American Recovery and Reinvestment Act (ARRA): Energy Efficiency and Conservation Block Grant (EECBG) Competitive Municipal Sub-Grants 2009

NOTES:

1. This Sub-Grant Program is available to municipalities with populations less than 35,000.
2. All projects must be on, in, or servicing municipal buildings only, including schools.
3. For Regional Applications, each individual municipality must complete this page. For example, a region of communities may choose to apply for funds for its regional school district.
4. Building(s) must be owned by the municipality/public entity with no current or contemplated plans to sell the building(s).
5. The maximum amount of funds available to a municipality is $150,000.
6. The total amount of funds available for this program is $12,252,100.
7. Municipalities can apply to fund more than one project, but must submit only one (1) application.
8. Regardless of the number of projects, the maximum amount of available funds is $150,000.
9. Funds cannot be used for projects that have already begun construction.
10. ***The receipt and use of funds are subjected to unprecedented levels of transparency and reporting requirements including, but not limited to: reporting, tracking and segregation of incurred costs, job creating and preservation, access to records and ensuring wage rates. Please refer to Appendix E for some of the reporting that will be required as a recipient of this grant.***
11. ***Included with this application must be a plan for addressing the disposal of any waste generated as a result of this project. This information can be provided in Appendix G.***
12. ***For any projects involving a building more than 50 years old, the municipality must attach documentation that it has received approval from the State Historical Commission to proceed with this project.***

A. APPLICANT INFORMATION

Municipality *Sudbury*			Contact *James Kelly*
Street Address *275 Old Lancaster Road*			Title *Building Inspector*
City/Town *Sudbury*	State **MA**	Zip Code *01776*	Telephone *(978) 443-2209, x1361*
			Email *building@sudbury.ma.us*
Amount of funds requested *$150,000*			Total project Budget *Alternative 1: $ 255,757* *Alternative 2: $ 141,864*

AUTHORIZATION

I MAUREEN G. VALENTE hereby confirm that I am duly authorized to submit this application on behalf of the city / town of SUDBURY and that all information contained in this application is true and accurate.

Maureen G. Valente Nov 23 2009

Name: Date: Title: TOWN MGR.

B. Please check the type of technology (or technologies) for this application:

1. ■ *Solar PV Please provide building (if applicable) and address for where the system will be located:*

Building (eg town hall, middle school, etc)
Town Community Center

Fig. B-1 *Fairbank Community Center, 40 Fairbank Road, Sudbury, MA*

Age of building(s): (If older than 50 years, evidence of approval from the state historical commission must be attached:)

The Fairbank Community Center is a multi-use facility of three major sections: a former elementary school, currently utilized as office space for the Sudbury Public Schools, constructed in 1951; the Parks and Recreation Department, including the Atkinson Pool, constructed in 1987; the Senior Center, constructed in 1990 (ref.: Attachment C1, p. C-9). The facility is not listed on historical buildings register. See Attachment B-2, a letter of support from the Sudbury Historical Commission.

Street Address: *40 Fairbank Road*
City/Town: *Sudbury, MA, 01776*

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2. ■ *Other Clean Energy Technology (Check any that apply)*

System sizes are noted to provide categorical exclusion from requiring federal National Environmental Policy Act (NEPA) review.

- ☐ Combined Heat and Power (CHP) – *sized appropriately for the building in which they are located*
- ☐ Biomass Thermal – *3 MMBTU/hr or smaller, with appropriate Best Available Control Technologies (BACT) installed*
- ■ Solar Thermal (no pools) – *sized appropriately*
- ☐ Geothermal – *10 tons of capacity or smaller*

Please provide building and address for where the system will be located:

Building (eg, town hall, middle school, etc): Fairbank Road Community Center

Age of building(s): (If older than 50 years, evidence of approval from the state historical commission must be attached:)

The Fairbank Community Center is a multi-use facility of three major sections: a former elementary school, currently utilized as office space for the Sudbury Public Schools, constructed in 1951; the Parks and Recreation Department, including the Atkinson Pool, constructed in 1987; the Senior Center, constructed in 1990 (ref.:

Attachment C1, p. C-9). The facility is not listed on historical buildings register. See Attachment B-2, a letter of support from the Sudbury Historical Commission.

Street Address: *40 Fairbank Road*
City/Town: *Sudbury, MA, 01776*

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3. ☐ *Thermal efficiency measures in oil or propane-heated buildings (check any that apply)*:

- ☐ New high efficiency boiler and/or furnace
- ☐ Improve efficiency of existing boiler and/or furnace
- ☐ Replacement and/or improvement of the heat delivery system (hot water steam including piping, unit heaters, ducting, insulation, dampers, fans, pumps, addition of zones and controls)
- ☐ Improve building envelope thermal performance including:
  - ☐ Reduce heat loss from building including:
    - ☐ Increase insulation in walls, attics, basements and roofs
    - ☐ Replace older windows with new ones that have a higher insulation value (only if windows constitute more than 25% of building envelope)
    - ☐ Reduce the uncontrolled infiltration of outside air by installing weather stripping, sealing and caulking gaps and cracks adjacent to exterior or unheated spaces
  - ☐ Reduce uncontrolled convection losses by installing thermal blocks where needed
- ☐ Measures to reduce heating load due to ventilation, including:
  - ☐ Installation and/or upgrade and balancing of the ventilation system to achieve the minimum controlled introduction of cold outside air consistent with compliance with building codes
  - ☐ Addition of exhaust heat recovery units and air handler economizers
- ☐ Install new or upgrade existing building Energy Management Systems

Please provide building(s) and address(es) for where measures will be implemented:

Age of building(s): (If older than 50 years, evidence of approval from the state historical commission must be attached:) _____

Building (eg town hall, middle school etc)

Street Address:

City/Town:

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4. ☐ *Performance Contract Buy-Down*
Please note how buy-down dollars will be applied in performance contract, i.e. what opportunities will become possible that were otherwise not possible without this grant. Opportunities must be either energy conservation or clean technology:

Note what dollars will be applied to in Performance Contract:

Please provide building(s) and address where applied:

Building (eg town hall, middle school etc)

Age of building(s): (If older than 50 years, evidence of approval from the state historical commission must be attached:) _____

Street Address:

City/Town:

C. ELIGIBILITY REQUIREMENTS: Please complete answers in the spaces provided. Please provide documentation as indicated below or other evidence to demonstrate that each requirement is met. If no evidence is provided, DOER cannot allocate EECBG funds. DOER may request additional information at its discretion.

1. The project is shovel-ready

For Solar PV check all that apply and please attach document(s):

- *Please See Attachment C1 for design documents and cost estimates indicating "shovel-readiness"*

■ Completed Site assessment that includes *(check all that apply):*

- ☐ Solar window shading analysis
- ■ Roof assessment demonstrating a life span of 20 years and strength to support PV system per building code
- ■ Space for inverter

- [x] Estimated system size
- [x] Economic analysis
- [x] Estimated project cost

- [x] Procurement bid documents prepared, which could include
  - [ ] RFP for Power Purchase Agreement (PPA) with potential sites identified with potential system sizes
  - [x] Site drawings, including roof drawings
  - [x] Scope of Work
  - [x] Site Assessment (as an exhibit)
  - [x] Estimated project cost
  - [ ] Project Schedule

- [ ] Project has been advertised but NOT initiated (provide date the bid was filed)

***For Other Clean Energy Technologies, check all that apply and please attach document(s)**:*

Please See Attachment C1 for design documents.

- [x] Feasibility study or implementation plan that includes *(check all that apply)*:
  - [x] Assessment of existing conditions, including energy load analysis
  - [x] Any permitting requirements
  - [x] Projected energy demand
  - [x] System specifications, including any ancillary systems
  - [x] Operation and maintenance considerations and staffing
  - [x] Economic analysis
  - [x] Estimated capital cost

- [x] Procurement bid documents prepared
  - [x] Scope of Work
  - [x] Feasibility Study or Implementation Plan (as an exhibit) See Attachment C1

- [x] Estimated project cost
- [ ] Project Schedule

- [ ] Project has been advertised but NOT initiated (provide date the bid was filed)

***For Thermal efficiency measures in oil/propane-heated buildings, check all that apply and attach documents**:*

- [ ] Completed energy audit report which includes *(check all that apply)*:
  - [ ] Description of existing conditions, including baseline energy and water usage
  - [ ] Energy Conservation Measures (ECMs) identified and prioritized

NOTE: *Measures requested for funding under Section B.3. should be consistent with the priorities established in the audit*

  - [ ] Estimated investment cost for total project, each ECM, life expectancy of equipment, and estimated annual savings.

- [ ] Procurement bid documents prepared, which can include
  - [ ] Scope of Work, with description and specifications for selected ECMs
  - [ ] List of Major Equipment to be Procured
  - [ ] Estimated project cost
  - [ ] Project Schedule
  - [ ] Energy Audit Report (as an exhibit)

- [ ] Project has been advertised but NOT initiated (please provide date the bid was filed)

***For Performance Contract Buy-Down, check all that apply**:*

- [ ] Energy Savings Contractor (ESCo) vendor selected. Please specify date DOER notified:

_____

- [ ]

Investment Grade Audit (IGA) is completed.

