



INSTALLATION GUIDE

ProMASH™ Temporary Precast Barrier



V7-042226

SOUTHERN CALIFORNIA

27417 East 3rd Street
Highland, CA 92346

CONTACT US FOR MORE INFORMATION

800-945-8265
909-793-7602

NORTHERN CALIFORNIA

7999 Athenour Way
Sunol CA 94586

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PURPOSE

This guide suggests some basic guidelines for the installation (and removal) of ProMASH™ Barrier Systems. The ProMASH™ Barrier is a MASH Compliant TL-3 temporary concrete barrier that is easy to install and versatile in its application.

Advantages of ProMASH™

The ProMASH™ barrier is a single pin and loop design. This type of connection has been widely used for years across multiple states. Therefore, installation is a familiar process to field crews. The ProMASH™ barrier system is designed as more of a rigid system. During a high-speed impact, the ProMASH™ barriers deflect about half the distance of most other temporary barriers in the freestanding position. This means better protection for your crews.

Product Description

All ProMASH™ barriers are steel-reinforced, precast concrete safety barriers.

The ProMASH™ restrained (staked) barrier requires fewer stakes than most of the competition and typically requires only (2) stakes for a 10' section, (3) stakes for 20' section, and additional stakes for 30' section. See product drawing sheet TBD-3 for staking guidance in all applications.

FREE STANDING DEFLECTION TABLE

	ProMASH™ 30'	ProMASH™ 20'	ProMASH™ 10'
DYNAMIC DEFLECTION	1.9'	3'	4.9'
WORKING WIDTH	3.5'	4.6'	5.6'

STAKED DOWN DEFLECTION TABLE

	ProMASH™ 30'	ProMASH™ 20'	ProMASH™ 10'
DYNAMIC DEFLECTION	0.6'	0.7'	0.9'
WORKING WIDTH	1.7'	2.5'	3.3'

BARRIER WEIGHTS

SIZE	APPROX. WT.
30'-0"	14,180 LBS.
20'-0"	9,550 LBS.
10'-0"	4,630 LBS.

Safety

AUTHORIZED PERSONNEL – only experienced personnel or people that have been trained in safe installation processes should be involved with installing or removal of ProMASH™ barriers. All personnel are responsible for complying with all applicable safety rules and requirements. Personnel should know and understand all local, state, and federal regulations such as OSHA.

HANDLING OF BARRIERS – lifting equipment should be inspected and verified to safely handle the size and weight of the barrier. All lifting devices should comply with applicable safety regulations. When using any new lifting device confirm with the manufacturer that it is suitable for the application.

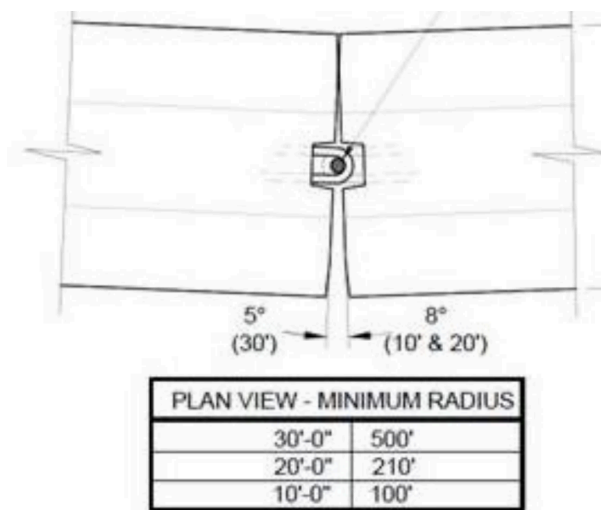
SITE CONDITIONS – working areas should be clear and free of hazards and obstacles such as overhead power lines, other equipment or personnel. If installing in or near live traffic lanes appropriate lane controls and traffic management plans should be used.

Site Preparations

SURFACE – should be relatively flat and free of debris. Loose or unstable surfaces should be avoided. Ditches and high points should also be avoided as you want as much bearing on a compact surface as possible.

ELEVATIONS - When installing on a superelevation or superelevation transition it may be necessary to switch between the different length barrier options to maintain contact with the surface and prevent any “bridging” or “twisting” of the barrier over the installation surface due to superelevation changes or transitions.

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Handling ProMASH™ Barriers

ProMASH™ Barriers are designed to be lifted in various methods. The barrier can be lifted from the bottom provided there is full support and equal bearing points. The barriers can also be lifted overhead by utilizing the 4" through holes, or installers can use a clamp style lifting device.

