Refer to: HSA-10/WZ-123

Mr. Henry Ross
United Rentals Highway Technologies
880 North Addison Road
P.O. Box 7050
Villa Park, Illinois 60181-7050

Dear Mr. Ross:

This is in response to your letter requesting Federal Highway Administration (FHWA) acceptance of a modification to your company's High Level SafetyCor portable sign stand with 96" x 48" signs as a crashworthy traffic control device for use in work zones on the National Highway System (NHS). This stand was originally accepted under FHWA Acceptance Letters WZ-94 of September 27, 2001, and WZ-95 of October 1, 2001. The modification consists of using a 2438 mm x 1219 mm (96 inch x 48 inch) sign. You requested that we find these stands 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:

The High Level Safety or portable sign stand is a lightweight sign support made up of 44.5 mm (1.75 inch) square "X-Tube" PVC extrusions. The X-Tube uprights slip into 57.2 mm (2.25 inch) perforated tube steel sockets welded to a support base. The support

base is made up of 50.8 mm x 50.8 mm x 4.8 mm (2 inch x 2 inch x 0.19 inch) thick steel angle iron. The tested sign stand system featured a two-high arrangement of 914 mm wide rectangular signs made of 10.2 mm (0.40 inch) thick "SafetyCor", an unfilled polypropylene copolymer corrugated plastic sheeting material. Each sign is bolted to the uprights with four 7.9 mm (0.31 inch) diameter ASTM A307 hex fasteners and special 38.1 mm (1.5 inch) outside diameter rubber encased flat washers that increase the bearing area and help to prevent sign damage when the stands are stacked. When deployed the bottom of the lowest sign is nominally 1516 mm (60 inches) above the ground, and the overall height is 3662 mm (144 inches) to the top of the highest sign. As tested, the stands weighed 36.1 kg (80 pounds), and had four 18 kg (40 pound) sand bags as ballast. The four bags were placed at the ends of the supports.

Your present request is to mount a 2438 mm x 1219 mm (96 inch x 48 inch) sign of the same material to this stand at a height of 2215 mm (87 in) to the bottom. The top of this sign will be the same as the top height of the tested sign.

Findings

Because the overall height of the subject sign and stand is the same as the system successfully crash tested, and the overall mass is the same or less, we concur that the modifications detailed above are not likely to adversely affect the crashworthy performance of the system, and therefore it will be acceptable for use on the NHS under the range of conditions that the original article was tested, when proposed by a State.

