DATE 01/09/2008

Columbia County Building Permit

This Permit Expires One Year From the Date of Issue

PERMIT 000026591

APPLICANT ROGER WIDNEY PHONE 754-5594

ADDRESS 200 SE ELM LOOP LAKE CITY FL 32025

OWNER EASTSIDE VILLAGE HOMEOWNERS PHONE 386-555-7004

ADDRESS 189 SE CLAUDIA WAY LAKE CITY FL 32025

CONTRACTOR TOM LANE - ECS SOLAR PHONE 352-377-8866

LOCATION OF PROPERTY EAST BAYA, R SE PEARL TERR, L PAMELA PL, R BECKY TERR, L SE TRISTIN LN, R SE CLAUDIA WAY TO POOL

TYPE DEVELOPMENT SOLAR POOL SYSTEM ESTIMATED COST OF CONSTRUCTION 8350.00

HEATED FLOOR AREA _____ TOTAL AREA _____ HEIGHT ____ STORIES ____

FOUNDATION _____ WALLS _____ ROOF PITCH _____ FLOOR _____

LAND USE & ZONING RMF-1 MAX. HEIGHT 35

Minimum Set Back Requirments: STREET-FRONT 25.00 REAR 15.00 SIDE 10.00

NO. EX.D.U. 0 FLOOD ZONE X DEVELOPMENT PERMIT NO. _____

PARCEL ID 34-3S-17-07018-056 SUBDIVISION EASTSIDE VILLAGE/CATALINA

LOT 56 BLOCK ____ PHASE ____ UNIT ____ TOTAL ACRES 0.80

Culvert Permit No.	Culvert Waiver	Contractor's License Number	Applicant/Owner/Contractor
		CVC056643	Roger D. Widney

Driveway Connection	Septic Tank Number	LU & Zoning checked by	Approved for Issuance	New Resident
EXISTING	X07-0411	BK	JH	N

COMMENTS: AUTHORIZATION LETTER GIVEN BY CONTRACTOR

MR. WIDNEY SAID THE WORK WAS COMPLETED, PER CODE,PERMIT FEE DOUBLED

JOB WAS COMPLETED PROIR TO PERMIT ISSUANCE. Check # or Cash 4946

FOR BUILDING & ZONING DEPARTMENT ONLY

(footer/Slab)

Temporary Power _____ date/app. by

Foundation _____ date/app. by

Monolithic _____ date/app. by

Under slab rough-in plumbing _____ date/app. by

Slab _____ date/app. by

Sheathing/Nailing _____ date/app. by

Framing _____ date/app. by

Rough-in plumbing above slab and below wood floor _____ date/app. by

Electrical rough-in _____ date/app. by

Heat & Air Duct _____ date/app. by

Peri. beam (Lintel) _____ date/app. by

Permanent power _____ date/app. by

C.O. Final _____ date/app. by

Culvert _____ date/app. by

M/H tie downs, blocking, electricity and plumbing _____ date/app. by

Pool _____ date/app. by

Reconnection _____ date/app. by

Pump pole _____ date/app. by

Utility Pole _____ date/app. by

M/H Pole _____ date/app. by

Travel Trailer _____ date/app. by

Re-roof _____ date/app. by

BUILDING PERMIT FEE $ 45.00 CERTIFICATION FEE $ 0.00 SURCHARGE FEE $ 0.00

MISC. FEES $ 0.00 ZONING CERT. FEE $ 50.00 FIRE FEE $ 0.00 WASTE FEE $ _____

DEVELOPMENT FEE $ 120.00 FLOOD ZONE FEE $ 25.00 CULVERT FEE $ _____ **TOTAL FEE** 240.00

INSPECTORS OFFICE L. Hodson CLERKS OFFICE CH

NOTICE: IN ADDITION TO THE REQUIREMENTS OF THIS PERMIT, THERE MAY BE ADDITIONAL RESTRICTIONS APPLICABLE TO THIS PROPERTY THAT MAY BE FOUND IN THE PUBLIC RECORDS OF THIS COUNTY. AND THERE MAY BE ADDITIONAL PERMITS REQUIRED FROM OTHER GOVERNMENTAL ENTITIES SUCH AS WATER MANAGEMENT DISTRICTS, STATE AGENCIES, OR FEDERAL AGENCIES.

"WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT."

This Permit Must Be Prominently Posted on Premises During Construction

PLEASE NOTIFY THE COLUMBIA COUNTY BUILDING DEPARTMENT AT LEAST 24 HOURS IN ADVANCE OF EACH INSPECTION, IN ORDER THAT IT MAY BE MADE WITHOUT DELAY OR INCONVIENCE, PHONE 758-1008. THIS PERMIT IS NOT VALID UNLESS THE WORK AUTHORIZED BY IT IS COMMENCED WITHIN 6 MONTHS AFTER ISSUANCE.

The Issuance of this Permit Does Not Waive Compliance by Permittee with Deed Restrictions.

Ck # 4946

Columbia County Building Permit Application

For Office Use Only Application # 0712-41 Date Received 12/13/07 By GT Permit # 26591

Zoning Official BLK Date 07.01.08 Flood Zone X FEMA Map # N/A Zoning RMF-1

Land Use Res Mod Dr Elevation N/A MFE N/A River N/A Plans Examiner OK JTH Date 1-7-08

Comments

☐ NOC ☑ EH ☐ Deed or PA ☐ Site Plan ☐ State Road Info ☐ Parent Parcel #

☐ Dev Permit # ☐ In Floodway ☑ Letter of Authorization from Contractor

☐ Unincorporated area ☐ Incorporated area ☐ Town of Fort White ☐ Town of Fort White Compliance letter

Septic Permit No. Fax

Name Authorized Person Signing Permit Roger G. Widney Phone 386-754-5594

Address 200 SE Elm Loop Lake City, FL 32025

Owners Name Eastside Village Homeowners Phone 386-555-7004

911 Address 189 SE Claudia Way Lake City, FL 32025

Contractors Name Tom Lane - ECS Solar Phone 352-377-8866

Address 6120 SW 13th Street Gainesville, FL 32608

Fee Simple Owner Name & Address N/A

Bonding Co. Name & Address N/A

Architect/Engineer Name & Address N/A

Mortgage Lenders Name & Address N/A

Circle the correct power company – FL Power & Light – Clay Elec. – Suwannee Valley Elec. – Progress Energy

Property ID Number 34-35-17-07018-056 Estimated Cost of Construction $8,350

Subdivision Name Eastside Village/Catalina Lot 56 Block Unit Phase

Driving Directions Hwy NE Hernando Ave · turn L on NE Madison St · turn L on N Marion Ave/US 441 · turn L on SE Baya Dr/FL 10-A · Turn R on SE Pearl Terr · turn L on SE Pamela Pl · turn R on SE Becky Ter · turn L on SE Tristia Ln · turn R on SE Claudia Ln Number of Existing Dwellings on Property

Construction of Solar Pool Heating System Total Acreage 0.803 Lot Size

Do you need a - Culvert Permit or Culvert Waiver or Have an Existing Drive Total Building Height

Actual Distance of Structure from Property Lines - Front Side Side Rear

Number of Stories Heated Floor Area Total Floor Area Roof Pitch

Application is hereby made to obtain a permit to do work and installations as indicated. I certify that no work or installation has commenced prior to the issuance of a permit and that all work be performed to meet the standards of all laws regulating construction in this jurisdiction.

On 1-9-08 Roger Widney stated the pool solar heating system was completed as of this date. He lives in Eastside village and is authorized by the contractor to pull the permit. The charge for the permit was doubled per the Ordinance as the work was completed before a permit was issued. L. Hodson 1-9-08 Per Inspector

Columbia County Building Permit Application

WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCMENT MAY RESULT IN YOU PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT.

FLORIDA'S CONSTRUCTION LIEN LAW: Protect Yourself and Your Investment
According to Florida Law, those who work on your property or provide materials, and are not paid-in-full, have a right to enforce their claim for payment against your property. This claim is known as a construction lien. If your contractor fails to pay subcontractors or material suppliers or neglects to make other legally required payments, the people who are owed money may look to your property for payment, even if you have paid your contractor in full. This means if a lien is filed against your property, it could be sold against your will to pay for labor, materials or other services which your contractor may have failed to pay.

NOTICE OF RESPONSIBILITY TO BUILDING PERMITEE:
YOU ARE HEREBY NOTIFIED as the recipient of a building permit from Columbia County, Florida, you will be held responsible to the County for any damage to sidewalks and/or road curbs and gutters, concrete features and structures, together with damage to drainage facilities, removal of sod, major changes to lot grades that result in ponding of water, or other damage to roadway and other public infrastructure facilities caused by you or your contractor, subcontractors, agents or representatives in the construction and/or improvement of the building and lot for which this permit is issued. No certificate of occupancy will be issued until all corrective work to these public infrastructures and facilities has been corrected.

OWNERS CERTIFICATION: I hereby certify that all the foregoing information is accurate and all work will be done in compliance with all applicable laws and regulating construction and zoning. I further understand the above written responsibilities in Columbia County for obtaining this Building Permit.

Roger D. Widney, BOD
Owners Signature

CONTRACTORS AFFIDAVIT: By my signature I understand and agree that I have informed and provided this written statement to the owner of all the above written responsibilities in Columbia County for obtaining this Building Permit.

Tom H Lane
Contractor's Signature (Permitee)

Contractor's License Number CVC 056643
Columbia County
Competency Card Number_____

Affirmed under penalty of perjury to by the Contractor and subscribed before me this 12th **day of** December **20**07.
Personally known ✓ **or Produced Identification**_____

Errol S. Garner
State of Florida Notary Signature (For the Contractor)

SEAL:

NOTARY PUBLIC-STATE OF FLORIDA
Errol S. Garner
Commission # DD715266
Expires: SEP. 17, 2011
BONDED THRU ATLANTIC BONDING CO., INC.

Energy Conservation Services of North Florida Inc.

State Solar Contracting License #CVC 056643 • Solar Contracting Since 1977
Solar Electric, Pool & Hot Water Systems

December 12, 2007

Columbia County
Building & Zoning
135 NE Hernando Avenue
Lake City, FL 32055

Attention: Permitting Department

As the CEO of Energy Conservation Services of North Florida, licensed under Florida State Solar Contracting License #CVC 056643, I, Thomas H. Lane, do with this letter, hereby authorize Roger Widney of 200 SE Elm Loop, Lake City, FL 32025 the permission to act as an agent for this company for the purpose of obtaining a permit regarding the installation of a solar pool heating system for the Eastside Village Homeowners Association, 169 SE Claudia Way, Lake City, FL 32025.

This authorization is valid only for the purpose intended and thereby does not grant any further privilege or enablement other than what is stated above.

Respectfully submitted,

Tom H Lane

Thomas H. Lane
CEO

STATE OF FLORIDA
County of Alachua

Sworn to and subscribed before me this 12th day of December, 2007

Notary Erroll S. Garner My Commission expires Sept. 17, 2011

Personally Known ✓ -OR- Produced Identification ____

NOTARY PUBLIC-STATE OF FLORIDA
Erroll S. Garner
Commission # DD715266
Expires: SEP. 17, 2011
BONDED THRU ATLANTIC BONDING CO., INC.

HEALEY & ASSOCIATES

ENGINEERING AND CONSTRUCTION CONSULTANTS
120 VENETIAN WAY, SUITE 16
MERRITT ISLAND, FL 32953
(321) 452 - 2173
FAX (321) 452-2173
Email: healey@flaenergy.com

To:

From: Henry M. Healey, P. E.

Date: 4/4/2005

Re: Structural Drawings for Solar Pool Collector Installation on Roofs with ½ inch Plywood Roof Decks

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Enclosed are the two (2) sets of Signed & Sealed Installation Drawings of the Aquatherm Solar Pool Collector that you requested from Dave Sizelove. Please review the drawings closely prior to submission to the AHJ so that you clearly understand the Strap Spacing Table, the Installation requirements and the limitations of these drawings.

These drawings are for the installation of Collectors on low rise Buildings with a mean roof height of 30 feet that have 1/2" nominal plywood sheathing on the roof. Note that the drawings show the spacing for the lowest wind speed (100 mph) on Sheet 1 and 120 MPH on Sheet 3, however the Table and Notes clearly indicate that the design can be used to 150 mph by adjusting the Strap Spacing.

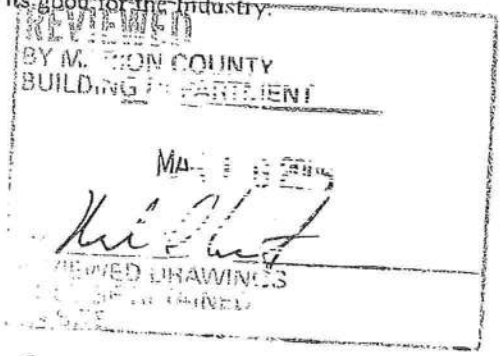
Additionally:

These drawings also allow the collectors to extend into the Tributary Areas (Edge Strips) by reducing the Strap Spacing in these areas (increasing the number of straps). The Strap Spacing in the Table is a Maximum. For example the maximum spacing for the panels shown on Sheet 3 at the 120 mph wind speed shown is 21.5" but the spacing used on the dwg is 20 and 21" for the different size panels because the straps on the top & bottom must be installed closer as indicated on the drawing and **then** deciding the specific number and spacing of straps as a function of collector size. The result and spacing can be less but cannot exceed the spacing specified in the Table.

If you or the AHJ have any questions or concerns contact me by phone or email (healey@flaenergy.com).

I also recommend that you and others continue to push the Industry to move toward Structural Certification as part of FSEC and SRCC Certification and work toward Product Approval under the Building Code. I developed the procedures years ago that will meet Code Requirements and if collectors were approved by SRCC Nationally with Installation that references acceptable procedures referenced in the Building Codes we would be able to use it and put me out of this job-which is OK with me since its good for the Industry.