Date signed: _____

Date filed with DOER: _____

Report received on: _____

If not complete, date expected to be complete _____

☐ The Energy Management Services (EMS) Agreement has been signed and executed and allows for *changes after execution in regards to the addition of EECBG funds*:

Date EMS Agreement signed: _____

Date Sent to DOER for filing: _____

If not complete, date expected to be complete _____

For all projects – Please complete the following eligibility requirements

2. Number of Jobs created *(Please see Attachment B for instructions on how to determine):*

	Alternative 1	*Alternative 2*
Project Cost ($)	*$ 255,757*	*$ 141,864*
Jobs Created	*2.8*	*1.5*

Table C-2 Number of Jobs Created

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3. Projected reductions in greenhouse gases/fossil fuel energy : *(see Attachment C for instructions on how to determine):* **Please provide your calculations in Attachment D**

Measure Description	*Expected Annual Thermal Savings (Therm)*	*Expected Annual Energy Savings (kWh)*	*Expected Annual Thermal GHG Reductions (lb of CO2)*	*Expected Annual Electrical GHG Reductions (lb of CO2)*	*Expected Annual Total GHG Reductions (lb of CO2)*	*Expected Annual Total GHG Reductions (tonnes of CO2)*
Alternative 1, 20 Solar Collectors and 64 PV Collectors	*2,360*	*14,580*	*27,866*	*14,638*	*42,269*	*19.18*
Alternative 2, 12 Solar Collectors and 32 PV Collectors	*1,518*	*7,240*	*17,922*	*7,269*	*25,042*	*11.36*

Table C-3 Projected Reductions in Greenhouse Gases and Fossil Fuel Energy

Please see the following, attached documents for more information:

4. Committed leveraged funds: *(e.g: Source: MRET Amount: $100,000 Date committed: 05/24/09)*

$0

5. All other sources of leveraged funds, pending and projected: (For each, provide the amounts, the sources, whether or not it is an outstanding request or a request yet to be made, and the likelihood of receiving, including when you expect to hear on any pending sources of requested funds).

Item and Source	*Unit Incentive*	*Project Alternative*	*Expected Funds*	*Comments*
NGrid Solar Themal Incentive	*$3.00/Therm*	*1*	*$7,080*	*projected*
MRET	*$2.80/kWDC*	*1*	*$37,699*	*projected*
NGrid Solar Themal Incentive	*$3.00/Therm*	*2*	*$ 4,553*	*projected*
MRET	*$2.80/kWDC*	*2*	*$18,850*	*projected*
Town of Sudbury Appropriation	*$110,000*	*1*	*$110,000*	*in consideration*

Table C-5 Sources of Leveraged Funds, Pending and Projected

6. For Solar PV and Clean Energy Technologies, please describe and provide evidence of energy efficiency and conservation measures that have been implemented in the connected building in the last five (5) years: (*ie: lighting retrofits, Energy Management System*).

- *A lighting systems efficiency improvement retrofit project was completed for the facility in 2004 via the NStar's Small C&I Program.*
- *The original low pressure steam boiler plant and steam distribution system was converted to a hydronic heating system in 2003. The hydronic boiler plant is a pair of high efficiency boilers (PK Thermific SN-2000, 85%, direct-vent) fueled with natural gas (Fig. 6-1).*
- *The indirect domestic hot water heating system was converted (2003) to a pair of high efficiency, natural gas fired, storage domestic hot water heaters (PVI Maxim 40P90A, 85%, design efficiency, each)*

Fig. 6-1 *A new boiler plant was installed in 2003.*

- *An energy management system has been designed, costed, and will be proposed as a capital budget item for FY2011*

7. As previously noted, unprecedented levels of reporting are required with the use of ARRA funds. Appendix E contains sample requirements that will be included with these grant awards. In **Appendix F**, please provide a summary of a Program Management Plan for managing your project, including making certain that all reporting requirements are met.

8. As previously noted, included with this application must be a plan for addressing the disposal of any waste produced as a result of this project. This information can be provided in **Appendix G.**

9. As previously noted, for any projects involving a building more than 50 years old, the municipality must attached documentation that it has received approval from the State Historical Commission to proceed with this project.

SUBMISSION INFORMATION:

APPLICATIONS ARE DUE December 7th, 5:00PM.

Please provide an **electronic copy via e-mail** AND **5 unbound hard copies (including attachments)** to the addresses below**:**

Email submittal: diane.gray@state.ma.us

5 Hard Copies: Department of Energy Resources
100 Cambridge Street, 10th Floor
Boston, MA 02114
ATTN: Diane Gray

QUESTIONS:

ALL questions must be posted to the bidder's forum on Comm-PASS (www.comm-pass.com). All answers, notifications, releases and amendments to this grant opportunity will be posted on Comm-PASS. To post questions:

1. From www.comm-pass.com, scroll to the bottom of the page and select **Search for bidders' forum**, located near the middle of the page.
2. Under ****AND** Search by Specific Criteria**, enter PON-**ENE-2010-009** into the **Referenced Solicitation Number** search bar and click Search.
3. Click the link at the top of the page that says **There are 1 Forum(s) found that match your search criteria**.
4. On the right side of the page, click the eyeglasses under **View** to access the forum.
5. This Summary page contains information about the forum for ENE-2010-009, including its opening and closing dates. To post a question to the forum, click **Ask a Question in the Forum**, located in the top right corner of the page **before** the closing date has passed.
6. Enter the required sign-in information (this will be kept private from the general public and is only visible to the forum manager and contact person) and click **Next Step** at the bottom of the page.
7. Enter your question into the **Question** box and click **Submit Question** at the bottom of the page. The question will now be posted into the forum.

Attachment A

PLEASE ATTACH A REASONABLY DETAILED SUMMARY OF THE PROJECT.

Please address each of the following:

- Estimated annual clean energy benefits (e.g. kwh saved, MMBTU saved, clean energy kwh or MMBTU generated).
- For a Performance Contract, a list of the buildings that will be included.
- Any town approvals received to date and any town approvals yet required.
- A description of the opportunities for public education on energy efficiency and conservation or clean energy as a result of implementation of this project.
- Why this project is important to your community.

Please limit your response to the space provided.

A pair of solar systems, thermal and electric, are proposed for the Fairbank Road Community Center, Sudbury, Ma., The solar photovoltaic (PV) system will provide electric energy to the facility. The solar thermal system will provide domestic hot water and offset the facility's significant domestic hot water consumption. Please see Attachments D-2 to D-7 for details on these systems.
Two alternatives are presented for the pair of solar systems, "1" and "2". Alternative 1 is a larger capacity pair, and Alternative 2 is a smaller capacity pair; the alternatives differ only in their capacities. The alternatives were developed to maximize "shovel readiness" in response to the amount of grant awarded and leveraged funds received.

Measure Description	***Collector Capacity (MBH) or (kW AC)***	***Expected Annual Thermal Savings (Therm)***	***Expected Annual Energy Savings (kWh)***	***Expected Annual Cost Savings ($)***
Alternative 1 Solar Domestic Hot Water System, 20 collectors	*170 MBH*	*2,360*	*(300)*	*$4,094*
Alternative 1 Solar PV Electric Power System, 64 Collectors	*10.35 kW*		*14,880*	*$1,786*
Alternative 2, Solar Domestic Hot Water System, 12 collectors	*102 MBH*	*1,518*	*(200)*	*$2,632*
Alternative 2 Solar PV Electric Power System, 32 Collectors	*5.17 kW*		*7,440*	*$893*

Table A-1 Expected Clean Energy Benefits for the Town of Sudbury

The Fairbank Road Community Center is a "hub" facility for the Town of Sudbury. The facility includes the Sudbury Public Schools offices, the Senior Center, the Sudury's recreation offices and a municipal natatorium (swimming pools) as shown on Attachment C1, page 9. The facility's gymnasium serves as the Precinct 5 poll. It is among the most visible and heavily utilized of the Sudbury's buildings.

The proposed pair of solar systems is intended as a "leadership" renewable energy installation for the Town of Sudbury. The systems will include instrumentation, web accessible monitoring, and controls information for educational use. The solar PV array will be visible from the public entrance to the facility, the Haskell playing fields, Fairbank Road, and Hudson Road.

Fig. A-1 *Fairbank Community Center Main Entrance*

Attachment B
Jobs Created Description

According to the US DOE, jobs created/retained are to be determined by taking the amount of funds received (or in this case, requested) and divide them by $92,000

Ex: $150,000 EECBG funds received / $92,000 = 1.63 or 1-2 jobs created

If funds are less than $92,000 than the *actual* number of jobs that will be created to manage and maintain the project can be listed, or a fraction if the applicant deems this appropriate.

It is also acceptable to provide estimated jobs created based on local income, if data is available. (ie: If the normal annual income is $45,000. double the amount of jobs could be created than if $92,000 was used for the estimate)

Created jobs are jobs that did not exist previously. Jobs retained are jobs that are "in-house" or taking jobs from other departments of the municipality and moving them to this project. The ARRA of 2009 is mostly concerned with jobs *created*.

(See Attachment B for instructions on how to determine):

	Alternative 1	*Alternative 2*
Project Cost ($)	*$ 255,757*	*$ 141,864*
Jobs Created	*2.8*	*1.5*

Table C-2 Number of Jobs Created

Fig B-1 *The Senior Center is part of the Fairbank Community Center*

Attachment C

Greenhouse Gas reductions can be projected using the following CO_2 emissions factors for the reduction in the applicable fuel type.

Fuel	Emission Coefficients		
	Pounds CO2 per Unit Volume or Mass		Pounds CO2 per Unit Energy
Petroleum Products			
Distillate Fuel (No. 1, No. 2, No. 4 Fuel Oil and Diesel)	22.384	per gallon	161.386 per MMBtu
Motor Gasoline	19.564	per gallon	156.425 per MMBtu
Natural Gas and Other Gaseous Fuels			
Natural Gas (Pipeline)	120.593	per 1000 ft3	117.08per MMBtu
Propane	12.669	per gallon	139.178 per MMBtu
	532.085	per barrel	
Source for all of the above emission factors: http://www.eia.doe.gov/oiaf/l605/coefficients.htm1.			
GRID ELECTRICITY			1004 per MWh

Source for the Grid Electricity emissions factors:
ISO-NE 2007 Marginal Emissions Draft Report, March 31, 2009

For example, if you install a PV system that is projected to produce 1,000 kwh/year (=1 MWh), then the projected greenhouse gas emissions reductions would be:

1 MWhr/yr x 1004 lbs CO2/MWh = 1004 lbs of CO2

If you increased the insulation in your building and projected to reduce your consumption of Natural Gas heating by 1,000,000 Btu/year (= 1 MMBtu), then the projected greenhouse gas emissions reductions would be :

1 MMBtu/hr x 117.08 lbs CO2/MMBtu = 117.08 lbs of CO2

Attachment D

Please provide your calculations for GHG and fossil fuel energy reductions here.

