

Chapter 14

SOLAR THERMAL SYSTEM PERMITS AND INSPECTIONS

14-14-1: DEFINITION:

"Solar thermal system" means equipment that directly converts and then transfers or stores solar energy into usable forms of thermal energy. (Ord. 9-11, 1-18-2011)

14-14-2: PERMIT REQUIRED:

A permit shall be obtained from the city manager or the city manager's designee for the installation of or alteration to a solar thermal system. Information shall be attached to an application for a permit as set by the city manager or the city manager's designee. (Ord. 9-11, 1-18-2011)

14-14-3: PERMIT APPLICATION:

A permit application shall be submitted to the city manager and must include:

- A. Applicant name.
- B. Applicant address.
- C. Business name, if applicable.
- D. Solar thermal license number, if applicable.
- E. Project address.

- F. A plot plan showing the proposed location of solar collector and any tree and/or structure that presently casts a shadow within twenty feet (20') of the proposed collector location.
- G. Detailed drawings of all piping, pumps, blowers, wiring, storage vessels, dampers, valves, insulation, location of the backflow prevention device, and all other material that will be required to install the system.
- H. Any other information required by the city manager or the city manager's designee. (Ord. 9-11, 1-18-2011)

14-14-4: INSPECTIONS REQUIRED:

Inspections of solar thermal systems are required prior to activation and shall be performed by the city manager or the city manager's designee. (Ord. 9-11, 1-18-2011)

14-14-5: SHADING OF SOLAR COLLECTORS:

No more than fifteen percent (15%) of the area of the solar path shading diagram shall be obstructed between nine o'clock (9:00) A.M. and three o'clock (3:00) P.M. throughout the year. (Ord. 9-11, 1-18-2011)

14-14-6: LIQUID SYSTEMS:

A. Piping And Penetration:

1. When two (2) or more collectors are installed in any one system, a reverse flow piping configuration shall be used unless an alternate flow configuration is recommended by the manufacturer.
2. No permanent piping shall connect the solar system with potable water.
3. All piping shall be able to withstand a temperature of three hundred fifty degrees Fahrenheit (350°F), preferably rigid or soft copper type "M" or thicker.
4. All solar loop building penetrations shall be made using weatherproof devices which will allow for expansion and contraction. All penetrations into the building shall be weatherproofed to prevent leaks, insects, and drafts from entering the building.

5. All of the components of a closed loop solar collector system shall be sized to provide adequate flow to the collectors.
6. The solar loop shall incorporate a check valve downstream of the heat exchanger if collectors are mounted above the storage tank.
7. Automatic air vents shall be disconnected from the solar loop by a ball valve.
8. Minimum design standard shall be the 2009 uniform solar energy code as it relates to solar thermal installations.

B. Pipe Insulation:

1. All pipe insulation in the solar collection system shall be at least R-5 in insulating value.
2. Exterior pipe insulation shall be resistant to ultraviolet and environmental degradation and shall be covered by material providing weather resistance, UV protection, and mechanical abuse protection. Exterior insulation joints, seams, and connections shall be sealed to prevent entry of moisture.
3. Solar supply loop shall be insulated with three hundred fifty degrees Fahrenheit (350°F) rated insulation approved for solar applications.
4. Heat traps or check valves shall be included on all supply and discharge lines for the storage tank.

C. Storage Tanks: Storage tanks shall have a tempering valve adjustable to one hundred twenty degrees Fahrenheit (120°F) downstream from the regular water heater and heat trap. (Ord. 9-11, 1-18-2011)

14-14-7: MONITORING:

A temperature appropriate pressure gauge shall be installed in the solar loop. The solar loop supply and return and the discharge line of the tempering valve shall have thermometers. (Ord. 9-11, 1-18-2011)

14-14-8: USE OF WOOD IN SOLAR COLLECTION SYSTEMS:

All wood components used in collector mounting which are exposed to the weather shall be pressure treated wood, meeting interim federal specifications TT-W-571J-Rev. 1974, as amended or revised. Wood used in collector frames or housing shall be protected against pyrolysis. (Ord. 9-11, 1-18-2011)

14-14-9: HEAT TRANSFER FLUID:

The heat transfer fluid used in the collectors shall be isolated from the potable water supply through the use of an approved double wall heat exchanger or two (2) separate coils, one for solar fluid and one for DHW in unpressurized tank. (Ord. 9-11, 1-18-2011)

14-14-10: RATING:

The solar thermal panels and equipment shall have an SRCC rating of OG 100 or OG 300. (Ord. 9-11, 1-18-2011)