

ZONEGUARD[®]



SMART SAFETY FIRST



ZONEGUARD®

STEEL BARRIER SYSTEM

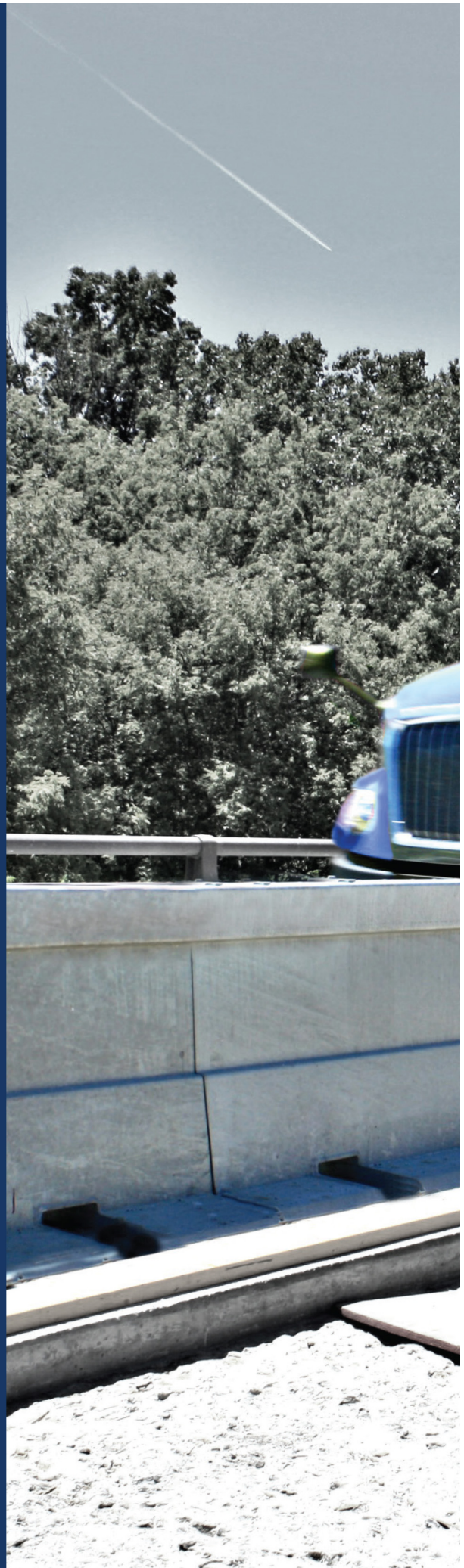
Since its introduction to the highway safety industry in 2008, the Zoneguard® steel barrier system has become the most widely used temporary steel barrier in the country. DOT's, contractors, and traffic control companies throughout the U.S. have seen firsthand its many safety and money-saving benefits.

Designed to protect highway travelers, as well as road and construction crews, Zoneguard® offers the maximum safety requirements, as it meets NCHRP 350 and MASH crash test standards.

Temporary concrete barrier systems are costly, heavy to transport and handle, time-consuming and do not provide the energy-absorbing capabilities of Zoneguard®.

Today's contractors, engineers and DOTs have a responsibility to provide the upmost safety to the driving public, while meeting tight budgets and timelines.

Zoneguard® provides a cost-effective and efficient barrier solution and is available nationwide for rent and purchase.





WHY ZONEGUARD®?

A cost-effective alternative to traditional concrete barrier, Zoneguard's lightweight configuration allows 750 linear feet (LF) to be hauled on one truck and up to 1,500 LF to be installed in one hour.



TRUCKING

The most costly expense when utilizing temporary barrier is often the trucking to and from the jobsite. Zoneguard's design allows for 750 LF to be hauled on one flatbed trailer. Compare that to 90-120 LF of concrete barrier that can be hauled on a truck.



INSTALLATION

Saving time during the installation process can reduce labor costs and speed up project completion. The ability to maximize a truckload and install 50 feet (std. unit length) in one pick will allow up to 1,500 LF to be installed in an hour. Zoneguard's male-female connection slides together quickly and requires no loose parts.



