Design Feature: Connectors

Other manufacturers use rubber hoses and metal clamps to connect their panels together. The people of Heliocol have created the world's only patented panel connector, the Plastic Panel Clamp. Rubber hoses require maintenance every six months and are prone to leaks and cracks. Metal clamps rust and stain the roof. Heliocol's Plastic Panel Clamps never need maintenance, never rust and are guaranteed to never leak!

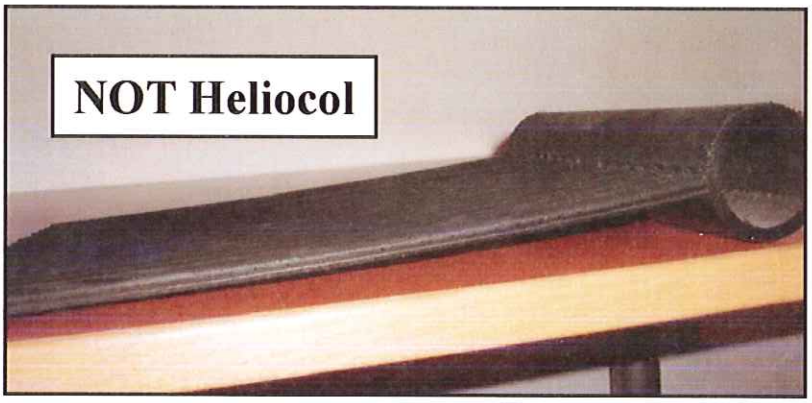
Heliocol's Plastic Panel Clamp never needs maintenance, never rusts and is guaranteed to never leak.

Other collectors use rubber hoses which require maintenance every six months and are prone to leaks and cracks. Metal clamps rust and stain the roof.

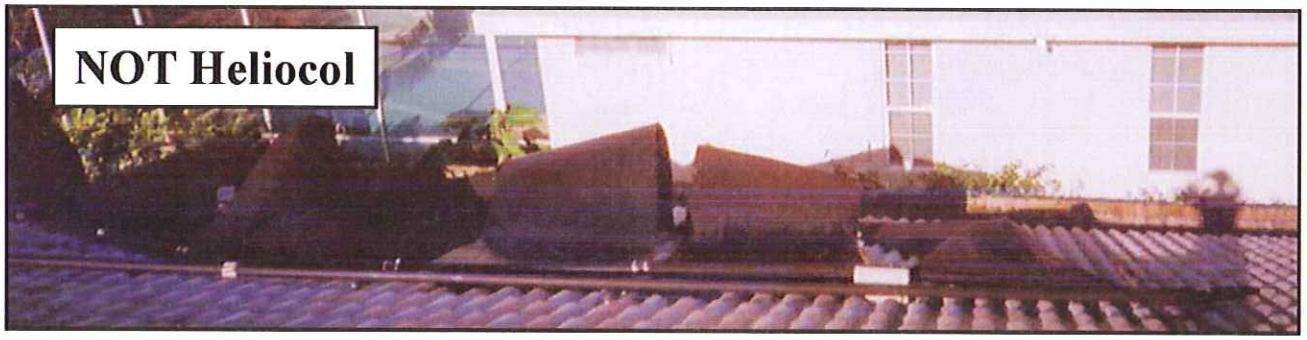
Design Feature: Alligator Clamps

Heliocol's patented Alligator Clamp eliminates the need for straps and is the only mounting system that allows for natural expansion and contraction. This exclusive system eliminates tearing and pulling at the roof typical of glued systems. The Alligator Clamp makes Heliocol the most roof-friendly system in the world.

Heliocol's Alligator Clap keeps the collector off the roof and allows for natural expansion and contraction.



Other collectors glue to the roof and do not allow for natural expansion. Non-Heliocol collectors will buckle and degrade the roof as shown in the photo below.



Design Feature: Over-molded Header

Every solar industry professional knows tubing connection is of crucial importance to prevent leakage over time. Heliocol's patented over-molded header insures the strongest possible connection between tubing because the header is actually formed around the tubes. This process actually joins the tubes and header together as one solid piece.
Other panels use smoldered connections or sub-plenums requiring that small holes be drilled in the header. This less sophisticated method restricts flow and causes the pool pump to work harder. The Heliocol panel creates virtually no backpressure because every tube has its own opening in the header. Heliocol is the only manufacturer to pressure test every solar collector before it leaves the factory to ensure it is perfect. This is why Heliocol is the only product of its kind to meet "zero-defect" ISO 9002 specifications and standards.

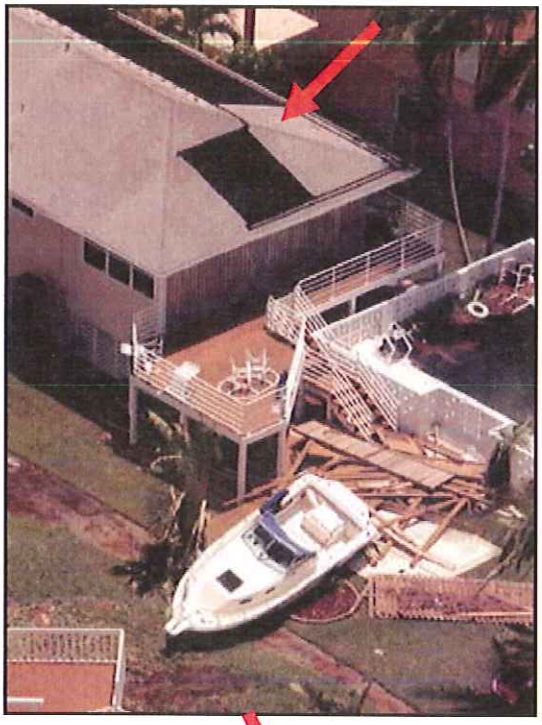
The Heliocol collectors' header tube is formed over the riser tubes thereby melting them into one solid piece and producing the strongest possible connection. This more expensive technique, allows every tube to have its own hole in the header. This allows for a free-flow of water without placing back-pressure on the pump.

