U.S. Department of Transportation
Federal Highway Administration

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

July 9, 2025

In Reply Refer To:
HSST-1/WZ-471

James Connors
Remcon Plastics
208 Chestnut Street Reading
PA 19602
USA

Dear Mr. Connors:

We received your initial correspondence on March 13, 2024 requesting issuance of a Federal-aid reimbursement eligibility letter under the Federal-aid highway program for the roadside safety system, device, design, product, or hardware (collectively "device") described below. On February 21, 2025, we received a complete set of files needed to complete our review. We write to inform you that the device Guardsafe Type III Barricade is eligible for Federal-aid reimbursement. This letter is assigned Federal Highway Administration (FHWA) control number WZ-471.

ELIGIBILITY LETTERS

The FHWA issues Federal-aid reimbursement eligibility letters for new roadside safety devices that are crash tested in accordance with the industry standard of the American Association of State Highway and Transportation Officials (AASHTO) Manual for Assessing Safety Hardware (MASH).

FHWA, the Department of Transportation, and the United States (government) do not regulate roadside safety devices, crash test facilities, or the manufacturing industry. Issuance of eligibility letters is discretionary and provided only as a service to the states. FHWA may, at its discretion, decline to issue, revise, or rescind an eligibility letter. Eligibility letters are only issued by the FHWA headquarters Office of Safety.

Eligibility letters are issued only as notice to the states that a device is eligible for reimbursement under the Federal-aid highway program. They do not establish approval or certification for any other purpose. Issuance of an eligibility letter is not a prerequisite or requirement for state transportation agencies seeking to use Federal-aid funds for roadside safety devices. State agencies may use a device for which an eligibility letter has not been issued and seek Federal-aid reimbursement.

FEDERAL-AID REIMBURSEMENT

The request for issuance of this letter certified the device was crash tested in accordance with the industry standard of AASHTO's MASH. This eligibility letter is based on that certification and

the material offered in support of its issuance. The device described below is eligible for reimbursement under the Federal-aid highway program.

Name of system: Guardsafe Type III Barricade
Type of system: Work Zone
Test Level: Test Level 3
Testing conducted by: Calspan LLC
Date of request: March 13, 2024

Information about the device, including material such as the eligibility request, crash test reports, drawings, or images are included in one or more attachment(s) to this letter.

Eligibility letter WZ-471 is inapplicable to devices, optional equipment, alternate materials, or other features that were not crash tested in accordance with AASHTO's MASH.

This letter is issued only for the subject device as crash tested under AASHTO's MASH. Later modification(s) of the device are not eligible for Federal-aid reimbursement under this letter. Notice of later modification(s) should be given to transportation agencies, facility owners, and operators (collectively "agencies").

Agencies should be provided appropriate information about the device's design, installation, maintenance, materials, and mechanical properties.

Issuance of this letter is discretionary, and it may be revised or rescinded at FHWA's discretion. This letter is not a determination of compliance with the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) or ownership of any intellectual property rights.

This eligibility letter is not a determination by the government that a crash involving the subject device will result in any particular outcome. It is limited to only the device's eligibility for Federal-aid reimbursement.

INTELLECTUAL PROPERTY

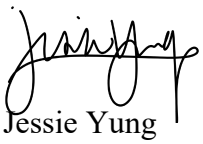
Issuance of this eligibility letter does not convey property rights of any sort nor any exclusive privilege. This letter is not authorization or consent by the government for the use, manufacture, or sale of any patented or proprietary system, device, design, product, or hardware for which the requester is not the patent owner. Eligibility letters are not an expression of any view, position, or determination by the government as to the validity, scope, or ownership of any intellectual property rights to a specific device. These letters do not grant, impute, suggest, or otherwise establish any ownership, distribution, or licensing rights to the requester. The government expresses no opinion about the intellectual property rights relating to any device for which this or any other eligibility letter is issued.

PUBLIC DISCLOSURE

To prevent any misunderstanding, and as discussed above, this Federal-aid eligibility letter is assigned FHWA control number WZ-471. It should only be reproduced in full with its attachment(s). This Federal-aid eligibility letter and the material offered by the requester supporting its issuance is public information. All eligibility letters and supporting material are subject to public disclosure under the Freedom of Information Act (FOIA). Eligibility letters are available to the public at https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/.

If you have any questions please contact Paul LaFleur at Paul.LaFleur@dot.gov.

