



U.S. Department
of Transportation
**Federal Highway
Administration**

1200 New Jersey Ave., SE
Washington, D.C. 20590

August 29, 2014

In Reply Refer To:
HSST/WZ-326

Mr. Henry A. Ross
Director of Government Relations
Plasticade
7700 N. Austin Avenue
Skokie, Illinois 60077

Dear Mr. Ross:

This letter is in response to your request for the Federal Highway Administration (FHWA) to review roadside safety systems for eligibility for reimbursement under the Federal-aid highway program.

Name of system:	Safetycade Type II Barricade and Safetycade Extended Vertical Panel Barricade "Verticade"
Type of system:	Work Zone Traffic Control Devices
Test Level:	NCHRP Report 350 Test Level 3
Testing conducted by:	N/A
Date of request:	August 22, 2013
Request completed	December 14, 2013

Decision

The following devices remain eligible, with details provided in the previous FHWA letters attached as integral parts of this letter:

- Safetycade Type II Barricade and Safetycade Extended Vertical Panel Barricade "Verticade"

Based on a review of crash test results submitted by the manufacturer certifying the devices described herein met the crash test and evaluation criteria of the National Cooperative Highway Research Program (NCHRP) Report 350, the devices were deemed eligible for reimbursement under the Federal-aid highway program. Eligibility for reimbursement under the Federal-aid highway program does not establish approval or endorsement by the FHWA for any particular purpose or use.

FHWA:HSST:NArtimovich:sf:x61331:2/4/14:**Updated 8/13/14**

File: s://directory folder/hsst/nartimovich/WZ-326 Letter.docx

cc: HSST (Reader, HSA; Chron File, HSST; NArtimovich, HSST), BFouch, HSST

The FHWA, the Department of Transportation, and the United States Government do not endorse products or services and the issuance of a reimbursement eligibility letter is not an endorsement of any product or service.

Requirements

To be found eligible for Federal-aid funding, roadside safety devices should meet the crash test and evaluation criteria contained in the NCHRP Report 350 or the American Association of State Highway and Transportation Officials' Manual for Assessing Safety Hardware (MASH).

Description

The device and supporting documentation are described in the attached FHWA letters:

WZ-1	March 18, 1997	WLI Industries	Safetycade barricade
WZ-15	July 30, 1999	WLI Industries	Safetycade Vertical Panel
WZ-80	July 10, 2001	United Rentals	Rev. Safetycade Vertical Panel "Verticade"

In your email of August 22, 2013, you stated that Plasticade has purchased the rights to the Safetycade barricade and vertical panel from the original owner. This letter, WZ-326, acknowledges that these devices now belong to Plasticade, and they continue to be eligible for reimbursement under the Federal aid highway program.

Summary and Standard Provisions

Therefore, the system described and detailed in the attached form is eligible for reimbursement and may be installed under the range of conditions tested.

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

- This finding of eligibility does not cover other structural features of the systems, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may influence system conformance with NCHRP Report 350 criteria will require a new reimbursement eligibility letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals safety problems, or that the system is significantly different from the version that was crash tested, we reserve the right to modify or revoke this letter.
- You are expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You are expected to certify to potential users that the hardware furnished has the same chemistry, mechanical properties, and geometry as that submitted for review, and that it will meet the crash test and evaluation criteria of the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of eligibility is designated as number WZ-326 and shall not be reproduced except in full. This letter and the test documentation upon which it is based are public information. All such letters and documentation may be reviewed at our office upon request.

- This letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented system for which the applicant is not the patent holder. The FHWA does not become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,

Michael S. Griffith
Director, Office of Safety Technologies
Office of Safety

Enclosures



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- To prevent misunderstanding by others, this letter of eligibility is designated as number WZ-326 and shall not be reproduced except in full. This letter and the test documentation upon which it is based are public information. All such letters and documentation may be reviewed at our office upon request.

