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TTI Plays Key Role in Creating New Safety Standard to Prevent Storefront Crashes

December 9, 2014

With 500 people reportedly killed each year by vehicles crashing into retail stores, sidewalk cafes, hair salons and other businesses, low speed barrier crashes have been called “one of the largest unaddressed safety issues in the country.” ([Video \(https://www.youtube.com/watch?v=vmGsAz1qYol\) here.](https://www.youtube.com/watch?v=vmGsAz1qYol))



(<http://ttitamuedu.wpengine.com/wp-content/uploads/2014/12/storefront2.jpg>)

Photos courtesy of Rob Reiter.

Until now, there has been no objective way to evaluate the effectiveness of the vertical pipes, decorative planters and other devices that many businesses hope will be strong enough to minimize damages and injuries should a vehicle hit one of their locations.

That changed last month, when [ASTM International \(http://www.astm.org/\)](http://www.astm.org/) approved a test standard designed to help save hundreds of lives and millions of dollars in property damage each year. Developed in part by researchers at the Texas A&M Transportation Institute (TTI), the standard –

known as Test Method for Low Speed Barriers for Errant Vehicles (F3016-2014) – sets parameters for bollards, barriers and other devices most often seen protecting storefronts and high-traffic pedestrian areas.

“When contractors and businesses put these barriers in place, it’s for the purpose of protecting people and property,” noted TTI Assistant Agency Director Dean Alberson, manager of the Institute’s Crashworthy Structures Program. “However, there has been no way for anyone to know how much protection they actually provide. That’s why it was necessary to have a standard in place. And hopefully we will start seeing widespread use of these safety devices that we know will work properly.”

Alberson served on the ASTM International subcommittee that approved the standard.

“We can’t talk about the new standard without talking about one individual: Rob Reiter. He was the driving force behind this standard,” Alberson says.

Reiter calls himself a storefront safety consultant. He spends up to 20 hours a week investigating the issue of vehicle-into-building crashes and how they could be prevented. He got involved in the safety effort in 2003 when 10 people were killed and dozens others were injured after an elderly man drove through pedestrians at the Santa Monica Farmers Market.

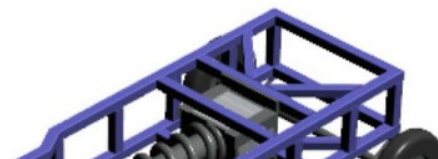
“I was only a few miles away when this crash happened, and it had a profound impact on me,” Reiter, an expert and consultant in perimeter security, explains. “The city did not have barriers in place to protect the crowd of pedestrians.”

Through his research with the [Storefront Safety Council \(http://storefrontsafety.org/\)](http://storefrontsafety.org/) he co-founded, Reiter discovered just how serious a problem these low-speed crashes really are.

- More than 60 vehicle-into-building crashes occur each day.
- More than 10 serious injuries occur each day (or over 3650 injuries per year),.
- More than 1 fatal incident occurs each day (over 485 fatalities per year).
- Elderly drivers account for nearly half of all storefront crashes.
- Most often, storefront crashes involve pedal-, or other driver, error.

“I was shocked to find out how common and how deadly these crashes are,” Reiter says.

“Now that we have an ASTM International low-speed bollard test standard, we hope that

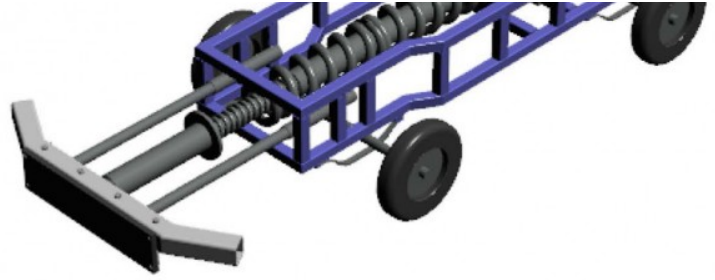


tested safety barriers or bollards will soon become part of national building codes and will become required safety equipment in certain applications.”

Reiter gives full credit to the TTI researchers who were on the subcommittee that helped develop the standard. Those same researchers are now preparing for a surge in testing requests by manufacturers of various types of these devices.

“In addition to bollards, those low-speed barriers could be anything that prevents a vehicle from moving more than one-foot past the barrier. If they do that, they will meet the standard,” TTI Assistant Research Engineer Michael Brackin says. “The barriers could even be a concrete trash can, or perhaps a planter box. I’m sure we will be testing all kinds of devices designed to protect people and store fronts.”


TTI is currently building a re-usable testing vehicle, called a bogey, which will be used in low-speed barrier tests. The institute conducted a low-speed barrier test in order to gather data to build the bogey. (See video below.) Instead of using a new vehicle for each crash test, the bogey will have a crushable front bumper that can be replaced easily and inexpensively.





(<http://ttitamuedu.wpengine.com/wp-content/uploads/2014/12/Low-Speed-Bogey.jpg>)
3-D concept of a re-usable testing vehicle, called a bogey, which will be used in low-speed barrier tests.


Texas A&M Transportation Institute’s low-speed barrier testing procedure

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