Other manufacturers use cheap glue to attach their collectors together. The holes for the riser tubes are spaced far apart which makes the pump work harder, decreasing its life.

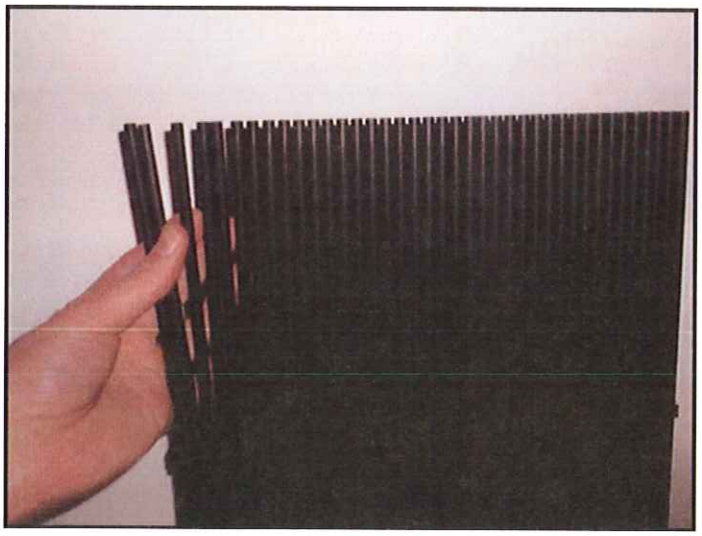
Design Feature: Highest Wind Tolerance

Heliocol's one-of-a-kind individual tube design gives the collectors unparalleled resistance to wind lift. In fact, Heliocol collectors are the ONLY solar collectors which can legally be installed on the coastal areas of Florida.

These photos were taken after Hurricane Wilma which devastated the costal areas of Florida in 2005. Despite extensive damage to the roofs of these structures, the Heliocol solar collectors are still intact. No other solar collector in the world has Heliocol's wind resistance.



Design Feature: Individual Tube Design



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Heliocol collectors are composed of individual tubes with no webbing between them. This feature keeps the roof healthy and prevents the collectors from blowing away in high winds.

NOT Heliocol

Other collectors are solid and do not allow the roof to breathe. To prevent the collectors from lifting in high winds, they must be glued to the roof or held down with straps which causes roof decay over time.

Design Feature: Individual Tube Design

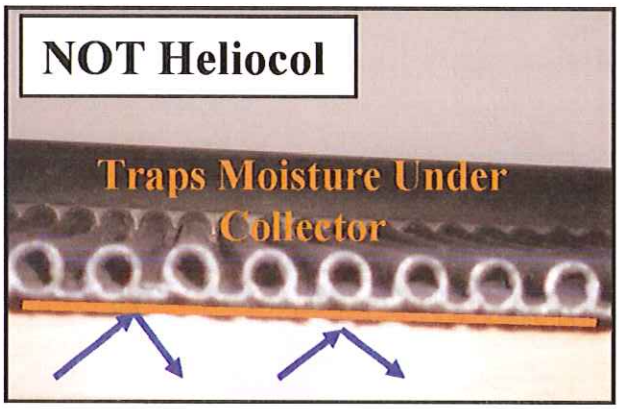
Heliocol's one-of-a-kind individual tube design is one of the most significant reasons why Heliocol is the finest solar pool heating system on Earth. All other panels use a webbed tube design, meaning the tubes are connected together in a solid plate.

Individual tubes are better for several reasons:

Individual Tubes Protect Your Roof and Prevent Roof Rot
Unlike webbed collectors, which trap debris and moisture, Heliocol panels allow your roof to breathe. Heliocol's individual tube design allows for proper evaporation of rain and is the ONLY solar panel appropriate for flat roofs.

Individual Tubes Create More Heat than Other Panels
Round tubes are the most efficient means of absorbing the sun's energy. Heliocol's patented individual tube design allows for maximum absorption of the sun's heat all day long unlike other panels, which are most efficient only at solar noon.

Individual Tubes Do Not Create Lift
Other solar panels use webbing between their tubes; this creates lift. To prevent their panels from flying away, our competitors must use straps to hold their panels in place. Straps mean more holes in your roof and greater potential for leaks. Heliocol solar panels create no lift and require no straps!



With other collectors, roof moisture is trapped causing roof-rot over time.

With Heliocol collectors, roof moisture evaporates to keep the roof healthy.

