

# DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK CITY OF PORTLAND

## BUILDING INSPECTION

Please Read Application And Notes, If Any, Attached

Permit Number: 114A F001001

**PERMIT ISSUED**

MAY 21 2008

CITY OF PORTLAND

This is to certify that OAKHURST DAIRY / Ascendant Energy Company, Inc.

has permission to Install 75 collector Solar thermal system

AT 364 FOREST AVE

114A F001001

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of the State 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 when permission procured before this building or part thereof is loaded or 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

*[Handwritten Signature]* 5/21/08

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: 08-0419	Issue Date:	CBL: 114A F001001
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Location of Construction: 364 FOREST AVE	Owner Name: OAKHURST DAIRY	Owner Address: 364 FOREST AVE	Phone:
Business Name:	Contractor Name: Ascendant Energy Company, Inc.	Contractor Address: 313 Main Street, Suite 204 Rockland	Phone: 2075946303
Lessee/Buyer's Name	Phone:	Permit Type: Industrial	Zone: B-2

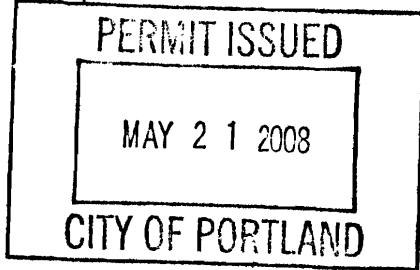
Past Use: Industrial - Oakhurst Dairy	Proposed Use: Industrial - Oakhurst Dairy - Install 75 collector Solar thermal system	Permit Fee: \$1,890.00	Cost of Work: \$187,000.00	CEO District: 2
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Proposed Project Description: Install 75 collector Solar thermal system	FIRE DEPT: <input type="checkbox"/> Approved <input checked="" type="checkbox"/> Denied <i>N/A</i>	INSPECTION: Use Group: <i>52</i> Type: <i>II</i> <i>IBC 2003</i>
	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: ldobson	Date Applied For: 04/25/2008	<b>Zoning Approval</b>
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<ol style="list-style-type: none"> <li>This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</li> <li>Building permits do not include plumbing, septic or electrical work.</li> <li>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..</li> </ol>	<b>Special Zone or Reviews</b> <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input checked="" type="checkbox"/> Site Plan <i>height ok per H-430 exemption applied for</i> <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> MM Date: <i>4/29/09</i>	<b>Zoning Appeal</b> <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: _____	<b>Historic Preservation</b> <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: _____
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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

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

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

<b>Permit No:</b> 08-0419	<b>Date Applied For:</b> 04/25/2008	<b>CBL:</b> 114A F001001
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<b>Location of Construction:</b> 364 FOREST AVE	<b>Owner Name:</b> OAKHURST DAIRY	<b>Owner Address:</b> 364 FOREST AVE	<b>Phone:</b>
<b>Business Name:</b>	<b>Contractor Name:</b> Ascendant Energy Company, Inc.	<b>Contractor Address:</b> 313 Main Street, Suite 204 Rockland	<b>Phone</b> (207) 594-6303
<b>Lessee/Buyer's Name</b>	<b>Phone:</b>	<b>Permit Type:</b> Industrial	

<b>Proposed Use:</b> Industrial - Oakhurst Dairy - Install 75 collector Solar thermal system	<b>Proposed Project Description:</b> Install 75 collector Solar thermal system
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<b>Dept:</b> Zoning	<b>Status:</b> Approved	<b>Reviewer:</b> Marge Schmuckal	<b>Approval Date:</b> 04/29/2008	<b>Ok to Issue:</b> <input checked="" type="checkbox"/>
<b>Note:</b>				
<b>Dept:</b> Building	<b>Status:</b> Approved with Conditions	<b>Reviewer:</b> Tammy Munson	<b>Approval Date:</b> 05/09/2008	<b>Ok to Issue:</b> <input checked="" type="checkbox"/>
<b>Note:</b>				
1) All penetrations shall be protected with approved firestop materials and shall not reduce the (1 hour) required rating.				
2) Separate permits are required for any electrical, plumbing, or HVAC systems. Separate plans may need to be submitted for approval as a part of this process.				
3) An inspection of the installation shall be conducted by the designing engineer prior to closing in any structural work and upon completion of the final installation.				

<b>Comments:</b> 4/29/2008-mes: section 14-430 allows certain roof structures to exceed the maximum height limit. John Rand informed me that the height to the top of the panels from the roof deck is six feet.
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# 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>Oakhurst Dairy 364 Forest Avenue</u>		
Total Square Footage of Proposed Structure/Area <u>2700 Ft<sup>2</sup> of collectors on existing roof areas</u>		Square Footage of Lot <u>~ 90,000</u>
Tax Assessor's Chart, Block & Lot Chart#      Block#      Lot#  <u>114 A F 001</u>	Applicant * <b>must be owner, Lessee or Buyer</b> * Name <u>Oakhurst Dairy</u> Address <u>364 Forest Avenue</u> City, State & Zip <u>Portland, ME 04101</u>	Telephone:  <u>772-7468</u>
Lessee/DBA (If Applicable)  <u>N/A</u>	Owner (if different from Applicant) Name Address City, State & Zip	Cost Of Work: \$ <u>187,000</u> C of O Fee: \$ _____ Total Fee: \$ <u>1,890.00</u>
Current legal use (i.e. single family) <u>Industrial</u> If vacant, what was the previous use? <u>N/A</u> Proposed Specific use: <u>Solar Thermal System</u> Is property part of a subdivision? <u>No</u> If yes, please name _____ Project description: <u>Installation of a 75 collector Solar Thermal system for pre-heating floor and milk crate wash water. System will save 5000 gallons of heating oil per year (see attached cover letter).</u>		
Contractor's name: <u>Ascendant Energy Company, Inc.</u> Address: <u>313 Main St., Suite 204</u> City, State & Zip <u>Rockland, ME 04841</u> Telephone: <u>594-6303</u> Who should we contact when the permit is ready: <u>John B. Rand</u> Telephone: <u>655-4277</u> Mailing address: <u>20 Dryad Woods Rd. Raymond, ME 04071</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: <u>J. B. Rand for Ascendant Energy</u>	Date: <u>4/25/08</u>
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This is not a permit; you may not commence ANY work until the permit is issued

APR 25 2008



April 25, 2008

Jeanie Bourke, Director  
Inspection Services Division  
Portland City Hall, Room 315  
389 Congress Street  
Portland, ME 04101

Dear Ms. Bourke,

Attached please find a building permit application for our large array solar thermal system to be installed at Oakhurst Dairy in Portland. I have included a summary description of the system and engineering information prepared by David Pinkham, P.E. of Pinkham and Greer Consulting Engineers which details the structural suitability of the roof and the solar array fastening methods. A roof layout plan and mechanical drawing is included. A check for the permit fee of \$1890.00 has been sent under separate cover.

### **System Description**

The Oakhurst Dairy solar thermal system consists of 75 – 4 foot x 10 foot Alternate Energy Technology collectors that will be mounted in 25 arrays of three collectors each on the North Roof, the Red Building and the Receiving Building (see attached map). Solar fluid (a mix of water and the same food grade propylene glycol used at the dairy) will be circulated through the collectors, down through heat exchangers in two large water storage tanks and back up to the collectors. When the sun heats the collectors above the temperature of the water in the tanks, a differential temperature controller will activate the circulating pump which will deliver solar energy from the collectors to the tanks. Solar energy stored in the tanks will be used to pre-heat water for floor and milk crate washing operations.

When a call for wash water is made at the facility, 50 degree (F) Portland Water District water will be drawn through the heat exchangers in the tanks, pre-heating the water to between 100 and 160 degrees depending on the tank temperature. Existing steam heat exchangers will bring the wash water up to required temperature as needed.

The system has been designed to deliver over 2,000,000 BTUs/day of solar energy on average through the year, which will save 5,000 gallons of #2 heating oil per year. At 22 pounds of carbon dioxide per gallon of oil, this system will offset 55 tons of carbon dioxide annually.

Our system requires no earthwork or other site development activities, nor does it involve construction of any foundations, floors or walls. The collectors will be mounted facing south at a 35 degree slope and will be bolted to 4 inch x 6 inch timbers which will be bolted and screwed to underlying roof joists and decking and sealed with EPDM roofing. All piping runs will be insulated with UV resistant materials and controls for the system will be inside the building.



## Installation

Ascendant Energy is installing the system under contract to Oakhurst Dairy and will draw on Portland area licensed plumbing and heating contractors, Maine certified solar energy installers as well as facility staff. The collectors for the system include a 10 year warranty and we have included a 5 year operations and maintenance plan with Oakhurst to ensure peak performance of the system. Our current schedule is to begin the roof preparation and mounting work immediately upon approval with plumbing and tank connections in May and a system start up shortly thereafter.

With our engineering work complete, Ascendant Energy and its contractors are ready to install this solar thermal system for Oakhurst Dairy - one of the largest in New England. We believe this timely project is a clear demonstration of Oakhurst's commitment to sustainability and an opportunity for Portland Maine to show their support for renewable energy. We look forward to a speedy permit approval so that we can make the most of the 2008 solar season. In the event you have any questions, feel free to call me at 655-4277, or Chris Straka, the CEO of Ascendant Energy at 594-6303.

Sincerely,

A handwritten signature in black ink that reads "John B. Rand".

John B. Rand

Maine Solar Energy Installer #90000534

Ascendant Energy Company, Inc.

### Attachments:

Letter and Drawing from David Pinkham, P.E., Pinkham and Greer Consulting Engineers

Solar Collector Array Layout (array and plumbing layout)

Oakhurst Solar Thermal and Heat Recovery System (mechanical drawing)

General Building Permit Application – applicable sections



380 US Route One  
Falmouth, Maine 04105  
Tel. 207 781 5242  
Fax. 207 781 4245

April 24, 2008  
File: 08311

Ms. Jeanie Bourke, Director  
INSPECTIONS SERVICES DIVISION  
Portland City Hall, Room 315  
389 Congress Street  
Portland, Maine 04101

RE: OAKHURST DAIRY SOLAR THERMAL SYSTEM

Dear Ms. Bourke:

At the request of Ascendant Energy Co. and Oakhurst Dairy, Pinkham & Greer has reviewed the roof structure of three buildings at Oakhurst Dairy to determine if the existing structures are adequate to support the collector arrays described in John Rand's letter of April 24, 2008. The three buildings include the North Roof Area, the Red Building, and the Receiving Building. Additionally we have been asked to design connections to attach the solar arrays to the existing roof structures. The addition of solar arrays can increase the design snow load on the roof and will introduce additional loads from wind at the attachment points.

We found the roof structures of three building to be adequate if the arrays are sized and located as shown in the layout drawing prepared by Ascendant Energy.

The 2003 IBC does not require snow drifting to be considered for roof top equipment that is less than 15 feet long. The arrays on the North Roof Area and the Red Building are approximately 12 feet long and are spaced such that drifting need not be considered.

At the Receiving Building, multiple rows of closely spaced arrays will be used. For this location, we evaluated the effect of solar panels on the design snow load using the method described in Section C7.8, Roof Projections, in ASCE 7-02. This assumes that the arrays will "shelter" the roof and increase the snow load in a reasonably uniform manner. To determine the design snow load in this area, we increased the Exposure Factor,  $C_e$ , from 1.0, Partially Sheltered, to 1.2, Sheltered, resulting in a 20% increase in the flat roof snow load. The roof structure of the Receiving Building has the capacity to support this additional load.



Ms. Jeanie Bourke  
April 24, 2008  
Page Two

The connections of the array supports to the roof were designed for wind loads acting on the arrays. Wind loads were determined using Section 6.5.13, Design Wind Loads on Open Buildings and Other Structures. Force coefficients were determined using Figure 6-20, Solid Freestanding Walls and Solid Signs, in ASCE 7-02

The roof framing systems differ for each of the three buildings. Appropriate details for each condition have been developed and are shown on the attached sketches. During installation some modification of these details may be required to accommodate unexpected field conditions. Pinkham & Greer will review any necessary changes during installation.

Sincerely,

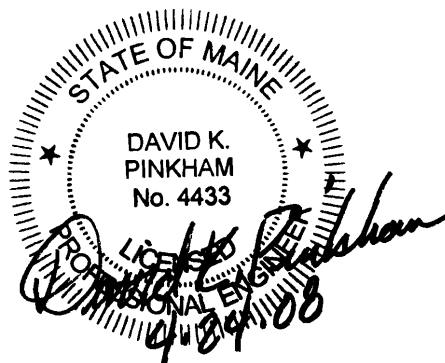
PINKHAM & GREER

A handwritten signature in black ink that reads "David K. Pinkham".

