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

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

October 13, 2005

In Reply Refer To: HSA-10/WZ-213

Mr. Paul Wander
Dicke Tool Company
1201 Warren Avenue
P.O. Box 518
Downers Grove, Illinois 60515

Dear Mr. Wander:

Thank you for your letters of April 29, May 16, and June 23, 2005, requesting Federal Highway Administration (FHWA) acceptance of a number of your company's Portable Sign Stands for roll up signs as crashworthy traffic control devices for use in work zones on the National Highway System (NHS). Accompanying your letter were detailed drawings of each of the stand variations, including the DSB100, DSB100HD, DL1003-Latch, TF1214, TF1230, DL1008, and the DL1008FT (Flag Tree). You requested that we find these devices 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" by virtue of their similarity to other crash tested compact sign stands.

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.

A brief description of the devices follows:

This family of compact sign stands support 48 x 48 roll-up signs with fiberglass spreaders on either recycled rubber bases or X-footprint stands are summarized in the following table and illustrated in the enclosed drawings for reference.

Stand	Base	Latch / Height	Vertical Mast*	Horiz Spreader*
DSB100	Crumb Rubber 42.0 pounds	Bone Safety Signs latch	1/4" thick 1 ¼" wide	3/16" thick 1 ¼" wide
DSB100HD	Crumb Rubber 48.0 pounds	Bone Safety Signs latch	1/4" thick 1 ¼" wide	3/16" thick 1 ¼" wide
DL1003-Latch	Steel, with Al. legs 1" and 1.25"	Bone Safety Signs latch	1/4" thick 1 ¼" wide	3/16" thick 1 ¼" wide
TF1214	Steel, dual upright springs, Al. legs 1.25" and 1.50"	Sign attaches to mast @ 12"	Aluminum telescoping 1.5" and 1.25"	(none)
TF1230	Steel, dual upright springs, Al. legs 1.25"	Sign attaches to mast @ 12"	Aluminum telescoping 1.5", 1.25", 1.00"	(none)
DL1008	Steel, with Al. legs 1.25"	Sign attaches to mast @ 36"	Aluminum telescoping 1.5", 1.25", 1.00"	(none)
DL1008FT	Steel, with Al. legs 1.25"	No sign. Two flags at 54.5" and two at 103"	Aluminum telescoping 1.5", 1.25", 1.00"	(none)

* The dimensions of the horizontal and vertical fiberglass spreaders are given for the "compact" sign stands that have no mast higher than that needed to hold the bottom of the sign at the specified height. The specifications for the rollup signs and spreaders are similar for the other stands that include a metal mast that supports flags at the top of the sign.

Testing

The "compact" sign stands DSB-1000, DL-1003, and DL-1003 Latch has not been subjected to full scale crash testing. However the sign and x-footprint components are identical to others you have crash tested, and the rubber bases are similar to those that have proven to be crashworthy through crash testing and use in the field. You also conducted bogie vehicle testing to verify acceptable performance. The three stands are considered "compact sign stands" as discussed in the FHWA acceptance letter WZ-85 when supporting the roll-up signs noted above.

The TF1214 and TF1230 stands are similar in design with the TF1214 having a two-stage mast rather than the three-stage mast found in the TF1230. They are both similar in construction to the PS-3330-S that was found acceptable in the FHWA acceptance letter WZ-17 (System 12) dated June 4, 1999. Bogie testing confirmed similar performance.

The DL1008 and DL1008-FT are similar to other acceptable aluminum mast sign stands and were subjected to bogie testing. It was evident that only minor windshield contact from the roll up sign and the horizontal spreaders would result from a full-scale test. No portion of the stand itself impacted near the windshield.

Findings

The results of the bogie testing indicated that the stands detailed above would meet the FHWA requirements and, therefore, the devices described in the various requests above and illustrated in the enclosed drawings are acceptable for use on the NHS under the range of conditions 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-213 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.
- The Dicke Tool Company sign stands are patented devices and are 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 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.

