



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

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

June 1, 2016

In Reply Refer To:
HSST-1/WZ-114A

Mr. Troy Tapley
MDI Worldwide
38271 W. Twelve Mile Road
Farmington Hills, Michigan 48331

Dear Mr. Tapley:

This letter is in response to your December 29, 2015 request for the Federal Highway Administration (FHWA) to review a roadside safety device, hardware, or system for eligibility for reimbursement under the Federal-aid highway program. This FHWA letter of eligibility is assigned FHWA control number WZ-114A and is valid until a subsequent letter is issued by FHWA that expressly references this device.

Decision

The following devices are eligible, with details provided in the form which is attached as an integral part of this letter:

- 5012 Sign Stands

Scope of this Letter

To be found eligible for Federal-aid funding, modified roadside safety devices should meet the crash test and evaluation criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350. However, the FHWA, the Department of Transportation, and the United States Government do not regulate the manufacture of roadside safety devices. Eligibility for reimbursement under the Federal-aid highway program does not establish approval, certification or endorsement of the device for any particular purpose or use.

This letter is not a determination by the FHWA, the Department of Transportation, or the United States Government that a vehicle crash involving the device will result in any particular outcome, nor is it a guarantee of the in-service performance of this device. Proper manufacturing, installation, and maintenance are required in order for this device to function as tested.

This finding of eligibility is limited to the crashworthiness of the system and does not cover other structural features, nor conformity with the Manual on Uniform Traffic Control Devices.

Eligibility for Reimbursement

FHWA previously issued an eligibility letter for the roadside safety system described in your pending request. Your pending request now identifies a modification to that roadside safety system.

The original roadside safety device information is provided here:

Name of system: 5012 Sign Stands
Type of system: Work Zone Traffic Control Device
Date of original FHWA eligibility letter: April 9, 2002
FHWA Control number: WZ-114

The pending modification(s) consists of the following changes:

1. The legs to be constructed with steel or aluminum. In addition, the legs to be telescoping and non-telescoping.
2. The legs to be constructed with square tubing not to exceed 1.25 in x 1.25 in x .06 in [30 mm x 30 mm x 1.5 mm] and 1.00 in x 1.00 in x .06 in [25 mm x 25 mm x 1.5 mm].
3. The sign holding bracket differs.
4. The base unit of the sign stands to be constructed with and without the use of a wind deflecting steel spring.

FHWA concurs with the recommendation of the accredited crash testing laboratory as stated within the attached form.

Full Description of the Eligible Device

The device and supporting documentation, including reports of the crash tests or other testing done, videos of any crash testing, and/or drawings of the device, are described in the attached form.

Notice

If a manufacturer makes any modification to any of their roadside safety hardware that has an existing eligibility letter from FHWA, the manufacturer must notify FHWA of such modification with a request for continued eligibility for reimbursement. The notice of all modifications to a device must be accompanied by:

- Significant modifications – For these modifications, crash test results must be submitted with accompanying documentation and videos.
- Non-signification modifications – For these modifications, a statement from the crash test laboratory on the potential effect of the modification on the ability of the device to meet the relevant crash test criteria.

FHWA's determination of continued eligibility for the modified hardware will be based on whether the modified hardware will continue to meet the relevant crash test criteria.

You are expected to supply potential users with sufficient information on design, installation and maintenance 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 test and evaluation criteria of the NCHRP Report 350.

Issuance of this letter does not convey property rights of any sort or any exclusive privilege. This letter is based on the premise that information and reports submitted by you are accurate and correct. We reserve the right to modify or revoke this letter if: (1) there are any inaccuracies in the information submitted in support of your request for this letter, (2) the qualification testing was flawed, (3) in-service performance or other information reveals safety problems, (4) the system is significantly different from the version that was crash tested, or (5) any other information indicates that the letter was issued in error or otherwise does not reflect full and complete information about the crashworthiness of the system.

Standard Provisions

- To prevent misunderstanding by others, this letter of eligibility designated as FHWA control number WZ-114A 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 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.
- If the subject device is a patented product it may be considered to be proprietary. If proprietary systems 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 the 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.

Sincerely yours,

A handwritten signature in blue ink that reads "Michael S. Griffith". The signature is written in a cursive style with a large, stylized initial "M".

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

Enclosures

Request for Federal Aid Reimbursement Eligibility of Highway Safety Hardware

Submitter	Date of Request:	December 29, 2015	<input type="radio"/> New <input checked="" type="radio"/> Resubmission
	Name:	Troy Tapley	
	Company:	MDI Worldwide	
	Address:	38271 W. Twelve Mile Road, Farmington Hills, Michigan 48331	
	Country:	United States	
	To:	Michael S. Griffith, Director FHWA, Office of Safety Technologies	

I request the following devices be considered eligible for reimbursement under the Federal-aid highway program.

System Type	Submission Type	Device Name / Variant	Testing Criterion	Test Level
'WZ': Crash Worthy Work Zone Traffic Control Devices	<input type="radio"/> Physical Crash Testing <input checked="" type="radio"/> Engineering Analysis	5012SS	NCHRP Report 350	TL3

By submitting this request for review and evaluation by the Federal Highway Administration, I certify that the product(s) was (were) tested in conformity with the NCHRP Report 350 (Report 350) and that the evaluation results meet the appropriate evaluation criteria in the Report 350.

Identification of the individual or organization responsible for the product:

Contact Name:	Troy Tapley	Same as Submitter <input checked="" type="checkbox"/>
Company Name:	MDI Worldwide	Same as Submitter <input checked="" type="checkbox"/>
Address:	38271 W. Twelve Mile Road, Farmington Hills, Michigan 48331	Same as Submitter <input checked="" type="checkbox"/>
Country:	United States	Same as Submitter <input checked="" type="checkbox"/>

Enter below all disclosures of financial interests as required by the FHWA 'Federal-Aid Reimbursement Eligibility Process for Safety Hardware Devices' document.

Texas Transportation Institute (TTI) Proving Ground was compensated for the cost to perform the evaluation. Contract No. 1600838. No consulting relationships, research funding or other forms of research support, patents, copyrights, other intellectual property interests, licenses, contractual relationships, business ownership or investment interests are retained for the TTI Proving Ground.

