

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK CITY OF PORTLAND

BUILDING DEPARTMENT

PERMIT

Permit Number: 090169

Please Read Application And Notes, If Any, Attached

PERMIT ISSUED
MAY 11 2009

This is to certify that WIRTH WYNNE H /Revision Energy LLC
has permission to Install a Solar Hot Water System consisting of 2-4x8 Solene Flat Plate Collectors with a 105 Gallon Tank in Backyard
AT 196 BRACKETT ST CB# 056 C023001

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

Apply to Public Works for street line and grade if nature of work requires such information.

Notification of inspection must be given and written permission procured before this building or part thereof is lathed or otherwise finished-in. 24 HOURS NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

Fire Dept. CAPT. K. Sauter
Health Dept. _____
Appeal Board _____
Other _____
Department Name

Chris M 3/11/09
Director Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application

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

Permit No: 09-0169	Issue Date: 3/11/09	CBL: 056 C023001
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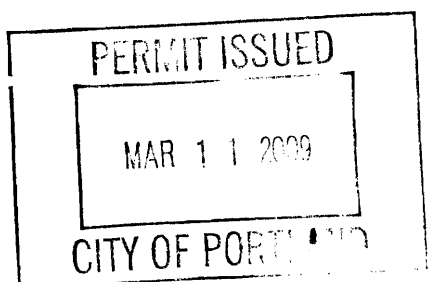
Location of Construction: 196 BRACKETT ST	Owner Name: WIRTH WYNNE H	Owner Address: 196 BRACKETT ST	Phone: 207-323-1805
Business Name:	Contractor Name: Revision Energy LLC	Contractor Address: 142 Presumpscot street Portland	Phone 2073231805
Lessee/Buyer's Name	Phone:	Permit Type: HVAC	Zone: B-1

Past Use: Three Family Residential	Proposed Use: Three Family Residential - Install a Solar Hot Water System, Consisting of 2 -4x10 Solene Flat Plate Collectors with a 105 Gallon Tank in Basement <i>leg use - 3 d.v.</i>	Permit Fee: 	Cost of Work: \$4,000.00	CEO District: 2
		FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <i>* See Conditions</i>	INSPECTION: Use Group: <i>R-2</i> Type: <i>5B</i> <i>IBC-2003</i> <i>IMC-2003</i>	

Proposed Project Description: Install a Solar Hot Water System, Consisting of 2 -4x10 Solene Flat Plate Collectors with a 105 Gallon Tank in Basement	Signature: <i>(KG)</i>	Signature: <i>CK 3/11/09</i>
PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)		
Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied		
Signature:		Date:

Permit Taken By: lmd	Date Applied For: 03/04/2009	Zoning Approval
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<ol style="list-style-type: none"> This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. Building permits do not include plumbing, septic or electrical work. 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 <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> <i>OK w/conditions</i> Date: <i>3/11/09</i> <i>ABN</i>	Zoning Appeal <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:	Historic Preservation <i>Yes</i> <input type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input checked="" type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: <i>3/11/09</i> <i>SEH</i>
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CERTIFICATION

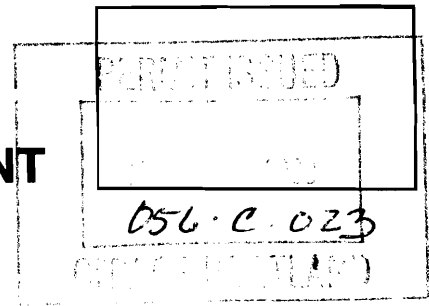
I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application 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



FILL IN AND SIGN WITH INK

APPLICATION FOR PERMIT HEATING OR POWER EQUIPMENT



To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL 196 Bracket St Use of Building Residential Date _____

Name and address of owner of appliance Wg Pat Coen + Wynne Wirth

Installer's name and address Revision Energy
142 Presumpscot St Telephone 323-1805

Location of appliance:

- Basement
- Attic
- Floor
- Roof

Type of Fuel:

- Gas
- Oil
- Solid
- Solar Energy

Appliance Name: Solene

U.L. Approved Yes No

Will appliance be installed in accordance with the manufacture's installation instructions? Yes No

IF NO Explain: _____

The Type of License of Installer:

- Master Plumber # _____
- Solid Fuel # _____
- Oil # _____
- Gas # _____
- Other Solar

Type of Chimney:

- Masonry Lined
Factory built N/A
- Metal
Factory Built U.L. Listing # N/A
- Direct Vent
Type N/A UL# _____

Type of Fuel Tank

- Oil
 - Gas
- MAR - 4 2009

Size of Tank _____

Number of Tanks _____

Distance from Tank to Center of Flame _____ feet.

Cost of Work: \$ 4000

Permit Fee: \$ _____

Approved

Approved with Conditions

Fire: _____

Ele.: _____

Bldg.: _____

- See attached letter or requirement

[Signature]
Inspector's Signature

3/11/09
Date Approved

Signature of Installer [Signature]

City of Portland, Maine - Building or Use Permit

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

Permit No: 09-0169	Date Applied For: 03/04/2009	CBL: 056 C023001
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Location of Construction: 196 BRACKETT ST	Owner Name: WIRTH WYNNE H	Owner Address: 196 BRACKETT ST	Phone: 207-323-1805
Business Name:	Contractor Name: Revision Energy LLC	Contractor Address: 142 Presumpscot street Portland	Phone (207) 323-1805
Lessee/Buyer's Name	Phone:	Permit Type: HVAC	

Proposed Use: Three Family Residential - Install a Solar Hot Water System, Consisting of 2 -4x10 Solene Flat Plate Collectors with a 105 Gallon Tank in Basement	Proposed Project Description: Install a Solar Hot Water System, Consisting of 2 -4x10 Solene Flat Plate Collectors with a 105 Gallon Tank in Basement
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Dept: Historic **Status:** Approved with Conditions **Reviewer:** Scott Hanson **Approval Date:** 03/06/2009
Note: **Ok to Issue:**

- 1) Approval subject to final inspection after completion.

Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Ann Machado **Approval Date:** 03/06/2009
Note: Solar panels on the roof do not have to meet the height requirement. (section 14-430) **Ok to Issue:**

- 1) ANY exterior work requires a separate review and approval thru Historic Preservation. This property is located within an Historic District.
- 2) This property shall remain a three family dwelling. Any change of use shall require a separate permit application for review and approval.
- 3) This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.

Dept: Building **Status:** Approved with Conditions **Reviewer:** Chris Hanson **Approval Date:** 03/11/2009
Note: **Ok to Issue:**

- 1) Solar collectors must be listed and labled.
- 2) Solar collectors must meet requirements of section 1401 of the IMC 2003.
- 3) Separate permits are required for any electrical, plumbing, HVAC or exhaust systems. Separate plans may need to be submitted for approval as a part of this process.
- 4) ANY exterior work requires separate review and approval thru Historic Preservation

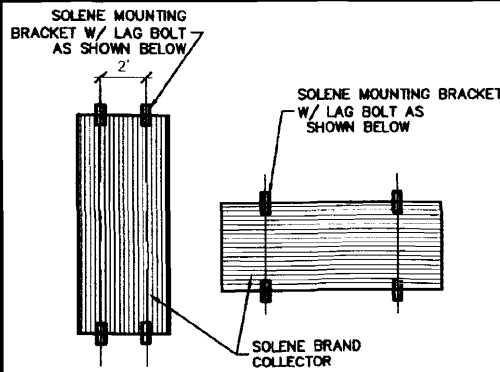
Dept: Fire **Status:** Approved with Conditions **Reviewer:** Capt Keith Gautreau **Approval Date:** 03/10/2009
Note: **Ok to Issue:**

- 1) Install shall comply with all manufacture's specifications.

Comments:

3/5/2009-lmd: Project has Historic Approval. Final placement and color selection is to be reveiwed and approved by historic preservation staff.