- 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,

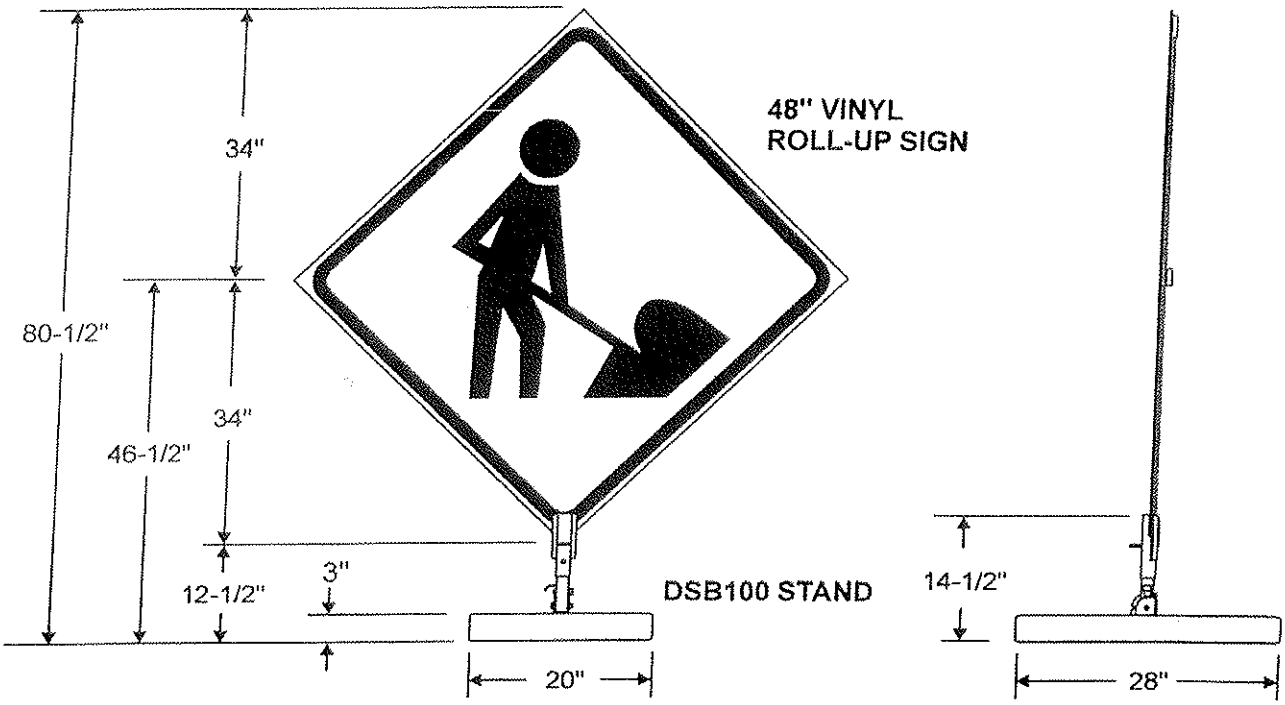
/original signed by/

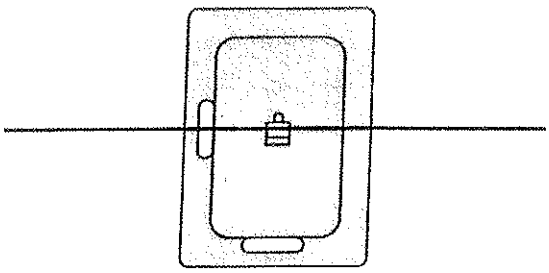
John R. Baxter, P.E.
Director, Office of Safety Design
Office of Safety

Enclosures

FHWA:HSA-10:NArtimovich:tb:x61331:10/04/05
File: h://directory folder/artimovich/WZ213-DickeFIN
cc: HSA-10 (Reader, HSA-1; Chron File, HSA-10;
N.Artimovich, HSA-10)

DSB100 and DSB100HD Stand





DSB100 STAND

- Base- Crumb Rubber
- Sign Holder - Steel and Aluminum

RUR48 SIGN

- Panel- Reflective vinyl, 48" x 48"
- Crossbrace- Vertical member is 1/4" th. x 1-1/4" w x 65" long fiberglass
- Crossbrace- Horizontal member is 3/16" x 1-1/4" w x 65" long fiberglass

Weight: DSB100

Sign, Crossbrace,	5.5 lbs.
Sign Stand	42.0 lbs.
Total	47.5 lbs.

Weight: DSB100HD

Sign, Crossbrace,	5.5 lbs.
Sign Stand	48.0 lbs.
Total	53.5 lbs.