PRODUCT DESCRIPTION

<input checked="" type="radio"/> New Hardware or Significant Modification	<input checked="" type="radio"/> Modification to Existing Hardware	Non-Significant
<p>Product Description of 5012SS (Reference drawing ZA-07492-01)</p> <p>5012SS Compact Sign Stand is used in displaying up to 48 inch diamond shape or up to 16 sq. ft. [1.5 sq. meters] roll up signs.</p> <p>Further description: The 5012SS Compact Sign Stand is a portable/fold-up sign stand that is manufactured with (1) vertically mounted wind deflecting steel spring to support roll-up signs. The base of the sign stand consists of a .188 in [5mm] thick steel base, (4) telescoping legs, square steel upright and (1) vertically mounted steel spring attaching the base and upright. The legs are constructed of square steel tubing 1.00 in x 1.00 in x .06 in [25 mm x 25 mm x 1.5 mm] and 0.75 in x 0.75 in x .06 in [20 mm x 20 mm x 1.5 mm]. The upright consists of a square steel tube 1.25 in x 1.25 in x .06 in [30 mm x 30 mm x 1.5 mm]. The upright allows for a removable Screw Lock Bracket. The Screw Lock Bracket is used to attach the base unit and the fiberglass cross brace of the sign. The overall height of the sign stand with vinyl flags mounted above the sign is 104 in [2642 mm] and 80 in [2032 mm] without the flags. The bottom of the sign is 12 in [305 mm] above grade. The total weight of the sign stand is 27.3 lbs [12.4 kg] which includes the stand of 19.6 lbs. [8.9 kg], a 48" x 48" roll up sign of 6.7 lbs [3.0 kg] and (3) vinyl flags of 1.0 lbs [0.5 kg].</p> <p>The 5012SS was deemed eligible for federal funding in WZ-114</p> <p>Modifications being requested: Note: We request WZ-114 to be amended.</p> <p>The following models listed below are modifications to the 5012SS. The primary differences are as follow:</p> <ol style="list-style-type: none"> a. The legs to be constructed with steel or aluminum. In addition, the legs to be telescoping and non-telescoping. b. The legs to be constructed with square tubing not to exceed 1.25 in x 1.25 in x .06 in [30 mm x 30 mm x 1.5 mm] and 1.00 in x 1.00 in x .06 in [25 mm x 25 mm x 1.5 mm]. c. The sign holding bracket differs. d. The base unit of the sign stands to be constructed with and without the use of a wind deflecting steel spring. <p>Models "MDI Compact Sign Stands" being requested for approval:</p> <ol style="list-style-type: none"> 1. 5012SS Ref: Drawing No. ZA-07492-02 (Modified with larger legs) 2. 5012SSAL Ref: Drawing No. ZA-07492-03 3. 5012NS Ref: Drawing No. ZA-07492-05 4. 5012NSAL Ref: Drawing No. ZA-07492-06 5. 5012SSPL Ref: Drawing No. ZA-07492-14 6. 5012SSALPL Ref: Drawing No. ZA-07492-15 7. 5012NSPL Ref: Drawing No. ZA-07492-16 <p>Model Number Nomenclature Structure (Reference)</p> <p>50 = Steel legs 12 = Bottom of sign held 12" above grade SS = Single spring NS = No spring AL = Aluminum legs (override prefix) PL = Pocket Lock sign holding bracket</p>		

CRASH TESTING

A brief description of each crash test and its result:

Required Test Number	Narrative Description	Evaluation Results
3-70 (820C)	NCHRP-350 states this test is intended to evaluate the breakaway, fracture, or yielding mechanisms. Therefore, this test is not needed for this device.	Non-Critical, not conducted
S3-70 (700C)	Testing is optional and not needed for these devices.	Non-Critical, not conducted
3-71 (820C)	<p>Modification Comparables:</p> <p>a. A NCHRP-350 3-71 test was conducted on the MDI 4814CS "Compact Sign Stand", Research Study No. 99002.</p> <p>b. Eligibility letter WZ-114 was issued for the 5012SS. The primary difference between sign stands was the gripping mechanism. The 4814CS was constructed with the mast extended to the center of the sign. The 5012SS is constructed with the gripping mechanism as low as possible on the sign cross brace member.</p> <p>c. The modifications listed above of the leg construction, the sign holding bracket and the base unit of the sign stands to be constructed with and without the use of a wind deflecting steel spring results in different mass properties and kinetic energy properties within each model. These modifications to the "MDI Compact Sign Stands" should not affect their performance nor the crashworthiness.</p> <p>d. TTI Engineering Analysis, Project No. 690900-MDI MISC2 analyzed the overall geometry of the "MDI Compact Sign Stands", their mass properties and the energy the sign stands exerts on a vehicle during a collision. The modifications to the "MDI Compact Sign Stands" listed above were found comparable in design and the mass properties and kinetic energy properties to be within the threshold.</p> <p>e. TTI concluded with the comparable properties, the "MDI Compact Sign Stands" should perform in the same manner and require no further testing.</p>	Non-Critical, not conducted
S3-71 (700C)	Testing is optional and not needed for these devices.	Non-Critical, not conducted

Full Scale Crash Testing was done in compliance with NCHRP Report 350 by the following accredited crash test Laboratory. By signature below, the Laboratory agrees in support of this submission that all critical and relevant crash tests for the device listed above were conducted. (cite the laboratory's accreditation status as noted in the crash test reports.):

Testing Laboratory's signature concurs that these modifications are considered Non-Significant.		
Laboratory Name:	Texas Transportation Institute	
Laboratory Signature:	Dean C. Alberson	<small>Digitally signed by Dean C. Alberson DN: cn=Dean C. Alberson, o=Texas AM Transportation Institute, ou=Roadway Safety and Physical Security Division, email=dalberson@tti.tamu.edu, c=US Date: 2016.03.22 15:28:42 -05'00'</small>
Address:	3135 TAMU, College Station, TX 77843-3135	Same as Submitter <input type="checkbox"/>
Country:	USA	Same as Submitter <input type="checkbox"/>
Accreditation Certificate Number and Dates of current Accreditation period :	A2LA # 2821.01 Valid until 04/30/2017	

Submitter Signature*:  Digitally signed by Troy Tapley
Date: 2016.03.07 16:15:18 -05'00'

Submit Form

ATTACHMENTS

Attach to this form:

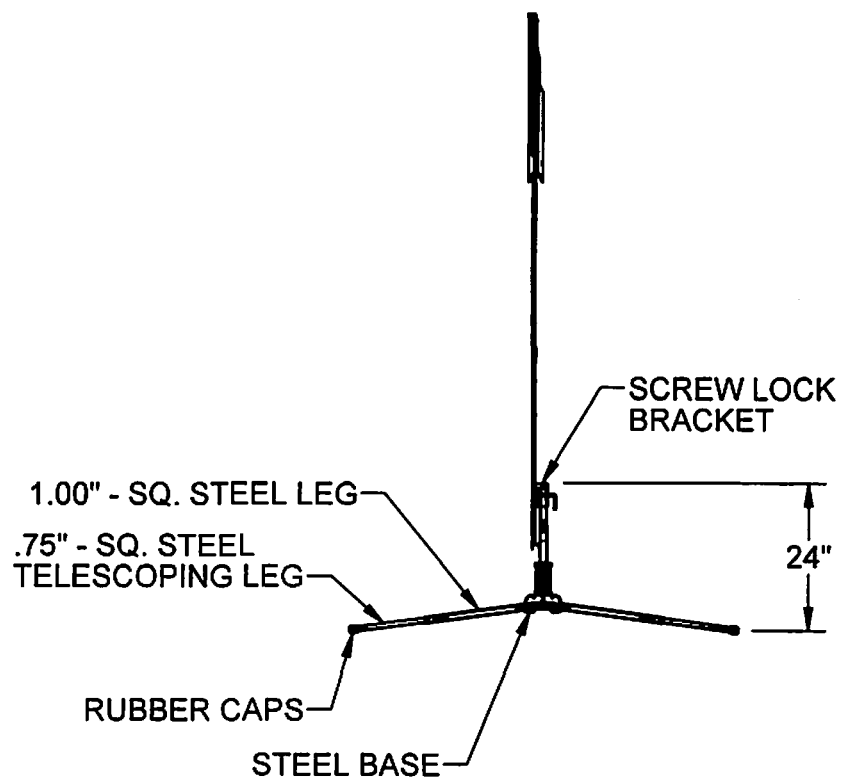
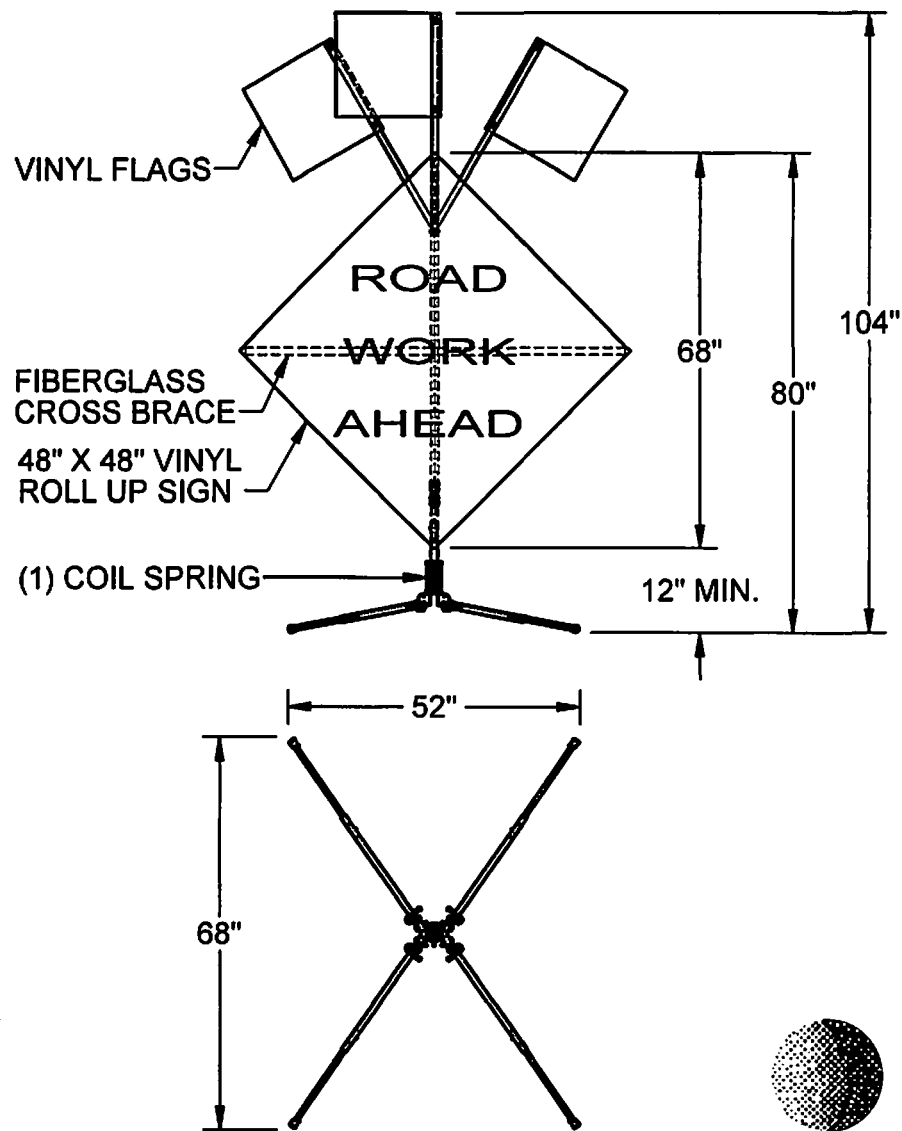
- 1) Additional disclosures of related financial interest as indicated above.
- 2) A copy of the full test report, video, and a Test Data Summary Sheet for each test conducted in support of this request.
- 3) A drawing or drawings of the device(s) that conform to the Task Force-13 Drawing Specifications [[Hardware Guide Drawing Standards](#)]. For proprietary products, a single isometric line drawing is usually acceptable to illustrate the product, with detailed specifications, intended use, and contact information provided on the reverse. Additional drawings (not in TF-13 format) showing details that are relevant to understanding the dimensions and performance of the device should also be submitted to facilitate our review.

FHWA Official Business Only:

Eligibility Letter		AASHTO TF13	
Number	Date	Designator	Key Words
WZ-114A			Work Zone Sign Stand, compact sign stand

5012SS
SCHEMATIC DRAWING
ROLL UP SIGNS

WZ NOTE:
 5012SS PREVIOUSLY ACCEPTED
 AND RECORDED UNDER WZ-114



5012SS WEIGHT

ROLL UP SIGN	6.7 lbs.
FLAGS	1.0 lbs.
SIGN STAND	19.6 lbs.
TOTAL	27.3 lbs.



