

RETAINING FOCUS

Quarterly Publication for the Customers of KEYSTONE Retaining Wall Systems, Inc. • Volume 2.2 • 2005



KEYSTONE MAKES

GRAND STATEMENT *in SYRACUSE*

For the new sidewalk patio and entranceway of a \$10 million hotel renovation project in Syracuse, New York, the choice of material was vital to the project's success.

"We had mentioned two or three wall systems of this type available and sent the owner to a landscape products supplier," said Ed Keplinger of Keplinger & Freeman Architects, the project landscape architect. "He chose Keystone Country Manor because he liked the look, the cost and the product's flexibility."

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Retaining Excellence™

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Keystone Retaining Wall Systems, Inc.



After nearly 20 years at the forefront of the industry, Keystone Retaining Wall Systems, Inc. continues to set the standard for excellence and innovation within the segmental retaining wall industry. Keystone represents the global benchmark in soil retention, erosion control and landscape systems. Holding over 50 patents, Keystone symbolizes cutting-edge design, performance and aesthetics.

Keystone partners with the best network of product developers, engineers, sales professionals and manufacturers in the business. Together, we ensure that Keystone offers the best in site solutions for residential, commercial, recreational, industrial and government applications. In 1999, Keystone was acquired by Contech Construction Products, Inc. Contech is a leader in the construction products industry and offers the resources, tools and advantages that accompany their strong brand recognition in the marketplace.

To learn more about the quality and value in Keystone Retaining Wall Systems products and services, please visit us on the web at www.keystonewalls.com or call 800-747-8971.

KEYSTONE

KapSeal

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Fast Set-Up
Water Proof
Non-Flammable

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Keystone KapSeal™ concrete adhesives are the preferred choice of do-it-yourselfers and pros alike! And, with two new formulas, Keystone KapSeal can now serve you better than ever.

Quick and easy to apply, Keystone Premium KapSeal and new Keystone Solvent-Free KapSeal are specially formulated for fastening concrete retaining wall caps and pavers securely in place.

And, specifically designed for use with Keystone KapStones™, new KapSeal Polyurethane provides a rock-solid bond between cap and column. All you have to do is apply an “S” shaped bead approximately 1/4-inch thick and away from the unit edges by a minimum of two inches. Then you set the cap in place, press or tamp it down, and you’re done!

Keystone KapSeal concrete adhesives are compatible with slate, brick, stone, concrete, and wood products.

For more information, or to place an order for Keystone KapSeal, please contact your local Keystone manufacturer.



Retaining Excellence™

www.keystonewalls.com



Keystone Makes Challenging Site Perform

Working around space constraints is a common challenge faced by retaining wall planners. Creative solutions are often required, and in the case of a southern California project, a Keystone wall was the perfect solution for a sticky property line situation on a marginal building site.

Geogrid Retaining Wall Systems, Inc., the wall installer on the project, needed to build a wall bordering a state highway. On part of the 1,200 foot-long wall, normally positioned back cuts would have encroached onto the Cal Trans right-of-way. In order to allow construction on the site, part of the hillside needed to be temporarily supported with soil nails and shotcrete until a permanent Keystone wall could be assembled. In the area where the shotcrete was installed, the Keystone wall would act as a seamless wall facing, visually tying the two halves of the wall together.

“This project had some very unique aspects which we had never faced before,” said Ed McCaffrey, Chief Operating Officer for Geogrid. “The owner had requested that all three walls, consisting of over 16,000 square feet of Keystone units, be constructed in 61 days. The real problem was not so much the time constraints as the difficulty of accessing a 30-foot vertical cut to place the soil nails. The wall designed for the back of the property would not allow for the normal cutback required



stem is used to bore the hole and then removed. The completed soil nail is placed in the hole using centralizers. It was determined that this traditional method was going to take too much time. Also, it was suspected that traditional soil nailing would cause some caving when the drill rod was removed.

