

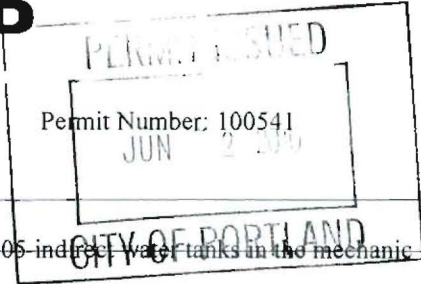
DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING INSPECTION

PERMIT

Please Read Application And Notes, If Any, Attached



This is to certify that PORTLAND BOYS CLUB ASSOC / Revision Energy LLC
has permission to (21) 4 x 10 Chromagen SLCR - 40' plate solar collectors on the roof (2) 105 indirect water tanks in the mechanic
AT 277 CUMBERLAND AVE CBL 026 C008001

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 closed-in. 24 HOUR 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. _____
Health Dept. _____
Appeal Board _____
Other _____
Department Name

[Signature]
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: 10-0541	Issue Date:	CBL: 026 C008001
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Location of Construction: 277 CUMBERLAND AVE	Owner Name: PORTLAND BOYS CLUB ASSOC	Owner Address: 277 CUMBERLAND AVE	Phone:
Business Name:	Contractor Name: Revision Energy LLC	Contractor Address: 142 Presumpscot street Portland	Phone: 2073231805
Lessee/Buyer's Name	Phone:	Permit Type: Additions - Commercial	Zone: B-3 prime

Past Use: Commercial " Boys & Girls Club"	Proposed Use: Commercial " Boys & Girls Club" - (21) 4 x 10 Chromagen SLCR - 40' plate solar collectors on the roof (2) 105 indirect water tanks in the mechanical room	Permit Fee: \$960.00	Cost of Work: \$93,760.00	CEO District: 1	R-6 Sub
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Proposed Project Description:
(21) 4 x 10 Chromagen SLCR - 40' plate solar collectors on the roof (2)
105 indirect water tanks in the mechanical room

FIRE DEPT: <input type="checkbox"/> Approved <input type="checkbox"/> Denied N/A	INSPECTION: Use Group: HVAC Type: HVAC
Signature:	Signature:
PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)	
Action <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied	
Signature:	Date:

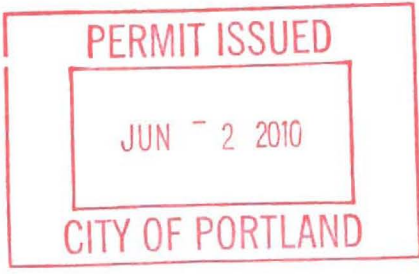
Permit Taken By: Idobson	Date Applied For: 05/19/2010	Zoning Approval		
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- This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
- Building permits do not include plumbing, septic or electrical work.
- 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
Major <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/>
Date: 5/19/10

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
<input checked="" type="checkbox"/> Not in District or Landmark
<input type="checkbox"/> Does Not Require Review
<input type="checkbox"/> Requires Review
<input type="checkbox"/> Approved
<input type="checkbox"/> Approved w/Conditions
<input type="checkbox"/> Denied
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 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

City of Portland, Maine - Building or Use Permit

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

Permit No: 10-0541	Date Applied For: 05/19/2010	CBL: 026 C008001
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Business Name:	Contractor Name: Revision Energy LLC	Contractor Address: 142 Presumpscot street Portland	Phone (207) 323-1805
Lessee/Buyer's Name	Phone:	Permit Type: Additions - Commercial	

Proposed Use: Commercial " Boys & Girls Club" - (21) 4 x 10 Chromagen SLCR - 40' plate solar collectors on the roof (2) 105 indirect water tanks in the mechanical room	Proposed Project Description: (21) 4 x 10 Chromagen SLCR - 40' plate solar collectors on the roof (2) 105 indirect water tanks in the mechanical room
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Dept: Zoning	Status: Approved	Reviewer: Marge Schmuckal	Approval Date: 05/19/2010
Note:			Ok to Issue: ✓
Dept: Building	Status: Approved with Conditions	Reviewer: Tammy Munson	Approval Date: 05/27/2010
Note:			Ok to Issue: ✓

1) Separate permits are required for any electrical, plumbing, sprinkler, fire alarm HVAC systems, heating appliances, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.

City of Portland, Maine - Building or Use Permit

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

Permit No: 10-0541	Date Applied For: 05/19/2010	CBL: 026 C008001
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CITY OF PORTLAND, MAINE
Department of Building Inspections

Original Receipt

5-19 2010

Received from Revision Encl.

