



Designation: F 2175 – 02

Standard Specification for Portable Escape Ladder for Residential Use¹

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1. Scope

1.1 This specification establishes recognized performance requirements for portable emergency escape ladders for residential use.

1.2 *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 consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.3 This specification replaces provisional standard PS 117.

2. Referenced Documents

2.1 *ASTM Standards:*²

D 648 Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position

2.2 *Underwriters Laboratories Standard:*³

UL 746b Oven Aging Techniques

3. Requirements

3.1 The ladder shall show evidence of good workmanship and meet the following requirements:

3.1.1 *Vertical Static Load*—The ladder components shall not allow evidence of failure (material or joint separation, cracking, or collapse) when tested in accordance with 4.1.

3.1.2 *Horizontal Static Load*—The ladder components shall not show evidence of failure (material or joint separation, cracking, or collapse) when tested in accordance with 4.2.

3.1.3 *Rung Strength*—The rungs shall not show any evidence of failure (material or joint separation, cracking, or collapse) when tested in accordance with 4.3.

3.1.4 *Rung/Side Support Shear*—The rungs and side support shall not show evidence of failure (material or joint separation, cracking, or collapse) when tested in accordance with 4.4.

3.1.5 *Deployment Weight*—Maximum weight of the ladder shall be less than or equal to 20 lb (9.0 kg) for a 20-ft (5.1-m) ladder and not more than 0.75 ft (.34 kg) per foot (30 cm) of additional length.

3.1.6 *Deployment Time*—Deployment of the ladder shall be less than 60 seconds as tested in accordance with 4.5.

3.1.7 *Hook Stability*—The unit shall have hooks or other means of attachment to the window that are stable. With the ladder in place, no hazardous condition shall be created when tested in accordance with 5.1.

3.1.8 *Rung Size*—Rungs shall be 0.97 in. (25 mm) minimum in depth and greater than 10 in. (254 mm) in width. For rungs made from round tubing, the minimum rung depth can be reduced at each end for attachment to side supports.

3.1.9 *Rung Release Mechanism*—For ladders having rung release mechanisms, the pull force to release and deploy the ladder shall be 5 lb (2.3 kg) or less.

3.1.10 *Heat Deflection Temperature*—All materials that soften or melt by heat used in support components of the ladder including the rungs, rung supports, and hooks, shall have a heat deflection temperature, as measured by Test Method **D 648**, of not less than 150°C at 66 psi (455 kPa).

3.1.11 *Standoff*—Standoffs for each rung shall be supplied with each ladder. Minimum distance between center of rung and standoff contact at building shall be not less than 3.1 in. (7.8 cm). If standoffs are shipped unattached, the label shown in Section 5 shall be used on opposite sides of the final package.

3.1.12 *Designed Length*—Designed for a maximum use of 3 stories (unless specified otherwise).

3.1.13 *Rung Spacing*—Rungs shall be spaced at a uniform distance and spaced at intervals of 13 ± 2 in. (325 ± 5 cm).

3.1.14 *Rungs*—Rungs are to be corrugated, serrated, knurled, dimpled, embossed, or coated with slip-resistant material.

3.1.15 *Rated Load*—The rated load shall be indicated for each ladder and shall be rated at 250 lb or more.

3.1.16 *Stress Relief*—Rungs, rung supports, and hooks shall stand conditioning at 70°C for 7 hours without significant deformation or any cracking that would, in any way, adversely affect the functionality of the ladder.

¹ This standard is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.47 on Portable Escape Ladders.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112.