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COMPARISON ☑ CHECK LIST

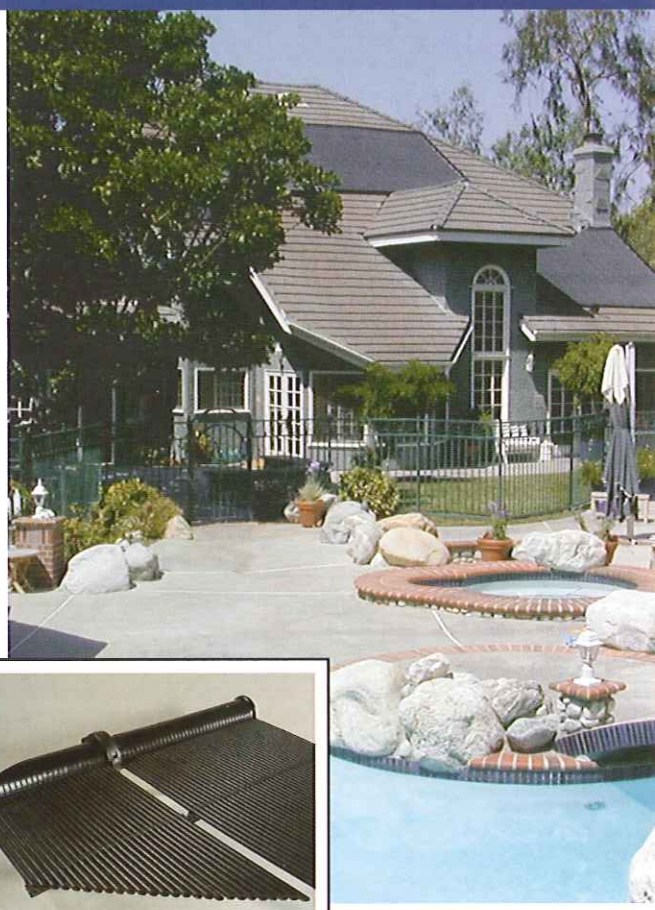
ASK THE RIGHT QUESTIONS TO BE SURE YOU ARE GETTING A QUALITY PRODUCT.	HELIOCOL		
Does the manufacturer provide a full twelve-year panel and labor warranty?	*Yes*		
Has the manufacturer been manufacturing collectors longer than the warranty period?	*Yes*		
Has the manufacturer been in business for over 25 years?	*Yes*		
Are only two roof penetrations necessary for each collector?	*Yes*		
Does the collector utilize "over-molding" as a way of preventing future leaks?	*Yes*		
Does the collector design eliminate ineffective sub-plenums that restrict flow?	*Yes*		
Can the collector be easily repaired in place?	*Yes*		
Does the collector's installation method eliminate the need for costly substrates?	*Yes*		
Will gaps between collectors be eliminated by properly installing the collector?	*Yes*		
Will the collector resist 120 MPH wind loads?	*Yes*		
Does the collector design feature individual riser tubes to allow for expansion and contraction?	*Yes*		
Has the collector been approved by FSEC, SRCC, IAPMO, and is ISO9002 Certified?	*Yes*		
Are the collectors manufactured in 6 different sizes?	*Yes*		
Does the manufacturer distribute the collector worldwide?	*Yes*		

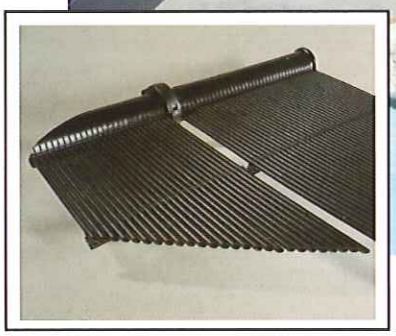
Technical Information & Specifications

The HELIOCOL Solar Collector is the most advanced pool heating panel on the market today. In continuous production since 1977 by the world's largest solar pool collector manufacturer, HELIOCOL has a proven track record of durability, performance and design excellence.

Heliocol's Unique Technical Features

- Patented Individual Tube Design allows for expansion and contraction, eliminating cracks and leaks
- One-piece "over molded" construction eliminates welds
- No moisture build-up under collectors
- Innovative mounting hardware eliminates need for radiator hoses, metal clamps and multiple straps across the collectors
- Designed to withstand Hurricane force winds
- Low collector head loss rate reduces pump requirements





Heliocol was chosen to heat the swimming pool facilities for the Summer Olympic Games in 1996 Atlanta and 2004 Athens!

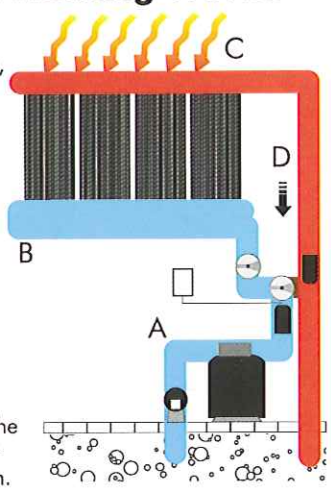
How Solar Pool Heating Works

A: Using your existing pool pump, pool water is directed through a series of valves to your solar collectors.

B: Pool water enters the solar collectors at the bottom and rises to the top through the individual tubes of the collector.

C: As the water rises through the collector it is heated by the sun's radiant energy.

D: The water is then returned to the pool to repeat the cycle until your pool has been warmed by the sun.



