Designation: F2057 – 23

Standard Safety Specification for Clothing Storage Units[1,2]

This standard is issued under the fixed designation F2057; 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 is intended to address incidents reported by the U.S. Consumer Product Safety Commission (CPSC) relating to clothing storage units. In response to the incident data compiled by the CPSC, this consumer safety specification attempts to minimize the hazards associated with these products. Test methods in this safety specification are intended to simulate the reaction of a clothing storage unit on carpet, loaded drawers, multiple open drawers, and a dynamic force from possible interaction of a child up to 72 months.

This consumer safety specification does not apply to products that are blatantly misused, nor does it apply to products used by consumers in a careless manner that violate normal practice or disregard the instructions or warnings provided with the product, or both.

1. Scope

1.1 This safety specification is intended to reduce injuries and deaths of children from hazards associated with tipover of free-standing clothing storage units, including but not limited to chests, chests of drawers, drawer chests, armoires, chifferobes, bureaus, door chests, and dressers, which are 27 in. (686 mm) or greater in height, 30 lb (13.6 kg) or greater in mass, and contain 3.2 ft^3 (90.6 dm^3) or greater of enclosed storage volume.

1.2 This safety specification does not cover shelving units, such as bookcases or entertainment furniture, office furniture, dining room furniture, jewelry armoires, underbed drawer storage units, occasional/accent furniture not intended for bedroom use, laundry storage/sorting units, or built-in units intended to be permanently attached to the building, nor does it cover "Clothing Storage Chests" as defined in Consumer Safety Specification F2598.

1.3 This safety specification is intended to cover children up to 72 months. See Note 1.

NOTE 1—The majority (approximately 80 %) of deaths relate to children 5 years or younger.

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 safety hazards caveat pertains only to the test procedure portion, Section 9, of this safety 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.*

1.6 *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:*[3]

D3359 Test Methods for Rating Adhesion by Tape Test

F2598 Consumer Safety Specification for Sealed Storage Chests such as Cedar Chests, Hope Chests, Blanket Chests, Keepsake Chests

[1] This safety specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.42 on Furniture Safety.

Current edition approved Feb. 1, 2023. Published February 2023. Originally approved in 2000. Last previous edition approved in 2019 as F2057 – 19. DOI: 10.1520/F2057-23.

[2] This safety specification replaces PS 110 – 98.

[3] 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.

F3096 Performance Specification for Tipover Restraint(s) Used with Clothing Storage Unit(s)

2.2 *Other Standards:*

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

ANSI UL 1678 Standard for Household, Commercial, and Institutional-Use Carts, Stands and Entertainment Centers for Use with Audio and/or Video Equipment[5]

ISO 3864-1 Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings[4]

ISO 3864-2 Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels[4]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *anti-tip device, n*—supplemental device that aids in the prevention of tipover.

3.1.2 *bin, n*—a storage container that rests inside or on a product and is intended to be removed during normal use.

3.1.3 *clothing storage unit, n*—furniture item with drawers and/or hinged doors intended for the storage of clothing typical with bedroom furniture (see 1.1 for size references).

3.1.4 *drawer, n*—a storage compartment meant to slide in and out of a clothing storage unit and intended to stay with the product during normal use.

3.1.5 *enclosed storage volume, n*—the amount of storage inside drawers and behind doors intended for clothing storage; storage with no door or with a clear door (for example, clear glass door) is not included. See 5.4.

3.1.6 *extendible element(s), n*—a movable load-bearing storage component, including, but not limited to, drawers and pullout shelves; does not include bins.

3.1.7 *height adjuster, n*—support devices, similar to levelers, intended by the manufacturer for adjusting the unit's height by more than 1 in. (25 mm) as claimed in their instructions or marketing material with claims such as "height adjustable," with or without a maximum adjustment, this feature cannot be inferred.

3.1.8 *interlock, n*—a feature that controls the simultaneous extension of one or more extendible elements and/or doors.

3.1.8.1 *Discussion*—An interlock may allow only one extendible element to open at a time, or may allow more than one, but fewer than all, to fully open simultaneously.

3.1.9 *leveler, n*—support devices for leveling and/or stabilizing a storage unit which are integral/affixed to the unit, alternatively referred to as adjustable glides, or adjustable supports, not including height adjusters.

3.1.10 *operational sliding length, n*—length measured from the inside face of the drawer back to the inside face of the drawer front with measurements taken at the shortest drawer depth dimension (see Fig. 1).

3.1.11 *outstop, n*—any feature that limits outward motion of drawers or pullout shelves, or both.

3.1.12 *tipover, n*—event at which a furniture unit pivots forward to the point at which the unit continues to fall.

4. Performance Requirements

4.1 With the unit set up in accordance with 8.1, and without the anti-tip device, test the unit in accordance with 9.2.1, 9.2.2, and 9.2.3.

4.2 During the test, the unit shall not tip over or be supported by any component unless that component was specifically designed for that purpose.

4.3 If a failed component prohibits the completion of the test, then the failed component(s) shall be repaired or replaced to the original specifications, or the component replaced and the test repeated with the failed component secured as to not affect the test results but to prevent the component from failing.

4.4 An anti-tip device shall be included with each item of furniture covered under the scope of this safety specification for attachment by the consumer.