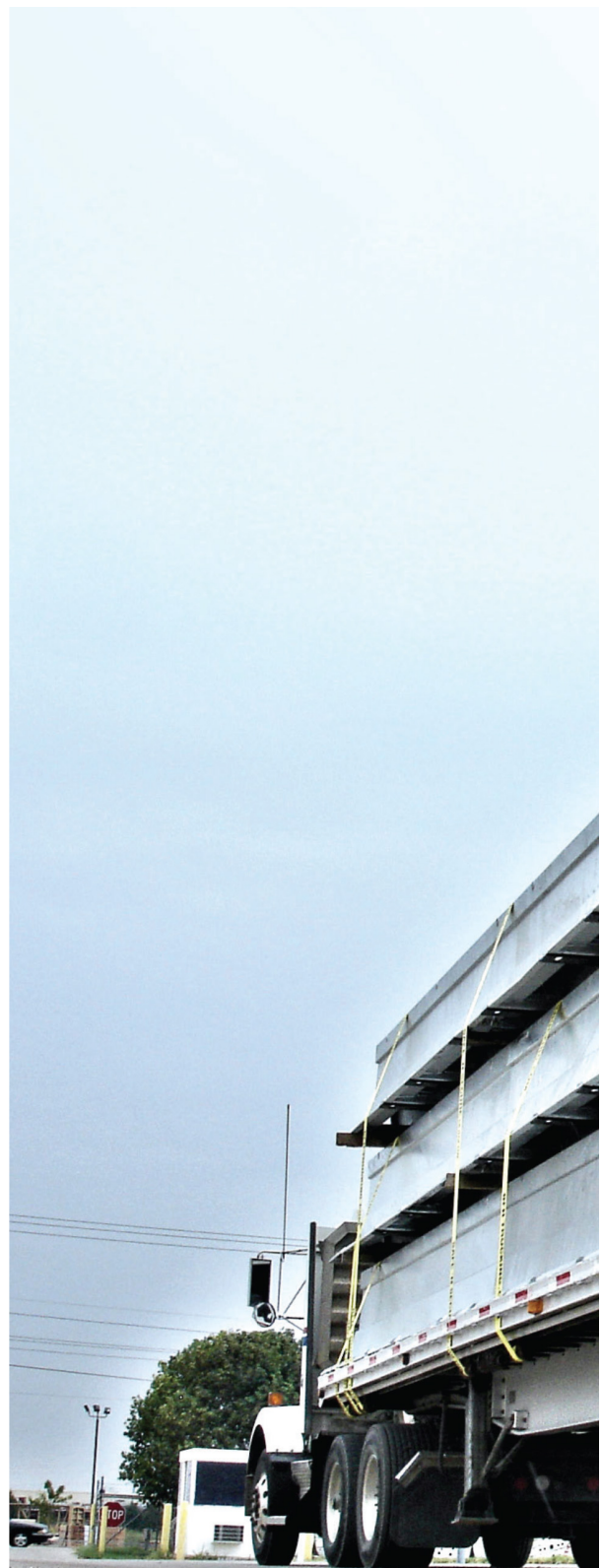
DURABLE

Made of long-lasting galvanized steel, Zoneguard® can withstand nuisance impacts and regular movements with little to no visible wear-and-tear, unlike concrete barrier, which can experience chipping/cracking/spalling during installation, relocation and storing.



MASH COMPLIANT

Zoneguard® has been extensively tested and has been accepted by the FHWA as meeting NCHRP 350 TL-3 & TL-4 and MASH TL-3. Zoneguard's rigid cross-section, and low center of gravity enable deflections which are comparable to heavier temporary concrete barriers.