- This letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented system for which the applicant is not the patent holder. The FHWA does not become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,



Michael S. Griffith
Director, Office of Safety Technologies
Office of Safety

Enclosures

From: [Henry Ross](#)
To: [Artimovich, Nick \(FHWA\)](#)
Subject: WZ letter reissue
Date: Thursday, August 22, 2013 12:38:02 PM
Attachments: [image001.png](#)
[wz-1 Safetycade.pdf](#)
[wz-15 Extended VP Safetycade.pdf](#)
[Order Approving Sale HT Assets.pdf](#)

On August 7, 2013, the Federal Bankruptcy Court entered a final order (copy attached) approving the purchase, by Plasticade, of the molds, trademarks, and patents related to the Safetycade Type II Barricade and the Safetycade Extended Vertical Panel Barricade, also referred to as the Verticade. These devices were originally manufactured by WLI Industries, Inc. In 1999, WLI became a subsidiary of the Highway Technologies Group of United Rentals, Inc., and, subsequently, Highway Technologies, Inc. became an independent entity. Plasticade has bought these assets from the bankruptcy estate of Highway Technologies.

On June 19, 1997 Acceptance Letter WZ-01 was issued by FHWA accepting the Safetycade Type II Barricade and the Safetycade Vertical Barricade as being crashworthy under NCHRP-350; subsequently, WZ-15 was issued for the Safetycade Extended Vertical Barricade. All models were accepted with lightweight warning lights.

We request that both WZ-01 and WZ-15 be reissued (maybe as WZ-01A and WZ-15A) to Plasticade as the new owner of these devices. The devices now being manufactured by Plasticade are identical in all aspects to the original products – the same molds are being utilized and the same Bills of Materials are being used.

I have attached a copy of each WZ letter and a copy of the final order of the bankruptcy court for your information.

Please let me know if you need any additional information.

Regards,

Henry A. Ross

Henry A. Ross
Director of Government Relations

847-583-4189 Direct
773-294-4942 Cell
7700 N. Austin Avenue
Skokie, IL 60077
www.plasticade.com





U.S. Department
of Transportation
**Federal Highway
Administration**

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

March 18, 1997

Refer to: HNG-14

Mr. Henry Ross
Vice President
WLI Industries, Inc.
880 North Addison Road
Villa Park, Illinois 60181-7050

Dear Mr. Ross:

This is in response to your February 11 letter to Mr. James Hatton requesting Federal Highway Administration's (FHWA) acceptance of your "SafetyCade" work zone barricade as acceptable for use on the National Highway System (NHS). Accompanying your letter was a copy of a report and a video on the crash testing conducted by E-Tech Testing Services, Inc. The "SafetyCade" barricades are plastic, collapsible, three-piece systems consisting of an upright panel and two legs. They are molded from high-density polyethylene plastic and can be equipped with an optional plastic molded light, a battery compartment mounted below bumper height, and retro-reflective sheeting. The "SafetyCade" can also be equipped with a sand-filled plastic boot for ballast to counteract wind gusts from traffic on high-speed highways. A patented spring-loaded mechanism enables the barricade to remain vertical until struck, and then lay flat on the pavement after impact. Drawings and specifications describing the barricades and all the optional features and batteries present when tested are enclosed.

Full-scale automobile testing was conducted on two styles of "SafetyCade" barricades to assess their crashworthiness according to the criteria in the National Cooperative Highway Research Program (NCHRP) Report 350 Recommended Procedures for the Safety Performance Evaluation of Highway Safety Features. Vertical (Model ISC-102VL) and Type II (Model ISC-154LI) barricades were impacted in separate tests conforming to the NCHRP Report 350 test designation 3-71 (820 C vehicle, 100 kmh speed, zero degree angle of impact.) Because the devices are free-standing and have a mass of less than 45 kg, measurement of occupant impact velocities and ridedown accelerations are not required. The primary purposes of testing devices of this nature are to assess the potential for occupant compartment intrusion and the test vehicle's post-impact trajectory.

In each test two barricades were struck. They were struck sequentially, the first being in the normal position and the second in a perpendicular orientation about 8 m downstream of the first. The tests were conducted on smooth, dry concrete pavement. A summary of the test results is presented in the table below.