Certification Data

- ISO 9002 and ISO 9001:2000
- Ortech International Laboratories
- Solar Rating & Certification Corporation (SRCC)
- Solar Energy Analysis Laboratory (SEAL)
- DSET Laboratories, Inc.
- HRS, Florida (Required for commercial use)
- Dade County, Florida
- Miami Testing Laboratory
- Florida Solar Energy Center (FSEC)
- City of Los Angeles #RR-4508
- British National Water Council (for potability)
- German Federal Health Board
- Israeli Technical Institute
- Standard Installation Corporation of Israel

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What ISO Certification Means to You

Established in 1947, the International Organization for Standardization (ISO) is a worldwide federation of national standards bodies representing over 130 countries.

ISO9002 Certified is a standard granted only to companies performing at the highest levels in their industries. Heliocol is the first and only solar pool collector in the world to achieve ISO9002 Certified status, a result of more than two years of measuring Heliocol's customer service, product failure rate, and engineering processes.

Heliocol has additionally been awarded certification for ISO9001-2000, which goes beyond measuring product quality and the manufacturing process to the overall management, sales and marketing, and business operations of the company. ISO9001-2000 Certification is recognized as the highest achievable industry standard on earth today.

Performance Ratings

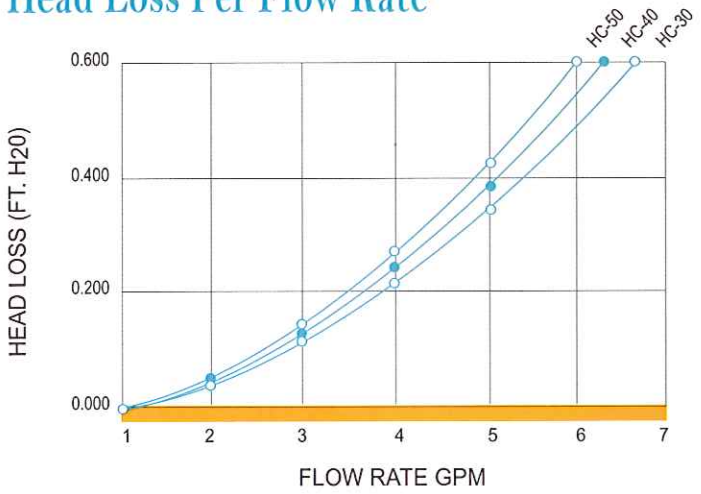
Certifying Organization	BTUs Per Day HC-50	HC-40	HC-30	Performance Equations
Int'l Standard ORTECH	47,400	39,400	28,440	.872 - 3.729 (Ti-TA) / I $K_AX = 1.00 - .0316(S) - .0104(S)^2$
National Standard SRCC	47,400	39,400	28,440	.872 - 3.729 (Ti-TA) / I $K_AX = 1.00 - .0316(S) - .0104(S)^2$
Florida Standard	956 BTU's/ft^2	956 BTU's/ft^2	956 BTU's/ft^2	.828 - 3.26 (Ti-TA) / I $K_AX = 1.00 - .11(S)$

Performance Note:
Solar scientists agree that there are many variables to consider when properly sizing a system. Wind conditions, micro climates, flow rates, orientation and shading of the pool and/or collectors all affect the performance of your system. A BTU rating is just one of the many factors to consider.

Collector Data

Collector Model	HC-50		HC-40		HC-30		HC-12.5	HC-10
Size, Nominal	4' x 12.5'		4' x 10.5'		4' x 8'		1' x 12.5'	1' x 10.5'
Width	47"	120 cm	47"	120 cm	47"	120 cm	11.75"	11.75"
Length	152.1"	380 cm	127"	323 cm	91"	231 cm	151.5"	127"
Area (sq. ft.)	50.0	4.65 m^2	41.6	3.88 m^2	30.0	2.77 m^2	12.2	10.2
Manifold Diameter	2"	5.08 cm	2"	5.08 cm	2"	5.08 cm	2"	2"
Weight, Dry	22 lbs.	10 kg	19 lbs.	8.5 kg	15 lbs.	6.8 kg	5.5 lbs.	4.75 lbs.
Volume Capacity	3.7 gal.	14 L	3.1 gal.	12 L	2.4 gal.	9 L	.93 gal.	.78 gal.
Working Pressure	90 PSI		90 PSI		90 PSI		90 PSI	90 PSI
Burst Pressure	270 PSI		270 PSI		270 PSI		270 PSI	270 PSI
Recommended Flow	5 GPM		4 GPM		3 GPM		1.25 GPM	1 GPM

Head Loss Per Flow Rate



Heliocol HC-50

Collector Rating Numbers
Thousands of BTU's per day per panel

Category $\triangle T$ (°F)		Solar Insolation 2,000 BTU/ft^2	1,500 BTU/ft^2	1,000 BTU/ft^2
Water Temp. Minus Air Temp.	A (-9)	98.74	78.07	57.49
	B (+9)	64.13	44.01	23.96
	C (+36)	22.91	7.64	0
	D (+90)	0	0	0
	E (+144)	0	0	0

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13620 49th Street North, Clearwater, FL 33762
(727) 572-6655, Fax (727) 572-7922
www.heliocol.com • Email: Heliocol@umasolar.com

ENVIRONMENTALLY SAFE PRODUCT E.S.P.
ISO 9002
ISO 9001:2000

HELIOCOL

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FULL TWELVE (12) YEAR WARRANTY

PLUS LIFETIME LIMITED WARRANTY

(WITH FREEZE PROTECTION)

WARRANTY

This warranty is issued by HELIOCOL USA INC., and PLASTIC MAGEN, 927 Fern Street, Suite1500, Altamonte Springs, Florida 32701, and applies to all new HELIOCOL collectors manufactured by PLASTIC MAGEN when purchased for use on swimming pools, spas, or hot tubs. HELIOCOL USA, INC., warrants to the original purchaser only that the HELIOCOL collector will be free from defect in materials and workmanship in the manufacturing process under normal use and service for a period of **twelve (12)** years from the date of initial installation when purchased from and properly installed by an **AUTHORIZED DEALER** within that dealer's authorized territory. During that time, should a HELIOCOL collector or component exhibit a manufacturing defect, the defective collector or component will be repaired or replaced at Heliocol's option, **without charge for the equipment and/or labor** by Heliocol USA, Inc., or its authorized dealer or distributor.

