



ROADQUAKE  
**RAPTOR**



LIFT HERE

LIFT HERE

SmartWall

PSS Full Product Catalog



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# WHO WE ARE

## WE ARE PSS:

For over 30 years, PSS has crafted breakthrough solutions that can safeguard worksites and save lives. We are powered by dedicated, creative people and fueled by continuous innovation.

Our focus is on the right-of-way — that point in time and place where motorists, workers, and pedestrians intersect and interact. Our goal is to design products and services that provide safe travels so that everyone can return home safely at the end of the day.

We don't just talk about Innovations for Safety® — we live it. We believe that audacious ideas and hard work produce outstanding results.

Our important work on, around, and through the right-of-way will result in real solutions for real people. Through continuous innovation and with consultation, education, and training, we work to save lives today, tomorrow, and for decades to come.



SECTION

01



SECTION

**01**

**ROADQUAKE®**

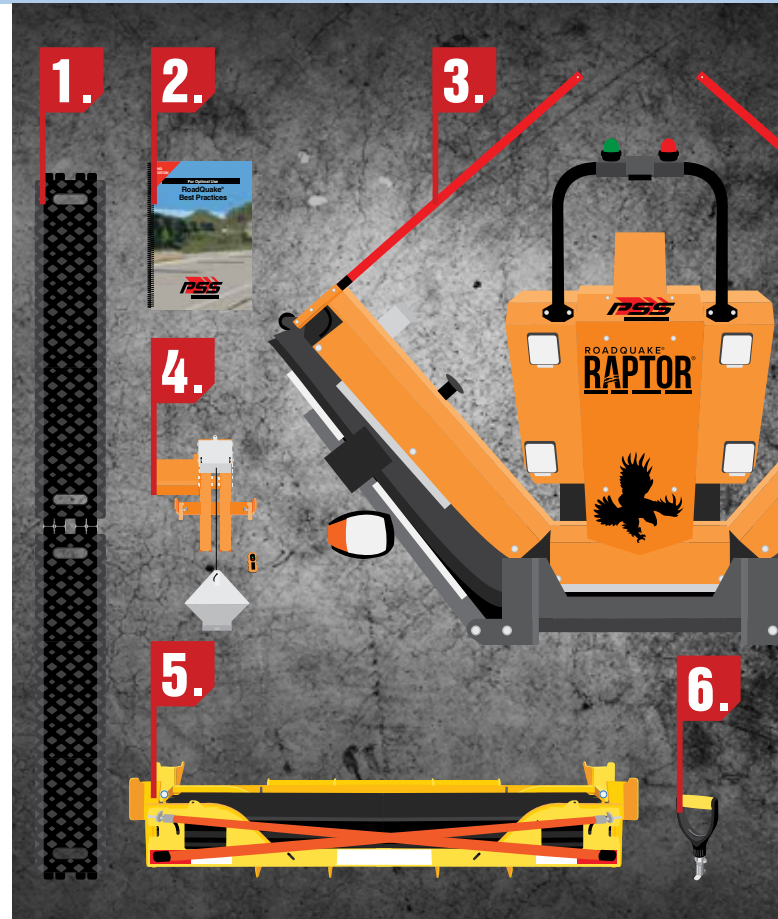
SAFETY SYSTEM

# ROADQUAKE® SAFETY SYSTEM

## ROADQUAKE® SAFETY SYSTEM:

RoadQuake® Safety System helps workers deploy and retrieve RQ TPRS arrays faster and safer. Workers' exposure to live traffic is reduced.

- 1. RoadQuake® Temporary Portable Rumble Strip (RQ TPRS):** Designed to reduce accidents and save lives, RQ TPRS alerts drivers to changing road conditions. RQ TPRS is the fundamental component of RoadQuake Safety System.
- 2. RoadQuake Best Practices Guide** provides users with deployment, retrieval, and maintenance practices to achieve optimal performance of RQ TPRS.
- 3. RAPTOR® Rumble Strip Handling Machine** transports, deploys, retrieves, and realigns RQ TPRS in work zones. Keeps workers off the road and safer.
- 4. RoadQuake® Retrieval System** pulls RQ TPRS into CRIB with little manual effort. Reduces workers' exposure to live traffic and reduces manual exertion, possible injury.
- 5. CRIB® Carriers** helps workers deploy and retrieve RQ TPRS. Reduces workers' time in live traffic.
- 6. RoadQuake T-Handle** reduces the potential for superficial injury caused by manually lifting and carrying RQ TPRS.

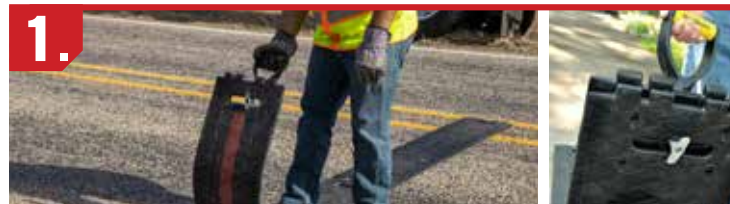


## ROADQUAKE® 2F DEPLOYMENT METHODS:

Compared to manual handling, users can deploy and retrieve RQ TPRS faster and safer with PSS handling equipment.

1. Deploy and retrieve RQ TPRS manually with RoadQuake® T-Handle.
2. Deploy and retrieve RQ TPRS with RoadQuake® 2F CRIB® Carrier. Or deploy with CRIB and retrieve with CRIB and RoadQuake® 2F Retrieval System.\*
3. Use RoadQuake® RAPTOR® Rumble Strip Handling Machine to transport, deploy, realign, and retrieve RQ TPRS. RAPTOR keeps workers safely off the road.

\*CRIB and Retrieval System sold separately.



# ROADQUAKE® FEATURES

## ROADQUAKE® 2F TPRS FEATURES:

Designed to reduce accidents and save lives, RoadQuake 2F TPRS alerts distracted drivers to changing road conditions like work zones and checkpoints.

### TEMPORARY:

- » Ideal for work zones where daily installation and removal is required.
- » Quick installation and removal. No cleanup required.

### PORTABLE:

- » Transport RoadQuake® 2F TPRS with handling equipment like RoadQuake® CRIB® Carrier or RAPTOR® Rumble Strip Handling Machine.
- » Manually deploy and retrieve by a two-person crew.

### DURABLE:

- » 3-5 year life under normal conditions.
- » Suitable for use in the rain and in temperatures as low as 0° F and as high as 180° F.
- » For use in posted speed limits up to 80 MPH.

## ROADQUAKE 2F TPRS FEATURES (CONT'D):

- » Generates the same level of sound and vibration as milled strips.
- » 13" W x 3/4" H x 132" L when unfolded. Covers the width of an entire lane.
- » Folds to a compact 66" length. Weighs 105 lbs.
- » Ergonomic handles make installation and storage easy. The non-slip textured surface helps to keep RoadQuake 2F TPRS in place.
- » Bevels on both sides of RoadQuake take the guesswork out of a correct installation.
- » Meets Section 6F.87 of the MUTCD, 2009 Edition.

*US Patent No. 7,736,087. Other Patents Pending*





## ROADQUAKE TPRS APPLICATIONS:

In December, 2008, we introduced our first commercially viable RoadQuake Temporary Portable Rumble Strip (RQ TPRS) traffic safety countermeasure.

Since then, users have deployed RQ TPRS arrays in thousands of work zones. Collectively, those strips have experienced well in excess of 5 billion vehicle hits, from motorcycles and sub-compacts to farm equipment and 80,000 lb. semi-trailers.

Field evidence overwhelmingly demonstrates that RQ TPRS effectively alerts distracted drivers, possibly reducing crashes and saving lives, in work zones.

Ten years ago, we described RQ TPRS as ideal for work zones where daily installation and removal is required.



