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September 9, 2009

Dave Sizelove
Aquatherm Industries, Inc.
1940 Rutgers University Boulevard
Lakewood, NJ 08701

RESEARCH REPORT: RR 4908
EFFECTIVE DATE: 09/01/09
EXPIRATION DATE: 09/01/10
TELEPHONE: 800-535-6307

GENERAL APPROVAL - Renewal / Modification - Solar Collectors, Models 10001-1 (11002), 10001-2 (11001), 10001-5 (11051), Ecosun 16104-12, Ecosun 16104-10, Ecosun 16104-8, **Ecosun 16204-08, Ecosun 16204-10, Ecosun 16204-12, Solar Industries 10204-08, Solar Industries 10204-10, and Solar Industries 10204-12.**

DETAILS

These solar collectors are made of plastic and metal.

NOTE: Weight shall be based on the following:

MODEL NO.	SIZE (FT.)	NET WEIGHT (LBS.)
10001-5 (11051)	4 X 12	48
10001-2 (11001)	4 X 10	41.6
10001-1 (11002)	4 X 8	35.1
Ecosun 16104-12	4 X 12	48
Ecosun 16104-10	4 X 10	41.6
Ecosun 16104-8	4 X 8	35.1
Ecosun 16204-08	4 X 8	41.1
Ecosun 16204-10	4 X 10	47.6
Ecosun 16204-12	4 X 12	54.0
Solar Industries 10204-08	4 X 8	41.1
Solar Industries 10204-10	4 X 10	47.6
Solar Industries 10204-12	4 X 12	54.0

The approval is subject to the following conditions:

1. These collectors may be installed in solar systems for swimming pool and spa applications. Installations are not approved for potable hot water and heating systems for space conditioning utilizing potable water.
2. This product may be installed only on one and two family dwellings. Installation and approval shall conform to attached "General Requirements for Solar Heating Systems". Installation shall meet the requirements for combustible collectors.
3. Structural Plan Check approval of supporting framework shall be obtained prior to beginning installation of these products.

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4. This approval applies only to the provisions of the Los Angeles Plumbing and Mechanical Codes, 2008 Edition. It shall not be construed to be an approval under the provision of the Los Angeles Building Code, 2008 Edition.
5. Each collector shall be identified with a permanent label showing the name "Solar Industries", and the appropriate model number visible for inspection purposes.
6. Prior to installing these products, plans shall be submitted and approved by Mechanical Plan Check Section for the complete solar system per the requirements of Information Bulletin No P/MC2002-002 (previously known as MGD 25).
7. Where these products are used in systems utilizing non-potable water and potable water, cross connection control shall be provided on the potable water supplying the system per Section 94.603 of the Los Angeles Plumbing Code, 2008 Edition. An approved RP backflow preventer shall be required unless an alternate type of backflow protection device is approved by Mechanical Plan Check Section.
8. When these products are installed in closed systems, a pressure and temperature relief device shall be installed in accordance with the requirements of the manufacturer and the Los Angeles Plumbing Code, 2008 Edition.

DISCUSSION

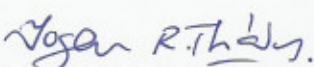
Modification: **Three new Ecosun and three new Solar Industries models have been added to the list of approved models.**

A current production sample was tested and examined by the Mechanical Testing Laboratory. The material and construction are equivalent to that prescribed by the Los Angeles Plumbing and Mechanical Codes in quality, strength, effectiveness, durability and safety.

For this General Approval to be valid on any individual construction project in the City of Los Angeles, an engineer or inspector of the Department of Building and Safety must make a determination that all conditions of the General Approval required to provide equivalency have been met in the case of each construction project under consideration.

