

## Barriers: Introduction

Keystone walls can readily be installed with many types of barrier systems. There are two main types of barriers: pedestrian fall protection devices and vehicular barriers.

Pedestrian fall protection devices come in various forms such as railings and fences. Most public design codes require some form of fall protection when a retaining wall reaches a specified height. Please contact your local building officials for code requirements in your area to determine if and when a fall protection device is required for your retaining wall. Keystone recommends fall protection be installed for all walls over 3-feet (0.9m) in height.

In general, vehicular barrier systems typically fall into two categories, flexible guide rails and rigid impact barriers. Flexible guide rails are the most common traffic device due to the simplicity of installation and the fact that they are typically more cost effective than a rigid option.

When a flexible guide rail is not an option, typically due to traffic type or insufficient room, often times a rigid cast-in-place (CIP) concrete traffic barrier is the next best solution. CIP concrete traffic barriers are most commonly used in DOT applications, but can also be specified in private application roadways with heavy traffic areas. CIP concrete traffic barriers can vary greatly by the application type, location, or design codes. Refer to state DOT agencies for specific details related to traffic barriers and MSE walls.

## Guide Rails

When installing a guide rail with a Keystone wall, there are three important guidelines that must be met as mandated by The American Association of State Highway Transportation Officials (AASHTO).

1. The guide rail must be located a minimum of 3-feet (0.9m) from wall face.
2. The guide rail post shall be placed a minimum 5-feet (1.5m) into the ground.
3. The guide rail shall extend through a minimum of 2 geogrid layers.

There are a number of installation methods for a guide rail with a Keystone wall. Always reference the project-engineered drawings for the preferred installation method.

1. Preferred method: sleeves can be installed during construction to allow for the placement of guiderail foundation posts after wall construction.
2. Steel posts can be driven into the ground after wall construction. Care should be taken to ensure that a sufficient depth of compacted soil is in place above the upper layer of geogrid prior to driving any post systems. Displaced wall units or geogrid reinforcement should be repaired.