**HOW MANY TRUCKS TO
HAUL 3,000 LF OF
TEMPORARY BARRIER?**

ZONEGUARD® vs. CONCRETE



ZONEGUARD® = 4 TRUCKS



CONCRETE = 30 TRUCKS



WHY IT WORKS

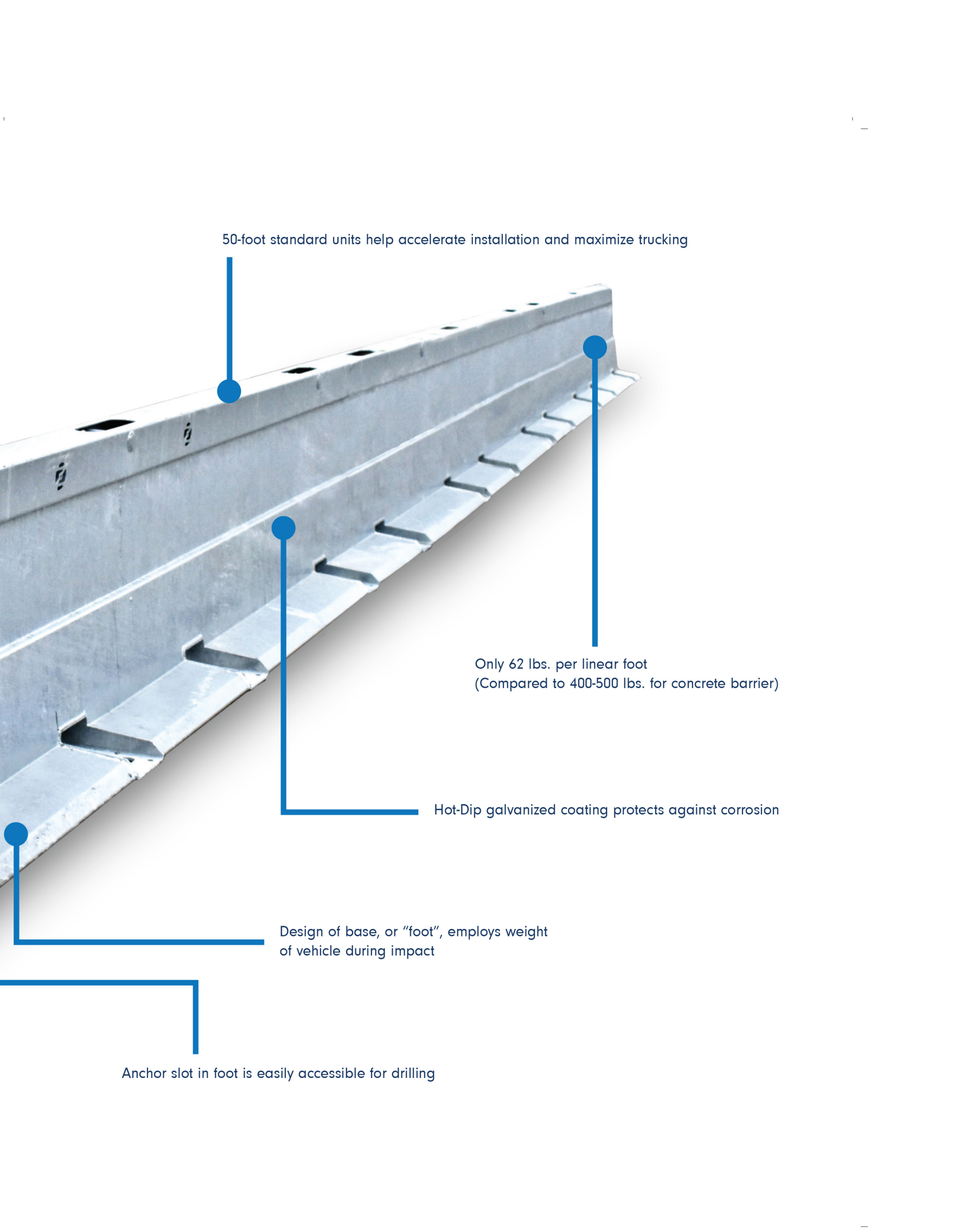
Industry leading crash test performance and money-saving benefits begin with Zoneguard's unique design features.

