



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

May 3, 2006

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

In Reply Refer To:
HSA-10/WZ-235

Mr. Randy Held
CRSIGNS Inc.
5004 Steelhead Street
Juneau, Alaska 99801

Dear Mr. Held:

Thank you for your email correspondence of November 28, 2005, requesting Federal Highway Administration (FHWA) acceptance of your company's RubberSteel™ method for overlaying sign panels as crashworthy, for use in work zones on the National Highway System (NHS). You provided a sample, and requested that we find this system 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 are those lightweight devices which are to be self-certified by the vendor, Category II devices are other lightweight devices which need individual crash testing but with reduced instrumentation, Category III devices are barriers and other fixed or heavy devices also needing crash testing with normal instrumentation, and Category IV devices are trailer mounted lighted signs, arrow panels, etc. for which crash testing requirements have not yet been established. 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. Our new acceptance process was outlined in our memorandum "FHWA Hardware Acceptance Procedures – Category 2 Work Zone Devices" dated November 11, 2005.



A brief description of the devices follows:

The “RubberSteel™” material is a flexible, magnetic attractive panel that can be applied to sign substrates. Magnetic sheeting panels that carry alternate legends or symbols may then be placed on the sign as the traffic situation warrants. The system can also be use to obscure the entire sign when not needed.

Your request was to permit the use of signs consisting of RubberSteel™ affixed to corrugated plastic substrates. As no crash tests have been conducted on this product, you asked that the FHWA accept the use of the RubberSteel™ modified signs *on sign stands that have been successfully crash tested with conventional rigid substrates* such as wood and solid aluminum.

Findings

The RubberSteel™ material weights approximately 6.85 ounces per square foot. For a sign measuring 36 x 36 inches, the weight of a solid aluminum substrate (0.080 inches thick) is approximately 8.7 pounds. A similar sized sign of corrugated plastic with RubberSteel™ weighs approximately 7.0 pounds. As most plywood sign substrates are heavier than solid aluminum, they too would be substantially heavier than a corrugated plastic substrate with RubberSteel™ applied.

Because the modified signs would weigh no more than the conventional solid sign substrates they would replace, they can be expected to perform at least as well when impacted when mounted on the following categories of sign supports:

1) Roadside signs on ground-mounted breakaway supports, whether used in work zones or in permanent installations, meeting the MUTCD minimum height requirement. Sign supports in this category may be found on the FHWA web site at:

http://safety.fhwa.dot.gov/roadway_dept/road_hardware/signsupports.htm

2) On portable work zone sign stands *which have been successfully tested with rigid substrates* including plywood and solid aluminum. These include X-foot print and H-footprint stands that have identified breakaway features at the base, and are mounted at least 5 feet above the ground. Sign stands in this category may be found on the FHWA web site at:

http://safety.fhwa.dot.gov/roadway_dept/road_hardware/cat2.htm

The results of the testing of the original sign stands and supports met the FHWA requirements and, therefore, the portable stands and permanent sign supports described above, modified with RubberSteel™ material, are acceptable for use under the range of conditions the original sign stands were tested, when proposed by a State.

Please note the following standard provisions that apply to the 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 the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-235 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.
- RubberSteel™ material is patented and 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 by a highway agency* for use on Federal-aid projects: (a) they 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.
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,

/original signed by George Ed Rice, Jr./

~for~

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

FHWA:HSA-10:NArtimovich:tb:x61331:4/27/06

File: h://directory folder/artimovich/WZ235-RubberSteelFIN.doc

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