Your dealer is: _____ , _____

Authorized Dealer Phone

FREEZE WARRANTY

Heliocol collectors are also warranted against internal freezing, as long as they have been installed according to Heliocol's published installation guidelines.

BONUS LIFETIME LIMITED WARRANTY

Heliocol collectors carry a Lifetime Limited Warranty. Any Heliocol Collector found to be defective in material or workmanship subsequent to the initial **Full Twelve Year (12)** Warranty will be replaced, so long as the purchaser pays fifty percent (50%) of the published collector list price at the time the replacement is required. No labor, removal, reinstallation, or shipping costs will be covered by the manufacturer after the expiration of the original **Twelve Year (12)** warranty.

EXCEPTIONS

Neither HELIOCOL USA INC., its dealers, nor its distributors shall be liable for incidental or consequential damages, cosmetic matters, damage of any sort or nature resulting from abuse, misuse, neglect, abnormal weather conditions, acts of God, or damage caused by improper installation. This warranty does not apply to installation components not manufactured by Plastic Magen or to solar collectors which have not been installed and maintained in strict compliance with HELIOCOL's installation and operation manuals and instructions and/or applicable ordinances or codes or to systems not installed by an authorized dealer within its authorized territory. In no event shall the liability exceed the purchase price of the product. There are no implied warranties of merchantability or implied warranty of fitness which extends beyond the description of the face hereof.

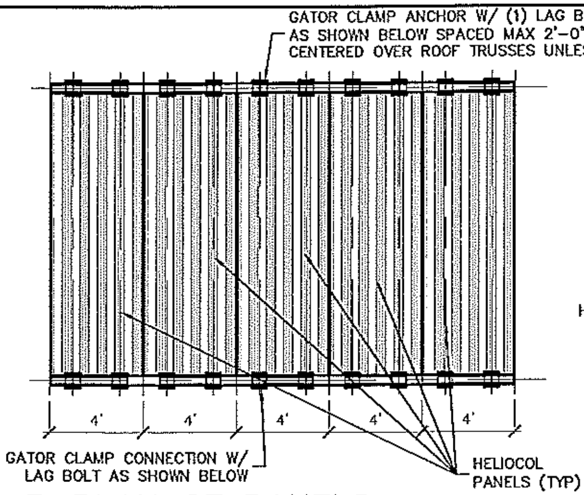
PROOF OF PURCHASE

It is the responsibility of the consumer to establish the original purchase date for warranty purposes. We recommend that a bill of sale, canceled check, or some other appropriate payment record be kept for that purpose. If the system is registered within 10 days of installation at www.Heliocol.com, the electronic registration confirmation is the only future proof of purchase necessary. The completion and return of the Owner's Registration Form below or the completion of the Online System Registration Form are conditions precedent to coverage under this warranty.

NOTE

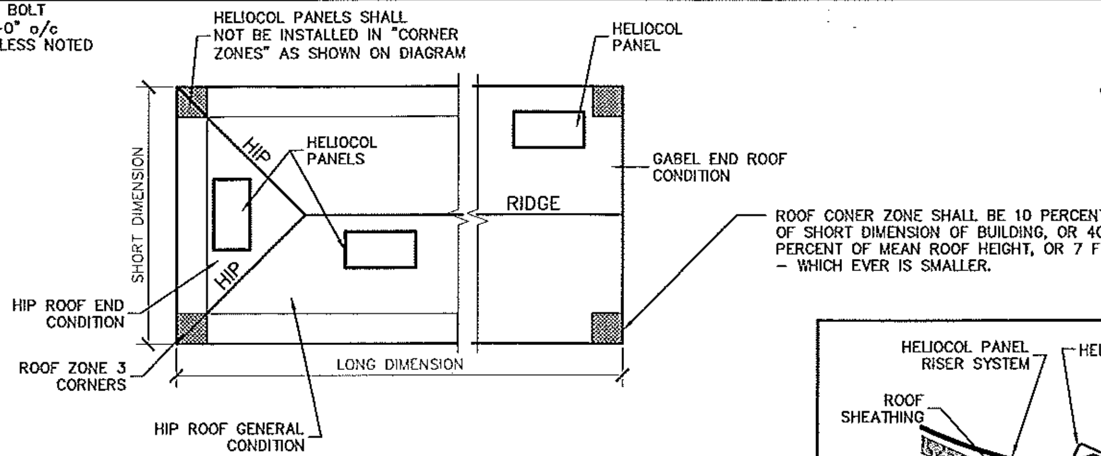
This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