Henry M. Healey, P.E.



Cc: Dave Sizelove
Ed Hall w/5 Copies

Pg. 1 of 7

Ascent Consulting Engineering/
James A Marx, Jr. P.E.
High Mountain Road
Ringwood, NJ 07456
Tel. No. 973-557-6080
Fax No. 973-835-5924
E-mail: jamlight@bellatlantic.net

September 9, 2007

To: Building Department or Others:

RE: Engineer's Notice of Evaluation for AE Solar Collector System

Dear Sir:

As a Professional Engineering Consultant for Alternate Energy Technologies (AET), I have structurally evaluated the AE series Solar Collectors (40 square feet and smaller) and the mounting system. The design of the AE series installation will withstand wind uplift forces of at least 51 psf and at this force level the collector and mounting design would meet most residential buildings and other low-height buildings throughout Florida where the site wind speed of 110 mph is not exceeded and the Exposure Category is either 'B' or 'C'.

The following conditions shall be met:

1) The solar project's building is enclosed and has a mean roof height not exceeding 30 feet and a roof slope not exceeding 30 degrees.

2) The location of Solar Collectors should be located if possible in the central 'Interior' roof area; however, they may be installed in the 'Edge' strips if necessary; but are not recommended to be installed in the 'Corner' area (see drawing AE-1, sheet 8 of 8).

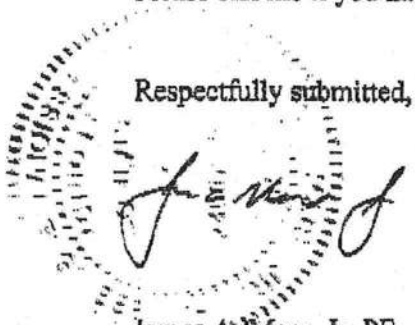
This information cannot be used for Solar Collectors located with wind speeds in excess of 110 mph, or sites with surface Exposure Category 'D', or for those buildings having a mean roof height greater than 30 feet and/or roof slopes greater than 30 degrees, or for conditions whereby the building does not meet the provisions Florida Building Code Table 1609.6B for which specified conditions of spatial form, height and other structure parameters would impose design level forces in excess of 51 psf; unless it is reviewed and approved for use by a Professional Engineering Consultant for AET.

By this letter, I certify that this installation will meet the loading requirements of the 2004 Florida Building Code and 2005/ 2006 Supplements.

The Solar Collector installation work shall be performed based upon AE-1 Sheets 1 to 8 and should be performed by a Florida Certified Solar Contractor.

Please call me if you have any questions or concerns.

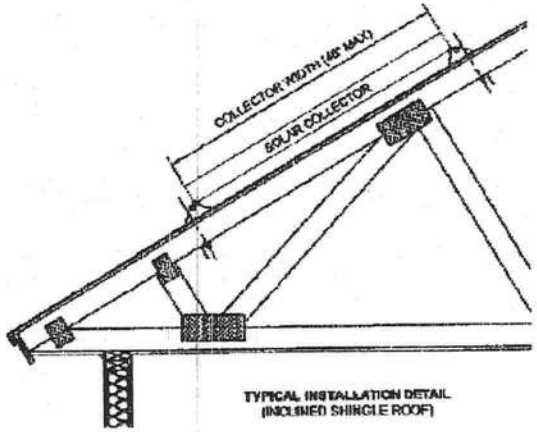
Respectfully submitted,



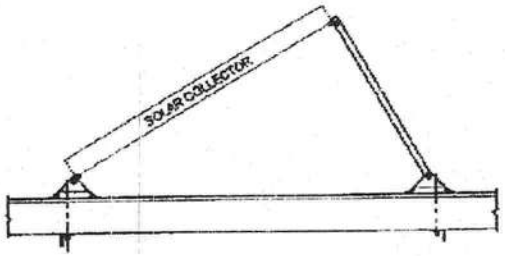
James A. Marx, Jr. PE
FL Lic. No. 45024

cc: Billy Byrom, AET Solar

ALTERNATE ENERGY TECHNOLOGIES, LLC
SOLAR COLLECTOR INSTALLATION DRAWINGS



TYPICAL INSTALLATION DETAIL
(INCLINED SHINGLE ROOF)



TYPICAL INSTALLATION DETAIL
(FLAT WOOD FRAME ROOF)

INSTALLATION REQUIREMENTS

THESE INSTALLATION DRAWINGS DETAIL THE STRUCTURAL INSTALLATION REQUIREMENTS FOR THE AE-SERIES SOLAR WATER HEATING COLLECTORS MANUFACTURED BY ALTERNATE ENERGY TECHNOLOGIES ON RESIDENTIAL AND LIGHT COMMERCIAL BUILDINGS OF FRAMED CONSTRUCTION.

THE INSTALLATION REQUIRES HARDWARE PROVIDED BY THE SOLAR COLLECTOR MANUFACTURER AS INDICATED HEREIN TO BE UTILIZED TO ATTACH THE SOLAR COLLECTORS TO THE BUILDING IN ACCORDANCE WITH THESE DRAWINGS.

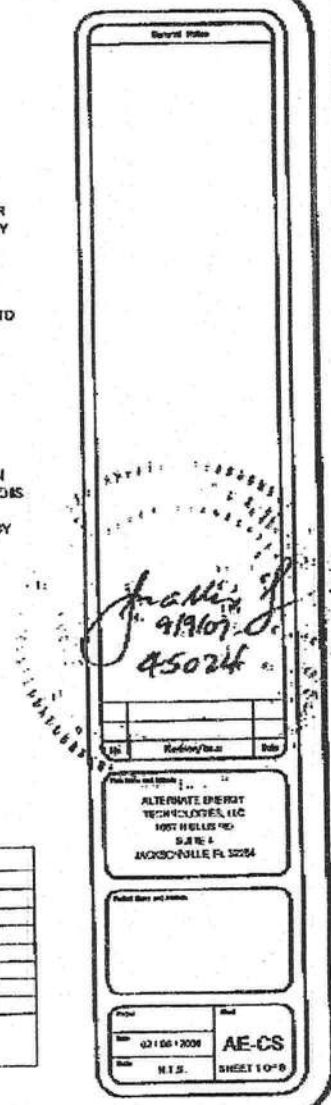
THE SOLAR COLLECTOR INSTALLATION AS DETAILED IN THESE DRAWINGS IS FOR THE INSTALLATION OF THE BELOW LISTED AE-SERIES SOLAR COLLECTORS ON RESIDENTIAL AND LIGHT COMMERCIAL BUILDINGS WITH FLAT OR SLOPED ROOFS SUBJECTED TO A MAXIMUM UPLIFT PRESSURE OF 51 POUNDS PER SQUARE FOOT (PSF).

INFORMATION ON THE WIND LOADS ON SOLAR COLLECTORS, COMPONENTS AND CLADDING, INSTALLED ON BUILDINGS WITH A MEAN ROOF HEIGHT OF 30 FEET LOCATED IN EXPOSURE B IN PSF AT WIND SPEEDS FROM 85 TO 150 MPH IS SHOWN ON SHEET SIX OF THESE DRAWINGS AND IS ALSO AVAILABLE IN TABLE 1609B OF THE 2004 FLORIDA BUILDING CODE. WIND SPEEDS ON HIGHER BUILDINGS IN DIFFERENT EXPOSURES WOULD NEED TO BE DETERMINED ON A CASE BY CASE BASIS.

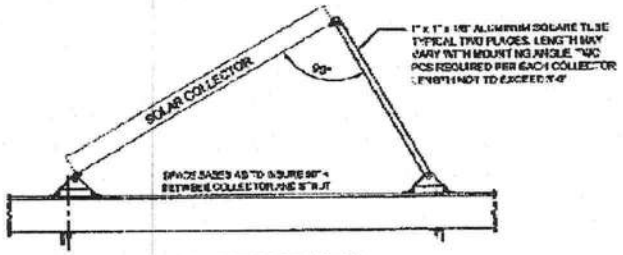
DESIGN WIND PRESSURE
MAXIMUM SUCTION UPLIFT: 51 PSF

AE - SERIES COLLECTORS			
MODEL	ABSORBER	WIDTH	LENGTH
AE-21	SELECTIVE	35.1875"	85.1875"
AE-24	SELECTIVE	35.1875"	97.1875"
AE-26	SELECTIVE	47.1875"	77.1875"
AE-28	SELECTIVE	47.1875"	85.1875"
AE-32	SELECTIVE	47.1875"	97.1875"
AE-40	SELECTIVE	47.1875"	121.1875"

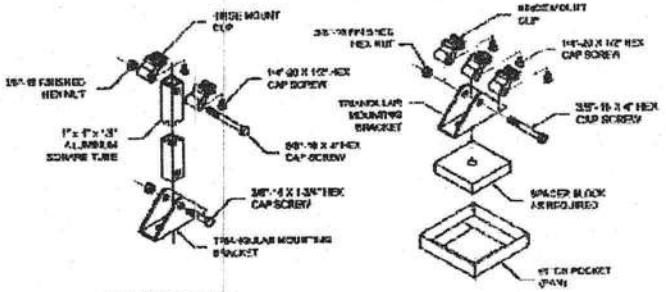
DOCUMENT INDEX		
SHEET	ID	DESCRIPTION
1	AE CS	SOLAR COLLECTOR REQUIREMENTS SHEET INDEX
2	AE - 1	INSTALLATION DETAILS FLAT WOOD FRAME ROOF
3	AE - 1	INSTALLATION DETAILS SLOPED WOOD FRAME ROOF
4	AE - 1	INSTALLATION DETAIL FOR FLAT ROOF USING STANDOFF FRAME
5	AE - 1	MANUFACTURERS HARDWARE AET SERIES AE SOLAR COLLECTOR
6	AE - 1	ALTERNATE MOUNTING CONSIDERATIONS
7	AE - 1	WIND-SPEED LOAD INFORMATION
ADDITIONAL INFORMATION		



INSTALLATION DETAILS - FLAT WOOD FRAME ROOF

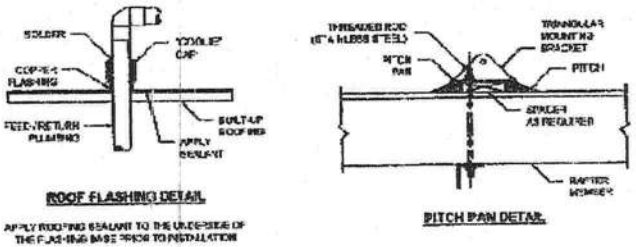


TYPICAL INSTALLATION DETAIL
(FLAT WOOD FRAME ROOF)



CONNECTION DETAIL

CONNECTION DETAIL



ROOF FLASHING DETAIL

PITCH PAN DETAIL

NOTES

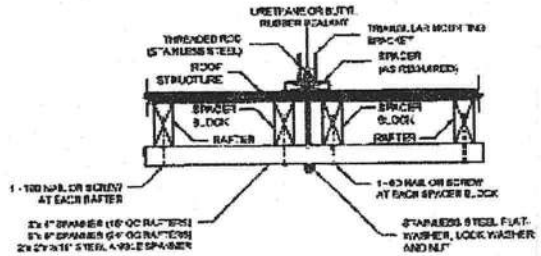
1) THE SOLAR COLLECTOR INSTALLATION AS DETAILED IN THESE DRAWINGS IS FOR THE INSTALLATION OF ALTERNATE ENERGY TECHNOLOGIES AE-SERIES SOLAR COLLECTORS ON STRUCTURES SUBJECTED TO A MAXIMUM UPLIFT PRESSURE OF 51 POUNDS PER SQUARE FOOT (PSF).

2) THE DESIGN OF THIS INSTALLATION IS BASED ON REQUIREMENTS OF THE 2004 FLORIDA BUILDING CODE, ASCE 7 AND TESTING OF THE SOLAR COLLECTOR IN ACCORDANCE WITH PA 232 (TAS 202-94), ASTM E 330

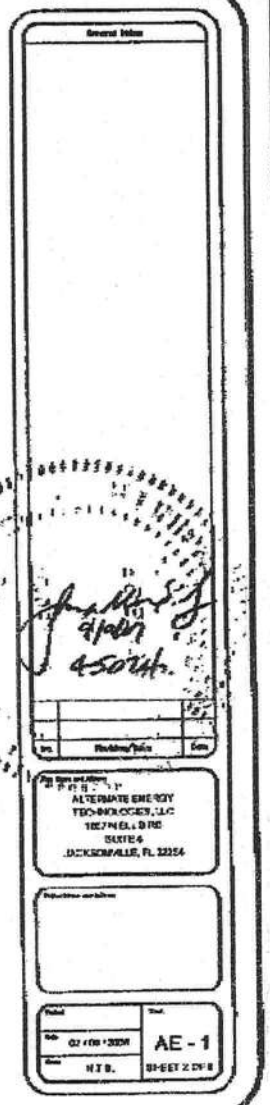
3) THE INSTALLATION SHALL UTILIZE HARDWARE PROVIDED BY THE MANUFACTURER AS DETAILED IN THESE DRAWING.

4) ALL ALUMINUM STRUCTURAL MEMBERS TO BE 6061-T6. ALL STRUCTURAL STEEL MEMBERS TO BE LOW CARBON GALVANIZED STEEL, AND ALL HARDWARE (BOLTS, NUTS, ETC) TO BE STAINLESS STEEL.