E-Tech Test Number	05-0916-001	05-0916-002
SafetyCade Model	Vertical (Model ISC-102VL)	Type II (Model ISC-154LI)
Mass (with ballast)	38.25 kg	38.25 kg
Vehicle Mass	812 kg	812 kg
Impact Speed (N*)	102.0 kmh	102.00 kmh
Impact Speed (P*)	96.10 kmh	97.70 kmh
Velocity Change (N)	2.24 kmh (0.62 m/s)	2.09 kmh (0.58 m/s)
Velocity Change (P)	2.08 kmh (0.58 m/s)	1.89 kmh (0.53 m/s)

*N and P refer to the Normal and Perpendicular orientation of the barricade. Because two barricades (one N and one P) struck during the same test were separated longitudinally, the test vehicle slowed prior to striking the second barricade.

The barricades were destroyed during all four impacts. The majority of the vehicle damage was limited to the bumper and the hood. No parts of the test articles showed potential for penetrating the occupant compartment. The warning light and its support bracket broke from the top of the barricade in each impact causing no damage to the windshield in test 05-0916-001 and only a crack in the windshield in test 05-0916-002. (The mass of the warning light, which is mounted on top of the barricade, was 0.4 kg. The batteries, which are located at the base of the barricade, were 1.25 kg.)

The severity index for the perpendicular impact in test 05-0916-001 was 2.3 kJ below the recommended minimum value of 291.6 kJ, but this was judged to be of no significant consequence in this test. As allowed in section 3.2.3.2 of the NCHRP Report 350, low speed testing was omitted because it was determined that the high speed test would be the more critical. Tests with the 2000P vehicle were not conducted because, from a study of the front profile of the pick-up truck and small car in relation to the geometry of the test articles, it was concluded that there was less potential for an element of one of the test articles penetrating the occupant compartment of the pick-up truck than the small car. We concur in these judgements.

Because the results of the full-scale testing met the FHWA velocity change and vehicle trajectory requirements, and they caused no passenger compartment intrusion, your company's Vertical and Type II "SafetyCade" barricades are acceptable for use in work zones on the NHS, within the range of conditions tested, when requested by a State. Our acceptance is limited to the breakaway characteristics of the barricades and does not cover their structural features, nor does it cover conformity of the barricades 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 you that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as those used in the crash testing, and that they will meet the FHWA change in velocity requirements.

Because "SafetyCade" barricades are proprietary products, to be used in Federal-aid projects, except exempt, non-NHS 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 distinctive 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.