That statement, still in use, still accurate, captured our vision of the initial RQ TPRS application: work zone projects on secondary, two-lane roads with two-way traffic, usually with flagging or pilot car operations, at 45-50 MPH posted speed limits.

Since its introduction, we steadily increased the upper limit of RQ TPRS speed tolerances to 80 MPH, and the spacing distances between deployed strips. Concurrently, we developed a line of handling technology, to better protect workers who deploy and retrieve RQ TPRS.

## EXPANDED RQ TPRS APPLICATIONS:

With RAPTOR Rumble Strip Handling Machine, we can now recommend RQ TPRS in work zones beyond single lane, lane-closure applications. With RAPTOR, users can effectively deploy RQ TPRS in high-speed, high volume, multilane roadways. RAPTOR also allows use of RQ TPRS in most short-term, short-duration mobile work zone operations.

RQ TPRS and our ancillary handling equipment can help reduce distracted driving, protect workers, and possibly save lives in your work zones. Let us show you how.

Please visit [pss-innovations.com/our-team](https://pss-innovations.com/our-team) to contact your PSS Roadway Safety Consultant for a product demonstration.

# ROADQUAKE® RAPTOR

## RAPTOR RUMBLE STRIP HANDLING MACHINE:

RAPTOR transports, deploys, realigns, and retrieves RoadQuake 2F TPRS in work zones. RAPTOR keeps your workers off the road.

RAPTOR revolutionizes the usage of RoadQuake 2F TPRS:

- » Workers operate RAPTOR from the safety of the vehicle. Workers no longer deploy or retrieve RoadQuake 2F TPRS manually.
- » Workers no longer risk superficial injuries that could be caused by lifting objects like RoadQuake.
- » Deploys a three-strip array in under 90 seconds and retrieves a three-strip array in under 2.5 minutes.

## RAPTOR IMPROVES WORK ZONE SAFETY:

- » RAPTOR extends the practical use of RoadQuake 2F TPRS in work zones.
- » With RAPTOR, RoadQuake is now ideal for most short-duration, short-term, and mobile operations.
- » RAPTOR can provide protection in work zones.
- » RAPTOR mounts to the front of the vehicle. The back of the vehicle is free for other safety equipment like a Truck or Trailer Mounted Attenuator (TMA).



TRANSPORT



REALIGN



RETRIEVE & DEPLOY

## FUNCTIONS OF RAPTOR:

In the pictures on right, RAPTOR, shown in Operational Mode, simulates deployment of RQ TPRS:

1. Magnet Bar pulls one RQ TRPS from TPRS Tray to deploy on road surface.
2. RAPTOR Arm moves out from and in front of TPRS Tray.
3. Arm moves down to deployment location of RQ TPRS.
4. Magnet Bar releases RQ TPRS at installation location.

To deploy more strips, return RAPTOR Arm and Magnet Bar to TPRS tray. Pick up another strip for installation, repeat until installation is complete.

Use the same functions of RAPTOR, though in reverse order, to retrieve and remove RQ TPRS from the work zone.



# CRIB® CARRIERS



## ROADQUAKE® 2F CRIB® FEATURES:

CRIB is a fully integrated cargo carrier designed specifically for the safe transport, deployment, removal, storage, and safekeeping of RoadQuake® 2F TPRS.

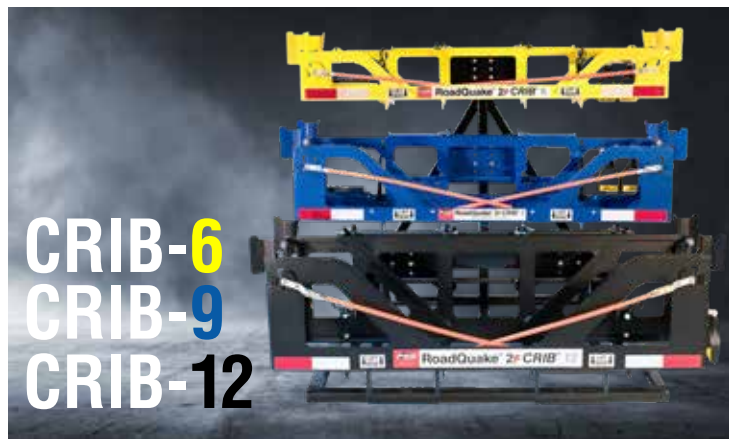
CRIB Carrier Sizes:

- » CRIB-6 holds six RQ 2F TPRS
- » New Size: CRIB-9 holds nine RQ 2F TPRS
- » CRIB-12 holds twelve RQ 2F TPRS

Each CRIB carries a multiple of three strips, enough for the deployment and retrieval of up to four, three-strip arrays.

## CRIB® BENEFITS:

- » Shortens workers' time in traffic to deploy and retrieve strips, compared to manual handling.
- » Reduces possible superficial stress or injury that could be caused by manual handling.
- » Deployment and removal of RQ 2F TPRS can be a one-person job.
- » CRIB mounts to exterior of vehicle. Strips do not consume space in vehicle.
- » Easier to place RQ 2F TPRS in alignment with deployment location.



# CRIB® SPECIFICATIONS

	CRIB-6	CRIB-9	CRIB-12
Dimensions (WxHxL)	19 5/8" x 15" x 74 1/4"	19 5/8" x 19 9/16" x 74 1/4"	19 5/8" x 24 5/16" x 74 1/4"
Material of Construction	Steel, Powder Coated Yellow	Steel, Powder Coated Blue	Steel, Powder Coated Black
TPRS Capacity	6	9	12
Weight (Empty)	92 lbs (41 kg)	111 lbs (50 kg)	133 lbs (60 kg)
TPRS Weight	630 lbs (286 kg)	945 lbs (429 kg)	1,260 lbs (572 kg)
Total Weight (TPRS & Carrier)	722 lbs (327 kg)	1,056 lbs (479 kg)	1,393 lbs (632 kg)
Mounting / Receiver	Class IV or V	Class V, or Custom by User	Custom by User
Pintle Mount	Included (2")	Included (2 1/2")	N/A
Quik-Detach	1 Each Included (Black)	1 Each Included (Blue)	2 Each Included (Black)
Roadquake® T-Handle	2 Each Included	2 Each Included	2 Each Included
T-Handle Holder	1 Each Included	1 Each Included	1 Each Included
Retractable Transport Straps	2 Each Included	2 Each Included	2 Each Included
Guide Markers	36" Included (91 cm)	48" Included (122 cm)	48" Included (122 cm)
Conspicuity Tape	3 Sides Included	3 Sides Included	3 Sides Included
Literature Canister	1 Each Included	1 Each Included	1 Each Included
RoadQuake Best Practices	1 Each Included	1 Each Included	1 Each Included
Breakaway Pin Kit (1 TPRS)	1 Each Included	1 Each Included	1 Each Included

# CRIB® FEATURES

## NEW DESIGNS:

We recently redesigned and added new features to CRIB and CRIB XL Carriers. With new features comes new names. CRIB is now CRIB-6, CRIB XL is now CRIB-12. And we added another size: CRIB-9 Carrier, which holds nine RQ TPRS. Our new designs are available summer, 2020!

## NEW FEATURES:

- 1. Weight Reduction:** With design integration, we significantly reduced the weight of new CRIBs but retained the strength and integrity of CRIB. We reduced the weight of an empty CRIB-6 by 39%, and an empty CRIB-12 by 34%. This weight reduction now allows CRIB-6 to be used on a Class IV receiver and CRIB-9 to be used on a Class V receiver.
- 2. Redesigned Guide Fins\*:** The fins guide RQ TPRS in and out of CRIB for easier handling. We redesigned the fins so they are stronger. Fins can now support the weight of loaded, like-sized CRIBs, when stacked for more efficient storage:
  - » CRIB-6: stack a max. of four loaded CRIB-6.
  - » CRIB-9: stack a max. of three CRIB-9.
  - » CRIB-12: stack a max. of two CRIB-12.