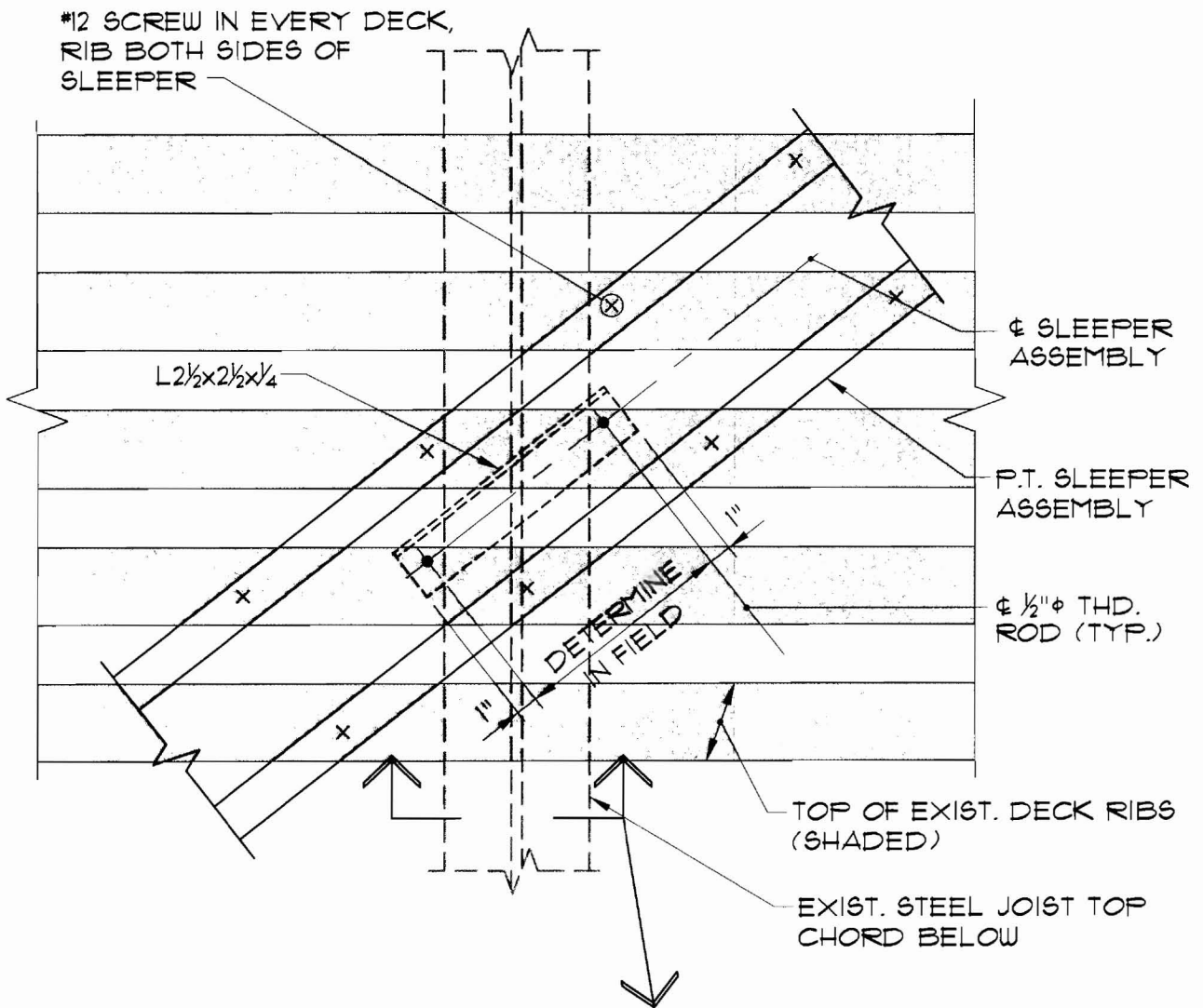
David K. Pinkham, P.E.

Enclosures

DKP/rjs



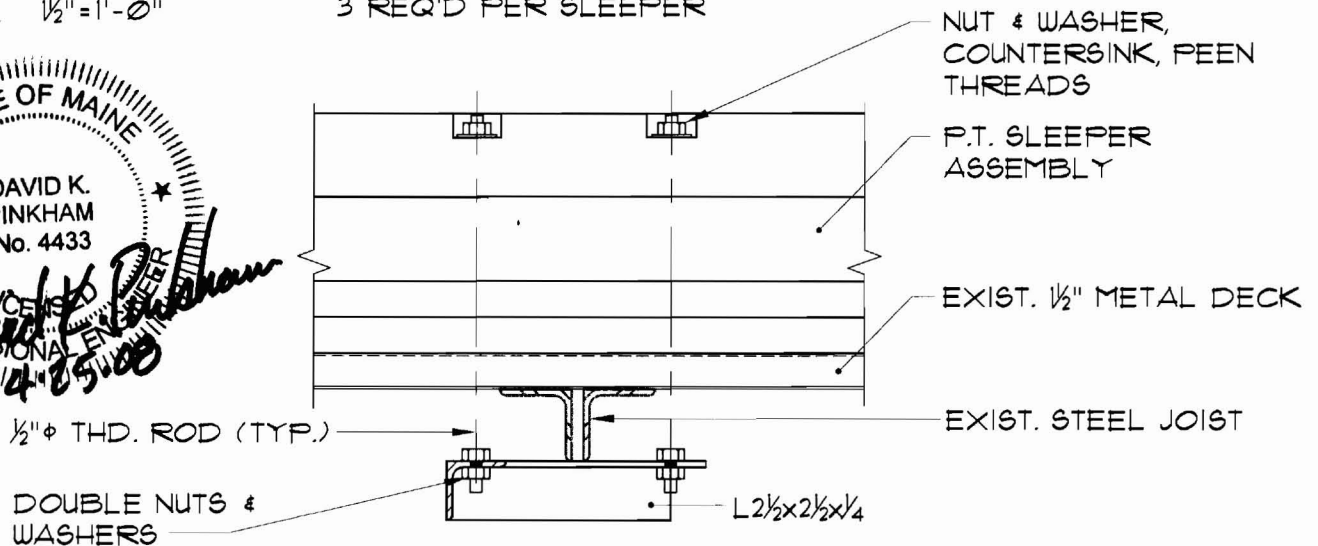
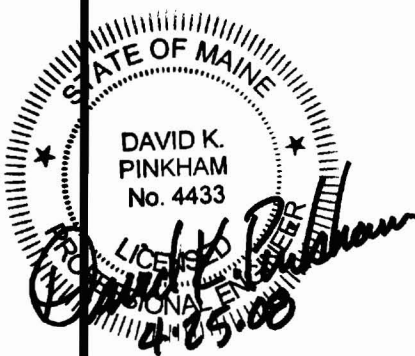




## RED BUILDING – SLEEPER ATTACHMENT

½" = 1'-0"

3 REQ'D PER SLEEPER

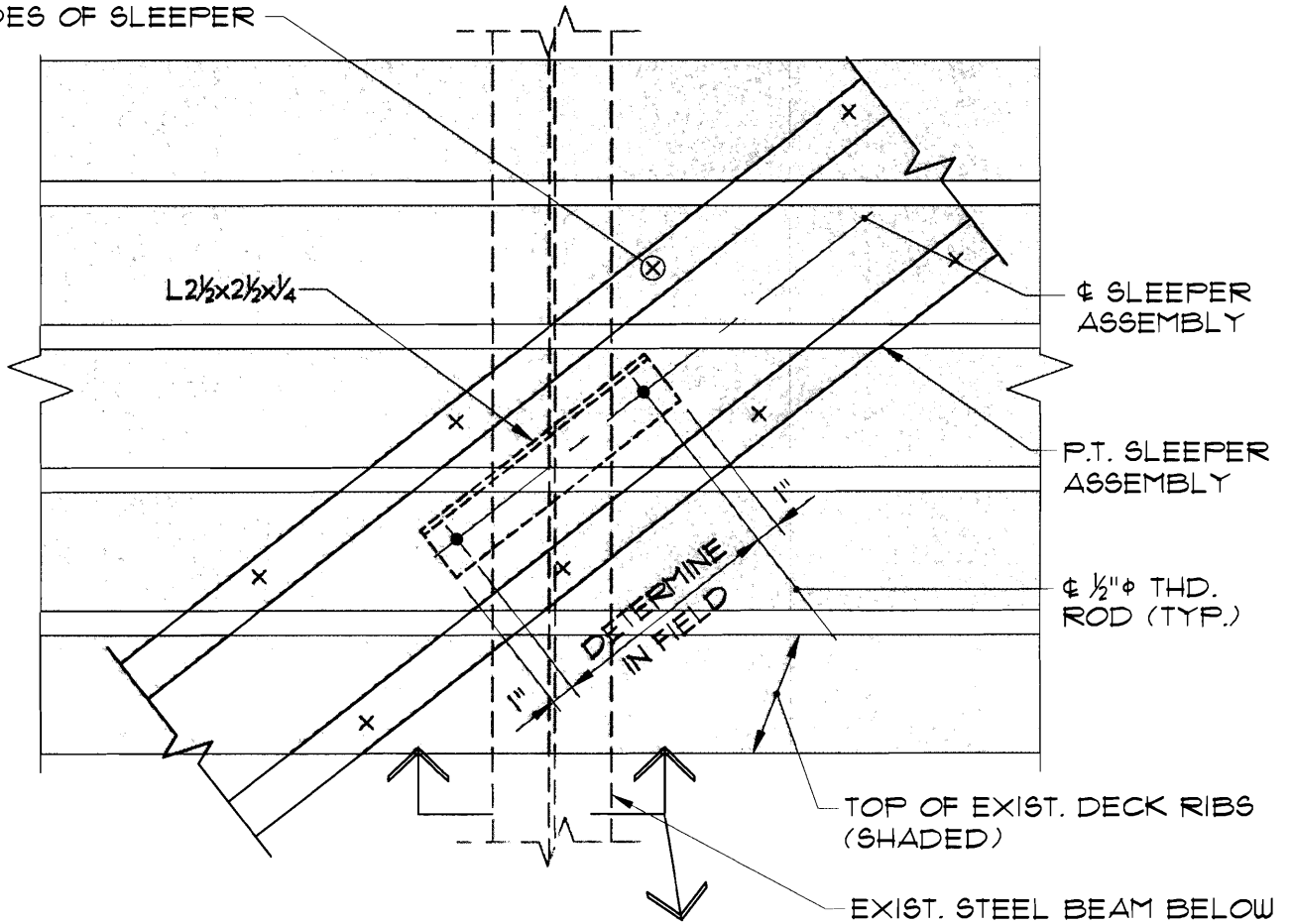


**OAKHURST DAIRY**  
SOLAR PROJECT  
PORTLAND, MAINE

SCALE: AS SHOWN  
DATE: APRIL 25 2008  
DESIGN BY: DKP  
PROJECT: 08311

**SSK-1**

#12 SCREWS @ 12" MAX.  
IN DECK RIBS, BOTH  
SIDES OF SLEEPER



## NORTH ROOF – SLEEPER ATTACHMENT

1/2" = 1'-0"

3 REQ'D PER SLEEPER

P.T. SLEEPER  
ASSEMBLY

NUT & WASHER,  
COUNTERSINK, PEEN  
THREADS

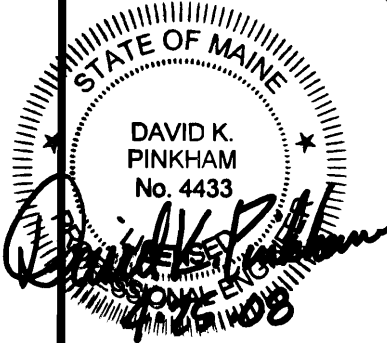
EXIST. 1/2" METAL DECK

EXIST. STEEL BEAM

NUTS W/WASHERS, PEEN  
THREADS

1/2" φ THD. ROD (TYP.)

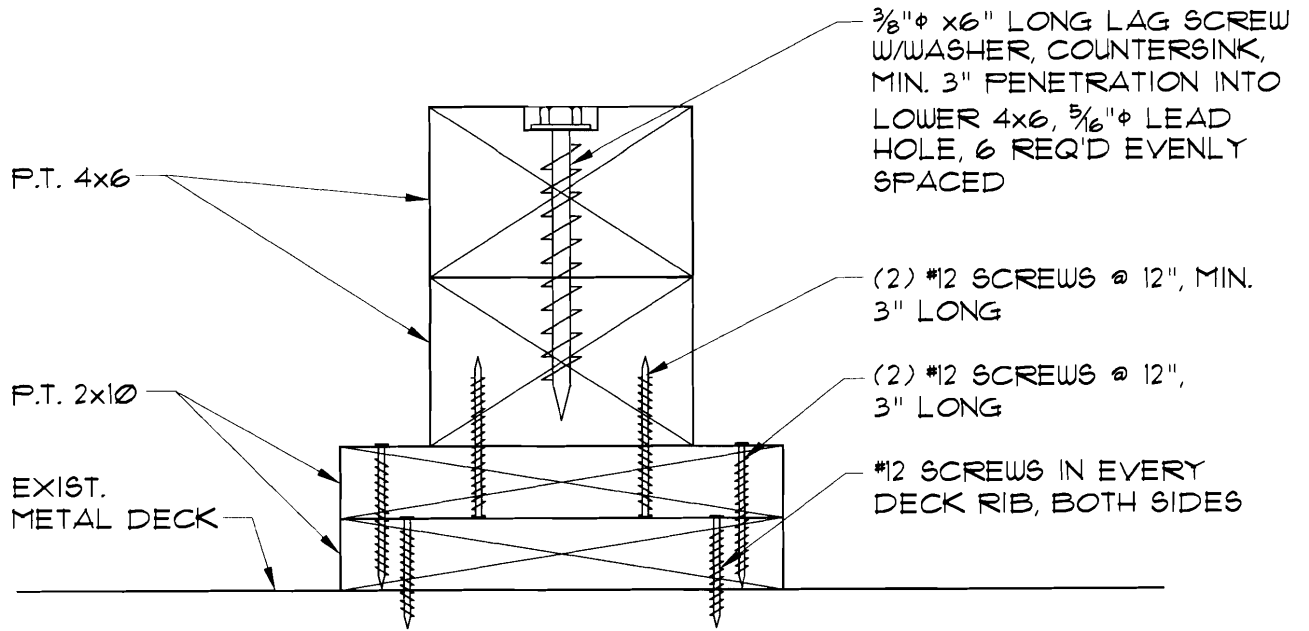
L 2 1/2 x 2 1/2 x 1/4



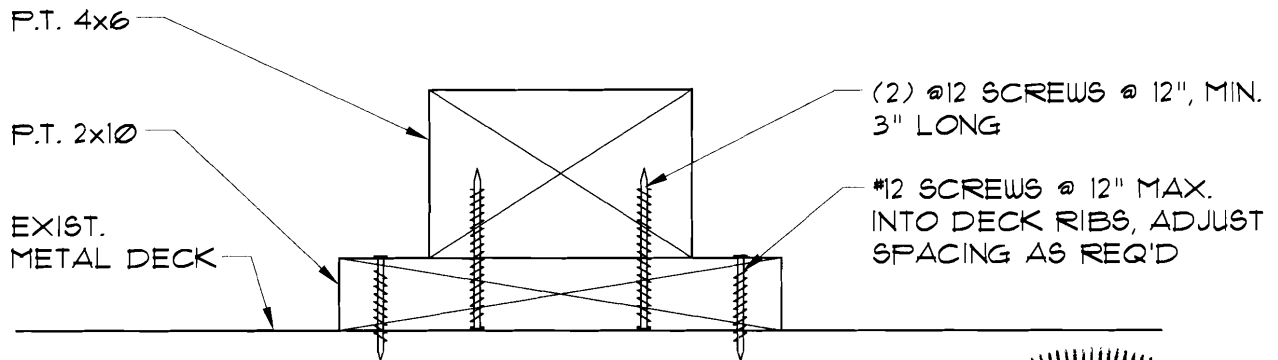
**OAKHURST DAIRY**  
SOLAR PROJECT  
PORTLAND, MAINE

SCALE: AS SHOWN  
DATE: APRIL 25 2008  
DESIGNED BY: DKP  
PROJECT: 08311

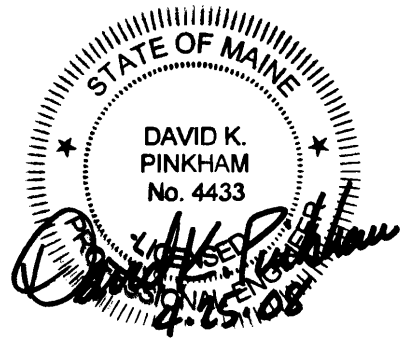
**SSK-2**



**RED BUILDING**



**NORTH ROOF AREA**



**SLEEPER ASSEMBLIES**

3" = 1'-0"