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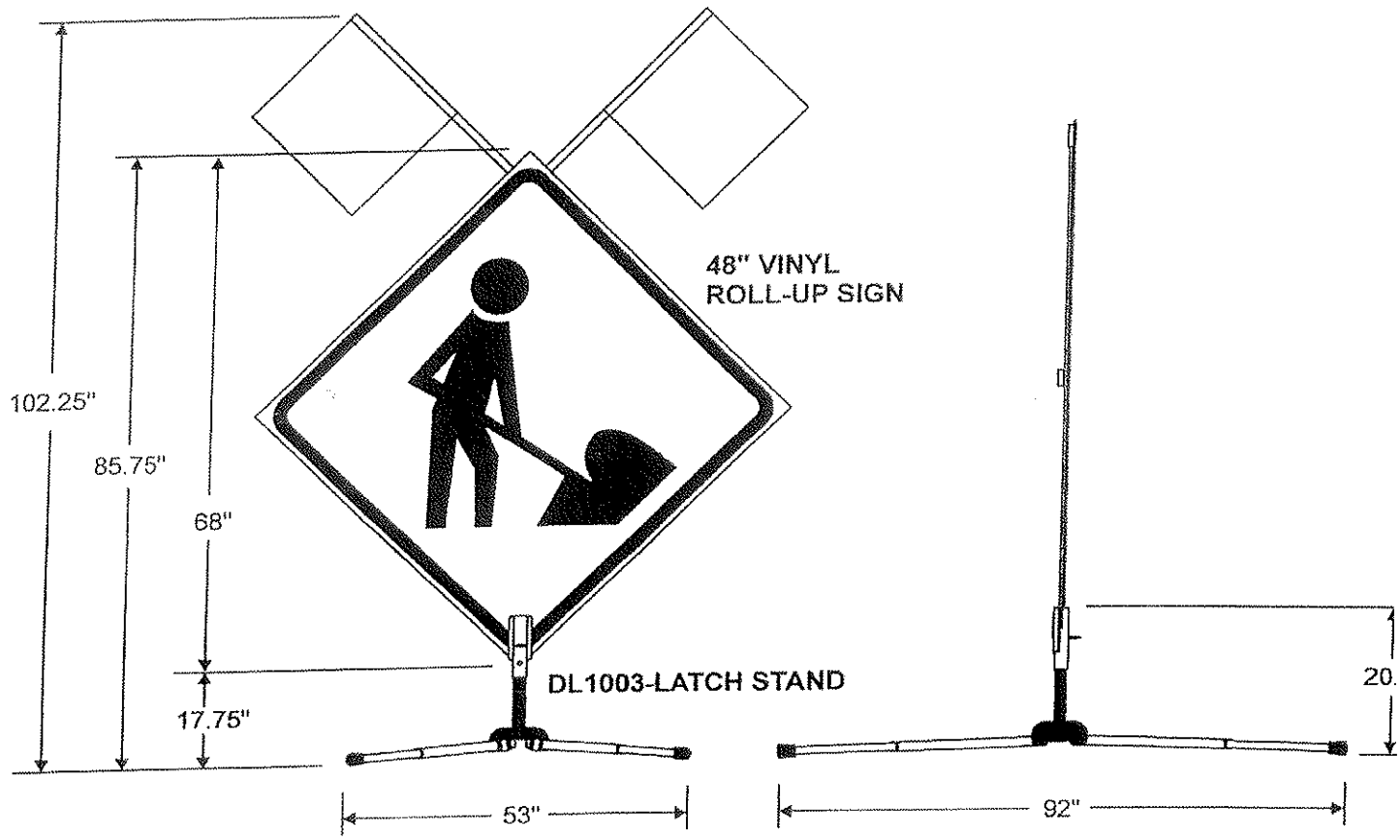
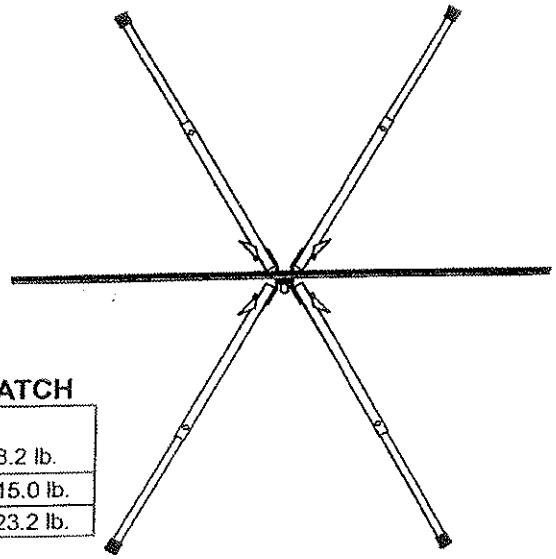
DL1003-LATCH