3/9/2009-gg: received permit from historic on 3/6/09. Gg

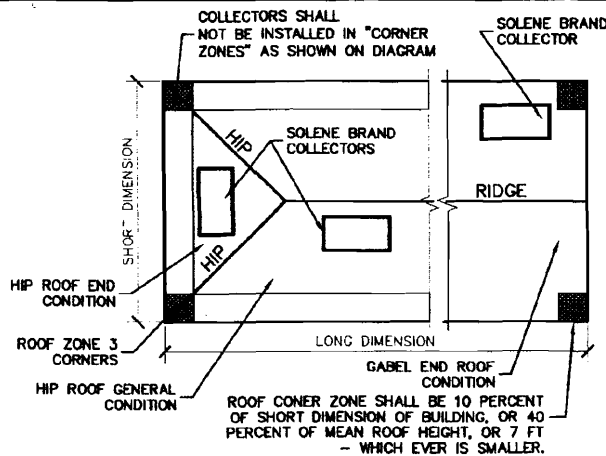


1 PLAN OF COLLECTORS

S-3 SCALE: 3/16"=1'-0"

GENERAL NOTES:

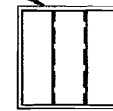
- COLLECTOR CONNECTIONS SHOWN HAVE BEEN DESIGNED TO RESIST WIND LOADS OUTLINED IN THE 2004 BUILDING CODE, WITH 2006 SUPPLEMENTS, CHAPTER 16 FOR 140 MPH EXPOSURE "C" WIND VELOCITY AND PER ASCE 7-02, CHAPTER 6.0 FOR 140 MPH EXPOSURE "C" WIND VELOCITY TYPICALLY.
- LAG BOLT CAPACITIES AND EMBEDMENTS ARE BASED UPON "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND FASTENINGS" AS PUBLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION.
- ALL CONNECTIONS ARE FOR ROOFS 0° TO 45° MAX SLOPE CONDITIONS.
- ALL CONNECTORS ARE FOR MEAN ROOF HEIGHTS NOT TO EXCEED 30'-0".
- APPLY ROOF GRADE SEALANT TO ALL CONTACT SURFACES.
- ALTERNATIVELY SOLENE MOUNTING BRACKET CAN BE FASTENED TO THE SOLENE COLLECTOR WITH EITHER (1) 3/8" ST STL BOLT AND NUT, OR (2) 1/2" SELF TAPPING SHEET METAL SCREWS.



2 ROOF LAYOUT PLAN

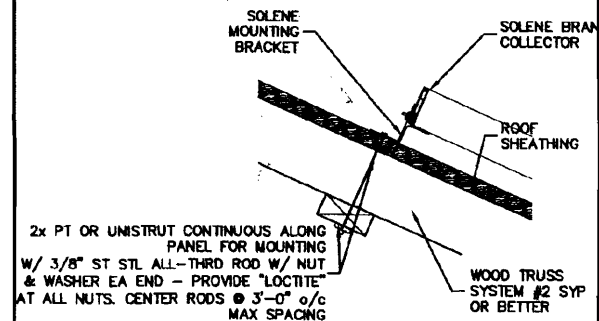
S-3 SCALE: NONE

3"x3"x1/8" THK 3" L 6063T8 ALUM SORTB WITH 1"ODX1/2" THK 2 3/4" L ALUM TUBE INSERT BOTH ANODIZED



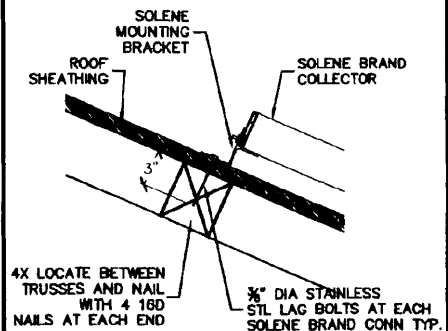
SOLENE BRAND FLUSH MOUNT STAND OFF ASSY

S-3 SCALE: NTS



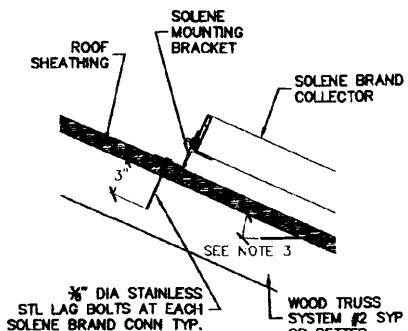
7 MISSED TRUSS SOLENE BRAND SPANNER INSTALL

