspection: Use Group: R-3 Type: 5B HVAC Signature:
Proposed Project Description: twelve electric panels on roof, grid connected		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Gayle			

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 electrial work.
3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
___ Shoreland	___ Variance	✓ Not in Dist or Landmark
___ Wetlands	___ Miscellaneous	___ Does not Require Review
___ Flood Zone	___ Conditional Use	___ Requires Review
___ Subdivision	___ Interpretation	___ Approved
___ Site Plan	___ Approved	___ Approved w/Conditions
___ Maj ___ Min ___ MM	___ Denied	___ Denied
Date: 10/1/12	Date:	Date:

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the appication is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT ADDRESS DATE PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE DATE PHONE

R-3

General Building Permit Application

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.

2012 09 5076

Location/Address of Construction: 116 Pennell Ave		
Total Square Footage of Proposed Structure/Area	Square Footage of Lot	Number of Stories
Tax Assessor's Chart, Block & Lot Chart# Block# Lot# 347 A 002 RECEIVED	Applicant: (must be owner, lessee or buyer) Name ReVision Energy Address 142 Presumpscot St City, State & Zip Portland, ME 04103	Telephone: 221-6342
Lessee/DBA SEP 28 2012 Dept. of Building Inspections City of Portland Maine	Owner: (if different from applicant) Name Michael Corley Address 116 Pennell Ave City, State & Zip PORTLAND, ME	Cost of Work: $13,305 C of O Fee: $ Historic Review: $ Planning Amin.: $ Total Fee: $ 160.00

Current legal use (i.e. single family) single family 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: solar electric panels on roof of building
12 panels grid connected

Contractor's name: ReVision Energy Email:

Address: 142 Presumpscot St

City, State & Zip PORTLAND, ME 04103 Telephone: 221-6342

Who should we contact when the permit is ready: Jen Hatch Telephone:

Mailing address:

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, or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

and 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: J Hatch Date: 9/28/2012

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

Professional design, installation and service of renewable energy systems

September 26, 2012

City of Portland
389 Congress Street
Portland, ME 04101

RE: ReVision Energy Solar Installation at 116 Pennel Ave

Dear Code Enforcement,

ReVision Energy has been contracted to design and install a solar electric (PV) system 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

ARRAY ORIENTATION:
236° (True)

ARRAY PITCH:
22° angle

Full array build-out (24 panels) shown at left. Both upper and lower sections have twelve panels. Panels may be installed in stages to meet increasing fraction of the electric load.

Project Summary

System	Performance	Cost	Incentives	Net Cost
Grid-tied photovoltaic array with CSI modules and Enphase micro-inverters	• Produce roughly 3,368 kWhrs of clean, renewable energy annually. • Offset roughly 4,379 lbs. of CO2 emissions annually.	$13,305 Installed	-($3,992) 30% Federal Tax Credit -($1,700) Rebate from Efficiency Maine	$7,614

Economic & Environmental Return on Investment

The system we are proposing is guaranteed to pay for itself by harvesting abundant solar energy to replace finite, polluting and increasingly costly fossil fuels. Once you get 100% of your initial investment returned through government financial incentives and energy savings, the system will continue to deliver a revenue stream for decades to come. Plus, the system will eliminate thousands of pounds of CO2 emissions each year, delivering a powerful environmental benefit.

ReVision Energy's mission is to eliminate over-reliance on fossil fuels and the associated emissions. We are succeeding in this mission by installing solar energy systems that are as robust and reliable as traditional mechanical systems. To ensure maximum performance and longevity in a harsh climate, each system is designed by our in-house engineers (Brown, Dartmouth, MIT, UNH) and installed by our experienced team of certified solar professionals. Please join us in the mission to create a clean energy future--we promise to deliver the peace of mind that comes from knowing you have made one of the best investments of your life.

Major System Components

Based on a professional evaluation of your available roofspace, site configuration, and energy demand, ReVision Energy proposes a roof-mounted photovoltaic array of 3.12 kilowatts (nominal).

