

Pocket Guide

KEYSTONE COUNTRY MANOR®



KEYSTONE[®]
RETAINING WALL SYSTEMS
A CONTECH COMPANY

Retaining Excellence

KEYSTONE COUNTRY MANOR UNIT TYPES



***6"h x 10"d x 16"/14"w**
(150 x 250 x 400/350mm)
60 lbs. (27 kg)



***6"h x 10"d x 12"/10"w**
(150 x 250 x 300/250mm)
45 lbs. (20 kg)



***6"h x 10"d x 12"/12"w**
(150 x 250 x 300/300mm)
45 lbs. (20 kg)



***6"h x 10"d x 10"/8"w**
(150 x 250 x 250/200mm)
40 lbs. (18 kg)



***6"h x 10"d x 8"/6"w**
(150 x 250 x 200/150mm)
35 lbs. (16 kg)



***6"h x 10"d x 6"/4"w**
(150 x 250 x 150/100mm)
25 lbs. (11 kg)

(Two smooth ends for vertical stacking capability)



Keystone Country Manor Cap Unit

***3"h x 12"d x 14"/8"w**
(75 x 300 x 355/200mm)
30 lbs. (14 kg)
x 355mm/200mm



Fiberglass Pins

5-1/4" (130mm) long
1-1/4" (32mm) shoulder length
3/4" (20mm) diameter at shoulder
1/2" (13mm) diameter at pin shaft

***Note:** The number and size of the units in the Keystone Country Manor System vary by region. The most common configurations are the 3 piece, 5 piece, and 6 piece systems. Please contact your local representative for further details.

HOW TO USE THIS POCKET GUIDE

This quick reference guide will provide basic information on building a Keystone Country Manor wall. Descriptions of the Country Manor product line, the required tools, construction methods and design ideas will be at your fingertips.

Keystone Country Manor offers the appearance of rustic, hand-laid stone walls with the strength and ease of installation provided by dry-stacked, modular, pin-connected technology. Random and rugged, these high-strength concrete units resemble Old English estate walls, adding character to any project.

Correctly assembled, Keystone Country Manor units will result in unique designs with the texture, color and appearance of hand-laid stone. Walls can be built as low height gravity walls or taller, soil reinforced wall structures, capable of handling surcharge loads.



GETTING STARTED - RECOMMENDED BASIC HAND TOOLS



Gloves



Safety goggles

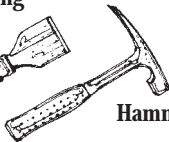


Safety glasses

Stone cutting
chisel



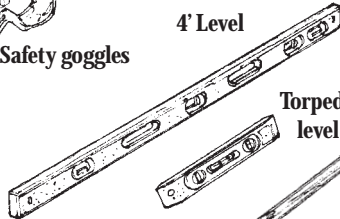
Hammer



Caulking gun
and caulk



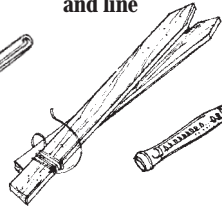
4' Level



Torpedo
level



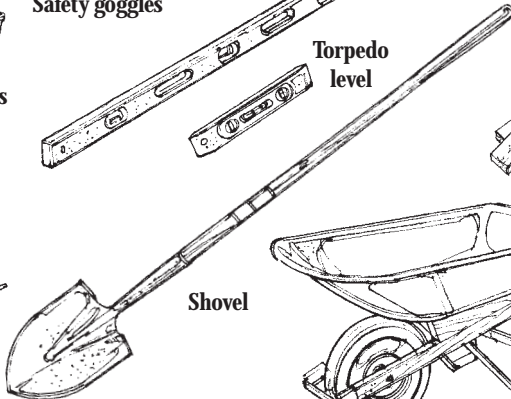
Layout stakes
and line



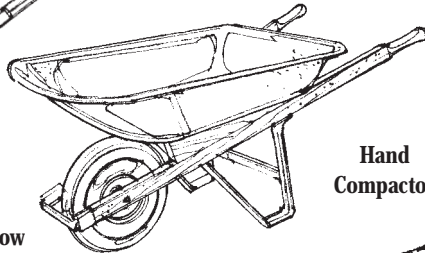
Mallet



Shovel



Wheelbarrow



Hand
Compactor



Note: Power equipment (i.e. small walk-behind vibrating plate compactors and small skid loaders) can be used based on the installer's experience.

