



**UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MD 20814**

This document has been electronically approved and signed.

BALLOT VOTE SHEET

DATE: May 16, 2012

TO: The Commission
Todd A. Stevenson, Secretary

THROUGH: Kenneth R. Hinson, Executive Director
Cheryl A. Falvey, General Counsel

FROM: Mary A. House, General Attorney, RAD

SUBJECT: Staff update on ASTM F 1427, *Standard Consumer Safety Specification for Bunk Beds*, pertaining to Petition CP 10-2 & HP 10-1, Petition for Change to the Bunk Bed Standard

BALLOT VOTE Due: May 22, 2012

On April 6, 2011, CPSC staff forwarded a briefing package to the Commission regarding a petition to initiate rulemaking to revise the current regulations for bunk beds, referred to collectively as the “Bunk Bed Standard,” to incorporate requirements for head and neck entrapment testing in spaces created by side structures, such as ladders, that are provided with the bunk bed (Petition CP 10-2 under provisions of the Consumer Product Safety Act (CPSA) and as Petition HP 10-1 under provisions of the Federal Hazardous Substances Act (FHSA)). On April 12, 2011, the Commission voted unanimously to defer its decision on the petition for six months and directed staff to work with the ASTM F15.30 Subcommittee on Bunk Beds (Bunk Bed Subcommittee) to develop requirements that would address head and neck entrapments in side structures. Staff provided an update on its work with the Bunk Bed Subcommittee on November 2, 2011. On November 8, 2011, the Commission again voted unanimously to defer the petition for an additional six months. Attached is staff’s latest update on the progress of the Bunk Bed Subcommittee. CPSC staff again recommends that the Commission defer its decision on the petition for an additional six months, directing staff to continue its participation with the Bunk Bed Subcommittee to develop requirements in the ASTM F 1427 voluntary standard that would address head and neck entrapments in side structures.

Please indicate your vote on the following options :

I. Grant the petition

(Signature)

(Date)

(a) Direct staff to draft an advance notice of proposed rulemaking.

(Signature)

(Date)

(b) Direct staff to draft a notice of proposed rulemaking.

(Signature)

(Date)

II. Defer the petition for an additional six months, and at the end of the 6-month period, direct staff to update the Commission on the progress of standards developments in ASTM F1427 for head and neck entrapments in spaces created by side structures, such as ladders, that are provided with the bunk bed.

(Signature)

(Date)

III. Deny the petition.

(Signature)

(Date)

IV. Take other action (please specify).

(Signature)

(Date)

Attachment: Staff update on ASTM F1427, *Standard Consumer Safety Specification for Bunk Beds*, and recommendation regarding Petition CP 10-2 & HP 10-1, Petition for Change to the Bunk Bed Standard



UNITED STATES
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DATE: May 16, 2012

MEMORANDUM

TO: The Commission
Todd A. Stevenson, Secretary

THROUGH: Cheryl A. Falvey, General Counsel
Kenneth R. Hinson, Executive Director
Robert J. Howell, Deputy Executive Director for Safety Operations

FROM: DeWane Ray, Assistant Executive Director,
Office of Hazard Identification and Reduction

Timothy P. Smith, Project Manager,
Division of Human Factors, Directorate for Engineering Sciences

SUBJECT: Staff update on ASTM F1427, *Standard Consumer Safety Specification for Bunk Beds*, and recommendation regarding Petition CP 10-2 & HP 10-1, Petition for Change to the Bunk Bed Standard

This memorandum updates the Commission on the progress of the ASTM International¹ (ASTM) F15.30 Subcommittee on Bunk Beds (the "Bunk Bed Subcommittee") in addressing the concern raised by Petition CP 10-2 & HP 10-1, Petition for Change to the Bunk Bed Standard, through revisions to the voluntary standard for bunk beds, ASTM F1427, *Standard Consumer Safety Specification for Bunk Beds*.

