DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING PERMIT

This is to certify that DIANE M DOMBROWSKI Located At 27 VESPER ST

Job ID: 2012-04-3755-ALTR CBL: 003- F-018-001

has permission to Install solar water heater on 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 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.**

Required Inspections:

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.

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:	
2012-04-3755-ALTR	**4/11/2012**	**003- F-018-001**	
Location of Construction: **27 VESPER ST**	Owner Name: **DIANE M DOMBROWSKI**	Owner Address: **27 VESPER ST PORTLAND, ME 04101**	Phone: **221-6342**
Business Name:	Contractor Name: **Jennifer Hatch @ REVISION ENERGY**	Contractor Address: **142 PRESUMPSCOT ST PORTLAND MAINE 04103**	Phone: **(207) 221-6342**
Lessee/Buyer's Name:	Phone:	Permit Type: **BLDG SOLAR PANELS**	Zone: **R-6**
Past Use: **Single Family Dwelling**	Proposed Use: **Same: Single Family Dwelling – to install solar hot water panels on roof with hot water tank**	Cost of Work: **$11,000.00**	CEO District:
		Fire Dept: ___ Approved ___ Denied ___ N/A Signature:	Inspection: Use Group: R-3 Type: HVAC Signature:
Proposed Project Description: **Solar water tank install on Roof**		Pedestrian Activities District (P.A.D.)	
Permit Taken By: Brad		**Zoning Approval**	

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.

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: OK 4/12/12	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

Entered 4/11/12 (5)

owes Taxes

Plumbing Permit: 201242812

General Building Permit Application

ID 2012 04 3755 ALTR

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.

R-6

Location/Address of Construction: 27 Vesper St		
Total Square Footage of Proposed Structure/Area	Square Footage of Lot	Number of Stories
Tax Assessor's Chart, Block & Lot Chart# 003 Block# F Lot# 018 ~~017~~	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 RECEIVED APR 11 2012 Dept. of Building Inspections City of Portland Maine	Owner: (if different from applicant) Name Diane Dombrowski Address 27 Vesper St City, State & Zip Portland, ME 04101	Cost of Work: $ 11000 C of O Fee: $ _____ Historic Review: $ _____ Planning Amin.: $ 30.00 Total Fee: $ _____

Current legal use (i.e. single family) _____ Number of Residential Units 1

If vacant, what was the previous use? _____

Proposed Specific use: _____

Is property part of a subdivision? _____ If yes, please name _____

Project description: Solar hot water panels on roof; heating hot water tank

Contractor's name: ReVision Energy Email: jen@revisionenergy.com

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: above

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: 4/10/2012

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

PORTLAND MAINE

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

Receipts Details:

Tender Information: Check , Check Number: 86062
Tender Amount: 180.00

Receipt Header:

Cashier Id: bsaucier
Receipt Date: 4/11/2012
Receipt Number: 42813

Receipt Details:

Referance ID:	6062	Fee Type:	BP-Permit
Receipt Number:	0	Payment Date:	
Transaction Amount:	130.00	Charge Amount:	130.00
Job ID: Job ID: 2012-04-3755-ALTR - Solar water tank install on Roof			
Additional Comments: 27 Vesper			

Referance ID:	6063	Fee Type:	BP-Plumbing
Receipt Number:	0	Payment Date:	
Transaction Amount:	50.00	Charge Amount:	50.00
Job ID: Job ID: 2012-04-3755-ALTR - Solar water tank install on Roof			

Additional Comments:

Thank You for your Payment!

Professional design, installation and service of renewable energy systems

April 10, 2012

City of Portland
389 Congress Street
Portland, ME 04101

RE: ReVision Energy Solar Installation at 27 Vesper Street

Dear Code Enforcement,

ReVision Energy has been contracted to design and install a solar thermal 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.

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

Diane Dombrowski - 556.4429
27 Vesper St Portland, ME 04101

ROOF ORIENTATION:
130 degrees

ROOF PITCH:
40 degree angle

SHADING ANALYSIS:
0% shade

Project Summary

System	Performance	Cost	Incentives	Net Cost
Two Wagner Eco C20 flat plate solar hot water collectors with 80-gallon solar storage tank featuring electric backup	• Produce roughly 16,150,000 Btu's of clean, renewable energy annually. • Offset roughly 4,327 lbs. of CO2 emissions annually.	$10,810 Installed	-($3,243) 30% Federal Tax Credit -($1,000) Cash Rebate from Efficiency Maine	$6,567