Due to poor slope stability, the soil nail and shotcrete wall was built from top down. Project contractors needed to construct a large ramp in front of the wall to access the upper 30 feet of the backcut.

After those nails were placed, the sacrificial nail had to be sealed. Each boring was pressure grouted until all of the air was removed. This process ensured that the galvanized nail did not erode due to moisture contact. The slope face was then shotcreted to prevent erosion or slope failure. Next, the top half of the ramp was removed in order to access the middle portion of the slope and the soil nailing and shotcreting process was repeated.



for the placement of the geogrid material used in segmental wall construction.”

To speed the process, it was determined that “sacrificial” nails would be used for the soil nailing process. These nails were fitted with a sacrificial drill stem attached to the beginning of the nail. They were attached to a TEI rock drill that was mounted on a 55,000 pound-class excavator. The carbide tip on the nail was used to bore a hole slightly larger than the nail itself to a depth where pullout could not be obtained. The whole assembly was then abandoned in the hole. In typical soil nailing, a drill

| | |
|---------------------------------|---|
| Project: | <i>Laguna Regional</i> |
| Location: | <i>San Diego, California</i> |
| Keystone Product: | <i>8" Keystone Compac - Tan 8" Keystone Plantable - Tan</i> |
| Wall Area: | <i>16,058 sq. ft.</i> |
| Contractor/Installer: | <i>Geogrid Retaining Wall Systems, Inc.</i> |
| Project Supplier: | <i>RCP Block & Brick</i> |
| Engineers: | <i>Snipes-Dye Associates</i> |
| Soil Nailing Contractor: | <i>Earth Support Systems</i> |

-story continued on page 5

Keystone Brings Natural Stone Facing to Iowa Development

When municipal planners strictly dictate building methods, you've got just two options: adapt to those building requirements or lose the job to someone who will.

In the case of a Lowe's-centered development in Coralville, Iowa, the city had some very specific aesthetic requirements for the look of any retaining walls on the property.

"Keystone products enabled us to create a much more cost-effective connection method for the veneer." -Curt Richey

As it had with other projects around town, Coralville mandated the use of Anamosa Limestone for the finished faces of all walls.

Although a beautiful buff color, the limestone, quarried in nearby Stone City, Iowa, was not the most effective soil retention material. In order to accomplish the goal of maximizing the available space for a parking lot, project planners decided to use a Keystone retaining wall as the brawn in this wall system while using the limestone as a veneer.

"After the city required that we use the Anamosa Limestone, a Keystone wall was selected as the main wall structure," said Curt Richey of wall installation contractor, Culvers Landscape.

Construction began with the creation of a crushed stone leveling pad that was 38 inches wide to accommodate both

the Keystone Compac straightface units and the limestone veneer blocks. The approximate dimensions of the limestone blocks were 12 inches high, by 30 to 36 inches wide, by 14 inches deep. The Keystone Compac wall was assembled in a near-vertical configuration to a maximum height of approximately 10 feet along the 465-foot length of the structure. Behind the Keystone wall, a four-inch perforated PVC drain-tile with sock was installed to assist with water flow through the crushed stone fill.

In order to flex, expand and contract as a cohesive system, the limestone veneer was dry stacked in front of the Keystone wall to which it was attached. The limestone veneer was attached to the Keystone Compac Straightface units with a Tapcon™ screw and a stainless steel, "z-shaped" strap system. "I consulted with Gary Pribyl, Vice President of King's Material, for some ideas on an easier connection detail," said Richey. "Collectively we came up the 'z-strap' idea which greatly improved the efficiency of the installation." To provide for the attachment of the strap system, the top of the limestone blocks were notched with a chop saw and the tab of the "z-straps" were inserted down

into the blocks. These anchors were spaced two feet vertically and three feet horizontally along the entire course of the wall, allowing the Keystone Compac™ units and the Anamosa Limestone pieces to be structurally sound.