GETTING STARTED - THE BASICS

EXCAVATE BASE TRENCH



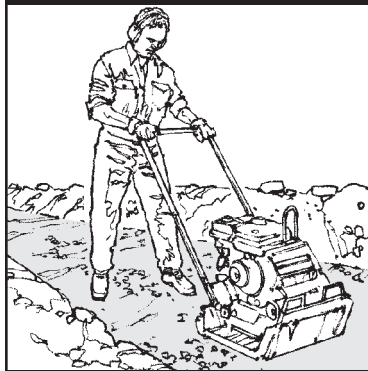
After selecting the location and length of the wall, excavate the base trench to the designed width and depth (min. 20" W x 12" D [500x300 mm]). **Do not use this material as backfill.** Remove all surface vegetation and debris.

PREPARE THE BASE LEVELING PAD



Start the leveling pad at the lowest elevation along wall alignment. Step up in 6" (150mm) increments with the base as required at elevation changes in the foundation. Level the prepared base with 6" (150mm) of well-compacted granular fill (gravel, road base, or 1/2" to 3/4" [10 - 20 mm] crushed stone).

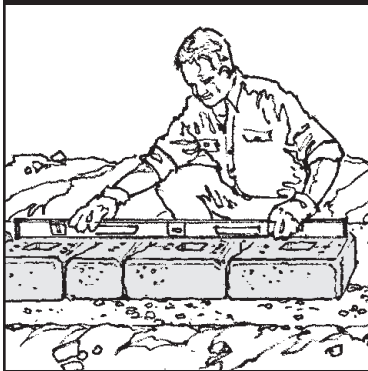
COMPACT LEVELING PAD



Compact to 95% Standard Proctor or greater.
Do not use PEA GRAVEL or SAND for leveling pad.

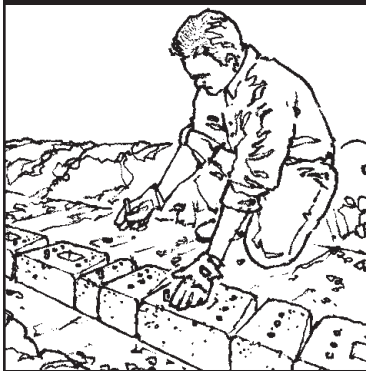
GETTING STARTED - LAYING FIRST COURSE

SET AND ALIGN BASE COURSE



Place the first course of Keystone Country Manor units end to end (with face of wall corners touching) on the prepared base. The long groove (receiving channel) on the unit should be placed downward and the three pin holes should face upward, as shown. Make sure each unit is level. Leveling the first course is critical for accurate and acceptable results. Minimum embedment of the base course should be 6" below grade.

INSERT THE FIBERGLASS PINS



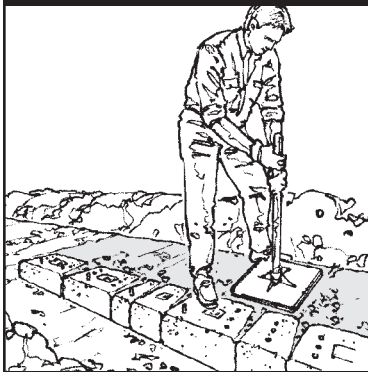
Place the fiberglass pins into the holes of the Keystone Country Manor Units (Note: place one pin only per each grouping of 3 holes). Place pins in the middle hole for near vertical alignment or the holes nearest the embankment for a 9.5° +/- setback per course.

INSTALL DRAINAGE FILL, BACKFILL



Once the pins have been installed, provide 1/2" - 3/4" (10 - 20mm) clean crushed stone drainage fill behind the units to a minimum depth of 12" (300mm). Fill open spaces between units and open cavities/cores with the same drainage material.

COMPACT FILL



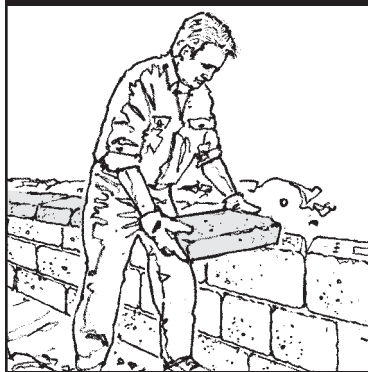
Proceed to place backfill (free draining granular fill) in maximum 6" (150mm) layers. Compact to a dense, non-compressing state, or with testing, a 95% Standard Proctor density with the appropriate compaction equipment.

