

SECTION 02843

CRASH CUSHIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Furnish and install crash cushions
 - 1. Reference Standard Drawings
 - a. Types A, B, & D: CC 4
 - b. Type C: CC 5
 - c. Type E: CC 6
 - d. Type F: CC 7
 - e. Type G: CC 7
 - f. Type H: CC 8

- B. Furnish and install crash cushion markings
 - 1. Reference Standard Drawing: CC 1

1.2 RELATED SECTIONS

- A. Section 02841: Traffic Barriers.

- B. Section 02891: Traffic Signs

1.3 SUBMITTALS

- A.. Installer Certification.
 - 1. Manufacturer certified installer.
 - 2. Provide proof of certification prior to installation.

- B. Provide a letter of certification for each system location, affirming that each system is installed according to UDOT's and the manufacturer's specifications.
 - 1. Location as per Project Number and Station Number and indicating median, left or right shoulder or gore area application.

PART 2 PRODUCTS

2.1 CRASH CUSHION

- A. Select from the current approved products list, UDOT Guidelines for Crash Cushions.
 - 1. Refer to the current UDOT Guidelines for Crash Cushions, Maintained by the Division of Traffic and Safety available through the UDOT Internet home page, accessed through Project Development “Standards and Specifications” web page.

- B. Types:
 - 1. Type A:
 - a. To protect fixed hazards greater than 3 ft wide within 15 ft of traveled way, with less than 100 ft. of longitudinal space in front of the hazard.
 - b. Use to protect concrete barrier ends, bridge parapets or piers, and other hazards as a stand alone system.
 - c. Use a transition element when used in conjunction with single or double faced guardrail. Use two transition elements when installed with double faced guardrail.
 - d. Use on shoulders or in medians where a recover area behind system and hazard is unattainable.
 - e. Use in areas where minimal impacts are anticipated, one impact every three or more years.
 - f. Refer to Standard Drawing CC 4.

 - 2. Type B:
 - a. To protect fixed hazards up to 3 ft wide or less and within 15 ft. of traveled way, with less than 100 ft of longitudinal space in front of the hazard.
 - b. Use to protect concrete barrier ends, bridge parapets or piers, and other hazards as a stand alone system.
 - c. Use a transition element when used in conjunction with single or double faced guardrail. Use two transition elements when installed with double faced guardrail.
 - d. Use on shoulders or in medians where a recover area behind system and hazard is unattainable.
 - e. Use in areas where minimal impacts are anticipated, one impact every three or more years.
 - f. Refer to Standard Drawing CC 4.

3. Type C:
 - a. To protect fixed objects 3 ft wide or less within 15 ft of traveled way, and longitudinal space in front of the hazard greater than 100 ft.
 - b. Use with single or double faced guardrail, transition element(s) required for concrete barrier or bridge parapet.
 - c. May be used on shoulders. Shoulder application requires a recovery area of 75 ft by 20 ft.
 - d. Can be used on medians as per Standard Drawing CC 5.
 - e. Use in area where minimal impacts are anticipated, one impact every three or more years.

4. Type D:
 - a. To protect fixed hazards within 15 ft of traveled way.
 - b. Use to protect concrete barrier ends, bridge parapets or piers, or other hazards as a stand alone system.
 - c. Use a transition element when used in conjunction with single or double faced guardrail. Use two transition elements when installed with double faced guardrail.
 - d. Can be used on shoulders or in medians.
 - e. Use in areas where one impact per year is anticipated or when repair history indicates two or more impacts over a three year period.
 - f. Refer to Standard Drawing CC 4.

5. Type E - Sand Barrel Arrays:
 - a. To protect fixed hazards outside 15 ft of traveled way and there is an unlimited amount of space.
 - b. Can be configured to meet most width requirements.
 - c. For use to protect concrete barrier ends, bridge parapets or piers, or other hazards as a stand alone system.
 - d. Refer to Standard Drawing CC 6.

6. Type F:
 - a. Use to protect concrete barrier or bridge parapets with less than 125 ft of longitudinal space in front of the hazard.
 - b. Refer to Standard Drawing CC 7 Type F Detail.

7. Type G:
 - a. Use to protect the approach end of single face w-beam guardrail.
 - b. Use to protect concrete barrier or bridge parapet with unlimited longitudinal space (greater than 125 ft) in front of the hazard with

transition element, and is installed where a tangent system is desired.

- c. Use with guardrail systems running tangent to the roadway.
- d. Refer to Standard Drawing CC 7 Type G Detail.

8. Type H:

- a. Use to protect the approach end of single face w-beam guardrail.
- b. Use to protect concrete barrier or bridge parapet with unlimited longitudinal space (greater than 125 ft) in front of the hazard with transition element, and is installed where a flared system is desired.
- c. Use with flared guardrail systems.
- d. Refer to Standard Drawing CC 8 Type H Detail.

2.2 CRASH CUSHION MARKINGS

- 1. Marker Plate: Standard Drawing CC 1.
 - a. Construct marker plate 18 inches X 18 inches using 0.032 gage aluminum with appropriate object marker sheeting.
 - 1) Type C systems require a 24 inches X 14 inches object marker plate.
 - a) Drill four 7/16 inch holes in each corner of plate.
 - b. Self adhesive object marker sheeting 18 inches X 18 inches or 24 inches X 14 inches may be substituted.
- 2. Marker Post: Standard Drawing CC 1.
 - a. Construct marker post, 60 inches long and 2 inches OD, using black polyethylene material.
 - 1) Apply three 4 inch bands of yellow sheeting.
 - 2) Drill three 7/16 inch mounting holes.
 - 3) Close top of marker post.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Complete all site preparation prior to installation.
 - 1. Construct approach areas and recover areas to meet UDOT Standards and system requirements.
 - a. See Standard Drawings CC series for system type being installed.
 - 2. Construct concrete pad to meet system requirements.
 - a. Use manufactures specification for concrete pad construction.

- B. Install in accordance with:
 - 1. The Department's Guidelines for Crash Cushions
 - 2. Manufacturer's specifications and recommendations.
 - 3. Use manufacturer certified installer to perform the installation.

- C. Complete repair or replacement of any crash cushion damaged during construction within 24 hours of notification of damage.
 - 1. Contractor is responsible for the cost of any repair or replacements until completion of the project.

END OF SECTION