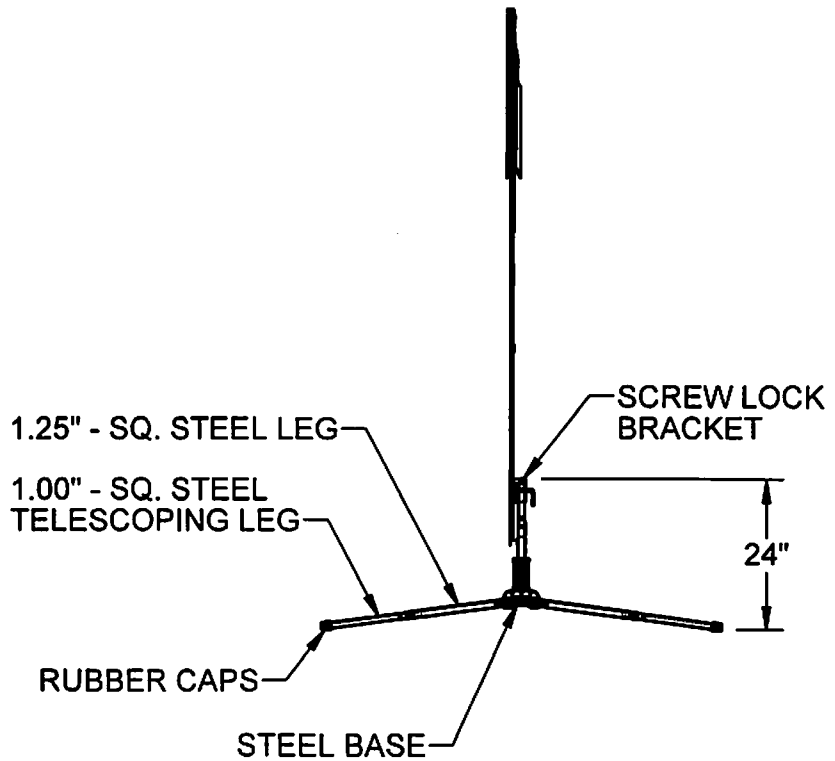
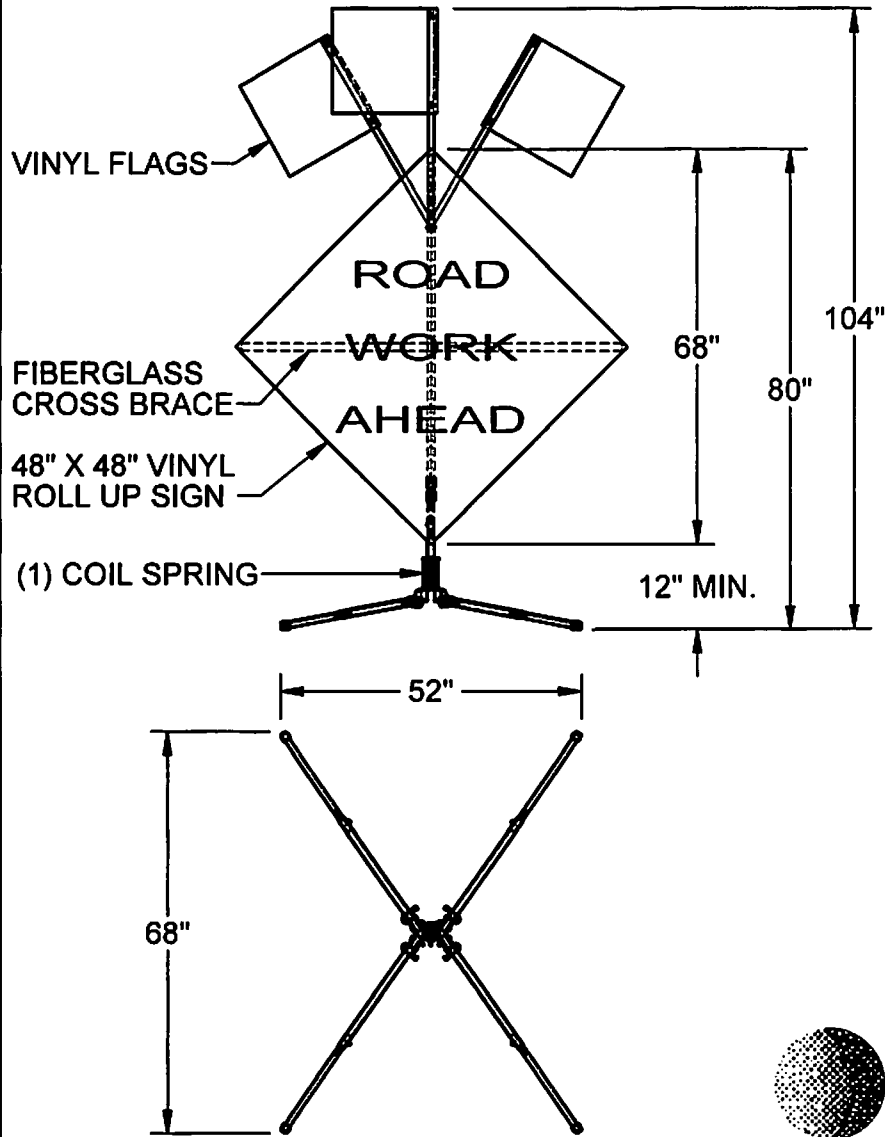
MDI Traffic Control Products, 38271 West 12 Mile Road, Farmington Hills, MI 48331-3041 800-521-6776

ZA-07492-01

ZA-07492-01

ZA-07492-01

5012SS
SCHEMATIC DRAWING
ROLL UP SIGNS



5012SS WEIGHT

ROLL UP SIGN	6.7 lbs.
FLAGS	1.0 lbs.
SIGN STAND	23.1 lbs.
TOTAL	30.8 lbs.



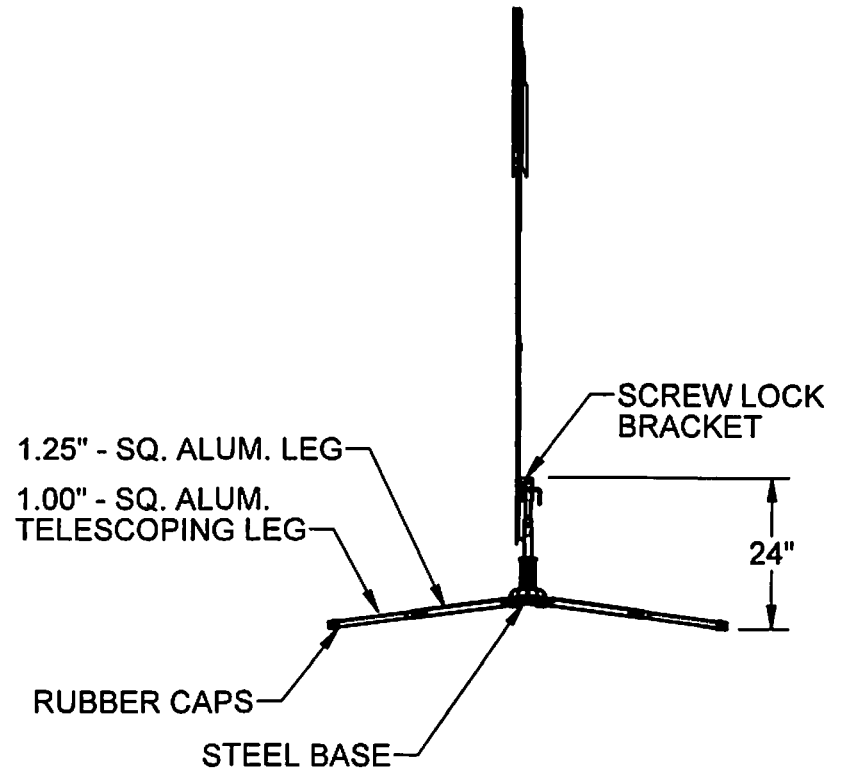
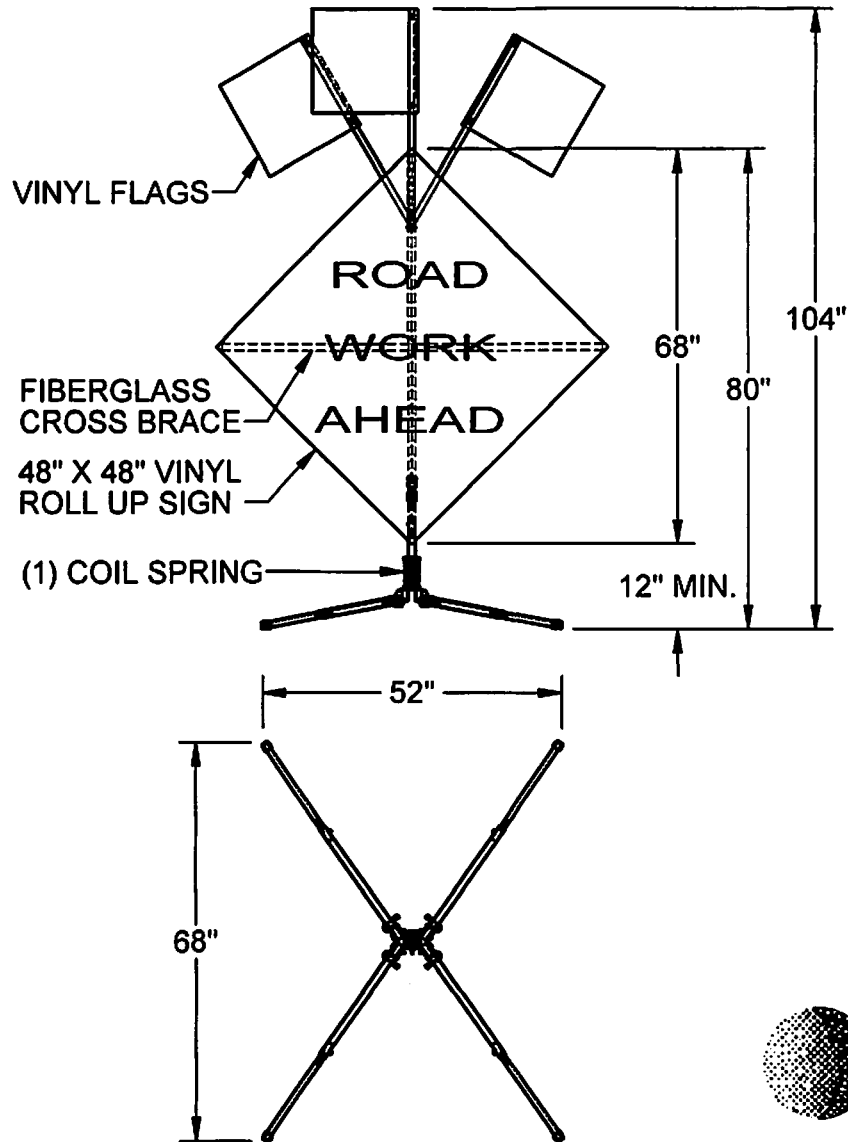
MDI Traffic Control Products, 38271 West 12 Mile Road, Farmington Hills, MI 48331-3041 800-521-6776