INSTALL ADDITIONAL COURSES



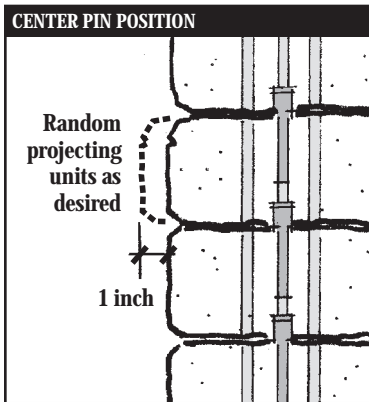
Place the next course of Keystone Country Manor units over the fiberglass pins, fitting the pins into the long receiving channel recess of the units above. Push the Country Manor units toward the face of the wall until they make full contact with the pins. If pins do not connect with channel, place drainage fill in core to provide unit interlock with pin. Continue backfilling and building to desired top elevation.

CAPPING THE WALL

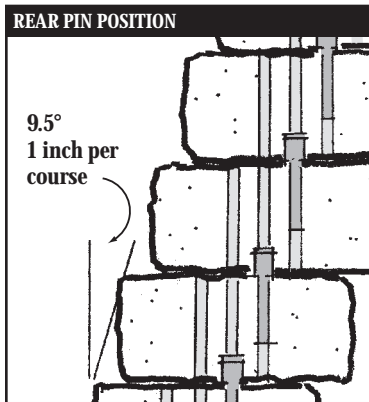


With units dry and clean, use construction adhesive (Keystone Kapseal) or the equivalent for a mechanical bond. Install the Keystone Country Manor 3" (75mm) capping unit, architectural precast concrete or cut stone as a coping element. The cap may be flush or overhanging as required by aesthetics and design.

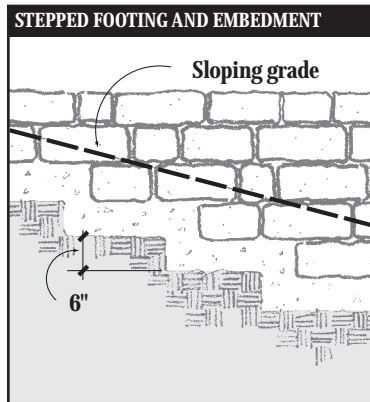
OTHER CONSTRUCTION CONSIDERATIONS



The center pin position will build a wall in the “near vertical” position. Push the units towards embankment to achieve an approximately 1° setback from true vertical. For freestanding vertical walls, use construction adhesive and a level to assure vertical construction.



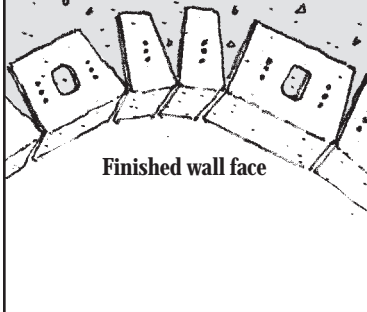
Using this pin position on all courses will build the wall with an approximate 9.5° batter (setback). This is a 1” setback for each 6” of vertical wall. Pull units toward wall face to engage pins as final construction step when placing units in a setback condition.



Always start building the wall at the lowest elevation of the site where the wall is to be constructed. Build step-ups in the leveling pad to match concrete unit thickness. If using non-reinforced concrete for the leveling pad option, it is critical that the step-ups match the Keystone Country Manor unit thickness!

