



Designation: F404 – 21

Standard Consumer Safety Specification for High Chairs¹

This standard is issued under the fixed designation F404; 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 high chair incidents that were identified by the U.S. Consumer Product Safety Commission (CPSC).

CPSC identified injuries to children associated with tray disengagement, falls resulting when children stood up on the seat of a high chair, entrapment between the tray and the seat, and tipover. By far the most common injury resulted from children falling when they were able to stand up on the seat of the high chair because they were not secured by the restraint system. In response to the incident data developed by the Commission, this consumer safety performance specification attempts to minimize the above listed problems.

This consumer safety performance specification does not cover high chairs that are either blatantly misused or are used in a careless manner that disregards the warnings and safety instructions that are provided with each high chair.

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

1. Scope

1.1 This consumer safety specification covers the performance requirements and methods of test to ensure the satisfactory performance of the high chair and high chairs created by using a high chair conversion kit and component(s) from another product.

1.2 This consumer safety specification is intended to minimize injuries to children resulting from normal usage and reasonably foreseeable misuse or abuse of high chairs.

NOTE 1—This consumer safety specification is not intended to address accidents and injuries resulting from the interaction of older children with children in the high chair or the accidents resulting from abuse and misuse by persons over three years of age.

1.3 No high chair or high chair conversion kit 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.

1.4 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.

1.5 The following precautionary caveat 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.*

NOTE 2—This consumer safety specification includes the following sections:

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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.

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1.6 *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
 - F833 Consumer Safety Performance Specification for Carriages and Strollers
 - F963 Consumer Safety Specification for Toy Safety
- ### 2.2 Federal Regulations:³
- 16 CFR Part 1227 Safety Standard for Carriages and Strollers
 - 16 CFR 1303 Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint
 - 16 CFR 1500 Hazardous Substances Act Regulations Including Sections:
 - 16 CFR 1500.48 Technical Requirements for Determining a Sharp Point in Toys or 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 or Other Articles Intended for Use by Children Under Eight Years of Age

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 U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.

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

2.3 ANSI Standards:⁴

- ANSI Z535.1 Safety Colors
- ANSI Z535.4 Product Safety Signs and Labels
- ANSI Z535.6 Product Safety Information in Product Manuals, Instructions, and Other Collateral Materials

2.4 Other References:

- CAMI Infant Dummy Mark II 17.5 lb (7.9 kg)⁵
- CAMI Newborn Dummy 7.5 lb (3.4 kg)⁶

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *accessory*, *n*—component, included with a high chair or sold separately by the manufacturer of the high chair.

3.1.2 *conspicuous*, *adj*—visible, when the high chair is in all manufacturer's recommended use positions and an occupant is sitting in the high chair, to a person standing near the high chair at any one position around the high chair but not necessarily visible from all positions.

3.1.3 *double action release system*, *n*—a mechanism requiring either two consecutive actions, the first of which must be maintained while the second is carried out, or two separate and independent simultaneous actions to fully release.

3.1.4 *fabric*, *n*—any woven, knit, coated, laminated, extruded, or calendared flexible material which is intended to be sewn, welded, heat sealed, or glued together as an assembly.

3.1.5 *flexible passive crotch restraint*, *n*—a passive crotch restraint made of flexible material, such as fabric or webbing.

3.1.6 *front torso support*, *n*—a barrier extending horizontally across the seat of the high chair that is the primary support intended to restrict forward movement of the occupant's torso when the tray is removed and creates a completely or partially bounded opening in front of the occupant.

3.1.7 *high chair*, *n*—a free-standing chair for a child up to 3 years of age which has a seating surface more than 15 in. (38.1 cm) above the floor and elevates the child normally for the purposes of feeding or eating.

3.1.7.1 *Discussion*—A high chair may be sold with or without a tray and may be height adjustable to higher or lower use positions. It may also include a recline position for infants not able to sit up unassisted.

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

⁵ Available from Department of Transportation Memorandum Report AAC-119-74-14, Revision II, Drawing No. SA-1001 by Richard Chandler, July 2, 1974. Federal Aviation Administration, Civil Aeromedical Institute, Protection and Survival Laboratory, Aeromedical Center, Oklahoma City, OK 73125.

⁶ Drawing numbers 126-0000 through 126-0015 (sheets 1 through 3), 126-0017 through 126-0027, a parts list entitled "Parts List for CAMI Newborn Dummy," and a construction manual entitled, "Construction of the Newborn Infant Dummy" (July 1992). Copies of the materials may be inspected at NHTSA's Docket Section 400 Seventh Street, SW, Room 5109, Washington, DC, or at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC.