S-3 SCALE: NTS



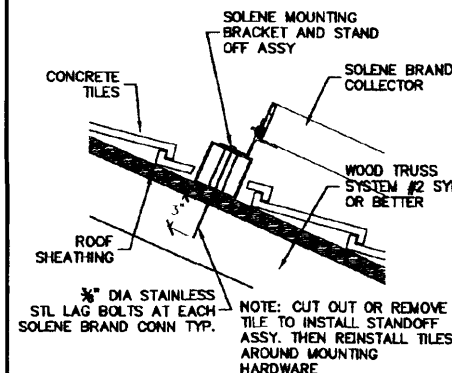
3 MISSED TRUSS SOLENE BRAND NAILER INST.

S-3 SCALE: 1-1/2"=1'-0"



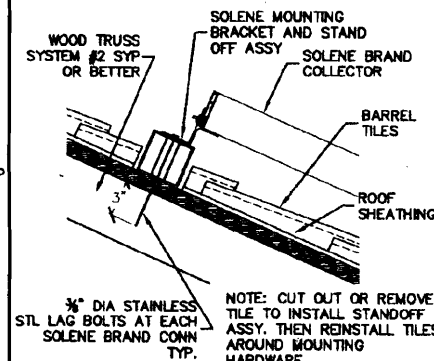
4 SHINGLE/METAL BUILT UP ROOF

S-3 SCALE: 1-1/2"=1'-0"



5 BARREL TILE ROOF

S-3 SCALE: 1-1/2"=1'-0"



6 FLAT TILE ROOF

S-3 SCALE: 1-1/2"=1'-0"

JUL 12 2007
ANCHORING OF THE "SOLENE" BRAND COLLECTORS
PER 2004 FLORIDA BUILDING CODE AND ASCE 7-02

RC ENGINEERING, LLC.
2881 CREST RIDGE COURT
SANFORD, FL 32771
TEL: 407-494-1111 FAX: 407-494-1112
WWW.RCEENGINEERING.COM

PROJECT # 00136
DESIGNED: RED
SCALE: NOTED



DRAWING NO. S-3
SHEET 1 OF 1

Building Permit

We are requesting an application for the installation of a solar hot water system to be installed on 196 Brackett St. System will consist of 2 4x10 Solene flat plate collectors with a 105 gallon tank in the basement.