Barriers typically arrive by truck; it is recommended a minimum crew of two for unloading with an equipment operator. Typically, the equipment operator moves the barriers while one person guides and aligns the barriers into position and the other person installs the connection pin.

- One person should be a certified operator of the equipment used for unloading (e.g., crane or forklift), while the other personnel serve as the riggers, connecting the lifting equipment to the barrier.
- The riggers will guide the operator in lifting the barrier from the truck, ensuring uniform support on the barrier.
- When using lifting holes or clamp-style lifters, the riggers must ensure the barrier is level and devices are securely attached before movement. This involves making sure lifting chains, straps, or cables are of equal length and centered over the barrier. For clamp-style lifters, proper alignment is required.
- If moving the barrier to the installation location, the rigger should ensure there is adequate clearance from obstructions and potential hazards

HANDLING

Lifting Methods



** using the lifting clamp*



** using lifting holes*

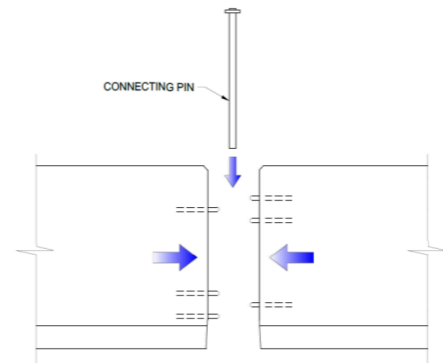


** using a forklift*

Installation of ProMASH™ Barriers

ALIGNMENT – the ProMASH™ barriers are designed with a tight joint between barriers proper alignment is important for a quick installation. The barrier is moved toward the end of the last barrier that was installed then is lowered and shifted into position. The loops slide in between the opposing barriers loops. Place the barriers so that the loops are aligned allowing the connection pin to easily drop into place.

CONNECTION METHODS – the barriers are held together by a single 24" pin that is placed in the center of the loops after the two barriers are put in place.



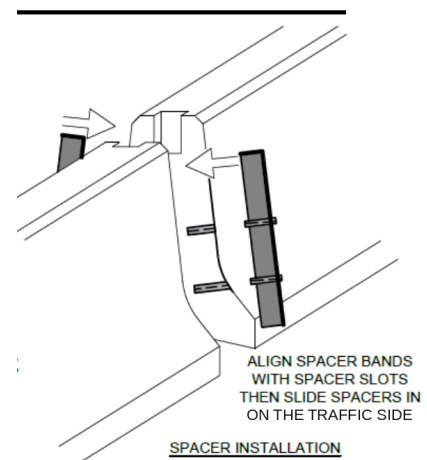
NOTE: Much of the damage to barriers occurs during installation and removal. Take your time and your ProMASH™ barriers will last a long time.

INSTALLING OPTIONAL PROMASH™ SPACERS (PATENT PENDING)

ProMASH™ barriers are designed to accept spacers which reduce damage to the barriers by transferring loads into the mass of the barrier rather than the edges where most damage occurs, additionally the spacers may provide reduced deflections.

The installation of the ProMASH™ Spacer is done by simply inserting the optional spacer on the traffic side of the barriers at the connection joints. All ProMASH™ Barriers have location slots to receive the spacers. The spacers have locating bands attached to them and can be adjusted if required.

If the barriers are hit and/or the spacers are displaced simply replace them into position.

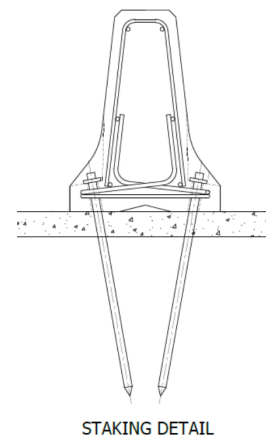


Anchoring Methods

STAKING

Staking - is performed by using a standard pin driver after the barriers are aligned and installed. ProMASH™ Barriers have anchor holes angled to 10° for easier installation and better performance should impact occur.

Start by predrilling 1-1/4" holes to 36". Using a pin driver follow the manufacturer's instructions and use the pin driver to drive the stake to bottom surface in the stake pocket. When driving the stakes care should be taken to ensure the head of the stake is recessed inside the provided pocket so that there is no exposure of the stake.



Currently ProMASH™ Barriers have been tested for staking in AC not PCP. Check with manufacturer prior to install for most recent approvals.

ANCHOR BOLT

Anchor bolt - is performed by using a drill and epoxy method after the barrier are aligned and installed using the anchor holes angled to 10°.

