



Designation: **F1004 – 18** **F1004 – 19**

Standard Consumer Safety Specification for Expansion Gates and Expandable Enclosures¹

This standard is issued under the fixed designation F1004; 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. It also addresses the ability of a pressure gate to resist a push-out force.

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, and pushing or pulling pressure gates out of doorways.

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 displayed prominently on and with each gate or enclosure.

1. Scope

1.1 This consumer safety specification covers 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 six 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 either by label or other means, shall indicate compliance with this specification unless it conforms to all the requirements contained herein.

1.5 For expediency, expansion gates and expandable enclosures 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 values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.7 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

¹ This consumer safety specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.16 on Highchairs, Hook-On Chairs and Expandable Gates.

Current edition approved May 15, 2018; June 1, 2019. Published June 2018; June 2019. Originally approved in 1986. Last previous edition approved in 2016 as F1004 – 16; F1004 – 18. DOI: 10.1520/F1004-18; 10.1520/F1004-19.

1.8 This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

D3359 Test Methods for Rating Adhesion by Tape Test

F406 Consumer Safety Specification for Non-Full-Size Baby Cribs/Play Yards

F963 Consumer Safety Specification for Toy Safety

2.2 British Standard:³

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

2.3 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:

16 CFR 1500.48 Technical Requirements for Determining a Sharp Point in Toys and Other Articles Intended for Use by Children Under Eight Years of Age

16 CFR 1500.49 Technical Requirements for Determining a Sharp Metal or Glass Edge in Toys and Other Articles Intended for Use by Children Under Eight-Years of Age

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

2.4 ANSI Standards:⁵

ANSI Z535.1 American National Standard for Safety Colors

ANSI Z535.4 American National Standard for Product Safety Signs and Labels

ANSI Z535.6 American National Standard: Product Safety Information in Product Manuals, Instructions, and Other Collateral Materials

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *automatic closing system, n*—a feature (or mechanism) the manufacturer claims, markets, or intends to close an egress panel automatically without the intervention of the user.

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

3.1.3 *conspicuous, adj*—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.

3.1.4 *double-action release mechanism, n*—a release mechanism requiring either two consecutive actions, the first of which must be maintained while the second is carried out, or two separate and independent single action release mechanisms that must be activated simultaneously to unlock the gate/enclosure.

3.1.5 *egress panel, n*—panel(s) within a gate or enclosure designed to swing, retract, or fold open to allow passage.

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 British Standards Institute (BSI), 389 Chiswick High Rd., London W4 4AL, U.K., <http://www.bsi-global.com>.

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

⁵ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

3.1.5.1 Discussion—

Pressure mounted gates that require the pressure to be released in order to allow passage, are not considered to contain an egress panel.

3.1.6 *expandable enclosures, n*—self-supporting barrier intended to completely surround an area or play-space within which a young child (see 1.2) may be confined.

3.1.6.1 Discussion—

Enclosures may be marketed for indoor or outdoor use, or both. Expandable enclosures do not include an attached floor.

3.1.7 *expansion gate, n*—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.

3.1.7.1 *Discussion*—

Such gates are available in a number of different styles of construction and are manufactured from a variety of different materials.

3.1.8 *extension panel(s), n*—any panel recommended by the manufacturer for extending the length or height of the product including panels sold with the gate/enclosure and those sold separately.

3.1.9 *hold open mechanism, n*—a feature sometimes included with automatic closing gates where the gate will stay in a fully open position and not automatically close the egress panel.

3.1.10 *manufacturer's recommended use position(s)*—any position that is presented by the manufacturer in any descriptive or instructional literature as a normal, allowable, or acceptable configuration for the use of the product.

3.1.10.1 *Discussion*—

This specifically excludes positions which the manufacturer shows in its literature to be unacceptable, unsafe, or not recommended.

3.1.11 *nonpaper label, n*—any label material, such as plastic or metal, which either will not tear without the aid of tools or tears leaving a sharply-defined edge.

3.1.12 *paper label, n*—any label material, which tears without the aid of tools and leaves a fibrous edge.

3.1.13 *partially-bounded opening, n*—any opening in the main structure of a product that is not enclosed totally by boundaries on all sides.

3.1.13.1 *Discussion*—

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.

3.1.14 *pressure mounted gate, n*—any gate which relies on pressure as the mechanism by which the gate stays in its manufacturer's recommended use position.

3.1.15 *static load, n*—vertically downward force applied by a calibrated force gage or by dead weights.

4. Calibration and Standardization

4.1 All testing shall be conducted on a concrete floor which may be covered with 1/8-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 $73 \pm 9^\circ\text{F}$ ($23 \pm 5^\circ\text{C}$) for at least 1 h prior to testing. Testing then shall be conducted within this temperature range.

4.5 All testing required by this specification shall be conducted on the same unit. The gate/expandable enclosure with and without any and all extension panels installed in any of the manufacturer's recommended use positions must comply with the standard.

5. General Requirements

5.1 *Wood Parts*—Prior to testing, any exposed wood parts shall be smooth and free from splinters. Slats are not permitted to contain any lateral/transverse joints, such as finger-joints, or any other means of joining pieces of lumber end-to-end.

5.2 Screws shall not be used in the assembly of any components or locking or attaching device (or devices) that are intended to be removed by the consumer during daily operations.

5.3 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.

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

5.5 *Openings*—Holes or slots that extend entirely through a wall section of any rigid material less than 0.375 in. (9.53 mm) thick and admit a 0.210-in. (5.33-mm) diameter rod shall also admit a 0.375-in. (9.53-mm) diameter rod. Holes or slots that are between