4.5 The anti-tip device provided shall meet the requirement of Specification F3096.

4.6 *Interlock Requirements:*

4.6.1 Interlocks shall not require additional consumer action to engage during normal operation of the extendible element, for example, opening and closing the drawer to access the interior volume.

4.6.1.1 Consumer action to reengage the interlock system after disengaging to allow removal of one or more extendible elements is allowed, for example, to install an anti-tip device or retrieve a lost sock.

4.6.1.2 An interlocked extendible element removed for such one-time action shall not require removal of components such as back panels and dust bottom to access the interlocking mechanism during reengagement. Reengagement shall not require tools unless those tools are also required for disengagement.

4.6.1.3 An interlocked extendible element removed for such one-time action shall either:

(1) Not be fully functional when reinstalled until the interlock is reengaged. (For example, it will not fully close or ride on tracks if interlock is not reengaged—which can be an automatic action when reinstalled in case.); or

(2) Include a separate warning or warnings as described in 10.2.3.10.

4.6.2 Interlocks shall not require consumer assembly and/or installation if the unit is shipped assembled, except as allowed in 4.6.1.1.

4.6.3 Consumer assembly and/or installation of interlock components as part of the normal consumer assembly process is allowed for items shipped/sold unassembled.

4.6.4 When tested to 9.1, the extendible element shall be considered interlocked to the open extendible element if either:

[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 Underwriters Laboratories (UL), 2600 N.W. Lake Rd., Camas, WA 98607-8542, http://www.ul.com.

4.6.4.1 It remains closed during the test and is functional after tested extendible element is closed; or

4.6.4.2 Its opening acts to close the extendible element originally open.

5. Measurements

5.1 Measurements shall be taken on the test surface as defined in 8.2.1 to the nearest ⅛ in. (3 mm) after following any assembly and leveling procedures from 8.1.2.

5.1.1 The height shall be measured from the test surface to the top of the unit.

5.2 *Extendible Element Measurement:*

5.2.1 Extendible element width (W_E) and extendible element depth (D_E) are measured at the top face of bottom panel. See Fig. 3(B).

5.2.2 Extendible element height (H_E) is ⅛ in. (3 mm) less than the smallest measurement from the top of bottom panel to the lowest point on the next obstruction above the extendible element at any point of the travel following the opening instructions in 8.1.3. See Fig. 2.

5.2.3 To measure between any non-parallel components, such as a bowed drawer front to a straight drawer back, use the average of the longest and shortest measurement possible in the space. See Fig. 3(A) and Fig. 3(B).

5.3 *Non-Extendible Enclosed Storage Measurement:*

5.3.1 The storage volume height (H_S) is the vertical distance from the bottom of the opening to the top of the opening. See Fig. 2.

5.3.2 The storage volume width (W_S) is the measurement from side to side of the bottom surface of the storage area. See Fig. 2.

5.3.3 The storage volume depth (D_S) is the measurement from the inside back face of the unit to the back face of closed door at the bottom surface of the storage area. See Fig. 2.

5.3.4 For measurements between any non-parallel components, follow 5.2.3.

5.3.5 Any volume behind a door that is an extendible element or contains extendable elements shall be subtracted from the non-extendible enclosed storage volume.

5.4 *Volume Calculations:*

5.4.1 Enclosed storage volume is calculated as the total of all extendible element volume, see 5.4.2, and all non-extendible element enclosed storage volume, see 5.4.3. See Note 2.

NOTE 2—1728 cubic inches ($in.^3$) = 1 cubic foot (ft^3). When width (W), depth (D), and height (H) are measured in inches, divide by 1728 to obtain the volume in cubic feet. Vol (ft^3) = W (in.) × D (in.) × H (in.)/1728.

5.4.2 Extendible element storage volume is calculated as extendible element width (W_E) × extendible element depth (D_E) × extendible element height (H_E) ($W_E \times D_E \times H_E$).

5.4.3 Non-extendible enclosed storage volume, storage volume, other than in extendible elements, that can be expected to be used for clothing storage, is calculated as storage volume width (W_S) × storage volume depth (D_S) × storage volume height (H_S) × 50 % ($W_S \times D_S \times H_S \times 50$ %).

5.4.4 Volumes that do not have doors or have doors intended to allow the contents of the storage volume to be clearly viewed are not included in this, such as areas intended for display. A solid frame around a clear panel shall be considered a clear panel if 50 % of the surface area of the door is clear. Materials such as frosted glass, or privacy glass, or with other features intended to obscure the contents, shall not be considered clear; otherwise clear glass with less than 50 % coverage by non-clear decoration is considered clear.

5.4.5 Any volume with a height (H) less than 3 in. (76 mm) shall be excluded from all volume calculations.

5.4.6 Any continuous volume less than 0.06 ft^3 (1.7 dm^3) shall be excluded from all volume calculations unless the volume is created by a removable feature, for example, a removable jewelry tray, removable shelf, or other obstruction. In the case of a removable feature, remove such feature and re-evaluate.

TEST METHOD

6. Scope

6.1 This test method is designed to test free-standing clothing storage unit stability.

7. Significance and Use

7.1 The test methods in this safety specification are intended to simulate the reaction of a clothing storage unit on carpet, loaded drawers, multiple open drawers, and a dynamic force from possible interaction of a child up to 72 months.

