

**OKLAHOMA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISIONS  
FOR  
SAND FILLED IMPACT ATTENUATION MODULES**

These Special Provisions revise, amend, and where in conflict, supersede applicable sections of the 1999 Standard Specifications for Highway Construction, English and Metric. Units of measurement are provided in the subsections in both English and Metric equivalents. The units for this project shall be those specified in the project plans.

**SECTION 870  
SAND FILLED IMPACT ATTENUATION MODULES**

**870.02. MATERIALS.** *(Replace with the following:)*

**(a) Module**

1. *General.* Sand filled impact attenuation modules shall meet the current test requirements, procedures and results as prescribed in the latest “National Cooperative Highway Research Program” (NCHRP 350) report Test Level III approved by the Federal Highway Administration (FHWA).

Each module shall consist of three basic components consisting of a barrel, a lid, and sand fill material. The barrel and lid shall be made of high density thermoplastic materials (polyethylene or polypropylene) as specified herein, designed and constructed to shatter under impact.

The module shall be designed to support a sand mass of 200, 400, 700, 1400 and 2100 pounds (90,180, 320, 640, and 960 kg) as specified at a height to insure that the center of gravity of each module is at the proper elevation to control the attitude of impacting vehicles so as to prevent ramping.

Each module shall be specifically designed for proper distribution of the specified sand mass without spontaneous rupture of the outer container or collapse of the inner core.

The outer container, unless otherwise shown in the Plans, shall be yellow colored, conforming to the standard highway color code requirement of the Manual on Uniform Traffic Control Devices for Streets and Highways.

2. *Barrels.* Barrels may be molded in one or multiple parts. They shall be yellow in color and designed to resist U.V. weathering degradation. Barrels shall be constructed to support and contain without leakage, 200, 400, 700, 1400, 2100 lbs of sand at the proper height.
3. *Lids.* The lid shall be manufactured from a polyethylene material which is formulated to resist deterioration from ultraviolet rays. The lid shall clamp or pressfit over the outer container and securely seal the module. The lid shall be 1/8 inch to 3/8 inch (3 to 9 mm) thick.
4. *Sand.* Sand mass and sieve analysis for the modules shall meet the manufacturer’s specifications and shall contain not more than 2 percent moisture by dry weight of the aggregate at the time of placement.
5. *Certification.* A type D certification shall be submitted in accordance with Subsection 106.04 for each lot or shipment of modules.

**(b) Sand.** Sand mass and sieve analysis for the modules shall meet the manufacturer’s specifications and shall contain not more than 2 percent moisture by dry weight of the aggregate at the time of placement.

**870.05. METHOD OF MEASUREMENT.** *(Add the following:)*

870-1(b)  
12-05-03

**(a) Permanent Installations.** All materials supplied by the contractor shall be new.