Weight: DL1003-LATCH

Sign, Crossbrace, Flags	8.2 lb.
Sign Stand	15.0 lb.
Total	23.2 lb.

DL100Latch

- Base - Steel and aluminum non-spring base with pocket-holding latch style sign holder.
- Legs - Telescopic 1.25" and 1" sq. aluminum tubing.

RUR48 SIGN

- Panel- Reflective vinyl, 48" x 48"
- Crossbrace- Vertical member is 1/4" th. x 1-1/4" w x 66-1/14" long fiberglass
- Crossbrace- Horizontal member is 3/16" th x 1-1/4" w x 66-1/4" long fiberglass
- Flags- 18" x 18" vinyl with 1/8" th. x 1" w x 30" fiberglass staff

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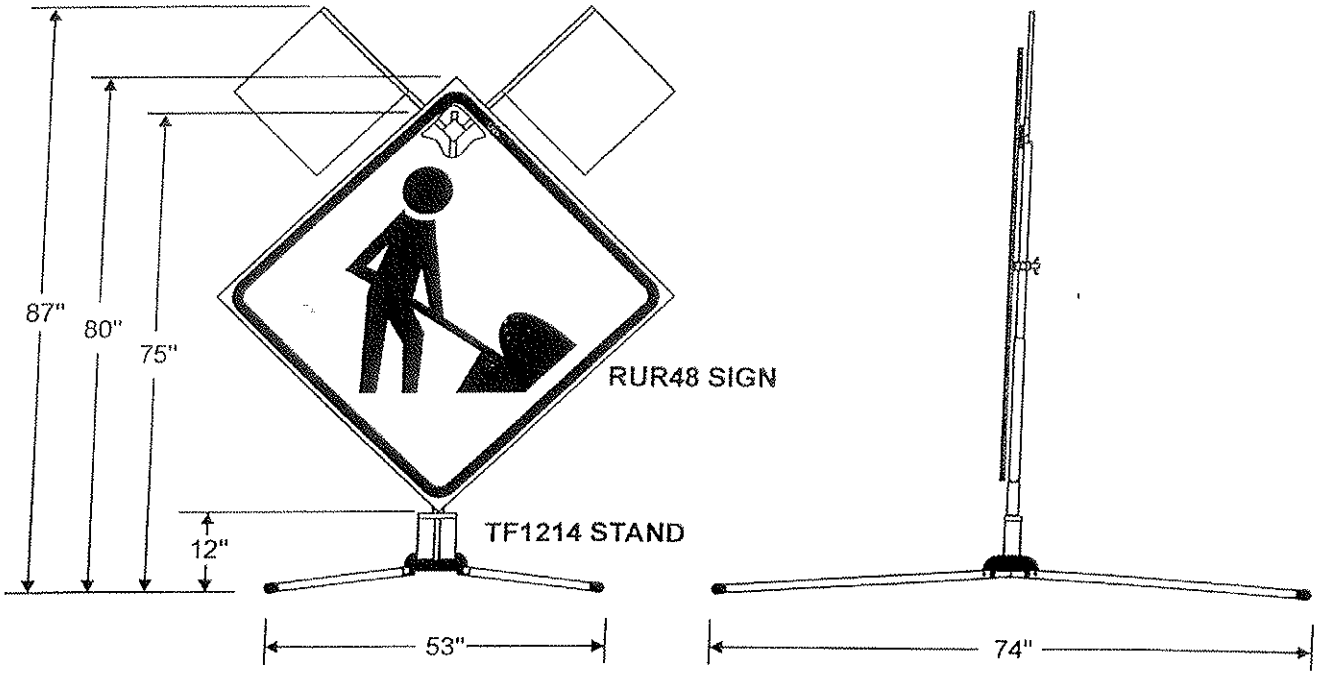
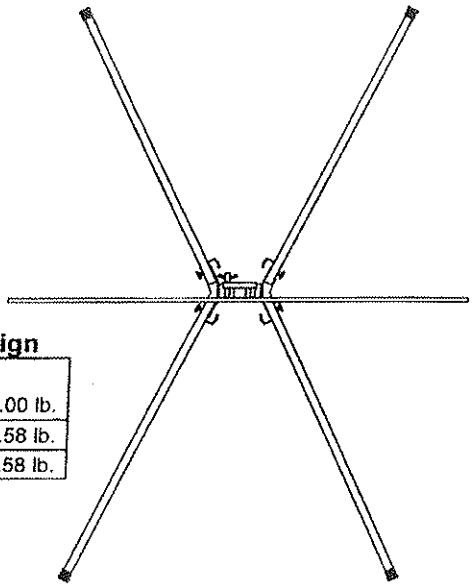
TF1214
for Roll-Up Signs





