

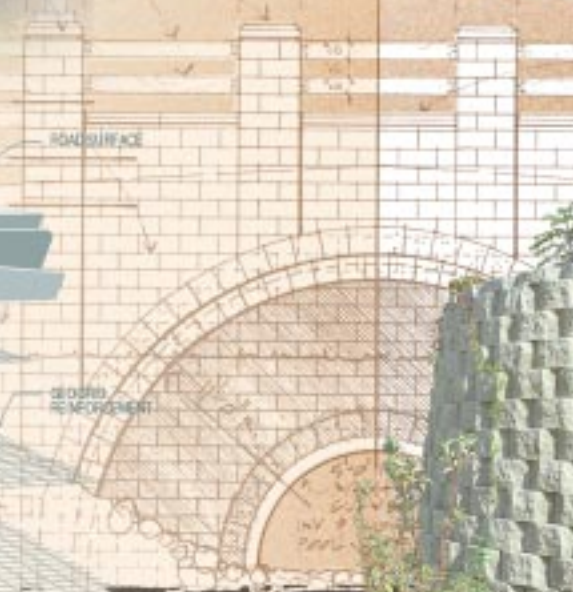
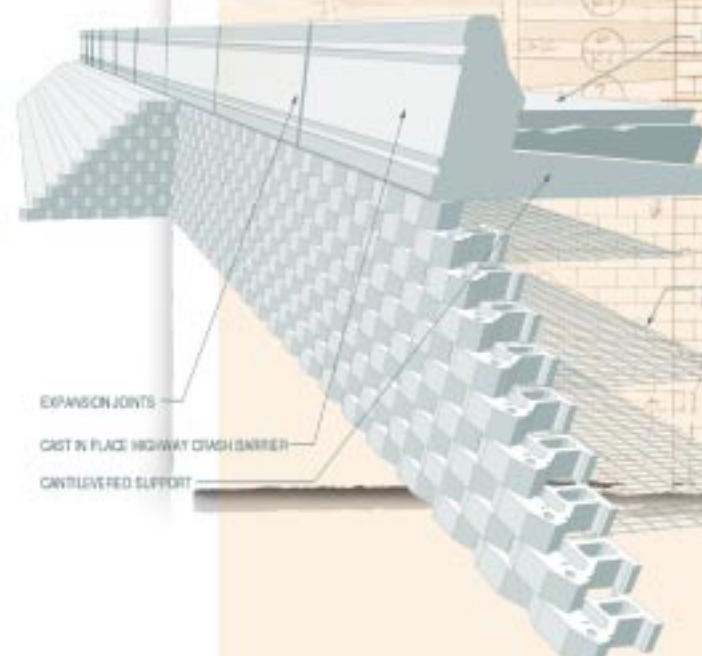
Provide support, bridge road & catch/drainant at connection of pre-cast concrete arch & keystone

# KEYSTONE

RETAINING WALL SYSTEMS

*The first. To last.*

EXP JOINT AT 4 WALL  
B/A  
KEYSTONE  
UNITS BY 20"  
FILTER MESH  
KEYSTONE  
LAOST



EXPANSION JOINTS  
CAST IN PLACE HIGHWAY CRASH BARRIER  
CANTILEVERED SUPPORT

ROAD SURFACE

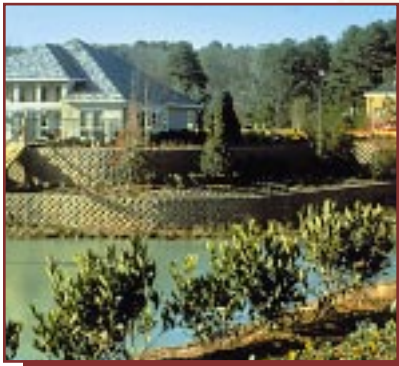
GEOGRID REINFORCEMENT



▲ Maximize site use for “Highest & Best results”!

▲ Meet design challenge of difficult sites.

▲ Economize cut/fill with use of on-site soils.



▲ Develop site theme or neighborhood distinction.

▲ Manage site water elements; ponds, streams, lakes.



# LARGE • RESIDENTIAL



▲ Keystone has a broad family of products to meet the requirements for residential applications; from the pinned structural units as shown in this brochure to a series of smaller landscape oriented retaining wall and edging products. Consult your local Keystone representative for product availability and technical requirements.



# LARGE • RESIDENTIAL

- ▲ A lifetime of value!
- ✓ Competitive initial cost
- ✓ Minimal maintenance
- ✓ Durable, long life materials



- ✓ Ability to change design over time and reuse materials.
- ✓ Environmentally friendly



SMALL • RESIDENTIAL

▲ Keystone is the affordable and permanent solution to your retaining wall and decorative landscaping needs.



▲ *Easy to handle, high strength concrete units require no mortar, special tools or preservatives.*



*Keystone 4" high units are proportioned to compliment the architectural scale of residential properties. Color, texture and unit size offer creative solutions to fit any residential site.*



SMALL • RESIDENTIAL



▲ Keystone's quarried stone appearance provides beautiful shadow effects with strong aesthetic appeal.



▲ Change a site from ordinary to exquisite! Keystone can be used as simple gravity structures up to 3'-0" in most cases without the need for soil reinforcement.