BACKGROUND

Petition and Staff Briefing Package

In correspondence dated April 16, 2010, Carol Pollack-Nelson, Ph.D., of Independent Safety Consulting (the "petitioner"), requested that the Commission initiate rulemaking to revise the current U.S. Consumer Product Safety Commission (CPSC) regulations for bunk beds (referred to collectively as the "Bunk Bed Standard") to incorporate requirements for head and neck entrapment testing in spaces created by side structures, such as ladders, provided with the bunk bed. On June 24, 2010, the CPSC's Office of the General Counsel docketed the request for rulemaking as Petition CP 10-2 under provisions of the Consumer Product Safety Act (CPSA) and as Petition HP 10-1 under provisions of the Federal Hazardous Substances Act (FHSA).

The Bunk Bed Standard requires that bunk beds be tested for entrapment hazards in the upper-bunk guardrails, between the guardrails and the upper-bunk mattress foundation, and in the end

¹ ASTM International was known formerly as the American Society for Testing and Materials.

structures of the bunk bed, using a wedge block that simulates the torso of a small 2-year-old child. During testing, the wedge block must not pass freely through any opening in the upper-bunk end structure or in any space between the uppermost member of the upper-bunk guardrail and the underside of the upper bunk's foundation. The wedge block may pass freely through an opening in the lower-bunk end structure, but only if that opening also permits passage of a 9-inch diameter rigid sphere, which simulates the head of a 5-year-old child.

The ASTM voluntary standard on bunk beds, ASTM F1427, *Standard Consumer Safety Specification for Bunk Beds*, contains additional requirements for the design and performance of bunk beds and has incorporated the performance requirements specified in the Bunk Bed Standard for head entrapments in guardrails and end structures. However, like the Bunk Bed Standard, the voluntary standard does not include performance requirements intended to address entrapments in side structures other than upper-bunk guardrails. This standard was developed by the ASTM Bunk Bed Subcommittee.

On April 6, 2011, CPSC staff forwarded a briefing package to the Commission for consideration. As described in that package, staff identified eight incidents during a 17-year period that appeared to be within the scope of the petition, in that they involved head or neck entrapment in a bunk bed side structure that currently is not required to be tested for entrapment by the Bunk Bed Standard. These eight incidents resulted in four fatalities and one minor injury. Staff's review of the incidents concluded that two fatalities, the one minor injury, and two of the incidents without injury, most likely would have been prevented had the provisions proposed in the petition been in the Bunk Bed Standard. The remaining three incidents involved children younger than 2 years old, which is the lower end of the age range for which the entrapment probes in the Bunk Bed Standard are designed. However, because the current entrapment probes are designed based on the anthropometric dimensions of the smallest 2-year-olds, staff believes that some of the incidents involving these younger children also might have been prevented if entrapment provisions for side structures had been in the Standard.

At the conclusion of the briefing package, staff recommended that the Commission defer its decision on the petition for 6 months and direct staff to work with the Bunk Bed Subcommittee to develop requirements that would address head and neck entrapments in side structures. Staff stated that if the Commission voted to defer its decision, staff would provide the Commission with an update on the progress of the voluntary standard in 6 months, at which time the Commission could decide to continue to defer its decision on the petition and proceed with the voluntary standards process, or pursue other Commission action. On April 12, 2011, the Commission voted unanimously (5–0) to defer its decision on the petition for 6 months and directed staff to work with the Bunk Bed Subcommittee to develop requirements that would address head and neck entrapments in side structures.