Weight: TF1214 w/sign

Sign, Crossbrace, Flags	8.00 lb.
Sign Stand	27.58 lb.
Total	35.58 lb.

TF1214 STAND

- Base- Steel with dual upright spring system
- Mast- Telescoping 1-1/2" and 1-1/4" sq. aluminum tubing
- Legs- 1-1/4" sq. aluminum legs

RUR48 SIGN

- Panel- Reflective vinyl, 48" x 48"
- Crossbrace- Vertical member is 1/4" th. x 1-1/4" w x 65" long fiberglass
- Crossbrace- Horizontal member is 3/16" th. x 1-1/4" w x 65" long fiberglass
- Flags- 18" x 18" vinyl with 3/4" rnd. x 24" wood staff

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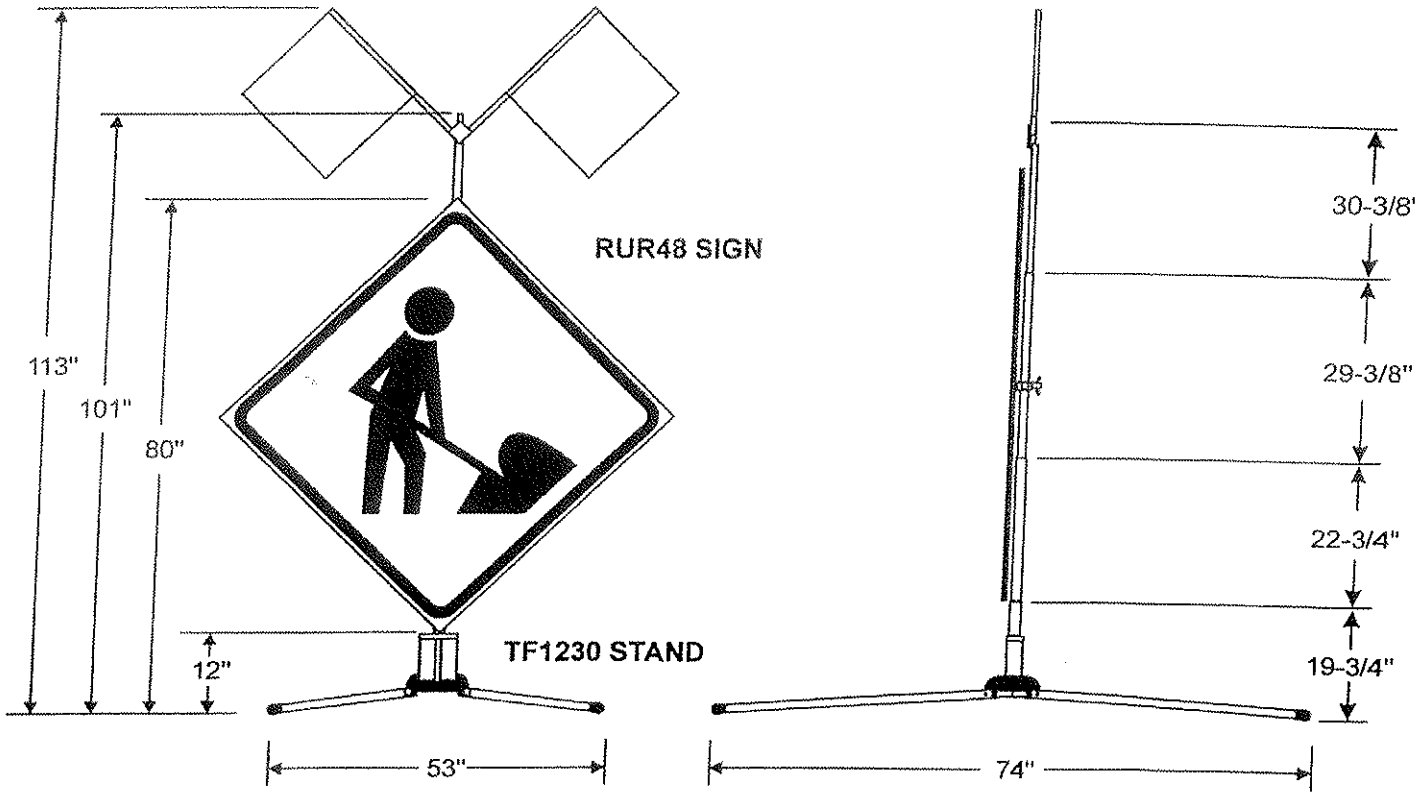
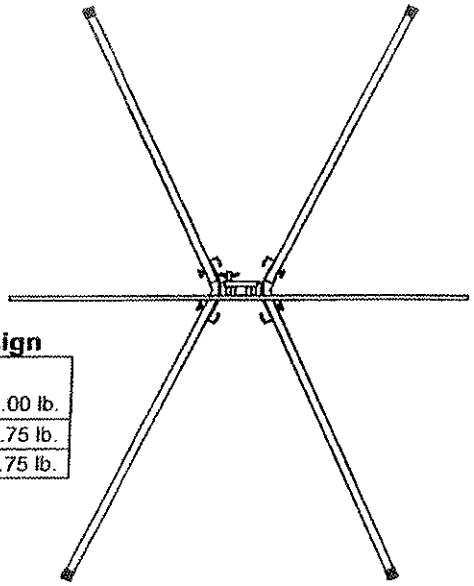
TF1230
for Roll-Up Signs