Measure Description	*Collector Capacity (MBH) or (kW AC)*	*Expected Annual Thermal Savings (Therm)*	*Expected Annual GHG from Thermal Savings (lb of CO2)*	*Expected Annual Energy Savings (kWh)*	*Expected Annual GHG from Electric Savings (lb of CO2)*	*Expected Total GHG Reductions (lb of CO2)*	*Expected SubTotal GHG Reductions (tonnes of CO2)*	*Expected Total GHG Reduction (tonnes of CO2)*
Alternative 1: Solar Domestic Hot Water System, 20 collectors; Solar Photovoltaic Electric Power System, 64 Collectors	*170 MBH*	*2,360*	*27,867*	*-300*	*(301)*	*27,330*	*12.4*	*19.18*
	10.35 kW AC			*14,880*	*14,940*	*14,940*	*6.8*	
Alternative 2: Solar Domestic Hot Water System, 12 collectors; Solar Photovoltaic Electric Power System, 32 Collectors	*102 MBH*	*1,518*	*17,925*	*-200*	*(201)*	*17,572*	*8.0*	*11. 36*
	5.17 kW AC			*7,440*	*7,470*	*7,470*	*3.4*	

Table D-1 Expected GHG Reductions for the Town of Sudbury

Please see the following, attached documents for more information:

Appendix E

Sample of ARRA Reporting Requirements for Grant Recipients

TERMS FOR ALL ARRA CONTRACTORS:
This Contract Attachment is being provided to all Contract recipients of ARRA funds as either a vendor or sub-recipient as notice of certain requirements upon which the receipt of ARRA funding is conditioned. These terms are already incorporated by reference as applicable terms through the federal grant or contract award from your grantor agency. This Attachment is being provided to ensure that you have notice of the specific requirements under ARRA that you will be required to meet as a recipient of ARRA funds. These terms are in addition to any performance, reporting or other terms already provided under your award and contract. DOCUMENTATION OF ACTUAL RECEIPT OF THIS ATTACHMENT BY THE CONTRACTOR CONTRACT MANAGER OR AN AUTHORIZED SIGNATORY SHALL BE SUFFICIENT TO BIND THE CONTRACTOR TO THE TERMS OF THIS ATTACHMENT.

As a Contractor, you shall maintain records, books, files and other data as specified in a Contract and in such detail as shall properly substantiate claims for payment under the Contract, for a minimum retention period of seven (7) years beginning on the first day after the final payment under a Contract (after the federal grant close out), or such longer period as is necessary for the resolution of any litigation, claim, negotiation, audit or other inquiry involving the Contract. The Department shall have access, as well as any parties identified under Executive Order 195, during the Contractor's regular business hours and upon reasonable prior notice, to such records, including on-site reviews and reproduction of such records at a reasonable expense.

Please note that due to transparency requirements under state and federal law, records "sufficient to substantiate payment" shall be interpreted to mean that the Contractor is required to maintain records and proactively document compliance with contract terms, attainment of performance success criteria or performance measurements and successful completion of all contract performance requirements. **All Contractors, whether deemed sub-recipients or vendors, must be prepared to provide any documents, records, data or other proof of performance or related to their business activities that are paid for with ARRA funds.**

SUB-RECIPIENT TERMS:
A sub-recipient is a non-Federal entity that expends Federal awards received from another entity to carry out a Federal program but does not include an individual who is a beneficiary of such a program. Specifically, sub-recipients are non-Federal entities that are awarded Recovery funding through a legal instrument from the prime recipient to support the performance of any portion of the substantive project or program for which the prime recipient received the Recovery funding. Additionally, the terms and conditions of the Federal award are carried forward to the sub-recipient.

Sub-recipient activities will be monitored as necessary to ensure that Federal awards are used for authorized purposes in compliance with laws, regulations, and the provisions of contracts or grant agreements and that performance goals are achieved.

Sub-recipients receiving in the aggregate, $500,000 or more in Federal awards during the sub-recipient's fiscal year must meet the audit requirements for that fiscal year, and are subject to the Single Audit.

In addition to all of the OMB A-133 requirements, sub-awards made from the federal stimulus funds (ARRA) are subject to Buy-American and compliance with the Davis-Bacon Act of 1931. Under ARRA, these requirements pass through to sub-recipients who may have previously been exempt from compliance.

ADDITIONAL SUB-RECIPIENT REPORTING REQUIREMENTS.
In addition to general performance reporting under the Contract, OMB requirements for ARRA transparency and reporting are also passed down to sub-recipients. The Commonwealth as prime must assure that the following is provided and subsequently recorded in the state's account system, MMARS:

- The DUNS# of the sub-recipient, their legal name, address and type (Prime will obtain from VCUST)
- The sub-award number (Prime will obtain from encumbrance document ID)
- The total value of the sub-award/contract (Prime will obtain from contract document recorded on the encumbrance)
- The sub-award date (Prime will obtain from date on the encumbrance)
- The sub-award grant period (Prime will obtain from service begin and end dates on the encumbrance)
- The primary performance location/area of benefit (Prime will obtain from the Location Code recorded on the encumbrance and/or payment request transactions)
- Sub-recipients will be required to report all vendor payments they make with ARRA funds. Detail for these payments must include either the payee vendor DUNS number OR the vendor name and the zip code of the vendor headquarters (**Sub-recipient will be notified by Prime on how to report**)
- Sub-recipients may be also required to report the names and total compensation for the five most highly compensated officers in their organization if:

> (1) the recipient in its preceding fiscal year received— (a) 80 percent or more of its annual gross revenues in Federal awards; and (b) $25,000,000 or more in annual gross revenues from Federal awards; and
>
> (2) the public does not have access to information about the compensation of the senior executives of the entity through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986 [26 USC § 6104].

''Total compensation'' means the cash and noncash dollar value earned by the executives during the sub-recipient's past fiscal year of the following (for more information see 17 CFR 229.402(c)(2)):

(i). Salary and bonus.
(ii). Awards of stock, stock options, and stock appreciation rights. Use the dollar amount recognized for financial statement reporting purposes with respect to the fiscal year in accordance with FAS 123R.
(iii). Earnings for services under non-equity incentive plans. Does not include group life, health, hospitalization or medical reimbursement plans that do not discriminate in favor of executives, and are available generally to all salaried employees.
(iv). Change in pension value. This is the change in present value of defined benefit and actuarial pension plans.
(v). Above-market earnings on deferred compensation which are not tax qualified.
(vi). Other compensation. For example, severance, termination payments, value of life insurance paid on behalf of the employee, perquisites or property if the value for the executive exceeds $10,000.

(Sub-recipient will be notified by Prime on how to report on top five highly compensated officers.)

VENDOR TERMS:

A Vendor is defined as a dealer, distributor, merchant or other seller providing goods or services that are required for the conduct of a Federal program. Prime recipients or sub-recipients may purchase goods or services needed to carry out the project or program from vendors. Vendors are not awarded funds by the same means as sub-recipients and are not subject to the terms and conditions of the Federal financial assistance award. As outlined under the Instructions above, Vendor payments will be reported with the vendor DUNS number OR the vendor name and the zip code of the vendor headquarters. Vendors must permit the Department and auditors to have access to all records related to contract performance paid for with ARRA funding for contract compliance purposes. In addition to any other requirements, sub-awards made to vendors from the federal stimulus funds (ARRA) are subject to Buy-American and compliance with the Davis-Bacon Act of 1931. Under ARRA, these requirements pass through to vendors and their sub-contractors, if any, who may have previously been exempt from compliance.

Please contact your Commonwealth Department agency with any questions related to performance or compliance.

Quarterly Report – Recipient Stimulus Job Information

Program / Project # Program / Project name Department	Name 1	Name 2	Name 3

MMARS Encumbrance code				

Jobs information	Hours Worked	Derived FTEs	Hours Worked	Derived FTEs	Hours Worked	Derived FTEs
Hours of full-time employee	40	1	35	1	40	1
Total hours worked, including overtime	6,000	11.54	2,000	4.40		-
Created jobs	1,200	2.31	1,200	2.64		-
Retained jobs*	4,800	9.23	800	1.76	-	-
Jobs Narrative						
MA Resident	5,000	9.62	2,000	4.40		-
Zipcode 1	3,000	5.77	1,500	3.30		-
Zipcode 2	2,000	3.85	2,000	4.40		-
Zipcode 3	1,000	1.92	2,500	5.49		-
Male	2,000	3.85	2,000	4.40		-
Female*	4,000	7.69	-	-	-	-
> 55	1,400	2.69	1,400	3.08		-
31-54	4,300	8.27	600	1.32		
< 30*	300	0.58	-	-	-	-
White alone	3,000	5.77	3,000	6.59		-
Black or African American alone	700	1.35	700	1.54		-
Hispanic (any race)		-		-		-
American Indian and Alaska Native alone	200	0.38	200	0.44		-
Asian alone	1,000	1.92	1,000	2.20		-
Native Hawaiian and Other Pacific Islander alone	-	-	-	-		-
Some other race	500	0.96	500	1.10		-
Two or more races*	600	1.15	(3,400)	(7.47)	-	-
Disability	500	0.96	-	-		-

Appendix F

Please provide a Program Management Plan in the space below for managing this project, in particular, including the information tracking and reporting that will be required under ARRA funding. Please identify the specific personnel that will be assigned.

NOTE: All project awardees will be required to obtain a DUNS number. If you already have a DUNS number, please note it here._____*619726698*_____

This construction project will be managed by Sudbury's Building Inspector and Interim Facilities Director, James Kelly. Support for the ARRA reporting requirements for the project will be provided by the Town of Sudbury Energy and Sustainability Green Ribbon Committee and Town of Sudbury Permanent Building Committee. (http://www.sudbury.ma.us/committees). Members of these committees are construction professionals and are familiar with ARRA reporting requirements. All ARRA reporting requirements will be strictly complied with.