8. Test Setup

8.1 *Unit Setup:*

8.1.1 If the unit is not fully assembled, assemble the unit according to the manufacturer's instructions.

8.1.2 If the clothing storage unit has a levelling device, adjust it as follows:

8.1.2.1 All levelers shall be fully retracted, or installed to create the lowest possible height, and it is permissible to adjust after placing the unit on the test surface to ensure each perimeter leveler is in contact with the test surface. If the doors and/drawers open and close, no further leveling shall be done; if not, then level only to the point where all doors and drawers open and close following the manufacturer's instructions with unimpeded operation.

(1) Goal is minimum adjustment. Adjust on only one side.

8.1.2.2 Any adjustable feet not near the perimeter of the unit, for example, a center foot used to support the load of a partition, in the absence of manufacturer's instructions, shall be adjusted to contact the floor after any other levelers or adjusters have been adjusted.

8.1.2.3 If a manufacturer's instructions or marketing indicate that the unit's height is adjustable by more than 1 in. (25 mm), the feet shall be adjusted to attain the maximum height indicated, or if no maximum height is given (that is, it says "adjustable height" without specifying a height), they shall be adjusted such that ½ in. (13 mm) of the adjustable foot thread remains in the supporting thread; if there is variation between the adjustable feet, the adjustable foot extending the least based on these parameters shall be used as the basis to adjust all others, that is, the highest possible height with no adjustable feet engaged less than ½ in. (13 mm).

8.1.2.4 If the manufacturer's instructions indicate to tighten a foot to the unit, as is common with a round wooden foot, it shall not be considered a leveler or height adjuster.

8.1.3 Open all hinged doors that extend outward to 90°, or the position most likely to cause tipover. Doors that open downward shall be positioned where the center of mass of the door is extended furthest from the front face of the unit (typically 90°) (Fig. 4) and extend all available extendible elements, to the outstop or, in the absence of such feature, to ⅔ (66 %) of their operational sliding length (see 3.1.10 and Fig. 4). Open flaps or drop fronts to their horizontal position or as near horizontal as possible.

8.2 *Test Equipment:*

8.2.1 A hard, flat, level test surface that is level within +0.2/–0.0 degrees in the front-to-back direction of the clothing storage unit (CSU) being tested and ±0.2° in the side-to-side direction of the CSU being tested. Level must be measured on a hard, not-compressible, rigid test surface, not on the unit. See Fig. 5.

8.2.1.1 The one-way tolerance in the front-to-back direction ensures the stability of the unit is not enhanced by the test conditions.

8.2.2 *Construction of Test Weights and Test Apparatus:*

8.2.2.1 The test apparatus, with a total mass not less than 60.0 lb (27.2 kg), is comprised primarily of two 6 in. (152 mm) long and 30 lb (13.6 kg) symmetric test weights joined by a flexible strap(s). The total mass of the apparatus shall not exceed 60.7 lb (27.5 kg), as described below. See Note 3. See Fig. 6.

NOTE 3—A test apparatus that exceeds the weight tolerances described herein may be used to confirm a pass, but may not be used to fail a unit so long as the test weights conform to the dimensional requirements described herein.

8.2.2.2 Each test weight shall:

(1) Not be less than 30.0 lb (13.6 kg).

(2) Not be more than 30.1 lb (13.7 kg).

(3) Be 6.0 in. (152 mm) long +0.0/–0.25 in. (+0/–6 mm).

(4) Be 4.0 in. (102 mm) wide +0.0/–0.25 in. (+0/–6 mm).

8.2.2.3 *Materials of Construction and Assembly:*

(1) The test weights are preferably constructed out of steel. The approximate height of each test weight will be approximately 4.5 in. (114 mm). Both test weights must be constructed using the same methods and materials.

(2) Heights may vary with materials of construction; however, each test weight shall be within 0.25 in. (6 mm) of the other in any dimension.

8.2.2.4 So long as the two test weights are symmetrical in shape, multiple methods may be used to construct them:

(1) Each test weight may be formed of a single, solid piece or cast from another uniform material; or

(2) Each test weight may be assembled from multiple layers of the same material (for example, 9 plates of steel 6.0 in. × 4.0 in. × 0.5 in. (152 mm × 102 mm × 13 mm)). The multiple pieces shall be attached to one another via any of the following methods, or equivalent: welding, epoxy, or mechanical fasteners; each test weight shall perform as a single, uniform rigid piece of material.

(3) It is permissible to add to or subtract material from each of test weight to bring into tolerance (8.3.1) so long as it is done symmetrically about the length and width of each test weight.

(4) If fasteners are used (for example, bolts, screws) in the construction of the test weights or to affix the strap, the mass of each test weight includes the fasteners so that each test weight when measured with all fasteners installed meets the 30 lb (13.6 kg) criterion in 8.2.2.2. The fasteners may not extend beyond the edges of the weights in the 4.0 in. (102 mm) width or 6.0 in. (152 mm) length directions, and preferably do not extend below the bottom surface of the weights. See Fig. 6.

8.2.2.5 The strap shall be fastened to each test weight so that the 6.0 in. (152 mm) side is perpendicular to the strap adjoining the weights.

(1) The strap may not exceed 0.50 lb (0.23 kg). This includes adjustable hardware separate and apart from that used to affix the strap to the test weights.

(2) The strap shall be wide enough to keep each weight level as the apparatus is applied during the tests, approximately 3 in. (76 mm). Two straps of identical length may also be used in place of a single strap. The strap may have any length appropriate for the test unit.