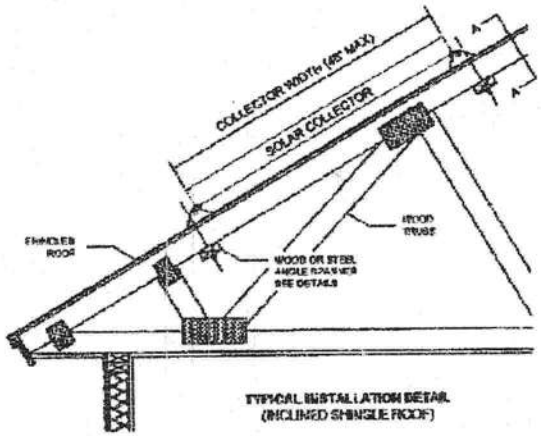
DESIGN WIND PRESSURE
MAXIMUM SUCTION UPLIFT: 51 PSF



1. ALL MOUNTING HARDWARE (SCREWS, NUTS AND BOLTS) SHALL BE STAINLESS STEEL UNLESS NOTED OTHERWISE.
2. SPACER BLOCKS SHALL BE INSTALLED WITHIN 1" OF THE THRU-BOLT.
3. WHEN THRU-BOLT IS WITHIN 2" OF A RAFTER, ONLY ONE SPACER BLOCK WILL BE REQUIRED ON THE OPPOSITE SIDE OF THE BOLT, AWAY FROM THE RAFTER.
4. TWO SPACER BLOCKS ARE REQUIRED WHEN THRU BOLT IS MORE THAN 2" FROM THE RAFTER.
5. WHEN THE MOUNTING PROVISIONS OF ADJACENT COLLECTORS ARE INSTALLED SIDE BY SIDE AND THE THRU-BOLTS ARE 1 1/2" OR MORE APART, IT WILL BE NECESSARY TO HAVE AT LEAST ONE SPACER BLOCK (OR RAFTER) BETWEEN BOLTS.
6. SEALANTS ARE REQUIRED BETWEEN MOUNTING BLOCK AND SHINGLES/SHEATHING. BOLT HOLES SHALL BE SEALED TO PREVENT MOISTURE PENETRATION.
7. STEEL ANGLE SPANNER (2" X 2" X 3/16") MAY BE SUBSTITUTED FOR WOOD SPANNER.



INSTALLATION DETAILS - SLOPED WOOD FRAME ROOF



TYPICAL INSTALLATION DETAIL
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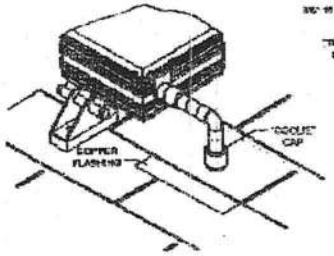
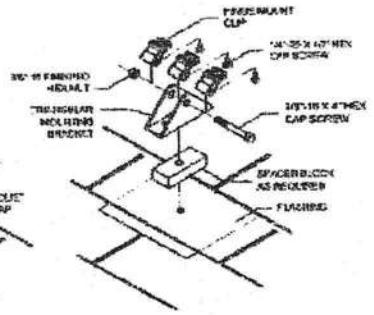


ROOF FLASHING DETAIL



CONNECTION DETAIL

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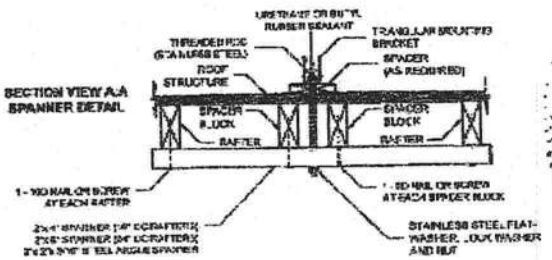
MAXIMUM SUCTION UPLIFT: 51 PSF



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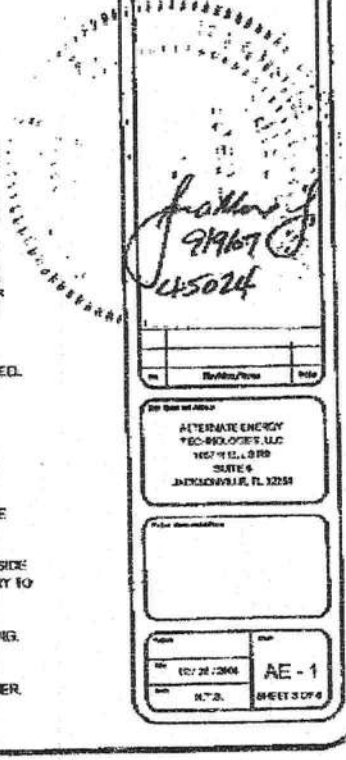
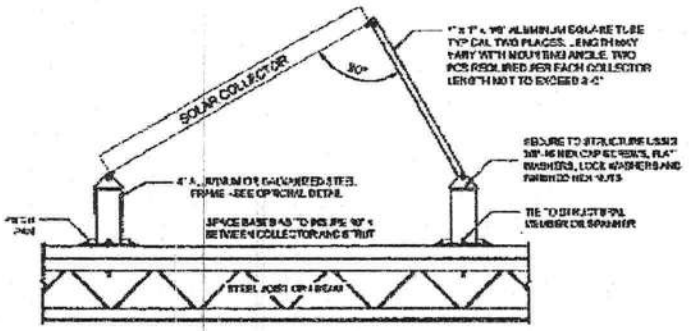
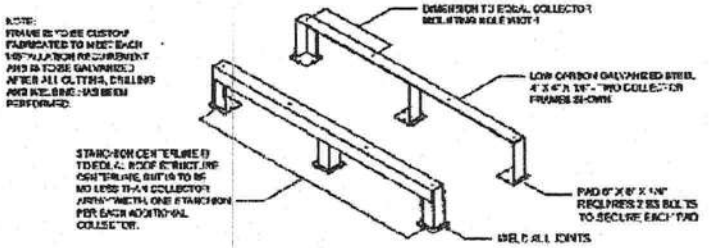
6. SEALANTS ARE REQUIRED BETWEEN MOUNTING BLOCK AND SHINGLES/SHEATHING. BOLT HOLES SHALL BE SEALED TO PREVENT MOISTURE PENETRATION.
7. STEEL ANGLE SPANNER (2" X 2" X 3/16") MAY BE SUBSTITUTED FOR WOOD SPANNER.



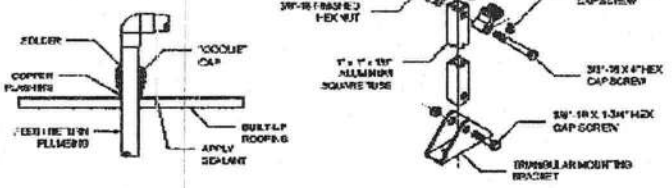
INSTALLATION DETAILS - FLAT ROOF USING STANDOFF FRAME



TYPICAL INSTALLATION DETAIL
(CONCRETE OR METAL FRAME ROOF)



OPTIONAL STANDOFF FRAME DETAIL



ROOF FLASHING DETAIL

APPLY ROOFING SEALANT TO THE UNDERSIDE OF THE FLASHING BASE PRIOR TO INSTALLATION

CONNECTION DETAIL

MANUFACTURERS HARDWARE FOR TILTED MOUNT ON FLAT ROOFS USE PITCH PAN

NOTES

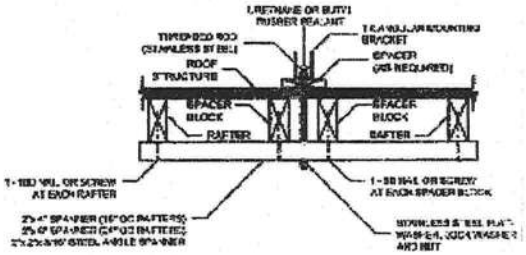
1) THE SOLAR COLLECTOR INSTALLATION AS DETAILED IN THESE DRAWINGS IS FOR THE INSTALLATION OF ALTERNATE ENERGY TECHNOLOGIES AE-SERIES SOLAR COLLECTORS ON STRUCTURES SUBJECTED TO A MAXIMUM UPLIFT PRESSURE OF 51 POUNDS PER SQUARE FOOT (PSF).

2) THE DESIGN OF THIS INSTALLATION IS BASED ON REQUIREMENTS OF THE 2004 FLORIDA BUILDING CODE, ASCE 7 AND TESTING OF THE SOLAR COLLECTOR IN ACCORDANCE WITH PA 202 (TAS 202-94), ASTM E 330.

3) THE INSTALLATION SHALL UTILIZE HARDWARE PROVIDED BY THE MANUFACTURER AS DETAILED IN THESE DRAWING.

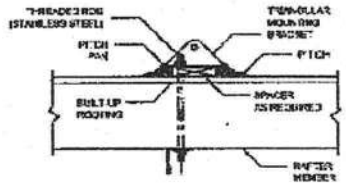
4) ALL ALUMINUM STRUCTURAL MEMBERS TO BE 6061-T6. ALL STRUCTURAL STEEL MEMBERS TO BE LOW CARBON GALVANIZED STEEL, AND ALL HARDWARE (BOLTS, NUTS, ETC) TO BE STAINLESS STEEL.

DESIGN WIND PRESSURE
MAXIMUM SUCTION UPLIFT: 51 PSF



SPANNER DETAIL

THIS DETAIL FOR LIMITED APPLICATION AS A FUNCTION OF STRUCTURE. THIS DETAIL INTENDED FOR LIGHT COMMERCIAL AND RESIDENTIAL INSTALLATIONS WITH ROOF SUPPORT STRUCTURE IN 16" OR 24" CENTERS. OTHER SPACINGS AND STRUCTURES WILL REQUIRE SITE SPECIFIC ANALYSIS.



PITCH PAN DETAIL

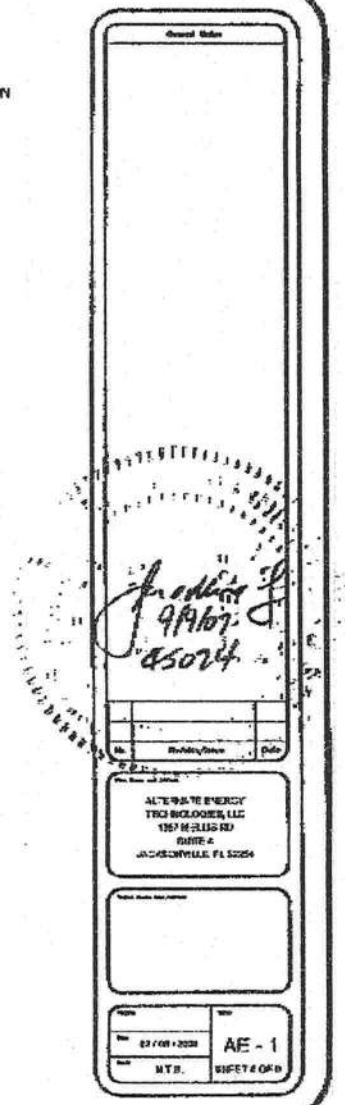
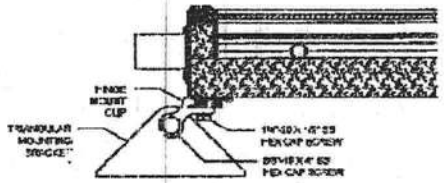
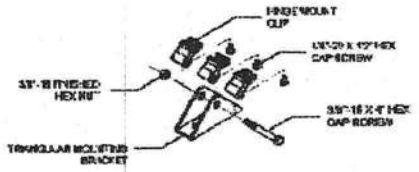


FIGURE 1. COLLECTOR ATTACHMENT
(SECTION VIEW A-A)



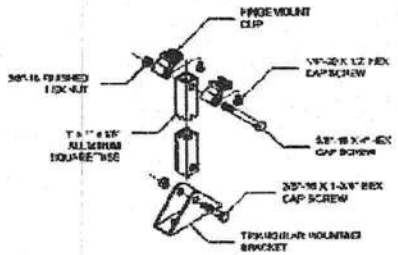
THREE "AE-CLIPS" ARE TO BE INSTALLED AT EACH CONNECTION POINT WITH THE TRIANGULAR BRACKET AS SHOWN IN THIS DETAIL

FIGURE 2. ATTACHMENT HARDWARE



T-SEC "AE-CLIPS" ARE TO BE REQUIRED TO ATTACH THE COLLECTORS TO THE STRUCTURE PROPERLY WHEN USING THE ANGLE BRACKET. NO SUBSTITUTIONS ARE ALLOWED.

FIGURE 3. TILT KIT HARDWARE



TWO "AE-CLIPS" ARE REQUIRED AT EACH CONNECTION POINT WITH SOLAR TUBE LEGS AS SHOWN IN THIS DETAIL

NOTES:

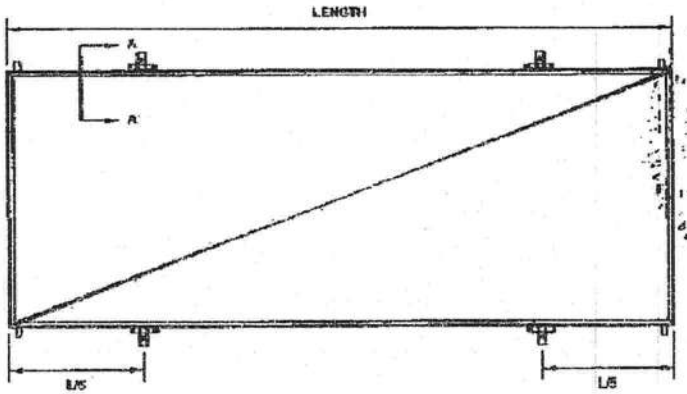
THESE FIGURES SHOW THE HARDWARE PROVIDED BY THE MANUFACTURER THAT HAS UNDERGONE TESTING AND SHALL BE USED TO ATTACH THE SOLAR COLLECTORS TO THE STRUCTURE PROPERLY. NO SUBSTITUTIONS SHALL BE PERMITTED.