- 3. Design Integration:** We integrated several features into the new CRIB designs. Once optional, they are now standard on all new designs.
  - A.** Guide Markers
  - B.** T-Handle Holder
  - C.** Quik-Detach Mounting System\*\*
  - D.** Retractable Ratchet Straps
- 4. Literature Canister:** New to CRIB, our water-tight canister holds a print copy of our Best Practices Guide and a Breakaway Pin Connection Replacement Kit, which contains enough components to repair 1 RQ TPRS. We include a Best Practices and pin kit with each CRIB shipment.

On the next page, we use CRIB-6 to show our new design features. CRIB-9 and CRIB-12 also enjoy the same features.

*US Patent No. 10,661,697*

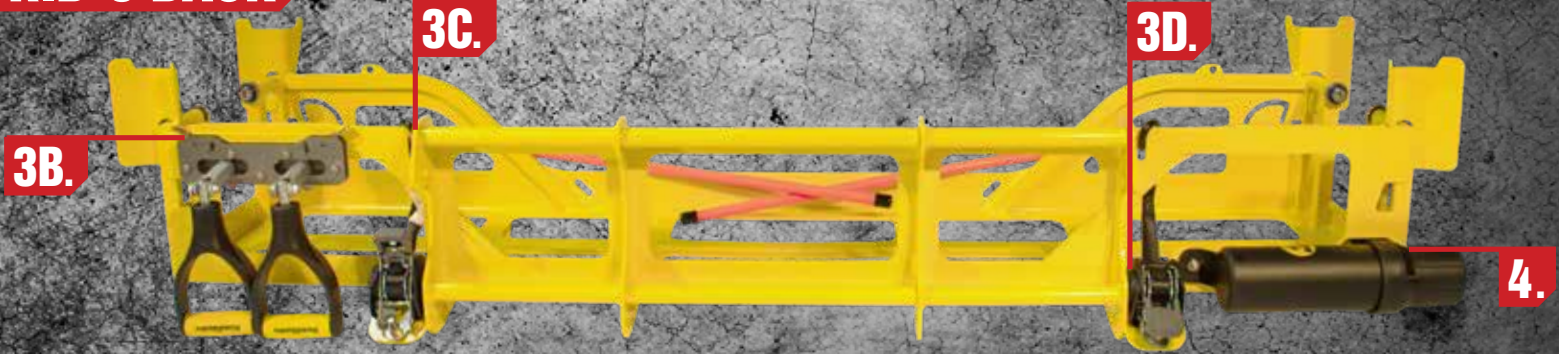
*\*New CRIB models do not stack with older models.*

*\*\*Quik Detach for CRIB-6 (black) works for CRIB-6 and CRIB-9. Quik Detach for CRIB-9 (blue) works for CRIB-6, CRIB-9, and CRIB-12.*

# CRIB-6 FRONT



# CRIB-6 BACK



# ROADQUAKE® 2F RETRIEVAL SYSTEM

## RETRIEVAL SYSTEM FEATURES:

Retrieval System pulls RoadQuake 2F Temporary Portable Rumble Strips (RQ TPRS) into a CRIB Carrier with little manual effort.

- » Features a powerful 4.1 HP, 12 V electric motor that pulls a 105 lb. RQ TPRS into CRIB in less than ten seconds.
- » Reduces workers' exposure to live traffic. Also reduces manual handling and exertion and possible injury.
- » Removal of RQ TPRS can be a one-person operation.
- » Attaches quickly to either end of CRIB for retrieval of strips from either driver or passenger side.
- » Power Pack Unit is a self-contained, charging electrical system. Charges from a 12-Volt automotive system. Maintains charge when plugged into running host vehicle. Power Pack Unit is weather-resistant.
- » For use with CRIB-6, CRIB-9, and CRIB-12.

RoadQuake® 2F Retrieval System is designed to only retrieve PSS RoadQuake 2F Temporary Portable Rumble Strips from the roadway.

*US Patent No. 10,662,042*



## RETRIEVAL SYSTEM



## RETRIEVAL SYSTEM COMPONENTS:

1. Retrieval Hook
2. Retrieval Winch
3. Retrieval Rope  
*30 Feet*
4. Power Pack Unit
5. Power Pack Charger
6. Back-up Wired Controller
7. Wireless Remote Controller
8. Roller Bracket Assembly  
*Two Each*
9. CRIB Roller Clamps  
*Four Each*
10. Hard-Shell Plastic Case  
*Not Included with Retrieval System*



SECTION

02



SECTION

**02**

ADA-COMPLIANT  
SAFETY DEVICES

# BOARDWALK RAMP

## TEMPORARY PEDESTRIAN MODULAR RAMP:

BoardWalk RAMP provides accessible, detectable, and safe guidance where temporary access routes cross curbs at locations other than permanent sidewalk crossings. BoardWalk RAMP is installed perpendicular to the curb.

BoardWalk RAMP replaces curb transitions and temporary ramps that are non-compliant.

## ADA-COMPLIANT FEATURES:

- » Allows for any slope of 1" rise for 12" run.
- » Modular Edge Support Castings provide guidance for canes and walking devices. Castings accommodate handrails, which provide detectable guidance.
- » Modular Edge Support Castings accommodate handrail assemblies.
- » PSS-supplied lumber has a slip-resistant surface.
- » Suspended design allows for normal street drainage.
- » Approach Plates are 48" W x 18" L and feature slip-resistant surface. 48" width is wheelchair friendly.

## MODULAR FEATURES:

- » Modular sections connect for ramp length needed. No hardware required. Ramp rated at 800 lb. capacity for 48" maximum width. Sections weigh 30 lbs.
- » Modular cast-iron Edge Support Castings measure 8" x 12". Designed for 2" x 6" lumber. The lumber PSS provides features slip-resistant coating.
- » Metal Approach Plates, 48" W x 18" L, feature slip-resistant grip tape.



US Patents Nos. 9,534,394

# BOARDWALK PLATFORM

## BOARDWALK BI-DIRECTIONAL PLATFORM:

BoardWalk Bi-Directional Platform is designed for use with BoardWalk RAMP when the alternate pedestrian pathway is parallel to the curb or sidewalk.

## PLATFORM FEATURES:

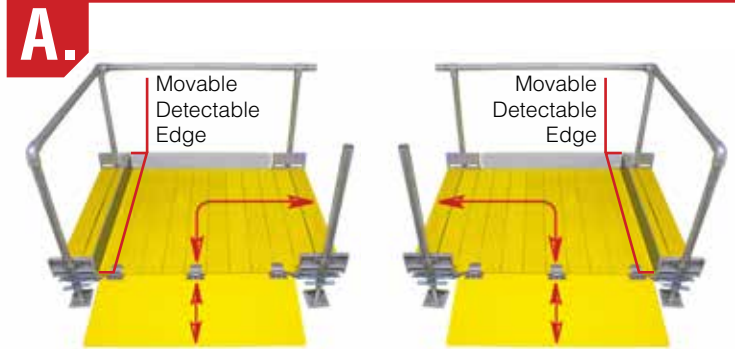
Platform features the same components as BoardWalk RAMP. See previous page.

Platform measures 4' x 5' and is wheelchair friendly.

Four adjustable Screw Jacks support Platform, and can accommodate curb heights from 2" to 14". For RAMPs exceeding nine sections use a Midway Support, as shown on Page 23.

Platform is easily converted from left-turning to right-turning orientation. To change the guiding direction, attach the Moveable Detectable Edge and the horizontal handrail to the corresponding side of the platform. See Figure A.

