

ENERGITE® III SYSTEM  
GENERAL SPECIFICATIONS

I. GENERAL

All Energite III System components shall be designed and manufactured by Energy Absorption Systems, Inc., of Chicago, Illinois.

II. DESCRIPTION OF SYSTEM

- A. The Energite III System modules shall be available in 90, 180, 320, 640 and 960 kg [200, 400, 700, 1400, and 2100 lbs.] sizes.
- B. The 90, 180 and 320 kg [200, 400, and 700 lbs.] modules shall consist of three basic components:
1. A model 640 [1400 lbs.] outer container molded in one piece with a minimum capacity of 0.4m<sup>3</sup> [14 ft<sup>3</sup>]. The material shall be durable, weatherproof and shall be formulated to resist deterioration from ultraviolet rays. The standard color shall be yellow. This model must be of continuous molded construction and be nestable.
  2. Cone-shaped supporting inserts are used to support 90, 180 or 320 kg [200, 400 or 700 lbs.] sand masses. The height and diameter of the cones shall be such to ensure that the center of gravity of each module is at the proper elevation to control the attitude of standard passenger vehicles when filled to proper level. The cone inserts shall be placed inside the Model 640 [1400 lbs.]. The cone inserts shall interface smoothly with the Model 640 [1400 lbs.] "step". The interface shall permit free drainage of excess water contained within the sand mass. Cone inserts shall be of one-piece molded construction and be nestable.
  3. A black lid which locks securely over the top lip of the outer container. The material shall be durable, weatherproof and shall be formulated to resist deterioration from ultraviolet rays. Lids shall be nestable.

- C. The 640 kg [1400 lbs.] module shall consist of two components:
  - 1. A model 640 [1400 lbs.] outer container as described previously in II.B.1.
  - 2. A lid as described previously in II.B.3.
  
- D. The 960 kg module shall consist of two components:
  - 1. A model 960 [2100 lbs.] outer container molded in one piece with a minimum capacity of 0.6 m<sup>3</sup> [21 ft<sup>3</sup>]. Material same as model 640 [1400 lbs.], described previously in II.B.1.
  - 2. A lid as previously described in II.B.3.

### III. PERFORMANCE CRITERIA

- A. Each Energite® system array shall be configured to provide a satisfactory average rate of deceleration (8 g's max. preferred for each row) for errant vehicles in the weight ranges of 820 to 2000 kg [1800 to 4410 lbs]. Placement of the modules within an array and the geometric design of the array itself shall be determined by a qualified engineer. Standard size modules shall contain either 80, 180, 320, 640 or 960 kg [200, 400, 700, 1400 or 2100 lbs.] of sand.
  
- B. The modules shall be designed and manufactured from a frangible polyethylene material which shall shatter upon impact to permit dispersion of the sand mass contained within.
  
- C. The center of gravity of each properly-filled module shall be at a height which will aid in controlling the pitch of standard passenger vehicles.
  
- D. The components of the Energite III system modules shall interface to prevent leakage of sand contained therein. The interface shall, however, permit drainage of excess water contained within the sand mass.

- E. EACH ENERGITE III SYSTEM MODULE SHALL REMAIN FREE FROM SPLITTING (ABSENT FROM IMPACT, VANDALISM, MISHANDLING OR ACTS OF GOD) FOR 5 YEARS FROM THE DATE OF MANUFACTURE.

#### IV. TESTING CRITERIA

An Energite III System array shall have been tested to the procedures set forth in NCHRP 350 for TL-3 non-redirective gating crash cushions. For impact vehicles weighing between 820 and 2000 kg (1810 and 4410 lb) traveling at speeds of up to 100 km/h (62 mph), the maximum 60 cm (24 in) occupant flail space velocity shall be less than 12 m/sec (39 ft/sec) and the vehicles' highest 10 ms occupant ridedown acceleration shall be less than 20 g's.

#### V. DESIGN AND SELECTION CRITERIA

- A. Design and placement of arrays shall follow the guidelines established in:
  - 1. FHWA Report N5040.16 "Crash Cushions, Selection Criteria and Design," dated February 1975.
  - 2. American Association of State Highway and Transportation Officials (AASHTO) publication Roadside Design Guide, 1989.
- B. Sand placed into these modules should be washed concrete sand conforming to ASTM-C-33 or equal.