Sincerely,



Jessie Yung
Director, Office of Safety Technologies
Office of Safety

Enclosures

Request for Federal Aid Reimbursement Eligibility of Highway Safety Hardware

Submitter	Date of Request:	March 13, 2024	◉ New ○ Resubmission
	Name:	Benjamin Metzger	
	Company:	Remcon Plastics	
	Address:	208 Chestnut Street Reading, PA 19602	
	Country:	USA	
	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.

Device & Testing Criterion - Enter from right to left starting with Test Level ! - ! - ! ! - ! - !

System Type	Submission Type	Device Name / Variant	Testing Criterion	Test Level
'WZ': Crash Worthy Work Zon	◉ Physical Crash Testing ○ Engineering Analysis	Guardsafe Type III Barricade	AASHTO MASH	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 AASHTO Manual for Assessing Safety Hardware and that the evaluation results meet the appropriate evaluation criteria in the MASH.

Individual or Organization responsible for the product:

Contact Name:	James Connors	Same as Submitter ☒
Company Name:	Remcon Plastics	Same as Submitter ☒
Address:	208 Chestnut Street Reading, PA 19602	Same as Submitter ☒
Country:	USA	Same as Submitter ☒

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

Remcon Plastics and Calspan LLC, share no financial interests between the two organizations. This includes no shared financial interest but not limited to:
i. Compensation including wages, salaries , commissions, professional fees, or fees for business referrals
iii. Research funding or other forms of research support;
iv. Patents, copyrights , licenses, and other intellectual property interests;
vi. Business ownership and investment interest s;

PRODUCT DESCRIPTION

Help

(●) New Hardware or Significant Modification ( ) Modification to Existing Hardware

The Remcon Plastics Guardsafe Type III Barricade is composed of 47.9 in x 38.4 in base, a 64.1 in x 38.4 in vertical supports and a total of three 8.3 in x 48 in boards. These boards are attached to vertical arms using 2 sets of 5/16" bolts and nuts on both sides. Each barricade also includes two safety lights that are affixed to the top of the barrier with a 5/16" bolt, washer, and nut. The tested barricade was manufactured using MDPE plastic material. The as tested dimensions of the system are 64.1 in H x 48 in W x 47.9 in L respectively.

CRASH TESTING

By signature below, the Engineer affiliated with the testing laboratory, agrees in support of this submission that all of the critical and relevant crash tests for this device listed above were conducted to meet the MASH test criteria. The Engineer has determined that no other crash tests are necessary to determine the device meets the MASH criteria.

Engineer Name:	Benjamin Metzger	
Engineer Signature:		
Address:	4455 Genesee Street, Cheektowaga, NY 14225	Same as Submitter ☐
Country:	USA	Same as Submitter ☐

A brief description of each crash test and its result: Help

Required Test Number	Narrative Description	Evaluation Results
3-70 (1100C)	N/A	

Required Test Number	Narrative Description	Evaluation Results
3-71 (1100C)	For this test, two Remcon Plastics Guardsafe Type III Barricades were impacted. The first test article was aligned at 90° and the second test article was aligned at 0° to the impacting vehicle's direction of travel. This test is intended to evaluate the systems behavior when impacted. The primary evaluation is based on intrusion into the occupant compartment, windshield damage, and vehicle stability. Lightweight devices such as the Guardsafe Barricade cannot cause sufficient velocity change that would result in exceeding occupant risk criteria limits. Therefore Test 71 was conducted without instrumentation for evaluating occupant risk values OIV and RA per MASH test description. The test was conducted using a commercially available 2017 Nissan Versa 4 door sedan with a test inertia mass of 2,400.0 lbs [1,089 kg]. The test vehicle impacted the first sign stand (orientated at 90°) at a velocity of 61.9 mph [99.6 kph]. Upon impact, vertical posts released from the stand pegs and folded down until one of the plastic lights made contact with the front windshield. While the windshield was cracked and dented in, all deformation values remained within MASH limits and no penetration was observed. The test vehicle continued along its path and impacted the second barricade (oriented at 0°) at a velocity of 60.8 mph [97.8 kph]. Upon impact, the vertical posts released from the base and the vertical portion of the barricade impacted the hood and windshield of the test vehicle. After impact, the barricade continued over the top of the vehicle. Impact points for both tests were within the +/- 6" tolerance around the quarter point of the vehicle. There was no penetration, relevant tear into the occupant compartment from either test article. Debris from the test articles did not block the driver's vision. The vehicle remained upright and did not exceed 75°roll and pitch throughout the test. The vehicle did not leave its lane and its trajectory was stable after both systems were impacted. TEST RESULT = PASS	

