

## Crash or Non-Crash Rated - How Do You Want Your Barriers?

Architects, engineers, security designers, and end users need to understand the terminology associated with selecting appropriate barriers to protect their vital assets. In spring of 2009, ASTM became the standard bearer of the perimeter security industry, by issuing ATSM F2656-07 which replaced the Department of State SD-STD-02.01, Vehicle Crash Testing of Perimeter Barriers and Gates, Revision A, March 2003.

**Crash-Rated Barrier:** A barrier system that has been crash tested and certified by a participating independent crash test facility. Crash tests are setup to ASTM specifications or the Department of State (DOS) specification. Barrier system must be installed as tested, i.e. identical foundation, bollard spacing and number, beam lengths, etc., to be considered crash-rated. **Manufacturer will have a certification letter from an independent testing organization, stating the barrier has passed the ASTM/DOS requirements for a certain vehicle type, speed, and penetration level. Manufacturer will also have a dimensional drawing of the “as-tested” barrier system.**



**Engineer-Rated:** A barrier system that has been designed and analyzed, but not crashed or certified to ASTM or DOS specifications. Often engineer-rated barriers are interpolated from empirical data received from the results of crash-rated systems. Computer simulation can also be used to evaluate such systems. Engineer-rated systems may differ on the following aspects: foundation dimensions, bollard spacing, barrier heights, and barrier widths. Manufacturer should have Professional Engineer stamped drawings showing the changes have met certain requirements or they may self-certify the designs as meeting the requirements.

**Non-Crash Rated:** A barrier system that does not require the higher security ratings and can be effective for traffic delineation and traffic control applications.

Standard	ASTM	DOS	DOD	DOS
	F2656-07	SD-STD-02.01, Rev A, March 2003	SD-STD-02.01, Rev A, March 2003 With penetration allowance	SD-STD-02.01, April 1985
Vehicle Speed	(M) Medium-duty truck (15,000 lbs) M30 (30 mph) M40 (40 mph) M50 (50 mph)  (C) Small passenger car (2,430 lbs) C40 (40 mph), C50 (50 mph), C60 (60 mph)  (PU) Pickup truck (5,070 lbs) PU40 (40 mph), PU50 (50 mph), PU60 (60 mph)  (H) Heavy goods vehicle (65,000 lbs) H30 (30 mph), H40 (40 mph), H50 (50 mph)	Medium-duty truck (15 000 lbs) K12 = 50 mph K8 = 40 mph K4 = 30 mph	Medium-duty truck (15 000 lbs) K12 = 50 mph K8 = 40 mph K4 = 30 mph	Medium-duty truck (15 000 lbs) K12 = 50 mph K8 = 40 mph K4 = 30 mph
Penetration	P1 < 1 m (3.3 ft) P2 1.01 to 7 m (3.31 to 23.0 ft) P3 7.01 to 30 m (23.1 to 98.4 ft) P4 30 m (98 ft) or greater			
Notes	Penetration indicates the test vehicle's maximum dynamic distance of penetration after impact with the barrier. Typically, the dynamic distance is barrier face to the front of the cargo bed. The barrier penetration rating does not imply that a barrier will perform as rated in all site conditions, approach routes, and topography. Also, only single-specimen tests at a specified impact location are required by this test method, and therefore, not all points of impact can be tested and validated for the penetration rating. Other impact locations may respond differently.			

For additional information on this specification, please visit [www.astm.org/Standards/F2656.htm](http://www.astm.org/Standards/F2656.htm)



**CONCENTRIC SECURITY UNIVERSITY**

Concentric Security University  
 7560 Main Street, Sykesville, MD 21784  
 P 410.552.9950 F 410.552.9939  
 Website: [www.ConcentricU.com](http://www.ConcentricU.com)  
 Email: [info@ConcentricU.com](mailto:info@ConcentricU.com)