



Standard Practice for Installation and Service of Solar Space Heating Systems for One- and Two-Family Dwellings¹

This standard is issued under the fixed designation E 683; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers solar space heating systems for one- and two-family dwellings. It sets forth acceptable installation and service practices to help ensure adequate performance, safety, and consumer satisfaction.

1.2 This practice is intended to describe acceptable practices for space heating systems in new and existing dwellings and shall not be construed as the optimization of good practices.

1.3 This practice does not apply to Rankine cycle, heat pump, or high pressure vapor systems.

1.4 This practice is not intended to abridge safety or health requirements. All systems shall be installed in accordance with local codes and ordinances.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* (For specific safety precautions, see Section 6).

2. Referenced Documents

2.1 ASTM Standards:

E 772 Terminology Relating to Solar Energy Conversion²

2.2 ANSI Standards:³

A58.1 Building Code Requirements for Minimum Design Loads in Buildings and Other Structures.

C1 National Electrical Code

Z97.1 Performance Specifications and Methods of Test for Safety Glazing Materials Used in Buildings

2.3 Other Standards:

Installation Standards for One- and Two-Family Dwellings and Multi-Family Housing, Including Solar⁴

HUD Intermediate Minimum Property Standards

Supplement—Solar Heating and Domestic Hot Water Systems⁵

3. Terminology

3.1 Definitions:

3.1.1 *air handling unit, n*—a device used for distributing conditioned air supply to a room, space, or area.

3.1.2 *building, n*—a structure erected and framed of component structural members designed for the housing, shelter, or support of persons, animals, or property.

3.1.3 *code, n*—a set of applicable regulations which a jurisdiction has lawfully adopted.

3.1.4 *collector, solar thermal, n*—a device designed to absorb solar irradiance and to transfer the energy to a fluid passing through it. (E 772)

3.1.5 *collector subsystem, n*—that portion of the solar system which includes the solar collectors and related piping or ducts. (E 772)

3.1.6 *distribution subsystem, n*—that portion of the solar system from the storage device to the point of ultimate use. (E 772)

3.1.7 *energy (heat) transfer fluid, n*—the medium used to transfer energy from the solar collectors to the storage medium.

3.1.8 *potable water, n*—water that is satisfactory for drinking and culinary purposes, meeting the requirements of the health department having jurisdiction. (E 772)

3.1.9 *pressure relief device, n*—a pressure-activated valve designed to automatically relieve excessive pressure.

3.1.10 *shall, vi—as used in this practice*, a term used to denote a mandatory requirement.

3.1.11 *should, vi—as used in this practice*, a term used to denote a recommendation.

3.2 *solar system, n*—a configuration of equipment and components used to absorb, convey, store, convert, and distribute the energy from the sun.

4. Collector Subsystems

4.1 Collectors shall be installed in accordance with the instructions provided by the collector manufacturer and designer, in compliance with local codes and ordinances.

¹ This practice is under the jurisdiction of ASTM Committee E44 on Solar, Geothermal, and Other Alternative Energy Sources, and is the direct responsibility of Subcommittee E44.05 on Solar Heating and Cooling Subsystems and Systems. Current edition approved Feb. 22, 1991. Published July 1991.

² *Annual Book of ASTM Standards*, Vol 12.02.

³ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

⁴ Available from Sheet Metal and Air-Conditioning Contractors National Assn., 8224 Old Courthouse Rd., Vienna, VA 22180.

⁵ Available from HUD USER, P.O. Box 6091, Rockville, MD 20850.