Tools/ Equipment Needed

- Hammer drill with 1-1/8" concrete drill bit
- Round pipe brush (wire brush)
- Portable self-contained air compressor w/ blow gun and nozzle extension
- Anchor Bolt Assembly
 - 1-1/4"x11" min threaded rod w/ tack welded 1-1/4" hex nut and heat shrink sleeve
 - Plate washer 3"x3"x 1/2" square or 3"Ø x 1/2" round w/ 1-1/2" ID hole
 - 1-1/2" dia. x 4" sch. 80 pipe sleeve
- Adhesive Hilti HIT-HY100 (or equivalent epoxy)
- Manual adhesive gun (Hilti HDM-500)
- Socket wrench w/ 1-7/8" hex socket
- Approved non shrink grout (after barrier removal)
- Putty knife (for grouting)

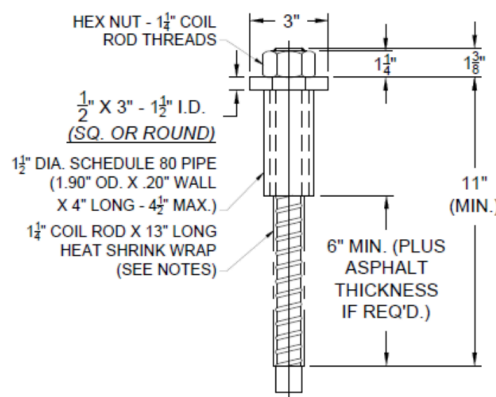


FIGURE 1

ANCHOR BOLT

Installation Process

All segments shall be installed and aligned in accordance to the Project Traffic Control Plan Details.

- 1 Place 1 ½" Ø x 4" sch. 80 pipe sleeve into bolt pocket. (see figure: 2)
- 2 Drill 1-3/8" hole for 1-1/4" threaded rod to allow 6" min. embedment into PCC/ Bridge Deck (for roadway/ bridge deck with AC topping, AC topping thickness is to be taken into consideration to achieve 6" min. embedment into PCC/ Bridge Deck. Ex. 6" min + AC thickness). (see figure: 2)
- 3 Blow out dust from hole using blow gun and air nozzle (per adhesive manufacture instructions)
- 4 Clean hole using round pipe wire brush (per adhesive manufacture instructions)
- 5 Using the blow gun with nozzle extension, insert air nozzle to bottom of hole and blow out all debris. (per adhesive manufacture instructions)
- 6 Fill hole with recommended adhesive epoxy roughly ½ to 2/3 full. (per adhesive manufacture instructions)

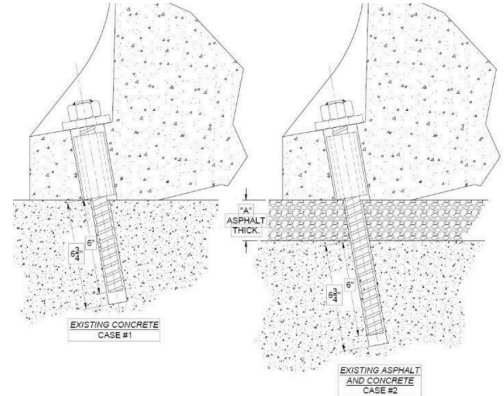


FIGURE 2

NOTE: For long-term applications utilizing epoxy, remove the shrink-wrap sleeve using a utility knife. Exercise caution during this process, ensuring proper hand placement to prevent accidental injury.

- 7 Install Anchor Bolt Assembly with square or round plate washer leaving 1 ½" Ø sch. 80 pipe inside bolt pocket. Ensure the Anchor Bolt Assembly is bottomed out and the hex head is recessed inside the bolt pocket. (see figure: 2)

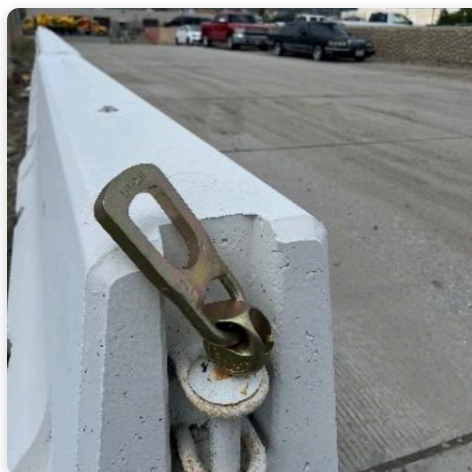
DO NOT DISTURB anchor during set and cure time.