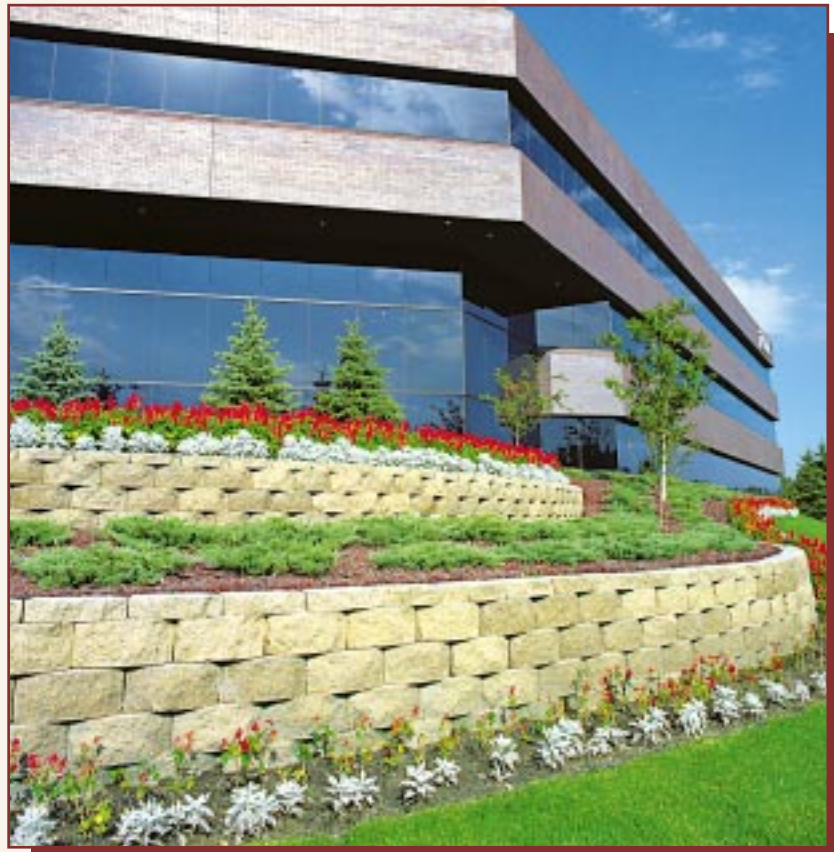


*\*Gravity structures up to 3' - 0" assume no surcharge, level grade at top and bottom of wall and site soils of granular, free draining quality. Consult your Keystone representative if your specific site details or designs vary from this criteria.*





▲ Installation of Keystone is fast and relatively easy. Project completion time is shortened providing economic benefits and cost effective advantages!

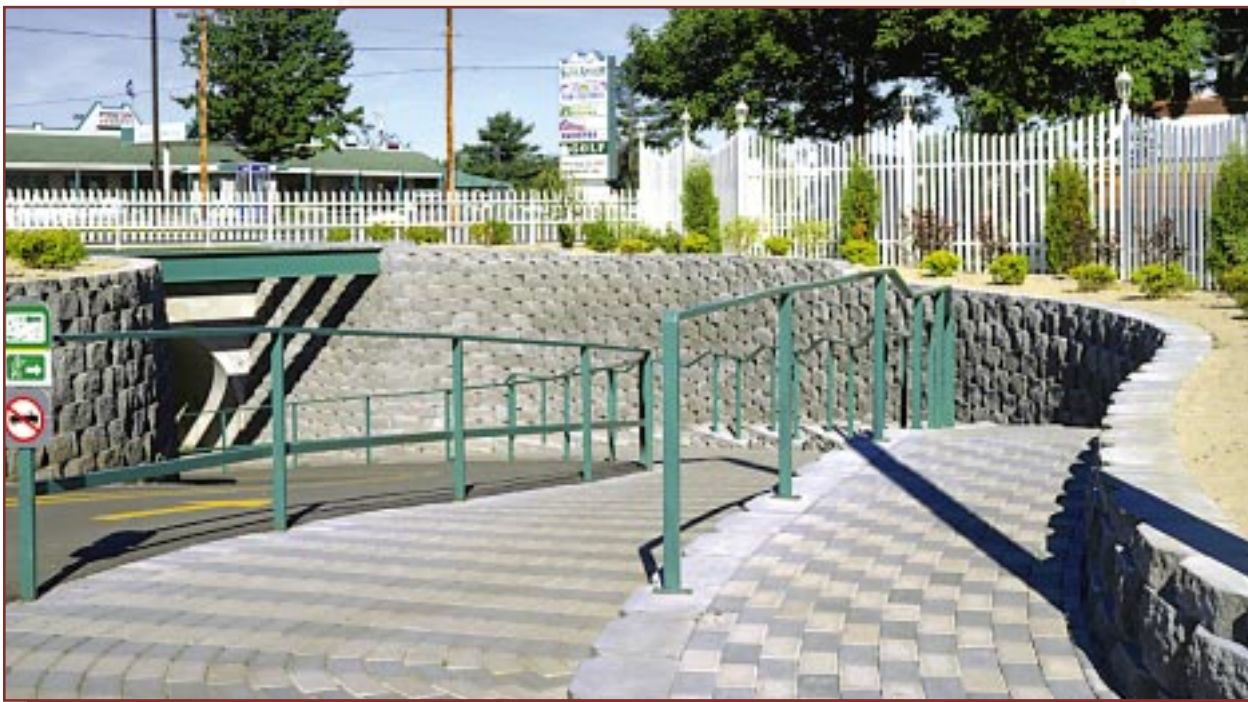


▲ Functional yet aesthetically appealing.

▲ Able to handle large, tall walls to small walls with the same system

▲ High quality materials to meet long life demand of commercial projects.

▲ Color and texture options to coordinate with site and building requirements.





▲ A Keystone Retaining Wall makes a lasting statement of quality, beauty and attention to detail. A positive solution to the most challenging and demanding design and construction requirements.





▲ Keystone provides design flexibility to meet the unique challenges of commercial sites; tall walls, short walls ... curves, corners ... rapid changes in elevation ... coordination with the materials for the building architecture.

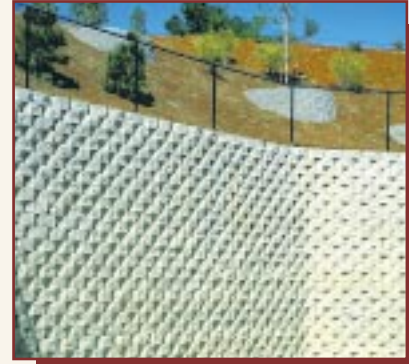


# L A R G E • W A L L S



▲ *Keystone offers a proven, engineered wall system with superior construction stability, durability, and strength. The choice for tall walls and critical structures!*





▲ Solutions for large wall applications require critical attention to site and design details.