Easily accessible internal lifting bar for quick rigging

Patented six-point "Speed Joint" technology for quick and strong connection

Low center of gravity and rigid cross-section produces industry leading crash test performance





50-foot standard units help accelerate installation and maximize trucking

Only 62 lbs. per linear foot
(Compared to 400-500 lbs. for concrete barrier)

Hot-Dip galvanized coating protects against corrosion

Design of base, or "foot", employs weight
of vehicle during impact

Anchor slot in foot is easily accessible for drilling

ZONEGUARD® CRASH TESTING

Zoneguard® is one of the most extensively crash tested temporary barriers on the market today, having undergone testing to both NCHRP 350 (National Cooperative Highway Research Program Report 350) and MASH (Manual for Assessing Safety Hardware) standards.

NCHRP 350 (Published 1993) and MASH (Published 2009) represent uniform guidelines for conducting full-scale crash tests for permanent and temporary highway safety features along with recommended evaluation criteria to access the test results.

Initially, the Zoneguard® steel barrier system underwent six separate crash tests in 2007 and two anchoring configurations were tested: Standard Deflection System (SDS) and Minimum Deflection System (MDS).

Both anchoring systems were tested to NCHRP 350 and MASH crash test criteria. Upon evaluation of the test results, the Federal Highway Administration accepted Zoneguard® for use on the National Highway System, in June 2008.



STANDARD
DEFLECTION SYSTEM
ANCHORED AT THE ENDS ONLY





MINIMUM
DEFLECTION SYSTEM
ANCHORED EVERY 33'- 4"



NCHRP 350 TL-3
SMALL CAR



NCHRP 350 TL-3



MASH TL-3



MAKING ZONEGUARD®

Zoneguard® is comprised of pressed steel panels, galvanized prior to assembly. These galvanized steel panels are assembled in 50ft long sections; each section is 32" high with a base width of 27 9/16" and a top beam width of 6 3/16".

Each 50ft section weighs 3,097lbs and has nine (9) lifting points contained in the upper beam and twelve (12) drainage/forklift pockets along its length. The pockets are also used for intermediate and end anchorages depending on deflection arrangement specified.

The product design allows for five (5) 50ft sections in each of three (3) layers to be transported giving 750 LF per load, weighing 46,455lbs.



FABRICATION

Zoneguard® is comprised of cut, bent and welded carbon steel panels.



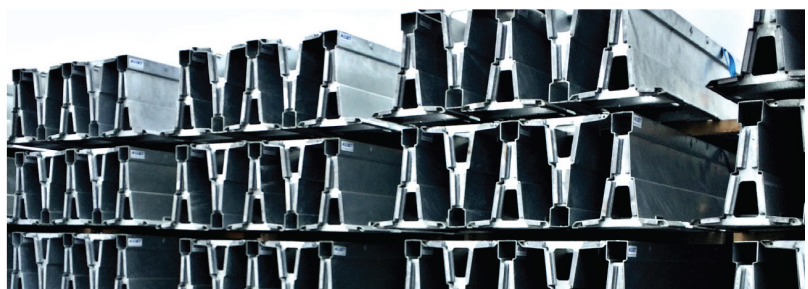
GALVANIZING

Zoneguard® is hot dip galvanized to combat steel corrosion in the harshest environments.



ASSEMBLY

Following galvanization, Zoneguard® is assembled and speed joints and sliding engagement bars are added.