ZA-07492-02

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ZA-07492-02

5012SSAL
SCHEMATIC DRAWING
ROLL UP SIGNS



5012SSAL WEIGHT

ROLL UP SIGN	6.7 lbs.
FLAGS	1.0 lbs.
SIGN STAND	18.1 lbs.
TOTAL	25.8 lbs.



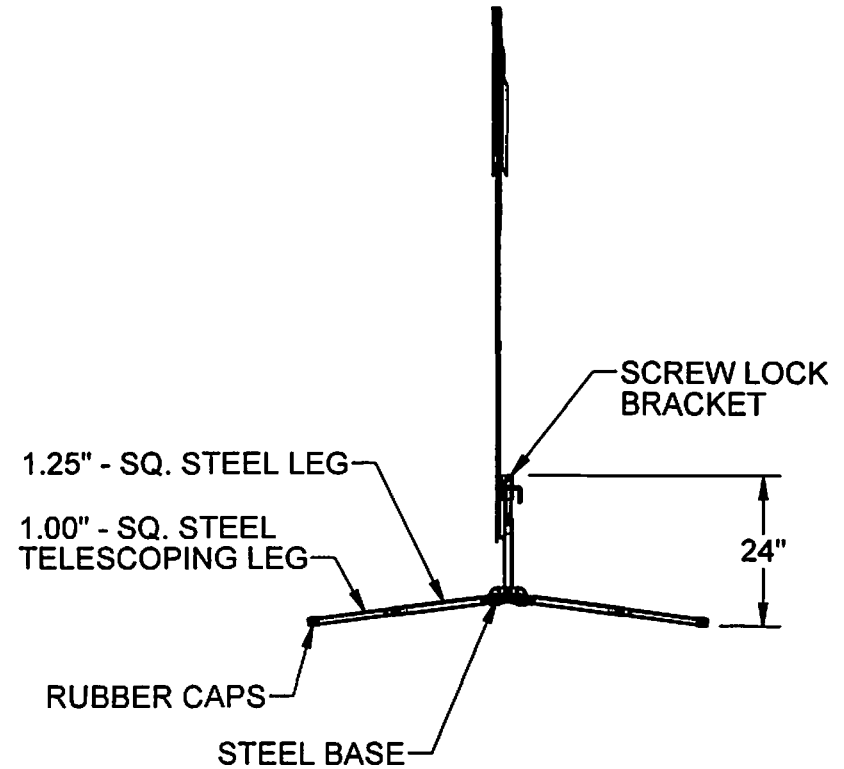
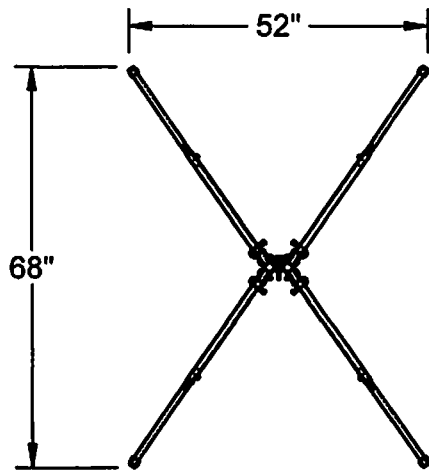
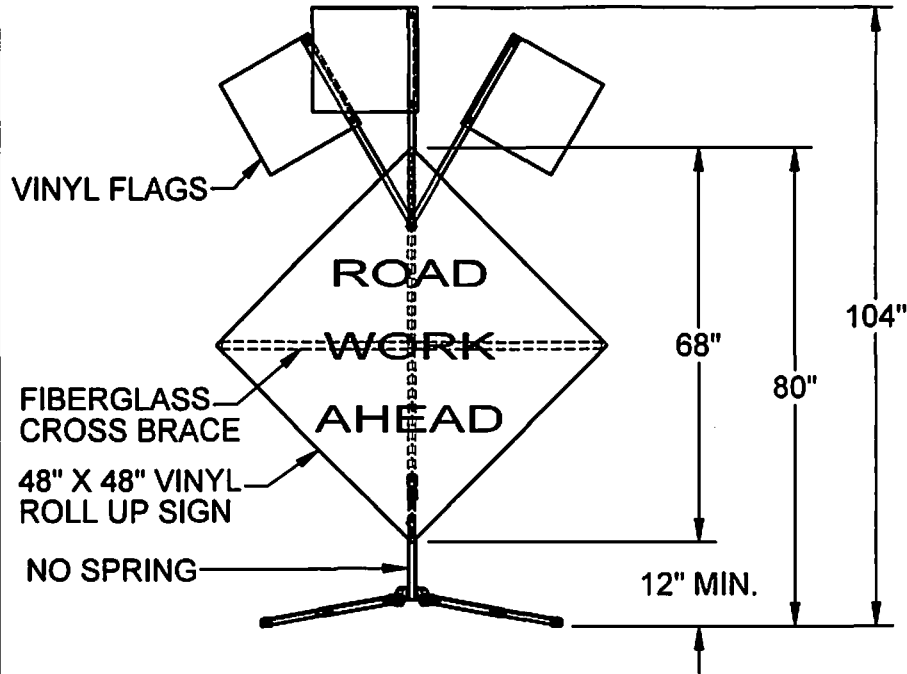
MDI Traffic Control Products, 38271 West 12 Mile Road, Farmington Hills, MI 48331-3041 800-521-6776

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ZA-07492-03

ZA-07492-03

**5012NS
SCHEMATIC DRAWING
ROLL UP SIGNS**



5012NS WEIGHT

ROLL UP SIGN	6.7 lbs.
FLAGS	1.0 lbs.
SIGN STAND	20.7 lbs.
TOTAL	28.4 lbs.



