FITCH® UNIVERSAL MODULE SYSTEM
GENERAL SPECIFICATIONS

I. GENERAL

All Fitch Universal Module System components shall be designed and manufactured by Energy Absorption Systems, Inc., of Chicago, Illinois.

II. DESCRIPTION OF SYSTEM

A. The Fitch Universal Module System modules shall be available in 90, 180, 320, 640 and 960 kg [200, 400, 700, 1400, and 2100 lbs.] sizes.

B. Each module of the Fitch Universal Module shall consist of the following:

1. A cylinder made up of two identical polypropylene structural foam cylinder halves. Each cylinder half shall be a molded structure with four integrally molded ledges, any of which can support the sand support structure and the sand weight as called for.

2. A polyethylene sand support structure. The sand support structure shall be a molded shallow spherical shell with radial ribs on the lower surface.

3. A lid made of HDPE structural foam. The lid shall be a molded shallow spherical shell. The shell shall have a cylindrical lip with nubs on the inner surface that snap onto the sand module container.

4. Four “zip strip” connectors. The connectors are used to fasten the two cylinder halves together to make up the sand module container

III. PERFORMANCE CRITERIA

A. Each Fitch Universal Module 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 90, 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 that 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 Fitch Universal Module 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.

IV. TESTING CRITERIA

A Fitch Universal Module 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, 1996.

B. Sand placed into these modules should be washed concrete sand conforming to ASTM-C-33 or equal.