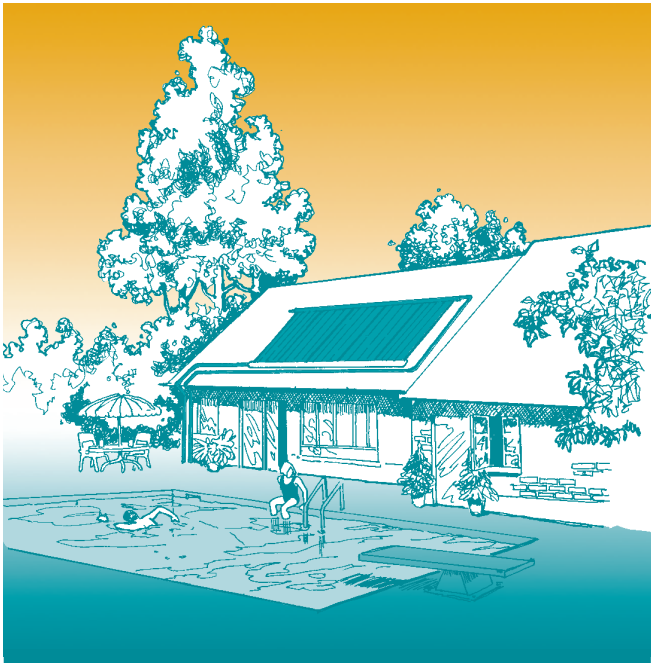




Performance

Directory of
Solar Pool
Collectors



Natural Resources
Canada

Ressources naturelles
Canada

Canada

Introduction

This directory provides potential buyers with independent data on the thermal performance of solar collectors designed for heating outdoor swimming pools. The thermal performance can be an important factor in the purchase decision since the ability to heat water is the primary reason for investing in a solar pool-heating system. The ratings in this directory have been derived using a standard test and uniform simulation protocol. Thermal performance comparisons may be made between different pool-heating collectors, much as you would compare the fuel consumption ratings for new vehicles. Actual energy output will vary depending on many system installation and operating parameters.

Energy output is not the only criterion for selecting solar collectors. The cost, expected life (and warranty), quality of installation, availability of parts and quality of service are also important.

Collector Ratings

Five manufacturers that sell unglazed solar collectors for heating outdoor swimming pools in Canada agreed to participate in a program to test and publish ratings of collector thermal performance. Ratings for one collector from each participant are included in this directory.

Solar collectors for testing were randomly selected from stock held by each of the participating manufacturers. These collectors were subjected to a series of standardized exposure tests. Then the thermal performance of each collector was measured at the National Solar Test Facility

(NSTF) in Mississauga, Ontario, in general accordance with CSA Standard F378-87 (R1998), “Solar Collectors.”

A detailed computer model, Enerpool Pro ®, used the resulting thermal performance characteristics of each collector to simulate the operation of a representative Canadian solar pool-heating system under typical operating conditions for the pool-heating season. In the table below, the simulated energy production per unit area for each collector has been recorded as the annual delivered energy rating.

Energy Rating of Swimming Pool Collectors

Collector			Rated Annual Energy (GJ/m ²)					
Manufacturer	Model	Area* (m ²)	Vancouver		Toronto		Montréal	
			Solar Only	Solar & Aux.**	Solar Only	Solar & Aux.	Solar Only	Solar & Aux.
AQUATHERM	Solar Industries 4 X 10	3.607	1.3	1.0	1.3	1.1	1.2	1.0
FAFCO	Sunsaver 4 X 10	3.631	1.3	1.1	1.3	1.1	1.2	1.1
HELIOCOL	Heliocol – 40	3.768	1.0	0.7	1.1	0.8	1.0	0.8
HOT SUN INDUSTRIES	Powermat 4 X 10	3.630	1.2	1.0	1.2	1.0	1.1	1.0
TECHNO-SOLIS	Techno-Solis 4 X 10	3.672	1.3	1.1	1.3	1.1	1.2	1.1

* From NSTF test report.

** *Solar & Aux.* represents a solar system that is operating in conjunction with an auxiliary heater, with a fixed set-point of 27.5 °C.