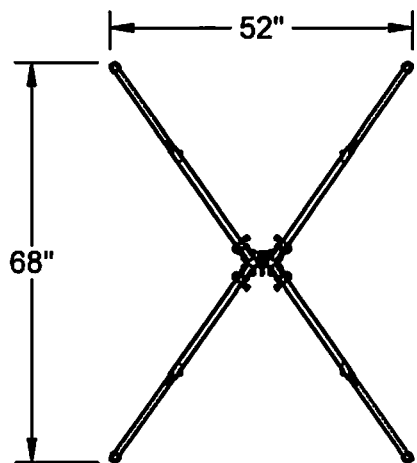
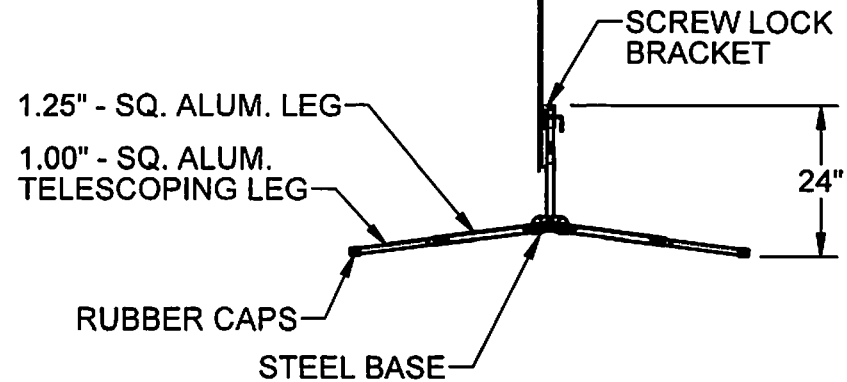
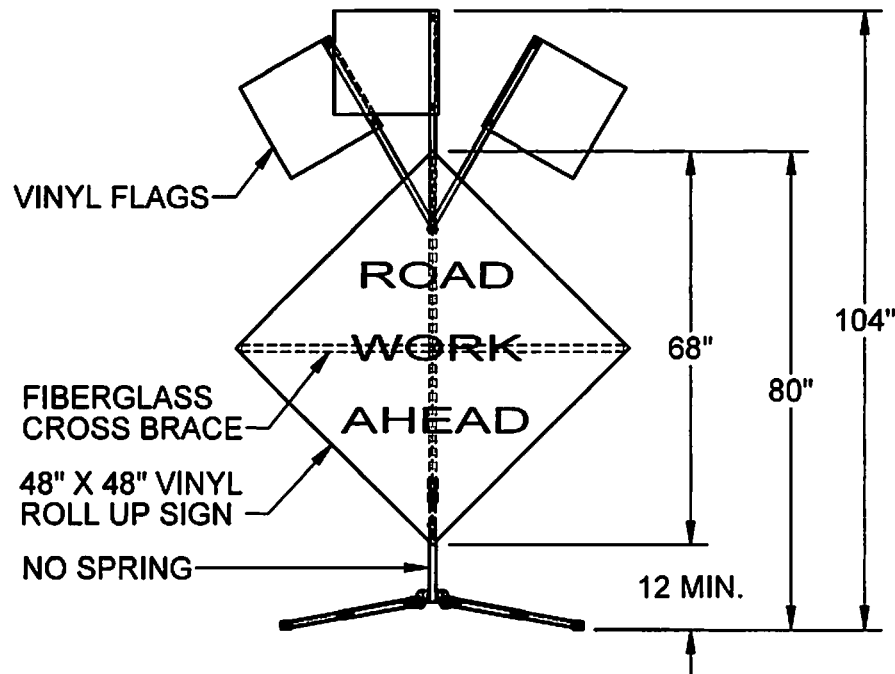
MDI Traffic Control Products, 38271 West 12 Mile Road, Farmington Hills, MI 48331-3041 800-521-6776

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ZA-07492-05

**5012NSAL
SCHEMATIC DRAWING
ROLL UP SIGNS**



5012NSAL WEIGHT

ROLL UP SIGN	6.7 lbs.
FLAGS	1.0 lbs.
SIGN STAND	15.7 lbs.
TOTAL	23.4 lbs.