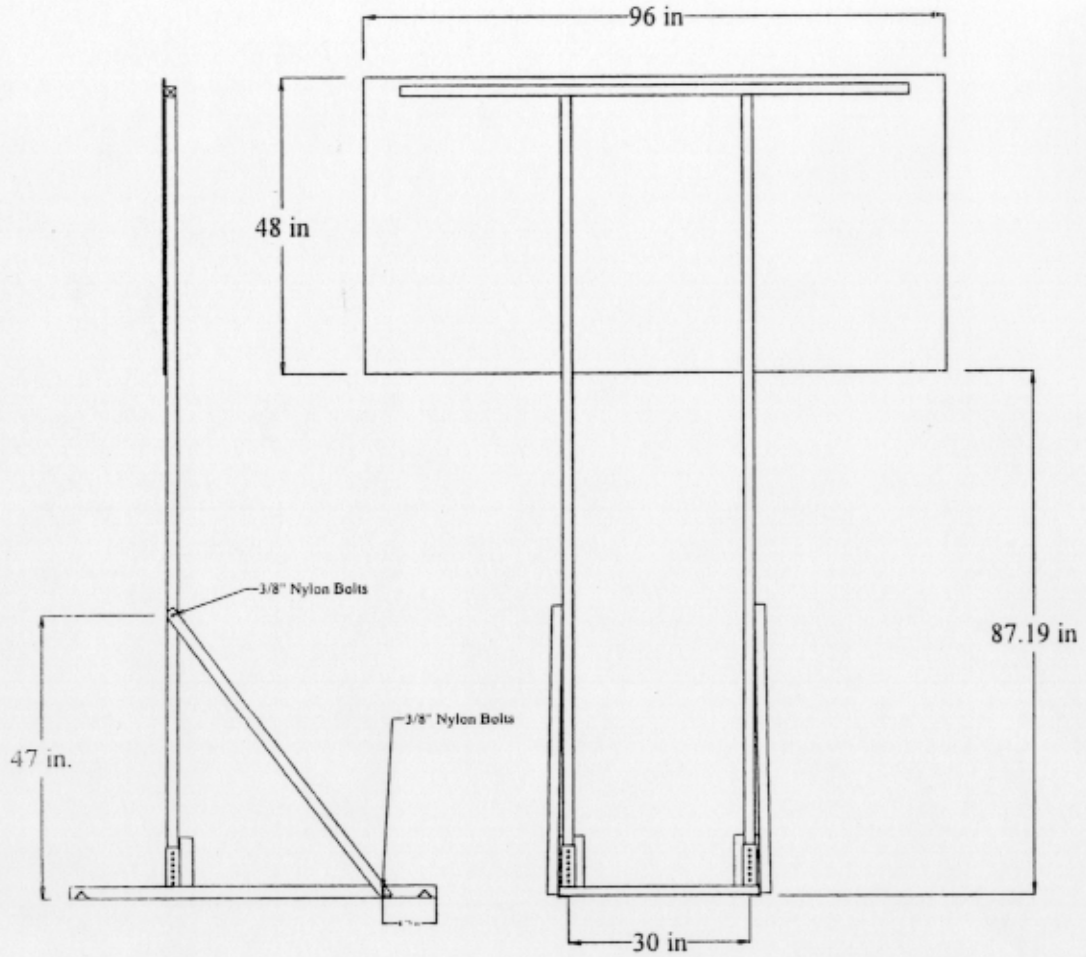
Please note the following standard provisions that apply to FHWA letters of acceptance:

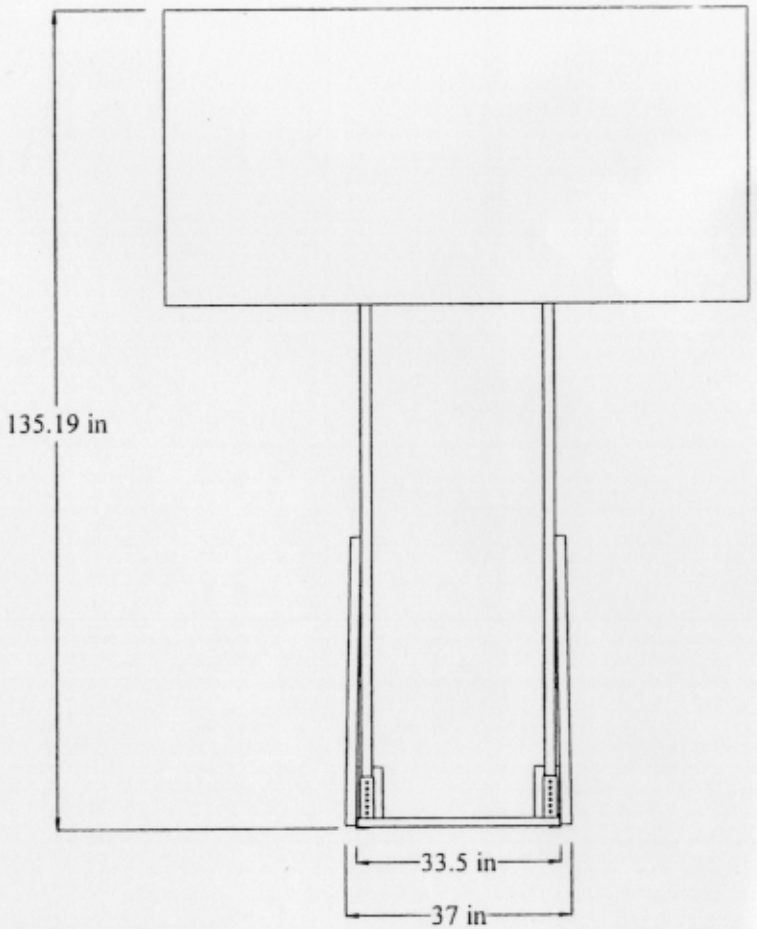
- Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance 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-123 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.