Bunk Bed Subcommittee Activities after Initial Deferral

On May 25, 2011, CPSC staff participated in a meeting of the Bunk Bed Subcommittee that focused on possible revisions to ASTM F1427 that would address the hazard identified in the petition. During the meeting, the Bunk Bed Subcommittee developed the following proposed entrapment provisions for appropriate sections of the voluntary standard:

- Testing for entrapment using the wedge probe and 9-inch sphere now will be applied to the entire boundary of the bunk bed, between the lower-bunk foundation and the upper-bunk foundation, rather than to the end structures only.
- Testing for entrapment using the wedge probe and 9-inch sphere will be applied between all ladder structures, including ladder steps or rungs.
- Testing for entrapment using the wedge probe and 9-inch sphere will be applied between ladder steps, or rungs, and the upper-bunk boundary.
- For ladders attached to the side of a lower bunk, there must be no gaps between the portion of the manufacturer's recommended mattress height above the side rail and the interior vertical stiles² between 1.88 inches and 9 inches. In other words, these gaps must be greater than 9 inches or less than 1.88 inches. The 1.88-inch measurement is based on child anthropometric data and the compressibility of the neck, and it is the relevant dimension used in the Bunk Bed Standard's neck entrapment probe. The 9-inch measurement is based on the 9-inch sphere that is used in the Bunk Bed Standard and elsewhere in the voluntary standard for entrapment testing.

The Bunk Bed Subcommittee's proposed entrapment provisions for ladders and other side structures appeared to meet or exceed the requirements that the petitioner asked to be incorporated into the Bunk Bed Standard. Thus, the proposed revisions to ASTM F1427 most likely would address the same fatalities and injuries that would have been addressable through the requested rulemaking. At the conclusion of the Bunk Bed Subcommittee meeting, the Subcommittee voted to ballot the proposed revisions to ASTM F1427. On October 21, 2011, ASTM issued a ballot that included the proposed revisions. The ballot was scheduled to close on November 21, 2011.

CPSC Staff Update Memo

On November 2, 2011, before the ballot that included the proposed revisions to ASTM F1427 closed, CPSC staff forwarded to the Commission a memorandum that provided an update on the progress of the Bunk Bed Subcommittee in addressing the concern raised by the petition through revisions to ASTM F1427. Staff concluded that the Bunk Bed Subcommittee appeared to be making significant progress, and therefore, recommended that the Commission defer its decision on the petition for an additional 6 months and direct staff to continue participating with the Bunk Bed Subcommittee to develop requirements in the voluntary standard that would address head and neck entrapments in side structures. Staff stated in the memorandum that if the Commission voted to defer its decision, staff would provide the Commission with a final recommendation on the petition or an update on the progress of the voluntary standard at the end of the 6-month period, at which time the Commission again could determine the appropriate Commission action.

On November 8, 2011, the Commission voted unanimously (4–0) to defer its decision on the petition for an additional 6 months and directed staff to work with the Bunk Bed Subcommittee

² The vertical stiles are the vertical, or upright, components of the ladder.

to develop requirements that would address head and neck entrapments in side structures. The Commission also directed staff to update the Commission on the progress of standards developments in ASTM F1427 at the end of the 6-month period.

UPDATE ON BUNK BED SUBCOMMITTEE ACTIVITIES

On November 21, 2011, the ballot that included the Subcommittee's proposed revisions to ASTM F1427 closed. On January 18, 2012, CPSC staff participated in a virtual meeting (Web conference) of the Bunk Bed Subcommittee to discuss the negatives and other comments received on the ballot. The Subcommittee deemed two issues to be persuasive and to require additional revisions to the voluntary standard:

- Section 4.3.1, which specified mattress size and fit for the lower bunk, was accidentally deleted in its entirety in the ballot. The Subcommittee agreed to restore this section, but the requirement that gaps between the edge of the mattress and the interior of any side component shall be not greater than 3.0 inches will be corrected to state that they shall not be greater than 1.88 inches and less than 9 inches, to be consistent with the revised test requirements in 5.3.3.
- The acceptable gap size (see bullet above) applies to the space between the edge of the mattress and any side component, but section 5.3 of the ballot describes gap sizes in terms of the distance between the mattress and the interior vertical stile of a ladder only. The Subcommittee agreed to revise section 5.3, and associated subsections, to encompass all side components.