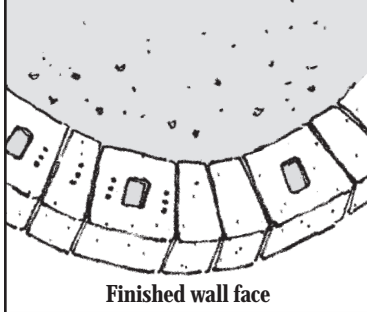
CURVES : CONCAVE

Soil-side “open” alignment

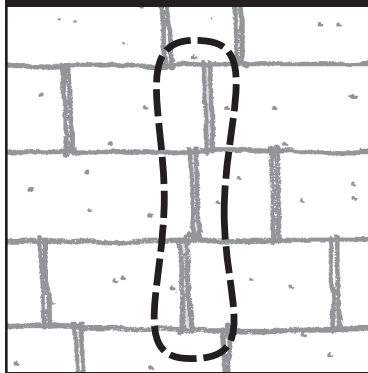


CONVEX

Soil-side “closed” alignment



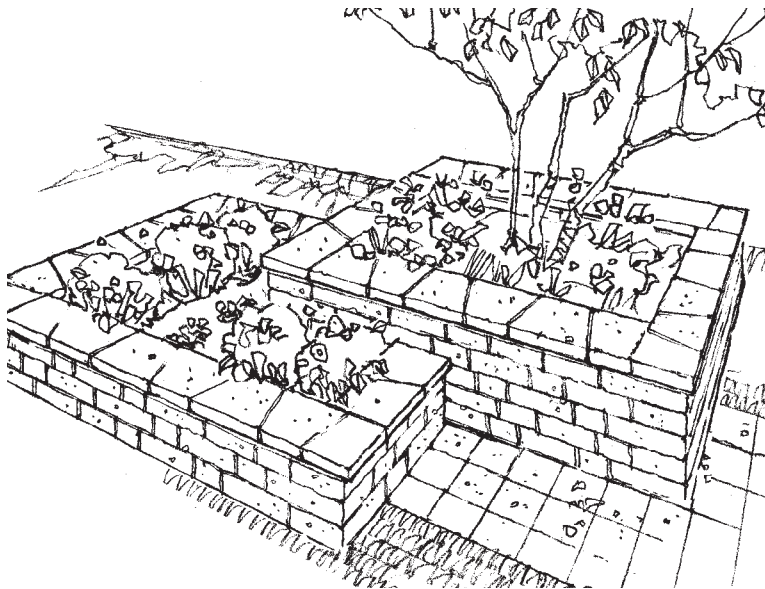
PATTERN AND APPEARANCE



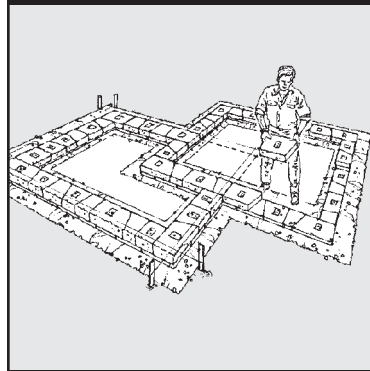
When building convex or concave curves, it is best to place the units in an “open” geometry, where the longest length of units is always used at the face of the curve. This will permit the triangular gaps to open or close between units behind the wall face. The gap size will vary as a function of the curve. Place drainage fill in all open gap and open core areas.

Randomly utilize the various unit shapes, trying to avoid a repetition of same unit size along a horizontal line. **Avoid stack bonding of unit joints** (vertical joint line between adjoining units) for more than two courses vertically. If units have blemishes, orient them so the blemish faces the soil side of the wall to hide imperfections or use these units along the wall base.

PROJECTS - INTERLOCKING PLANTERS

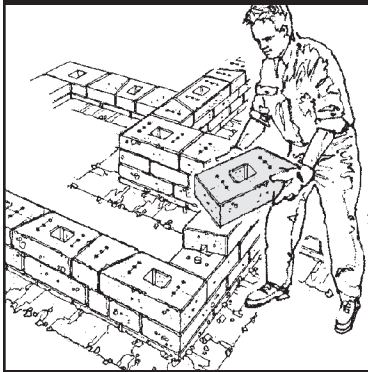


BASE COURSE



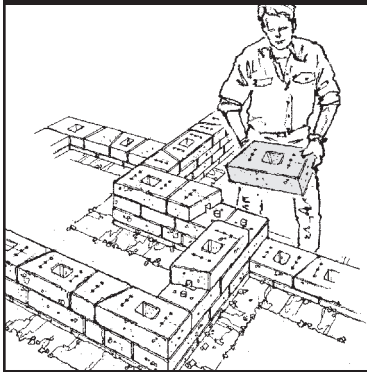
The flexibility of Keystone Country Manor gives you the ability to create a wide variety of impressive projects. One particularly rewarding design option is the interlocking planter system. If built correctly, this straightforward project will produce a unique design element that is as sturdy as it is impressive.