- ✓ Soil conditions
- ✓ Surcharge loads
- ✓ Water influence
- ✓ Barrier requirements
- ✓ Utility interference



Let Keystone's team of design and engineering specialists assist you in reaching the maximum heights.





- ▲ Put Keystone to the test!
- ✓ Heavy loads
- ✓ Extreme conditions
- ✓ Long term performance

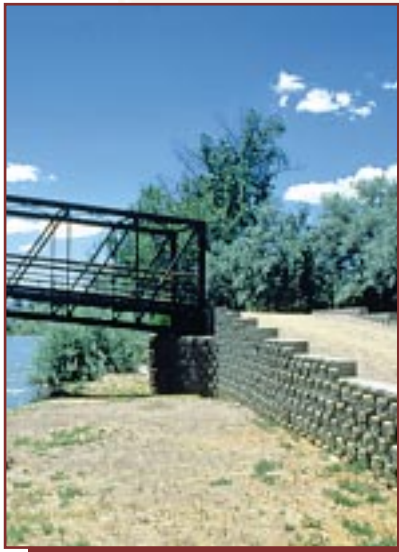




▲ Meet the needs of the most demanding sites! Classic beauty integrates with clean lines and a durable system to create a high quality setting.







▲ Fun, flexibility and creativity offer endless design possibilities for any city, state or federal park design!





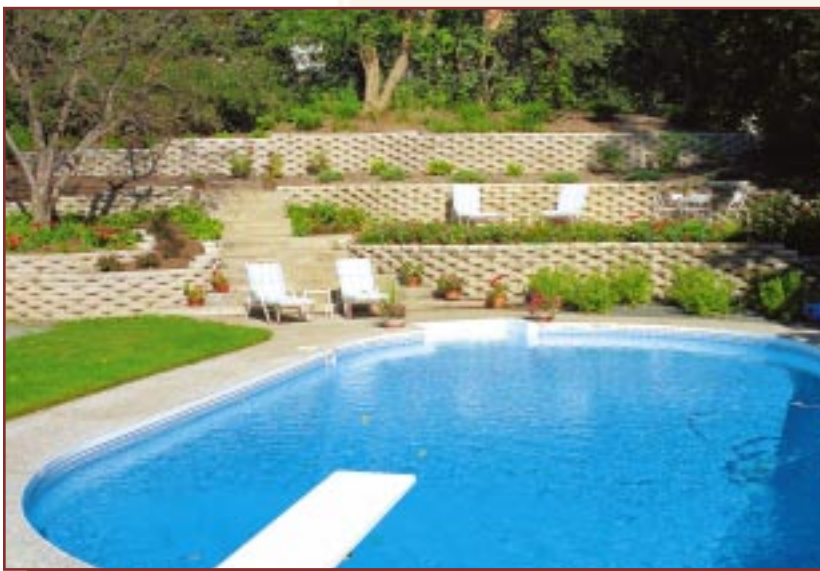
▲ High quality, long lasting results and cost effective construction provide wall solutions that meet your critical budget while giving aesthetic results that everyone will be proud of!





▲ The perfect solution for golf course landscaping needs ... dramatic elevated tee boxes that can be moved periodically yet the materials are reusable, easy handling of grade transitions, lining channels or ponds ... all while adding beauty and functionality to your course's appearance.



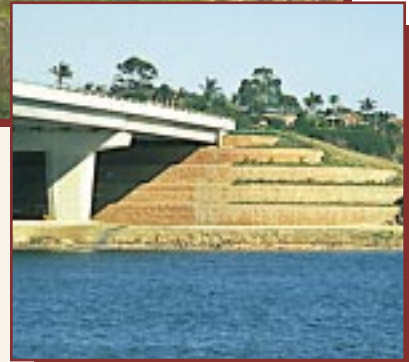


▲ Quality, performance and stunning results compliment the most challenging pool applications. Let Keystone make your site extraordinary!





▲ Keystone puts design flexibility in your hands. A variety of Keystone product sizes, face textures, and colors allows you to create beautiful retaining walls that fit the specific engineering needs and aesthetic designs of any job.



▲ Keystone walls have been used to solve retaining wall needs at all levels of government.

- ✓ State Department of Transportation roadway and highway projects.
- ✓ City and County municipal road and drainage channel projects.
- ✓ Army Corps of Engineers waterway applications
- ✓ Department of Defense military base projects.





▲ Keystone provides material systems, design solutions and technical resources to meet the most critical engineering demands. AASHTO/ FHWA Design Criteria • I.C.B.O. • A.S.T.M. • British Standards • Australian Standards