Figure B shows BoardWalk RAMP with Bi-Directional Platforms installed in the curb lane parallel to the sidewalk. The curb lane serves as the temporary pedestrian pathway. RAMP and Platform are installed at either end of the sidewalk work zone.



# BOARDWALK RAMP AND PLATFORM

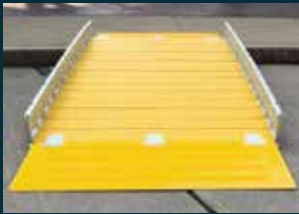
## RAMP HEIGHT SPECIFICATIONS:

The correct ramp slope is a 1:12 ratio.

The number of modular ramp sections determines the slope of BoardWalk RAMP. The number of sections differs when using BoardWalk RAMP or BoardWalk RAMP and Platform. The number of sections required is not the same.

To determine the correct number of ramp sections for either BoardWalk RAMP or RAMP with Platform:

- » Which orientation of ramp do you require?
- » What is the height of the curb at the installation site?



Perpendicular to Curb



Parallel to Curb

With those questions answered, use the chart to determine the number of sections required per ramp orientation.

## To maintain a 1:12 ratio, how many RAMP sections are needed?

Curb Height (In.)	Perpendicular	Parallel
1	3	N/A
2	4	3
3	5	3
4	6	3
5	7	4
6	8	5
7	9	6
8	10*	7
9	11*	8
10	12*	9
11	13*	10*
12	14*	11*
13	15*	12*

\* Midway supports required for RAMPs longer than 9 sections.

# BOARDWALK BRIDGE

## BOARDWALK BRIDGE FEATURES:

PSS BoardWalk Temporary Pedestrian Modular RAMP with Platform provides ADA-Compliant temporary pathways over curbs in sidewalk work zones.

Because of its modular design, we can create BoardWalk RAMP and Platform in several configurations while maintaining the ADA slope requirement of 1:12.

BoardWalk Bridge satisfies a new application: it provides a temporary pathway over an obstruction that is perpendicular to the sidewalk and street.

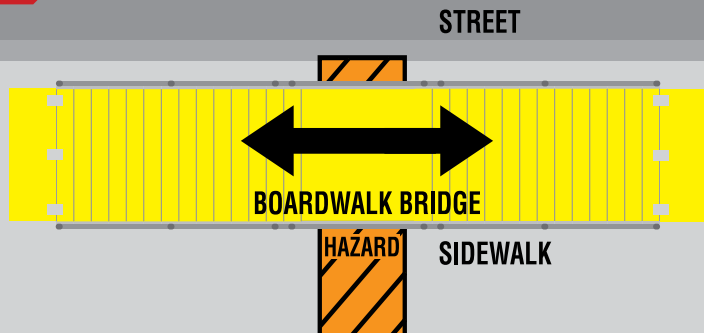
For the application shown in the graphic, Figure A, BoardWalk Bridge is installed on the sidewalk, parallel to it, and over the hazard. The height of the hazard and the ADA slope requirement determine BoardWalk Bridge's length.

Figure B shows Midway supports, which are required for RAMPs longer than nine sections.

To discuss your custom BoardWalk Bridge application, please contact us at **800.662.6338**.



**A.**



**B.**



# SAFETYWALL® PEDESTRIAN BARRICADE

## SAFETYWALL® ADA-COMPLIANT BARRICADE:

**Dimensions:** 3" W x 36.25" H x 74" L

**Weight:** 35 lbs

**Material:** Made with high-density polyethylene plastic with UV stabilizers. Steel legs.

SafetyWall, a continuous, interlocking device, is ideal for creating accessible work zones. Meets ADA guidelines and MUTCD 2009 Edition Standards as a sidewalk closure barricade or longitudinal channelizer. SafetyWall provides the same level of pedestrian guidance as concrete or plastic barrier but is easier to transport, install, and remove.

Retroreflective sheeting meets all state and federal specifications and is available in Engineer, Hi-Intensity, and Diamond grades. Made from high-density polyethylene plastic with UV-stabilizers. SafetyWall accepts sheeting on one or both sides.

## SAFETYWALL® FEATURES:

1. SafetyWall provides continuous guidance. Hand-Trailing top is smooth, safer for hand guidance.
2. Accepts Audible Information Devices, Warning Lights.
3. SafetyWall is an interlocking device. Assembles quickly. No tools required. A one to two-person crew can easily create an accessible work zone in minutes.
4. Centrally located carry handle allows for easy carry of one or two SafetyWall units.
5. SafetyWall stacks for easy transportation and storage.
6. Continuous bottom for guidance with cane. Gap between bottom of unit and ground is less than 2", reducing potential for trapping cane tips.
7. Common vertical plane eliminates obstacles in the walkway for safer, continuous guidance.
8. Legs fold in for easy storage. Recessed bottom edge allows for use of pry bar to deploy both legs.

*US Patent No. D665,689.*







**FHWA LETTER:**

Letter: WZ-315

Tested to Manual for Assessing Safety Hardware  
(MASH) Test Level: 3

# SAFETYRAIL™ PEDESTRIAN BARRICADE

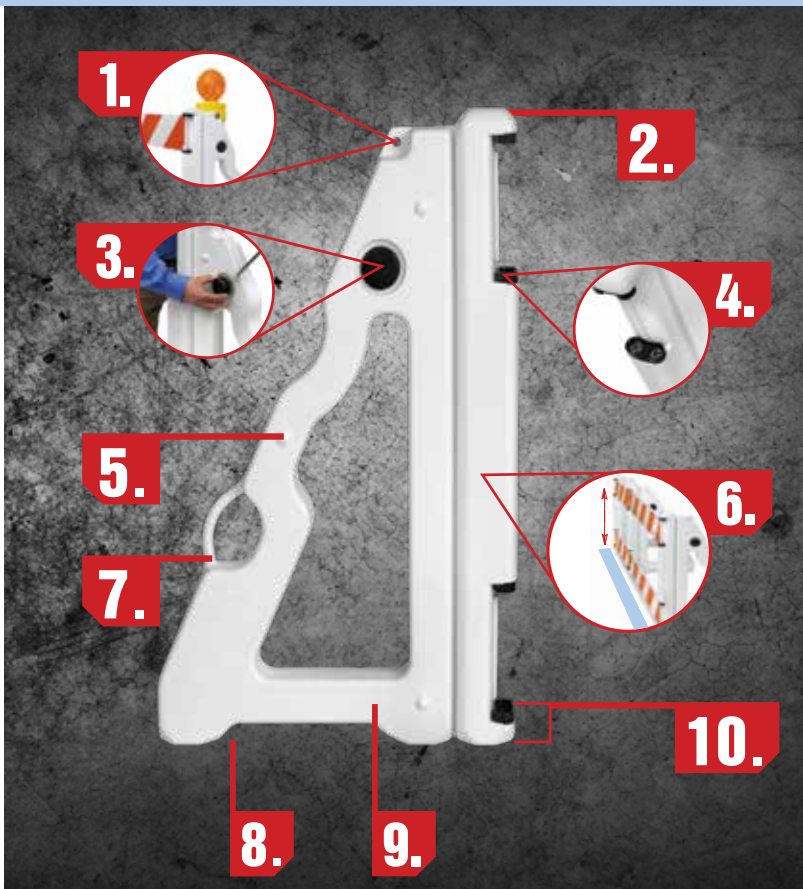
## SAFETYRAIL™ ADA-COMPLIANT BARRICADE:

SafetyRail, a continuous, interlocking device, is designed for creating accessible work zones. Meets ADA guidelines and MUTCD 2009 Edition Standards as a sidewalk closure barricade or longitudinal channelizer.