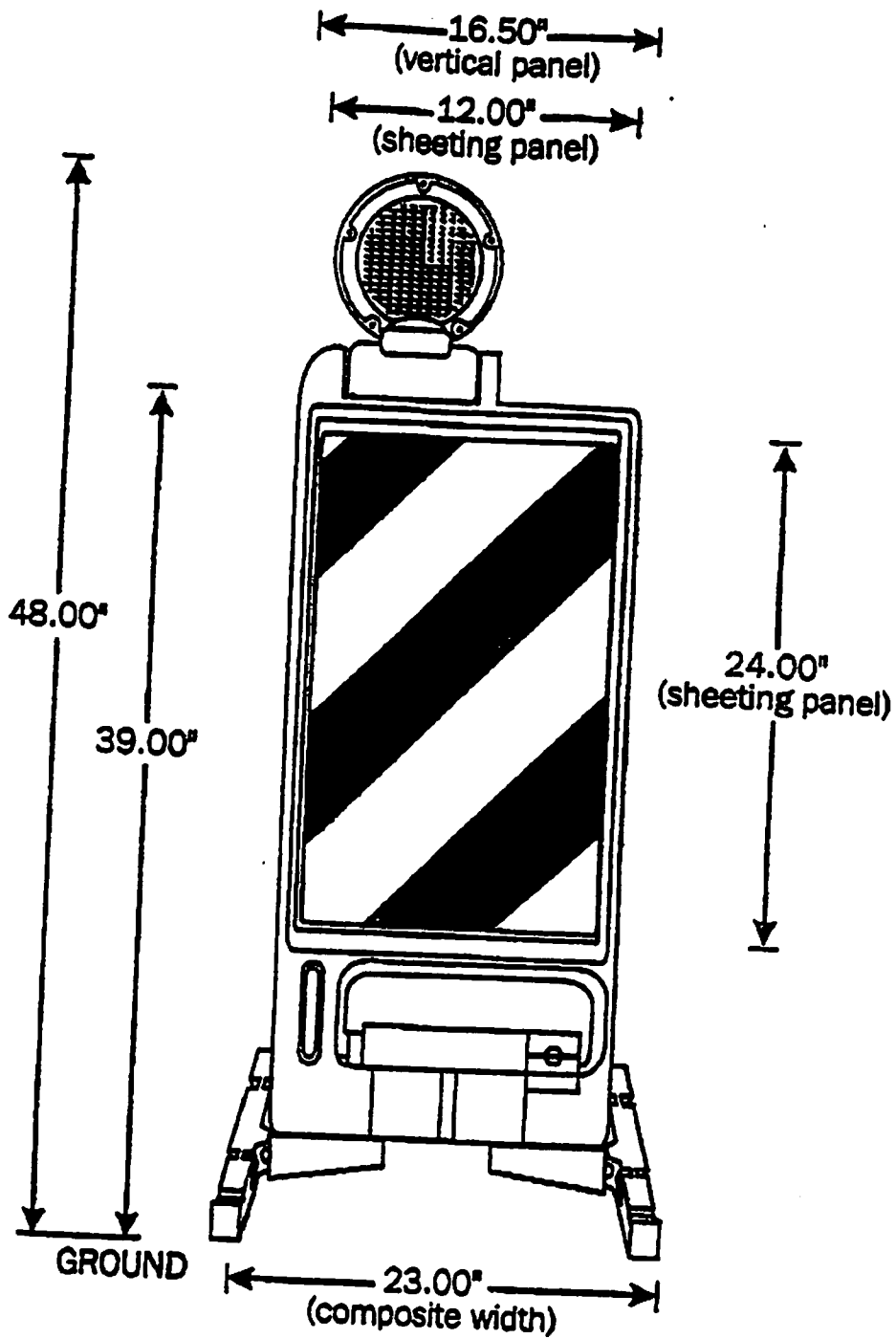
Sincerely yours,



Dwight A. Horne, Chief
Federal-Aid and Design Division

2 Enclosures

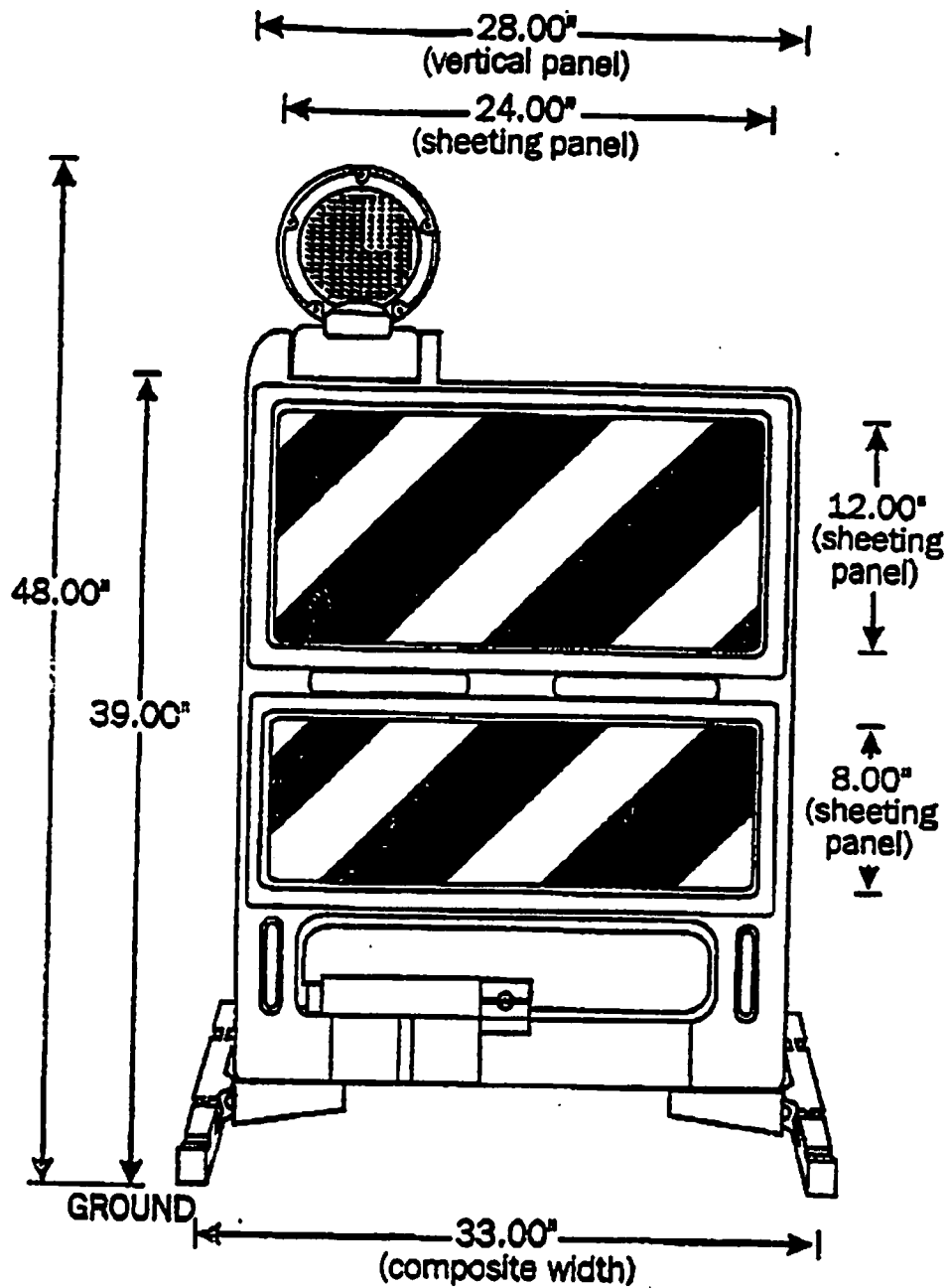
Geometric and Safety Design Group Acceptance Letter No. WZ-1