HELIOCOL USA, INC., 927 Fern Street, Suite 1500, Altamonte Springs, FL 32701



1/S-2 PLAN OF PANELS

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



2/S-2 ROOF LAYOUT PLAN

SCALE: NONE

AUG 3 1 2007

GENERAL NOTES:

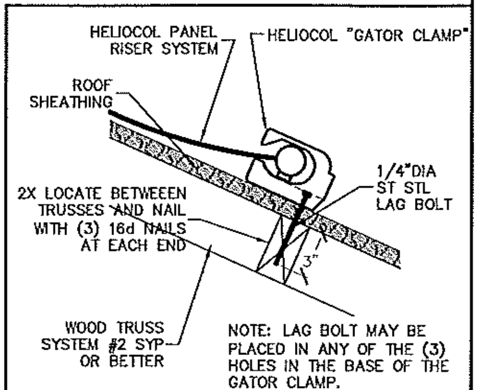
1. THESE PLANS ARE IN COMPLIANCE WITH THE 2004 FLORIDA BUILDING CODE, WITH 2006 SUPPLEMENTS, SECTION R301.2.1.1 FOR WIND EXPOSURE CATEGORY "C". THESE PLANS REMAIN IN EFFECT UNTIL FUTURE CODE REVISIONS DICTATE THAT AN UPDATE IS NECESSARY.

2. PANEL CONNECTIONS SHOWN HAVE BEEN DESIGNED TO RESIST WIND LOADS OUTLINED IN THE 2004 BUILDING CODE, CHAPTER 16 FOR 146 MPH EXPOSURE "C" WIND VELOCITY AND PER ASCE 7-02, CHAPTER 6.0 FOR 146 MPH EXPOSURE "C" WIND VELOCITY TYPICALLY.

3. LAG BOLT CAPACITIES AND EMBEDMENTS ARE BASED UPON "NATIONAL DESIGN SPECIFICATION FOR STRESS GRADE LUMBER AND FASTENINGS" AS PUBLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION.

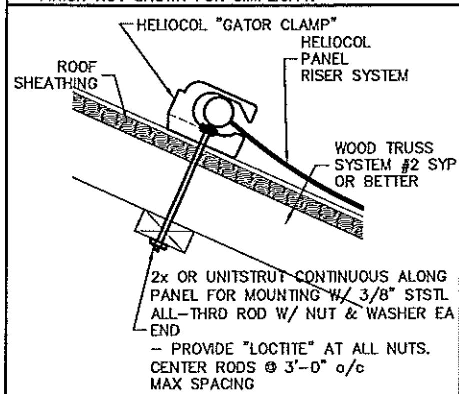
4. WIND TUNNEL TEST DATA FOR THESE CONNECTIONS HAS BEEN COMPILED BY TEXAS A&M UNIVERSITY, COLLEGE STATION, TX. AND IS AVAILABLE THROUGH HELIOCOL, INC.

5. ALL CONNECTIONS ARE FOR ROOFS 0° TO 45° MAX SLOPE CONDITIONS, AND ALL CONNECTORS ARE FOR MEAN ROOF HEIGHTS NOT TO EXCEED 30'-0". ACTUAL ROOF FINISH NOT SHOWN FOR SIMPLICITY.



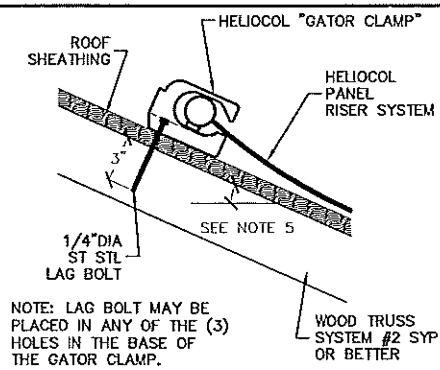
7/S-2 MISSED TRUSS NAILER INSTALLATION

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



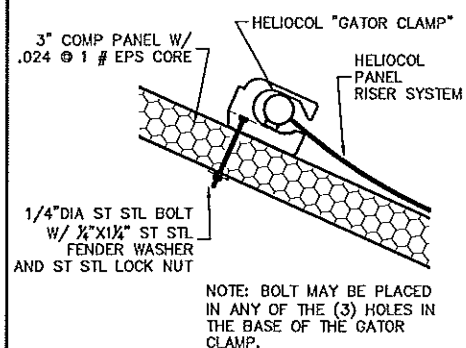
3/S-2 MISSED TRUSS SPANNER INSTALL

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



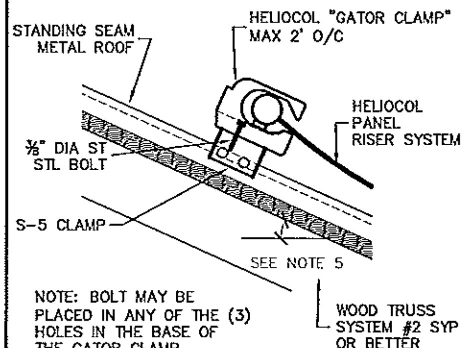
4/S-2 SHINGLE/METAL/ BUILT UP ROOF

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



5/S-2 COMP. PANEL ROOF

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



6/S-2 S-5 CLAMP STANDG. SEAM METAL ROOF

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

ANCHORING OF THE "GATOR CLAMP" PANELS

PER 2004 FLORIDA BUILDING CODE AND ASCE 7-02

RC ENGINEERING, LLC.
2381 CREST RIDGE COURT
SANFORD, FL 32771
TEL 407-474-[illegible] FAX 407-688-[illegible]
EPAMOCRATES R. CASTILLO - FLA PE 52[illegible]