(3) The location where the strap attaches to each test weight shall be symmetric about the longitudinal centerline of each test weight. The attachment point on each test weight shall be symmetric within 0.25 in. (6 mm) as measured from the centerline of the test apparatus. See Fig. 6.

(4) It is permissible to etch or add a certification sticker to the test apparatus.

8.2.3 *Test Block*—Must be of a rigid material such as steel, aluminum, or other non-compressible material. Block dimensions: 0.43 in. +0.02/–0.0 in. thick (10.9 mm +0.5/–0.0 mm) × 1 in. +0.06/–0.0 in. (25 mm +1.5/–0.0 mm) depth. See Fig. 7.

8.3 *Load Calculations and Distribution:*

8.3.1 When applicable, extendible elements shall be loaded with 8.5 lb/ft^3 (0.136 kg/dm^3) based on the volume of each extendible element calculated in 5.4. Tolerance on total mass is +0.1/–0.0 lb (+0.05/–0.0 kg).

8.3.2 When applicable, non-extendible storage surfaces shall be loaded with 8.5 lb/ft^3 (0.136 kg/dm^3) based on the volume of each surface calculated in 5.4. Tolerance on total weight is +0.1/–0.0 lb (+0.05/–0.0 kg).

8.3.3 The load shall be applied at the center of the extendible element's bottom surface and non-extendible storage surface if applicable using steel weights, a bag or multiple bags of shot, or similar means to create a uniform concentrated load equivalent to the drawer fully loaded with clothing. See Fig. 8(A) and Fig. 8(B). It is permissible to secure weight with tape or using a non-sliding coating on the weight.

9. Test Procedure

9.1 *Test to Evaluate Interlock System:*

9.1.1 For units with interlocking system(s), determine if any extendible elements connected to respective interlock system(s) can be simultaneously opened using the following method:

9.1.2 Position the unit according to 8.1.1 and 8.1.2 on the test surface described in 8.2.1.

9.1.3 Secure the unit to prevent sliding or tipover (only for this subsection).

9.1.4 Open any doors prohibiting access to the interlocked extendible element.

9.1.5 Open an extendible element or the number of elements necessary to engage the interlock.

9.1.6 Gradually apply, over a period of at least 5 s, a 30-lbf (133 N) horizontal pull force on each interlocked extendible element at the center of the pull area(s), one element at a time, and hold the force for at least 10 s. (See Fig. 9.)

9.1.7 Repeat this test until all possible combinations of extendible elements connected to the interlock have been tested.

9.1.8 Remove any device used to prevent sliding or tipping above.

9.2 *Stability Test Methods:*

9.2.1 *Simulated Clothing Load:*

9.2.1.1 Position the empty unit on test surface described in 8.2.1. For units with levelers, adjust the unit per 8.1.2.

9.2.1.2 If 50 % or more of the storage volume is extended, determine the weight for loading the extendable elements and/or space behind the doors based on the volume calculated in 5.4. Load per 8.3.3. See Fig. 8(B). If less than 50 % of the storage volume is extended, the unit shall remain empty.

9.2.1.3 Open all doors and extend all available extendible elements in accordance with 8.1.3. Elements shall remain open for 30 s.

9.2.2 *Simulated Horizontal Dynamic Force:*

9.2.2.1 *Force Application on Extendible Element*—Where the extendible element has been determined to have the highest hand-hold height, not to exceed 56 in. (1422 mm). See Note 4.

NOTE 4—56 in. is the 95th percentile reach of a of a 5-year-old child, averaged between male and female.[6]

(1) Position the empty unit on test surface described in 8.2.1. For units with levelers, adjust the unit per 8.1.2.

(2) Open all doors and extend all available extendible elements in accordance with 8.1.3.

(3) Apply a 10 lbf (44 N) horizontal force, parallel to the direction of outward motion, at the highest hand-hold, not to exceed 56 in. (1422 mm) on the extendible element most likely to cause tipover. The force shall be applied within ¼ in. (6 mm) of the top edge of a drawer (See Fig. 10(A)) or to the center of the pull area of the extendible element, whichever is higher but less than 56 in. (1422 mm) over a period of at least 5 s and held for 10 s. (See Fig. 10(B)).

9.2.2.2 *Force Application on Door with Handle/pull*—Where the door handle/pull has been determined to be the highest reach point not to exceed 56 in. (1422 mm).

(1) Reference 9.2.2.1(1) and (2).

(2) Apply a 10 lbf (44 N) horizontal force, parallel to the direction of initial outward motion, at a height not exceeding 56 in. (1422 mm) to the handle or pull. The force shall be applied over a period of at least 5 s and held for 10 s. The door shall be in a position most likely to cause the unit to tip over. If the door handle or pull exceeds the max reach height, follow 9.2.2.1(3).

9.2.2.3 If the door pull/handle height and the extendible element height are the same, it is permissible to test either component.

9.2.3 *Simulating a Reaction on Carpet with Child Weight:*

9.2.3.1 Position the empty unit on test surface described in 8.2.1. For units with levelers, adjust the unit per 8.1.2.

9.2.3.2 Place the test block(s) under the unit's most rear floor support(s), such as a leg, foot, or upright.

9.2.3.3 Test block(s) shall be positioned so the back edge of the test block(s) are flush with the back edge of the rear floor supports. (See Fig. 11.) If the rear floor support is a glide tack, leveler, or foot smaller than 1 in., center the block under it.

