U.S. CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MD 20814

Todd A. Stevenson
Secretary

Tel: 301-504-6836
Fax: 301-504-0127
Email: cpsc-os@cpsc.gov

Date: April 26, 2017

Jamie Schaefer-Wilson
The Safety Institute
340 Anawan Street
Rehoboth, MA 02769

Carol Pollack-Nelson, Ph.D.
Independent Safety Consulting
13713 Valley Drive
Rockville, Maryland 20850

Andrew Cash & David Krugler
Cash Krugler & Fredericks, LLC
5447 Roswell Road
Atlanta, GA 30342

Dear Sirs and Mesdames:

On November 13, 2014, you filed a petition requesting that the U.S. Consumer Product Safety Commission (CPSC) initiate rulemaking to issue a safety standard for residential elevators to address an entrapment hazard caused by an excess gap between the elevator car door and hoistway door.

On January 7, 2015, the Office of the General Counsel docketed the request for rulemaking as Petition CP 15-1 under the CPSA.[1] The Commission published a request for public comment in the *Federal Register* on January 22, 2015 (80 Fed. Reg. 3226). The comment period ended on March 23, 2015. The Commission received one timely comment and two submissions after the comment period ended, which were addressed in

[1] You also requested a recall to retrofit existing residential elevators. However, the Commission's regulations provide that petitions are for the issuance, amendment, or revocation of rules. 16 C.F.R. § 1051.1(a). Rulemaking is prospective. Substantial product hazards requiring remedial action regarding particular elevators currently in place may be appropriate under section 15 of the CPSA and are reviewed by the Office of Compliance. Accordingly, only the request for rulemaking on residential elevators was docketed as a petition. 80 Fed. Reg. 3226 (January 22, 2015).

the staff briefing package on the petition.[2] For the reasons set forth below, the Commission has denied your petition.[3]

Incident Data and Hazard Scenario

CPSC staff reviewed the incident information you submitted on 16 incidents that occurred between 1958 and 2013. Staff's review found that nine of these incidents occurred in a nonresidential location, and four incidents did not match the hazard scenario described in the petition. Of the three remaining incidents that could have involved the entrapment-hazard scenario, there were insufficient details in two of the incidents to establish whether they occurred in a residential elevator.

CPSC staff also reviewed the incident data from the Consumer Product Safety Risk Management System (CPSRMS). Staff identified eight incident reports, occurring between January 1, 1981 and November 10, 2016, and describing victims ranging in age from 3 to 16 years, that might involve entrapments between the elevator car and hoistway doors.[4] Of the eight incidents, there was insufficient detail to determine whether an entrapment between fully closed car and hoistway doors was the cause of the five involving fatal injuries. In the three reported nonfatal incidents, staff believes that entrapments occurred in the space between fully closed hoistway and accordion-style car doors. Staff's review of the National Electronic Injury Surveillance System (NEISS) records retrieved for residential elevator entrapment incidents from January 1, 1981 to December 31, 2015 showed that there were 131 cases involving residential elevator door entrapments. However, there was not enough information to determine how the incidents occurred or whether they were caused by the hazard scenario identified in the petition.

Staff assessed the hazard scenario presented in the petition. When you submitted your request in November 2014, the applicable voluntary standard for residential elevators was the American Society of Mechanical Engineers (ASME) A17.1-2013, *Safety Code for Elevators and Escalators.* The 2013 version of ASME A17.1 allowed a 5-inch clearance between the residential elevator car door and the hoistway door. Staff's review of the 2013 version indicated that a 5-inch clearance between car door and hoistway door could contribute to an entrapment hazard to children. According to staff, head size is the primary factor determining whether a young child can fit entirely within the space between the closed car and hoistway doors. If the child's head is larger than the available space, the exterior door will be unable to close completely, thereby preventing the entrapment-hazard scenario.

---

[2] *See* https://www.cpsc.gov/s3fs-public/Petition%20CP%2015-1%20Requesting%20Rulemaking%20on%20Residential%20Elevators%20-%20March%2015%202017.pdf

[3] The Commission voted 4-1 to deny the petition. Acting Chairman Buerkle, Commissioner Kaye, Commissioner Robinson, and Commissioner Mohorovic voted to deny the petition. Commissioner Adler voted to defer the petition.

[4] The staff reviewed incidents after 1981 because the ASME A17.1 space requirement between the residential elevator car door and hoistway door was changed from 4 inches to 5 inches in 1981. Staff also attempted to retrieve incidents before 1981, but no residential elevator incidents could be identified in the CPSC database.

Current ASME Standard

In January 2015, ASME revised ASME A17.1-2013. ASME A17.1-2016 was published on November 30, 2016. The standard becomes effective on May 30, 2017. ASME A17.1-2016 added section 5.3.1.8.3, which specifies the clearance between residential elevator hoistway doors and car doors to prevent an entrapment hazard. The new section specifies that clearance cannot exceed 4 inches for five different car and hoistway door combinations. ASME A17.1-2016 also added section 5.3.1.8.2 (d), which specifies the strength and deflection of doors, gates, and their guides, guide shoes, tracks, and hangers. This section addresses the hazard of an entrapment space created between the hoistway door and elevator car door due to one or both doors deflecting and creating a hazardous gap.

Staff's review of the 2016 version of the ASME standard indicates that the revised 4-inch requirement addresses the potential entrapment hazard from the 5-inch clearance between the hoistway and car door. Allowing a space between the car and hoistway doors of no more than 4 inches would prevent all but the smallest of the youngest infants (*e.g.*, small newborns) from fitting completely within the closed space, and this group of infants is highly unlikely to be involved in the hazard scenario. In addition, the requirement specifying the strength and deflection of the car and hoistway doors prevents doors from deforming and creating a hazardous gap.

Staff's review also considered whether substantial compliance with ASME A17.1-2016 is likely. To determine whether there would be substantial compliance with the new standard, staff reviewed the elevator building codes of all 50 states. Almost all of the states reference ASME A17.1 in the state elevator building code requirements. However, many states do not reference the latest version of the standard in their building codes. Staff expects that most elevators installed after ASME A17.1-2016 becomes effective in May 2017 will meet the new requirements. Staff also expects that information regarding the revisions in the 2016 version of the ASME standard will be disseminated to the industry by associations including the National Association of Elevator Contractors (NAEC), Accessibility Equipment Manufacturer's Association (AEMA), and National Association of Elevator Safety Authorities (NAESA), all of which provide education, training, and certification programs for residential elevator installation and inspection. CPSC staff expects to work with ASME to alert the state regulatory bodies of the latest version of the voluntary standard, which will help increase compliance with the voluntary standard.

Based on staff's review, the Commission believes that the new ASME standard will be effective in addressing the potential for entrapment hazards in residential elevators that may occur as a result of an excess gap between the car door and hoistway door. Because state building codes reference the ASME A17.1 standard, the Commission also finds that there is good reason to believe that industry will comply with these requirements once the 2016 version is referenced in state building codes. The

Commission believes that staff's ongoing activities with the ASME A17.1 Committee may help increase compliance with the voluntary standard.

Conclusion

Based on staff's review of the relevant incident data and the current ASME standard, the Commission is denying your petition. On behalf of the Commission, I would like to thank you for bringing this important safety issue to the agency's attention. We greatly appreciate your interest and support.

Sincerely,

Todd A. Stevenson