The system features these major components:

- (12) American-Made Suniva 260 watt monosilicon photovoltaic panels; Optimus Series: 260-60-4-100 or equivalent (http://www.suniva.com)
- (12) Enphase Energy M215 microinverters (http://enphase.com)
- (1) Enphase Envoy Energy Management Unit, which enables remote data monitoring
- (131) Feet of Iron Ridge extruded aluminum solar mounting rail with hardware
- (1) Flashed Metallic Junction Box

System Operation

Whenever sun shines on the solar electric panels, they will generate direct current (DC) electricity. That DC electricity is converted to AC electricity by individual Enphase inverters, affixed to the underside of each panel. The advantage of microinverters is that the output of the rest of the array is not affected if a portion of panels are shaded.

The AC electricity created by the inverters will then feed directly into the building's load center. Any electric loads (TV, dryer, electronics, etc.) operating while the sun is shining will use available solar electricity, any excess will be exported to the grid.

Whenever the sun is not out, you will continue to purchase grid electricity as you do now. The local utility company will record electricity you feed into the grid. If at the end of the month your generation is greater than your consumption, you will earn a credit on your next bill. You can bank your surplus from month to month for up to a year.

System Diagram

1 - EnPhase Microinverters

Micro-inverters are installed beneath each rooftop solar panel, maximize energy harvest

2 - Envoy Gateway

Performance of individual panels are send to you as well as ReVision Energy in real-time using the Internet

3 - Enlighten Software

Real-time web based monitoring allows you to evaluate system performance. Also available on mobile devices.

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Receipts Details:

Tender Information: Check , BusinessName: Visa, Check Number: 7701
Tender Amount: 160.00

Receipt Header:

Cashier Id: gguertin
Receipt Date: 10/1/2012
Receipt Number: 48806

Receipt Details:

Referance ID:	8207	Fee Type:	BP-Constr
Receipt Number:	0	Payment Date:	
Transaction Amount:	160.00	Charge Amount:	160.00
Job ID: Job ID: 2012-09-5076-SF - twelve electric panels on roof, grid connected			
Additional Comments: 116 Pennell Ave., Revision Energy			

Thank You for your Payment!

Buying American product
from an American company
just makes sense.

Suniva®
The Brilliance of Solar Made Sensible

SUNIVA® OPTIMUS™ 260 MONOCRYSTALLINE SOLAR MODULES

OPT260-60-4-1B0

The Optimus™ modules consist of Suniva's latest technology: ARTisun® Select. These superior monocrystalline cells are designed and manufactured in the U.S.A. using our proprietary low-cost processing techniques. Engineered with our pioneering ion implantation technology, high power-density Optimus™ modules provide excellent value, performance and reliability.

Certifications[1]:

UL 1703 · IEC 61215 61730-2 · CEC · FSEC · AS5033 Compliant

Engineering Excellence

- Built exclusively with Suniva's highest-efficiency ARTisun® Select cells, providing one of the highest power outputs per square meter at an affordable cost
- Suniva's state-of-the-art manufacturing facility features the most advanced equipment and technology
- Suniva® is a U.S.-based company spun out from the Georgia Tech University Center of Excellence in Photovoltaics (one of only two such research centers in the U.S.)
- Ask about our Buy America compliant modules

Features

- Delivers module efficiency conversion of 16.0+%
- Offers one of the tightest power tolerances in the industry
- Resists corrosion using marine grade aluminum with anodized coating
- More power per module saves on Balance of System costs; Ask about our Balance of Systems Solutions (BOSS)
- Provides industry-leading 25-year warranty (10 year warranty on workmanship and materials; 25 year linear performance warranty delivering 80% power at STC)

Quality & Reliability

Suniva® Optimus™ modules are manufactured and warranted to our specifications assuring consistent high performance and quality worldwide. Our specifications include:

- Rigorous quality management
- Performance longevity with advanced polymer backsheet
- Mechanical and electrical tests and visual inspections
- System design services available
- Produced in an ISO 9001:2008 certified facility