## SAFETYRAIL™ FEATURES:

1. Audible Information Device or Warning Light Mount.
2. SafetyRail provides continuous hand guidance. Top is smooth for transition to Wave® Guide Rail.
3. Oversized fill hole for internal sand ballast.
4. Top and bottom guide rail bushings hold guide rails in place. No installation tools required.
5. Molded-in lug for easy stacking also located by the fill hole and the ergonomic handle.
6. Common vertical plane eliminates obstacles in the walkway for safer, continuous guidance.
7. Ergonomic handle for easy transport.
8. Relief in the bottom to clear terrain.
9. Support for optional sand bags.
10. Measures 1.5" from ground, reducing potential for trapping cane tips.

*US Patents Nos. 8,302,937; 7,536,973 B2.*



## SAFETYRAIL FEATURES:

**Dimensions:** 3.25" W x 38" H x 24" L at base

**Weight:** 7 lbs empty or up to 25 lbs with sand

**Material:** High-density polyethylene plastic, UV inhibitors

**FHWA Letters:** SafetyRail: WZ-359, Wave Panel: WZ-173

**Wave Guide Rail:** 0.8" x 7.5" x 48" or 72"

High-density polyethylene plastic, UV inhibitors

## PSS WAVE GUIDE RAIL:

Available in four-foot or six-foot lengths. Encapsulated ends eliminate cane or hand snagging hazards.

Retroreflective sheeting meets all state and federal specifications and is available in Engineer, Hi-Intensity, and Diamond grades. Wave accepts sheeting on one or both sides.



SafetyRail is designed for use with PSS Wave® Guide Rail. Upper Rail is smooth, continuous, and safer for the hand. Lower Wave Guiderail measures 1.5" from the ground which reduces potential for trapped cane tips. Wave "Notch" design (see insert) keeps guide rails securely in bushings.

SECTION

03



SECTION

**03**

CRASH CUSHIONS,  
DRUMS & CHANNELIZERS

# CRASHGARD® SAND BARREL SYSTEM

## CRASHGARD® FEATURES:

CrashGard® Sand Barrel System is a non-redirective, gating sand barrel, or crash cushion.

## DURABLE:

CrashGard is blow-molded from high molecular, high-density polyethylene plastic (HLM/HDPE) that produces a stronger sand barrel. UV stabilizers maximize product life. Color-stable pigments resist fading. CrashGard withstands minor impacts during routine handling:

- » Filling or dumping sand.
- » Loading or unloading a truck.
- » Nesting for storage and transport.

## PRACTICAL:

Designed for easy transport:

- » Barrels nest easily for convenient storage.
- » Squared bottom accepts forklifts.
- » Tiered top accepts CrashGard Hoist.

Designed for 4" and 6" wide retroreflective sheeting.

Retroreflective sheeting meets all state and federal specifications and is available in Engineer, Hi-Intensity, and Fluorescent grades.



## UNIVERSAL:

One CrashGuard Sand Barrel accommodates all weight requirements:

- » With insert: 200, 400, 700, or 1,400 lbs.
- » Without insert: 2,100 lbs.

One barrel eliminates the need to stock different sizes of barrels, accommodates all weight requirements, and reduces inventory costs and confusion.

CrashGuard is designed for use in posted speed limits from 25-75 mph. Contact us for other speeds.

See CrashGuard Manual for recommended design arrays by speed limit.



## CRASHGARD HOIST SAND BARREL LIFT RING:

CrashGuard Hoist provides safer and easier transport of CrashGuard Sand Barrel System.

- » Transport of barrels can be a one-person operation.
- » Operates with a simple scissor action.
- » Made of welded steel. Weighs 140 lbs.
- » Powder-coated paint helps deter corrosion.



# CRASHGARD® FHWA LETTERS

## FHWA LETTERS:

In March, 2007, the Federal Highway Administration (FHWA), issued PSS Acceptance Letter CC-97 for CrashGard® Sand Barrel System. CC-97 acknowledges that CrashGard passed NCHRP-350 Crash Tests. The letter confirms that CrashGard meets the criteria of NCHRP-350 Test Level 3 for non-redirective, gating crash cushions.

In March 2009, FHWA issued CC-97-A, an amendment to the original letter. The amendment accepts the use of CrashGard in “mixed array” configurations.

AASHTO Manual for Assessing Safety Hardware (MASH), test requirements supersede NCHRP-350 test requirements. Crash cushions are required to comply with MASH test guidelines by December 31, 2018.

FHWA issued Eligibility Letter CC-145 for CrashGard in September 2018. In CC-145 FHWA agrees CrashGard meets MASH test and evaluation requirements. CC-145 also states FHWA finds CrashGard eligible “for reimbursement under the Federal-Aid Highway Program.”





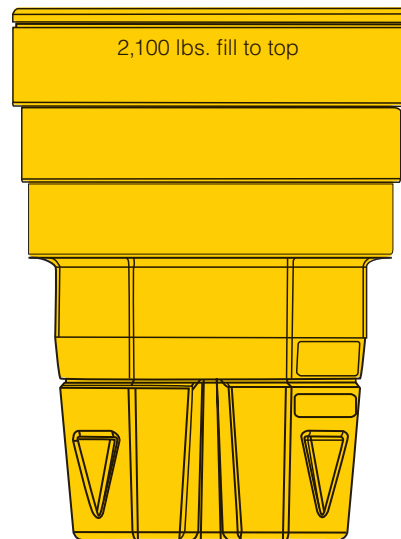
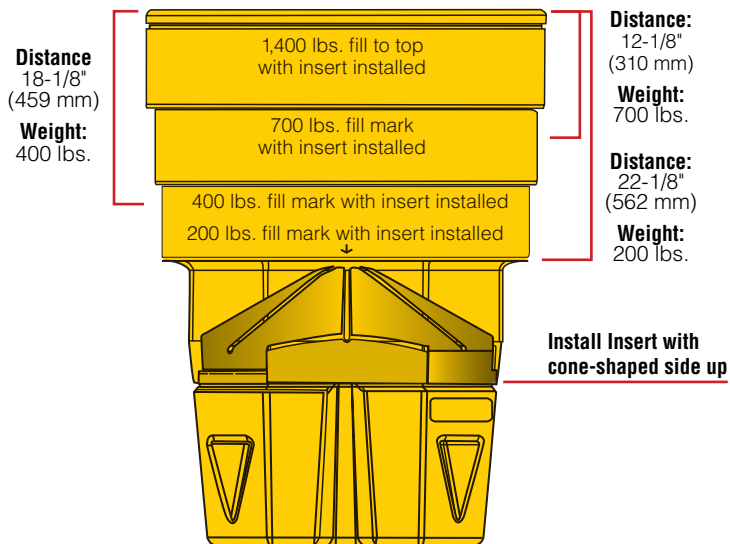
# MASH SAND-FILL MEASUREMENTS

## MASH REQUIREMENTS:

Barrels shipped after April 1, 2019 show a “1,400 lbs. fill to top with insert installed” mark at the top of the barrel.

The 2,100 lbs. barrel does not require an Insert to meet MASH requirements. Fill with sand to the “2,100 lbs. fill to top” mark.

To Meet MASH requirements:



**MASH: Install Insert for 200, 400, 700, 1,400 lbs.  
Fill to marks.**

**MASH: No Insert for 2,100 lbs. Fill to top.**

# LIFEGARD II® TRAFFIC DRUM



Ballast made from 100% recycled material.

## LIFEGARD II® DRUM FEATURES:

1. Manufactured from high-density polyethylene plastic with UV inhibitors. Molded handle accommodates Type A and C warning lights.
2. Intermittent Stacking Rims prevent drums from locking when stacked and protect sheeting.  
Anti-Roll Feature: A flat section of the flange (not shown) slows drum rolling if impacted.
3. Designed for up to five bands of retroreflective sheeting. Sheeting available in 4" and 6" widths. Sheeting meets all state and federal specifications and is available in Engineer, Hi-Intensity, and Fluorescent grades.
4. Designed for use with rubber tire collar ballast. Internal rubber base, 25 or 40 lbs, also available. Ballast made from 100% recycled material.
5. "Hot Stamp" ink permeates plastic and resists damage during normal use. (Stencil ink lays on surface, does not permeate plastic.) Add your company logo to the bottom of LifeGard II or 42" Navigator to better identify your product and reduce possible theft.