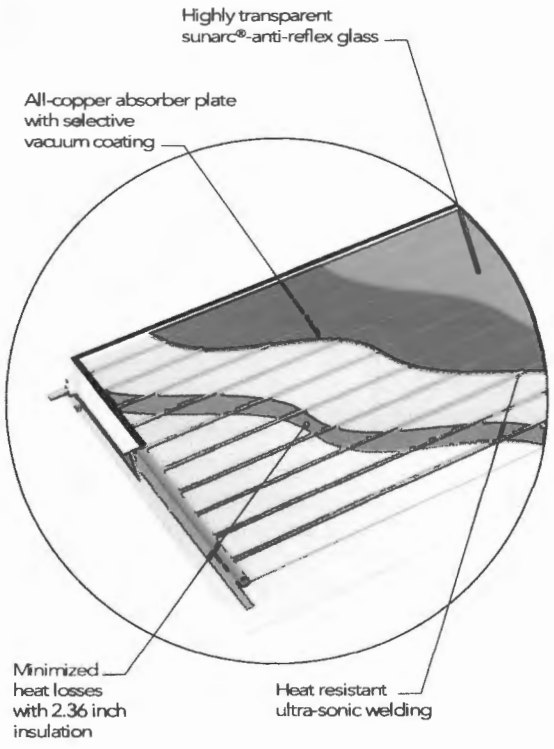
Economic & Environmental Return on Investment

This solar energy system uses a clean, renewable 'fuel' called sunshine. Because it displaces finite, polluting and increasingly expensive fossil fuel, the solar energy system is guaranteed to pay for itself through avoided costs. After you get all of your initial solar investment back, the system will continue to deliver a valuable household revenue stream for years to come. Every time energy costs go up, your financial return on investment improves proportionally.

EURO C20 AR-M
Flat Plate Collector

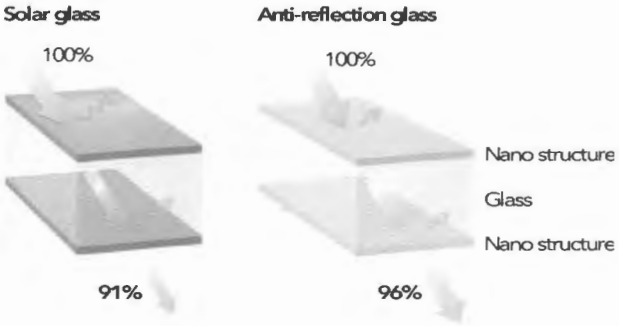
Top Performance with Anti-Reflex Glass

Wagner&Co



12 Years of Collector Engineering

- sunarc® anti-reflex glass with an ultrafine nano surface structure increases the light transmissivity from 91% to 96%. The energy output improves by 6 to 10%.
- Selective vacuum coating of the absorber plate captures maximum solar heat and minimizes radiation losses.
- The all-copper absorber plate is ultrasonically welded to a double harp register.
- The 2.36 inch of insulation at the back side minimizes heat losses and assures high temperatures.
- Vertical and horizontal installation either on-roof or free-standing using TRIC.



Perfection in Detail – Top Rating

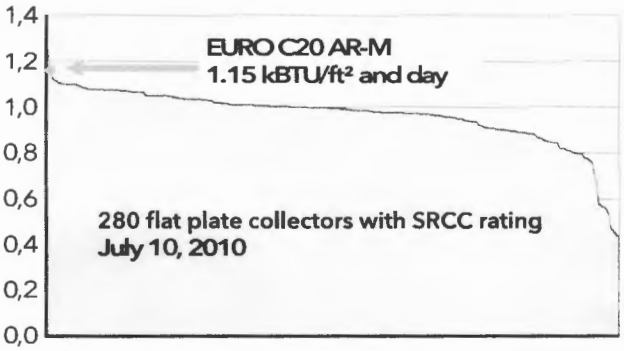
More Light Transmission for High Yields
The special nano-structure on the inner and outer side of the sunarc® anti-reflection glass increases the light transmission from 91% to 96%.
Depending on the situation, the increased transmission boosts the performance of the collector by up to 9%!

Absorber with Optimized Heat Transfer
An ultrasonically welded full-plate absorber is the heart of the EURO C20 AR-M. The double harp absorber is made with a copper sheet using high selective coating and 10 riser pipes.

Top Rating
The EURO C20 AR-M has been tested and certified to SRCC OG100 standard. Thanks to its uncompromising design and quality, the collector rates at a top postion among the SRCC list.