THE COLLECTOR ATTACHMENT SHALL BE AS INDICATED IN THE MANUFACTURERS INSTALLATION INSTRUCTIONS AND THESE DRAWINGS.

THE AE CLIPS THAT ARE ATTACHED TO THE SOLAR COLLECTOR SHALL BE WITHIN 1/2 INCH OF THE INDICATED DISTANCE (L/5) LISTED BELOW.

THE COLLECTORS TO BE INSTALLED IN ACCORDANCE WITH THESE DRAWINGS INCLUDE THE FOLLOWING AET MODELS.

AE-40, LENGTH 121-5/16, WIDTH 47-3/16
AE-32, LENGTH 97-3/16, WIDTH 47-3/16
AE-28, LENGTH 85-3/16, WIDTH 47-3/16
AE-26, LENGTH 77-3/16, WIDTH 47-3/16
AE-24, LENGTH 97-3/16, WIDTH 35-3/16
AE-21, LENGTH 85-3/16, WIDTH 35-3/16



THE COLLECTOR ATTACHMENT HARDWARE (AE-CLIPS) SHALL BE MOUNTED ON THE LONG SIDES OF THE SOLAR COLLECTORS AND SHALL BE CONNECTED IN THE LOCATIONS SHOWN IN THE ABOVE DIAGRAM FOR ALL MODELS.

THE LOCATION OF THE CLIPS AT EACH CONNECTION POINT SHALL BE PLACED AT SPECIFIC POINTS ON ALL MODELS AS A FUNCTION OF THE COLLECTOR LENGTH. THE CENTER OF THE CONNECTION POINT FOR THE CLIPS SHALL BE LOCATED AT A DISTANCE OF ONE FIFTH THE LENGTH OF THE COLLECTOR (L/5) AS INDICATED ABOVE.

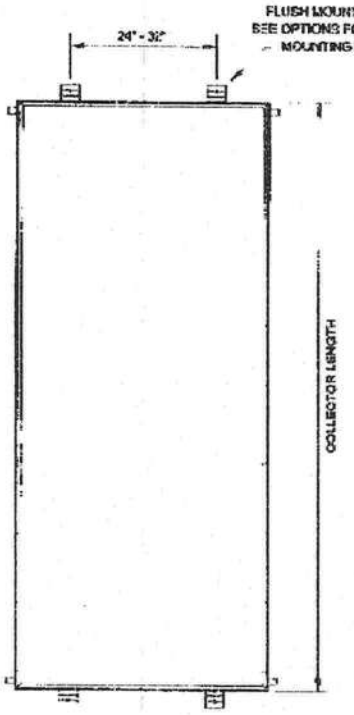
Revised Notes

9/19/07
45024

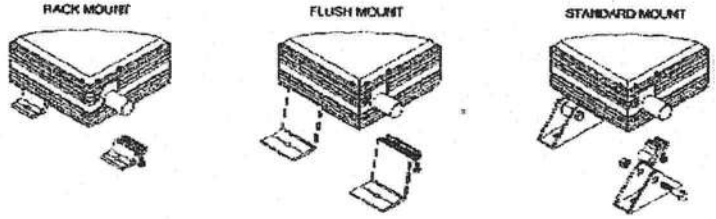
ALTERNATE ENERGY TECHNOLOGIES, LLC

AE - 1
SHEETS OF 8

ALTERNATE ENERGY TECHNOLOGIES, LLC
SOLAR COLLECTOR INSTALLATION



MOUNTING CLIP OPTIONS



INSTALLATION REQUIREMENTS

1) THE SOLAR COLLECTOR INSTALLATION AS DETAILED IN THIS DRAWINGS I FOR THE INSTALLATION OF ALTERNATE ENERGY TECHNOLOGIES AE-SERIES SOLAR COLLECTORS ON STRUCTURES SUBJECTED TO A MAXIMUM UPLIFT PRESSURE OF 51 POUNDS PER SQUARE FOOT (PSF).

2) THE DESIGN OF THIS INSTALLATION IS BASED ON REQUIREMENTS OF THE 2004 FLORIDA BUILDING CODE, ASCE 7 AND TESTING OF THE SOLAR COLLECTOR IN ACCORDANCE WITH PA 202 (TAS 202 94), ASTM E 330

3) THE INSTALLATION SHALL UTILIZE HARDWARE PROVIDED BY THE MANUFACTURER AS DETAILED IN THIS DRAWING.

4) ALL ALUMINUM STRUCTURAL MEMBERS TO BE 6061-T6. ALL STRUCTURAL STEEL MEMBERS TO BE LOW CARBON GALVANIZED STEEL AND ALL HARDWARE (BOLTS, NUTS, ETC) TO BE STAINLESS STEEL

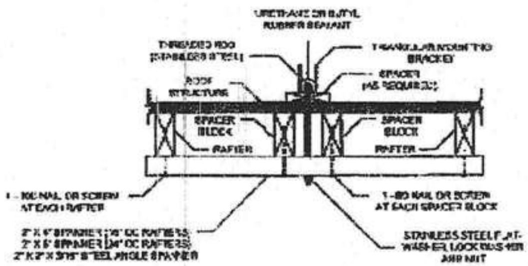
AE - SERIES COLLECTORS

MODEL	ABSORBER	WIDTH	LENGTH
AE-21	SELECTIVE	35.1875"	65.1875"
AE-24	SELECTIVE	35.1875"	97.1875"
AE-26	SELECTIVE	47.1875"	77.1875"
AE-28	SELECTIVE	47.1875"	85.1875"
AE-32	SELECTIVE	47.1875"	97.1875"
AE-40	SELECTIVE	47.1875"	121.1875"

DESIGN WIND PRESSURE
MAXIMUM SUCTION UPLIFT: 51 PSF

9/6/07
FL 45024

SPANNER MOUNTING



SPANNER BOLTS TO BE 1/2" DIAMETER, STAINLESS STEEL.

SPACER BLOCKS SHALL BE INSTALLED WITHIN 1" OF THE THRU-BOLT. WHEN THRU-BOLT IS WITHIN 2" OF A RAFTER, ONY ONE SPACER BLOCK WILL BE REQUIRED ON THE OPPOSITE SIDE OF THE BOLT, AWAY FROM THE RAFTER. TWO SPACER BLOCKS ARE REQUIRED WHEN TH BOLT IS MORE THAN 2" FROM THE RAFTER.

WHEN THE MOUNTING PROVISIONS OF ADJACENT COLLECTORS ARE INSTALLED SIDE BY SIDE AND THE THRU-BOLTS ARE 1 1/2" OR MORE APART, IT WILL BE NECESSARY TO HAVE AT LEAST ONE SPACER BLOCK (OR RAFTER) BETWEEN BOLTS.

SEALANTS ARE REQUIRED BETWEEN MOUNTING BLOCK AND SHINGLES/SHEATHING. BOLT HOLES SHALL BE SEALED TO PREVENT MOISTURE PENETRATION.

NOTES

1) THE SOLAR COLLECTOR INSTALLATION AS DETAILED IN THESE DRAWINGS IS FOR THE INSTALLATION OF ALTERNATE ENERGY TECHNOLOGIES AE-SERIES SOLAR COLLECTORS ON STRUCTURES SUBJECTED TO A MAXIMUM UPLIFT PRESSURE OF 51 POUNDS PER SQUARE FOOT (PSF).

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3) THE INSTALLATION SHALL UTILIZE HARDWARE PROVIDED BY THE MANUFACTURER AS DETAILED IN THESE DRAWING.

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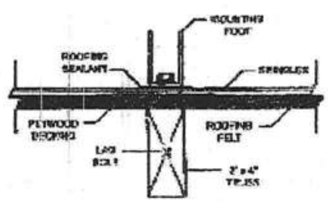
DESIGN WIND PRESSURE
MAXIMUM SUCTION UPLIFT, 51 PSF

LAG BOLT MOUNTING



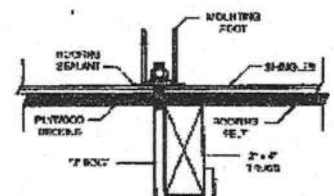
LAG BOLTS ARE TO BE 3/8" DIAMETER AND MUST PENETRATE THE RAFTER MEMBER A MINIMUM OF 3".

PILOT HOLES SHOULD BE DRILLED INTO THE CENTERLINE OF THE RAFTER AND SHOULD BE BETWEEN 50-75% OF THE BOLT DIAMETER.

APPLY A LIBERAL AMOUNT OF ROOF SEALANT OR A SEALANT PAD AROUND THE OPENING PRIOR TO SECURING THE MOUNTING BRACKET.

ALL CONNECTION HARDWARE (BOLTS & WASHERS) TO BE STAINLESS STEEL.

"J" BOLT MOUNTING



"J" BOLTS ARE TO BE 3/8" DIAMETER AND MUST POSITIONED DIRECTLY BESIDE THE RAFTER.

HOLES SHOULD BE DRILLED SLIGHTLY LARGER THAN THE BOLT DIAMETER.

APPLY A LIBERAL AMOUNT OF ROOF SEALANT OR A SEALANT PAD AROUND THE OPENING PRIOR TO SECURING THE MOUNTING BRACKET.

SNUG THE "J" BOLT AGAINST THE RAFTER BEFORE TIGHTENING THE NUT. USE DOUBLE-NUTS OR LOCKWASHERS TO SECURELY FASTEN THE MOUNTING BRACKET TO THE "J" BOLT.

ALL CONNECTION HARDWARE (BOLTS & WASHERS) TO BE STAINLESS STEEL.

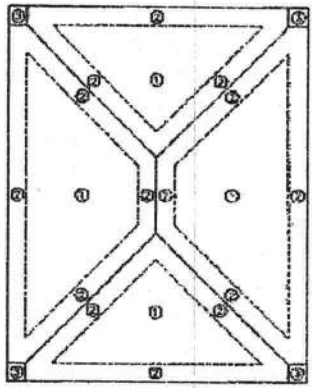
ALTERNATE ENERGY TECHNOLOGIES, LLC
1057 N ELLIS RD
SUITE 4
JACKSONVILLE, FL 32254

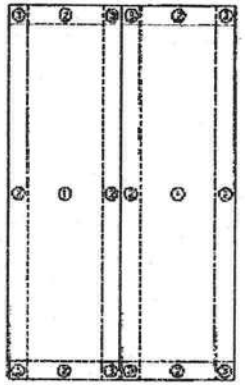
12/08/2005

N.T.S.

AE - 1

WIND SPEED AND COMPONENTS + CLADDING LOAD





ROOF AREA FOR WIND LOAD DETERMINATION

① AREA 1 CENTRAL ROOF AREA

② AREA 2 EDGE STRIPS OF ROOF (SEE NOTE BELOW)

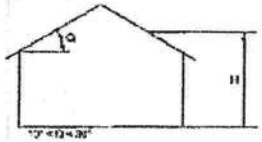
③ AREA 3 CORNER AREAS OF ROOF (SEE NOTE BELOW)

THE MINIMUM WIND LOADS AT SPEEDS BETWEEN 100 AND 150 MILES PER HOUR (MPH) IN TABLE 1 APPLY TO THE INSTALLATION OF 40 SF SOLAR COLLECTOR SITED IN AN AREA CONSIDERED EXPOSURE B, IN THE CENTRAL AREA OF THE ROOF (AREA 1) WITH ROOF SLOPING 10 TO 30 DEGREES AT A MEAN HEIGHT (H) OF 30 FEET INSTALLED IN ACCORDANCE WITH ALTERNATE ENERGY TECHNOLOGIES DRAWINGS AE A SHEETS 1-6.

THE WIDTH OR DIMENSION OF THE EDGE STRIPS (AREA 2) AND CORNER AREAS (AREA 3) IS 10% OF THE LEAST HORIZONTAL DIMENSION OR 40% OF THE EAVE HEIGHT, BUT NOT LESS THAN 3 FEET AS STATED ON CHAPTER 16 OF THE FLORIDA BUILDING CODE.

SOLAR COLLECTORS SHOULD BE INSTALLED IN THE CENTRAL AREA (1) OF THE ROOF WHENEVER POSSIBLE. THEY MAY BE INSTALLED IN THE CENTRAL AND EDGE AREAS IF NECESSARY. IT IS NOT RECOMMENDED THAT SOLAR COLLECTORS BE INSTALLED IN CORNER AREAS.

THIS INFORMATION CANNOT BE USED FOR AS SERIES SOLAR COLLECTORS SITED IN OTHER EXPOSURES OR ON BUILDINGS HAVING A MEAN ROOF HEIGHT GREATER THAN 30 FEET, (H > 30FEET) OR WITH SLOPES GREATER THAN 30 DEGREES.



NOTES

THIS SHEET PROVIDES INFORMATION RELATED TO WIND SPEEDS AND THE ASSOCIATED MINIMUM LOADS ON THE ALTERNATE ENERGY TECHNOLOGIES SOLAR COLLECTOR INSTALLATION DRAWINGS (AE 1, SHEETS 1 THRU 7).

THE DRAWINGS ARE INTENDED TO BE GENERIC IN NATURE AND COVER THE RANGE OF WINDS SPEEDS (100 TO 150 MPH) AND RESULTING PRESSURES (LOADS) ON SOLAR COLLECTORS INSTALLED ON LOW-RISE BUILDINGS THROUGHOUT THE STATE.