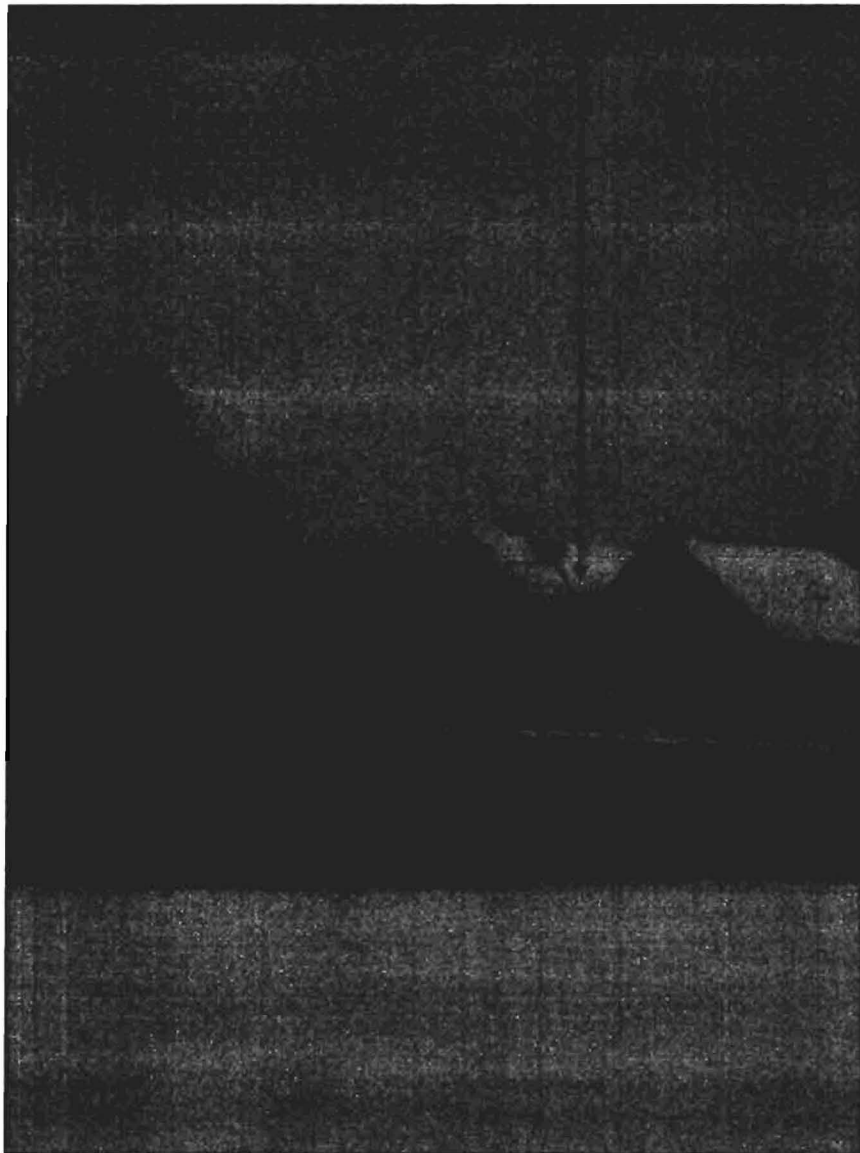
Total weight = $2 \times 132 \text{ lbs} + 16 \text{ lbs (fluid weight)} + 5 \text{ lbs (hardware)} = 285 \text{ lbs}$