Sincerely yours,

Harry W. Taylor
Acting Director, Office of Safety Design





Materials:

SafetyCor sign panels (100mm)
1-3/4"x1-3/4" x12' plastic X-Tube
Hi-Pro Series 33 Sign Stand Base

United Rentals
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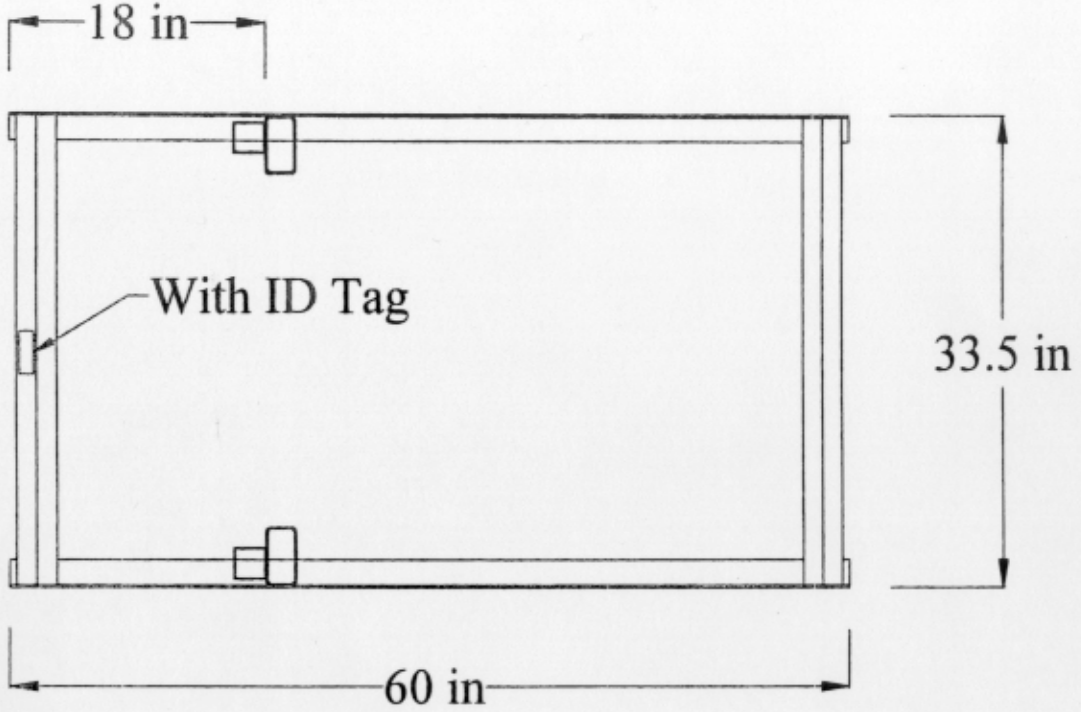
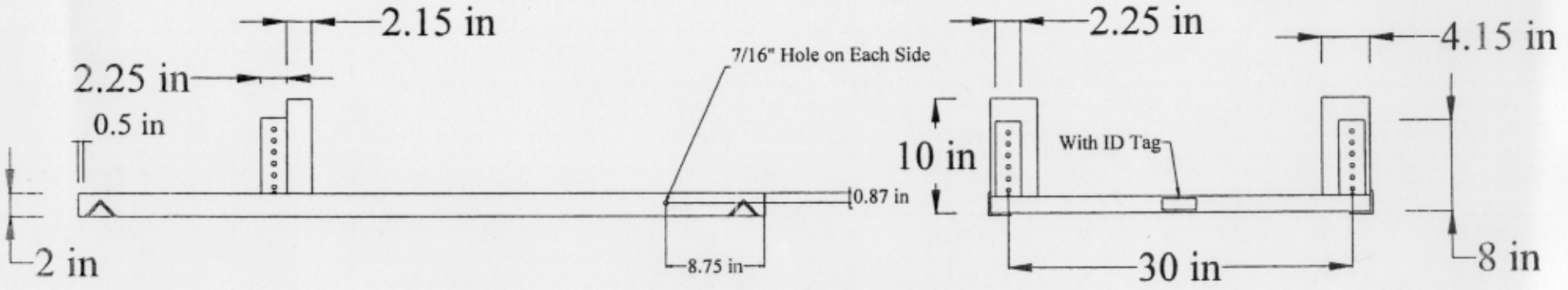
96x48 SafetyCor Sign on Plastic Stan
Hi-Pro Series 33 Sign Stand Base