**OAKHURST DAIRY**  
**SOLAR PROJECT**  
**PORTLAND, MAINE**

SCALE: AS SHOWN  
 DATE: APRIL 25 2008  
 DESG BY: DKP  
 PROJECT: 08311

**SSK-3**

NUT & WASHER, COUNTERSINK &  
PEEN THREADS

P.T. 4x6

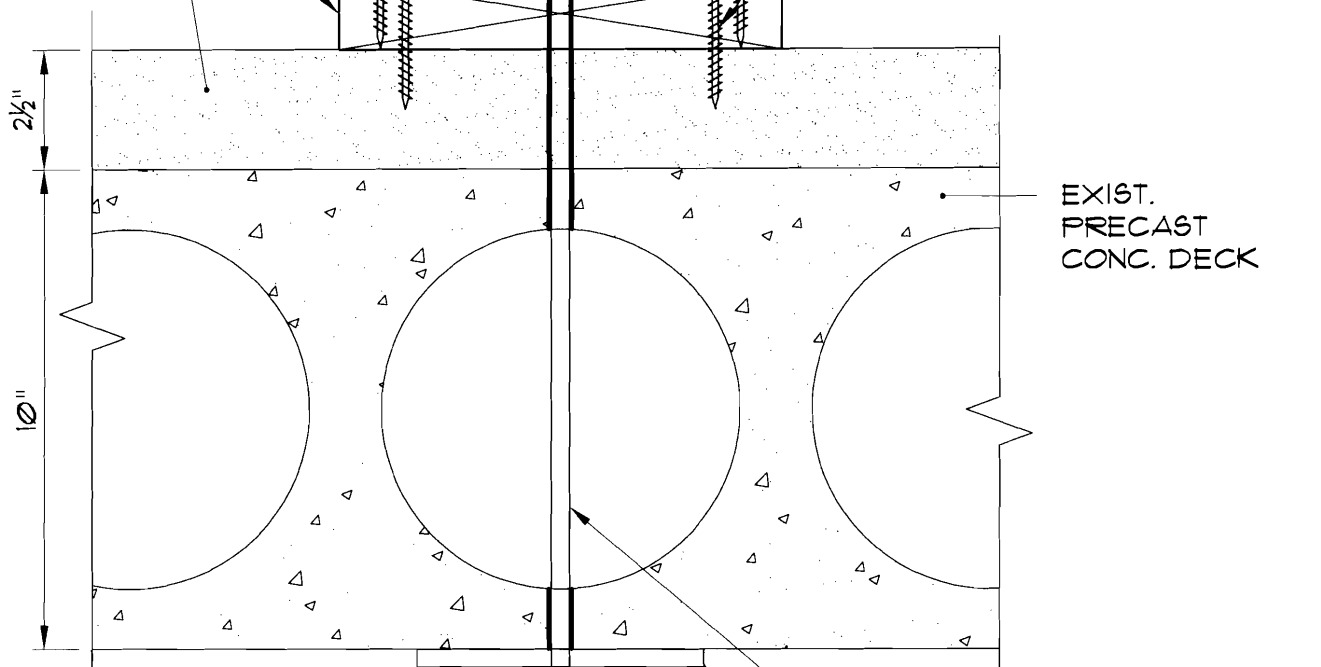
P.T. 2x10

EXIST. CONC  
TOPPING

(2) #12 SCREWS @ 12", MIN. 3"  
LONG

(2) #12 SCREWS @ 12", 3" LONG

(2) 1/4" # MASONRY SCREWS @  
16" O.C., MIN. 1/4" PENETRATION  
INTO CONCRETE



EXIST.  
PRECAST  
CONC. DECK

1/2" # THREADED ROD, 3 REQ'D  
IN EACH SLEEPER  
ASSEMBLY. 1 @ CENTER 1 EA.  
END @ 2' ± FROM END OF  
SLEEPER

#3/8"x6"x6"

DOUBLE NUT OR PEEN  
THREADS

STATE OF MAINE  
 DAVID K. PINKHAM  
 No. 4433  
*David K. Pinkham*  
 4/25/08

**RECEIVING BUILDING**



OAKHURST DAIRY  
SOLAR PROJECT  
PORTLAND, MAINE

SCALE: AS SHOWN  
DATE: APRIL 25 2008  
DESG BY: DKP  
PROJECT: 08311

**SSK-4**

**ENERGY**  
**ASCENDANT**

**Solar Collector  
Array Layout**  
**25 AET 40  
Arrays**  
**Oakhurst Dairy**

Solar Tank # 1  
in Basement  
(est. floor elev. = -8 ft.)

North Roof area  
(est. elev. = 22 ft.)

Approximate  
Case Washer  
Footprint and  
Solar Tank # 2  
(estimated floor  
elev. = 4.0 ft.)



(assumed site datum ground  
elevation = 0.0 ft.)

Electric

Gas

Ammonia

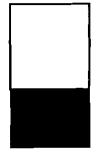
Three Way Valve

Red Building roof area  
(elev. = 42 ft.)

Penthouse roof  
(elev. = 56 ft.)

Central roof area  
(est. elev. = 16 ft.)

**Wilco Circulator  
Pump**



December Shadow  
area (12 feet deep)

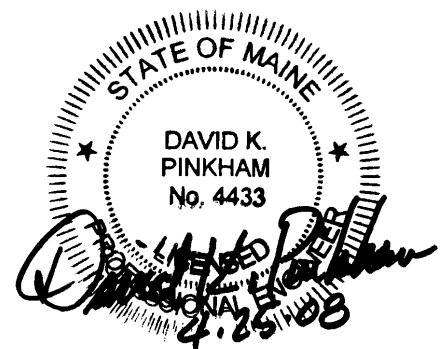
Three Collector Array  
(12.5 feet wide x 8.4  
feet deep)

30 Feet

Receiving Building  
roof area  
(est. elev. = 20 ft.)

**NOTES:**

1. LUMBER FOR SLEEPERS: #2 OR BETTER SOUTHERN PINE, PRESSURE TREATED.
2. SEPARATE P.T. LUMBER FROM METAL DECK WITH BITUTHANE MEMBRANE OR EQUIVALENT.
3. SCREWS: #12 OR  $\phi 0.220$ " THREAD DIAMETER SUITABLE FOR USE WITH PRESSURE TREATED LUMBER.
4. MASONRY SCREWS: EQUIVALENT TO 410 STAINLESS STEEL TAPCON BY BUILDEX.
5. LAG SCREWS & WASHERS:  $\frac{3}{8}$ " DIA. STAINLESS STEEL,  $\frac{5}{16}$ " DIA. LEAD HOLE.
6. THREADED ROD: STAINLESS STEEL, MINIMUM YIELD 36 KSI, WITH STAINLESS STEEL NUTS & WASHERS.
7. STEEL ANGLES: STAINLESS STEEL OR PRIME PAINTED STEEL, MIN. YIELD 36 KSI.
8. **MOUNTING BRACKET CONNECTION TO SLEEPER ASSEMBLY:**  $\frac{3}{8}$ " DIA. x 5" LONG LAG SCREW WITH WASHER, DRILL  $\frac{5}{16}$ "  $\phi$  LEAD HOLE.

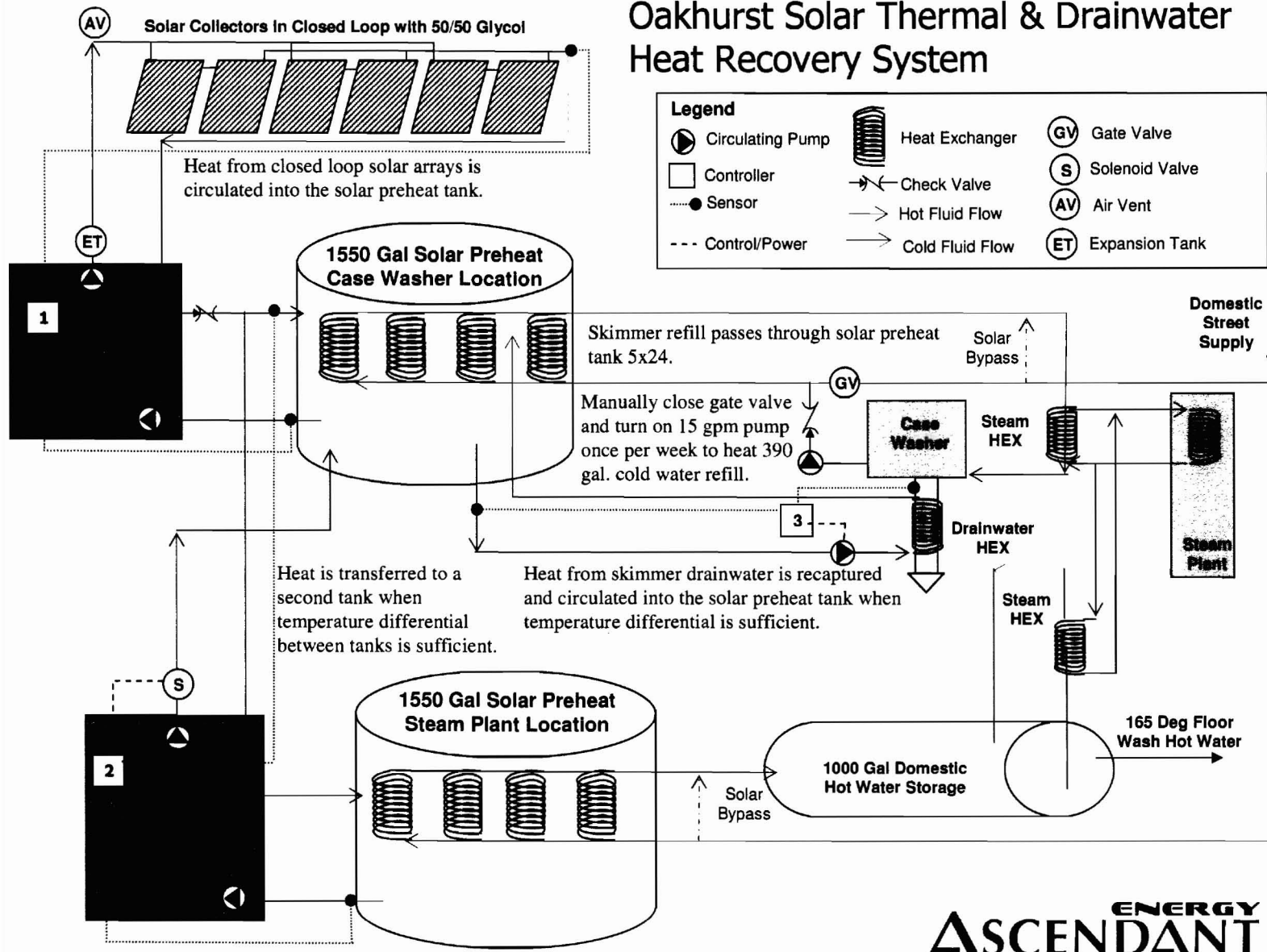


OAKHURST DAIRY  
SOLAR PROJECT  
PORTLAND, MAINE

SCALE: AS SHOWN  
DATE: APRIL 25 2008  
DESG BY: DKP  
PROJECT: 08311

SSK-5

# Oakhurst Solar Thermal & Drainwater Heat Recovery System





# Certificate of Design Application

From Designer: David K. Pinkham, P.E. Pinkham & Greer, Consulting Engineers  
 Date: April 24, 2008  
 Job Name: Oakhurst Dairy Solar Thermal System  
 Address of Construction: 364 Forest Avenue Portland, ME 04101

## 2003 International Building Code

Construction project was designed to the building code criteria listed below:

Building Code & Year IBC 2003 Use Group Classification (s) F2  
 Type of Construction n/a  
 Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2003 IRC n/a  
 Is the Structure mixed use? no If yes, separated or non separated or non separated (section 302.3) \_\_\_\_\_  
 Supervisory alarm System? n/a Geotechnical/Soils report required? (See Section 1802.2) no

### Structural Design Calculations

No Submitted for all structural members (106.1 – 106.11)

### Design Loads on Construction Documents (1603)

Uniformly distributed floor live loads (7603.11, 1807)

Floor Area Use	Loads Shown
<u>n/a</u>	<u>n/a</u>

### Wind loads (1603.1.4, 1609)

ASCE 7-02 Method 2 Design option utilized (1609.1.1, 1609.6)  
100 mph Basic wind speed (1809.3)  
CAT. II, I=1.0 Building category and wind importance Factor,  $I_w$  table 1604.5, 1609.5)  
B Wind exposure category (1609.4)  
n/a Internal pressure coefficient (ASCE 7)  
\* See below Component and cladding pressures (1609.1.1, 1609.6.2.2)  
n/a Main force wind pressures (7603.1.1, 1609.6.2.1)

### Earth design data (1603.1.5, 1614-1623)

n/a Design option utilized (1614.1)  
n/a Seismic use group ("Category")  
n/a Spectral response coefficients,  $S_D$  &  $S_{DI}$  (1615.1)  
n/a Site class (1615.1.5)

\* 18.0 PSF for 25' Roof Ht.  
 19.5 PSF for 40' Roof Ht.

