

CHAPTER 14 SOLAR SYSTEMS

SECTION 1401 GENERAL

1401.1 Scope. This chapter shall govern the construction, installation, alteration and repair of systems, equipment and appliances intended to utilize solar energy for space heating or cooling, domestic hot water heating, swimming pool heating or process heating.

1401.2 Potable water supply. Potable water systems shall be protected against contamination in accordance with the *Florida Building Code, Plumbing*.

1401.3 Heat exchangers. Heat exchangers used in domestic water-heating systems shall be approved for the intended use. The system shall have adequate protection to ensure that the potability of the water supply and distribution system is properly safeguarded.

1401.4 Solar energy equipment and appliances. Solar energy equipment and appliances shall conform to the requirements of this chapter and shall be installed in accordance with the manufacturer's installation instructions.

1401.5 Ducts. Ducts utilized in solar heating and cooling systems shall be constructed and installed in accordance with Chapter 6 of this code.

SECTION 1402 INSTALLATION

1402.1 Access. Access shall be provided to solar energy equipment and appliances for maintenance.

1402.2 Controlling condensation. Where attics or structural spaces are part of a passive solar system, ventilation of such spaces, as required by Section 404, is not required where other approved means of controlling condensation are provided.

1402.3 Roof-mounted collectors. Roof-mounted solar collectors that also serve as a roof covering shall conform to the requirements for roof coverings in accordance with the *Florida Building Code, Building*.

Exception: The use of plastic solar collector covers shall be limited to those approved plastics meeting the requirements for plastic roof panel in the *Florida Building Code, Building*.

1402.3.1 Collectors mounted above the roof. When mounted on or above the roof covering, the collector array and supporting construction shall be constructed of non-combustible materials or fire-retardant-treated wood con-

forming to the building code to the extent required for the type of roof construction of the building to which the collectors are accessory.

Exception: The use of plastic solar collector covers shall be limited to those approved plastics meeting the requirements for plastic roof panel in the *Florida Building Code, Building*.

1402.4 Equipment. The solar energy system shall be equipped in accordance with the requirements of Sections 1402.4.1 through 1402.4.4.

1402.4.1 Pressure and temperature. Solar energy system components containing pressurized fluids shall be protected against pressures and temperatures exceeding design limitations with a pressure and temperature relief valve. Each section of the system in which excessive pressures are capable of developing shall have a relief device located so that a section cannot be valved off or otherwise isolated from a relief device. Relief valves shall comply with the requirements of Section 1006.4 and discharge in accordance with Section 1006.6.

1402.4.2 Vacuum. The solar energy system components that are subjected to a vacuum while in operation or during shutdown shall be designed to withstand such vacuum or shall be protected with vacuum relief valves.

1402.4.3 Protection from freezing. System components shall be protected from damage by freezing of heat transfer liquids at the lowest ambient temperatures that will be encountered during the operation of the system.

1402.4.4 Expansion tanks. Liquid single-phase solar energy systems shall be equipped with expansion tanks sized in accordance with Section 1009.

1402.5 Roof penetrations. Roof penetrations shall be flashed to prevent entry of water.

1402.6 Filtering. Air transported to occupied spaces through rock or dust-producing materials by means other than natural convection shall be filtered at the outlet from the heat storage system.

SECTION 1403 HEAT TRANSFER FLUIDS

1403.1 Flash point. The flash point of heat transfer liquids utilized in solar system equipment and appliances shall not be less than the highest temperature determined from the following:

1. 50°F (28°C) above the design maximum operating (flow) temperature of the fluid in the solar system.
2. 200°F (111°C) below the design maximum nonoperating (no-flow) temperature of the fluid attained in the collector, provided that the collector manifold assembly is located outside of the building and is exposed to the weather, and provided that relief valves located adjacent to the collector or collector manifold do not discharge directly into the building.
3. The design maximum no-flow temperature in other collector manifold and relief valve configurations.

1403.2 Flammable gases and liquids. A flammable liquid or gas shall not be utilized as a heat transfer fluid. The flash point of liquids used in occupancies classified in Use Group H or F shall not be lower unless approved.

SECTION 1404 MATERIALS

1404.1 Collectors. Factory-built collectors shall be listed and labeled, and bear a label showing the manufacturer's name and address, model number, collector dry weight, maximum allowable operating and nonoperating temperatures and pressures, minimum allowable temperatures and the types of heat transfer fluid allowed.

1404.2 Thermal storage units. Pressurized thermal storage units shall be listed and labeled, and bear a label showing the manufacturer's name and address, model number, serial number, maximum and minimum allowable operating temperatures, maximum and minimum allowable operating pressures and the types of heat transfer fluid allowed.