CORNER ASSEMBLY



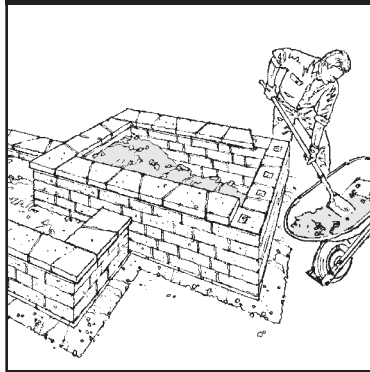
In wall designs with 90° corners, it is recommended that the largest unit size available be used at the corners, overlapped and interlocked with the units above and below. In addition to providing better stability through greater mass, the large units provide an additional pin position for greater design flexibility. Interlocking planters should be constructed as one cohesive structure, not multiple independent planters.

WALL ASSEMBLY



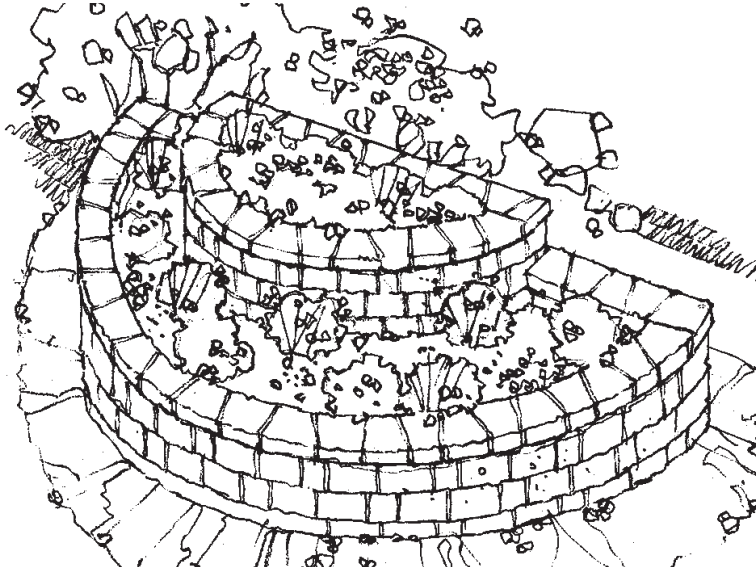
Where planter walls intersect, care should be taken to overlap and interlock the units- not just “butting” the walls up against each other. It is also recommended that planter walls be assembled in the “closed” position (without any gaps along the inside of the wall) when possible.

FILL REQUIREMENTS

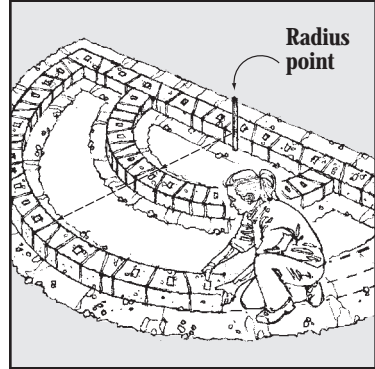


To insure proper drainage, stability and appearance, each course needs to be backfilled as the wall progresses. Free draining fill material that compacts well (i.e. 1/2”-3/4” crushed stone) should be placed to a depth of 12” behind wall. (Good drainage will help eliminate the undesirable “wet” look at the front of the planter.)

PROJECTS - RAISED PLANTERS WITH CURVED WALLS

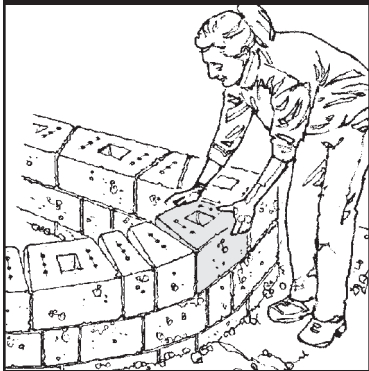


BASE COURSE



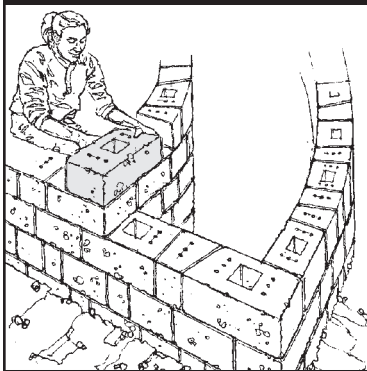
Keystone Country Manor units make it easy to construct a variety of designs that add depth and beauty to a project. Curved retaining walls blend with the natural contours of any site. Just pick a radius point to mark the “sweep” or base layout of your curved wall.