No Live load reduction  
n/a Roof *live* loads (1603.1.2, 1607.11)  
\*\* See below Roof snow loads (1603.7.3, 1608)  
60 PSF Ground snow load,  $P_g$  (1608.2)  
\*\* See below If  $P_g > 10$  psf, flat-roof snow load  $P_f$   
1.0, 1.2 If  $P_g > 10$  psf, snow exposure factor,  $C_e$   
1.0 If  $P_g > 10$  psf, snow load importance factor,  $I_s$   
1.0, 1.1 Roof thermal factor,  $C_t$  (1608.4)  
n/a Sloped roof snowload,  $P_s$  (1608.4)  
n/a Seismic design category (1616.3)  
n/a Basic seismic force resisting system (1617.6.2)  
n/a Response modification coefficient,  $R_d$  and deflection amplification factor  $C_d$  (1617.6.2)  
n/a Analysis procedure (1616.6, 1617.5)  
n/a Design base shear (1617.4, 1617.5.1)

### Flood loads (1803.1.6, 1612)

n/a Flood Hazard area (1612.3)  
n/a Elevation of structure

### Other loads

n/a Concentrated loads (1607.4)  
n/a Partition loads (1607.5)  
Panel wt. 153lb ea Misc. loads (Table 1607.8, 1607.6.1, 1607.7, 1607.12, 1607.13, 1610, 1611, 2404)

\*\* 42 PSF for North Roof. 46 PSF for Receiving Building. 55 PSF for Red Building.





# Commercial Interior & Change of Use Permit Application Checklist

All of the following information is required and must be submitted. Checking off each item as you prepare your application package will ensure your package is complete and will help to expedite the permitting process.

## One (1) complete set of construction drawings must include:

Note: Construction documents for costs in excess of \$50,000.00 must be prepared by a Design Professional and bear their seal.

- Cross sections w/framing details
- N/A  Detail of any new walls or permanent partitions
- N/A  Floor plans and elevations
- N/A  Window and door schedules
- Complete electrical and plumbing layout.
- Mechanical drawings for any specialized equipment such as furnaces, chimneys, gas equipment, HVAC equipment or other types of work that may require special review
- N/A  Insulation R-factors of walls, ceilings, floors & U-factors of windows as per the IECC 2003
- N/A  Proof of ownership is required if it is inconsistent with the assessors records.
- N/A  Reduced plans or electronic files in PDF format are required if originals are larger than 11" x 17".
- N/A  Per State Fire Marshall, all new bathrooms must be ADA compliant.

Separate permits are required for internal and external plumbing, HVAC & electrical installations.

**For additions less than 500 sq. ft. or that does not affect parking or traffic, a site plan exemption should be filed including:**

*See Attached Application for Exemption*

- N/A  The shape and dimension of the lot, footprint of the existing and proposed structure and the distance from the actual property lines.
- N/A  Location and dimensions of parking areas and driveways, street spaces and building frontage.
- N/A  Dimensional floor plan of existing space and dimensional floor plan of proposed space.

A Minor Site Plan Review is required for any change of use between 5,000 and 10,000 sq. ft. (cumulatively within a 3-year period)

**Fire Department requirements.** — N/A

The following shall be submitted on a separate sheet:

- Name, address and phone number of applicant **and** the project architect.
- Proposed use of structure (NFPA and IBC classification)
- Square footage of proposed structure (total and per story)
- Existing and proposed fire protection of structure.
- Separate plans shall be submitted for
  - a) Suppression system
  - b) Detection System (separate permit is required)
- A separate Life Safety Plan must include:
  - a) Fire resistance ratings of all means of egress
  - b) Travel distance from most remote point to exit discharge
  - c) Location of any required fire extinguishers
  - d) Location of emergency lighting
  - e) Location of exit signs
  - f) NFPA 101 code summary
- Elevators shall be sized to fit an 80" x 24" stretcher.

For questions on Fire Department requirements call the Fire Prevention Officer at (207) 874-8405.

**Please submit all of the information outlined in this application checklist. If the application is incomplete, the application may be refused.**

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.

Permit Fee: \$30.00 for the first \$1000.00 construction cost, \$10.00 per additional \$1000.00 cost

**This is not a Permit; you may not commence any work until the Permit is issued.**



# Accessibility Building Code Certificate - N/A

**Designer:** \_\_\_\_\_

**Address of Project:** \_\_\_\_\_

**Nature of Project:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

The technical submissions covering the proposed construction work as described above have been designed in compliance with applicable referenced standards found in the Maine Human Rights Law and Federal Americans with Disability Act. Residential Buildings with 4 units or more must conform to the Federal Fair Housing Accessibility Standards. Please provide proof of compliance if applicable.

**Signature:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Firm:** \_\_\_\_\_

**Address:** \_\_\_\_\_

\_\_\_\_\_

**Phone:** \_\_\_\_\_

**(SEAL)**

For more information or to download this form and other permit applications visit the Inspections Division on our website at [www.portlandmaine.gov](http://www.portlandmaine.gov)



# Certificate of Design

Date: April 24, 2008

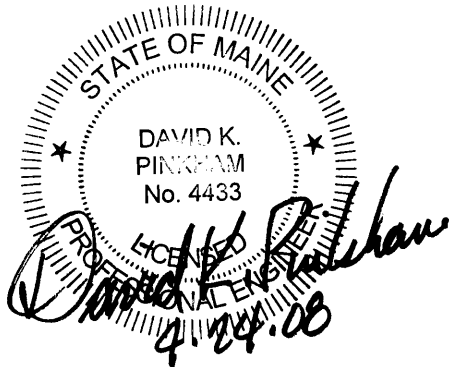
From: David K. Pinkham, P.E. Pinkham & Greer, Consulting Engineers

These plans and / or specifications covering construction work on:

Oakhurst Dairy Solar Thermal System, connection of panel supports to existing roof structure only.

Design of the actual panel supports, panels themselves and other elements of the system is not covered by this certificate.

Have been designed and drawn up by the undersigned, a Maine registered Architect / Engineer according to the *2003 International Building Code* and local amendments.



Signature: David K. Pinkham

Title: President

Firm: Pinkham & Greer, Consulting Engineers

Address: 380 US Route One

Falmouth, ME 04105

Phone: 207-781-5242

For more information or to download this form and other permit applications visit the Inspections Division on our website at [www.portlandmaine.gov](http://www.portlandmaine.gov)

# ASCENDANT ENERGY

April 25, 2008

Barbara Barhydt  
Development Review Services Manager  
Portland City Hall  
389 Congress Street  
Portland, ME 04101

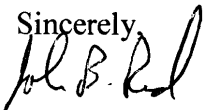
Dear Ms. Barhydt,

Attached please find an Application for Exemption from Site Plan Review for our large array solar thermal system to be installed at Oakhurst Dairy in Portland. I have included a copy of our Building Permit application which has an Array Layout plan, a summary description and other information. I have also attached three printed photo's to help show the location of the arrays and how they will look from street level. One photo, of the USM Gymnasium next door to Oakhurst Dairy, shows how solar collectors on the gym are not readily visible from street grade in the neighborhood.

Importantly, our project does not involve any earthwork or site development as the system will be installed on existing flat roofing. I note that the parapet on the Forest Avenue side of the Red Building as well as the location of collectors on that roof and on the Receiving Building will limit their visibility from adjacent areas of Forest Avenue. Five arrays on the North Roof will be visible from further up Forest Avenue when looking south at the facility. Good views of the collectors will be possible from portions of Durham Street behind the dairy.

I trust the information submitted herein is sufficient to meet the exemption requirements. In the event you have any questions, feel free to call me at 655-4277, or Chris Straka, the CEO of Ascendant Energy at 594-6303.

Sincerely,



John B. Rand

Maine Solar Energy Installer #90000534

Ascendant Energy Company, Inc.

Attachments:

Application for Exemption from Site Plan Review

Photographs

General Building Permit Application – applicable sections w/ attachments



# APPLICATION FOR EXEMPTION FROM SITE PLAN REVIEW

Oakhurst Dairy  
Applicant

4/25/08  
Application Date

364 Forest Avenue, Portland, ME 04101  
Applicant's Mailing Address

Solar Thermal System  
Project Name/Description

Ascendant Energy Company, Inc.  
Consultant/Agent/Phone Number  
Chris Straka 594-6303  
John Rand 655-4277

Same as above  
Address of Proposed Site

CBL: \_\_\_\_\_

### Description of Proposed Development:

Installation of 75 Collector Solar Thermal system on existing Roofing

### Please Attach Sketch/Plan of Proposal/Development

#### Criteria for Exemptions:

See Section 14-523 (4) on back side of form

- a) Within Existing Structures; No New Buildings, Demolitions or Additions
- b) Footprint Increase Less Than 500 Sq. Ft.
- c) No New Curb Cuts, Driveways, Parking Areas
- d) Curbs and Sidewalks in Sound Condition/Comply with ADA
- e) No Additional Parking/ No Traffic Increase
- f) No Stormwater Problems
- g) Sufficient Property Screening
- h) Adequate Utilities

Applicant's Assessment (Yes, No, N/A)	Planning Office Use Only
Yes	
Yes	
Yes/N/A	
Yes/N/A	
Yes/N/A	
N/A	
Yes	
Yes	

2008 0039



# APPLICATION FOR EXEMPTION FROM SITE PLAN REVIEW

Conquest Energy  
Applicant

11/26/08  
Application Date

141 West 10th Ave, Portland, OR 97201  
Applicant's Mailing Address

Water Treatment System  
Project Name/Description

Consultant Engineering Inc  
Consultant/Agent/Phone Number

141 West 10th Ave  
Address of Proposed Site

503-255-1877

CBL: 11/26/08

### Description of Proposed Development:

Installation of 75,000 gal water storage tank and associated piping

### Please Attach Sketch/Plan of Proposal/Development

#### Criteria for Exemptions:

See Section 14-523 (4) on back side of form

- a) Within Existing Structures; No New Buildings, Demolitions or Additions
- b) Footprint Increase Less Than 500 Sq. Ft.
- c) No New Curb Cuts, Driveways, Parking Areas
- d) Curbs and Sidewalks in Sound Condition/Comply with ADA
- e) No Additional Parking/ No Traffic Increase
- f) No Stormwater Problems
- g) Sufficient Property Screening
- h) Adequate Utilities

Applicant's Assessment (Yes, No, N/A)	Planning Office Use Only
Yes	✓
Yes	✓
No	✓
No	✓
No	✓
No	✓
No	✓
No	✓

# ASCENDANT ENERGY

April 25, 2008

Barbara Barhydt  
Development Review Services Manager  
Portland City Hall  
389 Congress Street  
Portland, ME 04101

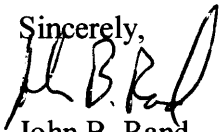
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Attached please find an Application for Exemption from Site Plan Review for our large array solar thermal system to be installed at Oakhurst Dairy in Portland. I have included a copy of our Building Permit application which has an Array Layout plan, a summary description and other information. I have also attached three printed photo's to help show the location of the arrays and how they will look from street level. One photo, of the USM Gymnasium next door to Oakhurst Dairy, shows how solar collectors on the gym are not readily visible from street grade in the neighborhood.

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I trust the information submitted herein is sufficient to meet the exemption requirements. In the event you have any questions, feel free to call me at 655-4277, or Chris Straka, the CEO of Ascendant Energy at 594-6303.

Sincerely,



John B. Rand

Maine Solar Energy Installer #90000534

Ascendant Energy Company, Inc.

Attachments:

Application for Exemption from Site Plan Review

Photographs

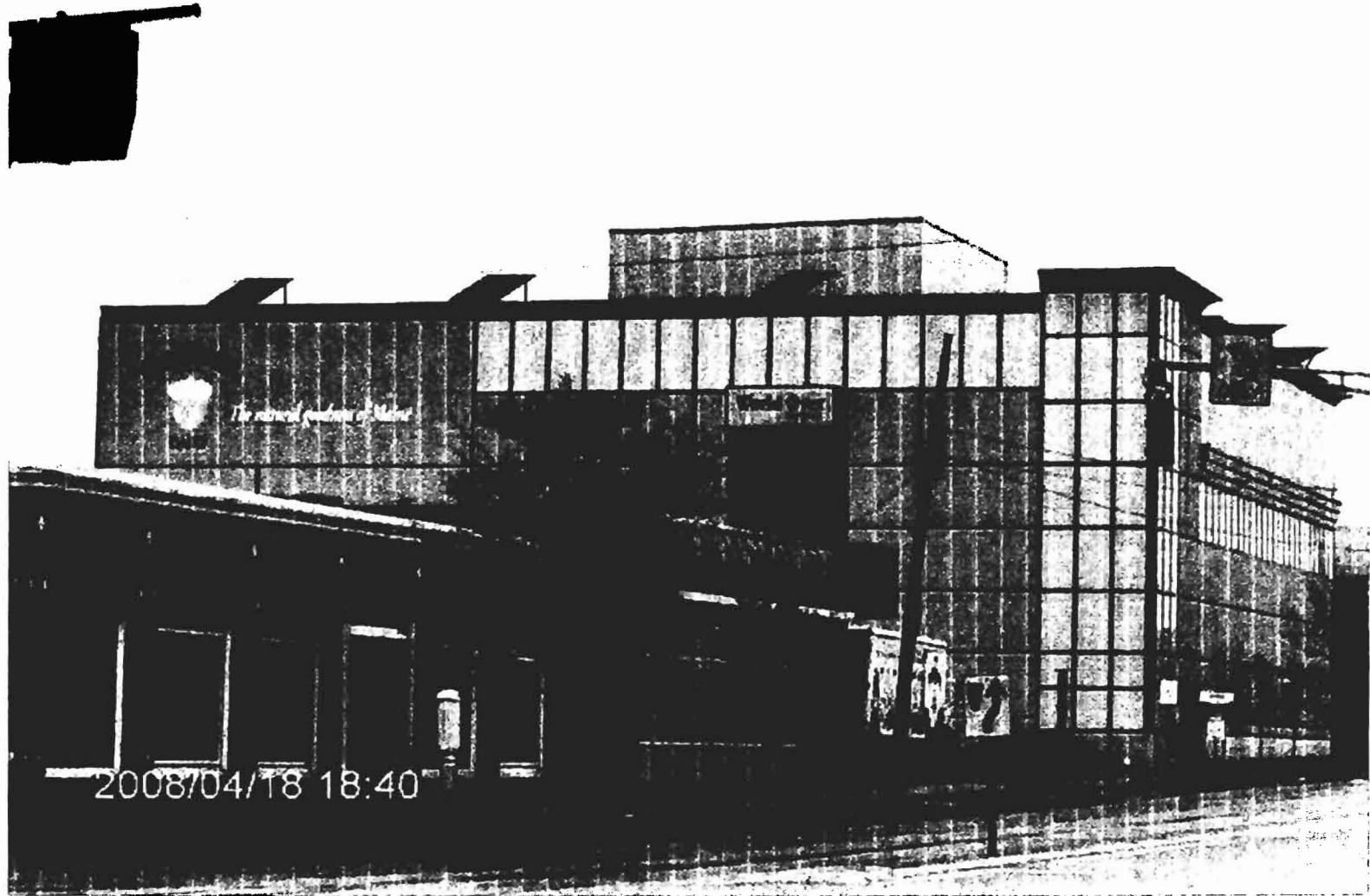
General Building Permit Application – applicable sections w/ attachments