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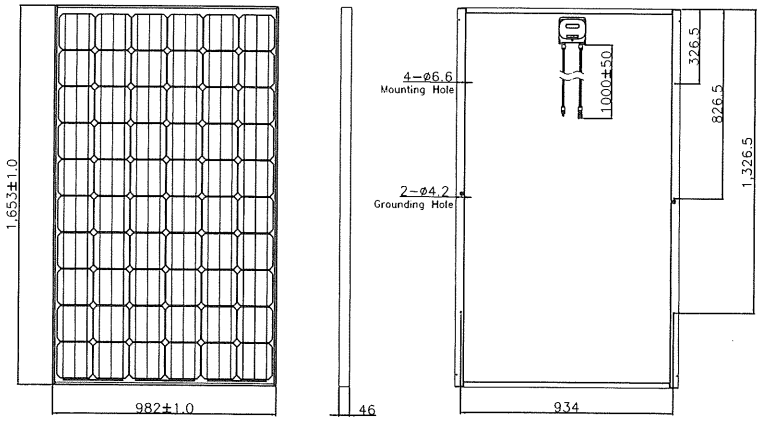
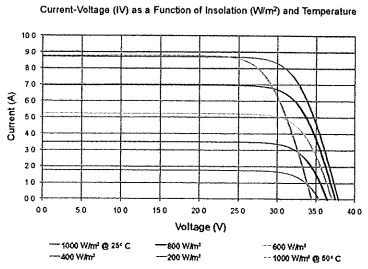
SUNIVA® OPTIMUS™ 260 MONOCRYSTALLINE SOLAR MODULES





[2] Tolerances ± 1 mm
Hole Tolerances Vary
Dimensions in mm

ELECTRICAL DATA (NOMINAL)

The electrical data apply to standard test conditions (STC): Irradiance of 1000 W/m² with AM 1.5 spectra at 25°C.

Power Classification (Max.)	Pmax (W)	250	255	260
Voltage at Max. Power Point	Vmp (V)	30.00	30.20	30.50
Current at Max. Power Point	Imp (A)	8.34	8.45	8.52
Open Circuit Voltage	Voc (V)	37.80	38.10	38.30
Short Circuit Current	Isc (A)	8.90	8.96	9.01

The rated power may vary by ± 2.5 Wp and all other electrical parameters by ± 5%

DIMENSIONS AND WEIGHT

Cells / Module	60
Module Dimensions	1653 x 982 mm; 65.08 x 38.66 in.
Module Thickness (Depth)	46 mm; 1.81 in.
Approximate Weight	18.69 kg; 41.22 lbs.

CHARACTERISTIC DATA

Type of Solar Cell	High-efficiency Suniva® ARTisun® Select monocrystalline cells of 156 x 156 mm
Frame	Black anodized aluminum alloy
Glass	Anti-reflective coating, tempered and low-iron
Junction Box	IP65 rated; IEC & UL listed; with internal bypass diodes
Cable & Connectors	4 mm² cable with Tyco connectors; cable length approximately 1 m
Hardware Included	(2) #10 32 x 0.5" (12.7 mm) grounding screws (4) 0.2"ID x 0.394"OD x 0.030" (5 x 10 x 1 mm) stainless steel flat washers

TEMPERATURE COEFFICIENTS

Voltage	ß, Voc (%/°C)	-0.335
Current	α, Isc (%/°C)	+0.047
Power	γ, Pmax (%/°C)	-0.450
NOCT Avg	(+/- 2 °C)	46.0

LIMITS

Max. System Voltage	1000 VDC for IEC (600 VDC for UL)
Operating Module Temperature	-40°C to +90°C
Storm Resistance/Static Load	Tested to IEC 61215 for loads up to 5400 Pa

Suniva® reserves the right to change the data at any time.
[1]Some certifications may be pending.
[2]View manual at suniva.com/ourproducts.php

Please recycle.

09/29/11

11-13-12 GF SC PASS FINAL