



Standard Consumer Safety Specification for Expansion Gates and Expandable Enclosures¹

This standard is issued under the fixed designation F 1004; 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 incidents of head and neck entrapment in children's expansion gates and expandable enclosures.

The U.S. Consumer Product Safety Commission (CPSC) identified incidents that generally involved a child's head or neck, or both, becoming entrapped in diamond shaped openings and strangulation of children in V-shapes at the top of accordion style expansion gates or expandable enclosures. Additional incidents and injuries were identified that involved children attempting to climb up and over expansion gates and expandable enclosures.

This consumer safety specification is written within the current state-of-the-art of gate and enclosure technology. It is intended that this consumer safety specification will be updated whenever substantive information becomes available which necessitates additional requirements or justifies the revision of existing requirements.

This specification does not address incidents in which gates or enclosures are blatantly misused, although warnings and safety instructions are required to be prominently displayed on and with each gate or enclosure.

1. Scope

1.1 This consumer safety specification establishes minimum safety performance requirements, test methods, and requirements for labeling and instructional material to minimize hazards to young children resulting from the normal use and reasonably foreseeable misuse and abuse of expansion gates and expandable enclosures.

1.2 Products known as expansion gates and expandable enclosures, or by any other name, which are in the scope of this consumer safety specification are intended for young children aged 6 months through 24 months, and are defined in Section 3.

1.3 Expansion gates and expandable enclosures defined in Section 3 are for domestic use and are not to be confused with other types of gates or enclosures that may be specifically designed for commercial, institutional, agricultural, pet use, or any other such use.

1.4 No expansion gate or expandable enclosure as defined in Section 3, that is, 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 the requirements contained herein.

1.5 For expediency, expansion gates and expandable enclo-

tures as defined in Section 3 will heretofore be referred to in this consumer safety specification as "gates" and "enclosures" unless referred to definitively.

1.6 The following pertains only to the test methods portion, Section 7, of this specification. *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.*

1.7 The values as stated in inch-pound units are to be regarded as the standard. The metric values given in parentheses are for information only.

2. Referenced Documents

2.1 ASTM Standards:

D 3359 Test Methods for Measuring Adhesion by Tape Test²

F 406 Consumer Safety Specification for Play Yards³

2.2 Federal Regulations:⁴

16 CFR 1303 Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead Containing Paint

16 CFR 1500 Hazardous Substances Act Regulations, including Parts:

1500.48 Technical requirements for determining a sharp

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² *Annual Book of ASTM Standards*, Vol 06.01.

³ *Annual Book of ASTM Standards*, Vol 15.07.

⁴ *Code of Federal Regulations* is available from the Superintendent of Documents, Government Printing Office, Washington, DC 21402.

point in toys and other articles intended for use by children

under 8 years of age

1500.49 Technical requirements for determining a sharp metal or glass edge in toys and other articles intended for use

by children under 8 years of age

16 CFR 1501 Method for Identifying Toys and Other Articles intended for Use by Children Under 3 Years of Age Which Present Choking, Aspiration, or Ingestion Hazards Because of Small Parts

16 CFR 1508 Requirements for Full-Size Baby Cribs

16 CFR 1509 Requirements for Non-Full-Size Baby Cribs

2.3 *British Standard*:⁵

BS 4125 Specification for Safety Requirements for Child Safety Barriers for Domestic Use

3. Terminology

3.1 *Definitions of Terms Specific to This Standard*:

3.1.1 *completely-bounded opening*—any opening in the main structure of a product that is totally enclosed by boundaries on all sides.

3.1.2 *conspicuous*—a label which is visible, when the gate/expandable enclosure is in a manufacturer's recommended use position, to a person standing near the gate/expandable enclosure at any one position around the gate/expandable enclosure but not necessarily visible from all positions.

3.1.3 *double action locking mechanism*—a locking mechanism that requires two distinct and separate actions in a single lock to activate the release mechanism.

3.1.4 *expandable enclosures*—a self-supporting barrier intended to completely surround an area or play-space within which a young child (see 1.2) may be confined. Enclosures may be marketed for indoor user or outdoor use, or both.

3.1.5 *expansion gate*—a barrier intended to be erected in an opening, such as a doorway, to prevent the passage of young children (see 1.2), but which can be removed by older persons who are able to operate the locking mechanism. Such gates are available in a number of different styles of construction and are manufactured from a variety of different materials.

3.1.6 *manufacturer's recommended use position(s)*—any position to prevent passage of a child which the manufacturer represents as a normal, allowable or acceptable configuration. This specifically excludes positions which the manufacturer shows in a like manner in its literature to be unacceptable, unsafe or not recommended.

3.1.7 *partially-bounded opening*—any opening in the main structure of a product that is not totally enclosed by boundaries on all sides. For example, a V-shape in the top of an accordion slat-style product or a rectangular notch resulting from a gap between a wall surface and the main structure of a baby gate would be considered a partially-bounded opening.

3.1.8 *static load*—a vertically downward load applied by a fixed mass or other means.

4. Calibration and Standardization

4.1 All testing shall be conducted on a concrete floor which may be covered with ⅛ in. (3 mm) thick vinyl floor cover, unless the test instructs differently.

4.2 The gate/expandable enclosure shall be completely assembled, unless otherwise noted, in accordance with the manufacturer's instructions.

4.3 No testing shall be conducted within 48 h of manufacturing.

4.4 The product to be tested shall be preconditioned in a room with an ambient temperature of 73° ± 9°F (23° ± 5°C) for at least 1 h prior to testing. Testing shall then be conducted within this temperature range.