Materials

2"x2"x3/16" Steel Angle
2"x4"x3/16" Square Tube
2-1/4"x2-1/4"x14 Ga. PSST

United Rentals
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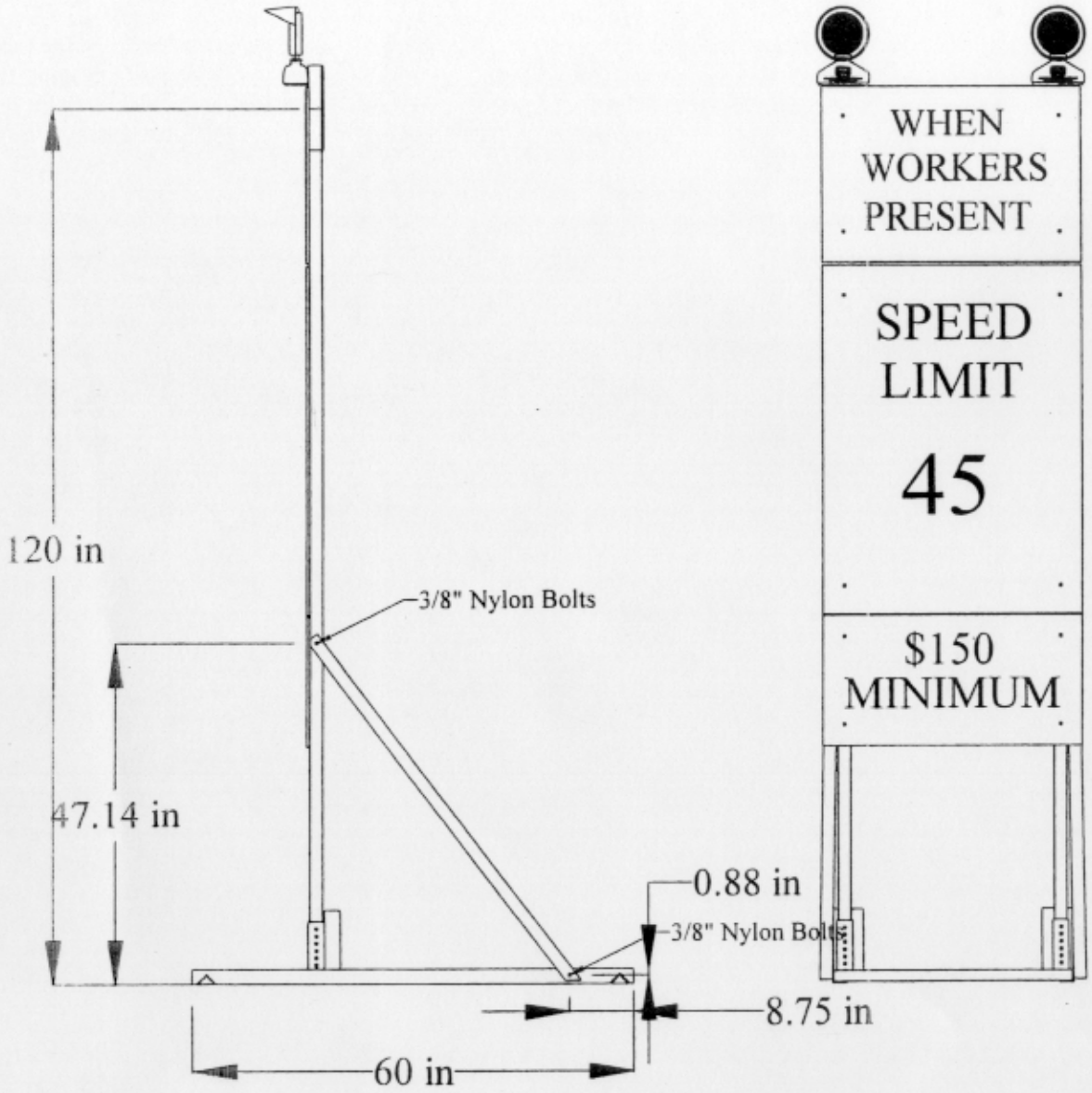
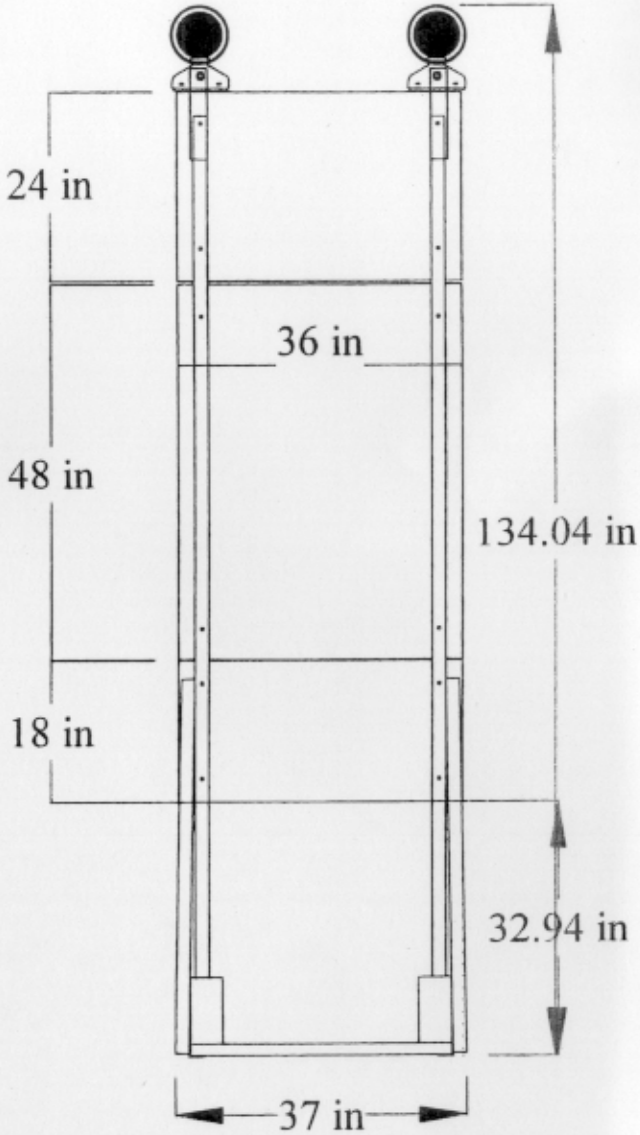
Hi-Pro 350 Series 33
Part No. SXB002001





WZ-94, 9/27/01

Materials:

SafetyCor sign panels (100mm)
1-3/4"x1-3/4" x10' plastic X-Tube
Hi-Pro Series 33 Sign Stand Base
2- Toughlite 2000 Type A or B lights

