

N-E-A-T®

GENERAL SPECIFICATIONS

I. General

All Non-redirective Energy-Absorbing Terminal (N-E-A-T) systems shall be designed and manufactured by Energy Absorption Systems, Inc.

II. Performance Criteria

- A. The N-E-A-T System shall be fully tested to and meet the recommended structural adequacy, occupant risk, and vehicle trajectory criteria set forth in the National Cooperative Highway Research Program Report 350 for the Test Level 2 Non-Redirective Crash Cushion (NCHRP 350 TL-2 NRCC) when properly installed according to the manufacturer's recommendations.
1. Impact at 0 degrees at w/4 offset (centerline of vehicle offset ¼ width of vehicle from centerline of system) at 70 km/h with an 820C vehicle. This is Test 2-40 of NCHRP 350.
 2. Impact at 0 degrees into center nose of device (0 offset from centerline of vehicle) at 70 km/h with a 2000P vehicle. This is Test 2-41 of NCHRP 350.
 3. Impact at 15 degrees into center nose of device (0 offset from centerline of vehicle) at 70 km/h with a 820C vehicle. This is Test-2-42 of NCHRP 350.
 4. Impact at 15 degrees into center nose of device (0 offset from centerline of vehicle) at 70 km/h with a 2000P vehicle. This is Test 2-43 of NCHRP 350.
 5. Impact at 20 degrees along the side of the unit (with centerline of vehicle directed halfway along the length of the system) at 70 km/h with a 2000P vehicle. This is Test 2-44 of NCHRP 350.
- B. For TL-2 NRCC impacts detached debris shall not show potential for penetrating the vehicle occupant compartment or presenting a hazard to other traffic, pedestrians, or workers in a work zone. The vehicle shall remain upright during and after the collision although moderate roll, pitch, and yaw may occur.

- C. The impact velocity of a hypothetical front seat passenger against the vehicle interior as calculated from the longitudinal vehicle acceleration and 600 mm [23 5/8 in.] forward displacement, and the lateral vehicle acceleration and 300 mm [1 ft.] lateral displacement shall be less than 12 m/s [39.3 ft/s] and the highest 10 ms average vehicle acceleration in the longitudinal and lateral directions subsequent to the instant of hypothetical occupant impact shall be less than 20 g's.

III. Description of System

- A. The N-E-A-T cartridge shall be made of aluminum and measure 570 mm (22.5 in.) wide by 813 mm(32 in.) tall. System length shall be 3.0 m (116.4 in.) long.

Materials

The N-E-A-T Systems shall be fabricated from materials conforming to the following specifications:

Steel Transition Panels	ASTM A-36 or AISI M-1-1020 (Domestic), ASTM A-569
Steel Backup & Attachment Plates	ASTM A-36 or AISI M-1-1020 (Domestic), ASTM A-569
Steel Connecting Pins	ASTM A-36 or AISI M-1-1020 (Domestic), ASTM A-569
Aluminum Cartridge	5052-H32

- B. Cartridge weight shall be 135 kg (297 lb.) and shall have swivel casters to facilitate handling and transporting without special equipment. The backup, which is required for attachment, weighs an additional 125 lbs.
- C. Attachment design shall allow for refurbishment of system in less than 15 minutes without the use of special tools after a head-on design speed impact.
- D. Attachment Hardware
 - 1. The N-E-A-T shall be designed such that no drilling or anchorage is required to the road surface.
 - 2. The N-E-A-T shall be designed to attach to portable concrete barrier using the standard pin and loop connection of the barrier, see Figures 1 and 3.

3. The N-E-A-T can be designed to connect to the BSI Quickchange Movable Barrier* using the barrier studs pinned connection, see Figures 2 and 4.
- E. The cartridge shall be painted Highway Safety Yellow. The standard nose shall be equipped with a chevron sign which is reversible for unidirectional or bi-directional traffic. The stripes shall be 100 mm (4 in.) wide. An optional polyethylene nose is available.
- F. All welding shall be done by or under the direct supervision of a certified welder.

IV. Design and Selection Criteria

- A. Design, selection, and placement of the N-E-A-T System should conform to applicable guidelines in:
 1. U.S. Department of Transportation, Federal Highway Administration, "Manual on Uniform Traffic Control Devices" Washington, D.C., U.S. Government Printing Office, (1988).
 2. American Association of State Highway and Transportation Officials, "Roadside Design Guide" Washington, D.C., AASHTO, 1996.
- B. Installation of the N-E-A-T System shall be accomplished in accordance with the recommendations of Energy Absorption Systems, Inc., in the N-E-A-T product manual.

* BSI Quickchange Movable Barrier is distributed by Barrier Systems, Inc., 1100 E. William St., Suite 206, Carson City, NV 89701-3104, Phone (702) 885-2500