**VERTICAL
SAFETYCADE BARRICADE**

***ALL DIMENSIONS ARE NOMINAL**

Drawing D-1 Vertical SafetyCade Barricade



**TYPE II
SAFETYCADE BARRICADE**

*ALL DIMENSIONS ARE NOMINAL.

Drawing D-2 Type II SafetyCade Barricade

SAFETYCADE®
COLLAPSIBLE PLASTIC BARRICADE SPECIFICATIONS

DIMENSIONS:
 (nominal)

	<u>Type I, Type II, SHRP Arrow</u>	<u>Vertical SafetyCade</u>
Height		
Upright Panel	39"	39"
With Light	48"	48"
Width		
Upright Panel	28"	18.5"
Overall (Includes detent bolts)	33"	23"
Depth of Upright Panel	3"	3"
Length of Legs	36"	36"
Weight	35 lbs.	31 lbs.
Length Stacked (with light)	65"	70"

SHIPPING:

Skid Dimensions	65"H x 65"L x 35"W (20 units per skid)	65"H x 70"L x 48"W (40 units per skid)
Weight	740 lbs.	1280 lbs.

SAFETYCADE BALLAST BOOT SPECIFICATIONS
 (two per unit recommended when traffic speeds exceed 45 mph)

DIMENSIONS:

Height	3"
Width	9"
Depth	22"
Weight	23 lbs. (filled with sand) 2.25 lbs. (without sand)

SHIPPING:

With Sand

Quantity - 40
 Weight - 988 lbs.
 21"H x 40"L x 40"W (Skid)

Without Sand

Quantity - 20
 Weight - 47 lbs.
 33"H x 23"L x 19"W (Box)

(All dimensions are nominal.)

revised 9/96

these materials must occur in the United States.

(2) The State has standard contract provisions that require the use of domestic materials and products, including steel materials, to the same or greater extent as the provisions set forth in this section.

(3) The State elects to include alternate bid provisions for foreign and domestic steel materials which comply with the following requirements. Any procedure for obtaining alternate bids based on furnishing foreign steel materials which is acceptable to the Division Administrator may be used. The contract provisions must (i) require all bidders to submit a bid based on furnishing domestic steel materials, and (ii) clearly state that the contract will be awarded to the bidder who submits the lowest total bid based on furnishing domestic steel materials unless such total bid exceeds the lowest total bid based on furnishing foreign steel materials by more than 35 percent.