Appendix G

Please describe in the space below the municipality's plan to dispose of any sanitary or hazardous waste e.g. construction and demolition debris, lead ballasts, asbestos, etc generated as a result of this project. The municipality must ensure that it will comply with all federal, state and local regulations for waste disposal.

Removal and Disposal Of Materials for Town of Sudbury, MA Projects:

a) The Contractor shall remove from the site all demolished materials as they accumulate. The Contractor shall provide sufficient dumpsters or roll-off containers to contain debris generated during the project. The containers shall be dumped when full to minimize fire hazards and maintain a clean work area. Placement of dumpsters shall be coordinated with the Building Inspector.

b) Prior to issuance of final payment to the Contractor, the Contractor shall supply the Town with written certification that all materials removed from the site have been disposed of in strict accordance with existing federal, state, and local laws. Certification shall include copies of any required hazardous waste manifests and disposal permits. Contractor shall provide like certifications from all subcontractors, as attachments to his certification. Certification shall be signed by an authorized officer or employee of the Contractor, and shall be accompanied by written evidence of such authorization.

Attachment B-2

Sudbury Historical Commission Letter

Town of Sudbury
Historic Districts Commission

Flynn Building
278 Old Sudbury Road
Sudbury, MA 01776
978-443-8891, x381
Fax: 978-443-0756
http://www.town.sudbury.ma.us

November 20, 2009

To Whom It May Concern:

The Sudbury Historic Districts Commission Agrees with the decision of the Town of Sudbury to place solar panels on the Fairbank Community Center in Sudbury. We feel it will have no detrimental effect on the building and will serve as an example of the Town's commitment to save energy.

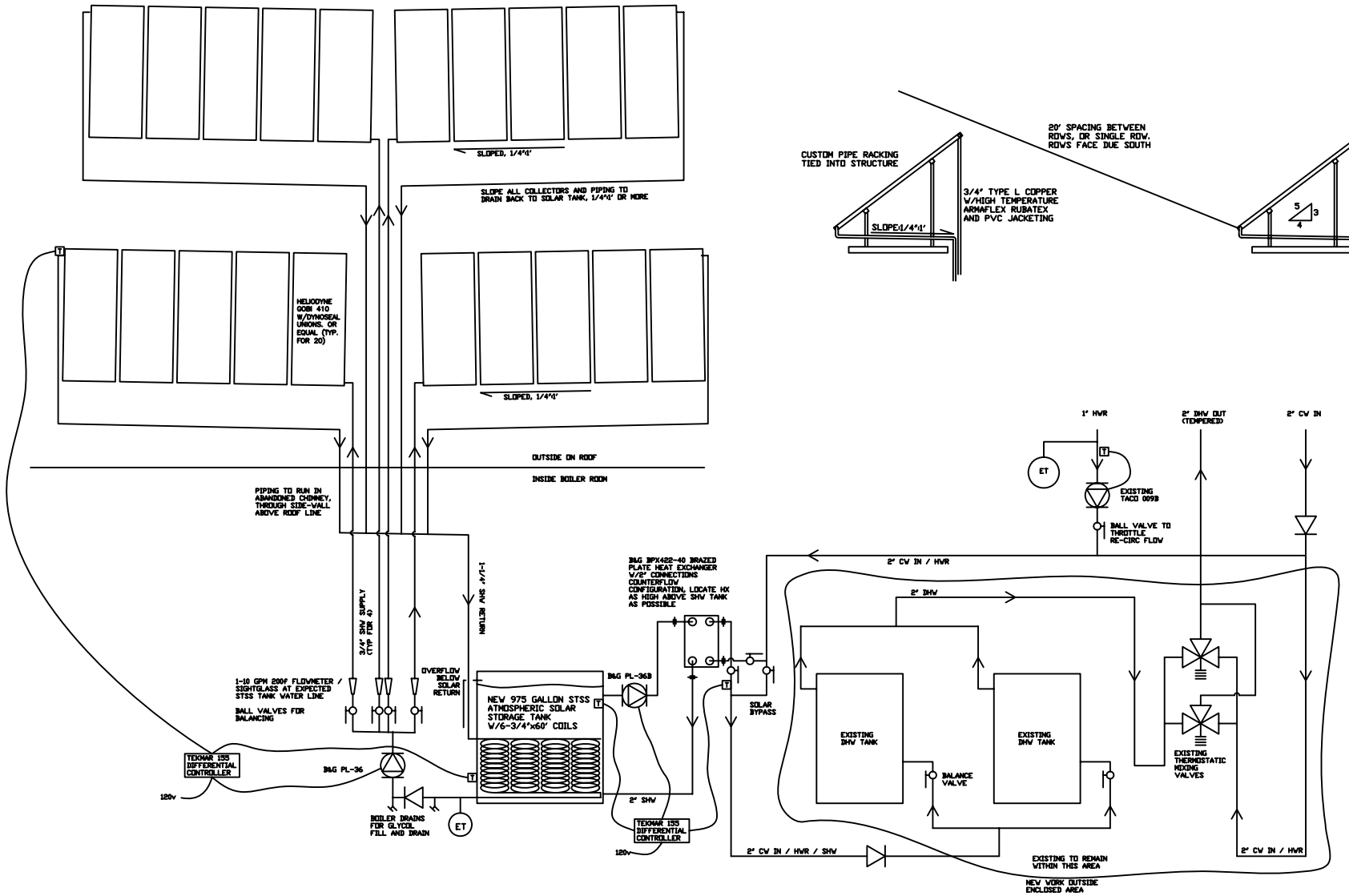
Linda Gray Hawes

Linda Gray Hawes, Chair
Sudbury Historic Districts Commission

cc: Building Inspector

American Recovery and Reinvestment Act (ARRA): Energy Efficiency and Conservation Block Grant (EECBG)

Attachment C1 Eligibility Requirements
Town of Sudbury, MA



SOLAR DOMESTIC HOT WATER
GLYCOL CONFIGURATION - 20 COLLECTORS ALTERNATIVE 1
FLOW DIAGRAM

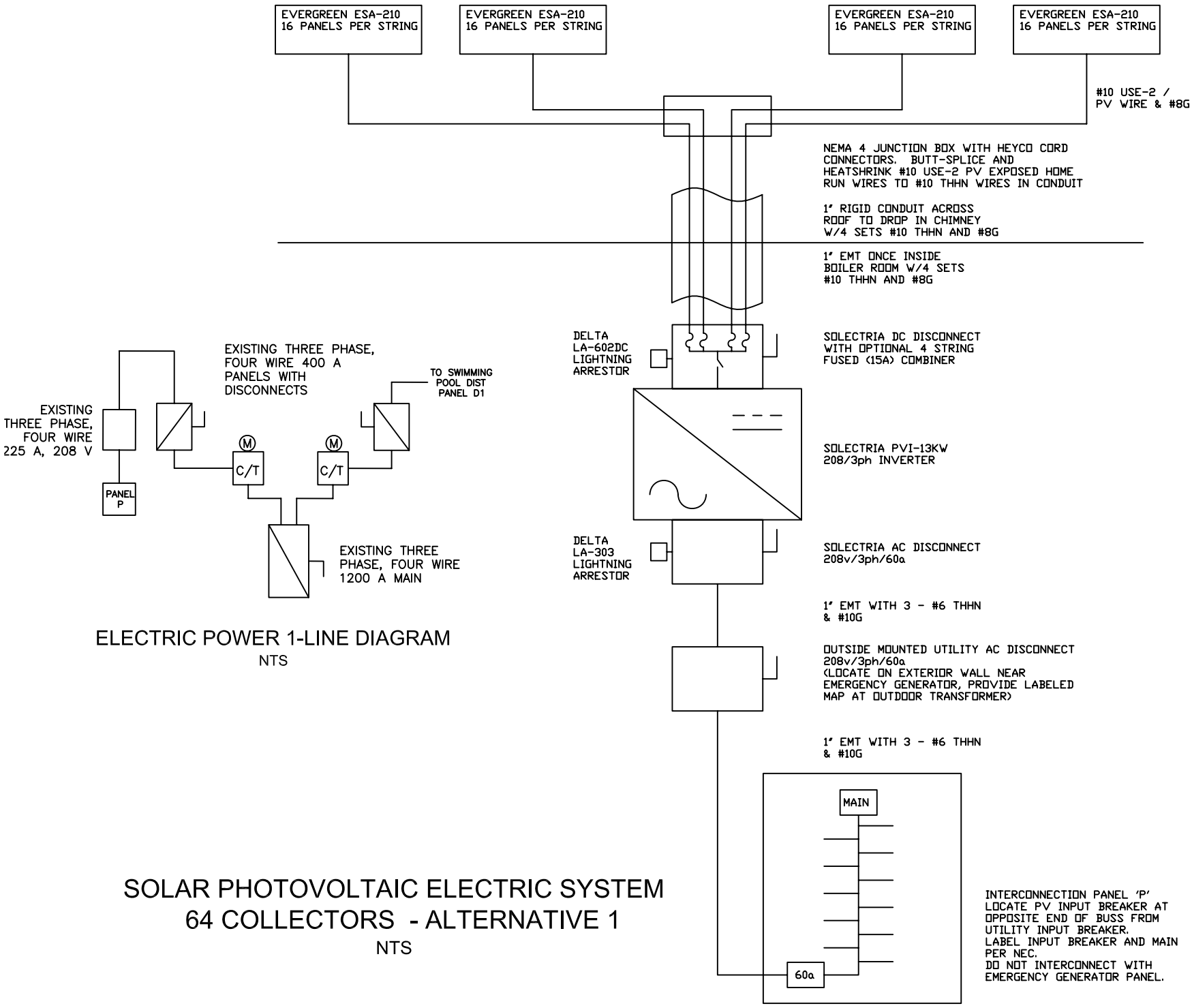
NTS

DESIGNER: Mark Sevier, P.E.