THESE DRAWINGS DETAIL THE STRUCTURAL REQUIREMENTS AND HARDWARE NECESSARY TO INSTALL THE 40 SQUARE FOOT (AND SMALLER) AE SERIES SOLAR COLLECTORS ON ROOFS OF BUILDINGS WITH HORIZONTAL OR SLOPED ROOFS IN ACCORDANCE WITH THE FLORIDA BUILDING CODE (FBC). THE DRAWINGS ARE EXPECTED TO BE USED PRIMARILY FOR RESIDENTIAL BUILDINGS WITH LOW-SPEED ROOFS AT ANGLES UP TO 30 DEGREES HAVING A MEAN ROOF HEIGHT OF 30 FEET OR LESS AS DESCRIBED IN TABLE 1609.6A OF THE 2004 BUILDING CODE.

THE DRAWINGS DETAIL AN INSTALLATION THAT WILL WITHSTAND WIND UPLIFT LOADS UP TO 51 POUNDS PER SQUARE FOOT (-51 PSF) AND IS EXPECTED TO MEET THE RANGE OF WIND LOADS ON MOST RESIDENTIAL BUILDINGS THROUGHOUT THE STATE. THE INTENT OF THESE DRAWINGS IS TO PROVIDE AN ATTACHMENT SYSTEM FOR ALL SOLAR COLLECTORS THAT WILL WITHSTAND A WIND LOAD OF -51 PSF REGARDLESS OF ITS LOCATION.

THE DRAWINGS DO NOT HOWEVER INDICATE SPECIFIC WIND SPEEDS BECAUSE OF THE VARIABILITY OF WIND SPEED WITH HEIGHT AND LOCATION (EXPOSURE CATEGORY) THROUGHOUT THE STATE. ALL INSTALLATIONS INSTALLED IN ACCORDANCE WITH THESE DRAWINGS WILL READILY WITHSTAND THE 51 PSF UPLIFT LOAD AS VERIFIED BY TESTING UNDER PA 202 AND ASTM E 330 AND ANALYSIS OF ALL HARDWARE USED IN THE INSTALLATION.

THE WIND LOAD IN PSF RESULTING FROM WIND SPEEDS BETWEEN 100 AND 150 MILES PER HOUR (MPH) ON THE FORTY SQUARE FOOT (40 SF) SOLAR COLLECTOR MANUFACTURED BY AET INSTALLED ON A BUILDING LOCATED IN THE CENTRAL AREA, AREA 2, OF A SLOPED ROOF WITH A 10 TO 30 DEGREE TILT AND A 30 FOOT MEAN ROOF HEIGHT VARIES FROM -18 TO -36 PSF AT DIFFERENT WIND SPEEDS AS SHOWN IN TABLE 1. THE COLLECTOR HAS BEEN TESTED AND CERTIFIED TO WITHSTAND 51 PSF.

THE MINIMUM WIND LOADS AT THE VARIOUS WIND SPEEDS REQUIRED BY FLORIDA BUILDING CODE WERE DETERMINED USING TABLE 1609.6B OF THE 2004 FLORIDA BUILDING CODE FOR THE 40 SQUARE FOOT SOLAR COLLECTORS.

THE TABLE CLEARLY SHOWS THAT THE LOAD FROM THE WIND ON THE SOLAR COLLECTOR IS LESS THAN -51 PSF DESIGN LOAD OF THE INSTALLATION DETAILED IN THE DRAWINGS.

THE INFORMATION ON THIS SHEET CAN BE USED TO DETERMINE THE MAGNITUDE OF THE WIND LOAD ON THE SOLAR COLLECTOR AT DIFFERENT WIND SPEEDS WHEN IT IS INSTALLED IN ACCORDANCE WITH THE REFERENCED DRAWINGS IN THE CENTRAL OR EDGE AREAS (IF NECESSARY) OF THE ROOF AS DESCRIBED ABOVE FOR BUILDINGS SUBJECTED TO EXPOSURE B, AS DESCRIBED IN TABLE 1609.6B OF THE FBC. INSTALLATION OF SOLAR COLLECTORS IS NOT RECOMMENDED IN THE CORNER AREA OF THE ROOF.

FOR INSTALLATION ON BUILDINGS AT DIFFERENT HEIGHTS OR EXPOSURES THE LOADS MUST BE ADJUSTED OR DETERMINED ON A CASE BY CASE BASIS.

TABLE 1 - UPLIFT LOAD
ON A 40 FT² SOLAR COLLECTOR IN DIFFERENT AREAS OF THE ROOF

WIND SPEED (MPH)	150	140	130	120	110	100
DESIGN LOAD - AREA 1 (CENTER)	35.1	30.8	26.7	22.5	18.9	15.6
DESIGN LOAD - AREA 2 (EDGE)	64.8	56.3	48.5	41.3	34.7	28.7

WIND LOADS AT DIFFERENT WIND SPEEDS FOR THE SET 40 SF SOLAR COLLECTOR INSTALLED IN THE CENTER AREA OF A TYPICAL RESIDENTIAL BUILDING AS SHOWN AND DESCRIBED ON THIS SHEET

DR-13
R. 01/07

2007 Florida Annual Resale Certificate for Sales Tax

THIS CERTIFICATE EXPIRES ON DECEMBER 31, 2007

Business Name and Location Address	Registration Effective Date	Certificate Number
ENERGY CONSERVATION SRVCS OF N FL I ENERGY CONSERVATION SRVCS OF N FLA INC 6120 SW 13TH ST GAINESVILLE FL 32608-5338	03/04/87	11-8012251744-4

This is to certify that all tangible personal property purchased or rented, real property rented, or services purchased on or after the above Registration Effective Date by the above business are being purchased or rented for one of the following purposes:

- Resale as tangible personal property.
- Re-rental as tangible personal property.
- Resale of services.
- Re-rental as real property.
- Incorporation into and sale as part of the repair of tangible personal property by a repair dealer.
- Re-rental as transient rental property.
- Incorporation as a material, ingredient, or component part of tangible personal property that is being produced for sale by manufacturing, compounding, or processing.

This certificate cannot be reassigned or transferred. This certificate can only be used by the active registered dealer or its authorized employees. Misuse of this *Annual Resale Certificate* will subject the user to penalties as provided by law. **Use signed photocopy for resale purposes.**

Presented to: _____ (insert name of seller on photocopy) (date) **Presented by:** _____ Authorized Signature (Purchaser) 12/12/06 (date)

2006-07

ALACHUA COUNTY OCCUPATIONAL LICENSE

MUST BE DISPLAYED IN A CONSPICUOUS PLACE
LICENSE EXPIRES 09/30/07

ACCOUNT NO.
2073

235990000003

BUSINESS TYPE

235990 SERVICE FOR THE PUBLIC

BUSINESS ADDRESS

6120 SW 13TH ST
GAINESVILLE FL 32608-0000

ENERGY CONSERVATION SERVICES OF N FL
ENERGY CONSERVATION SERVICES OF N FL
6120 SW 13TH ST
GAINESVILLE FL 32608533

Tax Amount	52.50
Base Amount	52.50
Penalties	
Other	
Amt Paid	52.50

PAID-5027837.0001-0001 16 08/08/2006 52.50

VON FRASER, TAX COLLECTOR
P.O. BOX 1439, GAINESVILLE, FL 32602
(352) 337-6227

THIS OCCUPATIONAL LICENSE DOES NOT CONFIRM THAT REGULATORY ZONING REQUIREMENTS HAVE BEEN MET. IT IS THE OWNER'S RESPONSIBILITY TO ENSURE COMPLIANCE.

AC# 2634828

STATE OF FLORIDA

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
CONSTRUCTION INDUSTRY LICENSING BOARD

SEQ#L06062701084

DATE	BATCH NUMBER	LICENSE NBR
06/27/2006	050841932	CVC056643

The SOLAR CONTRACTOR
Named below IS CERTIFIED
Under the provisions of Chapter 489 FS.
Expiration date: AUG 31, 2008

LANE, THOMAS HARRISON
ENERGY CONSERVATION SVCS OF N FL INC
6120 SW 13TH ST
GAINESVILLE FL 32608

SIMONE MARSTILLER

ACORD CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 12/12/2007

PRODUCER (352)377-2002 FAX (352)376-8393
Scarborough Company Insurance, Inc.
2811 NW 41st Street
P. O. Box 147050
Gainesville, FL 32614-7050

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED Energy Conservation Services Of North Florida,
Tom Lane
6120 Sw 13 Street
Gainesville, FL 32608

INSURERS AFFORDING COVERAGE	NAIC #
INSURER A: Burlington Insurance	
INSURER B: Progressive Insurance Company	
INSURER C:	
INSURER D:	
INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A		GENERAL LIABILITY [X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [X] POLICY [ ] PROJECT [ ] LOC	6260002286	03/30/2007	03/30/2008	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurance) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 1,000,000 $ 5,000 $ 1,000,000 $ 1,000,000 $ 1,000,000
B		AUTOMOBILE LIABILITY [ ] ANY AUTO [ ] ALL OWNED AUTOS [X] SCHEDULED AUTOS [ ] HIRED AUTOS [ ] NON-OWNED AUTOS	04482097-7	03/02/2007	03/03/2008	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 100,000 $ $ $
		GARAGE LIABILITY [ ] ANY AUTO				AUTO ONLY - EA ACCIDENT OTHER THAN AUTO ONLY: EA ACC AGG	$ $ $
		EXCESS/UMBRELLA LIABILITY [ ] OCCUR [ ] CLAIMS MADE [ ] DEDUCTIBLE [ ] RETENTION $				EACH OCCURRENCE AGGREGATE	$ $
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below				WC STATU-TORY LIMITS [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $
		OTHER					

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

CERTIFICATE HOLDER

Eastside Retirement Community
Attn: Denise
200 SE Elm Loop
Lake City, FL 32025

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 10 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE
George Barnes Jr./DWG

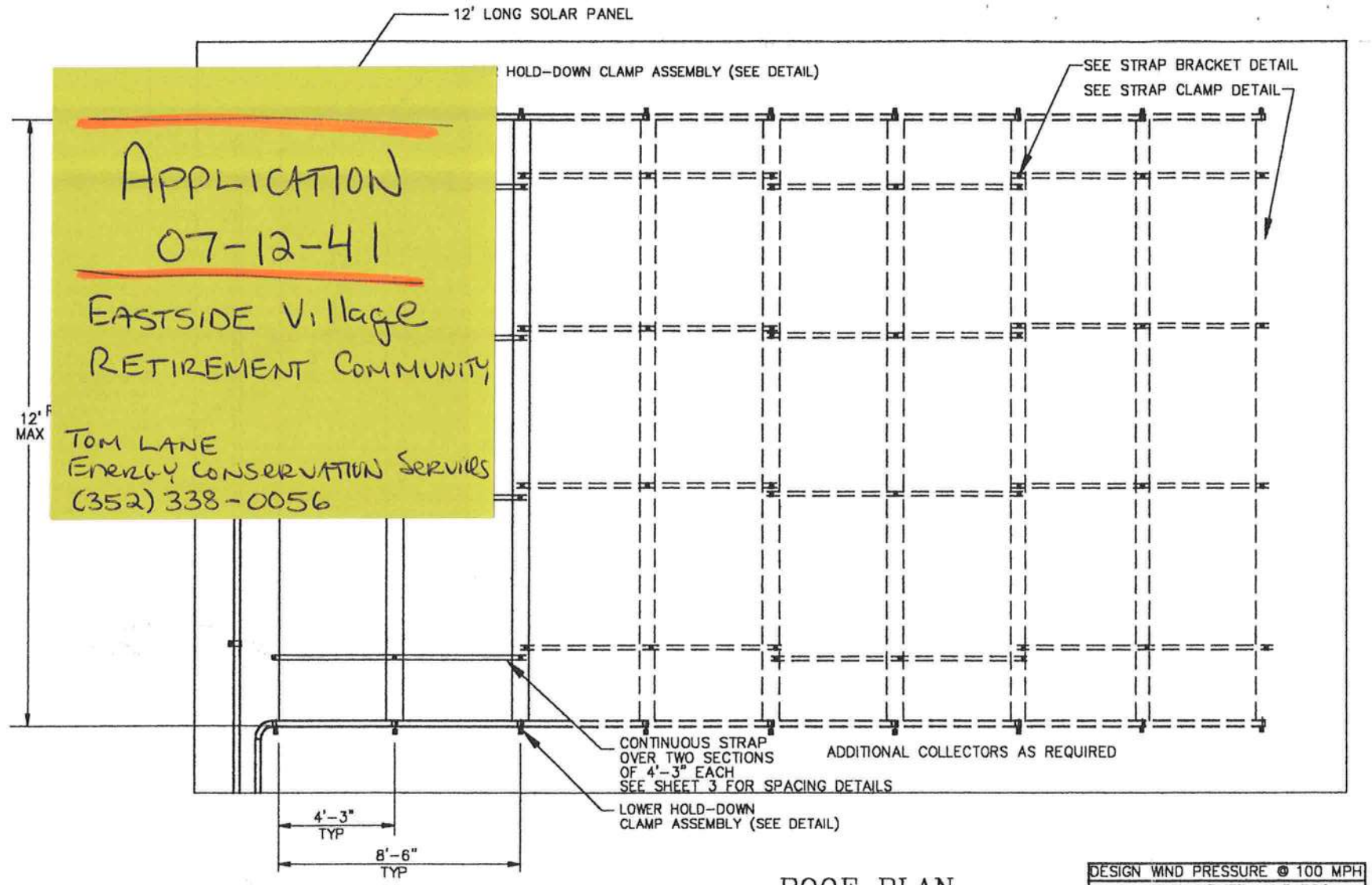
IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

DISCLAIMER

The Certificate of Insurance on the reverse side of this form does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.