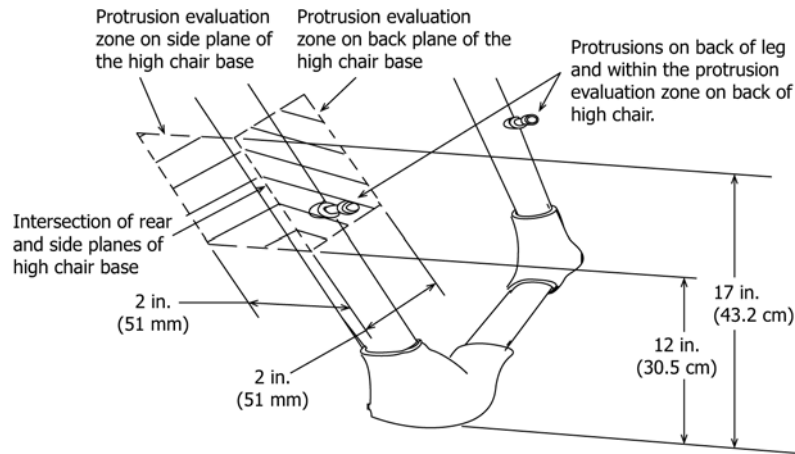


FIG. 1 Protrusion Evaluation Zones

3.1.7.2 *Discussion*—Products, for use in the home, that include a means to elevate the seat more than 15 in. above the floor and promote their use for feeding or eating in any use mode using words or graphics, including showing use of the product near a dining table, are considered a high chair in those use modes. Products, such as youth chairs, which have a restraint system accessory available that convert the product into a high chair for use under 3 years of age are considered a high chair when used in the use mode with the restraint system.

3.1.8 *high chair conversion kit*, *n*—an accessory or component sold by the manufacturer of a product or high chair and used to convert or modify a product so that it can be used as a high chair.

3.1.9 *key structural elements*, *n*—sub-assemblies such as seat assemblies, leg assemblies, base assemblies, or individual components such as footrests, stabilizing bars, front torso supports, passive crotch restraints, or other components designed to support the weight of the occupant, or a combination thereof.

3.1.10 *latch release surface*, *n*—any surface on the tray latch release mechanism that results in the tray releasing from its adjustment position when a force is applied perpendicular to that surface.

3.1.11 *manufacturer's recommended use position*, *n*—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. This specifically excludes positions which the manufacturer shows in a like manner in its literature to be unacceptable, unsafe, or not recommended.

3.1.12 *nonpaper label*, *n*—any label material (such as plastic or metal) that either will not tear without the aid of tools or tears leaving a sharply defined edge or labels made from fabric.

3.1.13 *occupant*, *n*—that individual who is in a product in one of the manufacturer's recommended use positions.

3.1.14 *paper label*, *n*—any label material (except fabric) that tears without the aid of tools and leaves a fibrous edge.

3.1.15 *passive crotch restraint*, *n*—a component that separates the openings for the legs of the occupant into two separate

bounded openings and requires no action on the part of the caregiver to use except to position one leg into each opening created by the component.

3.1.16 *protective component*, *n*—any component used for protection from sharp edges, points, or entrapment of fingers or toes.

3.1.16.1 *Discussion*—Examples of protective components include caps, sleeves, and plugs.

3.1.17 *protrusion*, *n*—a rigid projection that is elevated above the immediately adjacent surface.

3.1.18 *protrusion evaluation zone*, *n*—areas on the exterior planes of the high chair base at the rear corners which are within 2 in. from the corners formed by the intersection of the rear and side planes of the base and are located between 12 in. and 17 in. above the floor. See Fig. 1.

3.1.18.1 *Discussion*—This does not include surfaces inside the exterior plane of the high chair base.

3.1.19 *seam*, *n*—means of joining fabric components such as sewing, welding, heat sealing or gluing.

3.1.20 *seating surface*, *n*—seat support surface for the occupant that exists between the side surfaces, seat back surface, and the INNER SURFACE of the passive crotch restraint.

3.1.20.1 *Discussion*—For seats with open sides, the seat side surfaces are defined by a vertical plane tangent to the inside surface of the high chair armrest.

3.1.21 *static load*, *n*—vertically downward load applied by weights or other means.

3.1.22 *tether*, *n*—a means of attaching a component using flexible plastic, webbing, or cord.

3.1.23 *threaded fastener*, *n*—a discrete piece of hardware that has internal or external screw threads which are used for the assembly of multiple parts and facilitate disassembly.

3.1.24 *top corner*, *n*—an edge on the top side of the upper section of a protrusion created by the intersection of two surfaces that intersect at an angle less than 180°. See Fig. 2.