Designation: F 445 – 88 (Reapproved 1999)

Standard Consumer Safety Specification for Thermal-Shock-Preventing Devices and Systems in Showering Areas[1]

This standard is issued under the fixed designation F 445; 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.

INTRODUCTION

This consumer safety specification addresses certain hazards in connection with shower areas[2] and is directed toward thermal shock.

The general requirements of this specification are intended to establish a maximum allowable discharge temperature and provide for automatic compensation if that temperature is exceeded, or limit temperature changes that are potentially dangerous, or both.

This specification establishes the necessary requirements to ensure safety from thermal shock during showering for both the normal user capacity and limited user capacity of some aged, infirm, or young. These requirements can be attained through the utilization of devices, series of devices, or plumbing system designs, which are available in the marketplace. Many of these devices are applicable to both new construction and retrofit installations. Specifications for the reliability and testing of these devices and systems are available in most cases from such organizations as the American National Standards Institute or the American Society of Sanitary Engineering.

1. Scope

1.1 This consumer safety specification covers thermal-shock-preventing devices and systems delivering water to showering areas.

1.2 This specification establishes the minimum performance requirements for the devices and systems to minimize the risks associated with the hazards of thermal shock.

2. Terminology

2.1 *check valve*—a valve designed to allow the flow of water in one direction only.

2.2 *device*—a piece of equipment or mechanism designed to serve a special purpose or perform a special function.

2.3 *mixing valve*—a device for mixing cold and hot water to produce an intermediate temperature as required, either manually, pressure-equalizing, or thermostatically controlled, and which is adjustable manually or by other means.

2.4 *safety shut-off device*—a maximum temperature-limiting device that reduces the flow of water to a specified amount.

2.5 *scald*—a first-, second-, or third-degree burn injury caused by the contact of hot water on the skin.

2.6 *showering area*—the bathing space that consists of a tub, tub-shower, or shower stall bounded by four walls, real or imaginary, extending vertically to the ceiling from the outside edge of the tub or stall.

2.7 *stop-check valve*—a valve designed to allow the flow of water in one direction only and which also has the capability to control the supply of water.

2.8 *stop valve*—a valve used for the control of water supply.

2.9 *thermal shock*—a change in temperature that is rapid and great enough to produce a potentially hazardous reaction.

2.10 *water outlet*—a discharge opening through which water is supplied to a bathing area.

3. Compliance

3.1 No device or system produced after the approval date of this consumer safety specification shall either by label or other means indicate compliance with this specification unless it conforms to all requirements contained herein.

4. Materials

4.1 The materials used in the thermal-shock-preventing devices or systems shall conform to the following:

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[1] This specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.03 on Safety Standards for Bathtub and Shower Structures.

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[2] "A Systematic Program to Reduce the Incidence and Severity of Bathtub and Shower Area Injuries," Abt Associates, Inc., June 4, 1975.