US Patent Nos. 6,817,805 B2 and 7,059,798. Canadian Patent 2,438,071.

# NAVIGATOR® CHANNELIZERS

**3M** We use 3M Reflective Sheeting.

## NAVIGATOR® CHANNELIZER FEATURES:

1. Manufactured from low-density polyethylene plastic with UV inhibitors. Molded handle accepts Types A and C warning lights. The handle also serves as a “roping-off” mount.
2. 42” Navigator accommodates up to five bands of 4” or 6” sheeting, 28” Navigator (see insert) up to three bands. Retroreflective sheeting meets all state and federal specifications and is available in Engineer, Hi-Intensity, and Fluorescent grades.
3. “Hot Stamp” ink permeates plastic and resists damage during normal use. (Stencil ink lays on surface, does not permeate plastic.) Add your company logo to the bottom of LifeGard II or 42” Navigator to better identify your product and reduce possible theft.
4. Navigator shown with hexagonal base. Available in 10 or 16 lb. weights. 30 lb. base available. Manufactured from 100% recycled material.


Canadian Patent No. 2,264,975



SECTION

0

44



ROAD CLOSED  
2.5 MILES AHEAD  
LOCAL TRAFFIC ONLY

←  
DETOUR

SECTION

04

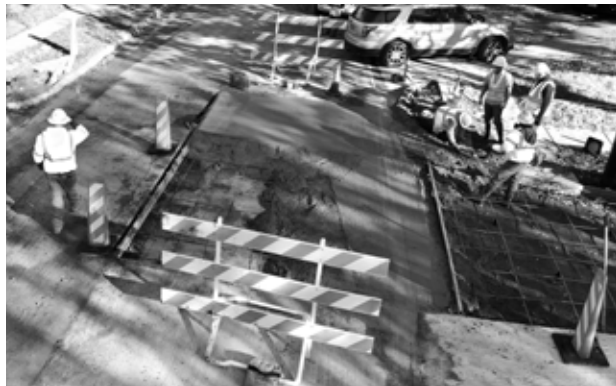
BARRICADES  
& WAVE<sup>®</sup> CENTERBOARD

# LANEGARD® 3 FOLDING TYPE III

## LANEGARD® 3 FEATURES:

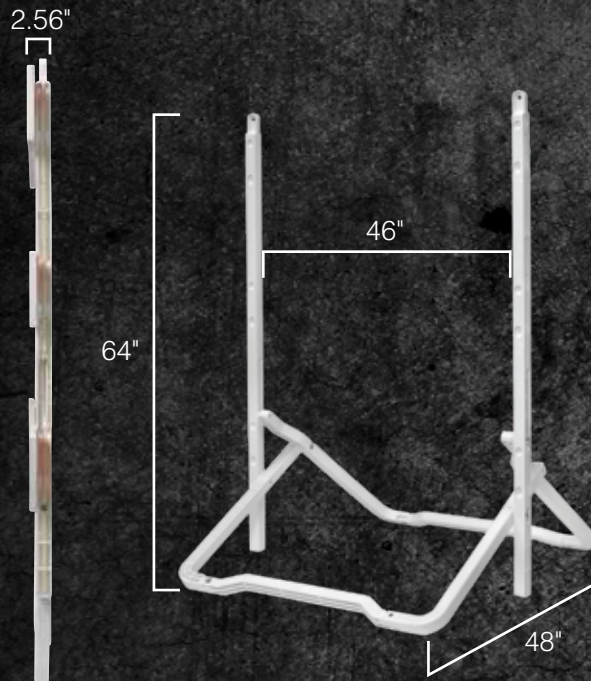
One-piece design folds for storage and transport and unfolds for use. Sets up and tears down in seconds. One person can easily fold and unfold LaneGard 3 for transport and deployment. Weighs 17 lbs without centerboards.

LaneGard 3 is designed for use with PSS Wave® Centerboards. Available in 4', 6', and 8' lengths. Retroreflective sheeting is available in Engineer, Hi-Intensity, and Diamond Grades. Retroreflective sheeting meets all state and federal specifications. Wave accepts sheeting on one or both sides. See page 44 for more details.



## LANEGARD® 3 FOLDING SPECIFICATIONS:

When folded, LaneGard measures less than 3" thick, including PSS Wave Centerboards.



## LANEGARD® 3 UPRIGHT FEATURES:

LaneGard 3 folds for transport and storage and unfolds for use with PSS Wave Centerboards attached. Measures less than 3" thick when folded. Once assembled, always assembled.

1. Molded-in Warning Light Mount accepts LED Types A and C warning lights.
2. Molded through-holes recessed for flush-mounted hardware.
3. Use sandbags or PSS tire collars for additional ballast.
4. Anti-Skid Feet can provide additional stability. Two per crossbar.



### FHWA LETTER:

Letter: WZ-336

Tested to Manual for Assessing Safety Hardware  
(MASH) Test Level: 3

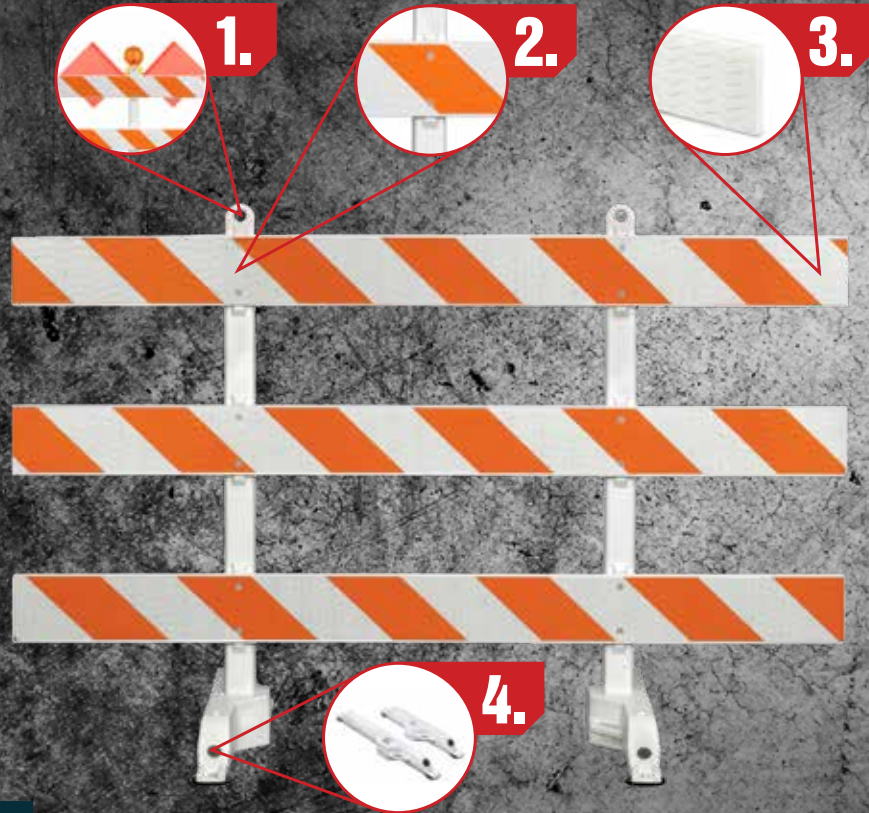
# ANCHOR® MAST® TYPE III BARRICADE

## ANCHOR® MAST® FEATURES:

Anchor Mast Type III Barricade consists of Anchor Mast Upright, Anchor Base, and Wave Centerboard.