Location of Work 277 Cumberland

Cost of Construction \$ _____ Building Fee: _____

Permit Fee \$ _____ Site Fee: _____

Certificate of Occupancy Fee: _____

Total: 960

Building (I1) _____ Plumbing (I5) _____ Electrical (I2) _____ Site Plan (U2) _____

Other _____

CBL: 26-C-8

Check #: CC Total Collected \$ 960

**No work is to be started until permit issued.
Please keep original receipt for your records.**

Taken by: [Signature]

WHITE - Applicant's Copy
YELLOW - Office Copy
PINK - Permit Copy



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.

Location/Address of Construction: <u>Boys & Girls Club Cumberland Ave</u>		
Total Square Footage of Proposed Structure/Area	Square Footage of Lot	Number of Stories
Tax Assessor's Chart, Block & Lot Chart# <u>26</u> Block# <u>C</u> Lot# <u>8</u>	Applicant * must be owner, Lessee or Buyer * Name Address City, State & Zip	Telephone:
Lessee/DBA (If Applicable)	Owner (if different from Applicant) Name Address City, State & Zip	Cost Of Work: \$ <u>93,760</u> C of O Fee: \$ _____ Total Fee: \$ <u>960</u>
Current legal use (i.e. single family) <u>not-profit/recreational</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>(21) 4x10 Chromagen SOLAR-40 flat plate solar collectors on the roof; (2) 105 indirect water tanks in the mechanical room</u>		
Contractor's name: <u>REVISION ENERGY</u>		
Address: <u>42 PRESUMSCOT ST</u>		
City, State & Zip: <u>PORTLAND, ME 04103</u>		Telephone: <u>221-6342</u>
Who should we contact when the permit is ready: <u>Jen Hatch</u>		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.

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: Jen Hatch Date: 5/19/2010

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



CHROMAGEN

All-Copper Solar Collectors

COPPER FINNS ULTRASONICALLY WELDED TO COPPER RISERS

CHROMAGEN has fine-tuned the design and manufacture of solar collectors to an art. Collectors are assembled using the highest quality materials and advanced techniques, which result in highly-efficient, durable products you can depend on for years to come.

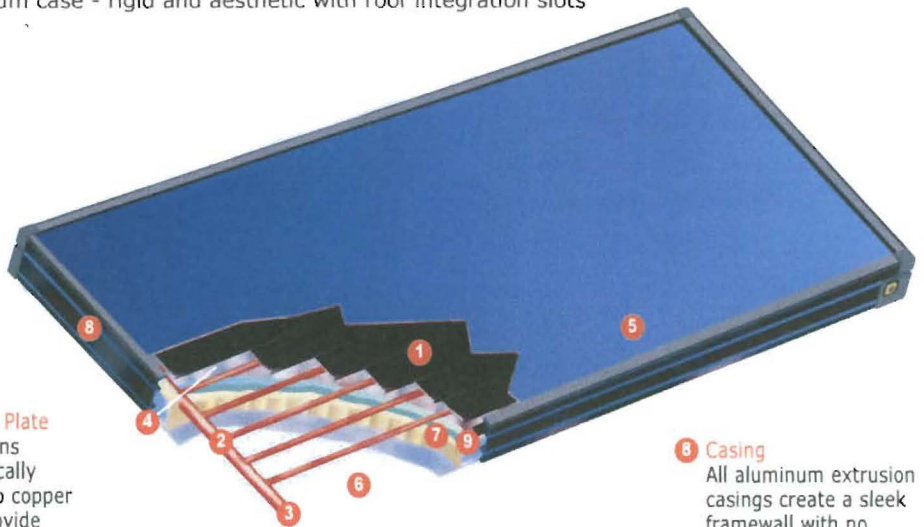
Our products are environmentally friendly, remarkably versatile and offer high performance even in extreme environments. CHROMAGEN panels are suitable for all kinds of hot water systems and provide consistent results under any weather conditions.

Selective coated collector combining all known effective features:

- Best selectivity - high absorption and low emissivity
- No galvanic corrosion
- Ultrasonic welding of copper strips to risers - high fin efficiency
- Aluminum case - rigid and aesthetic with roof integration slots

Solar energy products generate no pollution and cause no damage to the environment.

CHROMAGEN'S product efficiency and quality are regularly tested by Standards Institutes in the EU and worldwide.