At the conclusion of the meeting, the Subcommittee voted to ballot these additional revisions. ASTM issued a ballot that included these revisions on March 9, 2012, with a closing date of April 8, 2012. On April 17, 2012, CPSC staff participated in a meeting of the Bunk Bed Subcommittee to discuss the negatives and other comments received on the ballot. Besides identifying several required editorial changes,³ the Subcommittee identified the following two issues among the negatives and other comments to be persuasive and require additional revisions to one section of the voluntary standard:

- Section 4.4, which specified mattress size and fit for the lower bunk, refers to an "attached component(s)" but does not state explicitly whether the requirement only applies to a component that is attached to the lower bunk (the Subcommittee's intent) or a component that is near the lower bunk but is attached elsewhere (*e.g.*, a ladder attached to the top bunk only).
- Section 4.4 includes corner posts among those components that must meet the spacing requirements for the lower bunk. However, corner posts are not components attached to

³ These changes mostly consisted of correcting errors in the numbering of various sections and references to those sections but included other changes, whose correction also would not require issuing a new ballot. For example, CPSC staff pointed out that the phrase "greater than 1.88 in. (48 mm), or less than 9 in. (230 mm)" in the revision to section 4.4 should read "greater than 1.88 in. (48 mm) *and* less than 9 in. (230 mm)" (emphasis added). The Subcommittee agreed that this will be corrected.

the side of the bunk bed, which was the intended scope of the petition that prompted the latest revisions to the voluntary standard (Petition CP 10-2 & HP 10-1, Petition for Change to the Bunk Bed Standard). In addition, because most mattresses do not have perfectly square corners, the Subcommittee believes that virtually no bunk beds on the market would pass such a requirement if it were applied to corner posts. Furthermore, neither the Subcommittee nor CPSC staff is aware of any incidents of entrapment at corner posts.

The Subcommittee agreed to reballot section 4.4 of the voluntary standard to address the issues discussed above. All of the negatives received on the ballot were withdrawn—because they were addressed by the proposed rebalancing of section 4.4, or because they will be taken up as new business during a future Subcommittee meeting—or they were deemed “nonpersuasive” by the Subcommittee. CPSC staff asked the Subcommittee chair for an approximate timeframe for when the voluntary standard might be rebalanced, but he was unable to provide an estimate. The Subcommittee chair did assure staff, however, that the Subcommittee will be working diligently to prepare the ballot for ASTM’s consideration.

STAFF RECOMMENDATION

The Bunk Bed Subcommittee continues to make significant progress on revising the ASTM F1427 voluntary standard for bunk beds to address the concerns raised by Petition CP 10-2 & HP 10-1, Petition for Change to the Bunk Bed Standard. The next regular meeting of the Bunk Bed Subcommittee most likely would be in October 2012, or about 6 months from the date of this memorandum. Staff believes that the issuance of a new ballot and a virtual meeting of the Bunk Bed Subcommittee to discuss its results most likely would occur before then; but we cannot estimate with confidence when, within this 6-month timeframe, the new ballot will be issued. Based on staff’s most recent experience with the Bunk Bed Subcommittee, staff anticipates that the issuance and closing of a new ballot and a meeting of the Bunk Bed Subcommittee to discuss the results of that ballot is unlikely to take place sooner than 3 months from the date of this memorandum, at which point additional revisions may be needed to address negatives or other persuasive comments.

The Bunk Bed Subcommittee’s proposed entrapment provisions for ladders and other side structures continue to meet or exceed the requirements that the petitioner asked to be incorporated into the Bunk Bed Standard; and none of the negatives received by the Subcommittee, to date, have opposed their inclusion in the voluntary standard. Thus, CPSC staff recommends that the Commission defer its decision on the petition for an additional 6 months and direct staff to continue participating with the Bunk Bed Subcommittee to develop requirements in the ASTM F1427 voluntary standard that would address head and neck entrapments in side structures. If the Commission votes to defer its decision for 6 months, then at the end of the 6-month period, staff will provide the Commission with a final recommendation on the petition or an update on the progress of the voluntary standard. At that time, the Commission again could determine the appropriate Commission action.