Manufactured from high-density polyethylene plastic with UV stabilizers.

1. Mast Upright features molded-in warning light mount for Type A and C warning lights. Mounting holes hold two flags, front and back.
2. Mast Upright's molded through-holes add strength and support; attachment of Wave Centerboards is faster.
3. Wave Centerboards available in 4', 6', 8' lengths. Retroreflective sheeting is available in Engineer, Hi-Intensity, and Diamond Grades. Retroreflective sheeting meets all state and federal specifications. Wave accepts sheeting on one or both sides.
4. Anchor Base available in two lengths — 48", 60".

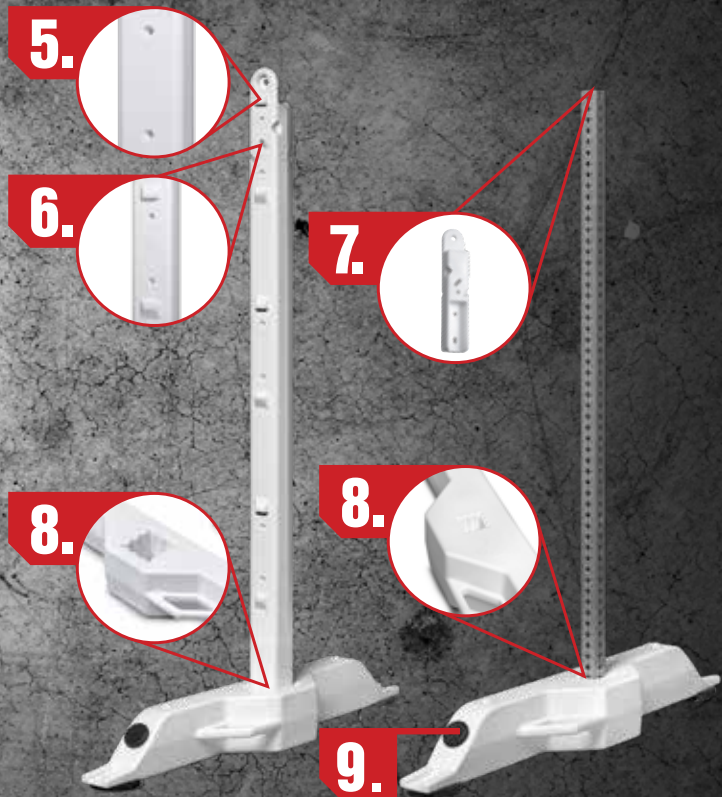


## FHWA LETTER:

Letter: WZ-244

US Patent: 7,111,815 B2, 7,523,715, 7,681,857





### MAST® UPRIGHT FEATURES:

5. Molded through-holes are recessed for flush-mounted hardware which protects sheeting.
6. Raised Centerboard Locators make installation of Wave Centerboards easier and faster.

### LIGHT AND FLAG MOUNT FEATURES:

7. Light and flag mount (LFM) accessory, sold separately, attaches to perforated stainless steel tube (PSST) uprights. Accepts one or two flags and one warning light. Manufactured from high-density polyethylene plastic with UV stabilizers. PSS does not offer PSST uprights for sale.

### ANCHOR® BASE FEATURES:

8. Available in two styles: for plastic uprights or PSST uprights. Anchor Base for plastic uprights features a 4" x 4" mount. Anchor Base for PSST uprights features a 1 3/4" x 1 3/4" mount. "Press-fit" installation means no tools required to attach uprights. Includes molded-in carrying handle.
9. Features molded in fill-hole and cap to fill with sand. Anchor 48" holds 45 lbs, Anchor 60" holds 60 lbs.  
Rubber anti-skid pad on bottom helps increase traction and decrease movement.

# F&A FRAME™ BARRICADE

## F&A FRAME™ BARRICADE FEATURES:

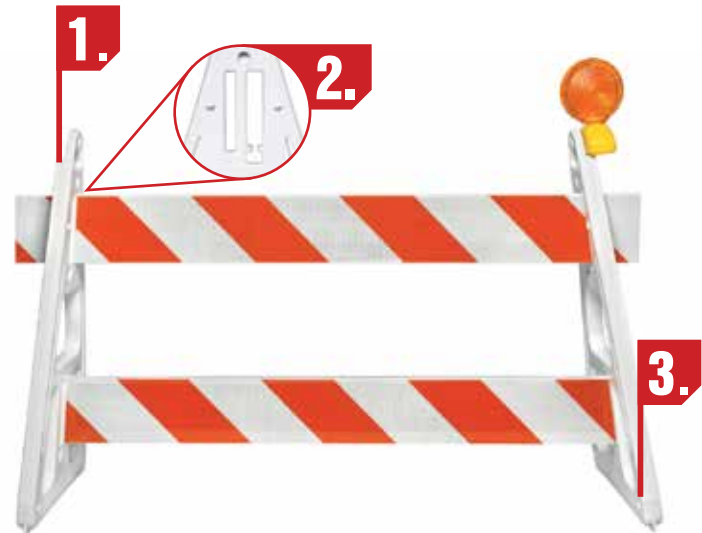
F&A Frame Barricade functions as a Type I or Type II barricade. F&A Frame is manufactured from high-density polyethylene plastic with UV inhibitors.

PSS Wave® centerboard is ideal for use with F&A Frame. See page 44 for more on Wave Centerboards.

Other features include molded ridges that add strength and durability and an oversized sand-fill hole that allows for added ballast.

*\*FHWA Acceptance Letter WZ-102*

1. Molded-in, ergonomic handle accepts Types A and C warning lights.
2. In addition to Wave centerboards, also accepts plastic, I-beam, or wood centerboards.
3. Molded, heavy gauge feet add balance and durability.



# MVP® VERTICAL PANEL



Ballast made from 100% recycled material.



We use 3M Reflective Sheeting.

## MVP® VERTICAL PANEL FEATURES:

MVP serves as a channelizer to direct traffic or as a barricade to divide lanes. MVP is manufactured from high-density polyethylene plastic with UV inhibitors.

MVP's recessed panel protects the retroreflective sheeting. Retroreflective sheeting meets all state and federal specifications and is available in Engineer, Hi-Intensity, and Diamond grades.

1. Molded handle accepts Types A and C warning lights.
2. Recessed Panel is 12" wide. Available in 24" or 36" lengths. 12" x 36" panel shown. Panel can be removed for reuse.
3. Stacks for compact transport and storage.
4. Features molded foot step for easy press-fit assembly into base.
5. Base weighs 45 lbs Manufactured from 100% recycled material.

FHWA Acceptance Letter WZ-166.



# WAVE<sup>®</sup> CENTERBOARD

**3M**

We use 3M  
Reflective  
Sheeting.

## WAVE<sup>®</sup> CENTERBOARD FEATURES:

Wave Centerboard is blow-molded from UV-stabilized, high density polyethylene plastic with a reinforced structure.

Wave design (See Figure B):

- » Strengthens and stiffens the centerboard
- » Reduces sagging and warping
- » Greatly improves reboundability

Closed ends prevent dirt and moisture from collecting. Also prevents bees and hornets from building nests.

Retroreflective sheeting meets all state and federal specifications and is available in Engineer, Hi-Intensity, and Diamond grades.

Wave is available in 4', 6', and 8' lengths. Accepts sheeting on one or both sides.

Ideal for use with Anchor Mast, LaneGard 3 Type III Barricades, SafetyRail Pedestrian Barricade, and F&A Frame Barricade.

*FHWA Acceptance Letters WZ-173 and 244*

*US Patent No. 7,536,973 B2.*

**A.**



Figure A: Designed with Anchor Mast Upright for a close-tolerance barricade system.