DATE: 10-1-09

SOLAR DOMESTIC HOT WATER - ALT 1
FAIRBANK ROAD COMMUNITY CENTER
40 FAIRBANK ROAD
SUDBURY, MA 01776

SHW-A1



ELECTRIC POWER 1-LINE DIAGRAM
NTS

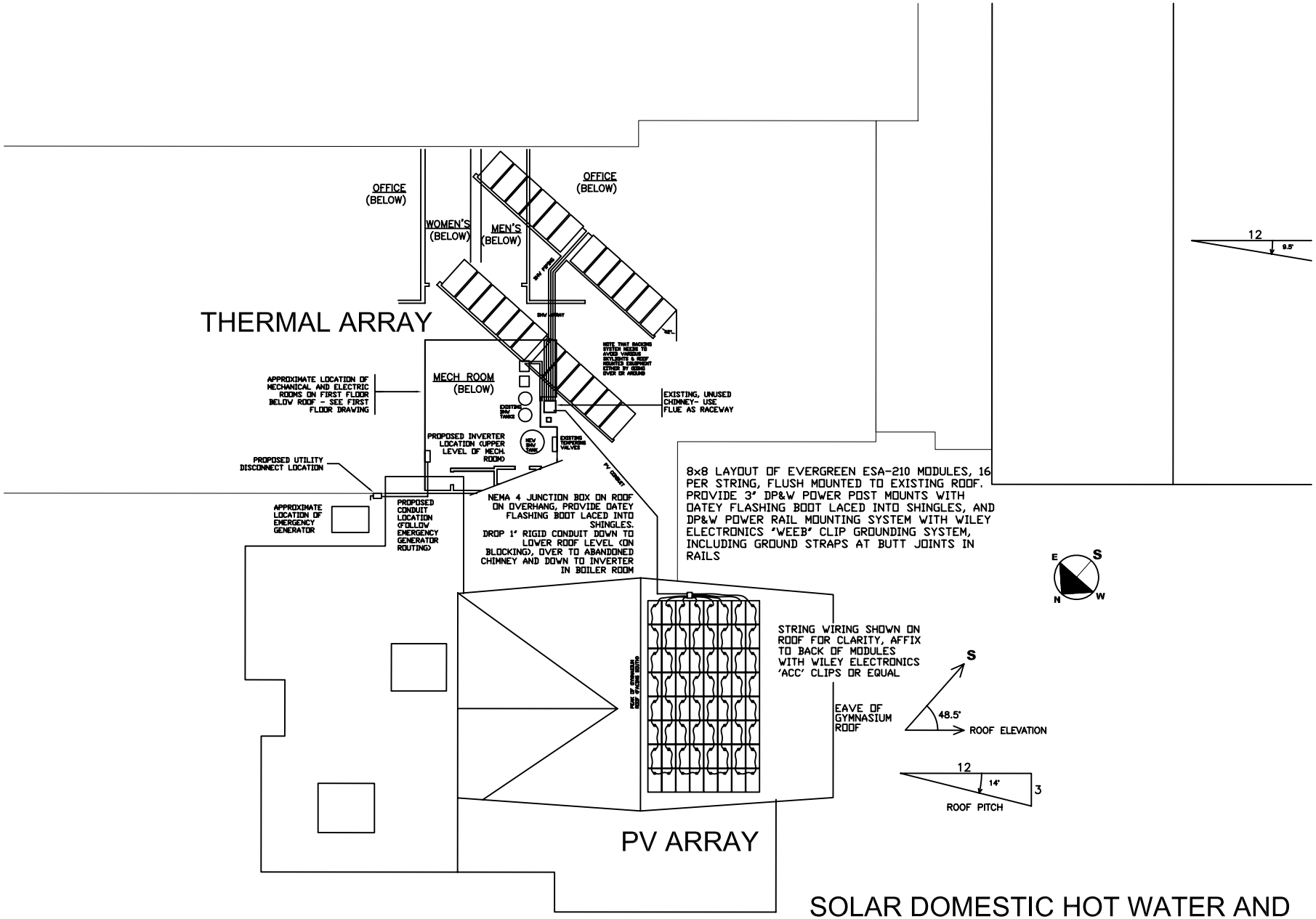
SOLAR PHOTOVOLTAIC ELECTRIC SYSTEM
64 COLLECTORS - ALTERNATIVE 1
NTS

DESIGNER: Mark Sevier, P.E.

DATE: 10-1-09

SOLAR PHOTOVOLTAIC - ALT 1
FAIRBANK ROAD COMMUNITY CENTER
40 FAIRBANK ROAD
SUDBURY, MA 01776

PV-A1



SOLAR DOMESTIC HOT WATER AND PHOTOVOLTAIC ELECTRIC SYSTEMS
ROOF PLAN
ALTERNATIVE 1

SCALE 1" = 32' 0"

DESIGNER: Mark Sevier, P.E.

