



Standard Guide for Construction of Solid Fuel Burning Masonry Heaters¹

This standard is issued under the fixed designation E 1602; 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 guide covers the design and construction of solid fuel burning masonry heaters. It provides dimensions for site constructed masonry heater components and clearances that have been derived by experience and found to be consistent with the safe installation of those appliances.

1.2 Values given in SI units are to be regarded as standard. Inch/pound units may be rounded (see Practice E 380). All dimensions are nominal unless specifically stated otherwise. All clearances listed in this guide are actual dimensions.

1.3 This guide applies to the design and construction of masonry heaters built on-site with the components and materials specified herein. It does not apply to the construction/installation requirements for component systems that have been safety tested and listed. The requirements for listed masonry heater systems are specified in the manufacturer's installation instructions.

1.4 The design and construction of solid fuel burning masonry heaters shall comply with applicable building codes.

2. Referenced Documents

2.1 ASTM Standards:

C 11 Terminology Relating to Gypsum and Related Building Materials and Systems²

C 43 Terminology of Structural Clay Products³

C 71 Terminology Relating to Refractories⁴

C 270 Specification for Mortar for Unit Masonry^{2,3}

C 401 Classification of Alumina and Alumina-Silicate Castable Refractories⁴

E 136 Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C⁵

E 380 Practice for Use of the International System of Units (SI) (the Modernized Metric System)⁶

2.2 UL Standards:

UL 103 Chimneys, Factory Built Residential Type and

Building Heating Appliances⁷

3. Terminology

3.1 Terms used in this guide are as defined in Terminology C 11, Definitions C 43, Terminology C 71, and Classification C 401.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *approved*—acceptable to the authority having jurisdiction.

3.2.2 *authority having jurisdiction*—the organization, office, individual, or agent thereof, who is responsible for approving construction, materials, equipment, installation, procedure, etc. In most cases in which a building permit is required, the authority is typically the building official or his agent. Where a building permit is not required, the authority is typically the owner or his agent.

3.2.3 *bypass damper*—a valve or plate that provides a direct path to the chimney flue for the flue gases or portion thereof.

3.2.4 *capping slab*—a horizontal refractory barrier covering the top of the heater.

3.2.5 *cleanout opening*—an access opening in a flue passageway of the heater or chimney that is designed to allow access to the flue for purposes of inspecting for and removing ash, soot, and other extraneous matter that may become trapped.

3.2.6 *damper*—an adjustable valve or plate for controlling draft or the flow of gases, including air.

3.2.7 *firebox (firechamber)*—that portion of the masonry heater that is designed for containing and burning the fuel charge.

3.2.8 *gas slot*—a small fixed opening that provides a bypass for unburned flue gases, and is a critical safety feature in certain heater designs (namely those of the Grundofen type with vertical flue runs) (see Figs. 1 and 2).

3.2.9 *hearth extension*—the noncombustible surfacing applied to the floor area extending in front of and beyond each side of the fuel loading door of the heater; also applies to the floor beneath a heater or beneath an elevated overhanging heater hearth.

3.2.10 *heater base*—that portion of the support for the heater between the heater and the foundation that is below the firebox or the heat exchange areas.

⁷ Available from Underwriter's Laboratories, 333 Pfingsten Road, Northbrook, IL 60062.

¹ This guide is under the jurisdiction of ASTM Committee E-6 on Performance of Buildings and is the direct responsibility of Subcommittee E06.54 on Solid Fuel Burning Applications.

Current edition approved Nov. 15, 1994. Published January 1995.

² *Annual Book of ASTM Standards*, Vol 04.01.

³ *Annual Book of ASTM Standards*, Vol 04.05.

⁴ *Annual Book of ASTM Standards*, Vol 15.01.

⁵ *Annual Book of ASTM Standards*, Vol 04.07.

⁶ *Annual Book of ASTM Standards*, Vol 14.02.