(4) When steel materials are used in a project, the requirements of this section do not prevent a minimal use of foreign steel materials, if the cost of such materials used does not exceed one-tenth of one percent (0.1 percent) of the total contract cost or \$2,500, whichever is greater. For purposes of this paragraph, the cost is that shown to be the value of the steel products as they are delivered to the project.

(c)(1) A State may request a waiver of the provisions of this section if:

(i) The application of these provisions would be inconsistent with the public interest; or

(ii) Steel materials/products are not produced in the United States in sufficient and reasonably available quantities which are of a satisfactory quality.

(3) A request for waiver, accompanied by supporting information, must be submitted in writing to the Regional Federal Highway Administrator (RPHWA) through the FHWA Division Administrator. A request must be submitted sufficiently in advance of the need for the waiver in order to allow time for proper review and action on the request. The RPHWA will have approval authority on the request.

(3) Requests for waivers may be made for specific projects, or for certain materials or products in specific geographic areas, or for combinations of both, depending on the circumstances.

(4) The denial of the request by the RPHWA may be appealed by the State to the Federal Highway Administrator (Administrator), whose action on the request shall be considered administratively final.

(5) A request for a waiver which involves nationwide public interest or availability issues or more than one FHWA region may be submitted by the RPHWA to the Administrator for action.

(6) A request for waiver and an appeal from a denial of a request must include facts and justification to support the granting of the waiver. The FHWA responses to a request or appeal will be in writing and made available to the public upon request. Any request for a nationwide waiver and FHWA's action on such a request may be published in the *Federal Register* for public comment.

(7) In determining whether the waivers described in paragraph (c)(1) of this section will be granted, the FHWA will consider all appropriate factors including, but not limited to, cost, administrative burden, and delay that would be imposed if the provision were not waived.

(d) Standard State and Federal-aid contract procedures may be used to assure compliance with the requirements of this section.

(20 U.S.C. 311, sec. 10 of Pub. L. 90-329, 90 Stat. 55, sec. 100 of Pub. L. 97-424, 98 Stat. 2126 and 49 CFR 1.62(b))

(49 FR 83194, Nov. 26, 1984, as amended at 49 FR 19831, May 3, 1984)

§ 635.411 Material or product collection.

(a) Federal funds shall not participate, directly or indirectly, in payment for any premium or royalty on any patented or proprietary material, specification, or process specifically set forth in the plans and specifications for a project, unless:

(1) Such patented or proprietary item is purchased or obtained through

competitive bidding with equally suitable unpatented items; or

(2) The State highway agency certifies either that such patented or proprietary item is essential for synchronization with existing highway facilities, or that no equally suitable alternate exists; or

(3) Such patented or proprietary item is used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes.

(b) When there is available for purchase more than one nonpatented, nonproprietary material, semifinished or finished article or product that will fulfill the requirements for an item of work of a project and these available materials or products are judged to be of satisfactory quality and quality acceptable on the basis of engineering analysis and the anticipated prices for the related items of work are estimated to be approximately the same, the FHWA for the project shall either contain or include by reference the specifications for each such material or product that is considered acceptable for incorporation in the work. If the State highway agency wishes to substitute some other acceptable material or product for the material or product designated by the successful bidder or bid as the lowest alternate, and such substitution results in an increase in costs, there will not be Federal-aid participation in any increase in costs.

(c) A State highway agency may require a specific material or product when there are other acceptable materials and products, when such specific choice is approved by the Division Administrator as being in the public interest. When the Division Administrator's approval is not obtained, the item will be nonparticipating unless bidding procedures are used that establish the unit price of each acceptable alternative. In this case Federal-aid participation will be based on the lowest price so established.

(d) Appendix A sets forth the FHWA requirements regarding (1) the specification of alternative types of culvert pipes, and (2) the number and types of such alternatives which must

be set forth in the specifications for various types of drainage installations.

(c) Reference in specifications and on plans to single trade name materials will not be approved on Federal-aid contracts.

§ 635.413 Guaranty and warranty clauses.

(a) Except as provided in paragraph (b) of this section, clauses that require the contractor to guarantee or warrant materials and workmanship or to otherwise maintain the work for a specified period after its satisfactory completion by the contractor and its final acceptance by the State, will not be approved for use in Federal-aid contracts. Work performed and materials replaced under such guaranty or warranty clauses after final acceptance of work are not eligible for Federal participation.