DATE: 10-1-09

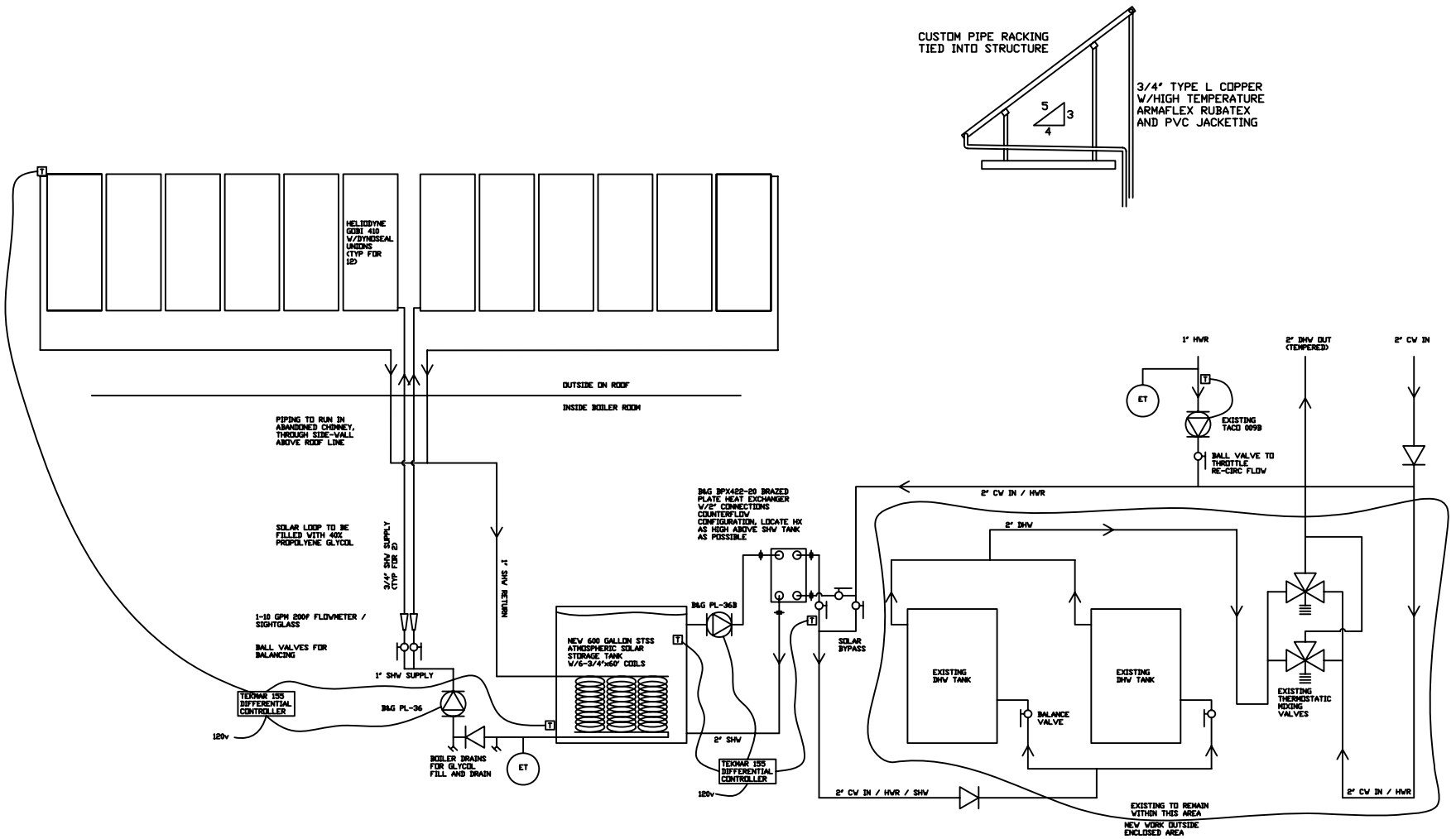
SOLAR SYSTEMS - ALT 1

FAIRBANK ROAD COMMUNITY CENTER

40 FAIRBANK ROAD

SUDBURY, MA 01776

ROOF-A1



SOLAR DOMESTIC HOT WATER
GLYCOL CONFIGURATION - 12 COLLECTORS ALTERNATIVE 2
FLOW DIAGRAM

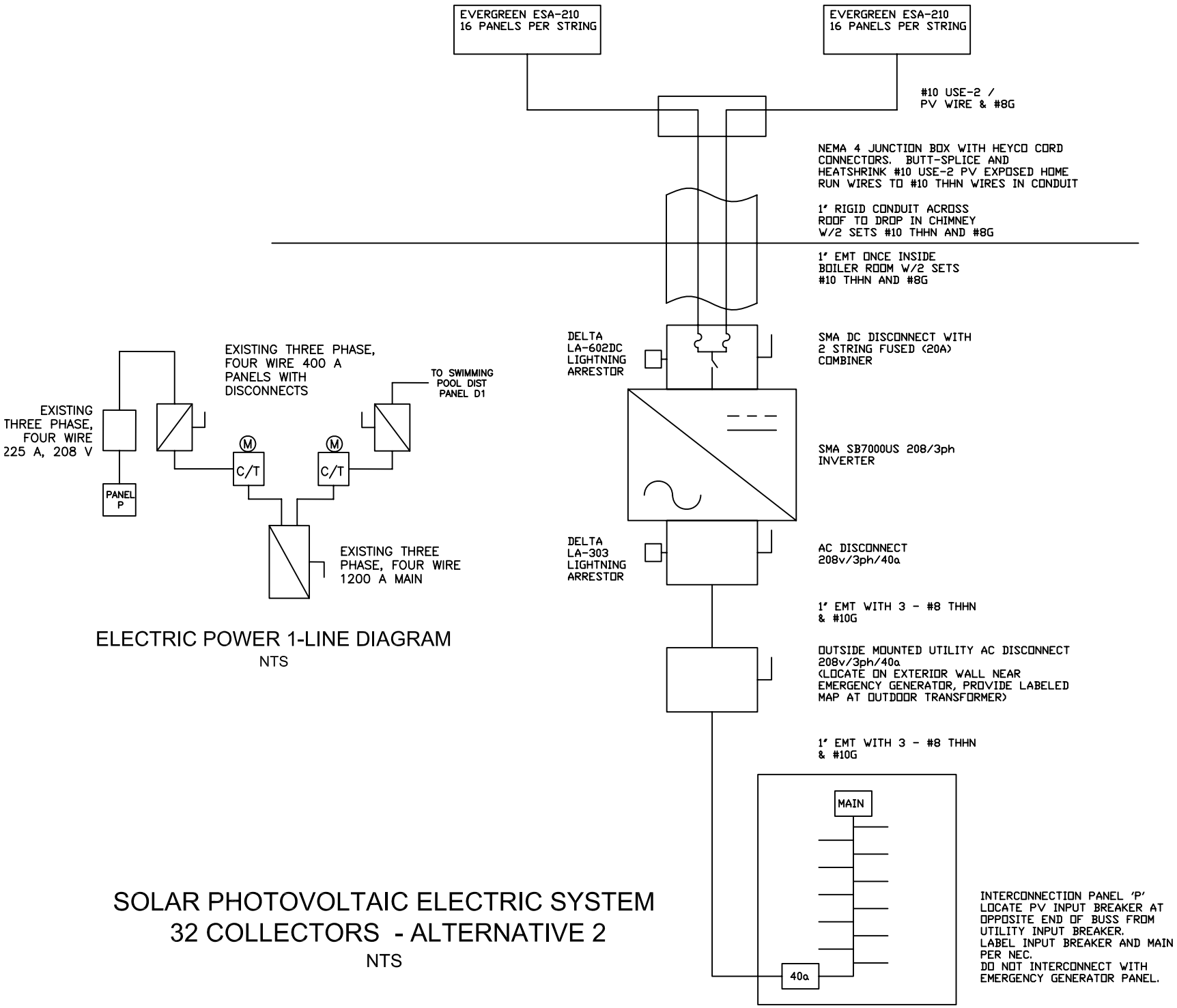
NTS

DESIGNER: Mark Sevier, P.E.

DATE: 10-1-09

SOLAR DOMESTIC HOT WATER - ALT 2
FAIRBANK ROAD COMMUNITY CENTER
40 FAIRBANK ROAD
SUDBURY, MA 01776

SHW-A2



ELECTRIC POWER 1-LINE DIAGRAM

NTS

SOLAR PHOTOVOLTAIC ELECTRIC SYSTEM
32 COLLECTORS - ALTERNATIVE 2

NTS

DESIGNER: Mark Sevier, P.E.

DATE: 10-1-09

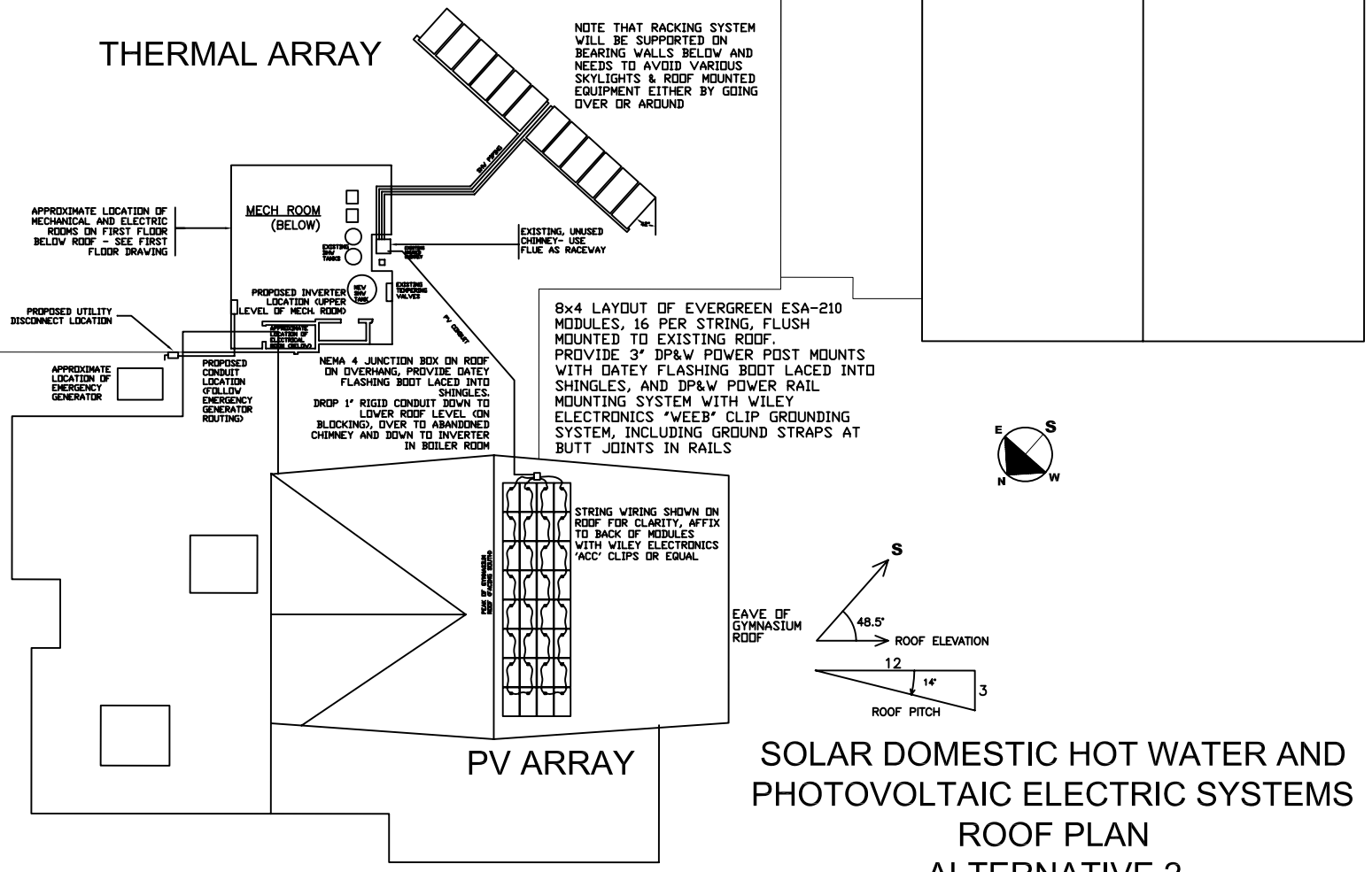
SOLAR PHOTOVOLTAIC - ALT 2

FAIRBANK ROAD COMMUNITY CENTER

40 FAIRBANK ROAD

SUDBURY, MA 01776

PV-A2



SOLAR DOMESTIC HOT WATER AND PHOTOVOLTAIC ELECTRIC SYSTEMS
ROOF PLAN
ALTERNATIVE 2

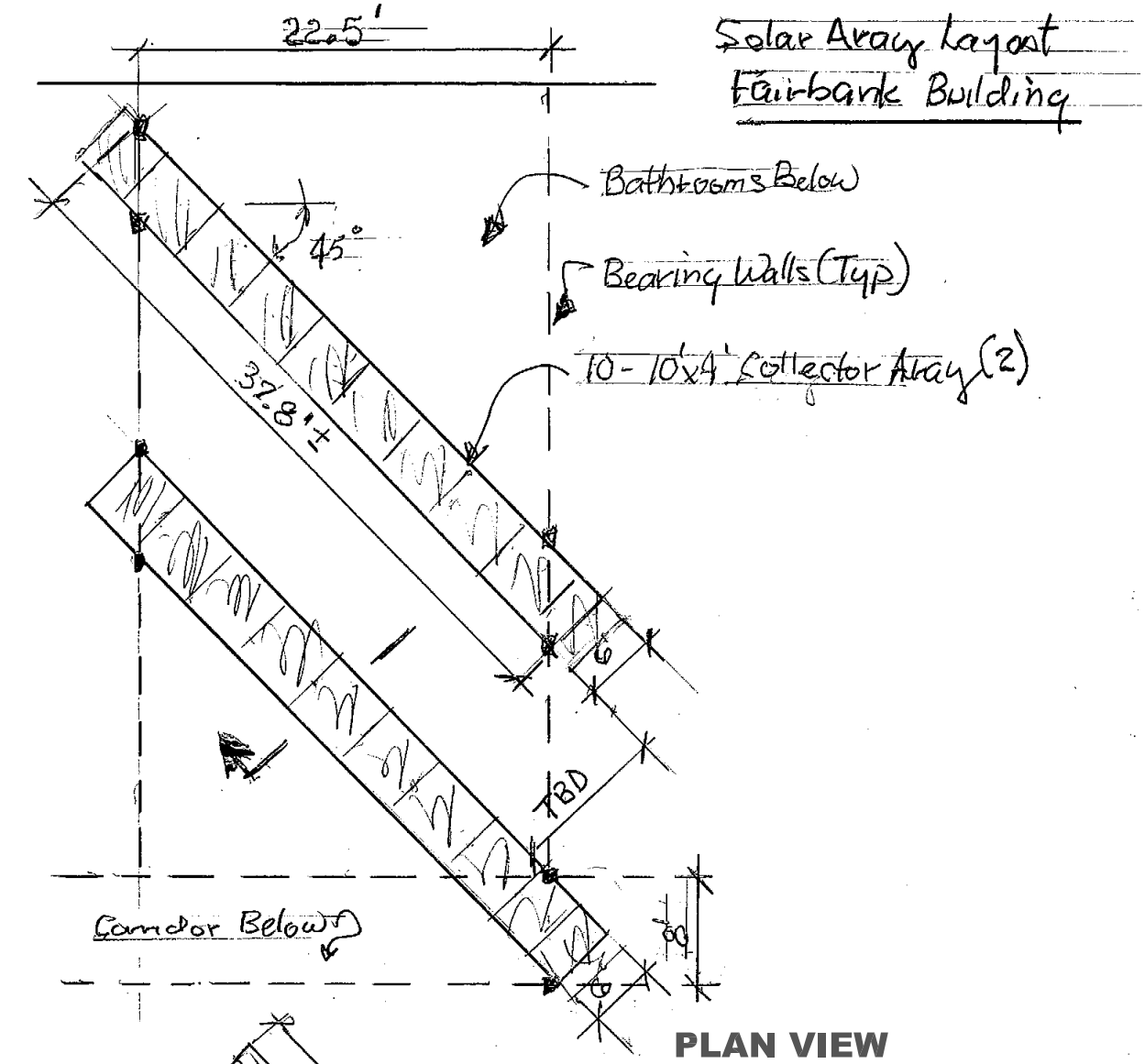
SCALE 1" = 32' 0"