3-72 (2270P)	For this test, two Remcon Plastics Guardsafe Type III Barricades were impacted. The first test article was aligned at 90° and the second test article was aligned at 0° to the impacting vehicle's direction of travel. This test is intended to evaluate the systems behavior when impacted. The primary evaluation is based on intrusion into the occupant compartment, windshield damage, and vehicle stability. Lightweight devices such as the Guardsafe Barricade cannot cause sufficient velocity change that would result in exceeding occupant risk criteria limits. Therefore Test 72 was conducted without instrumentation for evaluating occupant risk values OIV and RA per MASH test description. The test was conducted using a commercially available 2018 Dodge Ram 1500 pickup truck with a test inertia mass of 5,005.4 lbs [2,270.4 kg]. The test vehicle impacted the first sign stand (orientated at 0°) at a velocity of 61.6 mph [99.1 kph]. Upon impact, vertical posts released from the stand pegs and folded down until both of the plastic lights made contact with the front windshield and shattered against it. While the front windshield was cracked in two places, all deformation remained within MASH limits and no penetration was observed. The test vehicle continued along its path and impacted the second barricade (oriented at 90°) at a velocity of 61.0 mph [98.2 kph]. Upon impact, the vertical posts released from the stand pegs and continued over the top of the vehicle without making contact wile the remaining pieces of the barricade continued underneath the vehicle. No identifiable damage to the vehicle was caused outside of the front fascia. Impact points for both tests were within the +/- 6" tolerance around the quarter point of the vehicle. There was no penetration, relevant tear into the occupant compartment from either test article. Debris from the test articles did not block the driver's vision. The vehicle remained upright and did not exceed 75°roll and pitch throughout the test. The vehicle did not leave its lane and its trajectory was stable after both sign stands were impacted. TEST RESULT = PASS	

Full Scale Crash Testing was done in compliance with MASH by the following accredited crash test laboratory (cite the laboratory's accreditation status as noted in the crash test reports.):

Laboratory Name:	Calspan LLC	
Laboratory Signature:		
Address:	4455 Genesee Street Cheektowaga, NY 14225	Same as Submitter ☐
Country:	USA	Same as Submitter ☐
Accreditation Certificate Number and Dates of current Accreditation period :	L20-602 December 31, 2022	

Submitter Signature*: James P Cannon

Submit Form

ATTACHMENTS

Attach to this form:

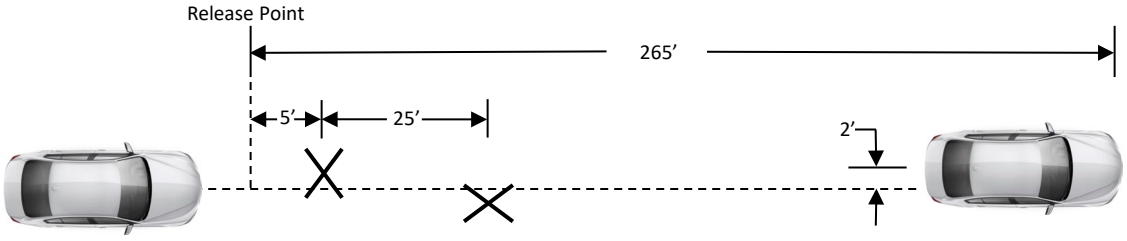
1) Additional disclosures of related financial interest as indicated above.
2) A copy of the full test report, video, and a Test Data Summary Sheet for each test conducted in support of this request.
3) A drawing or drawings of the device(s) that conform to the Task Force-13 Drawing Specifications [Hardware 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		
Number	Date	Key Words

90° Impact

0° Impact



General Information
- Test Agency ..... Calspan LLC
- Test Standard Test No. ..... MASH Test 3-71
- Calspan Test No. BR0215
- Test Date..... 2024-01-24

Test Article
- Type ..... Work-Zone Traffic Control Device
- Name..... Guardsafe Type III Barricade
- Device Dimensions..... 64.1 in H x 48 in W x 47.9 in L
- Material or Key Elements ..... Free standing plastic barricade with three horizontal boards and two lights
- **Soil Type/Road Surface** .....Concrete

