

Refer to: HSA-10/WZ-159

Mr. J.C. Brown
President
Creative Building Products
6409 Highview Drive
Fort Wayne, IN 46818-1385

Dear Mr. Brown:

This is in response to your letter of August 26, requesting Federal Highway Administration (FHWA) acceptance of your company's lighted and ballasted drum as a crashworthy traffic control device for use in work zones on the National Highway System (NHS). Accompanying your letter were videos of informal crash testing you conducted and drawings of the drum. You requested that we find these devices acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

Introduction

The FHWA guidance on crash testing of work zone traffic control devices is contained in two memoranda. The first, dated July 25, 1997, titled "INFORMATION: Identifying Acceptable Highway Safety Features," established four categories of work zone devices: Category I devices were those lightweight devices which could be self-certified by the vendor, Category II devices were other lightweight devices which needed individual crash testing, Category III devices were barriers and other fixed or massive devices also needing crash testing, and Category IV devices were trailer mounted lighted signs, arrow panels, etc. The second guidance memorandum was issued on August 28, 1998, and is titled "INFORMATION: Crash Tested Work Zone Traffic Control Devices." This later memorandum lists devices that are acceptable under Categories I, II, and III.

A brief description of the devices follows:

Creative Building Products drums are 43.5 inch high molded of 3/16 inch thick LDPE or HDPE plastic. The diameter varies from 17.25 inches at the top to 19.75 near the base. The base itself is 26 inches wide, with circular ends on a 14.5 inch radius, and has a hole which allows for the addition of sand. The empty drums weigh 16 pounds, and the Flex-o-lite warning light plus battery weighs 4.3 pounds. Drums of LDPE were selected as "worst-case" devices for testing.

Testing

Live-driver automobile testing was conducted on your company' devices. Two stand-alone examples of the devices were tested in tandem, one head-on and the next placed 6 meters downstream turned at 90 degrees, as called for in our guidance memoranda. The automobile used weighed 2200 pounds and was driven at 62 mph (100 kmh). The video shows that the drums separate from the bases and begin to rotate over the vehicle. The top of the drum impacts the hood midway towards the windshield. In both cases the drum then rotated over the vehicle showing no potential to contact the windshield. For these tests, the drums and ballast weighed 45 pounds.

Findings

The results of the testing met the FHWA requirements for informal testing of Category I devices. The ballasted drum with lights described in the request above and detailed in the enclosed drawings is acceptable for use on the NHS under the range of conditions tested, when proposed by a State.

Please note the following standard provisions that apply to FHWA letters of acceptance:

- Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of FHWA and NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-159 shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.

- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device. Patent issues are to be resolved by the applicant and the patent owner.

Sincerely yours,

John R. Baxter
Director, Office of Safety Design
Office of Safety

Enclosure

FHWA:HSA-10:Nartimovich:dp:x61331:8/22/03

cc: Reader – HSA-1, HSA-10(Chron File, N. Artimovich)

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