9.2.3.4 Open all doors and extend all available extendible elements in accordance with 8.1.3.

9.2.3.5 Gradually, over a period of at least 5 s, apply the test apparatus without impact over the top of the door or extendible element most likely to cause tipover. (See Fig. 12 (A) to Fig. 12 (F) and Fig. 13.) Allow the test apparatus to rest without additional support for 30 s. If it is not apparent which door, extendible element, or for clothing storage units with interlock(s), the combination of open and closed extendible elements is most likely to cause tipover, perform multiple tests. (See Fig. 12 (D), Fig. 12 (E), and Fig. 12 (F).)

9.2.3.6 If the extendible element most likely to cause tipover is not the uppermost extendible element, any extendible element obstructing the test weight from being positioned properly shall be closed and reopened to the extent possible. For odd-shaped drawer, apply the test apparatus to the front edge that protrudes the farthest (see Fig. 14). For doors, apply the test apparatus to each door, one at a time, so that the outer edge of the test weight is flush with the outermost upper corner of the door (see Fig. 12 (B)).

9.3 *Permanency of Labels and Warnings Testing:*

9.3.1 A paper label shall be considered permanent if, during an attempt to remove it without the aid of tools or solvents, it cannot be removed, it tears into pieces upon removal, or such action damages the surface to which it is attached.

9.3.2 A non-paper label shall be considered permanent if, during an attempt to remove it without the aid of tools or solvents, it cannot be removed or such action damages the surface to which it is attached.

9.3.3 *Adhesion Test for Warnings Applied Directly onto the Surface of the Product:*

9.3.3.1 Apply the tape test defined in Test Method B – Cross-Cut Tape Test of Test Methods D3359 eliminating parallel cuts.

9.3.3.2 Perform this test once in each different location where warnings are applied.

9.3.3.3 The warning statements shall be considered permanent if the printing in the area tested is still legible and attached after being subjected to this test.

[6] Pheasant, S., *Bodyspace Anthropometry, Ergonomics & Design*, Taylor& Francis, London, 1986, p. 92, Table 4.10.

10. Marking and Labeling

10.1 *Warnings on Product:*

10.1.1 Each clothing storage unit shall be permanently marked in at least one place with the warnings from this section. The warnings shall be in a conspicuous location when in use. The warnings shall be applied on one surface, not wrapped or folded around or over corners.

10.1.1.1 The warnings shall be considered conspicuous when in use when at least one of the following conditions is met:

(1) The warnings are inside a drawer box on a drawer side with the top of the signal word panel 0.5 in. (12.7 mm) or less from the top of the drawer side and the border or edge of the label 3 in. (76 mm) or less from the back of the drawer front; they are not required to be visible on all drawers. It is permissible for the warnings to be on either drawer side. See Fig. 15. Or,

(2) The warnings are visible anywhere on the open door or on the cabinet side adjacent to the door no more than 1 in. (25 mm) from the doors closed position or the structure of the unit, whichever is farther from the front, when any hinged door, not each door, is open; they are not required to be visible behind all doors. See Fig. 15 (B). Or,

(3) The warnings are visible on the cabinet side adjacent to the door no more than 1 in. from the door's closed position when any sliding door, not each door, is fully open, or the structure of the unit near the door, whichever is farther from the front. If doors have different distances from the front, this dimension shall apply to the farthest back door; they are not required to be visible behind all doors. See Fig. 15. Or,

(4) The warnings from 10.2.3.1 and 10.2.3.3 and the symbol from Fig. 20 shall meet Condition 1 and contain language directing the user to the bottom of the same drawer and the full warning shall be on the inside face of the drawer bottom.

10.1.1.2 For units shipped requiring consumer assembly, it is permissible for the warnings to be on parts that can be installed in other locations; the location shall be considered acceptable if it would meet these location requirements in any possible location even if it does not meet them in all locations. For example, if a drawer side can be installed as the left or right side but the conditions in 10.1.1.1(1) are met, only when installed on the right it is acceptable.

10.2 *Warnings Format and Content:*

10.2.1 The warnings shall be formatted in a manner consistent with ANSI Z535.4. See Fig. 16, Fig. 17, and Fig. 18 for examples.

10.2.2 The signal word panel shall include the Safety Alert Symbol "⚠" and state "WARNING".

10.2.2.1 "WARNING" shall be in all caps, bold face type not less than 0.15 in. (3.8 mm) capital letter height in a sans serif font. The letter color shall be safety black on a safety orange or safety white background, or safety white on a safety black background.

10.2.2.2 The Safety Alert Symbol is composed of an equilateral triangle surrounding an exclamation mark. It shall be presented in one of five color formats when used with the WARNING signal word:

(1) A safety black triangle with a safety orange exclamation mark, or;

(2) A safety yellow triangle with a safety black border and safety black exclamation mark—to allow consistency with certain ISO standards, or;

(3) A safety yellow triangle with a safety black exclamation mark and a yellow border around a safety black band—to allow consistency with certain ISO standards, or;

(4) A safety black triangle with a safety white exclamation mark—for black and white only formats, or;

(5) A safety white triangle with a safety black exclamation mark—for black and white only formats.