Fast Track Mounting for Lasting Installations
The TRIC mounting systems made from corrosion resistant aluminium and stainless steel components stand for fast and reliable collector racking on the roof. The pre-assembled racking systems allow safe and stable mounting on tilted and flat roof with practically every type of roofing. All bolts are accessible from above, thus enabling time effective installations.

Collector Performance Rating for Clear Day, Cat. C



kBTU/ft² and day

EURO C20 AR-M / Collector Specification	
Collector area	Gross area 28.1 sqft (2.61 m²) Aperture area 25.4 sqft (2.36 m²)
Dimensions	7' x 4' x 4.3" (2151 x 1215 x 110 mm, L x W x H)
Casing	Aluminium frame with seamless side and 2.36 inch back insulation
Glass cover	0.16 inch solar safety glass with sunarc® anti-reflection surface, $\tau = 96\,\%$
Absorber	Full surface absorber with highly selective vacuum coating; $\alpha = 95\,\%$; $\varepsilon = 5\,\%$
Rating*	SRCC OG100 Collector Performance Rating: Clear Day, Category C: 32.4 kBTU/Day * SRCC Collector Certification Number: 100-2010035A

Wagner Solar Inc.
485 Massachusetts Avenue, Suite 300
Cambridge, MA 02139

www.wagner-solar.com
info_us@wagner-solar.com
877-979-2463

STIEBEL ELTRON

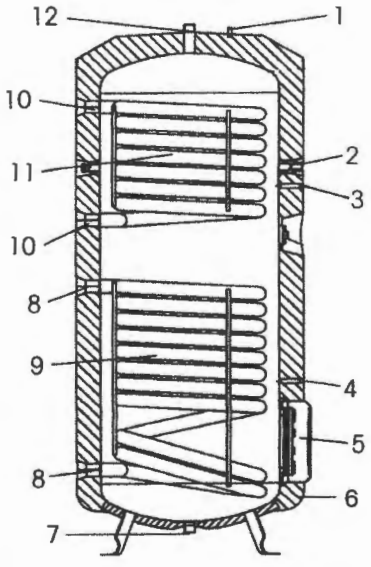
Dual Heat Exchanger Models

Technical Data

Type		SBB 300 Plus	SBB 400 Plus	SBB 600 Plus
Item number		187873	187874	187875
Contents				
Storage capacity	Gal / ltr	80.6 / 305	108.6 / 411	162.9 / 617
Volume of heat exchanger, top	Gal / ltr	1.9 / 7.3	2.2 / 8.2	2.5 / 9.6
Volume of heat exchanger, bottom	Gal / ltr	2.7 / 10.1	2.9 / 11.3	3.5 / 13.2
Pressure				
Working pressure	PSI / bar	150 / 10	150 / 10	150 / 10
Tested to pressure	PSI / bar	217 / 15	217 / 15	217 / 15
Max. pressure of boiler loop	PSI / bar	150 / 10	150 / 10	150 / 10
Temperature				
Max. temperature lower loop	°F / °C	203 / 95	203 / 95	203 / 95
Max. temperature of upper loop	°F / °C	203 / 95	203 / 95	203 / 95
Heat exchanger				
Surface area heat exchanger top	sq. inch / m^2	1705 / 1.1	2015 / 1.3	2945 / 1.9
Surface area heat exchanger bottom	sq. inch / m^2	2325 / 1.5	2635 / 1.7	3875 / 2.5
Weights				
Tank weight empty	lb. / kg	339 / 154	412 / 187	544 / 247
Tank weight full	lb. / kg	1,051 / 477	1,362 / 618	1,955 / 887
Other				
Standby losses in 24 hours	BTU / kWh	6,500 / 1.9	7,500 / 2.2	10,000 / 2.9
Cold/hot water connection		for 1" copper pipe with adapters, adapters provided with unit		
Dimensions				
Height with insulation	in. / mm	66.1 / 1679	72.7 / 1848	68.3 / 1735
Width with insulation	in. / mm	27.55 / 700	29.52 / 750	36.22 / 920 *
Width of insulation	in. / mm	3 / 75	3 / 75	3.35 / 85 *

* Insulation is partially removable to reduce width to 31.5" for clearance purposes

SBB 300 Plus, SBB 400 Plus and SBB 600 Plus models



1 Sacrificial anode indicator
2 Thermometer
3 Well for temperature sensor (boiler)
4 Well for temperature sensor (solar)
5 Clean-out port
6 Foam insulation
7 Cold water inlet
8 Heat exchanger ports (solar)
9 Exchanger coil (solar)
10 Heat exchanger ports (boiler)
11 Exchanger coil (boiler)
12 Hot water outlet

Note: heat exchangers are steel with porcelain enamel coating.