Ms. Christine Cash  
Bent Manufacturing Company  
17311 Nichols Street  
Huntington Beach, CA  92647-5721  

Dear Ms. Cash:

Thank you for your letter of December 21, 1998, requesting Federal Highway Administration (FHWA) acceptance of your company’s “Ultra Panel” with warning light as a crashworthy traffic control device for use in work zones on the National Highway System (NHS). Accompanying your letter was a copy of the crash test report by E-Tech Testing Services, Inc., color photographs, and video documentation of the crash tests. You requested that we find the tested devices, as well as lighter or smaller devices of the same family of product, acceptable for use on the NHS. On March 30, 1999 you provided additional details on the attachment of the warning light, in response to our request.

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., which were put off until the year 2002. The second guidance memorandum was issued on August 28, 1998, 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 Ultra panel, with or without the warning light, is a Category II device.

The ULTRA panel is a stackable vertical panel made of a hollow low density polyethylene plastic panel which is held in an upright position by a molded recycled rubber base. The height of the ULTRA Panel is 1096 mm without the warning light. The mass of the ULTRA Panel including the warning light is 2.8 kg. The mass of the molded rubber base is 13.6 kg. The thickness of the handle at the bolt hole recessed depression is 11 mm. The normal thickness of the material at the bolt hole recess depression area is two-opposing wall thicknesses, semi-solid compression molded. A small gap between the two walls gives the area an average wall thickness of 3.8 mm. Drawings and specifications for the Ultra Panel are enclosed for reference.
Full-scale automobile testing was conducted on your company's ULTRA Panel. Two examples, each with a warning light affixed, were tested in tandem, one head-on and the next at 90 degrees, as called for in our guidance memoranda. There was only minor cosmetic damage to the automobile and no contact with the windshield. 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 ULTRA Panel, with or without warning light, and other vertical panels in the same family of hardware, are 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 Bent Manufacturing that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance. To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-16, shall not be reproduced except in full.

The ULTRA Panel is a proprietary product. 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-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
Director, Office of Highway Safety Infrastructure

Enclosure
ULTRA PANEL
STACKABLE VERTICAL PANEL and BASE

MATERIAL: PANEL - Low Density Polyethylene
BASE - Molded new and recycled rubber blend

WEIGHT: PANEL BODY - 4 lbs. (LDPE)
BASE - 36 lb.

HEIGHT: Base of panel body to top of sheeting - 33" (meets M.U.T.C.D.
Section 6F-5d)
Base of panel body to top of device - 43 1/8" (43.125")
Rubber Base - 28" x 20" x 1 1/8"

COLOR: PANEL - Cad. Orange or White
BASE - Black

REFLECTIVITY: H.V.E.G.S.E.G. Pre-Striped, Barricade type

REFLECTIVE SHEETING SIZE: 8" x 24"; 8" x 34"; 8" x 36"

LIGHTER BRACKETS: 1 ea. (Molded in panel handle)

SPECIAL FEATURES: Enlarged arch carry handle allows gloved workers easy,
comfortable and secure grip
High gravity molded rubber base hugs the road
Recessed reflective sheeting area, maximum width 8" x 36"
Accommodates USA M.U.T.C.D. minimum of 2/8 square
inch of retro reflective sheeting facing traffic on expressways,
freeways, or other high-speed roadways
Molded light mount is designed for standard size light bolt and
cup washers

DETAILED DIMENSIONS:
On specification sheet
- 1/2 solid plastic 1a, for light bolt.

- 49" centered

- 51" top of light
§ 635.41 Material or product selection.

(a) Federal funds shall not participate, directly or indirectly, in payment for any unpatented or patented 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, seminished or unfinished article or product that will fulfill the requirements for an item of work on a project, and these available materials or products are judged to be of satisfactory quality and equally acceptable on the basis of engineering analysis and the anticipated prices for the related item(s) of work are estimated to be approximately the same, the FHWA will consider the selection of any one of the available materials or products without contrary evidence of a preference or prejudice in favor of any such item.

§ 635.411 Warranty classes.

The SHA may include warranty provisions in National Highway System (NHS) construction contracts in accordance with the following:

(a) Warranty provisions shall be for specific construction product or feature. Items of maintenance not eligible for Federal participation shall not be covered.

(b) Warranty requirements and subsequent revisions shall be submitted to the Division Administrator for advance approval.

§ 635.412 Convict produced materials.

(a) Materials produced after July 1, 1991, by convict labor may only be incorporated in Federal-aid highway construction projects if such mate are approved:

1. Produced by convicts who are parole, supervised release, or parole of a prison or

2. Produced in a qualified prison facility and the cumulative annual amount of such material used in Federal-aid highway project construction does not exceed the amount of such material produced in such facility for use in Federal-aid highway projects during the 12-month period ending July 1, 1997.

(b) Qualifying prison facility means prison facility in which convictions, such as the 12-month period ending July 1, 1997, produced for materials for use in Federal-aid highway construction projects.

§ 635.501 Purpose.

To prescribe Interstate maintenance guidelines and establish the policy procedures to ensure that the condition of Interstate routes is maintained...