STAGING

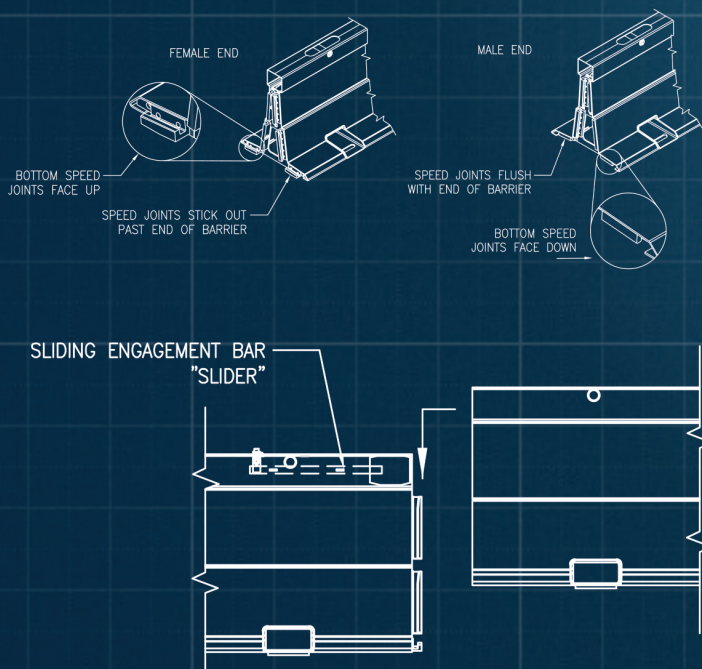
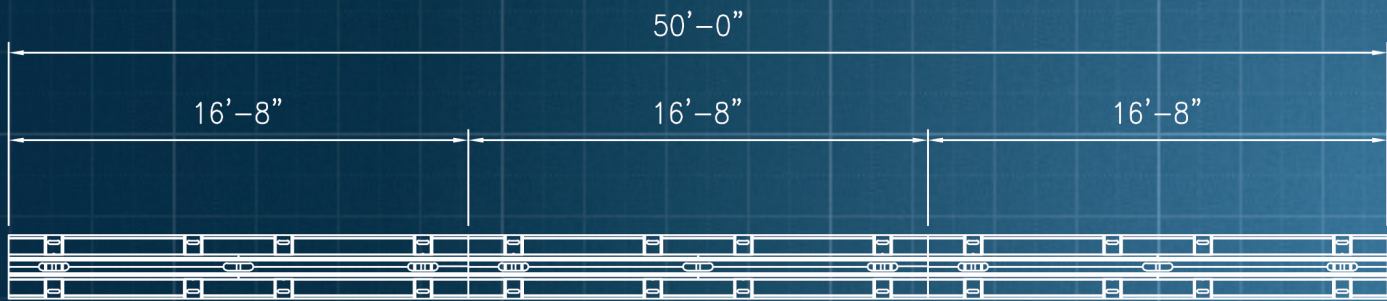
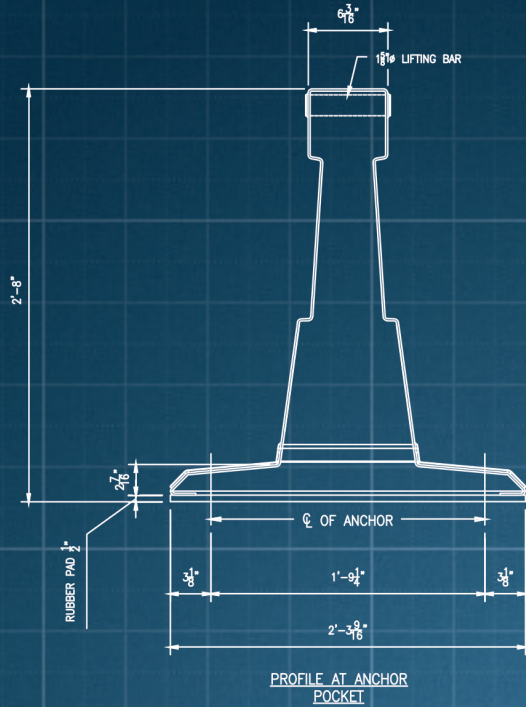
Upon completion, Zoneguard® is ready to ship to a jobsite or will be staged for rent or purchase.

ZONEGUARD® DIMENSIONS

Zoneguard's low center of gravity contributes to its superior performance when compared to other temporary barriers.

Zoneguard® has a standard height of 32" and a base width of 27 9/16". Standard units are 50'-0". There are twenty-four (24) anchor slots, twelve (12) per side, per 50-foot section. The average distance between anchor slots is 4.17'.

There are nine (9) access holes/lifting bars per 50-foot section, with an average spacing of 5.55".



SPEEDJOINT CONNECTION

Zoneguard® units are connected together by a patented speedjoint system. Each unit comes with a male and female end, installed at the factory.