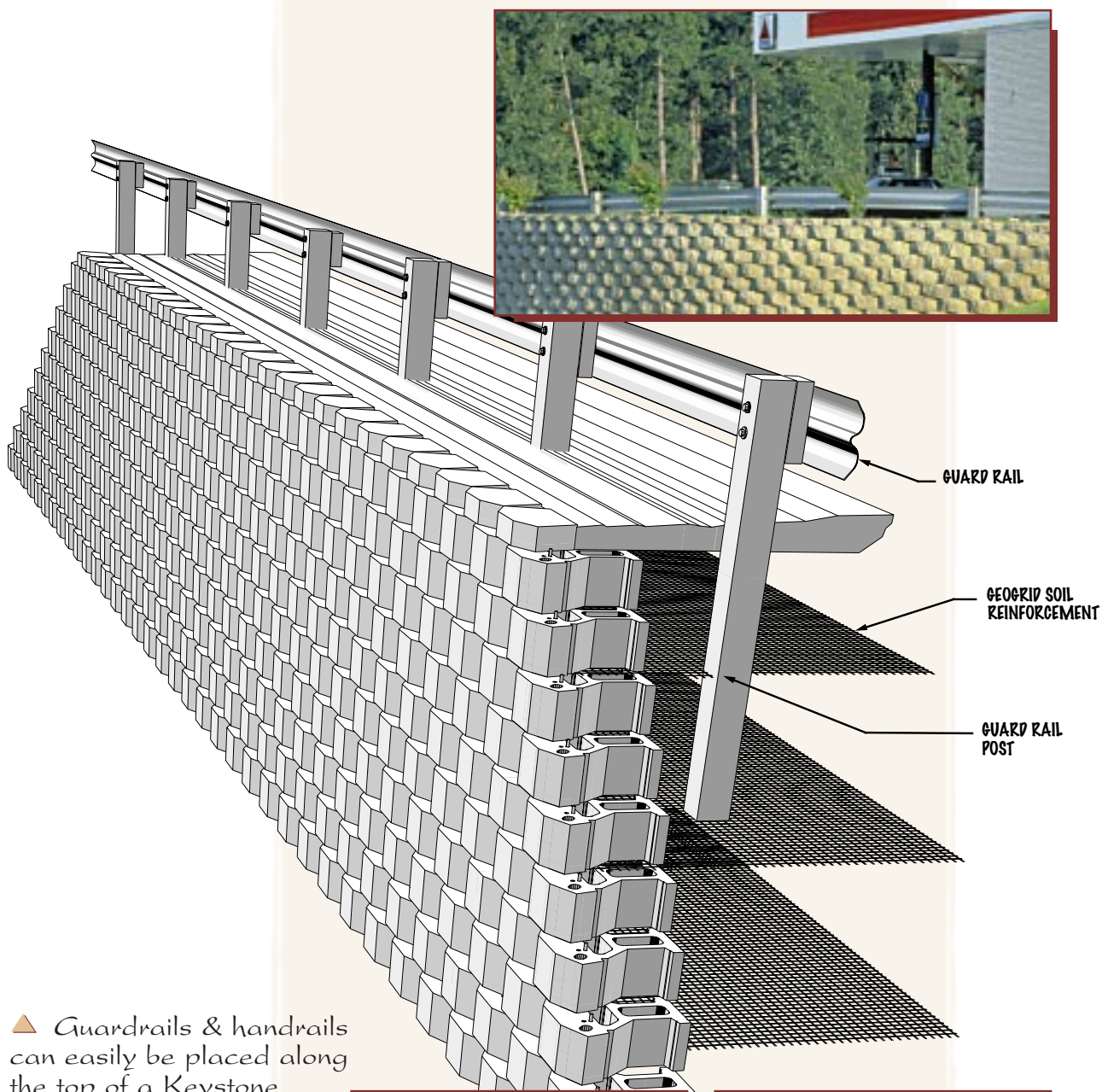


▲ The Keystone difference is its outer beauty and inner strength.



Keystone's patented, interlocking, fiberglass pin system assures positive connection between the structural wall unit and the soil reinforcement. The combination of Keystone units, positive pin connections, and soil reinforcing geogrids delivers rock-solid stability and performance.





▲ Guardrails & handrails can easily be placed along the top of a Keystone wall using standard industry procedures. Guardrail posts may be of wood or steel section. Periodic interruption of the reinforcement zone for this purpose is part of the system capability.





## COPING • BARRIERS

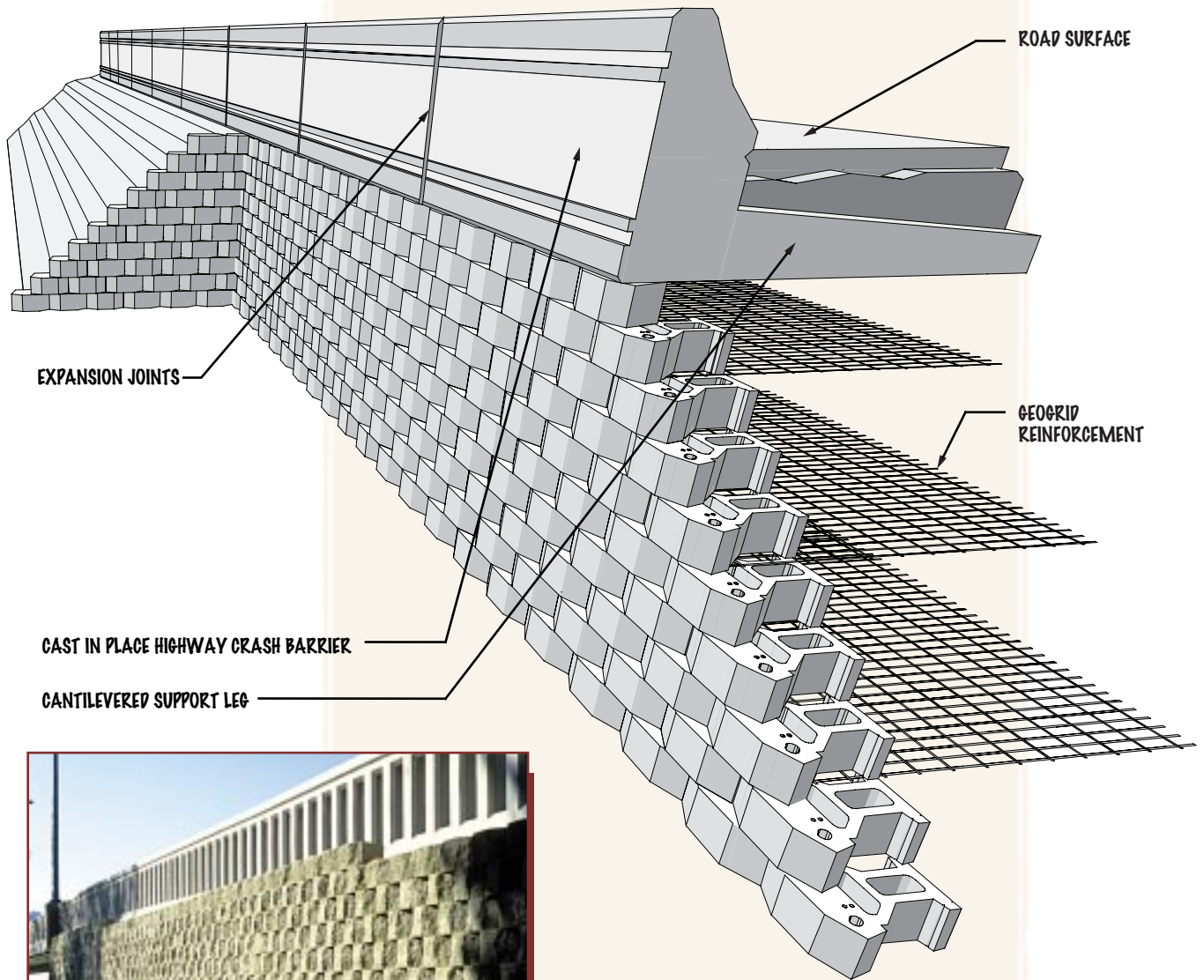
▲ Keystone walls can accept a wide variety of coping options:

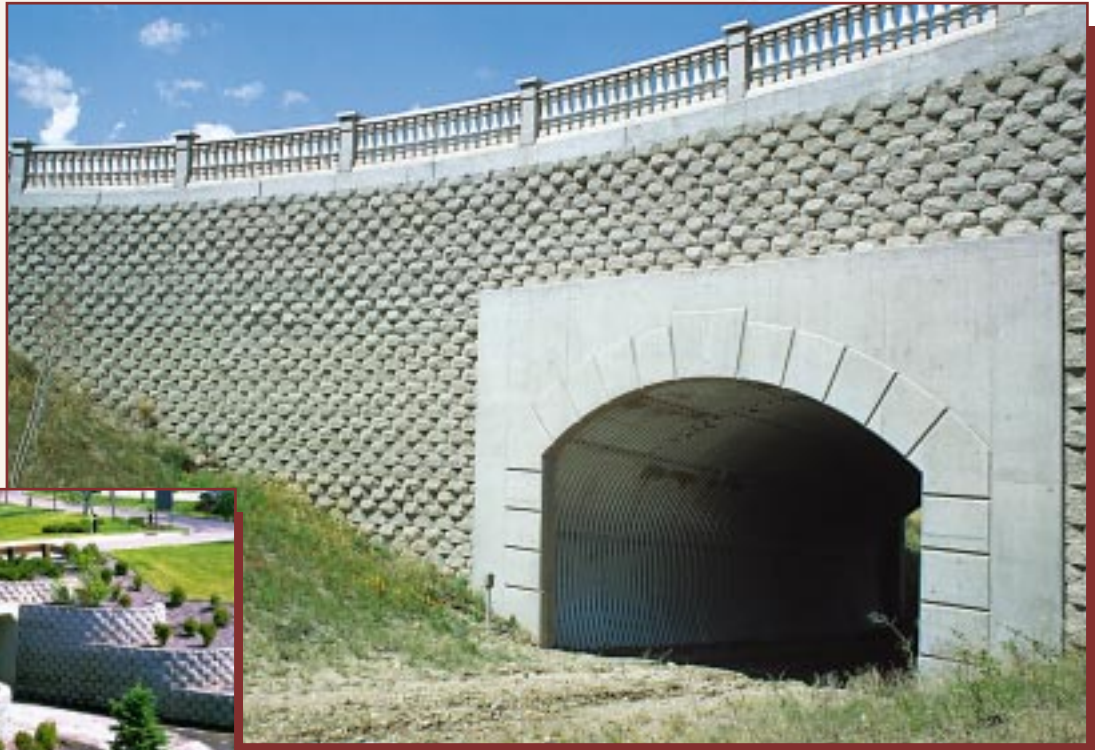
- ✓ Cast-in-place concrete
- ✓ "Jersey Barriers"
- ✓ Pre-cast concrete
- ✓ Cut Stone



▲ Coping details can incorporate protective railings, light fixtures and crash resistant barriers.