Total area = $2 \times 4 \times 10 \text{ ft} = 80 \text{ sq ft}$

New Roof dead load = 3.56 psf

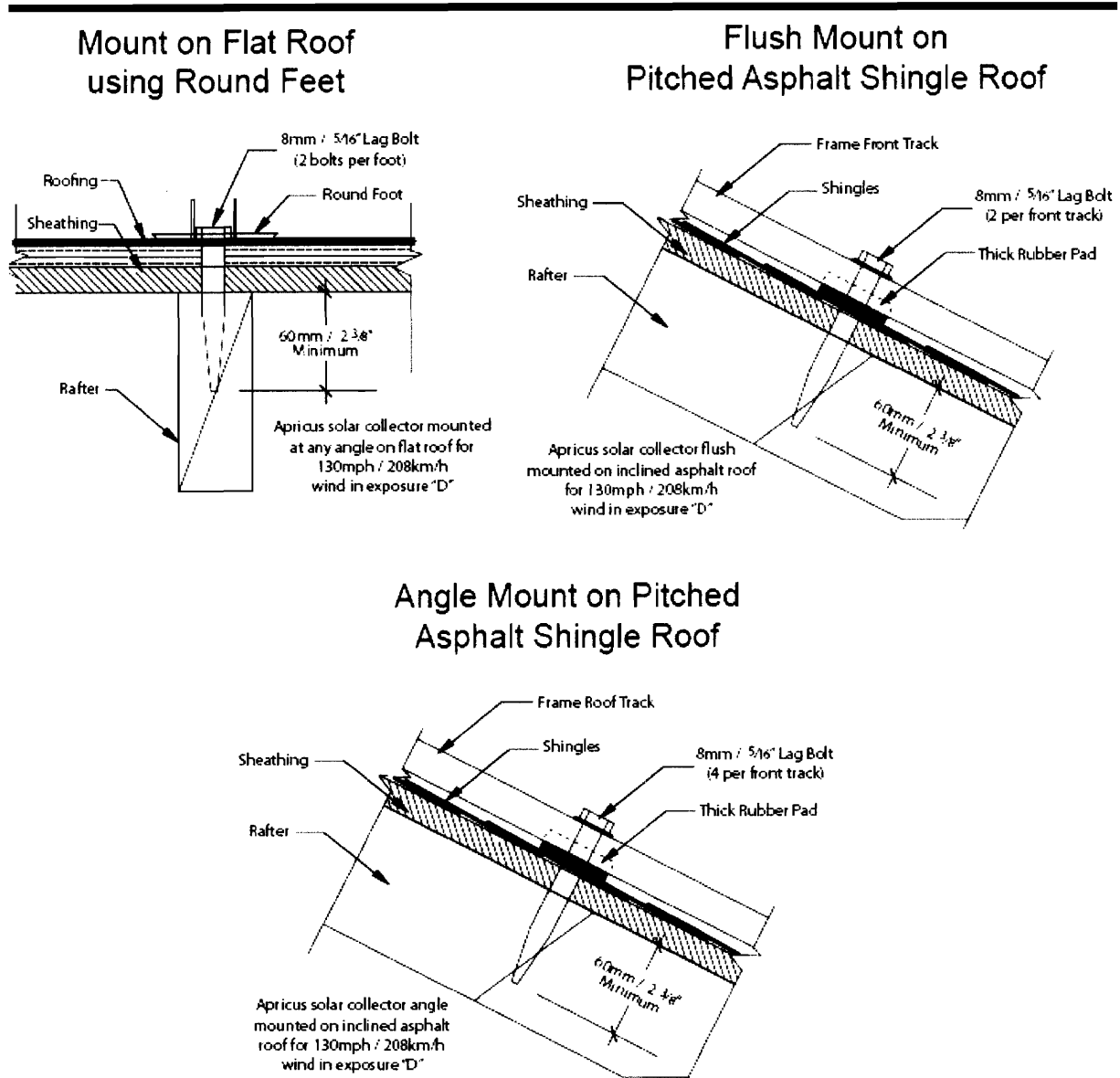
-Collectors to be mounted on the roof in accordance with manufactures instructions, attached.

-Collectors to be set on this section of roof with as much distance from edge of the roof and the eave as possible.





Lag bolt details:



Notes:

1. Lag Bolt and washer should be stainless steel
2. Drill pilot hole for lag bolt 60-75% of lag shank diameter.
3. Seal all penetrations using manufacturer supplied Rubber pad and Geocell 2300 tripolymer sealant or equivalent



DESIGN, INSTALLATION AND SERVICE OF RENEWABLE AND EFFICIENT ENERGY SYSTEMS

March 2, 2009

Fortunat Mueller
ReVision Energy
142 Presumpscot Street
Portland, ME 04103

RE: ReVision Energy Solar Installation
Address: 196 Brackett Street, Portland, Maine

To Whom it May Concern:

I have reviewed the condition of the existing roof structure at the project site, and the installation method described in the attachment and find them to be sufficient and in accordance with applicable codes and standards.