5. Performance Requirements

5.1 The following performance requirements apply to gates and enclosures when they are erected or installed in the manufacturer's recommended use position.

5.1.1 *Completely-Bounded Openings*—Openings shall not permit the passage of test template A (see Fig. 1) when tested in accordance with 7.2.

5.1.2 *Height of Sides*—The vertical distance from the floor to the lowest point of the uppermost surface shall not be less than 22 in. (560 mm) when measured from the floor.

5.1.3 *Vertical Strength*—Top rails, slats, and framing components of the gates or enclosures shall be tested in accordance with 7.1 and shall not fracture, disengage, fold, or have a permanent deflection that reduces the lowest point of the uppermost surface of a gate or enclosure (see 5.2) to a dimension of less than 22 in. (560 mm) when measured vertically from the floor.

5.1.4 *Bottom Spacing*—The vertical distance from the floor to the highest point of the lowermost surface of the unit shall not permit the passage of test template A (see Fig. 1) as tested in accordance with 7.2.

5.1.5 *Configuration of Uppermost Edge*—A partially-bounded opening at any point in the uppermost edge of a product that is greater than 1.5 in. (38 mm) in width and more than 0.64 in. (16.2 mm) in depth shall be subjected to the test procedure in 7.3 (see Fig. 2). During the test, no portions of the boundaries of the opening shall simultaneously contact more than one of surfaces "B," "C," or corners "BC" or "CC" in any combination if they are on opposing sides of the center line of test template B (see Fig. 3).

5.1.6 *Protective Components*—If a child can grasp protective components (such as caps, sleeves, or plugs used for protection from sharp edges, points, or entrapment of fingers or toes), between the thumb and forefinger, or teeth, or if there is at least a 0.040 in. (1.00 mm) gap between the component and its adjacent parent component, such component shall not be removed when tested in accordance with 7.4.

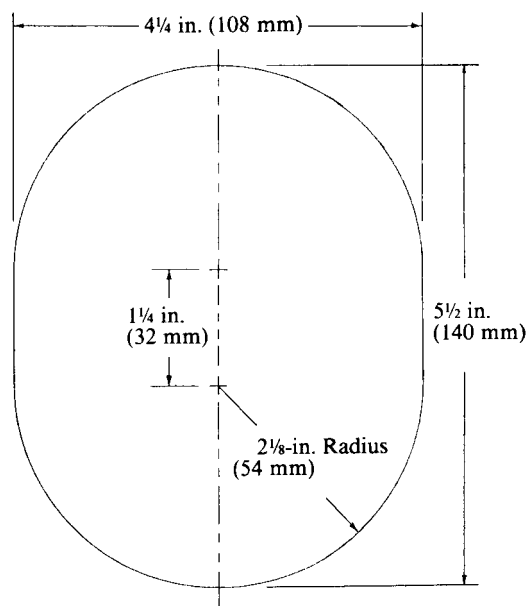
6. General Requirements

6.1 All parts shall be smooth and free of splinters, splits, cracks, or other defects that might lead to structural failure before, during, or after testing.

6.2 Screws shall not be used in the assembly of any components or locking or attaching device (or devices) that are

⁵ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036

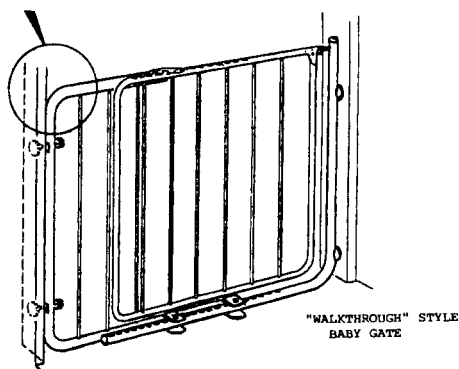
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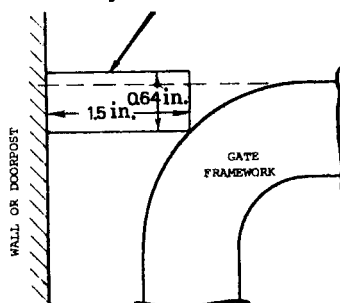
NOTE 1—Test Template A is to be constructed of smooth rigid material not less than $\frac{1}{8}$ in. (3.18 mm) thick.

FIG. 1 Test Template A

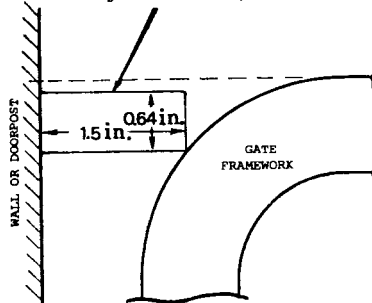
Partially-bounded opening
presents potential risk
of head/neck entrapment



A Template that penetrates to depth
less than 0.64 in. (22-mm) opening
is not subject to test in 7.3



A Template that penetrates to depth
greater than 0.64 in. (22-mm) opening
is subject to test in 7.3



NOTE 1—Use of a rectangular template to determine when a partially-bounded opening must be tested with Test Template B in accordance with 7.3.

FIG. 2 Walk-Through Style Baby Gate and Walls or Doorposts

intended to be removed by the consumer during daily operations.

6.3 There shall be no hazardous sharp edges or points as defined by 16 CFR 1500.48 and 16 CFR 1500.49 before or

after testing to this consumer safety specification.

6.4 There shall be no small parts as defined by 16 CFR 1501 before testing or liberated as a result of testing to this specification.