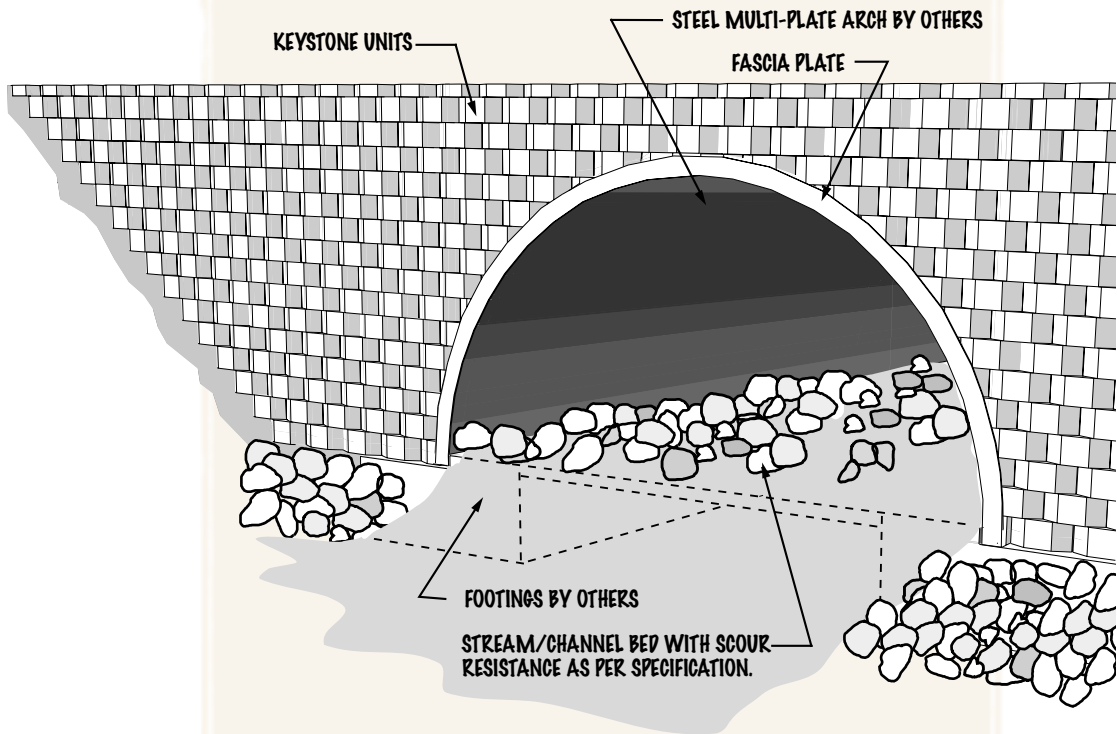




▲ Keystone walls can combine with a variety of bridge and culvert designs to handle the most challenging site design:

- ✓ Cast-in-place concrete box culverts
- ✓ Multiplate steel arch spans
- ✓ Cast-in-place abutment walls
- ✓ Pre-cast concrete arch structures





- ▲ Rapid installation process
- ▲ Straight forward construction details
- ▲ Highly aesthetic, yet economical results
- ▲ Award winning applications



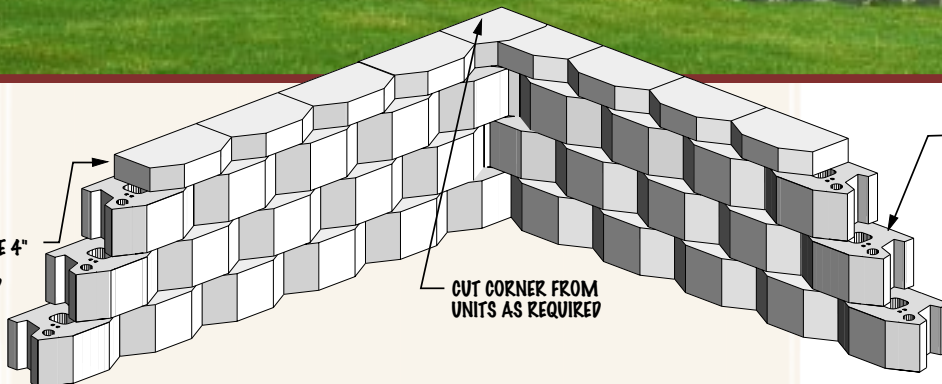


**INSIDE 90°  
CORNER**

**KEYSTONE 4"  
STRAIGHT  
SIDED CAP  
UNIT**

**CUT CORNER FROM  
UNITS AS REQUIRED**

**COMPAC UNITS SHOWN.  
(CONDITIONS ARE SIMILAR  
IF KEYSTONE "STANDARD"  
UNITS ARE USED.)**



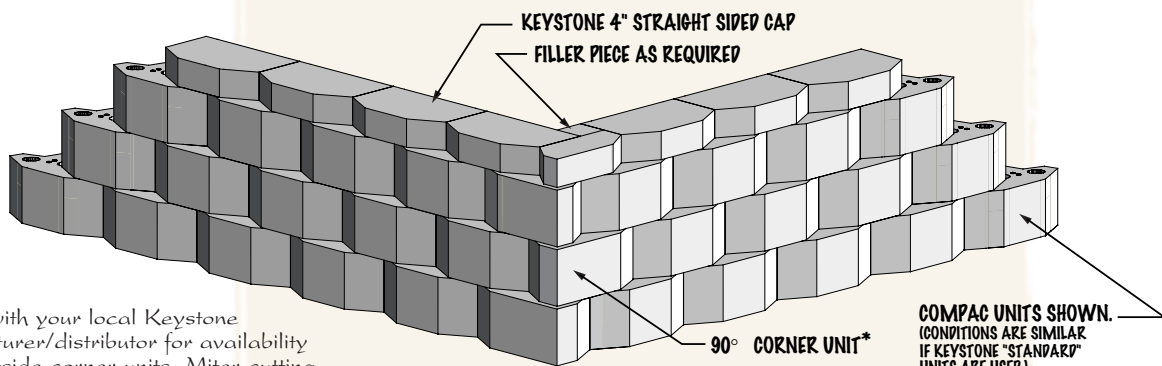
▲ Inside 90° corners are easy to integrate into any Keystone project. No special units are required; just follow the straight forward construction details available from your Keystone Representative.



▲ Outside 90° corners create the classic straight lines in a formal landscape. Whether using three-plane rockface or straight split Keystone units, the 90° corner can be accomplished



**OUTSIDE 90° CORNER**

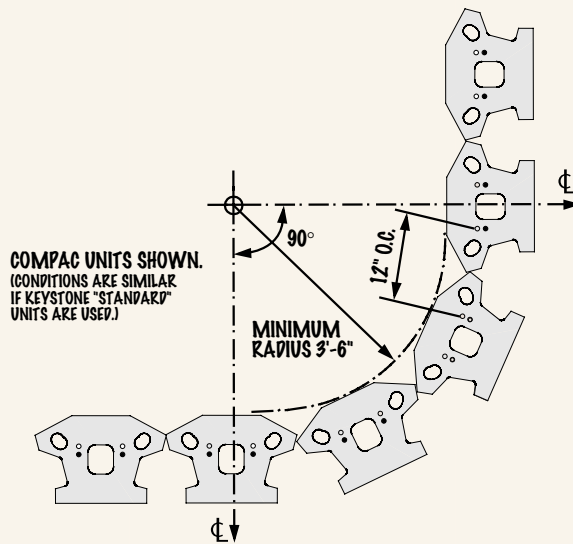


\*Check with your local Keystone Manufacturer/distributor for availability of 90° outside corner units. Miter cutting of regular units is an alternative if 90° corner units are not available.