Respectfully,

Fortunat Mueller
Maine PE # 11246

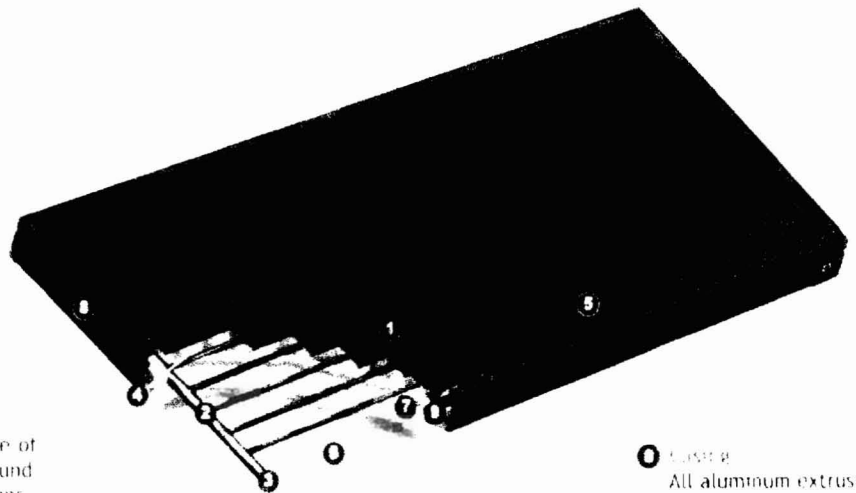


Corona™ Solar Collectors by Solene™

TECHNOLOGICALLY ADVANCED ENGINEERING FOR MAXIMUM PERFORMANCE

CORONA Solar Collectors are the most technologically advanced collectors on the market today. CORONA features the highest quality materials & state-of-the-art engineering to provide maximum efficiency & durability you can depend on for years to come.

CORONA collectors are environmentally responsible, non-polluting and reliable in any environment. CORONA panels are an important element of any hot water system, producing dependable results under any weather conditions.



- 1 Absorber Plate:** Utilizing a state-of-the-art ultrasound weld, copper fins and risers provide superior thermal connectivity between the fins and risers. Revolutionary coating is black chrome on nickel, producing a premium selective surface with maximum efficiency for solar energy use. Absorbability = 0.95.

- 2 Tubing (and 3/8" copper risers):** are brazed to 1" copper manifolds for optimal flow distribution.

- 3 Protective coating:** Four 1" Type-M copper tubes.

- 4 Aramid separator:** Attached to the insulation, acts as a barrier against out-gassing.

- 5 Solar glass:** A single pane of 1/4" thick solar glass is patterned to reduce reflection and tempered to maximize strength and durability. Iron oxide content: 0.03.

- 6 Backsheet:** Fiberglass Backing: Reduces torque in the frame, is lightweight and eliminates the possibility of any electrolysis issues for maximum benefit.

- 7 Insulation:** 1.5" polyurethane foam cast under and around the side of the absorber plate, retains the heat of the water in the collector. DFC free P.U. meets U.S. and European standards.

- 8 Casings:** All aluminum extrusion casings create a sleek framewall. Unique extruded profile allows easy anchoring to the roof (shingle, tile, tarp) or collector stands.
- 9 Gaskets:** All-around EPDM gasket. Highly resistant to temperature differences and UV radiation. Absorbs the differential expansion of frame and glazing.

SOLENE
Solar Hot Water Systems
927 Fern St., Suite 1500
Altamonte Springs, FL 32701
Toll Free 1-866-902-0060
www.solene-usa.com

Solene
HEATING WATER SYSTEM

The best investment under the sun!



Specifications

Model	SECO 30	SECO 32	SECO 40
Gross Area (sq. ft.)	24.51	31.78	38.87
Net Aperture Area (sq. ft.)	23.46	30.51	37.44
Ratio Net/Gross Area	0.95	0.95	0.95
Length (in.)	74.4"	96.48"	117.96"
Width (in.)	47.4"	47.4"	47.4"
Thickness (in.)	3.96"	3.96"	3.96"
Weight (lbs.)	77.8	105.8	132.2
Fluid Capacity (gal.)	0.6	0.8	1.05
Recommended Flow Rate	0.7	0.7	0.7
Test Pressure (psi)	300	300	300
Operating Pressure (psi)	145	145	145

Efficiencies

Rating	SECO 30	SECO 32	SECO 40
Low Temp (95° F)	28,700	37,300	45,700
Intermediate Temp (122° F)	23,800	30,900	37,900
High Temp (212° F)	10,300	13,400	16,400
Btu per Square Foot	970	974	976
Efficiency Equation	$78.2 \frac{81}{(T_i - T_a) \cdot I}$	$78.5 \frac{81}{(T_i - T_a) \cdot I}$	$78.7 \frac{81}{(T_i - T_a) \cdot I}$

T_i = Water temperature (F out - F in) / 2
 T_a = Ambient temperature - F
 I = Solar radiation Btu/hr-ft²

Efficiency ratings as measured by the Florida Solar Energy Center (FSEC).



