



Iowa Department of Transportation

DEVELOPMENTAL SPECIFICATIONS FOR CRASH CUSHIONS

Effective Date
November 21, 2006

THE STANDARD SPECIFICATIONS, SERIES 2001, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE DEVELOPMENTAL SPECIFICATIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

Add as Section 2509 of the Standard Specifications:

2509.01 GENERAL.

This work shall consist of furnishing and installing crash cushions.

Crash cushions shall be accepted as a crashworthy device by the FHWA and shall meet the requirements of NCHRP Report 350, Test Level 3 criteria. Approved products are listed in Table 2509. All products listed in Table 2509 are acceptable for use as temporary crash cushions. When a crash cushion is designated as permanent, redirective, or severe-use by the contract documents, only those devices specifically designated for those uses in Table 2509 shall be installed.

In case of a discrepancy between these Specifications and the manufacturer's recommendations, these Specifications shall govern.

2509.02 MATERIALS.

Crash cushion materials shall meet the manufacturer's requirements. All crash cushions shall be in good repair when installed. For permanent crash cushions and spare parts kits, equipment and materials shall be of new stock unless the contract documents provide for the relocation or the use of fixtures furnished by others.

Spare parts kits shall include all parts listed in Table 2509. Spare parts kits shall be supplied by the crash cushion manufacturer and shall contain materials designated for repairing the specific brand and model of crash cushion furnished.

A. Approval Procedures.

Applications for approval shall be sent to the Methods Engineer in the Iowa DOT's Office of Design (515.239.1402). All product manuals, specifications, and brochures along with correspondence indicating compliance with the specifications for crash cushions shall be submitted. Samples of materials may also be requested. The Methods Engineer will evaluate the application and determine whether the product is to be approved.

B. Product Acceptance.

Acceptance of crash cushions will be on the basis of approved sources and brand names. If the

brand name is not clearly evident on the product, a certification shall be furnished from the manufacturer.

2509.03 CONSTRUCTION.

Crash cushions shall be installed according to the manufacturer's recommendations. Prior to installation, the Contractor shall provide the Engineer with:

1. Three copies of the manufacturer's most current product manuals covering installation and maintenance of the unit.
2. Required certification statements.
3. Additional hardware, tools, or documentation supplied by the manufacturer.

The manufacturer may require the use of additional connection hardware, construction of a backup structure, or construction of a paved footing for a specific installation. When required, these items shall be constructed and attached to the obstacle, the crash cushion, or both, in a manner specified by the manufacturer. These items will not be measured separately for payment.

Grading work, if required, shall be completed prior to installation of crash cushions.

When a roadway is closed to public traffic for construction, all crash cushions shall be installed prior to opening the road to traffic.

Attachments to new concrete or to anchor bolts set in epoxy resin shall not be stressed until the new concrete or epoxy resin has attained an age of 3 calendar days. This time requirement may be lengthened by the Engineer during cool weather.

When damaged, the Contractor shall repair or replace the crash cushion. Initiation of service to a damaged crash cushion shall be within one hour of notification. The object that is being shielded shall not be exposed to traffic for more than 12 hours.

A. Temporary Crash Cushions.

When a temporary crash cushion is no longer required, the crash cushion shall be removed and become the property of the Contractor. The Contractor shall remove any anchor bolts and fill the bolt holes with one of the non-shrink grouts listed in Materials I.M. 491.13, Appendix B.

When a crash cushion is required after the final stage of a project, the crash cushion will remain in place and become the property of the Contracting Authority.

B. Permanent Crash Cushions.

Permanent crash cushions will become the property of the Contracting Authority.

2509.04 METHOD OF MEASUREMENT

The Engineer will count the number of temporary or permanent crash cushions installed and the number of spare parts kits delivered to the local maintenance office.

2509.05 BASIS OF PAYMENT

A. Temporary Crash Cushions.

For each crash cushion installed, the Contractor will be paid the contract unit price. For repairing or replacing crash cushions damaged by public traffic, the Contractor will be paid as extra work in accordance with Article 1109.03, B, of the Standard Specifications.

B. Permanent Crash Cushions.

For each crash cushion installed, the Contractor will be paid the contract unit price.

C. Crash Cushion Spare Parts Kit

For each spare parts kit delivered, the Contractor will be paid the contract unit price.

TABLE 2509: CRASH CUSHIONS

Manufacturer	Product	Permanent	Redirective	Severe Use	Designed for Obstacle Widths	Spare Parts Kit Contents
Barrier Systems 180 River Road Rio Vista, CA 94571 888.800.3691 www.barriersystemsinc.com	ABSORB 350				Concrete Barrier	N/A
	Universal TAU-II Family	✓	✓		Up to 102" (2.59 m)	For 24" (0.60 m) and 30" (0.76 m) widths: 1 - Item # K001060 For widths 36" (0.91 m) and wider: 1 - Item # K001061
Energy Absorption Systems 35 East Wacker Drive Chicago, IL 60601 888.323.6374 www.energyabsorption.com	Energite III System				Unlimited	N/A
	Quadguard	✓	✓		Up to 120" (3.04 m)	4 - Type I cartridges, 3 - Type II cartridges, 1 - nose cover assembly
	Quadguard CZ		✓		Up to 36" (0.91 m)	N/A
	Quadguard Elite	✓	✓	✓	Up to 90" (2.28 m)	1 - nose cover assembly
	Quadguard LMC	✓	✓	✓	Up to 90" (2.28 m)	
	Quadguard HS	✓	✓		Up to 36" (0.91 m)	2 - Type I cartridges, 5 - Type II cartridges, 1 - nose cover assembly
	REACT 350	✓	✓	✓	Up to 36" (0.91 m)	1 - nose cover assembly, 1 - reflector kit assembly
	REACT 350 Wide	✓	✓	✓	Up to 120" (3.04 m)	
	REACT 350 Workzone		✓	✓	Up to 36" (0.91 m)	N/A
	TRITON CET				Concrete Barrier	N/A
	Universal Barrels				Unlimited	N/A
Traffix Devices 220 Calle Pintoresco San Clemente, CA 92672 949.361.5663 www.traffixdevices.com	Big Sandy System				Unlimited	N/A
Trinity Highway Safety Products 2525 Stemmons Freeway Dallas, TX 75207 800.527.6050 www.highway-safety.com	TRACC Family	✓	✓		Unlimited	1 - Plastic Nosepiece, 4 - Reflective Tape, 2 - Stage 2 Rip Plates, 6 - Stage 3 Rip Plates: (2 Bottom, 2 Middle, 2 Top)
Work Area Protection 2500 Production Drive PO Box 4087 St. Charles, IL 60174 800.327.4417 www.workareaprotection.com	SCI100GM	✓	✓	✓	Unlimited	1 - Item # 9488 (Test Level 3 Reset Kit)