- 1 Absorber Plate**
Copper fins ultrasonically welded to copper risers provide excellent heat transfer between the fins and risers. Coated with black chrome on nickel and producing a superior selective surface highly efficient for solar energy use.

- 2 Tubing Grid**
 $\frac{3}{8}$ " copper risers brazed to 1" copper manifolds with an optimal flow distribution.

- 3 Piping Connection**
Four 1" Type M copper tubes.

- 4 Aluminum Foil**
Attached to the insulation, acts as a barrier against out-gassing.

- 5 Solar Glass Glazing**
A single pane of $\frac{1}{8}$ " thick solar glass is patterned to reduce reflection and tempered to maximize strength and durability.
*Iron oxide content: 0.03%

- 6 Back Plate**
Made of Black Polypropylene sheet.

- 7 Insulation**
 $1\text{-}\frac{3}{16}$ " 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. A $\frac{3}{4}$ " layer of mineral wool protects the polyurethane and provides additional collector insulation.

- 8 Casing**
All aluminum extrusion casings create a sleek framewall with no visible rivets or screws. A unique extruded profile bolts on an anchors to the roof (shingled, tile, tar) or collector stand.

- 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

Specifications



Model	SLCR26	SLCR30	SLCR32	SLCR40
Gross area (sq. ft.)	25.85	30.29	31.98	40.06
Net aperture area (sq. ft.)	23.70	28.07	29.69	37.34
Ratio net/gross area	.91	0.93	0.93	0.93
Length (in.)	86-1/2	86-1/2	97-7/16	121-5/8
Width (in.)	43	50-3/8	47-1/8	47-3/8
Thickness (in.)	3-5/8	3-5/8	3-5/8	3-5/8
Weight (lbs.)	97	110	108	152
Fluid capacity (gall.)	0.9	1.08	1.19	1.32
Recommended flow rate (gpm)	0.7	0.7	0.7	0.7
Test pressure (psi)	300	300	300	300
Operating pressure (psi)	145	145	145	145

Due to ongoing development, specifications are subject to change without notice.

Efficiencies

Ratings	SLCR26	SLCR30	SLCR32	SLCR40
Low temp (95° F)	27,400	32,400	34,300	43,100
Intermediate (122° F)	22,400	26,500	28,000	35,200
High temp (212° F)	4700	5,500	5,800	7,300
Efficiency equation	73.6-95 (Ti-Ta)/I	73.6-95 (Ti-Ta)/I	73.7-94 (Ti-Ta)/I	74.0-95 (Ti-Ta)/I

Ti = Water temperature (T out - T in)/2 F°

Ta = Ambient temperature F°

I = Solar radiation Btu/hr/ft²

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

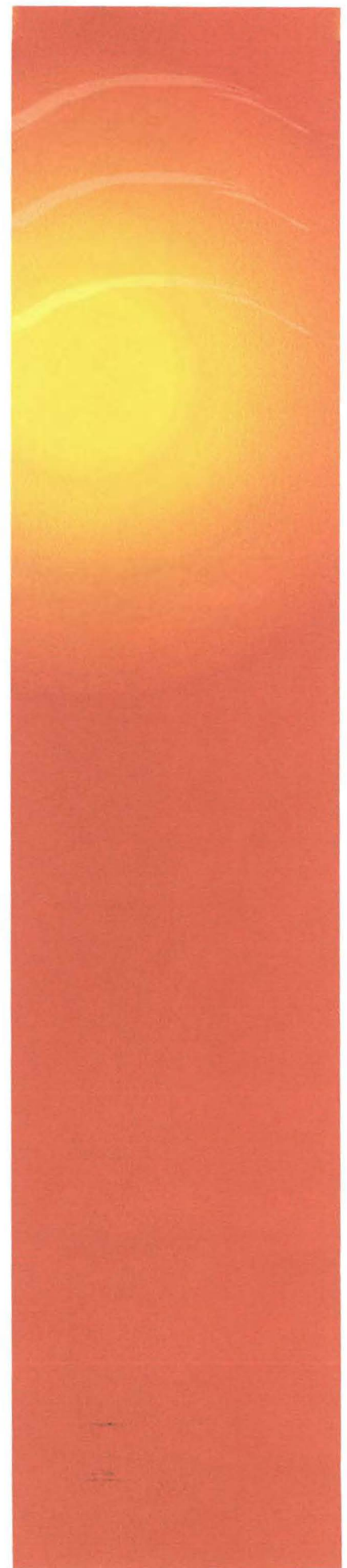


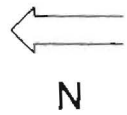
OG-100 Collector approved
OG-300 System approved



