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Mr. Emil H. Frankel, Chair
Members of the U.S. Architectural
and Transportation Barriers Compliance Board
1331 F Street NW Suite 1000
Washington, DC 20004-1111

Dear Mr. Frankel:

Re: Design Guidelines for the Public Right-of-Way
Recommendations for Segmental Paving Surfaces

At the January 13, 2004 Access Board meeting, Dr. Rory A. Cooper, Director of the University of Pittsburgh Human Engineering Research Laboratory presented his 2002 and 2003 studies on the interaction of segmental pavements (pavers) and wheelchairs. His research was an effort by the segmental paving industry to contribute to the Access Board's development of draft design guidelines for sidewalk paver surfaces for the public right-of-way (PROW).

Dr. Cooper's studies identified chamfer widths on the pavers as influencing vibration in wheelchairs. In August 2004, tests were conducted by Dr. Cooper on three additional three concrete paver surfaces, as well on the existing six sidewalk surfaces tested in 2002 and 2003. Vibration results on the existing six sidewalk surfaces generally decreased from 2003. The additional three surfaces consisted of concrete pavers with 4 mm wide chamfers and two surfaces with 6 mm chamfer widths.

The pavers with 4 and 6 mm chamfer widths were tested in 90 degree herringbone laying patterns with the third surface of 6 mm chamfer widths placed in a 45 degree laying pattern. This enabled testing for differences in vibration exposure between these two common paving patterns. The August 2004 study replicated the test methods and range of participants from the 2002 and 2003 studies. The research was funded by ICPI and the three new surfaces were constructed adjacent to the existing six outside Dr. Cooper's laboratory.

A copy of the 2004 study is enclosed for your review. Dr. Cooper recommends that pavers with chamfer widths less than or equal to 6 mm must be used in sidewalks subject to wheelchairs. This conclusion is based on exposure limits of vibration to the human body established in ISO 2631, *Evaluation of Human Exposure to Whole-Body Vibration* and reasonable estimates of the maximum hours wheelchair users travel without stopping.

Given three years of studies, we would respectfully propose that the conclusions of Dr. Cooper's 2004 report be included in the next draft version of the PROW design guidelines and/or in Access Board advisory literature that discusses sidewalk surfaces and minimizing wheelchair vibrations. His conclusions are as follows:

A bevel [chamfer] of less than or equal to 6 mm must be used for routes used by individuals using wheelchairs. Furthermore, a 90 degree herringbone pattern is preferred over the 45 degree pattern, while the 90 degree herring bone pattern is required for the 6 mm beveled [chamfered] pavers to maintain safe levels of vibration exposure. ICPI best practices for installation and maintenance are recommended.

The segmental paving industry recognizes that maintenance of all types of sidewalk surfaces is critical to safe and barrier-free passage of disabled persons, and especially for those using wheeled mobility devices. We would like to encourage sidewalk designers and owners to reference ICPI construction and maintenance best practices found in our technical literature at www.icpi.org.

We appreciate your consideration of the recommendations by Dr. Cooper. We would be pleased to know how these proposed recommendations might fit in the next draft of the PROW design guidelines and/or advisory literature. We look forward to your reply.

Sincerely,

Charles A. McGrath
Executive Director

Enclosures

cc: Lois Thibault
Dr. Cooper