ROOF PLAN

APPLICATION
07-12-41
EASTSIDE VILLAGE
RETIREMENT COMMUNITY

TOM LANE
ENERGY CONSERVATION SERVICES
(352) 338-0056

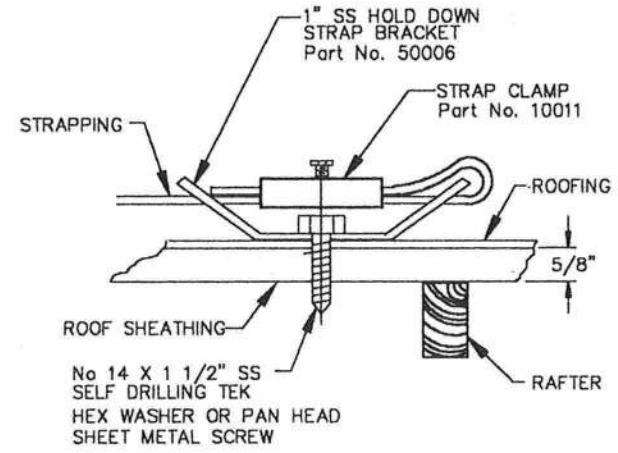
NOTES:

THESE DRAWINGS DETAILS THE REQUIREMENTS FOR THE INSTALLATION OF SOLAR POOL HEATING PANELS ON BUILDINGS. THE DESIGN OF THE INSTALLATION IS BASED ON THE 2006 SUPPLEMENT TO THE 2004 FLORIDA BUILDING CODE (FBC), ASCE 7 AND TESTING OF THE SOLAR PANELS IN ACCORDANCE WITH PA-202.

THE SOLAR COLLECTOR INSTALLATION DETAILED IN THESE DRAWINGS IS FOR THE INSTALLATION OF AQUATHERM POOL HEATING SYSTEMS ON LOW RISE RESIDENTIAL STRUCTURES WITH A MEAN ROOF HEIGHT OF 30 FEET, WITH SLOPES UP TO 45 DEGREES (0 TO 45) LOCATED IN EXPOSURE B, PER TABLE 1609.6.2.2(2) OF THE 2006 SUPPLEMENT TO THE 2004 FBC.

THE INSTALLATION SHALL UTILIZE HARDWARE PROVIDED BY THE MANUFACTURER AS DETAILED IN THESE DRAWINGS AND THE MANUFACTURERS INSTALLATION MANUAL.

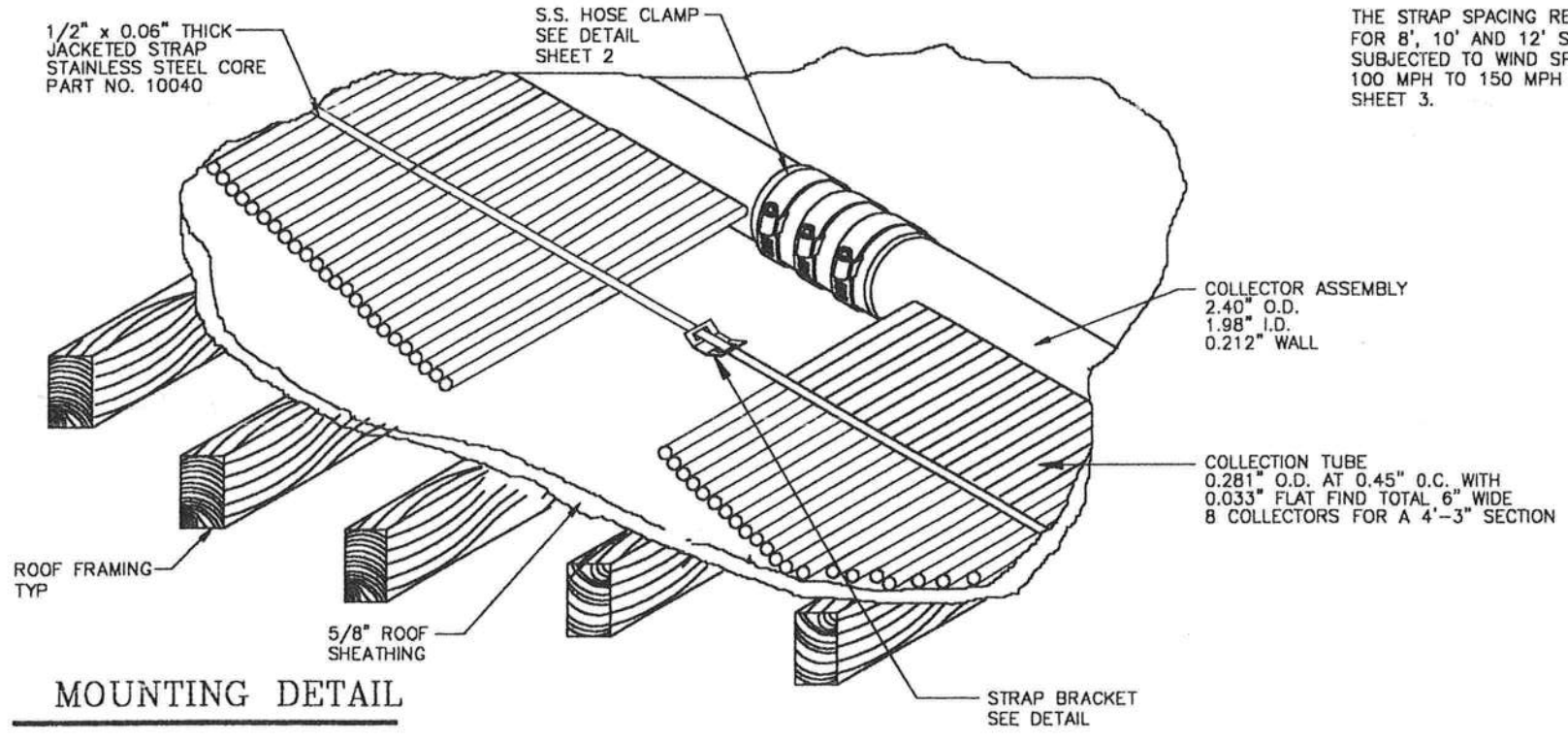
THIS DESIGN IS TO BE USED ON RESIDENTIAL BUILDINGS WITH PLYWOOD ROOF SHEATHING, 5/8" NOMINAL THICKNESS. ALL HARDWARE TO BE ANSI 304 STAINLESS STEEL. ROOF PENETRATIONS TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF NRCA.



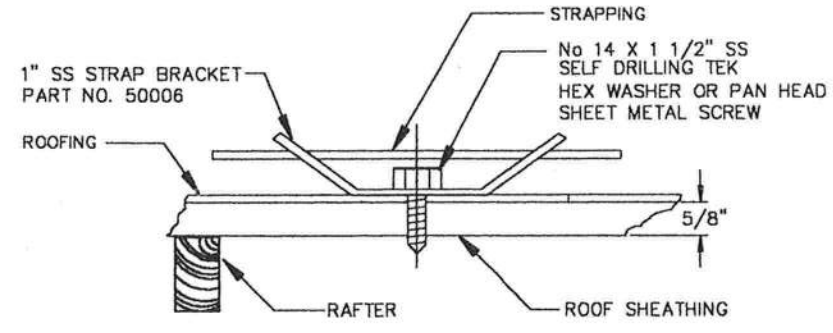
STRAP CLAMP DETAIL

DESIGN WIND PRESSURE @ 100 MPH
SUCTION UPLIFT: 16.5 PSF
ON 5/8" NOMINAL ROOF SHEATHING

THE STRAP SPACING REQUIREMENTS FOR 8', 10' AND 12' SOLAR PANELS SUBJECTED TO WIND SPEEDS FROM 100 MPH TO 150 MPH ARE SHOWN ON SHEET 3.



MOUNTING DETAIL



STRAP BRACKET DETAIL

HENRY M. HEALEY P.E.
6/13/07
FL REG ENG NO. 35056

SEAL

NO.	REVISION	DATE
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2		
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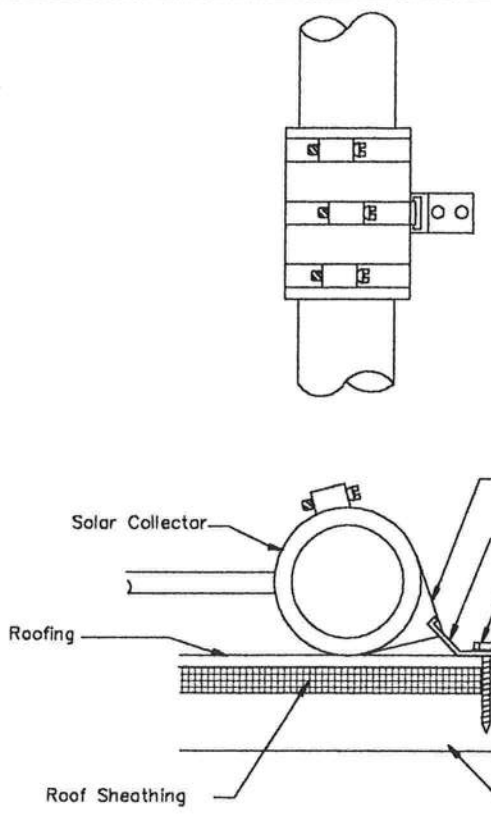
HEALEY & ASSOCIATES
ENGINEERING CONSULTANTS
120 VENETIAN WAY, SUITE 16
MERRITT ISLAND, FLORIDA 32953
(321) 452-2173
CERTIFICATE OF AUTHORIZATION NO 4427