OG 100 Collector Approved
 OG 300 System Approved

Solene
 SOLAR HOT WATER SYSTEMS

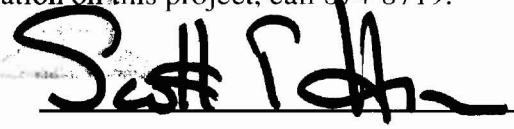


SOLENE
 Solar Hot Water Systems
 927 Fern St., Suite 1500
 Altamonte Springs, FL 32701
 Toll Free 1-866-902-0060
 www.solene-usa.com

**CITY OF PORTLAND
HISTORIC PRESERVATION
CERTIFICATE OF APPROPRIATENESS**

This is to certify that WYNNE WIRTH
has received approval for SOLAR COLLECTORS
at 196 BRACKET ST

provided that the person or persons, firm or corporation accepting this Certificate shall comply with all other applicable provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of buildings and structures, and of the application on file in the Historic Preservation Office of the Planning Department. For more information on this project, call 874-8719.



Historic Preservation Manager

NOTE: THIS IS NOT A BUILDING PERMIT

CITY OF PORTLAND, MAINE

HISTORIC PRESERVATION BOARD

John Turk, Chair
Rick Romano, Vice Chair
Otis Baron
Martha Deprez
Michael Hammen
Ted Oldham
Cordelia Pitman

January 26, 2009

Wynne Wirth
196 Brackett Street
Portland, Maine 04101

Re: Installation of solar collectors, 196 Brackett Street

Dear Ms. Wirth:

On April 14, 2008, the City of Portland's Historic Preservation Board reviewed your request to install solar collectors on the roof of your residence at 196 Brackett Street. The Board found that the proposed solar collectors meet the standards of the historic preservation ordinance. Based on these findings, the Board approved your application for a Certificate of Appropriateness.

Board approval was made subject to the following condition:

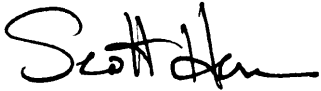
- As much distance as possible is to be maintained between the collectors and the ridgeline and edges of the roof.
- Final placement and color selection is to be reviewed and approved by historic preservation Staff.
- Approval subject to inspection upon completion.

All improvements shall be carried out as shown on the plans and specifications submitted for the 4/16/08 public hearing and/or as described above. Changes to the approved plans and specifications and any additional work that may be undertaken must be reviewed and approved by this office prior to construction, alteration, or demolition. If, during the course of completing the approved work, conditions are encountered which prevent completing the approved work, or which require additional or alternative work, you must apply for and receive a Certificate of Appropriateness or Non-Applicability PRIOR to undertaking additional or alternative work.

This Certificate is granted upon condition that the work authorized herein is commenced within twelve (12) months after the date of issuance. If the work authorized by this Certificate is not commenced within twelve (12) months after the date of issuance or if such work is suspended in significant part for a period of one year after the time the work is commenced, such Certificate shall expire and be of no further effect; provided that, for cause, one or more extensions of time for periods not exceeding ninety (90) days each may be allowed in writing by the Department.

Note: Your project may also require a building permit. Please call Building Inspections (874-8703) to make this determination.

Sincerely,

A handwritten signature in black ink that reads "Scott Hanson". The signature is written in a cursive style with a large, looped "S" and a long, sweeping underline.

Scott Hanson
Preservation Compliance Coordinator

cc: Approval Letter File
Building Inspections