NOTE 5—Options 2 and 3 are given with reference to ISO 3864-1 and ISO 3864-2.

10.2.3 In the following sections, the plain type is descriptive information; bold type is used for the required warning statements. The warning statements, unless otherwise noted, shall be included as stated. All text shall be a sans serif font, not less than 0.1 in. (2.5 mm) capital letter height. The text shall be safety black letters on a safety white background or the letters shall contrast the background.

10.2.3.1 The warning message panel shall begin with the following statement in bold face type. **Children have died from furniture tipover. To reduce the risk of furniture tipover:**

10.2.3.2 The warning message panel shall include the following statements, preceded by a bullet point, in the order given.

10.2.3.3 **ALWAYS install anti-tip device provided.**

10.2.3.4 Television use shall be addressed in the warnings by following either 10.2.3.4(*1*) or 10.2.3.4(*2*).

(1) For clothing storage units that are not designed and intended by the manufacturer to be used with a TV shall state: **NEVER put a TV on this product.**

(2) For clothing storage units that are designed and intended by the manufacturer to be used with a TV, the warning shall address TV use. This may be done within the other warnings as shown in the examples or separately to comply with other standards. In either case, all warnings must be conspicuous as defined in 10.1.1.1. See Appendix X1 for reference.

10.2.3.5 **NEVER allow children to stand, climb, or hang on any drawers, doors, or shelves.** It is permissible to exclude any feature not included on the unit.

10.2.3.6 **NEVER open more than one drawer at a time.** It is permissible to exclude any feature not included on the unit.

10.2.3.7 When the unit includes interlocking drawers: **DO NOT defeat or remove the drawer interlock system; it is an important stability and safety system.** Units that do not include interlocking drawers shall not use this statement. It is permissible to remove "drawer," add the appropriate parts and features to this statement, or to address any specific use characteristics of the interlock system.

10.2.3.8 **Place heaviest items in the lowest drawers.** It is permissible to change drawers to a term/location better matching the unit.

10.2.3.9 The following statement is required below all other text, in italic letters: **This is a permanent label. Do not**

remove! Alternatively, the following shall be used when markings other than a label are used and may be used with any marking type: **This warning is permanent. Do not remove!** The statement may not be larger type than any other wording on the warning.

10.2.3.10 For units with interlock systems described in 4.6.1.3(2), a warning addressing: **DO NOT remove the interlock system except for maintenance as shown. NEVER use the unit without the interlock installed following the instructions.** shall be added to each drawer in a location near the interlock hardware; instructions shall be shown or a location with instructions shall be referenced. See Fig. 19.

10.2.4 Each safety symbol panel shall measure at least 1.25 in. by 1.25 in. (31.8 mm by 31.8 mm); each safety symbol shall measure at least 1 in. by 1 in. (25.4 mm by 25.4 mm). Each symbol shall be safety black with either a safety black or safety red prohibition symbol or the symbol shall contrast with the background. The safety symbol panel for each symbol shall be bounded on all sides with a safety black line or the line shall contrast with the background.

10.2.4.1 The child climbing prohibition symbol shown in Fig. 20 shall be used on all warning labels.

10.2.4.2 The TV prohibition symbol shown in Fig. 21 shall be used on units that include the warning in 10.2.3.4(*1*).

10.2.5 The contents of the warnings shall not be modified except as specifically indicated above and/or to include languages other than English.

10.2.6 The warnings shall be permanent when tested in accordance with 9.3.1, 9.3.2, or 9.3.3 as appropriate.

11. Precision and Bias

11.1 No information is presented because the test result is non-quantitative.

12. Keywords

12.1 chests; children; consumer safety specifications; door chests; drawers; dressers; free-standing clothing storage unit; furniture; outstop; tipover