"Because the wall alignment was directly adjacent to a street and busy intersection, it was decided that the Keystone wall provided the structurally sound option," said Michael Johnson, P.E., the senior design engineer for Civil Solutions Group, LLC.

"The veneer portion offered its own challenges due to the fact that we had no platform to work off of and the stones weighed 350 pounds each," said Richey. "With some creative uses of fall protection devices we were able to complete the project on schedule."

Outside of Iowa City, the Lowe's development is directly across the road from the second largest mall in Iowa, so project planners were especially intent on controlling the aesthetics of the site.

For more information on this project, on Keystone Compac or other innovative Keystone products, please visit www.keystonewalls.com or call (800)-747-8971. 



| | |
|--------------------------|--|
| Project: | Lowe's |
| Location: | Coralville, Iowa |
| Keystone Product: | Keystone Compac Straightface |
| Wall Area: | 5,110 sq. ft. |
| Contractor: | Culvers Landscape Curt Richey |
| Licensee: | Best Block Wisconsin King's Materials |
| Engineer: | Civil Solutions Group Michael Johnson, P.E. |

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After removing the last of the ramp, construction of the wall began. As the wall progressed, contractors followed a strict soil nail testing schedule. Using a 100-ton hydraulic jack, they tested every nail for a predetermined amount of design load (dtl) over a certain amount of time using a pressure gauge. For contractors, the danger of this testing is that if you have any nails that fail the pullout test, you must drill and sacrifice a new nail, grout it, and then let it set up before retesting. This delay shuts down wall construction while the new nail cures. Fortunately, this project experienced no failures.

Keystone segmental retaining walls are capable of making a very strong connection to soil or rock nails. Each nail had a threaded end that was wrapped to remain clean during the shotcreting process. That cover was then removed and a four-inch diameter galvanized hook was screwed on.

A four-inch galvanized pipe was woven through the eyelets. After the eyelets were attached and the pipe woven through, it made a very uniform point of connection. The Keystone Compac wall was built using conventional methods with the exception of geogrid placement. The geogrid, was positioned over the fiberglass pins, then placed around the pipe and returned to the wall on the next course up. According to McCaffery, this process created a very structurally sound wall. In the end, Geogrid was able to beat the 61 days allowed to construct all three walls. "I know the developer was blown away as we literally cut his construction time in half and we eliminated the excessive costs associated with excavation and crushing," said McCaffery.

"In this case, the soil nailing was just a means to an end," said Daniel Bruffett of wall contractor Geogrid. "The job called for a permanent solution that was also aesthetically pleasing- to me soil nails and shotcrete are neither. Keystone Compac units were perfect for the job, offering flexibility, strength and good looks."

Over 16,000 square feet of Keystone Compac II units, produced by Keystone supplier RCP Block & Brick, were used on the project. The wall reached 27 feet at its highest point.

Keystone Compac offers outstanding structural performance in a lightweight, space-saving design- perfect for tighter radius curves and corners.

For more information on this project, on Keystone Compac or other innovative Keystone products, please visit www.keystonewalls.com or call (800)-747-8971. 



KEYSTONE SEMINAR SPOTLIGHT

-From simple design and installation seminars to AIA and NCMA accredited seminars, Keystone offers a unique variety of seminars to meet the diverse needs of our customers. Our seminars are offered nationwide in a number of different formats – on-site, off-site, Spanish language, homeowner, box-lunch seminars and more.

Contractor Seminars

Quality installation practices are essential for continued growth and success of our industry. Training for new and existing contractors on proper installation procedures promotes the quality that Keystone customers have come to expect.

These seminars are also a great opportunity to see new products that are being introduced to the marketplace, and be the first to meet the challenge and demand for the installation of innovative new landscaping applications.

National Concrete Masonry Association Certification(NCMA) Seminars

In October of 2003, NCMA introduced a new certification program for individuals who primarily install retaining walls. Keystone was one of the first to offer the NCMA Certified Installer Program course. We will continue to offer this full day course across the country, as needed.

