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# Vehicle Barriers. What are the Different Types and What are the Benefits of Installing?

Vehicle Barriers are critical to any successful perimeter security plan. They've been protecting the U.S. Military, Embassies, Data Centers, and other high-security facilities for decades.



## Introduction

Vehicle Barriers are utilized to secure and protect the area in and around sites like U.S. Military Bases, Embassies, Data Centers, Energy Facilities, Dams, Airports, Stadiums, and other high-security facilities. Their primary goal is to prevent an unauthorized vehicle from accessing or leaving a property either to create violence or to commit another crime.

Both passive and active vehicle barriers have been in use for many years. Each of these types of barriers has different reasons for installation. Generally, a combination of both passive and active barriers is installed around the perimeter of a property.

## Passive Barriers

Security Fences, Crash Walls, or Fixed Bollards are all examples of passive barriers meaning that they are immovable and static in nature. These barriers are designed and engineered to absorb energy from a vehicle and redistribute it to the vehicle's core, stopping it from penetrating beyond just a few feet from impact.

## Active Barriers

Active Vehicle Barriers include moving components that can be operated manually, remotely, or automatically. Examples of these barriers include Drop-Arm Beams, Pop-up Wedge Barriers, Automatic Gates, and Retractable Bollards. These Barriers are intended to give control to who is allowed to enter and exit a facility by rising/lowering or opening/closing. This creates a barricade from unauthorized vehicles attempting to enter or exit, while still allowing for expected access or for emergency vehicles.

# What are the Different Types of Vehicle Barriers?



## Bollards

Bollards provide significant protection from vehicles without impeding pedestrian traffic. Bollards are often permanent fixtures made of stainless steel or concrete and are designed in different thicknesses and crash ratings. Bollards can be passive or active vehicle barricades that stop traffic near roadways and protect pedestrians on sidewalks and walkways.



## Wedge Barriers

When barricades need to activate quickly and still sit flush with the roadway, pop-up wedge barriers are typically used. With a shallow mount construction, there is less excavation required under the roadway. They operate using hydraulic (HPU) and electric (EPU) drive systems for rising and are locked into place to block a 15,000-lb vehicle approaching at high speeds.



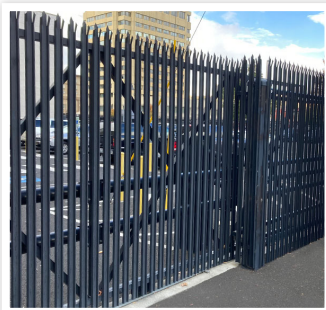
## Crash Beams

Like wedge barriers, a crash beam can activate quickly and sit flush with the roadway. With a shallow mount construction, there is less excavation required under the roadway, and can be extended up to 24 feet wide across a road opening. Crash beams rise to 36 inches high and can also stop a 15,000-lb vehicle at high speeds with very little penetration depth.



## Drop Arm Beams

When a location has limits that won't permit obstructions to the departing roadway, a drop arm beam is a commonly used vehicle barrier because it can raise the beam to a 90-degree angle. Drop arms be operated electrically (EPU), or hydraulically (HPU). They can be designed to fit entrance and exit road widths and can cycle continuously.



## Automatic Gates

Automatic Gates are active barriers that come in a variety of different designs. Sliding, swinging, folding, and pivoting gates are all vehicle barriers that are installed to control access to a property or designated area. Electrically powered by a gate motor, these barriers can control access from vehicles and keep pedestrian traffic out as well.

## Do Vehicle Barriers Have Different Crash Ratings?

Many kinds of vehicle barriers are certified by the Department of State, Department of Defense, and ASTM. Certified Vehicle Barriers are “Crash-Rated,” which means they have undergone extensive field testing involving actual vehicle crashes. The tests demonstrate their ability to stop a vehicle at a particular speed and weight. The Army Corps of Engineers and the Department of Defense analyze vehicle barriers on an annual basis to publish the DOD Anti-Ram Vehicle Barrier List.

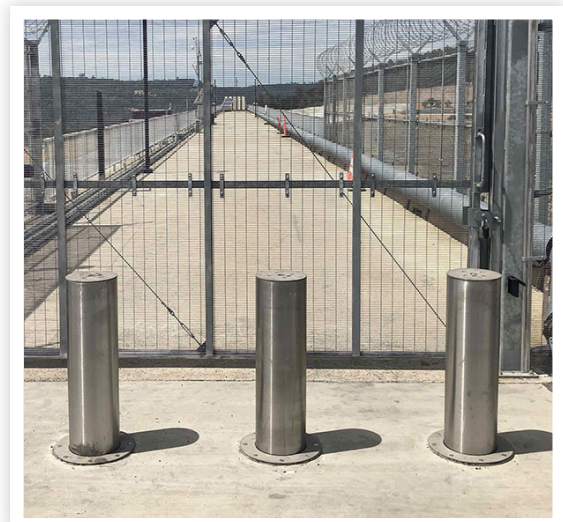


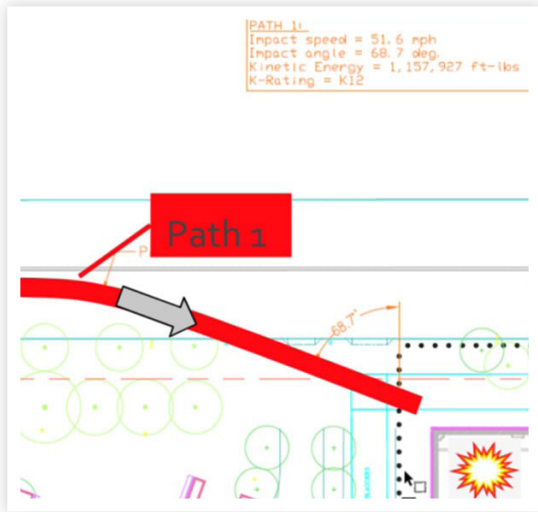
## What are the Benefits of Vehicle Barriers?

Vehicle Barriers are a key component to establishing a layered approach to physical security and play a large role in following security best practices. Defending, delaying, denying, detecting, and deterring an attack is the foundation of effective perimeter security design.

Here’s a list of several benefits of installing security vehicle barriers.

- Delays someone trying to enter your site and allow time to respond when you install an anti-climb or anti-cut fence.
- Denies a criminal or terrorist attack in an emergency by deploying a pop-up wedge barrier, rising beam, or drop arm beam.
- Deters and denies unauthorized access with the use of Automatic Gates installed at a secure access control/entry point.
- Defends your personnel, guards, and approved visitors from a vehicle attack at the perimeter of the property.
- Increases safety for pedestrians, personnel, or visitors along sidewalks, and pathways by installing a row of Bollards.





## Conclusion

The Vehicle Barrier configuration that is right for your facility is dependent on a variety of factors including the site's physical landscape and surroundings, operational needs, and security level required.

As always, it is wise to consult with an experienced physical security designer early in the decision process. Sloan Security Group has security planners and engineers that will assist in doing a site assessment and make recommendations in the barrier selection process. Sloan can also assist with Building Info Modeling (BIM) and Vehicle Vector Analysis.

Having a technical team to integrate with barrier controllers nearby is essential to deploying active barriers and can be critical in an emergency.

If you have questions about Vehicle Barriers, crash ratings, security design, or general questions, please contact us.



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