**B.**



Figure B: Molded through-holes add strength and support. Recessed holes accommodate flush-mounted hardware, which protects installers and sheeting.

# EXTERNAL BALLAST OPTIONS



Ballast made from 100% recycled material.

## RUBBER TIRE COLLAR FEATURES:

**Weight:** 22-25 lbs

**Color:** Black, no paints or markings of any color

**Inside Diameter:** 21.75"

**Outside diameter:** 35" - 36.5"

Rubber Tire Collar provides significant ballast for drums, barricades, and other traffic control devices.

Makes positive contact with road when installed on drums.

Cut from 22.5" truck tires, 100% recycled material.



## PLASTIC SAND BAG FEATURES:

**Weight:** Holds up to 25 lbs of sand

**Color:** Safety Orange

**Dimensions:** 14" W x 26" L

Plastic sand bags provide significant ballast for drums, barricades, and other traffic control devices.

Made of 850 lb. weight denier polypropylene plastic with UV stabilizers.



SECTION

05



SECTION

**05**

**STANDGARD<sup>®</sup>**

PORTABLE STANDING STATION

# STANDGARD® BASE

## APPLICATIONS:

- » Work Zone Flaggers
- » Parking Lot Attendants
- » Parking Valets
- » Venue/Event Parking Attendants
- » School Crossing Guards
- » Tailgaters at special events

## PROVIDES A HOME BASE FOR WORKERS:

StandGard® Base Temporary Portable Standing Assistant provides a tangible home base for workers who stand adjacent to traffic, including flaggers and parking lot attendants. When workers are in a predictable, consistent location it is easier for drivers to see them quickly.

StandGard can also reduce or deter a natural tendency among workers to “drift” away from their stationary positions and close to the work zone site. With StandGard, workers have a designated standing location with an appropriate, predetermined buffer space between a worker and the work zone. StandGard creates a recognizable location at which a worker should remain. Workers are safer adjacent to live traffic as drivers can more readily see them.

## PROTECT FROM EXCESSIVE TEMPERATURES:

For those who work outdoors, extreme temperatures can pose a hazard. Outdoor workers, especially those who remain in a stationary position for hours, can lose significant body heat in cold weather and overheat in hot weather.

StandGard® Base Temporary Portable Standing Assistant reduces the transference of heat between workers and street, sidewalk, or parking lot surfaces. With an R-Value that exceeds six, StandGard reduces the transference of heat by up to 84% when compared to shoes alone. With StandGard Base, feet remain cooler in hot weather and warmer in cold up to six times longer.



STAND LONGER.  
STAND SAFER.  
**STANDGARD®**



# STANDGARD® BASE

## PORTABLE STANDING STATION

**3M** We use 3M Reflective Sheeting.

StandGard helps reduce the transfer of heat by 84%. StandGard has an R-Value of 6.

Integrated Relief Handle makes carrying StandGard easier.

Rectangular Shape provides nearly three square feet of functional standing area.

Replaceable, weather-resistant Anti-Fatigue Mat reduces wear on feet, knees, and backs and extends life of foam base.

Flush design between mat and base resists water build-up on mat.

Reflective tape increases visibility at night and in low-light conditions.

Stores vertically to take up less space in vehicles.

Lightweight, wear-resistant foam base with Polyurea coating for increased durability.



### WEIGHT & DIMENSIONS:

Overall Dimensions: 21" W x 28" L x 1.75" Thick

Standing Area Dimensions: 16.75" W x 24.5" L

Weight: 4.5 lbs

SECTION

06



SECTION

**06**

DELINEATORS

# NITELITE™ II REFLECTIVE SAFETY FENCE

## NITELITE II™ APPLICATIONS:

Day or night, NiteLite II Reflective Fence protects pedestrians and drivers with continuous visual delineation. Ideal for work zones, crowd control, and construction sites.

- » Satisfies Iowa DOT safety closure specifications for road closures.
- » Delineates fixed objects, such as utility poles, that are located close to pedestrian or vehicular traffic.
- » Delineates excavations within traffic lanes or close to the edge of the road.
- » Directs foot traffic after sporting events, concerts, and other high-traffic occurrences.

## NITELITE II FEATURES:

- » Features three, 1"-wide, retroreflective high-intensity prismatic (HIP) stripes.
- » Made of orange UV-protected polyethylene plastic.
- » Standard roll: 4' x 50'. Weighs: 25 lbs.
- » Reusable, lightweight, and easy to install.
- » Rolls easily for storage.



# QUIK-MARK™ OBJECT MARKER



We use 3M  
Reflective  
Sheeting.

## QUIK-MARK™ FEATURES:

Quik-Mark Object Marker delineates temporary or permanent barriers and other objects near the roadway.

- » Consists of a durable, flexible, high-density polyethylene plastic reflective panel that mounts on a high-impact plastic “L”-shaped bracket.
- » Standard panel sizes are 6" W x 12" H and 8" W x 12" H reflective area. Other sizes available. Quik-Mark accepts sheeting on one or both sides.
- » Retroreflective sheeting meets all state and federal specifications. Available in Hi-Intensity and Fluorescent grades.
- » Standard sheeting colors are orange, white and yellow. Other colors available.



# QUIKGARD™ GUARDRAIL DELINEATOR

## QUIKGARD™ FEATURES:

QuikGuard Guardrail Delineator is ideal for entrance/exit ramps, work zones, low-visibility areas, high speed roads.

- » “Patented Notch” provides vertical and horizontal alignment for fast, easy installation.
- » Manufactured from durable, flexible, high-density polyethylene plastic with UV stabilizers.
- » Retroreflective sheeting meets all state and federal specifications. Available in Hi-Intensity and Fluorescent grades. Available in white, yellow, and red. Accepts sheeting on one or both sides.



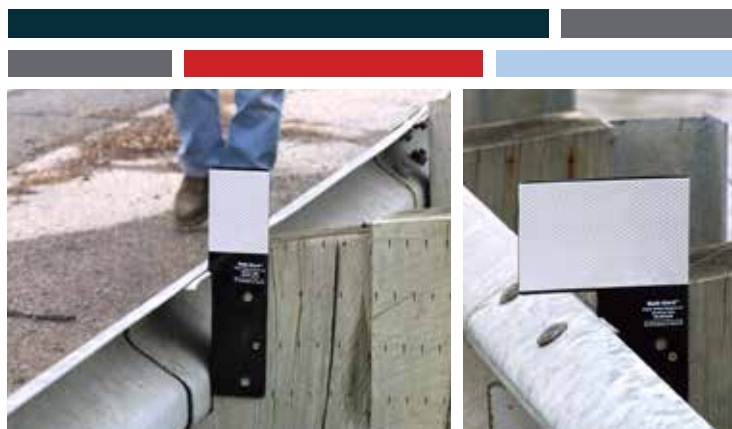
3' x 4"  
reflective area  
Delineator "I"



4' x 6½"  
reflective area  
Delineator "L"



4' x 13"  
reflective area  
Delineator "T"



# BAM™ BARRIER DELINEATOR



We use 3M  
Reflective  
Sheeting.

## BAM™ BARRIER DELINEATOR FEATURES:

BAM Barrier Delineator is designed for top-mounted or side-mounted applications for permanent or temporary barriers.

- » Unique, flexible hinge design can reduce replacement costs. Available with retroreflective sheeting or acrylic reflective lenses.
- » BAM accepts sheeting or lenses on one or both sides. Retroreflective sheeting provides 11.5 square inches of reflective area. Acrylic lens provides 8.9 square inches.
- » Standard sheeting colors are white and yellow. Other colors available. Acrylic lens colors include amber, red, blue, or clear.
- » Retroreflective sheeting meets all state and federal specifications. Available in Hi-Intensity and Fluorescent grades.



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