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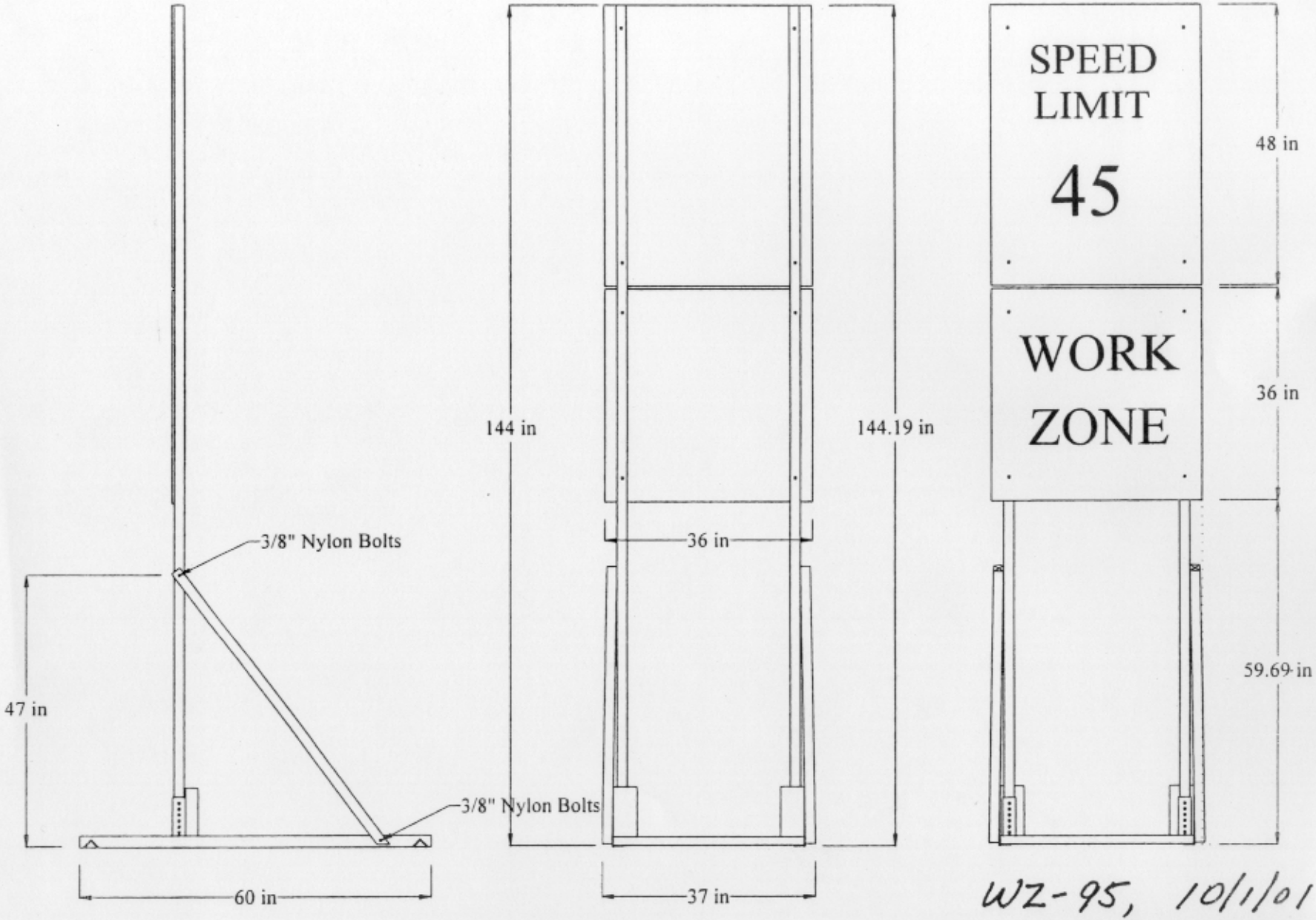
Construction Speed Limit Sign



WZ-95, 10/1/01

Materials:

SafetyCor sign panels (100mm)
1-3/4"x1-3/4" x12' plastic X-Tube
Hi-Pro Series 33 Sign Stand

United Rentals
Highway Technologies

Work Zone Speed Limit Sign