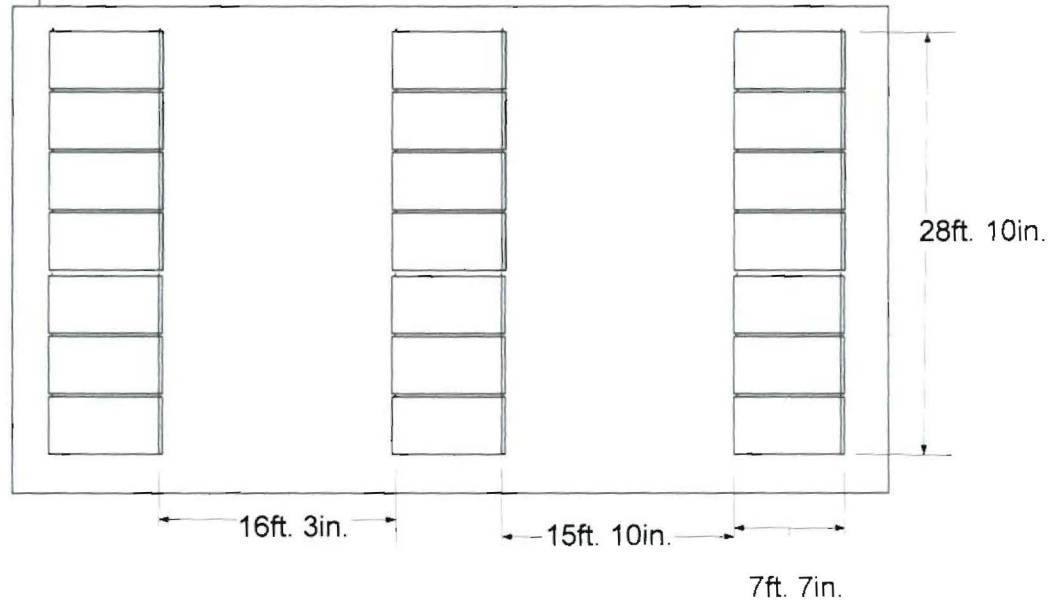
Authorized Dealer:

SOLENE USA
927 Fern Street, Suite 1500
Altamonte Springs, FL 32701
Toll Free 1-866-902-0060
www.solene-usa.com





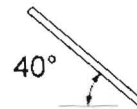
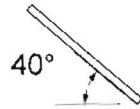
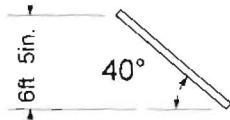
TOP VIEW



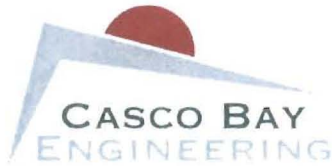
Notes

- 1- Maintain a minimum of 4' of clearance around the entire solar collector array for service.
- 2- Individual collectors (SLCR-40) measure 4'x10' and weigh 152 lbs.
- 3- Western portion of gymnasium roof shown.

SIDE VIEW



ReVision Energy		Portland Boys and Girls club			
142 Presumpscot Street Portland, Maine, 04097 207-221-8342		Solar Thermal System - Collector Layout (preliminary)			
DATE	DRAWN BY	PAGE	DWG#	Rev	
11/25/09	F Mueller	1 of 1	1		



CIVIL & STRUCTURAL ENGINEERING
424 Fore St., Portland, ME 04101 Phone 207.842.2800 Fax 207.842.2828

December 10, 2009

Boys & Girls Club of Portland
Attn: Peggy Bell
Cumberland Avenue
Portland, ME 04101

Re: Boys & Girls Club Roof Evaluation
Portland, ME

Project Number: 9104

Dear Peggy:

This letter is to confirm that we analyzed the existing gymnasium roof structure for the additional weight of the proposed solar panels. Based on the drawings from Revision Energy, the solar panels will be located on the west end of the gym and will produce a line load perpendicular to the roof trusses. The line load was determined to be approximately 19 lbs/ft based on a panel weight of 152 lbs. Per our analysis, the existing gymnasium roof structure is adequate to support the dead and snow loads from the current International Building Code (IBC) as well as the additional weight of the solar panels.

Please also note that we did not analyze any other portion of the building.
Please contact us if you have any additional questions or concerns.

Sincerely,

Tony Duplais
Casco Bay Engineering

Carolyn C. Bird, P.E.
Casco Bay Engineering