Test Vehicle
- Type/Designation 1100C
- Make and Model..... 2017 Nissan Versa
- Curb..... 2,326 lb (1,055 kg)
- Test Inertial..... 2,405 lb (1,089 kg)
- Dummy..... N/A
- Gross Static..... 2,405 lb (1,089 kg)

Vehicle Dynamics
- Pitch..... 0°
- Role..... 0°
- Yaw..... 0°

Maximum Test Debris Scatter
- Longitudinal..... Test Article Broken to Small Pieces and
- Lateral..... Scattered Along Impact Area

Impact Conditions 90°
- Impact Speed .....61.9 mi/h (99.6 km/h)
- Target Impact Location.....16.3 +/- 6 in (414 +/- 152mm) Driver Side
- Actual Impact Location.....14.5 in (368.3 mm) Driver Side
- Impact Severity .....307 kip-ft (418 kJ)
- Exit Speed .....60.9 mph (98.0 km/h)

Impact Conditions 0°
- Impact Speed .....60.8 mi/h (97.8 km/h)
- Target Impact Location.....16.3 +/- 6 in (414 +/- 152mm) Passenger Side
- Actual Impact Location.....17.7 in (449.6 mm) Passenger Side
- Impact Severity .....297 kip-ft (402 kJ)
- Exit Speed .....59.9 mph (96.4 km/h)

Post-Impact Trajectory
- Trajectory/Heading Angle ..... < 1 °
- Vehicle Stability..... Satisfactory
- Stopping Distance .....265 ft down range after initial impact 2’ left of center

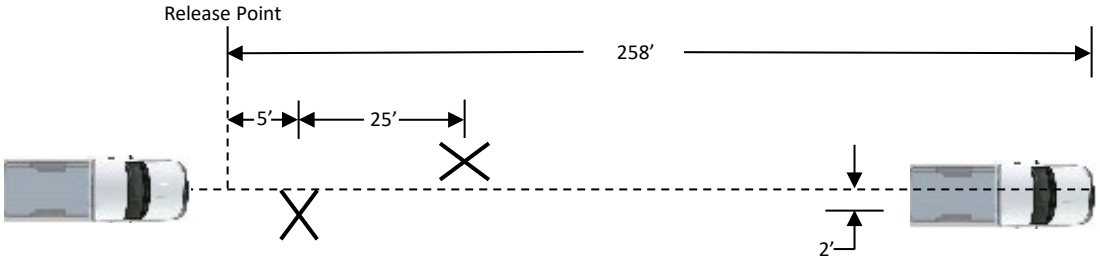
Vehicle Damage
- Vehicle Damage Scale.....FR-1 and FL-1
- Vehicle Damage Classification.....12FLRN01 and 12FLN01
- Maximum Deformation.....1.5 in (38.1 mm) Windshield

TR No. BR0215 2024-01-24

Summary of Results for *MASH* Test 3-71 on Work-Zone Traffic Control Device

0° Impact

90° Impact



General Information
- Test Agency ..... Calspan LLC
- Test Standard Test No. ..... MASH Test 3-72
- Calspan Test No. BR0216
- Test Date..... 2024-01-05

Test Article
- Type ..... Work-Zone Traffic Control Device
- Name..... Guardsafe Type III Barricade
- Device Height..... 64.1 in H x 48 in W x 47.9 in L
- Material or Key Elements ..... Free standing plastic barricade with three horizontal boards and two lights
- **Soil Type/Road Surface** .....Concrete

Test Vehicle
- Type/Designation 2270P
- Make and Model..... 2018 Dodge Ram 1500
- Curb ..... 4,660 lb (2,114 kg)
- Test Inertial ..... 5,005 lb (2,270 kg)
- Dummy..... N/A
- Gross Static..... 5,005 lb (2,270 kg)

Vehicle Dynamics
- Pitch..... 0°
- Role..... 0°
- Yaw..... 0°

Maximum Test Debris Scatter
- Longitudinal..... Test Article Broken to Small Pieces and
- Lateral..... Scattered Along Impact Area

Impact Conditions 0°
- Speed .....61.6 mi/h (99.1 km/h)
- Target Impact Location.....19.6 +/- 6 in (498 +/- 152mm) Passenger Side
- Actual Impact Location.....20.4 in (518.2 mm) Passenger Side
- Impact Severity ..... 634 kip-ft (860 kJ)
- Exit Speed .....61.1 mph (98.3 km/h)