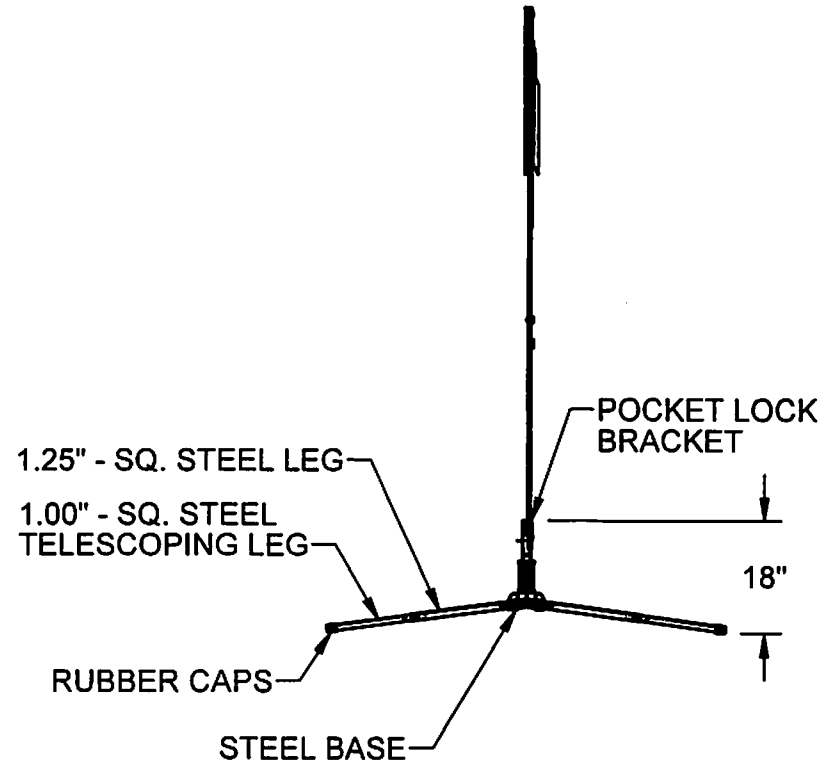
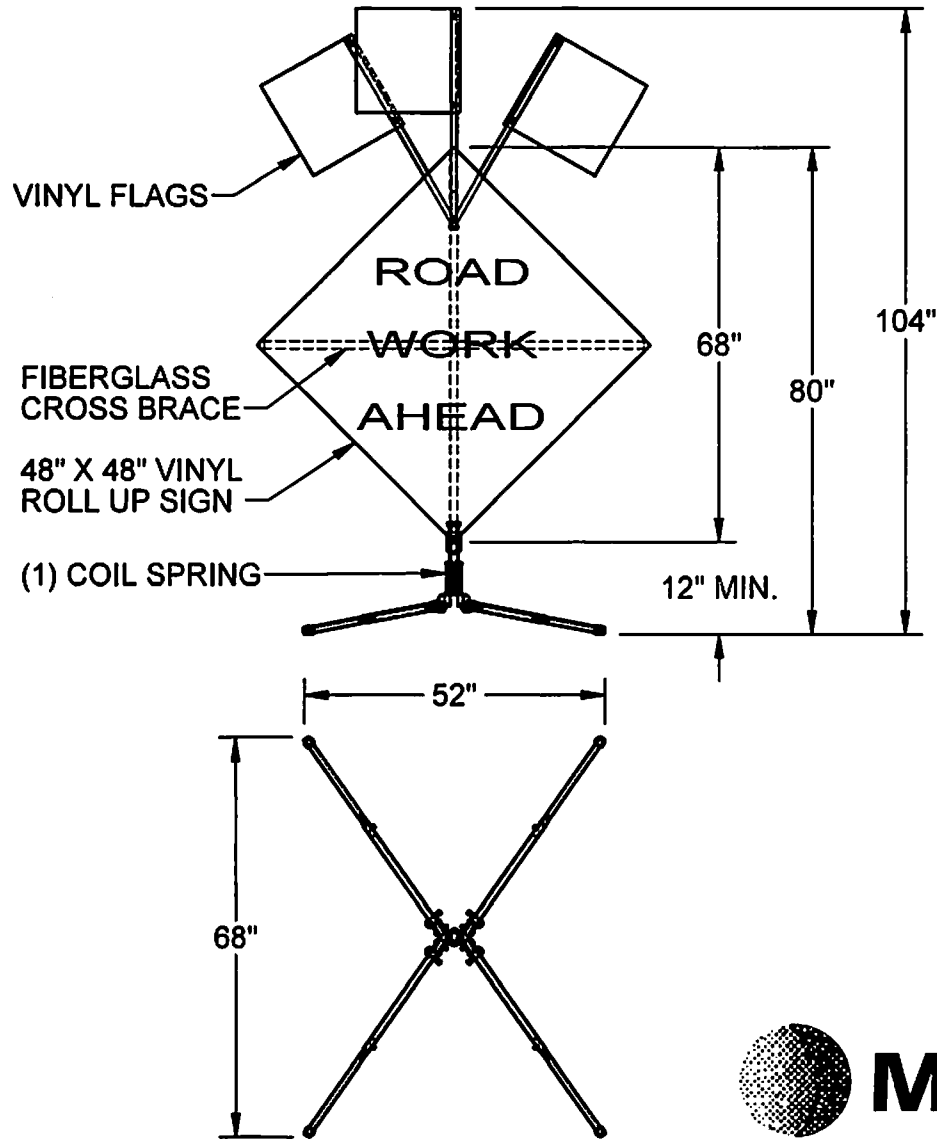
MDI Traffic Control Products, 38271 West 12 Mile Road, Farmington Hills, MI 48331-3041 800-521-6776

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**5012SSPL
SCHEMATIC DRAWING
ROLL UP SIGNS**



5012SSPL WEIGHT

ROLL UP SIGN	6.7 lbs.
FLAGS	1.0 lbs.
SIGN STAND	23.0 lbs.
TOTAL	30.7 lbs.



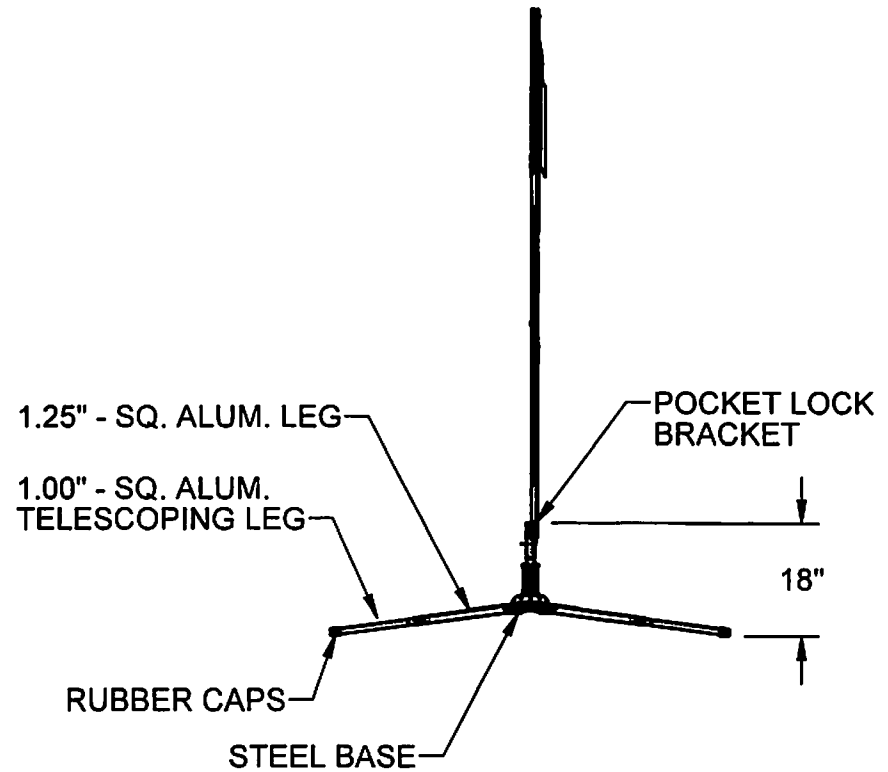
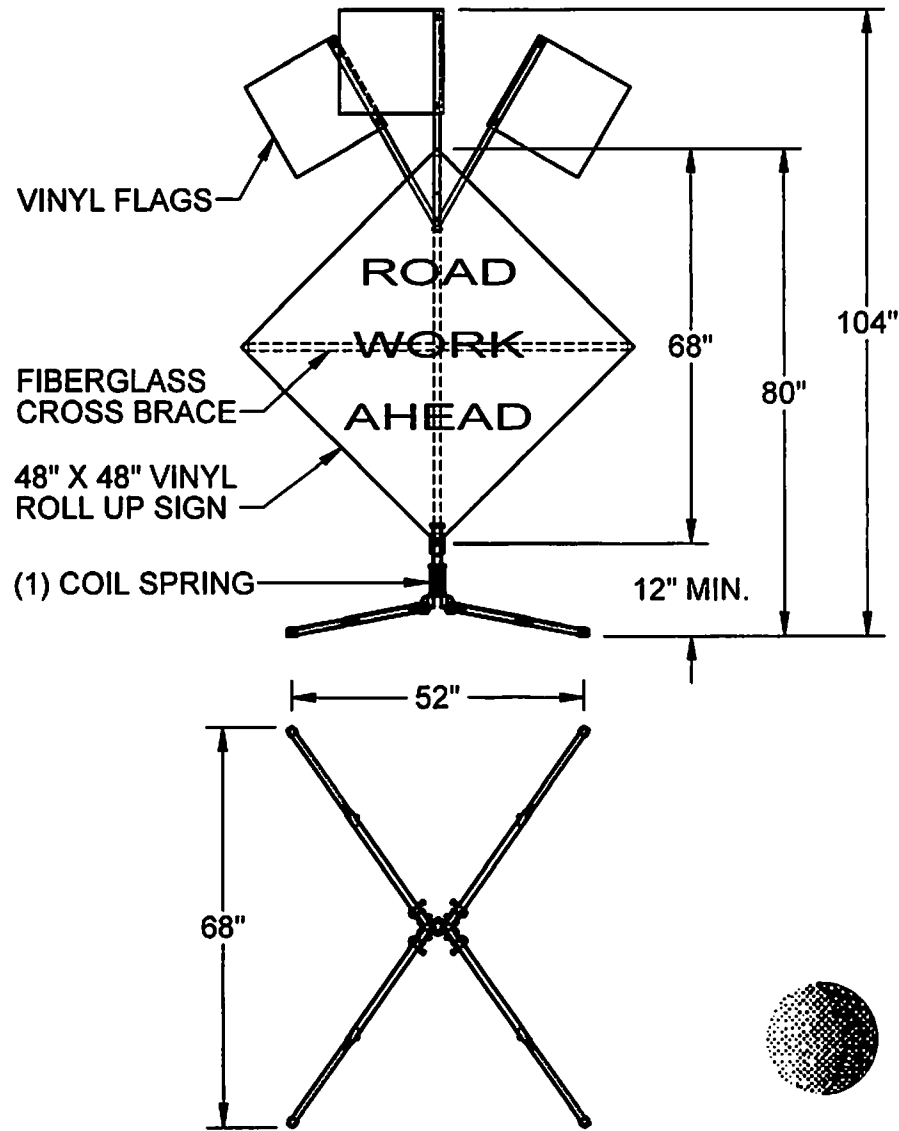
MDI Traffic Control Products, 38271 West 12 Mile Road, Farmington Hills, MI 48331-3041 800-521-6776