Removal of ProMASH™ Barriers

Removal of the barrier is done in reverse order of the install process. Remove the pins and move the barriers outward from the loops then lift. Staked barriers can be removed by prying up the collar of the stake and pulling up and out at an approximate 10° angle. Care should be taken to minimize damage to the underlying surface. Anchored barriers can be removed by using 1" socket to remove Anchor Bolt Assembly followed by filling/ repairing roadway surface in accordance to DOT guidelines (after barrier is removed).

ProMASH™ pins are equipped with an integrated safety feature at the top, allowing for removal using a variety of tools while keeping hands clear of potential pinch points.

When performing stake removal, ensure that the angle of the equipment is properly aligned with the angle of the stake prior to extraction. Proper alignment helps facilitate efficient removal, reduces unnecessary stress on the equipment and stake, and minimizes the risk of damage or sudden release. Operators should verify alignment before applying force and make adjustments as needed throughout the removal process to maintain safe and controlled operation.



Safety Pin (Patent Pending) and example of a pulling device

NOTE: Much of the damage to barriers occurs during installation and removal. Take your time and your ProMASH™ barriers will last a long time.

Loading Trucks and Storage

LOADING

Loading shall be performed in the reverse sequence of unloading. Due to the various sizes and configurations of ProMASH™ barriers, loading arrangements may vary depending on barrier type and project requirements. Care should be taken to ensure that barriers are properly aligned and secured during loading to prevent shifting or damage during transport. Barrier weights are provided in the applicable tables and on the project drawings and should be referenced to ensure proper handling and equipment selection.

STORAGE

Barriers shall be stored in a manner that prevents damage and maintains stability. Units should be stacked on firm, compacted soil or other suitable stable surfaces to minimize the risk of settlement. Stacks should be arranged evenly and not exceed recommended heights. Periodic inspection of stored barriers is recommended to identify any signs of leaning, shifting, or ground subsidence. Any unstable stacks should be corrected immediately to maintain a safe storage condition.

FAQ

Frequently Asked Questions

Q What is a MASH Barrier?

MASH stands for the *Manual for Assessing Safety Hardware*. It is the national testing standard used to evaluate and approve highway safety products, including temporary concrete barriers. Any barrier designated as “MASH compliant” has been crash tested and approved under these current safety guidelines.

Q What Is the Difference Between a MASH Barrier and a K-Rail?

MASH barriers are technically classified as **F-Shape** barriers, whereas traditional K-Rails are **K-Shape** barriers. While the overall footprint remains the same, F-Shape (MASH) barriers feature: Slightly more vertical side profiles, a wider top section, improved vehicle redirection characteristics. The design differences result in a slightly heavier barrier compared to a traditional K-Rail.

Q What about the other barriers?

While ProMASH™ barrier is approved as a F-Shaped (MASH) barrier the Cal-F23 is just another version of that type of barrier. The Cal-F23 is issued by Caltrans. In pursuit of providing a better performing lower cost alternative Procast Products designed, tested and obtained approval for the ProMASH™ barrier.

Q Why Choose ProMASH™ Over Other MASH Barriers?

ProMASH™ was engineered to be: the most competitively priced barrier on the market, high-performing in crash testing, and contractor-friendly for installation and handling. It offers an optimal balance of cost efficiency and performance.

FAQ · CONTINUED

Frequently Asked Questions

Q Are ProMASH™, Cal-F23, and K-Rail interchangeable?

At this time, they are not. The ProMASH™ and Cal-F23 will connect to each other and successful testing has been performed but the official approval has not been issued. This type of connection would have to be used on non-Caltrans projects.

Q What Are the Studs on Top of the ProMASH™ Pins?

The ProMASH™ connection pins include a raised stud on top. These studs help keep hands clear of pinch points during installation and aid in removal if pins become bent (such as after a vehicle impact)

**Q How Many Barriers Fit on a Truck?**

ProMASH™: 5 pieces per truck (100 linear feet) Due to the slightly increased weight, one fewer section is typically shipped per load.

Q Do They Install Differently?

No. ProMASH™ uses the same loop-and-pin connection system as traditional K-Rail. Contractors can continue using: forklifts, lifting hole brackets, clamp-type lifters (such as a Kenco clamp). Installation procedures remain familiar and straightforward.

Q What About Radius or Curves?

ProMASH™ barriers can be installed on curves similar to traditional loop-and-pin systems. Standard radii can be achieved with the options of various approved barrier lengths 10'/20'/30'. Radius tables are provided on the ProMASH™ drawings

**Southern California**

27417 East 3rd Street
PO Box 602
Highland, CA. 92346

Northern California

7999 E. Athenour Way
Sunol, Ca. 94586

(909) 793-7602

www.procastproducts.com

Procast Products, Inc.