Impact Conditions 90°
- Speed .....61.0 mi/h (98.2 km/h)
- Target Impact Location.....19.6 +/- 6 in (498 +/- 152mm) Driver Side
- Actual Impact Location.....21.8 in (553.7 mm) Driver Side
- Impact Severity ..... 623 kip-ft (845 kJ)
- Exit Speed .....60.5 mph (97.4 km/h)

Post-Impact Trajectory
- Trajectory/Heading Angle .....< 1 °
- Vehicle Stability.....Satisfactory
- Stopping Distance .....258 ft down range after impact. 2’ right of center

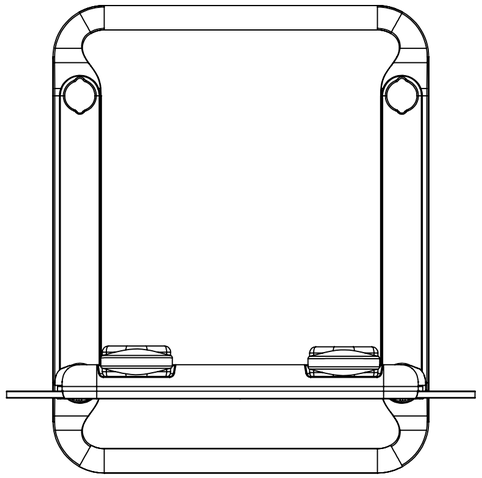
Vehicle Damage
- Vehicle Damage Scale..... FR-1 and FL-1
- Vehicle Damage Classification..... 12FLRN01 and 12FLN01
- Maximum Deformation..... 0.25 in (6.4 mm) Windshield