The simulated system had a total collector area of 24.5 m², which was half of the swimming pool surface area. For total solar collector areas that represent a larger fraction of the pool area, actual energy delivered would be somewhat lower than tabulated. For example, at 80 percent of the pool area, collector output is approximately 90 percent of that tabulated.

Savings

If you are using a non-solar pool heater, you can estimate the energy-cost savings that you could achieve with a solar pool-heating system with the following equation:

Annual Dollars

$$\text{Saved} = \frac{[\text{Rated Annual Energy (GJ/m}^2) \times \text{Collector Area (m}^2) \times \text{Number of Collectors} \times \text{Cost of Energy (\$/GJ)}] / \text{Efficiency of Existing Pool Heater}}$$

To determine your Cost of Energy, use the following table:

Fuel	Unit Cost on Your Bill	To get \$/GJ, multiply by
Natural Gas	_____ cents/m ³	0.2686
Oil	_____ cents/litre	0.2585
Propane	_____ cents/litre	0.3917
Electricity	_____ cents/kWh	2.778

The efficiency of pool heaters that use natural gas, propane or oil can usually be assumed to be roughly 0.75; the efficiency of an electric-resistance heater can be assumed to be approximately 1.0.

Manufacturer Contact Information

Aquatherm Industries, Inc.

1940 Rutgers University Blvd.

Lakewood NJ 08701

USA

Tel.: 1 800 535-6307 (toll-free)

Fax: (732) 905-9899

Web site: www.warmwater.com

FAFCO, Incorporated

435 Otterson Drive

Chico CA 95928-8207

USA

Tel.: (530) 332-2100

Fax: (530) 332-2109

Web site: www.fafco.com

Heliocol Canada

3262 F-X Tessier

Vaudreuil-Dorion QC J7V 5V5

Tel.: 1 800 463-5793 (toll-free)

Fax: (450) 424-1876

Web site: www.heliocol.com

Hot Sun Industries Inc.

3923 Mt Abraham Ave.

San Diego CA 92111

USA

Tel.: (858) 627-9007

Web site: www.powermat.com

Techno-Solis, Inc.

4225 Montée Saint-Hubert

Saint-Hubert QC J3Y 1V2

Tel.: 1 888 765-2473 (toll-free)

Fax: (450) 678-3237

Web site: www.techno-solis.com

Further Information

If you would like more information on solar pool heaters or are interested in purchasing one, obtain a copy of Natural Resources Canada's Residential Solar Pool Heating Systems: A Buyer's Guide or speak with a Canadian Solar Industries Association representative.

Renewable and Electrical Energy Division

Natural Resources Canada
580 Booth Street, 17th Floor
Ottawa ON K1A 0E4
Fax: (613) 995-0087
Web site: www.reed.nrcan.gc.ca

or

CANMET Energy Technology Centre

Natural Resources Canada
580 Booth Street, 13th Floor
Ottawa ON K1A 0E4
Fax: (613) 996-9416
Web site: www.nrcan.gc.ca/es/etb

Canadian Solar Industries Association

2378 Holly Lane, Suite 208
Ottawa ON K1V 7P1
Tel.: (613) 736-9077
Fax: (613) 736-8938
Web site: www.cansia.ca
E-mail: info@cansia.ca

Énergie Solaire Québec

460, rue Sainte-Catherine Ouest, Bureau 701
Montréal QC H3B 1A7
Tel.: (514) 392-0095
Fax: (514) 392-0952
Web site: www.esq.qc.ca

Solar Energy Society of Canada Inc.

37 Tennyson Street

London ON N5Z 2K6

Tel.: (519) 451-3600

Web site: www.solarenergysociety.ca

E-mail: info@solarenergysociety.ca

To order a copy of *Residential Solar Pool Heating Systems: A Buyer's Guide* or other renewable energy publications, please call NRCan's toll-free line at 1 800 387-2000. You can also view this publication from our Web site at www.reed.nrcan.gc.ca.

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Aussi disponible en français sous le titre : Répertoire de rendement des capteurs solaires pour le chauffage des piscines

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