



USD Department
of Transportation

Federal Highway
Administration

400 Seventh St., S.W.
Washington, D.C. 20590

July 30, 1999

Refer to: HMHS

Mr. Henry A. Ross, Vice President
Sales and Marketing
WLI Industries, Inc.
880 North Addison Road
P.O. Box 7050
Villa Park, IL 60181-7050

Dear Mr. Ross:

Thank you for your letter of April 1, 1999, requesting Federal Highway Administration (FHWA) acceptance of your company's "SafetyCade Extended Vertical Panel Barricade" as a crashworthy traffic control device for use in work zones on the National Highway System. Accompanying your letter was a copy of the crash test report by E-Tech Testing Services, Inc., and video documentation of the crash tests. You requested that we find the tested devices acceptable for use on the National Highway System.

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, and is titled "INFORMATION: Crash Tested Work Zone Traffic Control Devices." This recent memorandum lists devices that are acceptable under Categories I, II, and III.

The WLI "SafetyCade Extended Vertical Panel Barricade" is a plastic (high density polyethylene), collapsible, three-piece barricade system consisting of an upright panel and two legs. The design of the new extended panel SafetyCade is very similar to WLI's previous SafetyCade which was qualified to NCHRP Report 350 by our letter WZ-1 dated 6-19-97. The new extended panel SafetyCade houses the entire warning light assembly in a special receptacle in the top of the barricade whereas the earlier design had a separate compartment for the warning light battery below bumper height. The test article was outfitted with the "ToughLite 2000 L.E.D. Warning Light" and two optional sand-filled ballast boots locked onto the barricade leg. The test article mass, including the warning light, was 14.1 kg. The two sand-filled boots had a mass of 11.4 kg each. The overall height is 1296 mm and is 419~mm wide.

Full-scale automobile testing was conducted on your company's vertical panel. Two examples of the device were tested in tandem, one head-on and the next at 90 degrees, as called for in our guidance memorandum. The impact speed with the first device was 100.4 km/hr and 97.0 km/hr

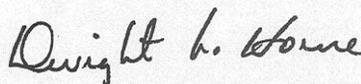
with the second. The velocity changes were 3.4 km/hr and 3.3 km/hr (both approximately 1 m/s, which is well within the 5 m/s maximum) after the successive impacts.

During the test there was no damage to the windshield, and only minor damage occurred to the test vehicle's hood. There was no occupant compartment intrusion or deformation observed, nor did any test article debris show potential for penetrating the occupant compartment. The results of this testing met the FHWA requirements and, therefore, the SafetyCade Extended Vertical Panel Barricade is acceptable for use on the National Highway System under the range of conditions tested, when proposed by a state.

Our acceptance is limited to the crashworthiness characteristics of the device and does not cover its structural features, nor conformity with the Manual on Uniform Traffic Control Devices. Presumably, you will supply potential users with sufficient information on design and installation requirements to ensure proper performance. We anticipate that the States will require certification from WLI Industries that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that tested and submitted for acceptance. To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-15, shall not be reproduced except in full.

The SafetyCade is a patented product and is considered "proprietary." The use of proprietary work zone traffic control devices in Federal-aid projects is generally of a temporary nature. They are selected by the contractor for use as needed and removed upon completion of the project. Under such conditions they can be presumed to meet requirement "a" given below for the use of proprietary products on Federal-aid projects. On the other hand, if proprietary devices are specified for use on Federal-aid projects, except exempt, non-NH'S projects, they: (a) must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with existing highway facilities or that no equally suitable alternative exists or; (c) they must be used for research or for a diitive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411, a copy of which is enclosed,

Sincerely yours,



Dwight A. Home
Director, Office of Highway Safety Infrastructure

Enclosure

FHWA:NArtimovich;jb:61795:7/27/99
cc: Reader - HMHS, Chron - Rm 3407
Nartimovich - HMHS

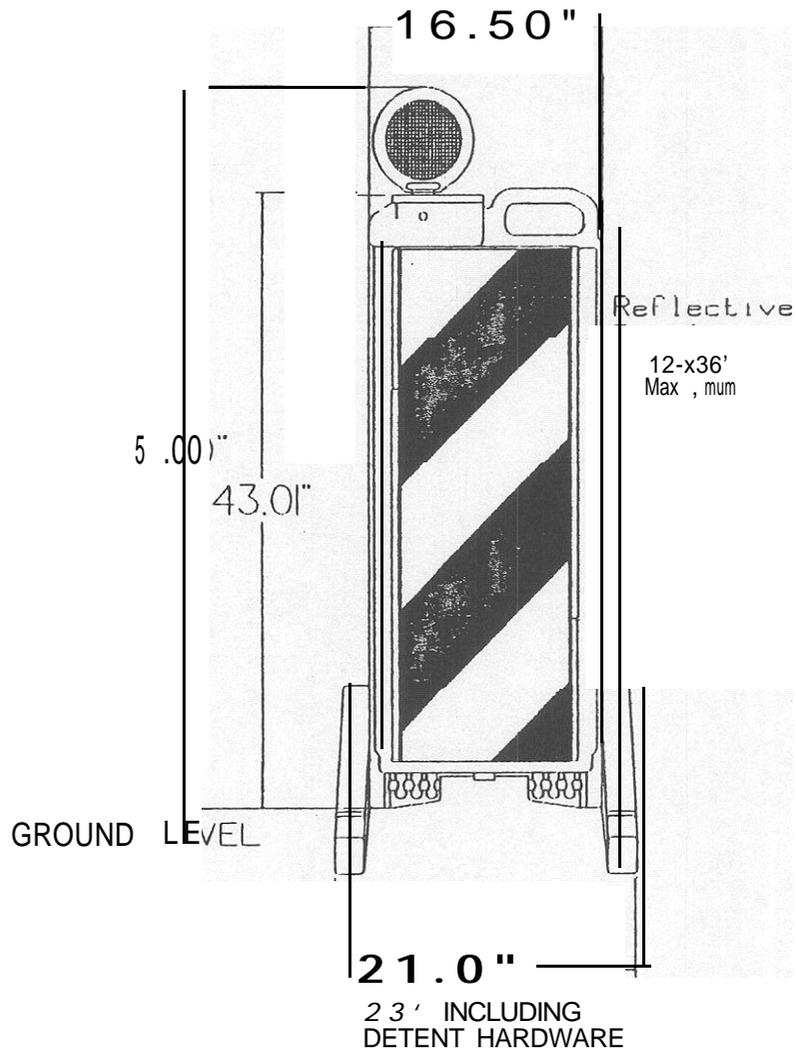


Illustration 2. SafetyCade Extended Vertical Panel Barricade Drawing (1 of 1)