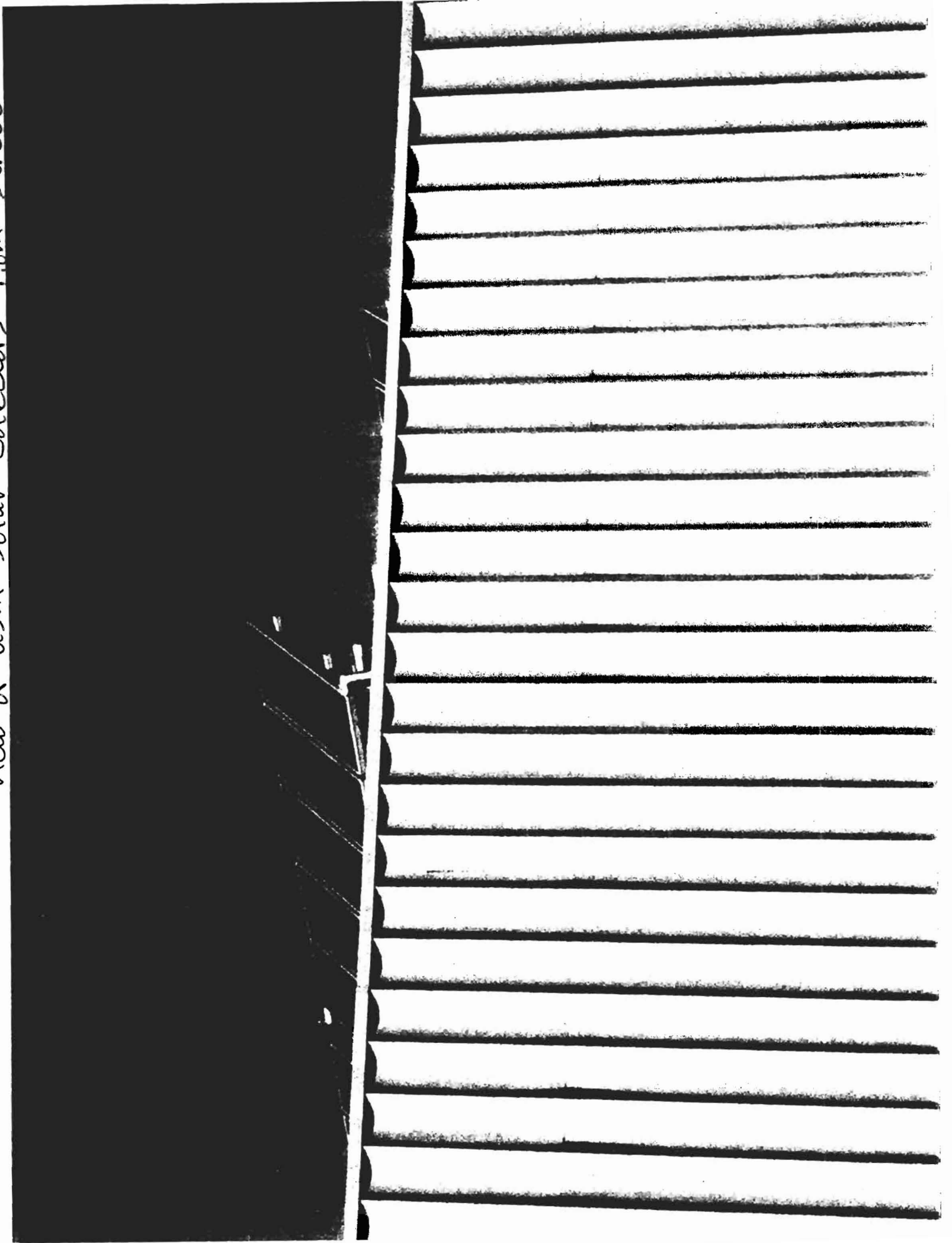
# Oakhurst Dairy Solar Thermal System



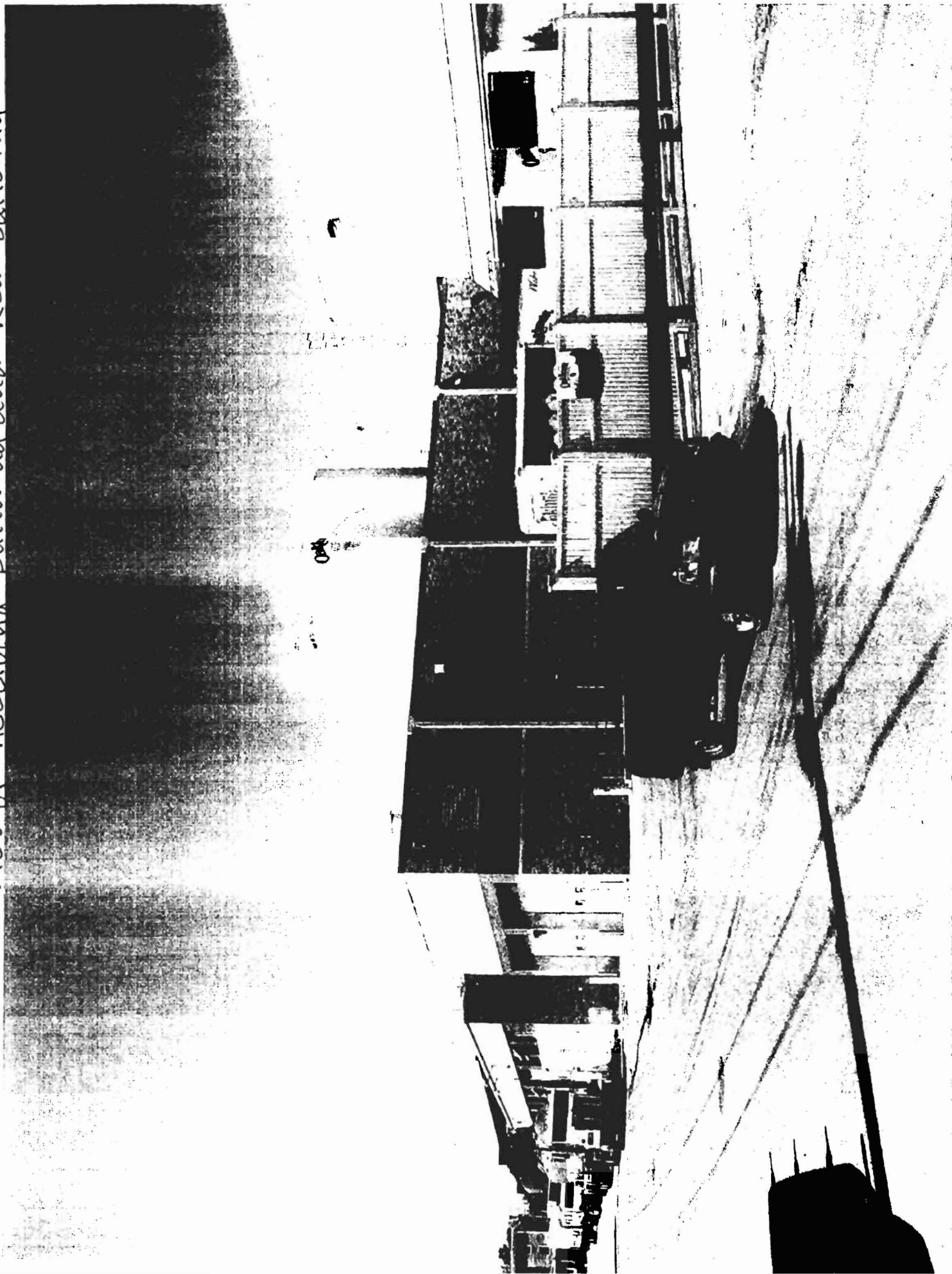
Conceptual View of Arrays from Forest Avenue Looking South



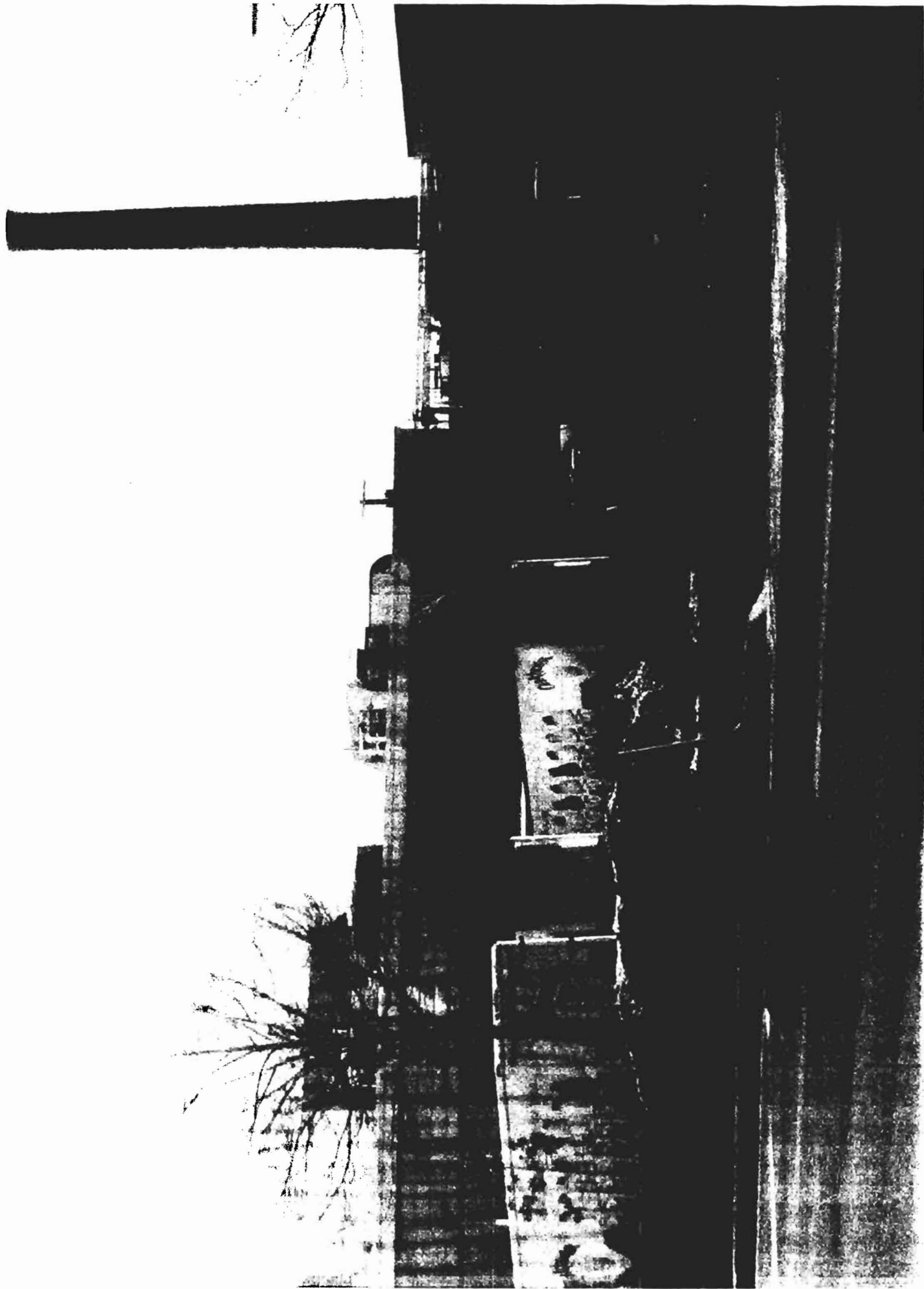
View of USM solar collectors from street



View of Receiving Building and Red Building



View of North Roof looking South





## Installation

Ascendant Energy is installing the system under contract to Oakhurst Dairy and will draw on Portland area licensed plumbing and heating contractors, Maine certified solar energy installers as well as facility staff. The collectors for the system include a 10 year warranty and we have included a 5 year operations and maintenance plan with Oakhurst to ensure peak performance of the system. Our current schedule is to begin the roof preparation and mounting work immediately upon approval with plumbing and tank connections in May and a system start up shortly thereafter.

With our engineering work complete, Ascendant Energy and its contractors are ready to install this solar thermal system for Oakhurst Dairy - one of the largest in New England. We believe this timely project is a clear demonstration of Oakhurst's commitment to sustainability and an opportunity for Portland Maine to show their support for renewable energy. We look forward to a speedy permit approval so that we can make the most of the 2008 solar season. In the event you have any questions, feel free to call me at 655-4277, or Chris Straka, the CEO of Ascendant Energy at 594-6303.

Sincerely,

A handwritten signature in black ink, appearing to read "John B. Rand".

John B. Rand

Maine Solar Energy Installer #90000534

Ascendant Energy Company, Inc.