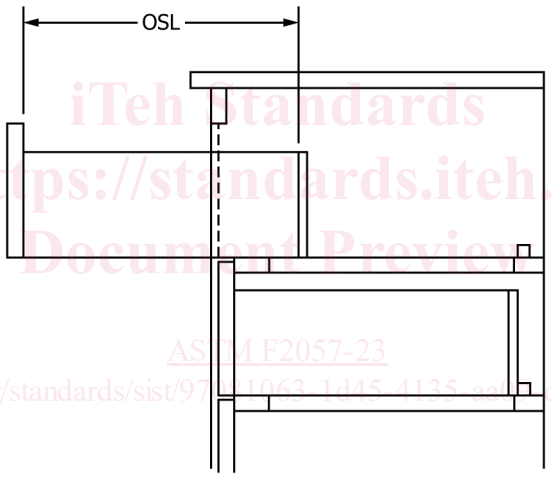
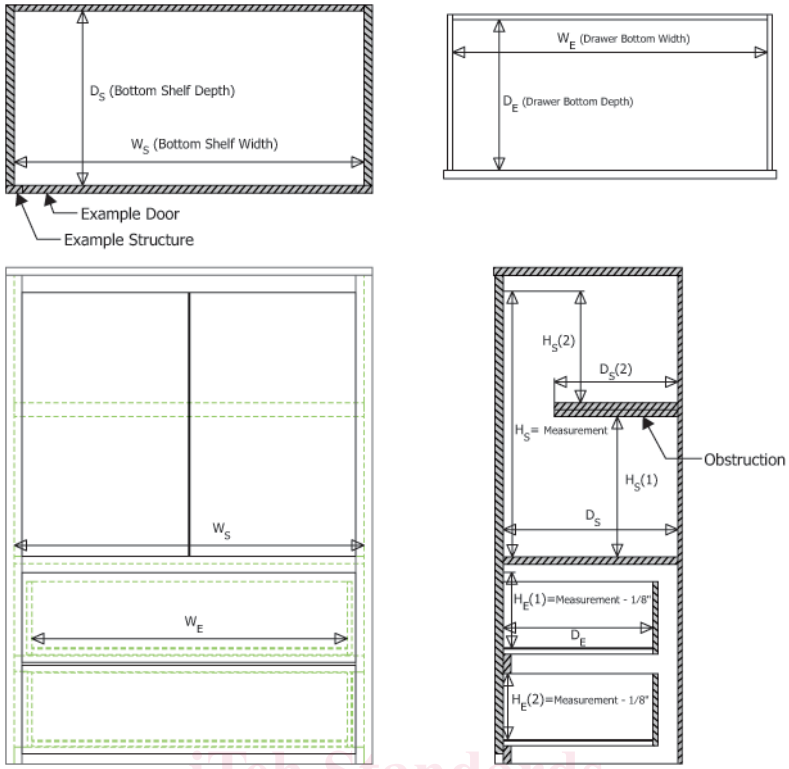
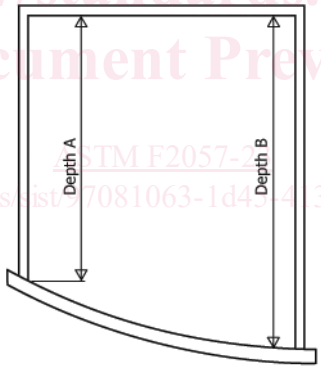


FIG. 1 Operational Sliding Length (OSL)



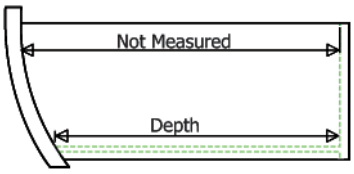
If the obstruction is permanent, treat the area as multiple volumes; if it is removable, the entire space is considered one volume.

FIG. 2 Measurement Reference



The depth is the average of Depth A and Depth B.

FIG. 3 (A) An Example Drawer with Non-parallel Faces



Extendible element length and depth are measured at the bottom surface. Similarly, non-extendible storage length and depth are measured at the bottom surface.

FIG. 3 (B) An Example Drawer with Non-parallel Faces *(continued)*

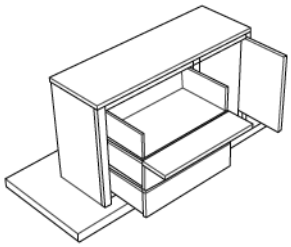


FIG. 4 Open Drawer, Door, and Drop-down Drawer Front

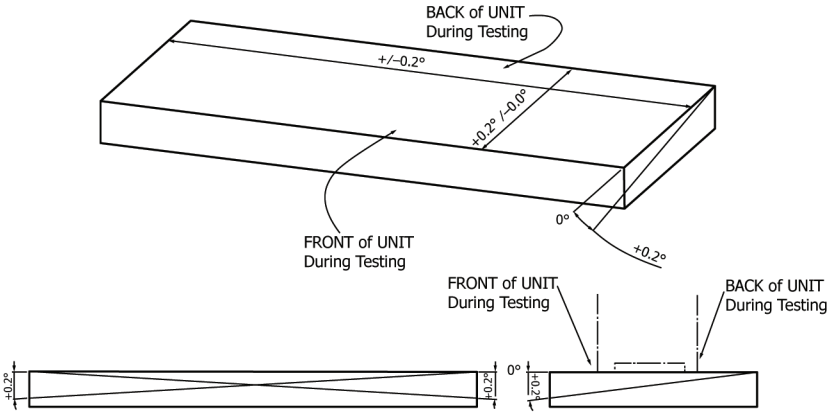
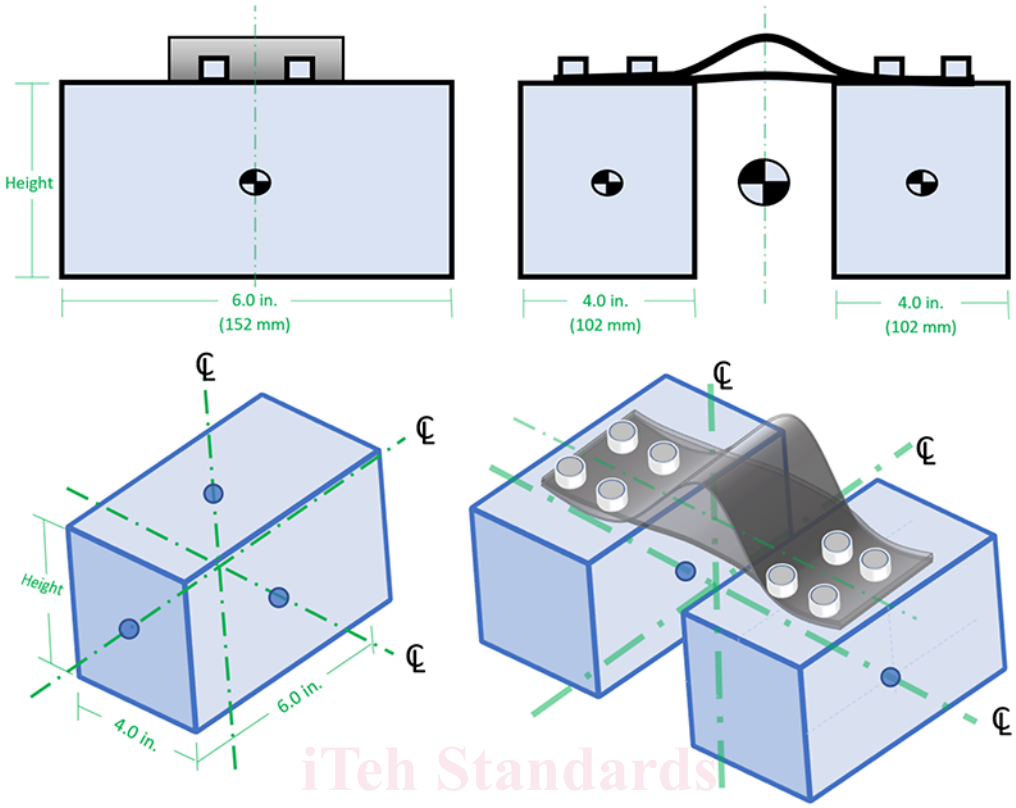