DESIGNER: Mark Sevier, P.E.

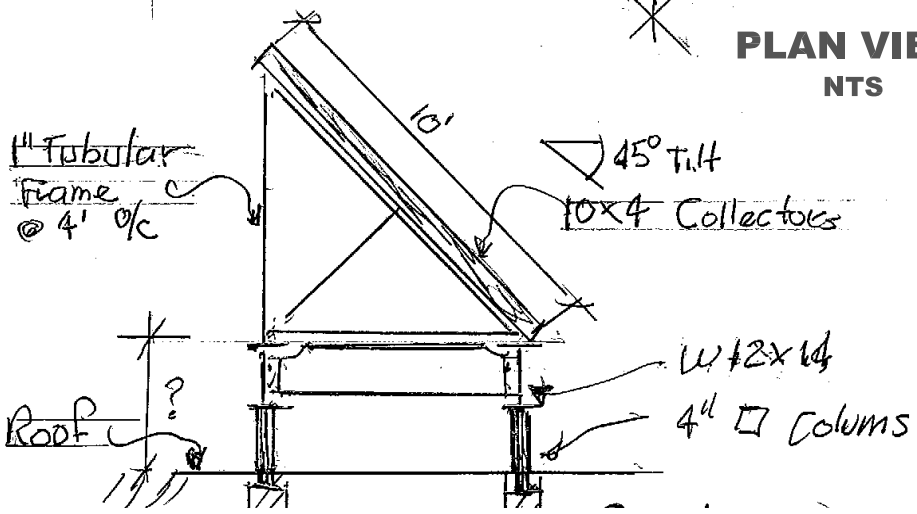
DATE: 10-1-09

SOLAR SYSTEMS - ALT 2
FAIRBANK ROAD COMMUNITY CENTER
40 FAIRBANK ROAD
SUDBURY, MA 01776

ROOF-A2

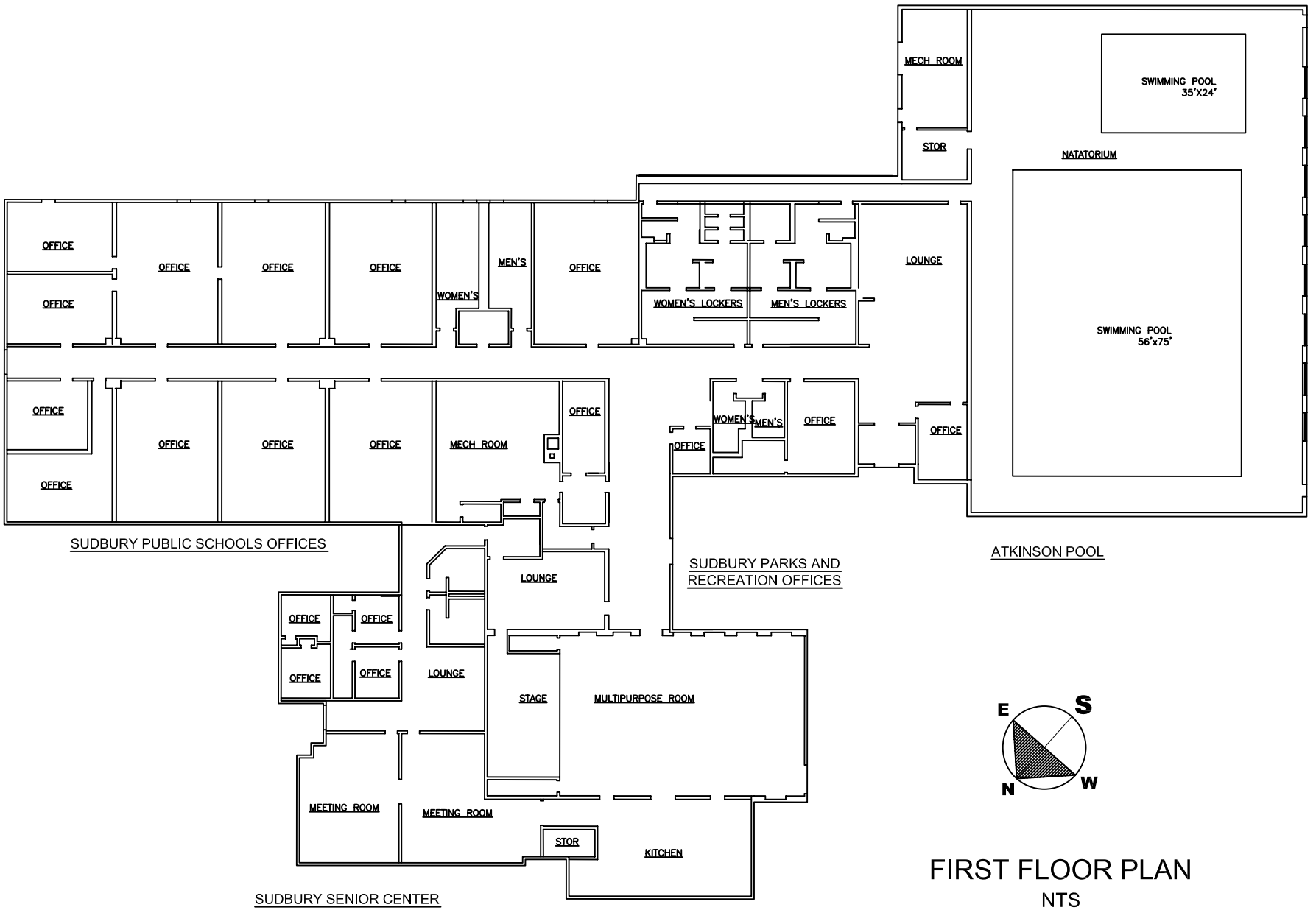


PLAN VIEW
NTS



SECTION
NTS

S-1 7 OF 8	THERMAL COLLECTOR STRUCTURAL FAIRBANK ROAD COMMUNITY CENTER 40 FAIRBANK ROAD SUDBURY, MA 01776		DESIGNER: Michael Melnick, P.E. DATE: 10-1-09



FIRST FLOOR PLAN

NTS

39,000 SF

DWG: Robert Morrison, P.E.

DATE: 10-1-09

FIRST FLOOR PLAN

FAIRBANK ROAD COMMUNITY CENTER

40 FAIRBANK ROAD

SUDBURY, MA 01776

FIRST FLOOR

8 OF 8

American Recovery and Reinvestment Act (ARRA): Energy Efficiency and Conservation Block Grant (EECBG)

Attachment D Energy Calculations
Town of Sudbury, MA

Project information

See project database

Project name	EECBG Fairbank Community Center Alt. 1, 20 Collectors
Project location	40 Fairbank Road, Sudbury, MA 01776
Prepared for	Town of Sudbury, MA
Prepared by	Bob Morrison/ Mark Sevier
Project type	Heating
Technology	Solar water heater
Analysis type	Method 1
Heating value reference	Higher heating value (HHV)
Show settings	☑
Language - Langue	English - Anglais
User manual	English - Anglais
Currency	$
Units	Imperial units

Site reference conditions

Select climate data location

Climate data location	Worchester
Show data	☐

Complete Energy Model sheet

RETScreen Energy Model - Heating project

Heating project

Technology		**Solar water heater**	
Load characteristics			
Application	○	Swimming pool	
	◉	Hot water	

	Unit	Base case	Proposed
Load type		Other	
Daily hot water use	gal/d	2,200	2,200
Temperature	°F	120	120
Operating days per week	d	7	7

Percent of month used

Supply temperature method		Formula
Water temperature - minimum	°F	38.5
Water temperature - maximum	°F	54.9

	Unit	Base case	Proposed case	Energy saved	Incremental initial costs
Heating	million Btu	431.6	431.6	0%	$ 145,000

Resource assessment

Solar tracking mode		Fixed
Slope	°	37.0
Azimuth	°	0.0

Show data

Solar water heater

Type		Glazed		
Manufacturer		Heliodyne		
Model		Gobi 410		
Gross area per solar collector	ft²	40.30		
Aperture area per solar collector	ft²	38.30		
Fr (tau alpha) coefficient		0.74		
Fr UL coefficient	(Btu/h)/ft²/°F	0.80		
Temperature coefficient for Fr UL	(Btu/h)/ft²/°F²	0.000		
Number of collectors		20	27	
Solar collector area	ft²	806.00		
Capacity	kW	49.81		
Miscellaneous losses	%	2.0%		