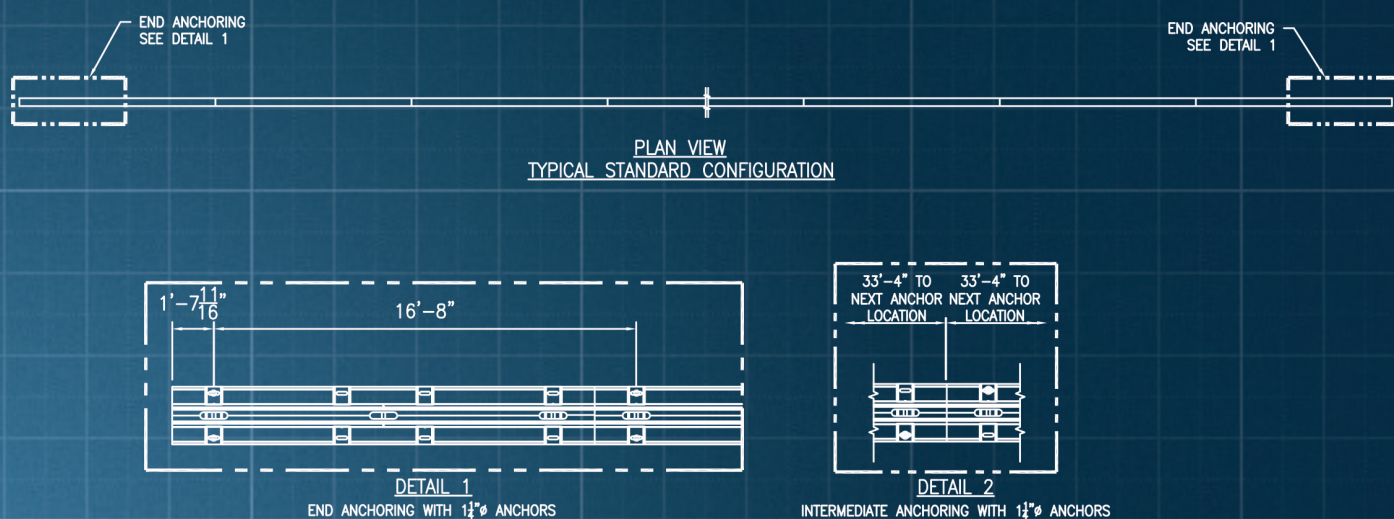
CONNECTION PROCESS

- 1) Lower the "male" end so that the bottom of the suspended upper speed joint aligns with the top of the upper speed joint that is on the ground.
- 2) Lower the suspended unit until it locks in place, and the tops of both units are flush.
- 3) Once units are completely engaged, reach into the lifting bar access hole adjacent to the connection and slide the engagement assembly, so it engages both units.
- 4) Use 3/4" wrench to tighten engagement assembly bolt.

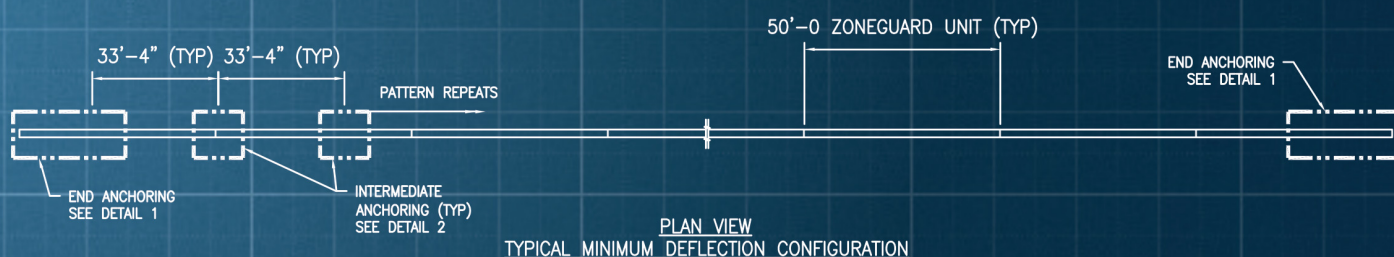
ANCHORING LOCATIONS

Zoneguard® has been crash tested in two anchoring configurations: Standard Deflection System and Minimum Deflection System. The Minimum Deflection System configuration offers more protection by employing intermediate anchoring to reduce deflection.