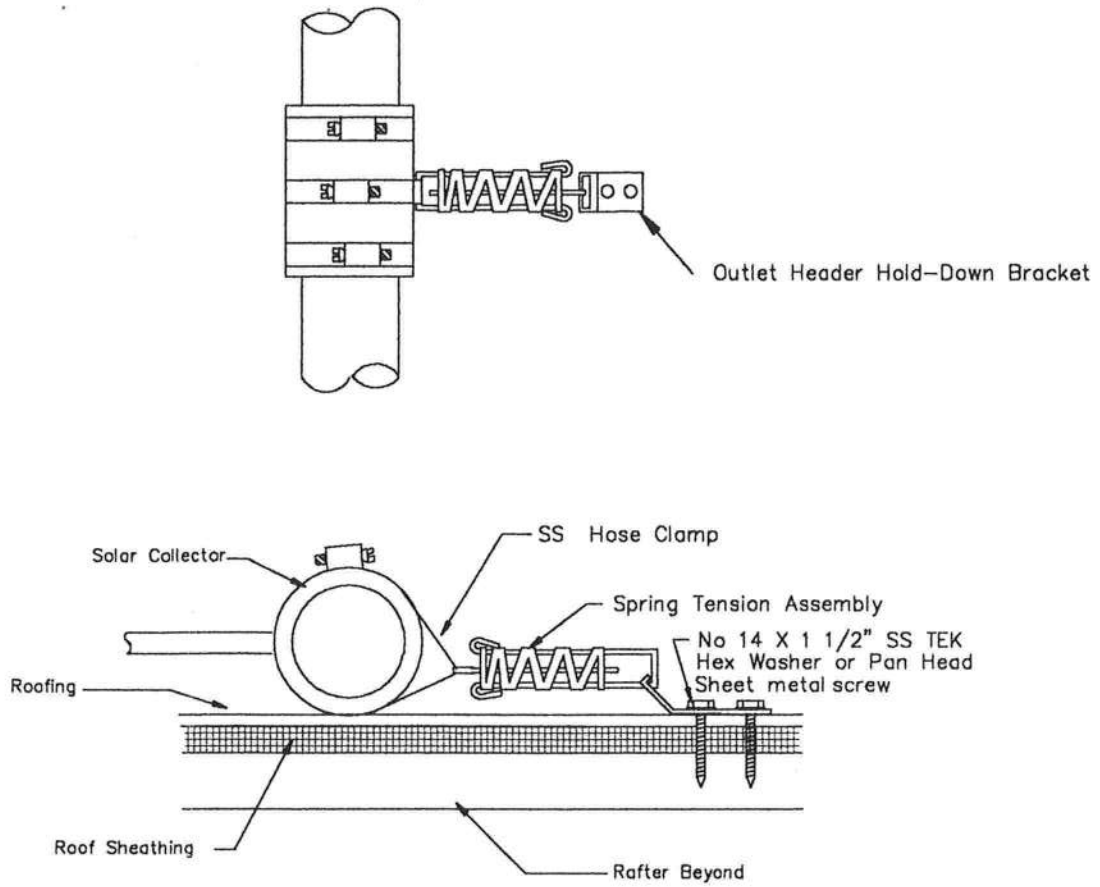
AQUATHERM INDUSTRIES
LAKELAND, NEW JERSEY

DRAWING TITLE
INSTALLATION DETAILS
SOLAR HEATING SYSTEM
FOR SWIMMING POOLS

DRAWN	DRAWING NO.
TPL	19606-3
CHECKED: HMH	
DATE: 3/20/07	
SCALE: NTS	SHEET 1 OF 3

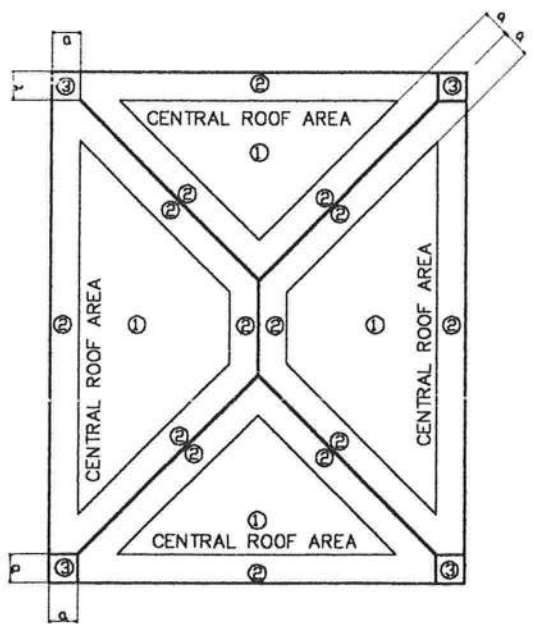


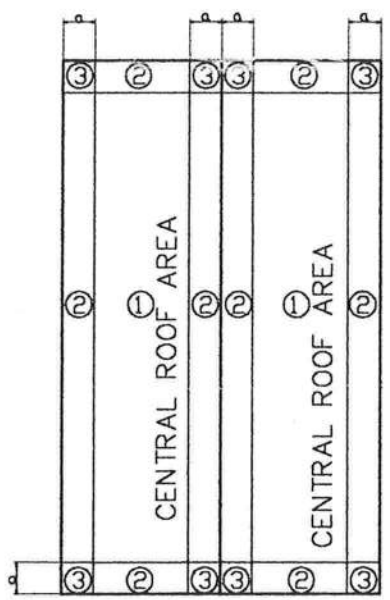
UPPER CLAMP ASSEMBLY DETAIL

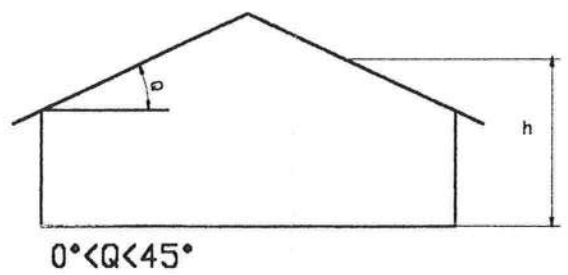


LOWER CLAMP ASSEMBLY DETAIL

CENTRAL ROOF AREA FOR PANEL INSTALLATION







NOTES:
THESE DRAWINGS DETAIL THE INSTALLATION REQUIREMENTS FOR SOLAR POOL COLLECTORS ON THE ROOFS OF LOW RISE BUILDINGS IN THE CENTRAL AREA OF THE ROOF (AREA 1) WITH A MEAN ROOF HEIGHT (h) OF 30 FT LOCATED IN EXPOSURE B (URBAN & SUBURBAN AREAS) IN ACCORDANCE WITH TABLE 1609.6.2.1 (2) OF THE 2006 SUPPLEMENT OF THE 2004 FLORIDA BUILDING CODE.

THE STRAP SPACING CAN BE APPLIED TO PANELS INSTALLED ON ROOFS WITH SLOPES UP TO 45 DEGREES IN THE CENTRAL OR EDGE AREAS OF THE ROOF.

INSTALLATION IN EDGE STRIPS (AREA 2) REQUIRES ADDITIONAL STRAPS FOR THE PORTION OF THE SOLAR PANEL THAT EXTENDS INTO AREA 2 AS DETAILED ON SHEET 3. INSTALLATION IN THE CORNER AREAS, AREA "3" IS NOT RECOMMENDED OR ADDRESSED IN THESE DRAWINGS.

THE WIDTH OR DIMENSION OF EDGE STRIPS (AREA 2) AND CORNER AREAS (AREA 3) AS SHOWN IN THE INSTALLATION AREA DRAWINGS IS 10% OF THE LEAST HORIZONTAL DIMENSION OR 40% OF THE EAVE HEIGHT, BUT NOT LESS THAN THREE FEET (3').

HENRY M. HEALEY P.E.
6/13/07
FL REG ENG NO. 35056
SEAL

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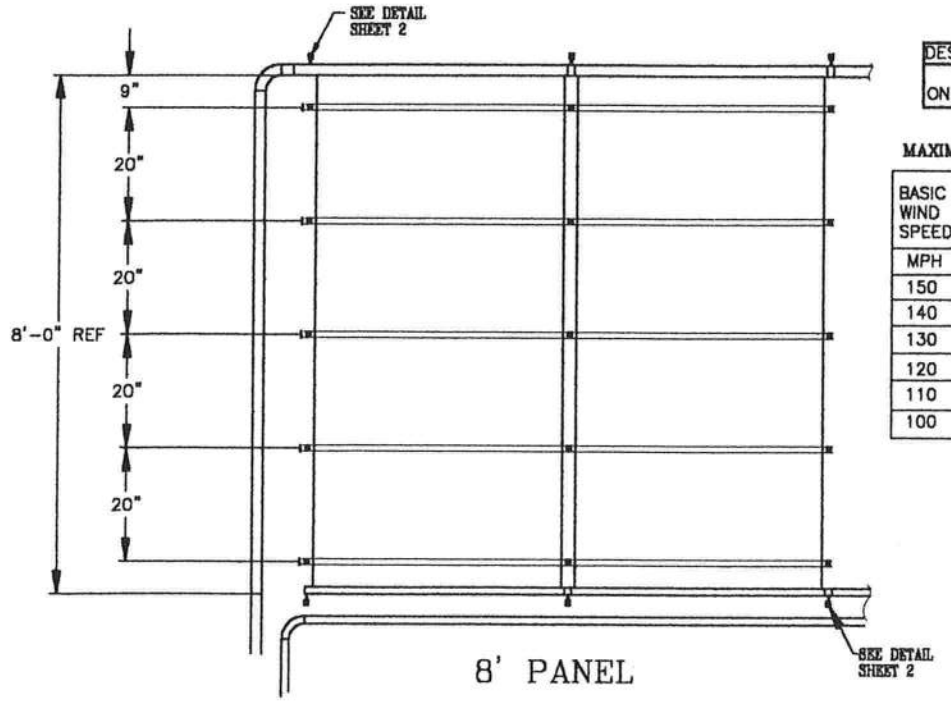
HEALEY & ASSOCIATES
120 VENETIAN WAY, SUITE 16
MERRITT ISLAND, FLORIDA 32953
(321) 452-2173
ENGINEERING CONSULTANTS
CERTIFICATE OF AUTHORIZATION NO 4427

AQUATHERM INDUSTRIES
LAKEWOOD, NEW JERSEY

DRAWING TITLE
INSTALLATION DETAILS
SOLAR HEATING SYSTEM
FOR SWIMMING POOLS

DRAWN TPL	DRAWING NO. 19606-3
CHECKED HMH	
DATE 3/20/07	
SCALE NTS	SHEET 2 OF 3

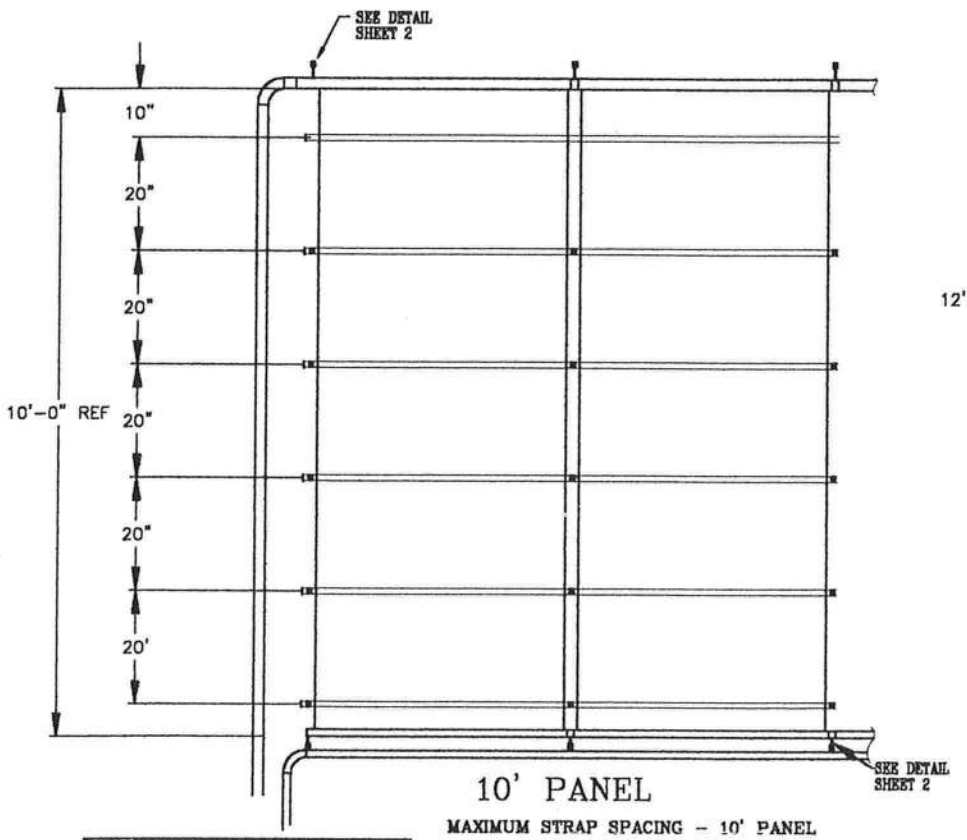


8' PANEL

DESIGN WIND PRESSURE @ 130 MPH
SUCTION UPLIFT: 28.4 PSF
ON 5/8" NOMINAL ROOF SHEATHING

MAXIMUM STRAP SPACING – 8' PANEL

BASIC WIND SPEED	CENTRAL AREA		EDGE STRIP	
	DESIGN LOAD	STRAP SPACING	DESIGN LOAD	STRAP SPACING
MPH	PSF	INCHES	PSF	INCHES
150	-37.9	16.6	-49.5	12.7
140	-33.0	19.0	-43.2	14.5
130	-28.4	22.0	-37.3	16.8
120	-24.3	25.8	-31.8	19.7
110	-20.4	30.8	-26.7	23.5
100	-16.8	37.3	-22.1	28.4

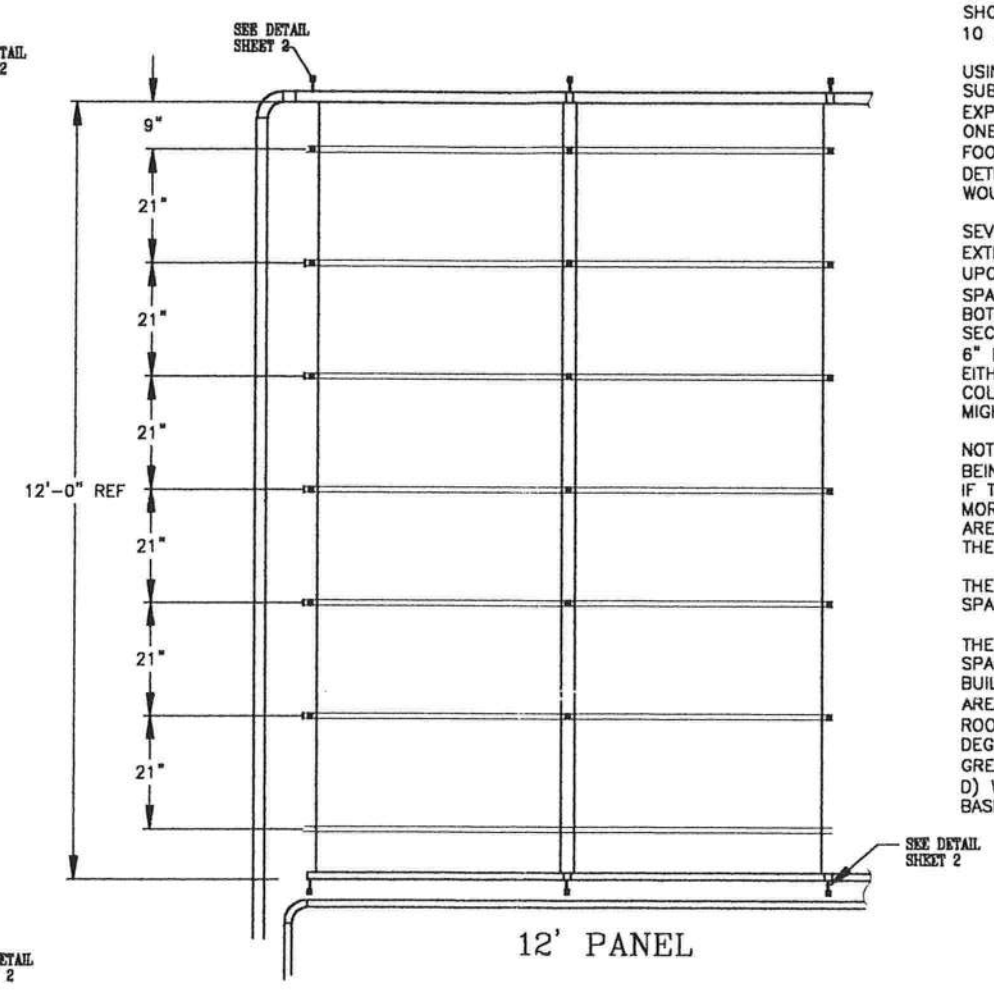


10' PANEL

DESIGN WIND PRESSURE @ 130 MPH
SUCTION UPLIFT: 28.1 PSF
ON 5/8" NOMINAL ROOF SHEATHING

MAXIMUM STRAP SPACING – 10' PANEL

BASIC WIND SPEED	CENTRAL AREA		EDGE STRIP	
	DESIGN LOAD	STRAP SPACING	DESIGN LOAD	STRAP SPACING
MPH	PSF	INCHES	PSF	INCHES
150	-37.4	16.7	-46.2	13.6
140	-32.7	19.2	-40.7	15.4
130	-28.1	22.3	-35.2	17.8
120	-24.0	26.1	-29.9	20.9
110	-20.1	31.1	-25.2	24.9
100	-16.7	37.6	-20.8	30.2



12' PANEL

DESIGN WIND PRESSURE @ 130 MPH
SUCTION UPLIFT: 27.8 PSF
ON 5/8" NOMINAL ROOF SHEATHING

MAXIMUM STRAP SPACING – 12' PANEL

BASIC WIND SPEED	CENTRAL AREA		EDGE STRIP	
	DESIGN LOAD	STRAP SPACING	DESIGN LOAD	STRAP SPACING
MPH	PSF	INCHES	PSF	INCHES
150	-37.0	16.9	-43.0	14.6
140	-32.3	19.4	-38.2	16.4
130	-27.8	22.6	-33.0	19.0
120	-23.7	26.5	-28.1	22.3
110	-19.9	31.5	-23.6	26.6
100	-16.5	38.0	-19.5	32.2

STRAP SPACING NOTES:

THE DESIGN WIND LOAD AND STRAP SPACING REQUIRED TO SECURE THE SOLAR PANELS TO THE ROOF VARIES WITH THE SIZE OF THE PANELS (8, 10 &12 FT) BEING INSTALLED AS SHOWN IN THE STRAP SPACING TABLES FOR EACH SIZE OF PANEL.