Balance of system & miscellaneous

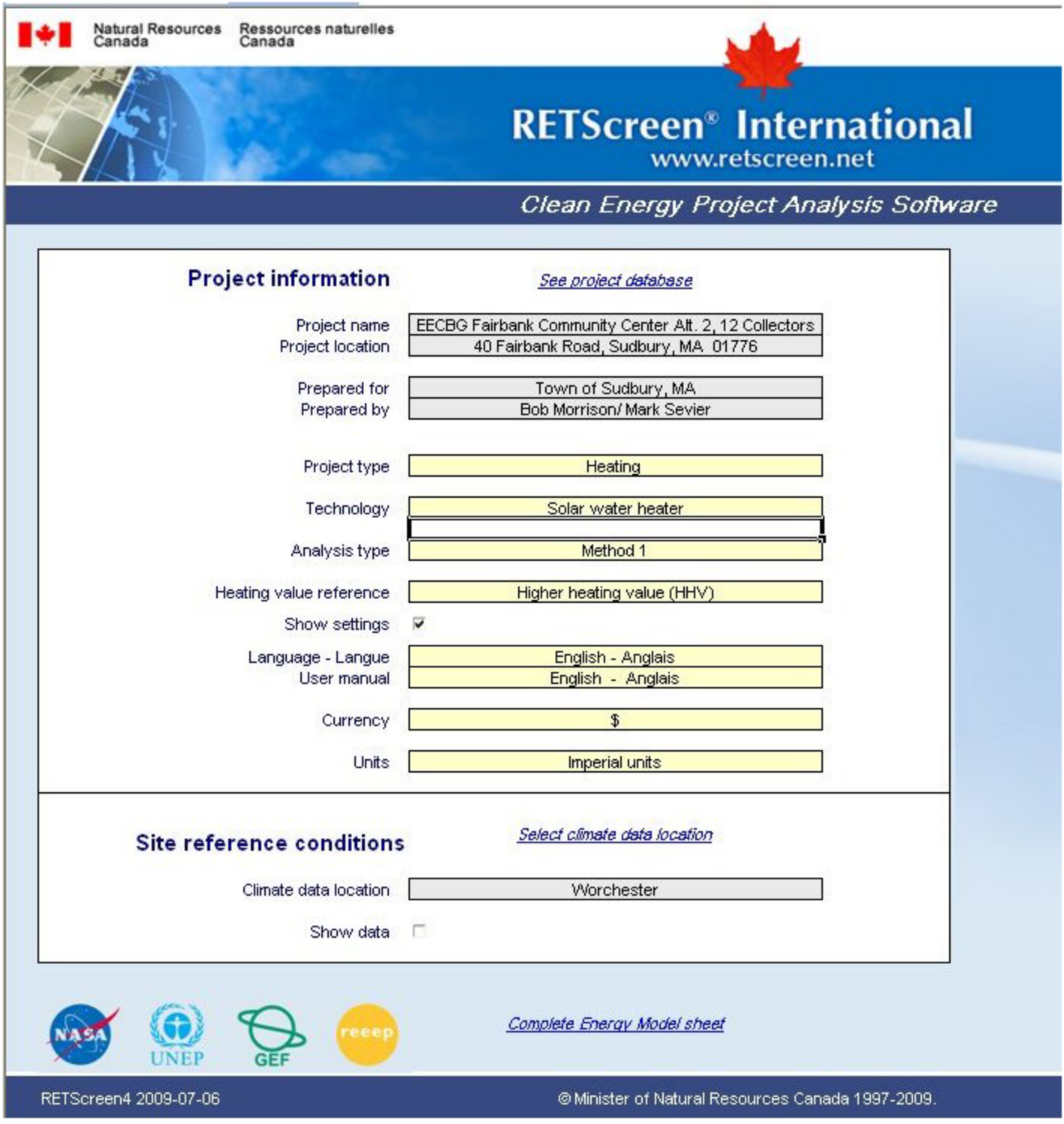
Storage		Yes	
Storage capacity / solar collector area	gal/ft²	1	
Storage capacity	gal	975.0	
Heat exchanger	yes/no	Yes	
Heat exchanger efficiency	%	95.0%	
Miscellaneous losses	%	3.0%	
Pump power / solar collector area	W/ft²	0.19	
Electricity rate	$/kWh	0.140	

Summary

Electricity - pump	MWh	0.3
Heating delivered	million Btu	188.8
Solar fraction	%	38%

Heating system

Project verification		Base case	Proposed		
Fuel type		Natural gas - therm	Natural gas - therm		
Seasonal efficiency		80%	80%		
Fuel consumption - annual	therm	6,145.0	3,785.1	therm	
Fuel rate	$/therm	1.750	1.750	$/therm	
Fuel cost	$	10,754	6,624		


Natural Resources Canada
Ressources naturelles Canada
RETScreen® International
www.retscreen.net
Clean Energy Project Analysis Software
Project information
See project database
Project name
EECBG Fairbank Community Center Alt. 2, 12 Collectors
Project location
40 Fairbank Road, Sudbury, MA 01776
Prepared for
Town of Sudbury, MA
Prepared by
Bob Morrison/ Mark Sevier
Project type
Heating
Technology
Solar water heater
Analysis type
Method 1
Heating value reference
Higher heating value (HHV)
Show settings
Language - Langue
English - Anglais
User manual
English - Anglais
Currency
$
Units
Imperial units
Site reference conditions
Select climate data location
Climate data location
Worchester
Show data
Complete Energy Model sheet
RETScreen4 2009-07-06
© Minister of Natural Resources Canada 1997-2009.

RETScreen Energy Model - Heating project

Heating project

Technology: **Solar water heater**

Load characteristics

Application: ○ Swimming pool ◉ Hot water

	Unit	Base case	Proposed
Load type		Other	
Daily hot water use	gal/d	2,200	2,200
Temperature	°F	120	120
Operating days per week	d	7	7

☐ **Percent of month used**

Supply temperature method		Formula
Water temperature - minimum	°F	38.5
Water temperature - maximum	°F	54.9

	Unit	Base case	Proposed case	Energy saved	Incremental initial costs
Heating	million Btu	491.6	491.6	0%	$ 85,000

Resource assessment

Solar tracking mode		Fixed
Slope	°	37.0
Azimuth	°	0.0

☐ **Show data**

Solar water heater

Type		Glazed	
Manufacturer		Heliodyne	
Model		Gobi 410	
Gross area per solar collector	ft²	40.30	
Aperture area per solar collector	ft²	38.30	
Fr (tau alpha) coefficient		0.74	
Fr UL coefficient	(Btu/h)/ft²/°F	0.80	
Temperature coefficient for Fr UL	(Btu/h)/ft²/°F²	0.000	
Number of collectors		12	27
Solar collector area	ft²	483.60	
Capacity	kW	29.89	
Miscellaneous losses	%	2.0%	

Balance of system & miscellaneous

Storage		Yes
Storage capacity / solar collector area	gal/ft²	1
Storage capacity	gal	600.0
Heat exchanger	yes/no	Yes
Heat exchanger efficiency	%	95.0%
Miscellaneous losses	%	3.0%
Pump power / solar collector area	W/ft²	0.13
Electricity rate	$/kWh	0.140

Summary

Electricity - pump	MWh	0.2
Heating delivered	million Btu	121.4
Solar fraction	%	25%

Heating system

☐ Project verification

		Base case	Proposed	
Fuel type		Natural gas - therm	Natural gas - therm	
Seasonal efficiency		80%	80%	
Fuel consumption - annual	therm	6,145.0	4,627.2	therm
Fuel rate	$/therm	1.750	1.750	$/therm
Fuel cost	$	10,754	8,098	

Alternative 1, 64 Collectors, 210 Watts each

AC Energy & Cost Savings

Station Identification	
City:	Worcester
State:	Massachusetts
Latitude:	42.27° N
Longitude:	71.87° W
Elevation:	301 m
PV System Specifications	
DC Rating:	13.4 kW
DC to AC Derate Factor:	0.770
AC Rating:	10.3 kW
Array Type:	Fixed Tilt
Array Tilt:	14.5°
Array Azimuth:	131.5°
Energy Specifications	
Cost of Electricity:	12.0 ¢/kWh

Results			
Month	Solar Radiation ($kWh/m^2/day$)	AC Energy (kWh)	Energy Value ($)
1	2.27	729	87.48
2	3.25	981	117.72
3	4.17	1348	161.76
4	4.74	1447	173.64
5	5.61	1690	202.80
6	5.99	1696	203.52
7	6.11	1776	213.12
8	5.43	1579	189.48
9	4.46	1278	153.36
10	3.45	1064	127.68
11	2.32	699	83.88
12	1.92	593	71.16
Year	4.15	14880	1785.60

Alternative 2, 32 Collectors, 210 Watts each

* * *

AC Energy & Cost Savings

Station Identification	
City:	Worcester
State:	Massachusetts
Latitude:	42.27° N
Longitude:	71.87° W
Elevation:	301 m
PV System Specifications	
DC Rating:	6.7 kW
DC to AC Derate Factor:	0.770
AC Rating:	5.2 kW
Array Type:	Fixed Tilt
Array Tilt:	14.5°
Array Azimuth:	131.5°
Energy Specifications	
Cost of Electricity:	12.0 ¢/kWh

Results			
Month	Solar Radiation ($kWh/m^2/day$)	AC Energy (kWh)	Energy Value ($)
1	2.27	365	43.80
2	3.25	490	58.80
3	4.17	674	80.88
4	4.74	724	86.88
5	5.61	845	101.40
6	5.99	848	101.76
7	6.11	888	106.56
8	5.43	790	94.80
9	4.46	639	76.68
10	3.45	532	63.84
11	2.32	349	41.88
12	1.92	296	35.52
Year	4.15	7440	892.80