PROJECT #: 60136

DESIGNED: REC

SCALE: NOTED

DRAWING NO. S-2

SHEET 1 OF 1

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2012 Solar Pool Heating System Comparison

	Heliocol HC-50	Aquatherm Ecosun	FAFCO Sunsaver	Hi-Tec HT408	Techno-Solis Swimmaster	Suntrek
Warranty						
Panels	**12 years**	10 years	12 years	12 Years	10 years	15 years
Parts	**12 years**	Not covered	Not covered	Not Covered	Not covered	Not covered
Labor	**12 years**	10 years	Not covered	12 Years	Not covered	Not covered

Heliocol offers the best warranty overall as it is the only manufacturer to cover not only the panels, but parts and labor, as well.

Warranty information for each brand obtained in Jan. 2012 from the following websites: www.heliocol.com, www.solarindustries.com, www.fafcosolar.com, www.hi-techsolar.com, www.techno-solis.com and www.suntreksolar.com

Energy Production						
Btu Per Square Foot Per Day	**2,020**	1,760	1,870	1,540	1,850	1,470
Total Btu for 400 Square Foot System	**808,000**	704,000	748,000	616,000	740,000	588,000

Heliocol produces more energy per square foot.

Performance ratings provided in Jan. 2012 by the Solar Rating & Certification Corporation (SRCC) for thousands of Btu per square foot per day in category A (pool heating, warm climate) on a clear day. Heliocol, Aquatherm, FAFCO and Techno-Solis tested per ASHRAE96. Hi-Tec and Suntrek tested per ISO 9806-3.

Performance						
Working Pressure	**90 psi**	35 psi	30 psi	27 psi	25 psi	40 psi
Burst Pressure	**270 psi**	85 psi	45 psi	27 psi	35 psi	40 psi
Pressure Drop Per Foot	**0.42**	1.60	3.50	0.32	0.43	1.00

Heliocol's patented overmolding and individual tube design allows significantly higher working pressure and burst pressure, making it the most suitable solar pool heating system for swimming pools already operating at high pressure ranges.

Pressure performance based upon figures obtained in Jan. 2012 from specification sheets and the following brand websites: www.heliocol.com, www.solarindustries.com, www.fafcosolar.com, www.hi-techsolar.com, www.techno-solis.com and www.suntreksolar.com. Working pressure based upon standard flow rate of 5 gpm. Maximum pressure calculated at 80°F. Pressure drop calculated using the following standard formula: 2.31ft = 1 psi to convert.

Aesthetics						
Colors Available	**Black Gray Terracotta**	Black	Black	Black	Black	Black
Seamless Panel Design	**Yes. Patented panel clamps allow panels to be installed closer together, providing more energy on available roof space.**	No. Gaps between panels reduce overall system efficiency by reducing the amount of panel coverage on available roof space.	No. Gaps between panels reduce overall system efficiency by reducing the amount of panel coverage on available roof space.	No. Gaps between panels reduce overall system efficiency by reducing the amount of panel coverage on available roof space.	No. Gaps between panels reduce overall system efficiency by reducing the amount of panel coverage on available roof space.	No. Gaps between panels reduce overall system efficiency by reducing the amount of panel coverage on available roof space.

With three color choices to match different roof styles, and gapless connections between panels, Heliocol is more aesthetically pleasing and blends with ease into the existing architecture. In addition, the seamless design is one of the many factors behind Heliocol's top-rated performance.

Aesthetic information for each brand obtained in Jan. 2012 from the following websites: www.heliocol.com, www.solarindustries.com, www.fafcosolar.com, www.hi-tecsolar.com, www.techno-solis.com and www.suntreksolar.com

	Heliocol HC-50	Aquatherm Ecosun	FAFCO Sunsaver	Hi-Tec HT408	Techno-Solis Swimmaster	Suntrek
Roof Protection						
Individual Tube Design	**Yes. Allows expansion and contraction, eliminates cracks and leaks, lets roof breathe, and keeps it clean and dry.**	No. Monolithic design decreases wind resistance, can crack and leak due to thermal expansion and traps roof moisture.	No. Monolithic design decreases wind resistance, can crack and leak due to thermal expansion and traps roof moisture.	No. Monolithic design decreases wind resistance, can crack and leak due to thermal expansion and traps roof moisture.	No. Monolithic design decreases wind resistance, can crack and leak due to thermal expansion and traps roof moisture.	No. Monolithic design decreases wind resistance, can crack and leak due to thermal expansion and traps roof moisture.
Strapless Installation	**Yes. Patented, strapless mounting system.**	No. Straps are required to secure the panel to the roof.	No. Straps are required to secure the panel to the roof.	No. Straps are required to secure the panel to the roof.	No. Straps are required to secure the panel to the roof.	No. Straps and glue required to secure the panel to roof.
Minimizes Roof Penetrations	**Yes. Strapless mounting significantly minimizes roof penetrations.**	No. Strap installation requires a significant number of roof penetrations.	No. Strap installation requires a significant number of roof penetrations.	No. Strap installation requires a significant number of roof penetrations.	No. Strap installation requires a significant number of roof penetrations.	No. Strap installation requires a significant number of roof penetrations.
Wind Resistant	**Yes. Individual tube design prevents "lift", increasing wind resistance.**	No. Monolithic design lifts like a sail or wing in high winds.	No. Monolithic design lifts like a sail or wing in high winds.	No. Monolithic design lifts like a sail or wing in high winds.	No. Monolithic design lifts like a sail or wing in high winds.	No. Monolithic design lifts like a sail or wing in high winds.
Prevent Moisture Build-Up on Roof	**Yes. Open design allows proper evaporation of rain, making it the best panel for flat roofs.**	No. Monolithic design prevents rapid moisture evaporation, causing potential roof rot over time.	No. Monolithic design prevents rapid moisture evaporation, causing potential roof rot over time.	No. Monolithic design prevents rapid moisture evaporation, causing potential roof rot over time.	No. Monolithic design prevents rapid moisture evaporation, causing potential roof rot over time.	No. Monolithic design prevents rapid moisture evaporation, causing potential roof rot over time.