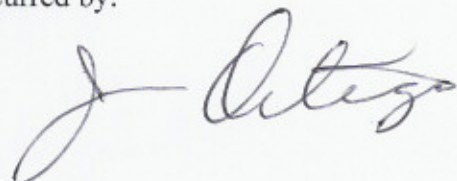
This approval is granted under Chapter 13 of the Los Angeles Building Code, 2008 Edition; Sections 94.301, 94.603 and 94.604 of the Los Angeles Plumbing Code, 2008 Edition; Section 95.105 of the Los Angeles Mechanical Code, 2008 Edition; and Information Bulletins Nos. P/MC2002-001 and P/MC2002-002 (previously known as Memoranda of General Distribution #21 and #25).

Approved by:



Yogen R. Thakar, Test Engineer
Mechanical Testing Laboratory
Engineering Bureau

Concurred by:



For Michael Tharpe, Chief
Plumbing / Mechanical Inspection Division
Inspection Bureau

GENERAL REQUIREMENTS FOR SOLAR HEATING SYSTEMS

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A. INSTALLATION

1. Combustible Collectors. Combustible solar collectors installed above or upon a roof.
 - a. The aggregate area of collectors shall not exceed 33 1/3 percent of the building roof area for CC1 materials or 25 percent of the roof area for CC2 materials per Section 2606.12 of the Los Angeles Building Code, 2008 Edition.
 - b. Collectors shall be installed over an Underwriters Laboratories Class "A" or "B" roof covering or over an aluminum or corrosion-resistant iron substrate of 26 Ga. minimum thickness. The substrate shall extend at least 6 inches beyond the outer edges of the collector.
 - c. Where one-hour roof construction is required, combustible collectors shall be limited to 20 percent of the roof area.
2. Vacuum Relief Valves. When drain down systems are installed, an automatic vacuum relief valve shall be installed as follows:
 - a. Domestic Hot Water or Space Heating. At a minimum of 2 feet above the solar hot water storage tank.
 - b. Swimming Pool and Spas. At a minimum of 2 feet above the water surface.
3. Temperature and Pressure Limiting Requirements:
 - a. Glazed Collectors. When glazed collectors are installed, the temperature of domestic water systems shall be controlled by a tempering valve.
 - b. Closed Piping Systems. When collectors are in a closed system of piping, a listed temperature and pressure relief valve or listed pressure relief valve shall be installed on the closed system piping.
 - c. Valved-Off Collectors. When there are shut off valves between the collectors and the tank, a listed pressure relief valve shall be installed between the shut off valves and the collectors.
 - d. Storage Tanks. A listed temperature and pressure or temperature or pressure relief valve shall be installed in the water system to protect the hot water storage tank. When a temperature and pressure relief valve or temperature relief valve is installed, it shall be located within 3 inches of the top of the tank.
 - e. Relief Valves. Pressure relief valves shall be set to relieve at 150 psi or less. Temperature relief valves shall be set to relieve at 210 degrees F or less. Relief valves shall be at least 3/4 inch size.

Relief valves shall discharge to a safe point of disposal. Discharge lines shall be at least as large as relief valve, shall not be trapped and the discharge end shall not be threaded.

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4. Interconnections
 - a. General. Interconnecting piping shall be of approved materials and shall be installed as required by the Los Angeles Plumbing Code.
 - b. Spas and Swimming Pools. Interconnecting piping for solar collectors used for spa and swimming pools may be metal or plastic. Plastic pipe shall not be installed closer than 5 feet developed length from the collectors unless the collectors drain down when the pump is off.

B. APPROVALS

1. Tanks. Tanks for potable water shall be copper, galvanized steel, Los Angeles City approved* plastic or other material acceptable for use in potable water systems.
2. Heat Exchangers. Heat exchangers shall be approved* separately by the Department.
3. Other Codes. This approval shall apply only to the Building, Mechanical and Plumbing Codes. It is not an approval under the provisions of the Electrical Code.
4. Building Plan Check and Permit Procedures. Plans and specifications are required for all installations. Structural calculations may also be required where the wet collector weight exceeds 8 lbs. per sq. ft. or the collector is more than 18 inches above the roof. For complete information on plan check and permit procedures, see Information Bulletin No P/MC 2002-001 (previously known as MGD 21), which is available at all District Offices of the Department.

*Phone 213-482-0414 for approval information.