FIG. 5 Hard, Flat, Level Test Surface



Each test weight shall be uniform, symmetric, and rigid whether it is formed from a single piece of material or several smaller pieces. Any addition or subtraction of weight shall be done symmetrically about the length and width of the test weight. Straps are to be symmetrically affixed to the top surface of the test weights.

The test apparatus shall by symmetric about its length, width, and height. In this sample graphic, fasteners are depicted as a suitable method of affixing the strap to the test weights. In this example, it would be permissible to add washers to the fasteners to tune each of the test weights.

Construction materials (30 lb each):

Steel height = 4.5 in. (114 mm)

Lead height = 3.0 in. (76 mm)

FIG. 6 Test Weights and Test Apparatus

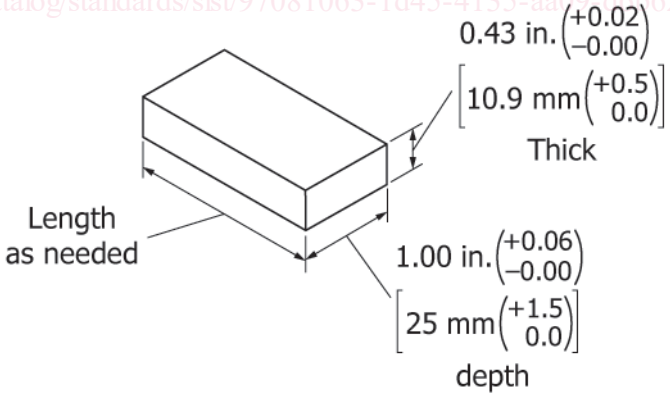
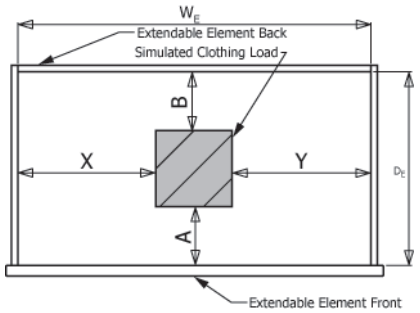


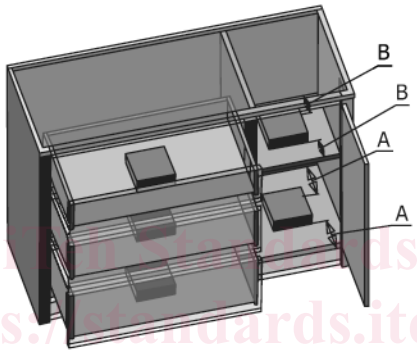
FIG. 7 Test Block



Extendible Element Loading
-Front/Back position is critical
0≤ (A-B)≤0.125in(3mm)

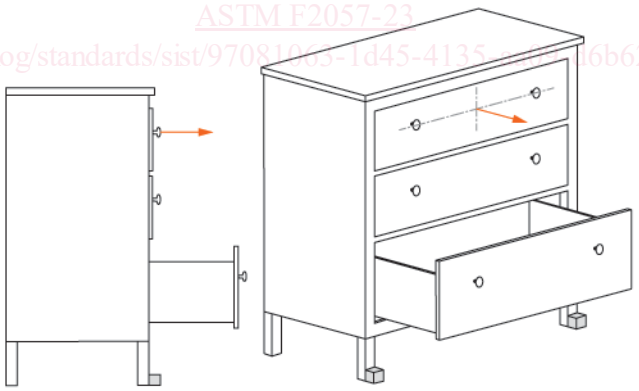
-Side/Side equivalence should be maintained as much as practical
X≈Y

FIG. 8 Load on Extendible Element (A)



Non-Extendible Closed Storage is loaded only on parts that are permanent.

FIG. 8 Load on Extendible Element (B) *(continued)*



NOTE 1— The tests can be applied by any suitable device unless stated otherwise, because results are dependent only upon correctly applied forces and not on the device.

FIG. 9 Test to Evaluate Interlock System