Heliocol is the only solar pool heating panel that actually protects the roof. Because the individual tube design significantly reduces wind load, Heliocol can be installed with no straps and fewer roof penetrations. In addition, Heliocol's open design prevents moisture build up on the roof .

Installation and mounting information for each brand obtained in Jan. 2012 from the following websites: www.heliocol.com, www.solarindustries.com, www.fafcosolar.com, www.hi-tecsolar.com, www.techno-solis.com and www.suntreksolar.com

Connections						
Panel Connection	**Plastic panel clamps, which never rust or leak. Clamps expand and contract with temperature changes, maintaining a sealed connection.**	Radiator-type hoses (which can deteriorate over time, leaving stains on your roof) and metal clamps which require periodic service to tighten against leakage.	Radiator-type hoses (which can deteriorate over time, leaving stains on your roof) and metal clamps which require periodic service to tighten against leakage.	Radiator-type hoses (which can deteriorate over time, leaving stains on your roof) and metal clamps which require periodic service to tighten against leakage.	Radiator-type hoses (which can deteriorate over time, leaving stains on your roof) and metal clamps which require periodic service to tighten against leakage.	Radiator-type hoses (which can deteriorate over time, leaving stains on your roof) and metal clamps which require periodic service to tighten against leakage.
Roof Connection	**Gator clamps which reduce roof penetrations, allow for natural expansion and contraction of the panels and are designed to mount to roof trusses only for a more secure connection.**	Anchor straps, which require more roof penetrations, can also damage panels and roof surface over time as they do not allow for thermal expansion. Not all connections are on trusses, requiring chip board reinforcements in attic.	Anchor straps, which require more roof penetrations, can also damage panels and roof surface over time as they do not allow for thermal expansion. Not all connections are on trusses, requiring chip board reinforcements in attic.	Anchor straps, which require more roof penetrations, can also damage panels and roof surface over time as they do not allow for thermal expansion. Not all connections are on trusses, requiring chip board reinforcements in attic.	Anchor straps, which require more roof penetrations, can also damage panels and roof surface over time as they do not allow for thermal expansion. Not all connections are on trusses, requiring chip board reinforcements in attic.	Cut pieces of panel to mount to roof, along with anchor straps, which require more roof penetrations. Panels can buckle and degrade the roof over time due to thermal expansion. Not all connections are on trusses, requiring chip board reinforcements in attic.
Maintenance-Free	**Yes, with no hoses and no metal clamps, the system is truly maintenance-free.**	Regular roof-top system maintenance required to tighten each clamp and check each hose connection.	Regular roof-top system maintenance required to tighten each clamp and check each hose connection.	Regular roof-top system maintenance required to tighten each clamp and check each hose connection.	Regular roof-top system maintenance required to tighten each clamp and check each hose connection.	Regular roof-top system maintenance required to tighten each clamp and check each hose connection.

Heliocol is the only solar pool heating panel that actually protects the roof. Because the individual tube design significantly reduces wind load, Heliocol can be installed with no straps and fewer roof penetrations. In addition, Heliocol's open design prevents moisture build up on the roof.

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	Heliocol HC-50	Aquatherm Ecosun	FAFCO Sunsaver	Hi-Tec HT408	Techno-Solis Swimmaster	Suntrek
Safety Certifications						
ISO 9001 for Quality Managment	**1999**	2011	No	No	No	No
ISO 14001 for Environmental Protection	**2008**	No	No	No	No	No
NSF 50 for Safety and Reliability for Pool, Spa and Recreational Water Facility Use	**2011**	2011	No	No	No	No
NSF 61 (Raw Materials) for Safety in Drinking Water Components	**2009**	No	No	No	No	No
SRCC OG-100 for Safety, Durability and Performance of Solar Collectors	**Yes**	Yes	Yes	Yes	Yes	Yes

Heliocol sets the bar for reliability and consumer safety with more certifications than any competitor.

ISO 9001 is the benchmark for quality management and ISO 14001 is the global standard for environmental protection, both issued by the International Organization for Standardization. NSF-50 certifies standards for products used in public pools, spas and recreational water facilities and NSF-61 addresses contaminant levels in drinking water components; both are issued by the National Sanitation Foundation. Heliocol is manufactured using NSF-61 certified raw materials. SRCC OG-100 certification applies to solar collectors and is issued by the Solar Rating & Certification CorporationCertification information obtained Jan. 2012 from the following websites: www.iso.org, www.nsf.org and www.solar-rating.org.