Weight: TF1230 w/sign

Sign, Crossbrace, Flags	8.00 lb.
Sign Stand	27.75 lb.
Total	35.75 lb.

TF1230 STAND

- Base- Steel with dual upright spring system
- Mast- Telescoping 1-1/2", 1-1/4", and 1" sq. aluminum tubing
- Legs- 1-1/4" sq. aluminum legs

RUR48 SIGN

- Panel- Reflective vinyl, 48" x 48"
- Crossbrace- Vertical member is 1/4" th. x 1-1/4" w x 65" long fiberglass
- Crossbrace- Horizontal member is 3/16" th. x 1-1/4" w x 65" long fiberglass
- Flags- 18" x 18" vinyl with 3/4" rnd. x 24" wood staff

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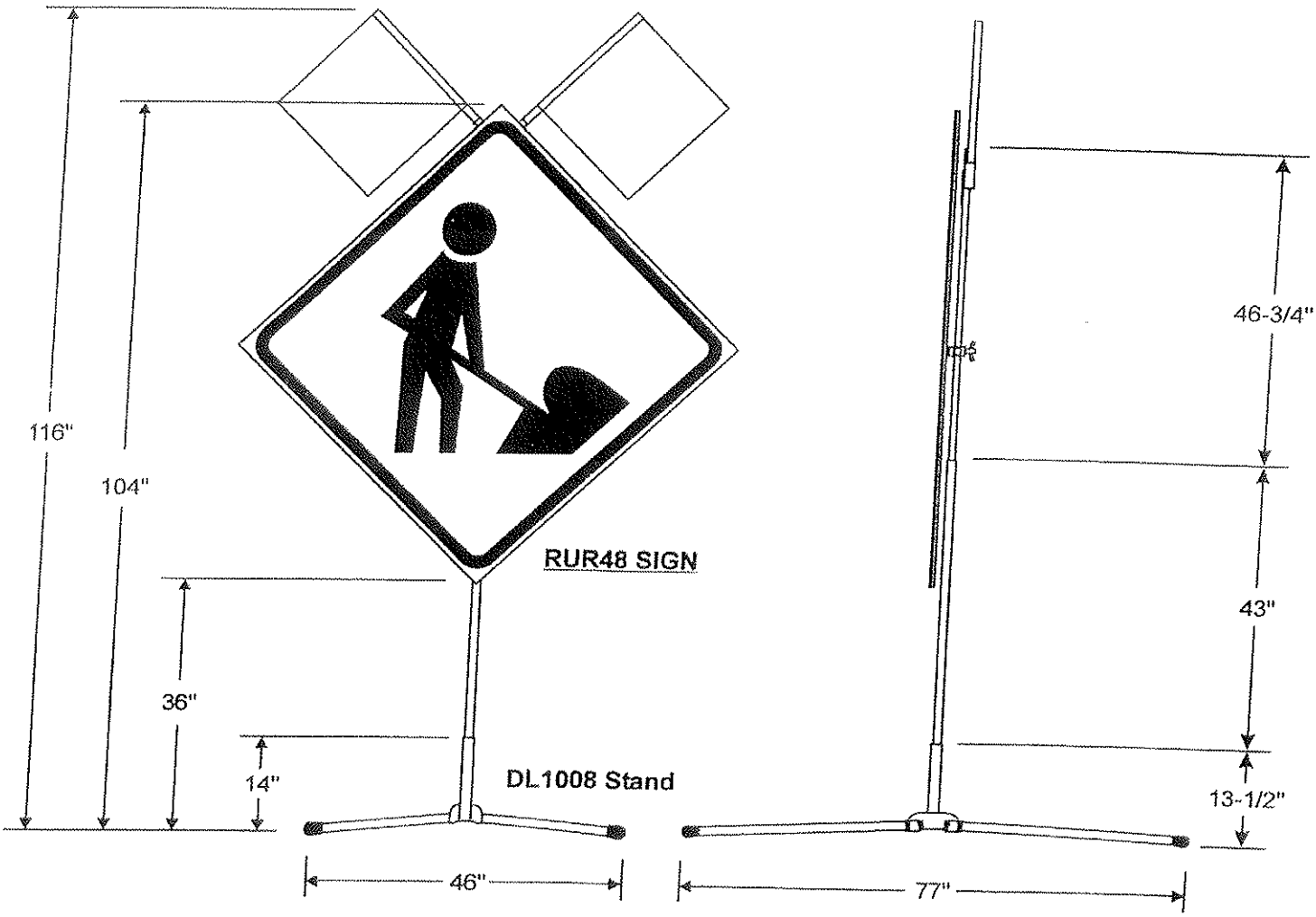