DESIGN CONSIDERATIONS



Curved walls may necessitate “open” orientation or small “V” shaped voids between units on the retained soil side of the planter wall. Just fill these areas with drainage fill.

WALL ASSEMBLY



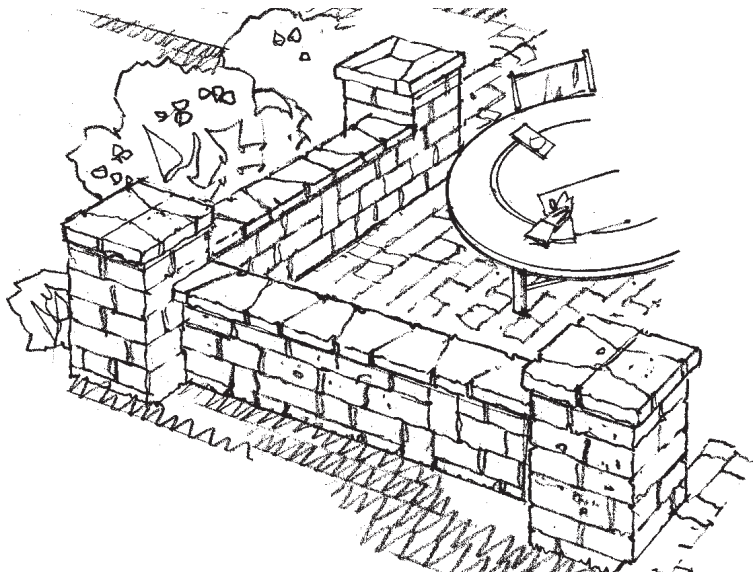
Like interlocking planters, raised planters should be constructed as one cohesive structure, not multiple independent planters. Where planter walls intersect, care should be taken to overlap and interlock the units- never “butting” the walls up against each other. All walls (including upper terraces) should be constructed from the same leveling pad. Walls built atop of fill are prone to failure.

CAPPING CONSIDERATIONS

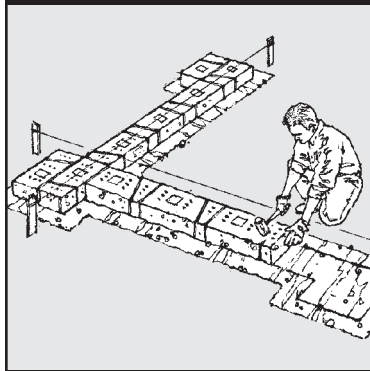


The Keystone Universal Cap unit can be cut to fit almost any radius and should be attached to the Keystone Country Manor wall with Keystone Kapseal adhesive or the equivalent. See your local Keystone representative for more details.

PROJECTS - "L" SHAPED WALL WITH COLUMN ENDS

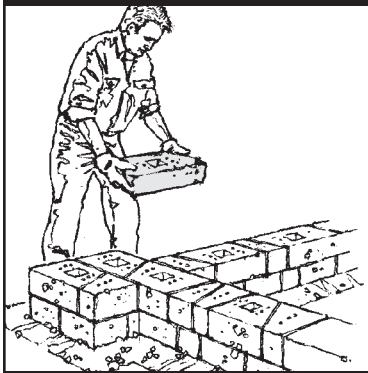


BASE COURSE AND CORNERS



Classic hardscape designs with stately capped columns are a natural with Keystone Country Manor. Borrowing many of the same elements as the interlocking planter project (detailed on page 11), this free-standing structure is a great accent to frame a driveway, patio or property corner.