The American Institute of Architecture (AIA) Seminars

Keystone Retaining Wall Systems is an American Institute of Architects (AIA) accredited provider of Continuing Education Credits (CEUs).

Throughout the United States, we offer training seminars that can help architects understand and solve site issues. These seminars are filled with useful information for the engineer and general contractor as well.

Engineering seminars

Keystone's Structural Wall Specialists have over 60 years of segmental retaining wall and MSE design experience. Educating design professionals in the marketplace is their expertise and specialty. From state highway and government agencies to local consulting and geotechnical firms, our Structural Wall Specialists are sure to give you the needed support to use Keystone structural products.

To get more information on Keystone seminars call 800-747-8971 or contact your local sales representative.



Located in the heart of Syracuse’s historic University Hill neighborhood, the old-world look of Keystone Country Manor was important in helping the new construction at the Genesee Grand Hotel fit into the surrounding architecture. According to Keplinger, the owner had originally planned to include column accents in the railing that surrounded the new sidewalk patio. Keystone Country Manor’s ability to provide freestanding walls, columns and other structures made it the obvious choice for the job. Even though the columns were not constructed, the versatility of Keystone Country Manor was demonstrated with the construction of a fountain basin that surrounds an iron fountain with rustic old-European appeal.

A segmental retaining wall system was not the first choice for the hotel project. “I think the owner really wanted to use natural stone,” said Greg Piper of Keystone licensed manufacturer,

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Domine Builders Supply. “Ultimately, he was able to get a natural stone look at a fraction of the cost with Keystone Country Manor.”

The 2,000 square foot project packs a lot of details into an area no more than approximately 300 feet in length. Keystone Country Manor, in combination with concrete pavers were used to construct the classic-feeling stairway and front entrance to the new hotel addition. That structure continues on, wrapping around the length of the building and providing a wide sidewalk dining area. On the other side of the main driveway, Keystone Country Manor walls provide a stately backdrop to new landscaping including the fountain at the entrance to the hotel.

The site provided some construction challenges including a ten percent grade change from one side of the driveway to the other. But, according to Keplinger, the ease of the Keystone Country Manor system helped the job go smoothly. “The wall installer on this project had never used Keystone Country Manor,” said Keplinger. “But, the installation went really well regardless.”

For more information on Keystone Country Manor or other innovative Keystone products, please visit www.keystonewalls.com or call (952) 897-1040. 