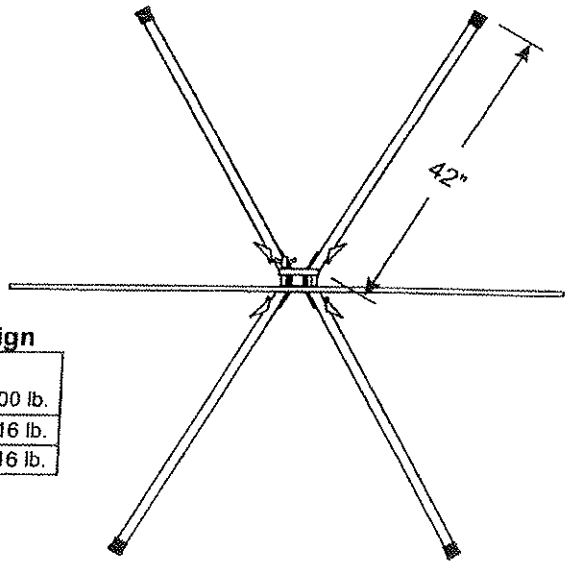
DL1008
for Roll-Up Signs





Weight: DL1008 w/sign

Sign, Crossbrace, Flags	8.00 lb.
Sign Stand	17.16 lb.
Total	25.16 lb.

DL1008 STAND

- Base- Steel, no spring
- Mast- Telescoping 1-1/2", 1-1/4", and 1" sq. aluminum tubing
- Legs- 1-1/4" sq. aluminum legs

RUR48 SIGN

- Panel- Reflective vinyl, 48" x 48"
- Crossbrace- Vertical member is 1/4" th. x 1-1/4" w x 65" long fiberglass
- Crossbrace - Horizontal member is 3/16" th. x 1-1/4" w x 65" long fiberglass
- Flags- 18" x 18" vinyl with 3/4" rnd. x 30" wood staff

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