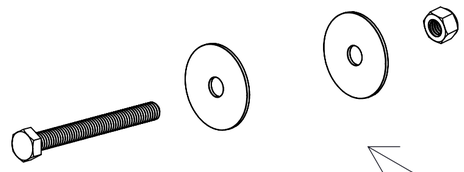
TR No. BR0216 2024-01-05

Summary of Results for *MASH* Test 3-72 on Work-Zone Traffic Control Device

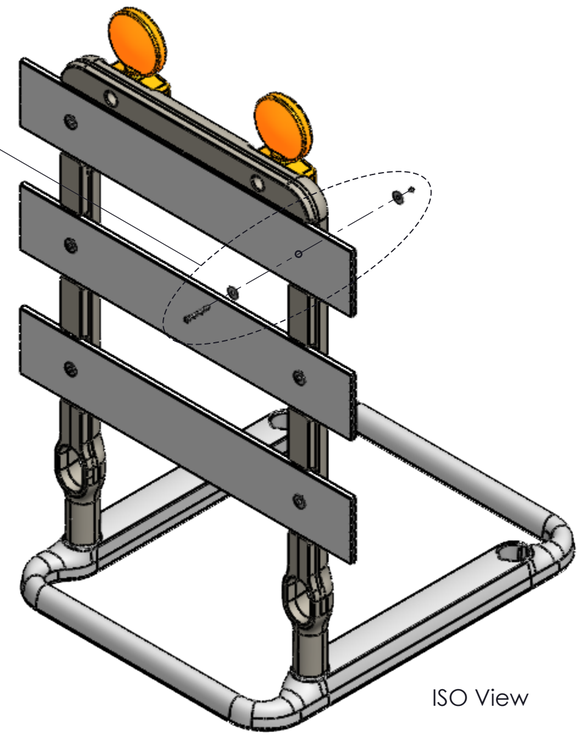
REV A

Top View

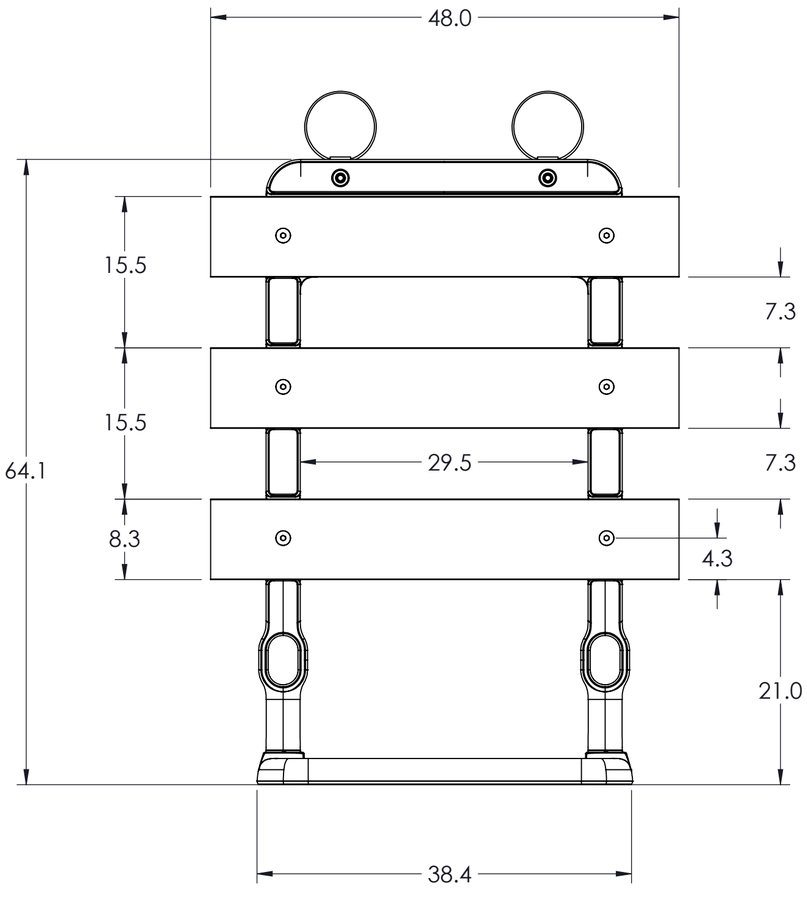




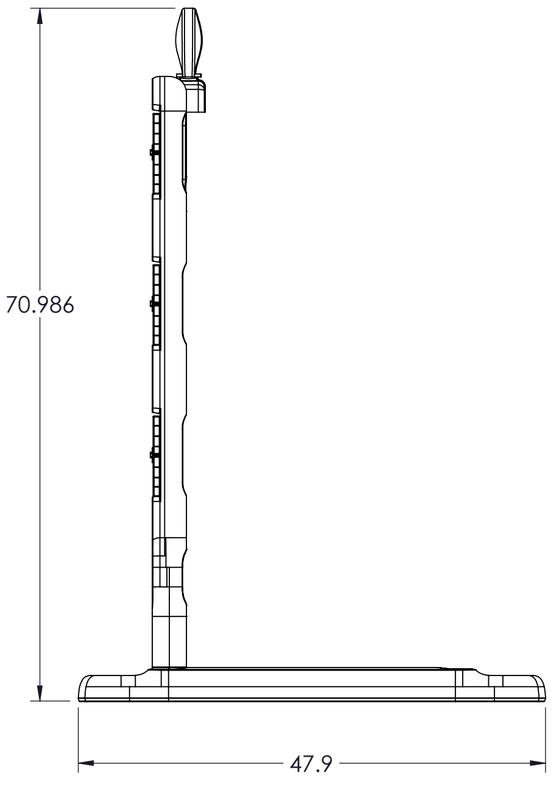
2 Per Panel	5/16" Dia Bolts
2 Per Panel	5/16" Nylock Nuts
4 Per Panel	5/16" Steel Washers



ISO View



Front View



Side View

PROPRIETARY AND CONFIDENTIAL

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF REMCON PLASTICS, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF REMCON PLASTICS INC. IS PROHIBITED.

THIRD ANGLE PROJECTION

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS ARE IN INCHES

TOLERANCES:

DECIMAL	INCH	(MM)
.X	±.1	(±2.5)
.XX	±.01	(±.25)
.XXX	±.005	(±.13)

FRACTIONAL ±1/32
ANGULAR ±1/2°
SURF. FINISH 63

REMOVE ALL BURRS AND BREAK SHARP CORNERS .01/.02, MIN/MAX

CAD GENERATED DRAWING, DO NOT MANUALLY UPDATE

APPROVALS	DATE
DRAWN BRS	2/21/24
CHECKED --	--
APPRV ---	---
MATERIAL:	

Remcon Plastics Inc.
208 Chestnut Street,
Reading Pa. 19602

Remcon Type 3 Barricade

SIZE	DWG. NO.	REV.
C	XXXXXX	A

SCALE: 1:12 | DO NOT SCALE DRAWING | SHEET 1 OF 1