Project: *Genesee Grand Hotel*

Location: *Syracuse, New York*

Keystone Licensee: *Domine Builders Supply*

Keystone Product Used: *Keystone Country Manor*

Wall Area: *2,000 sq. ft.*

Landscape Architect: *Keplinger & Freeman Architects, Syracuse, New York*

Wall Installer: *Campus Hill Nursery Syracuse, New York*

Keystone Directory

Alabama

Superock Block
205-970-7676

Alaska

Polar Supply Co.
907-563-5000

Arizona

Superlite Block
800-366-7877

Arkansas

Keystone Group
800-545-0754

Nattinger Materials
800-299-2594

California

Angelus Block Co.
909-328-9115

Basalite Concrete Products
800-350-5866

RCP Block & Brick
800-732-7425

Colorado

Best Block Company
303-791-3334

Connecticut

Anchor Concrete Products
800-682-5625

Delaware

Anchor Concrete Products
800-682-5625

Florida

Keystone RWS
800-747-8971

Superock Block
205-970-7676

Georgia

Georgia Masonry Supply
770-426-6161

Hawaii

Tileco
808-682-5737

Idaho

Amcor Masonry Products
208-522-6150

Basalite Concrete Products
208-888-4050

Illinois

Best Block Company
800-782-7708

King's Material
888-290-6950

Kirchner Block

618-254-7660

Rockford Cement Products

815-965-0537

Indiana

Aggregate Industries
800-841-5466

Schuster's Building
Products
800-424-0190

Iowa

Concrete Products
800-352-4644

King's Material
319-363-0233

Zeidler Concrete Products
641-357-2176

Kansas

Capitol Concrete
785-233-3271

Miller Material
800-289-2244

Kentucky

Lee Brick & Block
800-718-8884

Louisiana

Premier Concrete
800-818-1069

Maine

Gagne & Son
800-339-3313

Maryland

Betco Block Company
800-486-4011

York Building Products
800-673-2408

Massachusetts

A.Jandris & Sons
978-632-0089

Foster's Southeastern
800-462-2225

Hiway Concrete
508-295-0834

Keystone Northeast
888-447-1157

Michigan

Fendt Builders Supply
888-706-9975

Minnesota

Aggregate Industries
800-338-0016

Mississippi

Premier Concrete
800-818-1069

Missouri

Kirchner Block & Brick
800-346-9502

Miller Material
800-289-2244

Nattinger Materials
800-299-2594

Montana

Kanta Products
406-285-3261

Nebraska

Concrete Products
712-252-4251

Nevada

Basalite Concrete Products
775-358-1200

Superlite Block
800-366-7877

New Hampshire

Keystone Northeast
207-871-1185

New Jersey

Anchor Concrete Products
800-682-5625

New Mexico

Southwest Block
505-892-5858

New York

Anchor Concrete Products
800-682-5625

Domine Builders Supply
(upstate NY)
800-444-2103

North Carolina

Keystone Group
800-545-5080

North Dakota

Aggregate Industries
800-426-8162

Dakota Block
605-342-6070

Ohio

Akron Brick & Block
330-628-2603

Wilson Concrete
937-885-3711

Oklahoma

Dolese Bros. Co.
800-335-9626

Oregon

Basalite Concrete Products
800-596-3844

Pennsylvania

Domine Builders Supply
800-444-2103

Lockcrete Bauer Company
724-297-5084

York Building Products
800-673-2408

Puerto Rico

Ecologica Carmelo, Inc.
787-251-9474

Rhode Island

Keystone Northeast
888-447-1157

South Carolina

Keystone Group
800-545-5080

South Dakota

Aggregate Industries
800-426-8162

Concrete Products
800-352-4644

Dakota Block

605-342-6070

Tennessee

Big Rock Building Products
815-354-6660

Superock Block
800-828-8093

Texas

Eagle-Cordell Concrete
Products
713-691-0022

Jewell Concrete Products
254-772-3440

Utah

Amcor Masonry Products
801-936-7628

Vermont

Keystone Northeast
888-447-1157

Virginia

Betco Block & Product
800-486-4011

Washington

Basalite Concrete Products
800-596-3844

West Virginia

Betco Block & Product
800-486-4011

Central Supply Company
304-592-5577

Wisconsin

Best Block Company
800-782-7708

Winger Concrete Products
715-356-9429

Wyoming

Amcor Precast
208-522-6150

Best Block Company
303-791-3334

Dakota Block
605-342-6070

Canada

Basalite Concrete Products
800-596-3844

Permacon
514-355-4666

Note: Keystone also has over 35 international manufacturers.

Keystone Resource Corner

On-Line Resources

- Worldwide Distribution Network
- Product Information
- Technical Notes
- Design Charts
- Construction Details
- Specifications
- CAD™ Details
- Installation
- Literature
- Photo Library
- Much More!

Engineering & Design Services

- Design & Technical Assistance
- Design Software and Support
- Design & Construction Literature
- CAD™ Details
- Specifications
- Education and Training Courses for Design of Segmental Retaining Walls
- Seminars Available with Continuing Education Credits

Local Representation

Contact Keystone to have a local representative provide you with an updated Technical CD or product information.

HOW TO CONTACT US

Customer Service **1-800-747-8971**

International Service **952-897-1040**

Facsimile **952-897-3858**

Internet **www.keystonewalls.com**



Retaining Excellence™

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