## Attachments:

Letter and Drawing from David Pinkham, P.E., Pinkham and Greer Consulting Engineers

Solar Collector Array Layout (array and plumbing layout)

Oakhurst Solar Thermal and Heat Recovery System (mechanical drawing)

General Building Permit Application – applicable sections



380 US Route One  
Falmouth, Maine 04105  
Tel. 207.781.5242  
Fax. 207.781.4245

April 24, 2008  
File: 08311

Ms. Jeanie Bourke, Director  
INSPECTIONS SERVICES DIVISION  
Portland City Hall, Room 315  
389 Congress Street  
Portland, Maine 04101

RE: OAKHURST DAIRY SOLAR THERMAL SYSTEM

Dear Ms. Bourke:

At the request of Ascendant Energy Co. and Oakhurst Dairy, Pinkham & Greer has reviewed the roof structure of three buildings at Oakhurst Dairy to determine if the existing structures are adequate to support the collector arrays described in John Rand's letter of April 24, 2008. The three buildings include the North Roof Area, the Red Building, and the Receiving Building. Additionally we have been asked to design connections to attach the solar arrays to the existing roof structures. The addition of solar arrays can increase the design snow load on the roof and will introduce additional loads from wind at the attachment points.

We found the roof structures of three building to be adequate if the arrays are sized and located as shown in the layout drawing prepared by Ascendant Energy.

The 2003 IBC does not require snow drifting to be considered for roof top equipment that is less than 15 feet long. The arrays on the North Roof Area and the Red Building are approximately 12 feet long and are spaced such that drifting need not be considered.

At the Receiving Building, multiple rows of closely spaced arrays will be used. For this location, we evaluated the effect of solar panels on the design snow load using the method described in Section C7.8, Roof Projections, in ASCE 7-02. This assumes that the arrays will "shelter" the roof and increase the snow load in a reasonably uniform manner. To determine the design snow load in this area, we increased the Exposure Factor,  $C_e$ , from 1.0, Partially Sheltered, to 1.2, Sheltered, resulting in a 20% increase in the flat roof snow load. The roof structure of the Receiving Building has the capacity to support this additional load.



Ms. Jeanie Bourke  
April 24, 2008  
Page Two

The connections of the array supports to the roof were designed for wind loads acting on the arrays. Wind loads were determined using Section 6.5.13, Design Wind Loads on Open Buildings and Other Structures. Force coefficients were determined using Figure 6-20, Solid Freestanding Walls and Solid Signs, in ASCE 7-02

The roof framing systems differ for each of the three buildings. Appropriate details for each condition have been developed and are shown on the attached sketches. During installation some modification of these details may be required to accommodate unexpected field conditions. Pinkham & Greer will review any necessary changes during installation.

Sincerely,

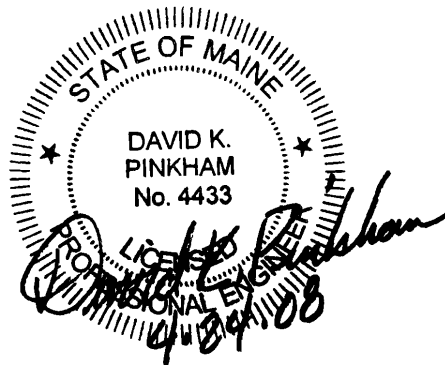
PINKHAM & GREER

A handwritten signature in black ink that reads "David K. Pinkham". The signature is written in a cursive style.

David K. Pinkham, P.E.

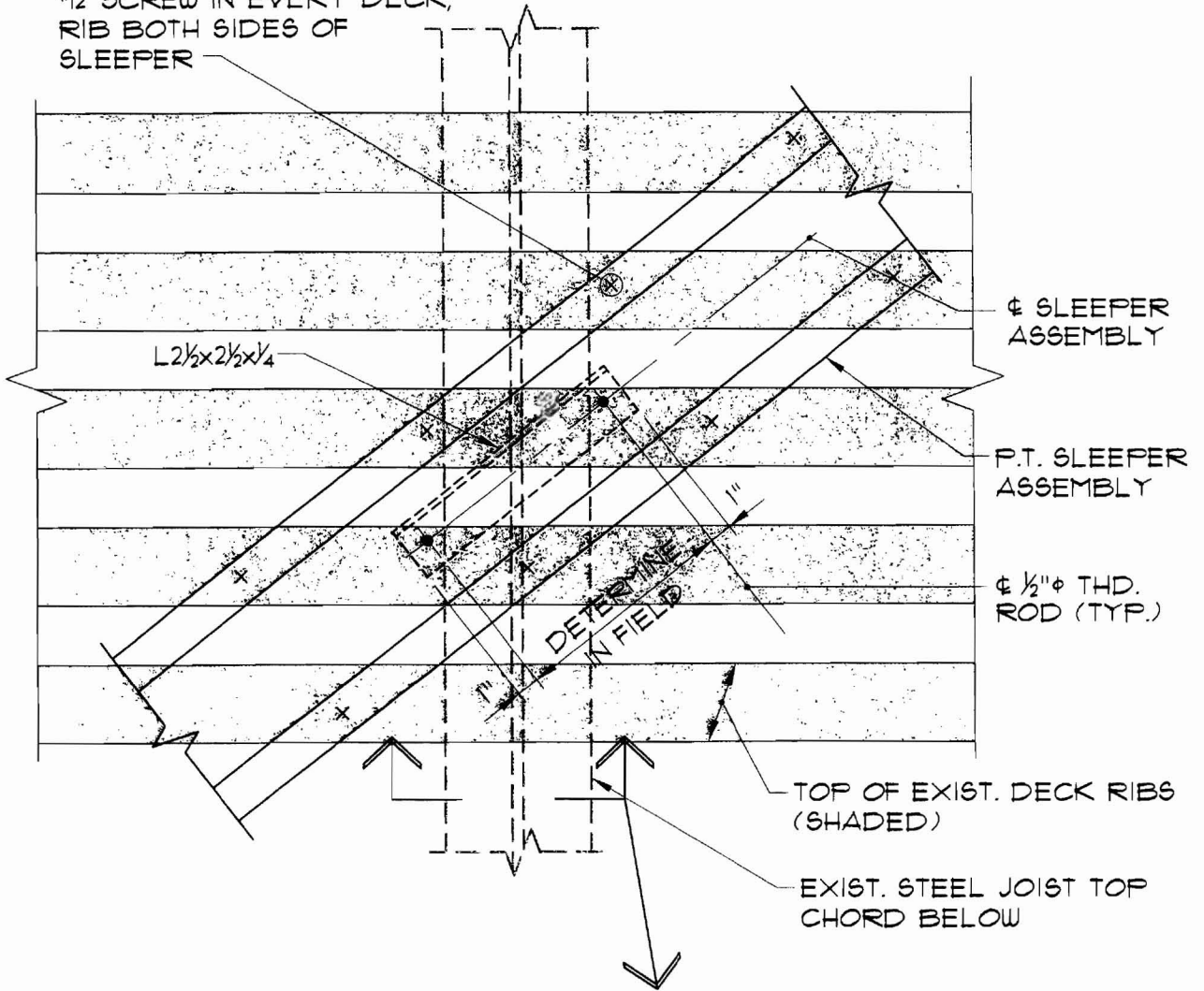
Enclosures

DKP/rjs





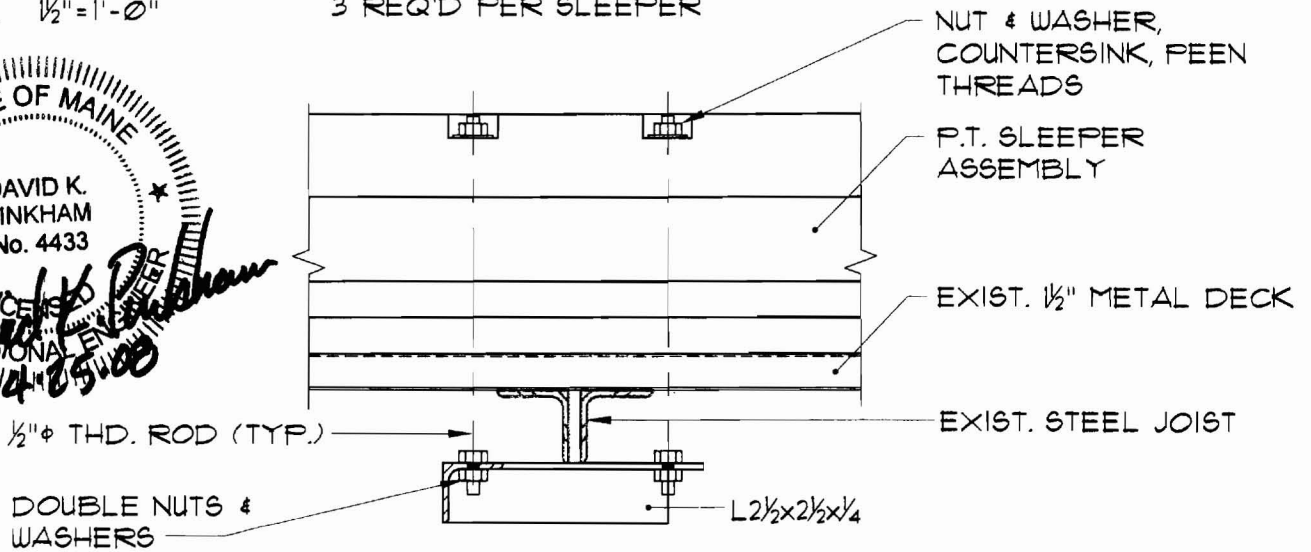
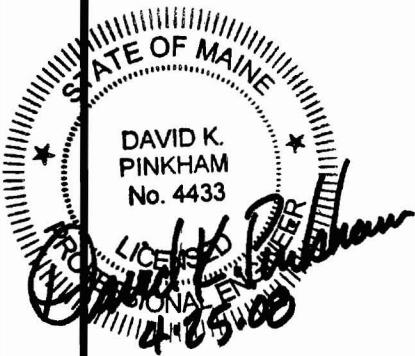
#12 SCREW IN EVERY DECK,  
RIB BOTH SIDES OF  
SLEEPER



## RED BUILDING - SLEEPER ATTACHMENT

½" = 1'-0"

3 REQ'D PER SLEEPER

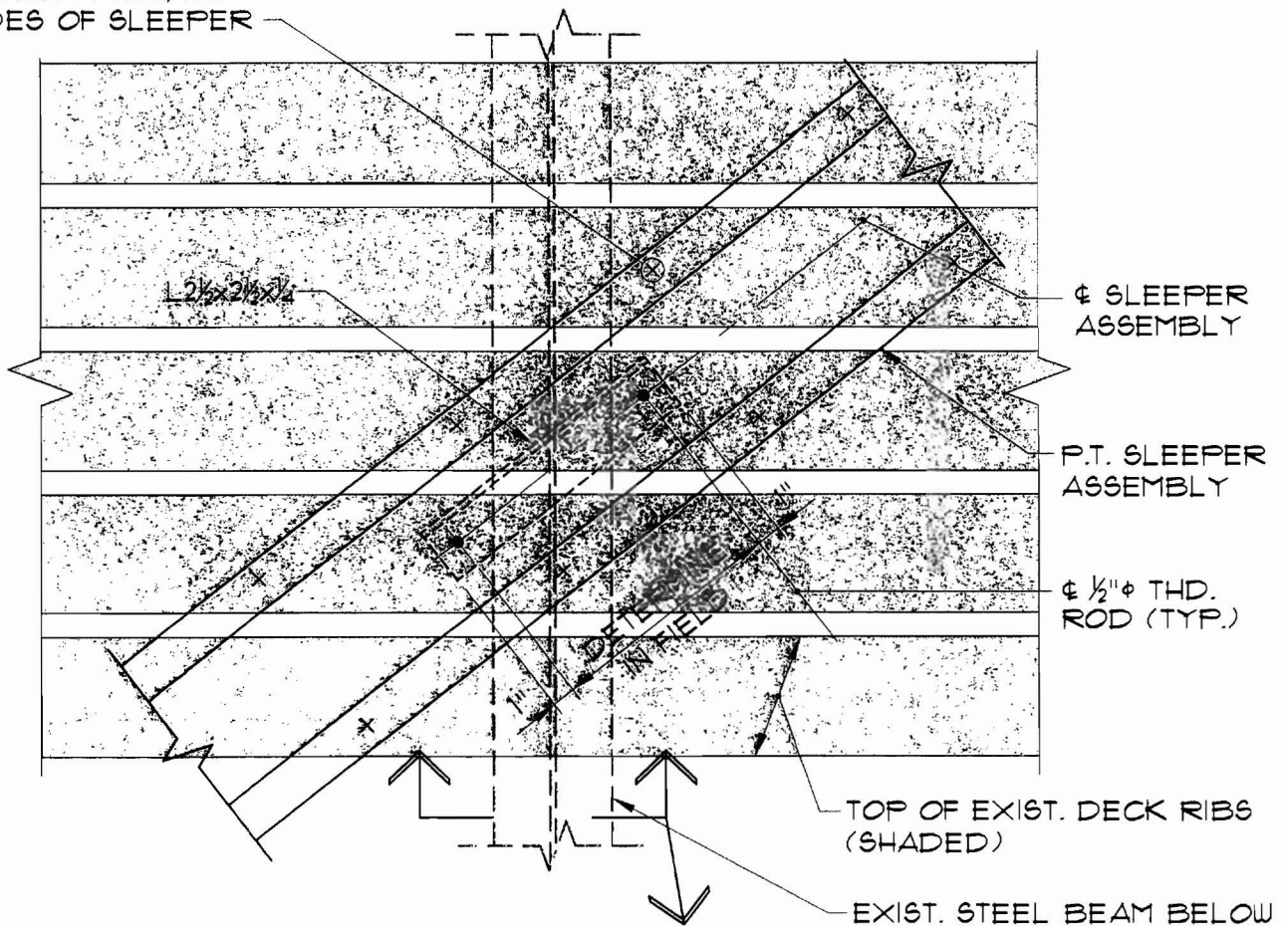


OAKHURST DAIRY  
 SOLAR PROJECT  
 PORTLAND, MAINE

SCALE: AS SHOWN  
 DATE: APRIL 25 2008  
 DESG BY: DKP  
 PROJECT: 08311

SSK-1

#12 SCREWS @ 12" MAX.  
IN DECK RIBS, BOTH  
SIDES OF SLEEPER



## NORTH ROOF – SLEEPER ATTACHMENT

1/2" = 1' - 0"

3 REQ'D PER SLEEPER

P.T. SLEEPER  
ASSEMBLY

NUT & WASHER,  
COUNTERSINK, PEEN  
THREADS

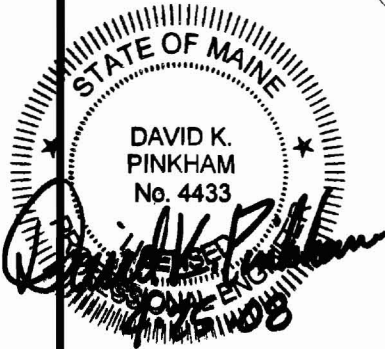
EXIST. 1/2" METAL DECK

EXIST. STEEL BEAM

NUTS W/WASHERS, PEEN  
THREADS

1/2" φ THD. ROD (TYP.)