**COMPAC UNITS SHOWN.**  
(CONDITIONS ARE SIMILAR IF KEYSTONE "STANDARD" UNITS ARE USED.)

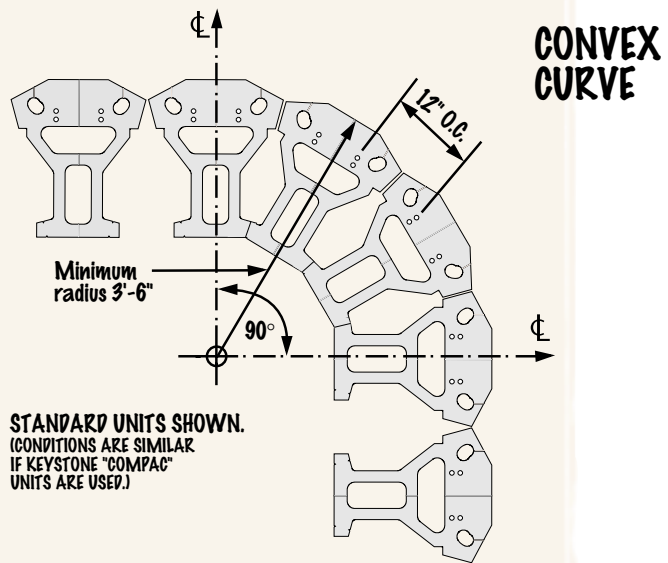


**CONCAVE CURVE**





▲ Keystone's patented design makes it easy to construct a variety of serpentine curves. Convex and concave curves will add gentle grace and beauty to any installation.







▲ Keystone products offer tremendous design flexibility in working with a wide variety of stair surfacing materials; concrete, cut stone, pavers, precast, etc..

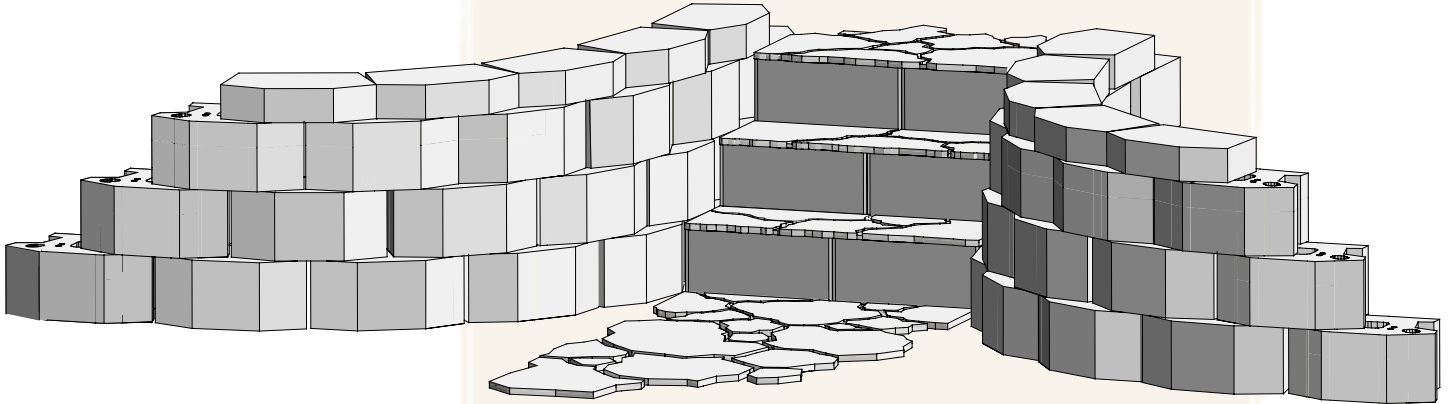


▲ Steps and stairs can be customized to fit a variety of site applications. From light duty residential steps to heavy use commercial applications\*, Keystone provides a durable, aesthetically pleasing step solution.



\*For commercial applications, Keystone recommends using cast-in-place concrete treads and risers to meet UBC riser requirements. De-icing salt chemicals may cause deterioration and should not be used on Keystone step applications.





▲ Stair applications are made easy when you follow the construction guidelines in Keystone's "Design and Construction Manual". Contact your local Keystone representative to obtain this information.