(b) Contracts which involve furnishing and/or installing electrical or mechanical equipment should generally include contract clauses that require:

(1) Manufacturer's warranties or guarantees on all electrical and mechanical equipment consistent with those provided as customary trade practice; or

(2) Contractors' warranties or guarantees providing for satisfactory in-service operation of the mechanical and electrical equipment and related components for a period not to exceed 6 months following project acceptance.

§ 635.417 Convict produced materials.

(a) Materials produced by convict labor may only be incorporated in a Federal-aid highway construction project if such materials have been:

(1) Produced by convicts who are on parole, supervised release, or probation from a prison or

(2) Produced in a qualified prison facility and the cumulative annual production amount of such materials for use in Federal-aid highway construction does not exceed the amount of such materials produced in such facility for use in Federal-aid highway construction during the 12-month period ending July 1, 1987.

(b) *Qualified prison facility* means any prison facility in which convicts,

t3

U.S. 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

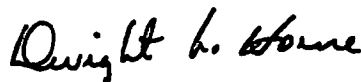
with the second. The velocity changes were 3.4 km/hr and 3.3 km/hr (both approximately 1 m/s, which is well within the 5 m/s maximum) after the successive impacts.

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

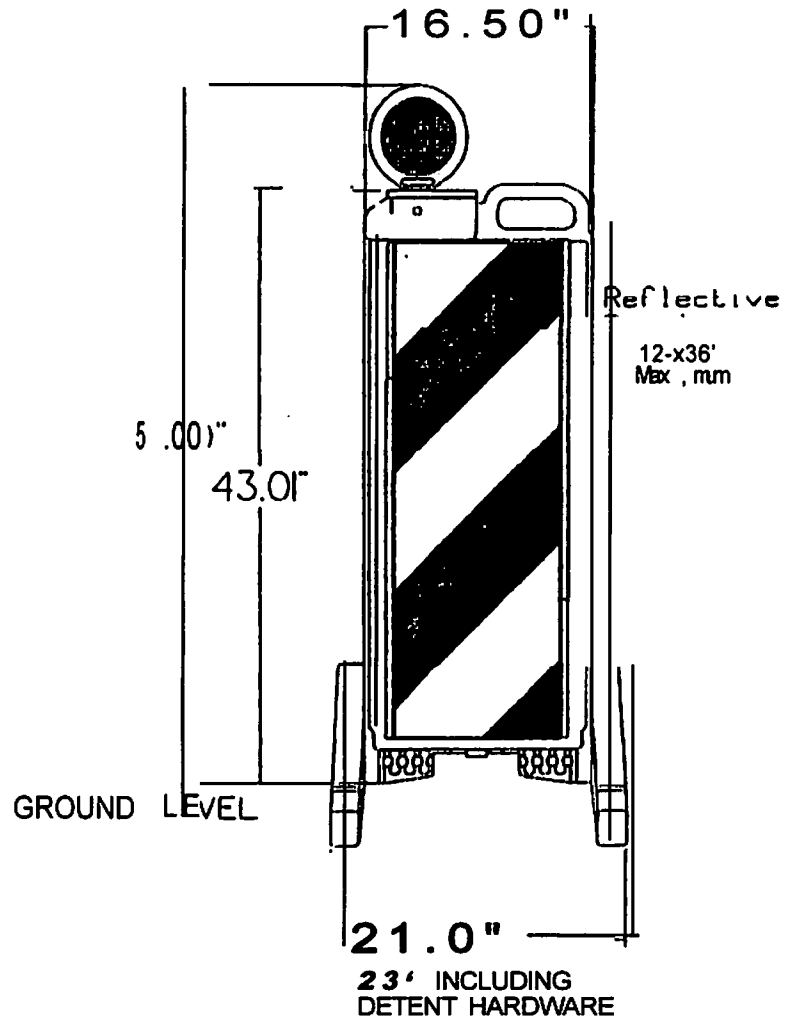


Illustration 2. SafetyCade Extended Vertical Panel Barricade Drawing (1 of 1)