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ZA-07492-14

5012SSALPL SCHEMATIC DRAWING ROLL UP SIGNS



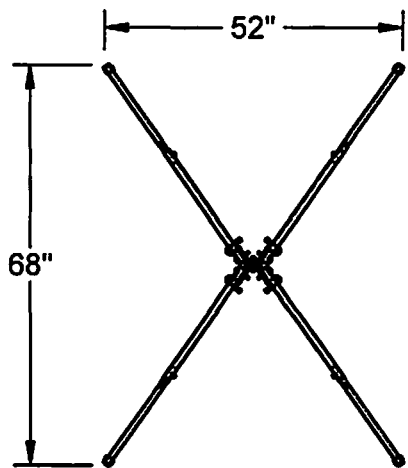
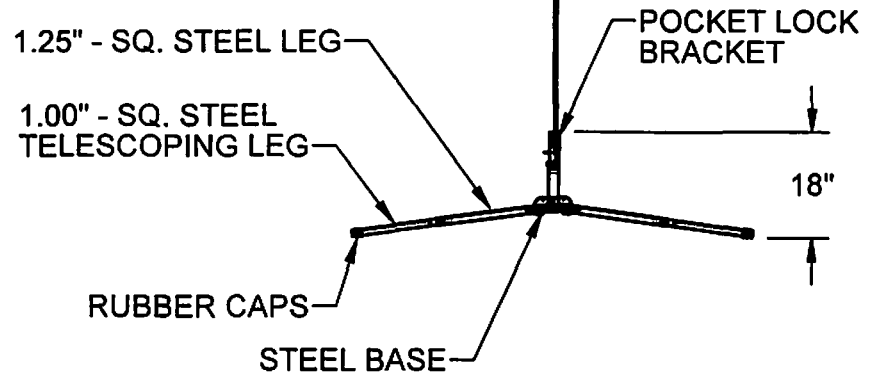
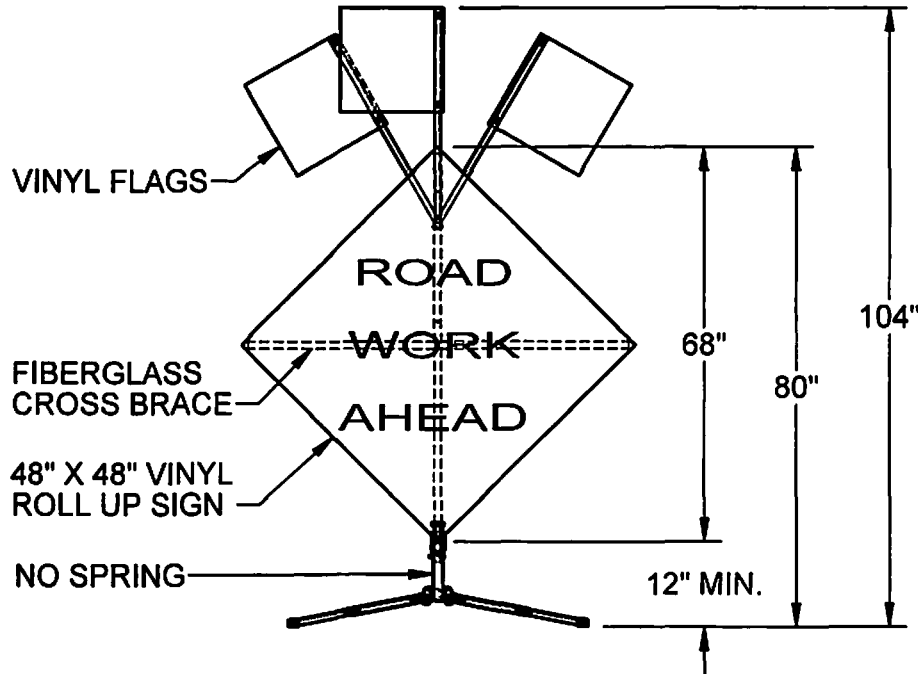
5012SSALPL WEIGHT

ROLL UP SIGN	6.7 lbs.
FLAGS	1.0 lbs.
SIGN STAND	18.0 lbs.
TOTAL	25.7 lbs.



MDI Traffic Control Products, 38271 West 12 Mile Road, Farmington Hills, MI 48331-3041 800-521-6776

**5012NSPL
SCHEMATIC DRAWING
ROLL UP SIGNS**



5012NSPL WEIGHT

ROLL UP SIGN	6.7 lbs.
FLAGS	1.0 lbs.
SIGN STAND	21.0 lbs.
TOTAL	28.7 lbs.



MDI Traffic Control Products, 38271 West 12 Mile Road, Farmington Hills, MI 48331-3041 800-521-6776

ZA-07492-16

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ZA-07492-16