THE STRAP SPACING SHOWN IN THE TABLES IS THE MAXIMUM DISTANCE BETWEEN STRAPS FOR THE DESIGN LOADS PLACED ON COMPONENTS AND CLADDING INCLUDING SOLAR PANELS THROUGHOUT FLORIDA AT THE VARIOUS WIND SPEEDS (100 TO 150 MPH) AND THE LOCATION (CENTRAL OR EDGE AREA) OF THE PANELS ON THE ROOF AS DETAILED ON SHEET 2.

THE INSTALLATION OF THE OF THE PANELS ON THE ROOF REQUIRES THAT THE INSTALLER DETERMINE AND LOCATE THE "CENTRAL" AND "EDGE" AREAS OF THE ROOF TO ENSURE THAT THE SPACING REQUIRED IN THE TWO AREAS REFLECTS THE DIFFERENT LOADS. THE LOAD IN THE EDGE AREA IS GREATER THAN THE LOAD IN THE CENTRAL AREA AND CLOSER SPACING OF THE STRAPS IS REQUIRED ON THE PORTION OF THE COLLECTOR THAT EXTENDS INTO THE EDGE AREA.

ONCE THE CENTRAL AND EDGE AREAS HAVE BEEN IDENTIFIED AND MEASURED, THE INSTALLATION OF THE COLLECTORS CAN BE INITIATED AND THE STRAPS INSTALLED USING THE INFORMATION FROM THE STRAP SPACING TABLE.

A SIMPLIFIED APPROACH THAT CAN READILY BE USED TO DETERMINE THE PROPER SPACING FOR A SPECIFIC SOLAR PANEL IS TO DIVIDE THE PANEL LENGTH BY THE MAXIMUM STRAP SPACING SHOWN IN THE STRAP SPACING TABLES FOR THE PANEL SIZE (8, 10 OR 12 FOOT) BEING USED.

USING A 12 FT PANEL SYSTEM TO BE INSTALLED ON A BUILDING SUBJECTED TO A 130 MPH WIND SPEED IN AN AREA DESIGNATED EXPOSURE "B" AS SHOWN ON THESE DRAWINGS AS AN EXAMPLE, ONE WOULD SIMPLY DIVIDE THE 144 INCH LENGTH OF THE 12 FOOT PANEL BY THE REQUIRED STRAP SPACING OF 22.6" AND DETERMINE THAT A MINIMUM OF SEVEN (MIN > 6.4) STRAPS WOULD BE REQUIRED.

SEVEN STRAPS EQUALLY SPACED AT 21 OR 22 INCHES WOULD EXTEND OVER 126" OR 132" OF THE 144 " PANEL DEPENDING UPON THE CHOICE OF SPACING. THE 126-INCH LENGTH (21" SPACING) WOULD RESULT IN 9.0" BETWEEN THE LAST STRAP AND BOTH ENDS OF THE PANEL. NOTE THAT THE PANEL IS ALSO SECURED AT EACH END. THE 132-INCH AREA WOULD RESULT IN 6" BETWEEN THE LAST STRAP AND THE END OF THE COLLECTOR EITHER OF WHICH WOULD BE ACCEPTABLE, HOWEVER SINCE THE COLLECTORS ARE SECURED AT EACH END THE 21 INCH SPACING MIGHT BE BEST.

NOTE THAT THIS APPROACH IS BASED ON THE ENTIRE COLLECTOR BEING IN THE CENTRAL AREA OF THE ROOF (AREA 1 ON SHEET 2). IF THE COLLECTOR WERE TO EXTEND INTO THE EDGE AREAS BY MORE THAN ONE FOOT THEN THE STRAP SPACING IN THE EDGE AREA, 19 INCHES IN THIS EXAMPLE, WOULD BE NECESSARY FOR THE PORTION OF THE PANEL EXTENDING INTO THE EDGE AREA.

THE SAME PROCEDURE WOULD BE USED TO DETERMINE THE STRAP SPACING FOR THE EIGHT OR TEN-FOOT PANELS.

THE "DESIGN" WIND LOADS SHOWN IN THE MAXIMUM STRAP SPACING TABLES APPLY TO SOLAR COLLECTORS INSTALLED ON BUILDINGS WITH A MEAN ROOF HEIGHT OF 30 FEET, LOCATED IN AREAS DESIGNATED EXPOSURE "B" (URBAN & SUBURBAN) ON ROOFS WITH SLOPES FROM HORIZONTAL (0 DEGREES) TO 45 DEGREES. THE DESIGN LOADS ON BUILDINGS WITH HEIGHTS GREATER THAN 30 FEET OR SUBJECTED TO OTHER EXPOSURES (C, D) WOULD VARY AND MUST BE DETERIMNED ON A CASE-BY-CASE BASIS.

HENRY M. HEALEY P.E.

6/13/07

FL REG ENG NO. 35056

SEAL

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HEALEY & ASSOCIATES ENGINEERING CONSULTANTS
120 VENETIAN WAY, SUITE 16
MERRITT ISLAND, FLORIDA 32953
(321) 452-2173
CERTIFICATE OF AUTHORIZATION NO 4427

AQUATHERM INDUSTRIES
LAKEWOOD, NEW JERSEY

DRAWING TITLE

INSTALLATION DETAILS
SOLAR HEATING SYSTEM
FOR SWIMMING POOLS

DRAWN TPL	DRAWING NO. 19606-3
CHECKED HMH	
DATE 3/20/07	
SCALE NTS	SHEET 3 OF 3

The Ultimate Collector For Turning The Sun Into A Warm Pool

Solar Industries solar collectors are designed to meet the heating requirements of outdoor swimming pools in nearly all climates. Using specially formulated polymer compounds, Solar Industries collectors withstand extreme exposure to the sun, weather, heat, pollution and oxidation. Unaffected by pool chemicals, they cannot rust, corrode or discolor your pool. Each standard collector is 4' wide and 10' or 12' in length. Smaller sizes are also available.

Cross section of a SI collector showing heat trap design for better performance even on windy days.

Solar Industries' unique patented tube and curve web design (104 individual tubes per collector) exposes more surface area directly to the sun at all times of the day. This means collectors can face in directions other than due south and allows for more installation flexibility. Solar Industries solar pool collectors even capture hazy sunlight on overcast days adding heat to your pool whenever possible.

Certification, Approvals and Product Testing

The Solar Industries solar pool heating systems meet or exceed the criteria for approvals from the following accredited independent laboratories and approval agencies:

- IAPMO - International Association of Plumbing and Mechanical Officials
- Florida Solar Energy
- City of Los Angeles
- SRCC- Solar Rating and Certification Corporation

Testing

- DSET Exposure Test, New River, Arizona

Lifetime Warranty

Solar Industries is the only collector to survive a grueling 23 year life expectancy test in the Arizona desert. And with tens of thousands of installations worldwide since 1976, you cannot find a better built, better backed solar collector.
SI customers have enjoyed continuous warranty protection for twenty-five years, so you can rest assured you have the strongest warranty in the business.

Professional Affiliations

Solar Industries recognizes its ethical and professional responsibilities to its customers. Membership in national and regional trade associations is an important part of SI's commitment to excellence.

NATIONAL SPA & POOL INSTITUTE

SOLAR ENERGY INDUSTRIES ASSN

Solar Industries
Solar Pool Heating Systems
30 years
SERVICE & LEADERSHIP

www.solarindustries.com

Available through:

 Part No. 19404

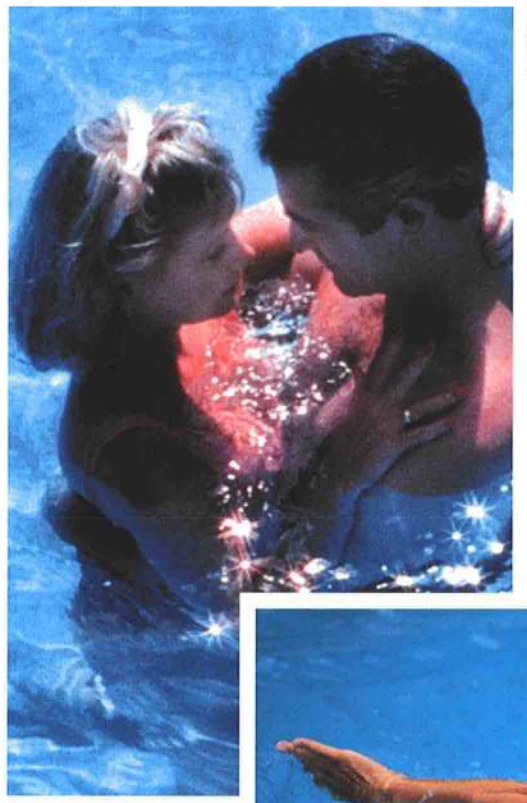
Solar Industries
Solar Pool Heating Systems
30 years
SERVICE & LEADERSHIP

Solar Industries Let's You...

Enjoy Your Own Heated Pool!

Backyard Recreation

Turn your backyard into the fun center you've always wanted it to be. A warm pool means more enjoyment for your family and friends. Poolside parties... refreshing dips... relaxation... that's what its all about.



Time to Relax

Unwind with a quick dip after work or enjoy some special moments and quiet times with your close friends and family. A Solar Industries pool heating system does all the work while you relax and always assures comfortable swimming enjoyment.

Time to Exercise

Get the most out from your pool. Fun and exercise can continue longer, keeping you healthy, fit and trim.

A heated pool lets you enjoy an early morning workout or a late night swim. Whenever you have the time, a pool heated with the sun's energy is ready for you, right in the comfort of your own backyard.

Sunshine Lets You Save

A reliable solar heating system is the natural alternative for heating your pool. If you presently heat with gas, oil or electric, a solar heater will meet most if not all of your heating needs. Your Solar Industries system works independently or with your present heater.

If you aren't heating your pool, a Solar Industries system will let you experience the warm comfort of a longer heated swimming season. The sun's energy can eliminate that spring warm-up and avoid the fall cool-down.

And remember, solar energy is clean, non-polluting, environmentally safe and is an investment in your own economic independence and stability.

SOLAR INDUSTRIES

Simple • Dependable • Affordable

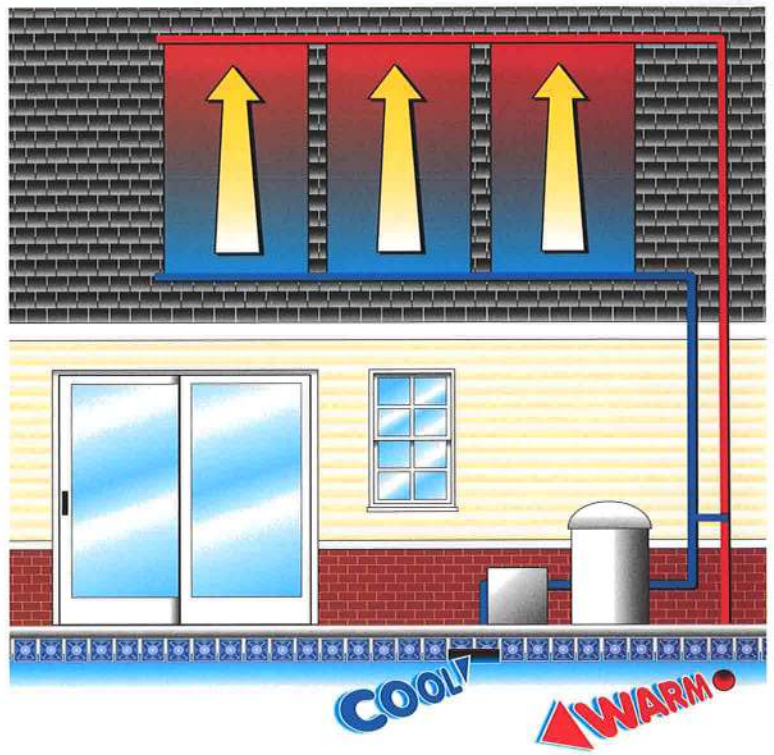
Simple Operation

Using the pump that circulates pool water through the filter, the water is diverted so that it flows through the many small passages of the solar collector. While passing through the collector, it's warmed by the sun. This warm water then flows directly back into the pool. When the pool water has reached your desired comfort level, the water then by-passes the solar collector and returns directly to the pool.

Proven Dependability

Solar Industries systems have been on the job around the world since 1976 heating indoor and outdoor pools, hot tubs, spas, municipal and commercial pools, hotels and resort clubs making swimming seasons longer, more comfortable and cost efficient.

SOLAR POOL HEATING



Absolute Affordability

If you currently heat you pool or are just thinking about it, a Solar Industries system will pay for itself in as little as two years. After that, you'll be heating your pool with the sun's free energy, year after year.

Don't just take our word for it, here's what some of the tens of thousands of satisfied Solar Industries customers have to say...