# T E R R A C E S



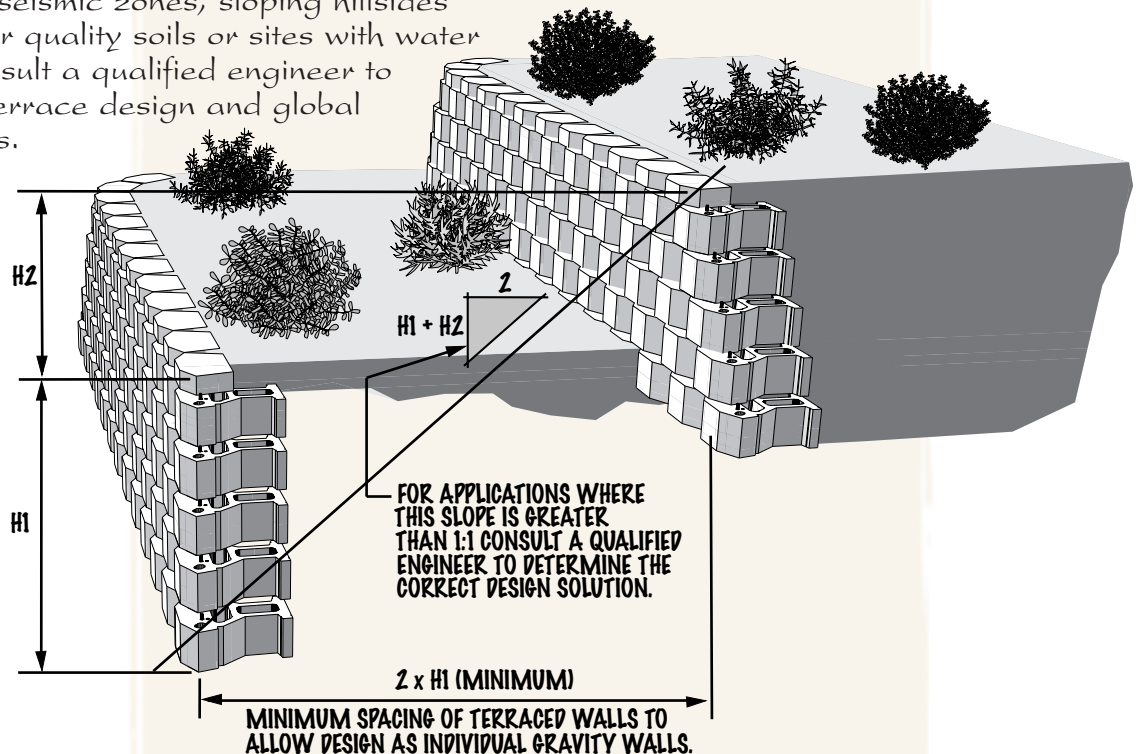
▲ An area of design that affects many site applications is the use of terraced walls. What is important to consider is that the upper terrace wall can put pressure on the lower terrace if the walls are too close together. Multiple terrace walls in close proximity to each other, can have structural stability issues related to the lower walls not having the capacity to carry the loads developed by the upper walls.





▲ As a rule of thumb, in order for the upper terrace wall to not cause loading on the lower terrace wall, the minimum distance between the wall terraces must be at least equal to twice the height of the lower wall.

▲ If there isn't enough room to space the terraces according to this rule, don't worry! The wall can still be built, but the effect of the upper terrace on the lower terrace and overall stability must be taken into account when designing the total wall section. For critical applications, seismic zones, sloping hillsides sites with poor quality soils or sites with water influence; consult a qualified engineer to analyze the terrace design and global stability issues.



# WATER APPLICATIONS



▲ Keystone recommends that a qualified engineer evaluate soft base soils, scouring effects, wave action, ice action, and freeze/thaw, for specific site design needs.

*\*Heavy lake ice action, repeated freeze/thaw under saturated conditions or adverse water chemistry may have negative affects on the Keystone concrete units. Contact your Keystone Representative about your specific site conditions.*





▲ When it comes to water applications such as ponds, creeks, lakes, rivers, sea walls, or run-off channels, the Keystone Retaining Wall System is a proven performer. Keystone has been subjected to rigorous testing, that has evaluated the effects of wave action, inundation and sudden draw down, high velocity flows, and measurement of the Manning's n Value (0.023). Not only has Keystone proven its capability under test conditions, it also has been site tested in a wide variety of water applications worldwide.



▲ Keystone units offer a wide variety of design and appearance options for coordinating with your signage needs. Choose from classic straight face or sculptured rockface units along with a selection of natural colors and integration of unit sizes ranging from 4" to 8".



## Signs of the Times!

▲ Companies throughout the world have discovered the benefits of the Keystone Retaining Wall System when it comes to placing signage attractively yet economically. Your signage states who you are and using Keystone sends the message that you stand for quality.



▲ Put your signage on a pedestal!

- ✓ Durable structures
- ✓ Natural Stone Appearance
- ✓ Unique background textures & colors

From corporate identity to decorative fountain accents, Keystone provides creative opportunities to any monumental project.







# RAILINGS • FENCES

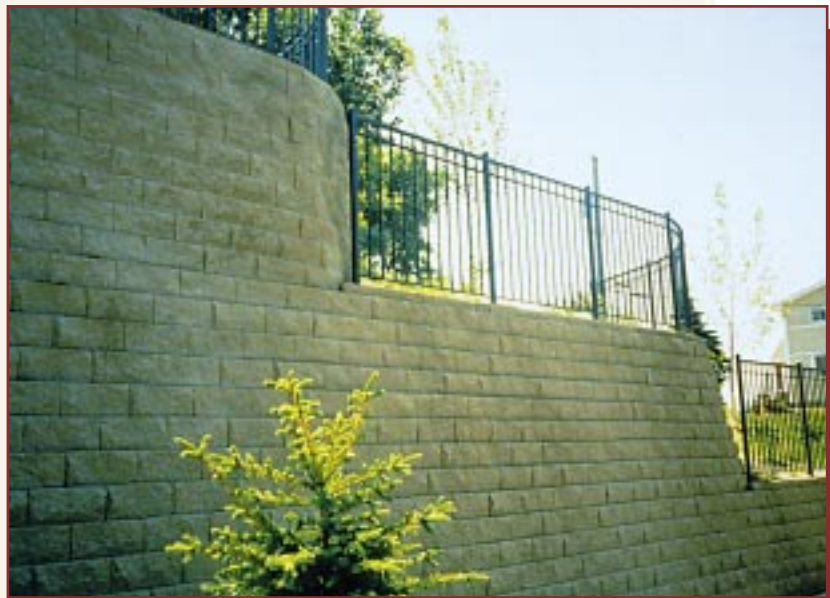
▲ Life safety and security issues are covered by Keystone. Fences or railings can be installed at the top of a Keystone wall with vertical supports placed either into the Keystone units or behind them.



▲ Keystone's Classic Straightface units offer an attractive option to meet the demands of your building site.



▲ Coordinate site structures with the building architecture. Color, texture and scale options are available for creative designs.





▲ Keystone provides designers with creative options in wall color, texture and geometric patterns.



▲ For subtle design accents, vary the texture of units in geometric patterns while maintaining the Keystone unit color choice.



# UNIQUE APPLICATIONS



▲ Creativity is limited only by ones imagination!