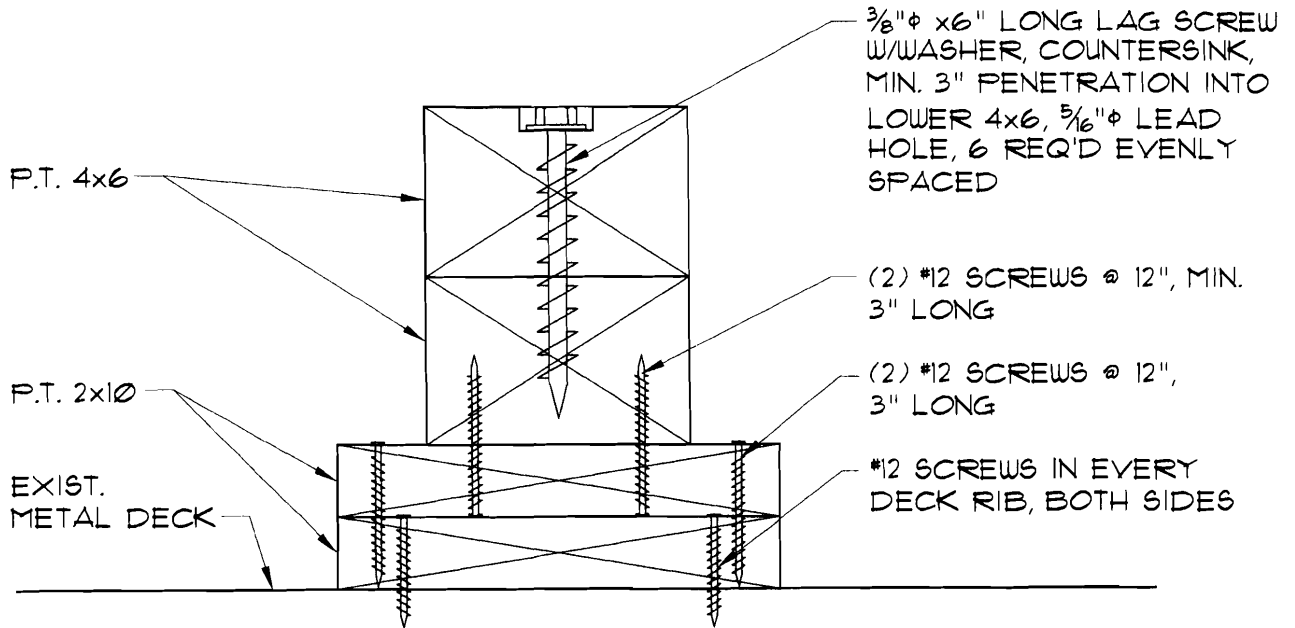
L2 1/2 x 2 1/2 x 1/4



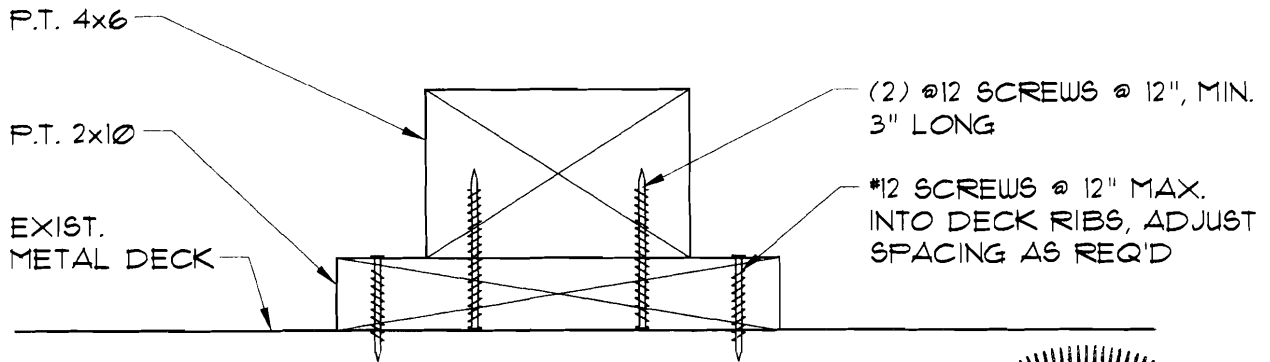
OAKHURST DAIRY  
SOLAR PROJECT  
PORTLAND, MAINE

SCALE: AS SHOWN  
DATE: APRIL 25 2008  
DESIGNED BY: DKP  
PROJECT: 08311

SSK-2



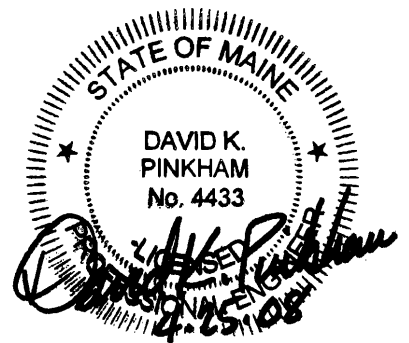
**RED BUILDING**



**NORTH ROOF AREA**

**SLEEPER ASSEMBLIES**

3" = 1'-0"



**OAKHURST DAIRY  
 SOLAR PROJECT  
 PORTLAND, MAINE**

SCALE: AS SHOWN  
 DATE: APRIL 25 2008  
 DESG BY: DKP  
 PROJECT: 08311

**SSK-3**

NUT & WASHER, COUNTERSINK &  
PEEN THREADS

P.T. 4x6

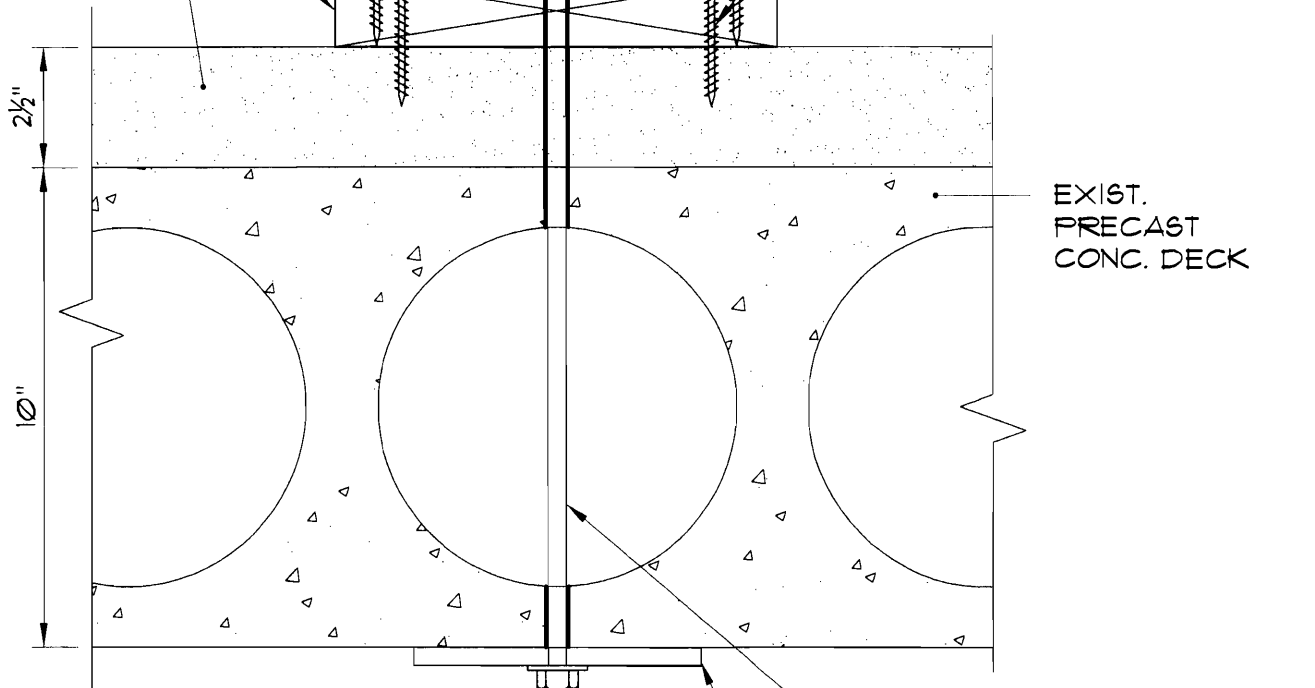
P.T. 2x10

EXIST. CONC  
TOPPING

(2) #12 SCREWS @ 12", MIN. 3"  
LONG

(2) #12 SCREWS @ 12", 3" LONG

(2) 1/4" φ MASONRY SCREWS @  
16" O.C., MIN. 1/4" PENETRATION  
INTO CONCRETE

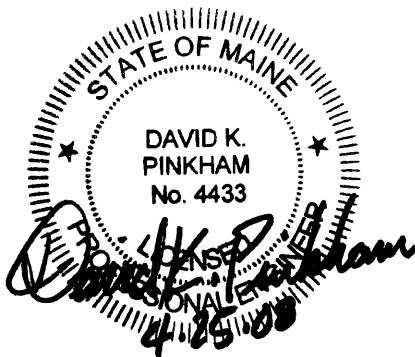


EXIST.  
PRECAST  
CONC. DECK

1/2" φ THREADED ROD, 3 REQ'D  
IN EACH SLEEPER  
ASSEMBLY. 1 @ CENTER 1 EA.  
END @ 2'± FROM END OF  
SLEEPER

2 3/8" x 6" x 6"

DOUBLE NUT OR PEEN  
THREADS



**RECEIVING BUILDING**



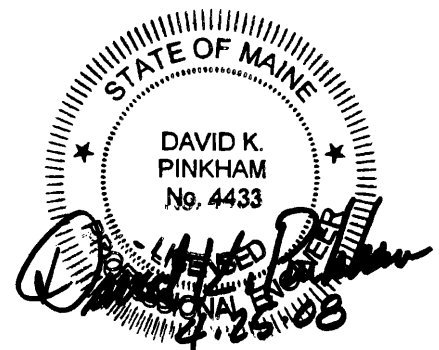
**OAKHURST DAIRY  
SOLAR PROJECT  
PORTLAND, MAINE**

SCALE: AS SHOWN  
DATE: APRIL 25 2008  
DESIGN BY: DKP  
PROJECT: 08311

**SSK-4**

**NOTES:**

1. LUMBER FOR SLEEPERS: #2 OR BETTER SOUTHERN PINE, PRESSURE TREATED.
2. SEPARATE P.T. LUMBER FROM METAL DECK WITH BITUTHANE MEMBRANE OR EQUIVALENT.
3. SCREWS: #12 OR  $\varnothing.22\varnothing$ " THREAD DIAMETER SUITABLE FOR USE WITH PRESSURE TREATED LUMBER.
4. MASONRY SCREWS: EQUIVALENT TO 410 STAINLESS STEEL TAPCON BY BUILDEX.
5. LAG SCREWS & WASHERS:  $\frac{3}{8}$ " DIA. STAINLESS STEEL,  $\frac{5}{16}$ " DIA. LEAD HOLE.
6. THREADED ROD: STAINLESS STEEL, MINIMUM YIELD 36 KSI, WITH STAINLESS STEEL NUTS & WASHERS.
7. STEEL ANGLES: STAINLESS STEEL OR PRIME PAINTED STEEL, MIN. YIELD 36 KSI.
8. **MOUNTING BRACKET CONNECTION TO SLEEPER ASSEMBLY:**  $\frac{3}{8}$ " DIA. x 5" LONG LAG SCREW WITH WASHER, DRILL  $\frac{5}{16}$ "  $\phi$  LEAD HOLE.



OAKHURST DAIRY  
SOLAR PROJECT  
PORTLAND, MAINE

SCALE: AS SHOWN  
DATE: APRIL 25 2008  
DESG BY: DKP  
PROJECT: 08311

SSK-5

**ENERGY**  
**ASCENDANT**

**Solar Collector  
Array Layout**  
**25 AET 40  
Arrays**  
**Oakhurst Dairy**



Solar Tank # 1  
in Basement  
(est. floor elev. = -8 ft.)

North Roof area  
(est. elev. = 22 ft.)

Approximate  
Case Washer  
Footprint and  
Solar Tank # 2  
(estimated floor  
elev. = 4.0 ft.)

(assumed site datum ground  
elevation = 0.0 ft.)

Electric

Gas

Ammonia

Three Way Valve

Red Building roof area  
(elev. = 42 ft.)

Penthouse roof  
(elev. = 56 ft.)

Central roof area  
(est. elev. = 16 ft.)

**Wilco Circulator  
Pump**

Receiving Building  
roof area  
(est. elev. = 20 ft.)