STANDARD DEFLECTION SYSTEM



MINIMUM DEFLECTION SYSTEM

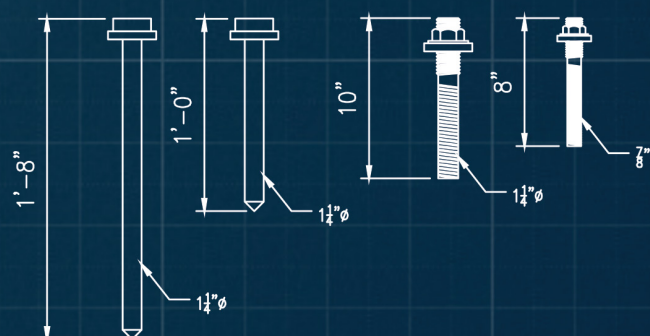


ANCHOR TYPES

Zoneguard® offers various anchoring options based on the road surface it's been installed on.

Roadway anchoring — For anchoring on roadway, 20" pins should be used for asphalt pavements and 12" pins should be used for concrete pavements.

Structure-mounted — For structure mounting, a threaded anchor shall be used with an epoxy. Two sizes are available, depending on the required embedment depth.







ANCHORING ZONEGUARD®

In its Minimum Deflection System anchoring configuration, Zoneguard® only requires two anchors every 33'-4". Similar performing concrete systems can require up to ten times the amount of anchors, leading to an increase in materials and installation time and more holes in the road or bridge deck.



ZONEGUARD® & DEAD LOAD

At 62 lbs. per linear foot, Zoneguard® offers designers a lightweight temporary barrier option for bridge projects. On a 1,000 LF bridge, the dead load of Zoneguard® is 62,000 lbs. At approximately 400 lbs. per foot, temporary concrete barrier's dead load is 400,000 lbs. on the same bridge.

ZONEGUARD® SUCCESS STORIES

We love sharing success stories that illustrate Zoneguard's unmatched capabilities. Our customers choose Zoneguard® for a variety of reasons, including mobility, anchoring reduction, weight and so on. When possible, we capture and document why Zoneguard® was used and seek honest feedback regarding its performance.

Here are a few excerpts from more detailed case studies that highlight Zoneguard's benefits and our customers' reaction to their Zoneguard® experience. You can find these case studies and more, in their entirety, by visiting the Case Studies page on our website.



When Rieth-Riley Construction needed a temporary barrier for their \$220 million project dubbed the 80/90 PUSH Project, which included the rehabilitation of 73 miles of roadway and 53 bridges, they chose Zoneguard® because of its proven performance and a number of cost-saving benefits.

|| Although the initial cost is somewhat higher than concrete, we are confident that the cost savings and durability of the Zoneguard® product will prove it to be a wise choice for us. ||

Gene Yarkie
VP, Rieth-Riley Construction



TIGHT SCHEDULE MET ON TURNPIKE PROJECT
Ghent, WV | I-77



With a two week window to complete a bridge replacement project on the WV Turnpike, Orders Construction opted to use Zoneguard® because of its time-saving benefits, including trucking and installation.

|| Requiring only two bolts every 33'-4" cut down the installation time tremendously. ||

Aaron Settle
Project Mgr., Orders Construction



BARRIER SOLUTION FOR BATTLE CREEK BRIDGE
Battle Creek, MI | M-66, over I-94



Concrete parapets on M-66 over I-94 had suffered from such severe deterioration that the placement of a temporary barrier was necessary until the bridge was repaired. After discovering Zoneguard® and learning about its weight, portability and durability advantages, steel barrier was specified and Zoneguard® was selected for the project.

|| It was the ease and quickness of the barrier's installation, including anchoring for limited deflection, that convinced us that Zoneguard® is the premier barrier product and perfect for the Michigan market. ||

Jamie Lemke
Pres., Give 'Em A Brake Safety



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