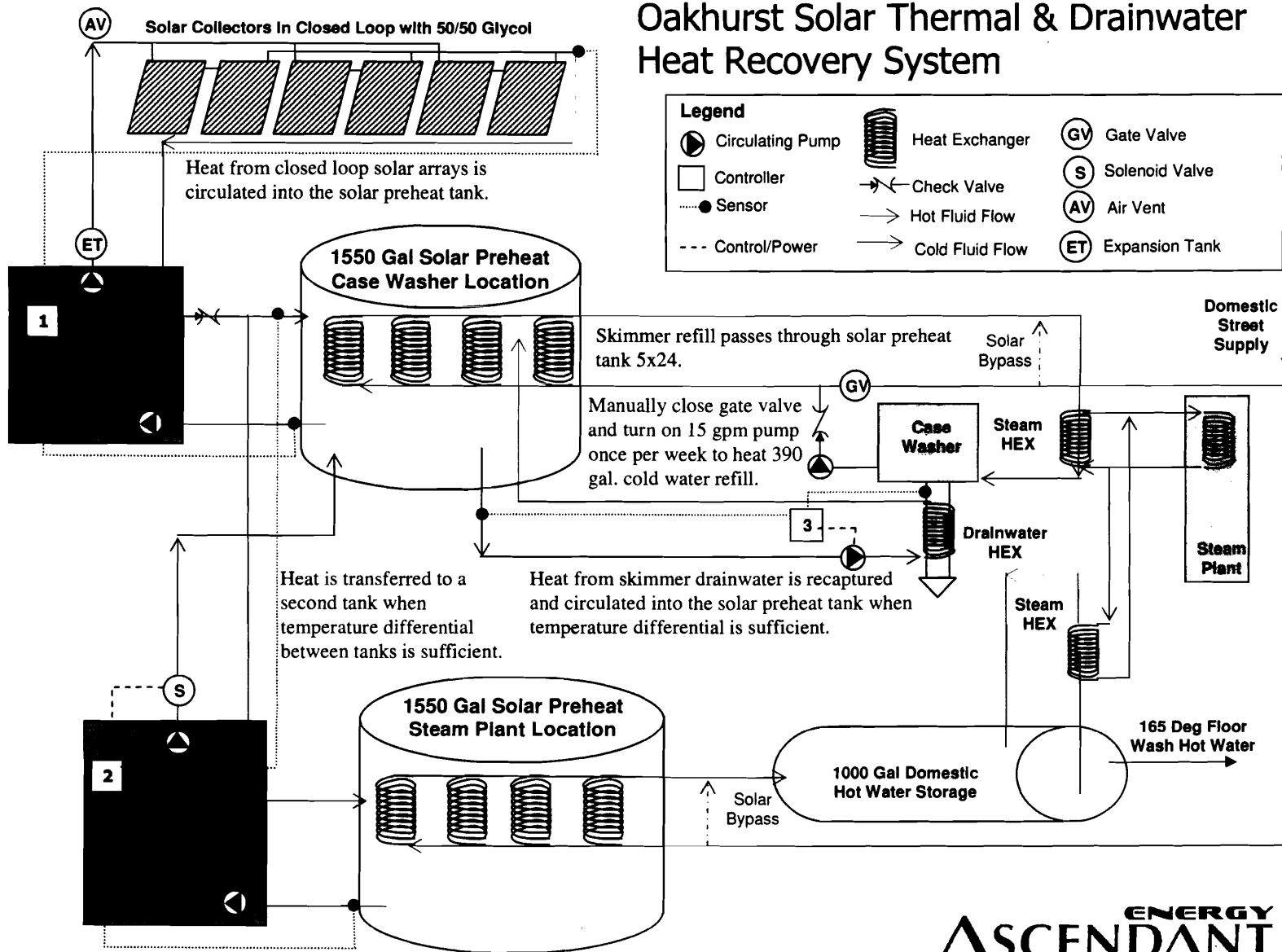


December Shadow  
area (12 feet deep)

Three Collector Array  
(12.5 feet wide x 8.4  
feet deep)

30 Feet

# Oakhurst Solar Thermal & Drainwater Heat Recovery System





# 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>Oakhurst Dairy 364 Forest Avenue</u>		
Total Square Footage of Proposed Structure/Area <u>2700 Ft<sup>2</sup> of collectors on existing roof areas</u>		Square Footage of Lot <u>~ 90,000</u>
Tax Assessor's Chart, Block & Lot Chart#      Block#      Lot# <u>114A      F      001</u>		Applicant * <u>must be owner, Lessee or Buyer</u> * Name <u>Oakhurst Dairy</u> Address <u>364 Forest Avenue</u> City, State & Zip <u>Portland, ME 04101</u>
Telephone: <u>772-7468</u>		
Lessee/DBA (If Applicable) <u>N/A</u>	Owner (if different from Applicant) Name Address City, State & Zip	Cost Of Work: \$ <u>187,000</u> C of O Fee: \$ _____ Total Fee: \$ <u>1,890.00</u>
Current legal use (i.e. single family) <u>Industrial</u>		
If vacant, what was the previous use? <u>N/A</u>		
Proposed Specific use: <u>Solar Thermal System</u>		
Is property part of a subdivision? <u>No</u> If yes, please name _____		
Project description: <u>Installation of a 75 collector Solar Thermal system for pre-heating floor and milk crate wash water. System will save 5000 gallons of heating oil per year (see attached cover letter).</u>		
Contractor's name: <u>Ascendant Energy Company, Inc.</u>		
Address: <u>313 Main St., Suite 204</u>		
City, State & Zip <u>Rockland, ME 04841</u>		Telephone: <u>594-6303</u>
Who should we contact when the permit is ready: <u>John B. Rand</u>		Telephone: <u>655-4277</u>
Mailing address: <u>20 Dryad Woods Rd. Raymond, ME 04071</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: J.B. Rand for Ascendant Energy      Date: 4/25/08

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

Energy





# Certificate of Design Application

From Designer: David K. Pinkham, P.E. Pinkham & Greer, Consulting Engineers  
 Date: April 24, 2008  
 Job Name: Oakhurst Dairy Solar Thermal System  
 Address of Construction: 364 Forest Avenue Portland, ME 04101

## 2003 International Building Code

Construction project was designed to the building code criteria listed below:

Building Code & Year IBC 2003 Use Group Classification (s) F2

Type of Construction n/a

Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2003 IRC n/a

Is the Structure mixed use? no If yes, separated or non separated or non separated (section 302.3) \_\_\_\_\_

Supervisory alarm System? n/a Geotechnical/Soils report required? (See Section 1802.2) no

### Structural Design Calculations

No Submitted for all structural members (106.1 - 106.11)

### Design Loads on Construction Documents (1603)

Uniformly distributed floor live loads (7603.11, 1807)

Floor Area Use	Loads Shown
<u>n/a</u>	<u>n/a</u>

### Wind loads (1603.1.4, 1609)

ASCE 7-02 Method 2 Design option utilized (1609.1.1, 1609.6)  
100 mph Basic wind speed (1809.3)  
CAT. II, I=1.0 Building category and wind importance Factor,  $I_w$  table 1604.5, 1609.5  
B Wind exposure category (1609.4)  
n/a Internal pressure coefficient (ASCE 7)  
\* See below Component and cladding pressures (1609.1.1, 1609.6.2.2)  
n/a Main force wind pressures (7603.1.1, 1609.6.2.1)

### Earth design data (1603.1.5, 1614-1623)

n/a Design option utilized (1614.1)  
n/a Seismic use group ("Category")  
n/a Spectral response coefficients,  $S_D$  &  $S_I$  (1615.1)  
n/a Site class (1615.1.5)

\* 18.0 PSF for 25' Roof Ht.  
 19.5 PSF for 40' Roof Ht.

No Live load reduction  
n/a Roof *live* loads (1603.1.2, 1607.11)  
\*\* See below Roof snow loads (1603.7.3, 1608)  
60 PSF Ground snow load,  $P_g$  (1608.2)  
\*\* See below If  $P_g > 10$  psf, flat-roof snow load  $P_f$   
1.0, 1.2 If  $P_g > 10$  psf, snow exposure factor,  $C_e$   
1.0 If  $P_g > 10$  psf, snow load importance factor,  $I_s$   
1.0, 1.1 Roof thermal factor,  $C_t$  (1608.4)  
n/a Sloped roof snowload,  $P_s$  (1608.4)  
n/a Seismic design category (1616.3)  
n/a Basic seismic force resisting system (1617.6.2)  
n/a Response modification coefficient,  $R$ , and deflection amplification factor  $C_d$  (1617.6.2)  
n/a Analysis procedure (1616.6, 1617.5)  
n/a Design base shear (1617.4, 1617.5.1)

### Flood loads (1803.1.6, 1612)

n/a Flood Hazard area (1612.3)  
n/a Elevation of structure

### Other loads

n/a Concentrated loads (1607.4)  
n/a Partition loads (1607.5)  
Panel wt. 153lb ea Misc. loads (Table 1607.8, 1607.6.1, 1607.7, 1607.12, 1607.13, 1610, 1611, 2404)

\*\* 42 PSF for North Roof. 46 PSF for Receiving Building. 55 PSF for Red Building.



# Commercial Interior & Change of Use Permit Application Checklist

All of the following information is required and must be submitted. Checking off each item as you prepare your application package will ensure your package is complete and will help to expedite the permitting process.

## One (1) complete set of construction drawings must include:

Note: Construction documents for costs in excess of \$50,000.00 must be prepared by a Design Professional and bear their seal.

- Cross sections w/framing details
- N/A  Detail of any new walls or permanent partitions
- N/A  Floor plans and elevations
- N/A  Window and door schedules
- Complete electrical and plumbing layout.
- Mechanical drawings for any specialized equipment such as furnaces, chimneys, gas equipment, HVAC equipment or other types of work that may require special review
- N/A  Insulation R-factors of walls, ceilings, floors & U-factors of windows as per the IECC 2003
- N/A  Proof of ownership is required if it is inconsistent with the assessors records.
- N/A  Reduced plans or electronic files in PDF format are required if originals are larger than 11" x 17".
- N/A  Per State Fire Marshall, all new bathrooms must be ADA compliant.

Separate permits are required for internal and external plumbing, HVAC & electrical installations.

**For additions less than 500 sq. ft. or that does not affect parking or traffic, a site plan exemption should be filed including:** *See Attached Application For Exemption*

- N/A  The shape and dimension of the lot, footprint of the existing and proposed structure and the distance from the actual property lines.
- N/A  Location and dimensions of parking areas and driveways, street spaces and building frontage.
- N/A  Dimensional floor plan of existing space and dimensional floor plan of proposed space.

A Minor Site Plan Review is required for any change of use between 5,000 and 10,000 sq. ft. (cumulatively within a 3-year period)

**Fire Department requirements.** — N/A

The following shall be submitted on a separate sheet:

- Name, address and phone number of applicant **and** the project architect.
- Proposed use of structure (NFPA and IBC classification)
- Square footage of proposed structure (total and per story)
- Existing and proposed fire protection of structure.
- Separate plans shall be submitted for
  - a) Suppression system
  - b) Detection System (separate permit is required)
- A separate Life Safety Plan must include:
  - a) Fire resistance ratings of all means of egress
  - b) Travel distance from most remote point to exit discharge
  - c) Location of any required fire extinguishers
  - d) Location of emergency lighting
  - e) Location of exit signs
  - f) NFPA 101 code summary
- Elevators shall be sized to fit an 80" x 24" stretcher.

For questions on Fire Department requirements call the Fire Prevention Officer at (207) 874-8401

**Please submit all of the information outlined in this application checklist. If the application is incomplete, the application may be refused.**

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.

Permit Fee: \$30.00 for the first \$1000.00 construction cost, \$10.00 per additional \$1000.00 cost

**This is not a Permit; you may not commence any work until the Permit is issued.**



# Accessibility Building Code Certificate - N/A

**Designer:** \_\_\_\_\_

**Address of Project:** \_\_\_\_\_

**Nature of Project:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

The technical submissions covering the proposed construction work as described above have been designed in compliance with applicable code and standards found in the Maine Human Rights Law and Federal Americans with Disability Act. Residential buildings with 3 units or more must conform to the Federal Fair Housing Accessibility Standards. Please provide proof of compliance if applicable.

**Signature:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Firm:** \_\_\_\_\_

**Address:** \_\_\_\_\_

\_\_\_\_\_

**Phone:** \_\_\_\_\_

**(SEAL)**

For more information or to download this form and other permit applications visit the Inspections Division on our website at [www.portlandmaine.gov](http://www.portlandmaine.gov)



# Certificate of Design

Date: April 24, 2008

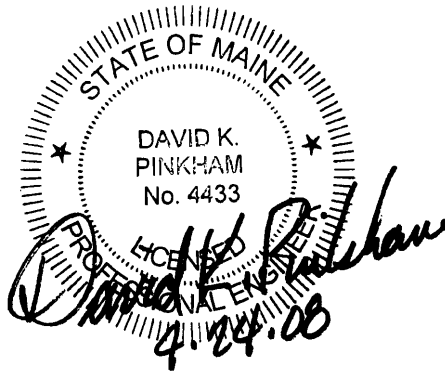
From: David K. Pinkham, P.E. Pinkham & Greer, Consulting Engineers

These plans and / or specifications covering construction work on:

Oakhurst Dairy Solar Thermal System, connection of panel supports to existing roof structure only.

Design of the actual panel supports, panels themselves and other elements of the system is not covered by this certificate.

Have been designed and drawn up by the undersigned, a Maine registered Architect / Engineer according to the *2003 International Building Code* and local amendments.



Signature: David K. Pinkham

Title: President

Firm: Pinkham & Greer, Consulting Engineers

Address: 380 US Route One

Falmouth, ME 04105

Phone: 207-781-5242

For more information or to download this form and other permit applications visit the Inspections Division on our website at [www.portlandmaine.gov](http://www.portlandmaine.gov)

# BUILDING PERMIT INSPECTION PROCEDURES

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

to schedule your inspections as agreed upon

Permits expire in 6 months, if the project is not started or ceases for 6 months.

The Owner or their designee is required to notify the inspections office for the following inspections and provide adequate notice. Notice must be called in 48-72 hours in advance in order to schedule an inspection:

By initializing at each inspection time, you are agreeing that you understand the inspection procedure and additional fees from a "Stop Work Order" and "Stop Work Order Release" will be incurred if the procedure is not followed as stated below.

A Pre-construction Meeting will take place upon receipt of your building permit.

  X   Framing/Rough Plumbing/Electrical: Prior to Any Insulating or drywalling

  X   Final inspection required at completion of work.

Certificate of Occupancy is not required for certain projects. Your inspector can advise you if your project requires a Certificate of Occupancy. All projects DO require a final inspection.

If any of the inspections do not occur, the project cannot go on to the next phase, REGARDLESS OF THE NOTICE OR CIRCUMSTANCES.

**CERIFICATE OF OCCUPANICES MUST BE ISSUED AND PAID FOR, BEFORE THE SPACE MAY BE OCCUPIED.**

John B. Paul for Ascendant Energy  
Signature of Applicant/Designee

5/21/08  
Date

[Signature]  
Signature of Inspections Official

5/21/08  
Date