DESIGN CONSIDERATIONS



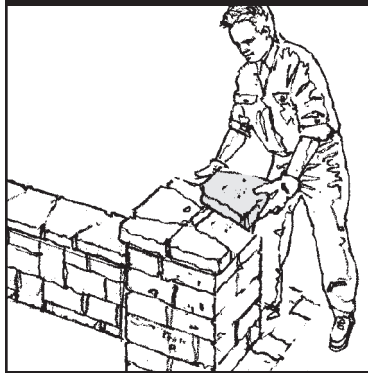
As a freestanding structure, this 90° “L” wall layout needs to be assembled in the “closed” position, (i.e., without any gaps between blocks). Units can be used to build a typical 20” square column. Take care to incorporate and interlock the columns into the wall—as opposed to creating the columns as abutting structures to the wall.

ADDITIONAL COLUMN OPTIONS



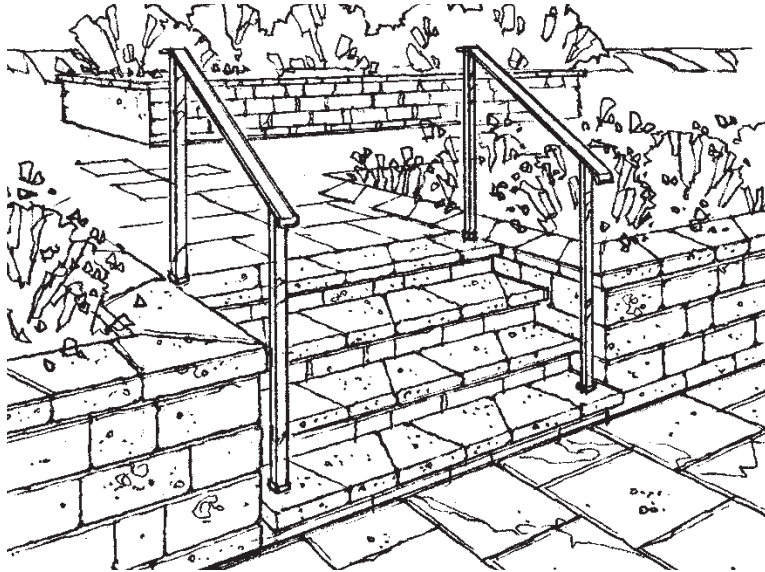
Wall end columns also allow for internal reinforcement, providing greater strength and height, along with providing a larger footprint dimension for aesthetic purposes. Internal column reinforcing can provide for steel re-bar and solid concrete grouting in connection with a reinforced concrete foundation. If you live in a frost-prone area, consult a Keystone representative for additional information.

FINISHING THE WALL

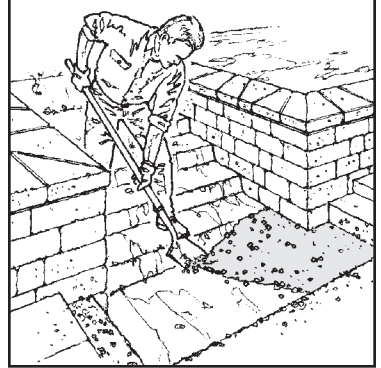


When assembling a freestanding Keystone Country Manor wall, use Keystone Kapseal or the equivalent between each course of block in the wall/column as well as to fasten the cap/coping.

PROJECTS - STAIRS

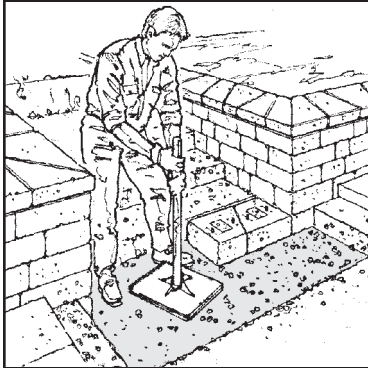


EXCAVATION AND BACKFILL



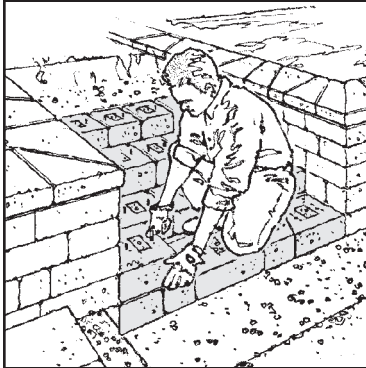
Keystone Country Manor can be incorporated into your landscaping projects as stairs between planters or walls. The steps can be incorporated into the adjacent planters or built as independent structures.

SURFACE PREPARATION



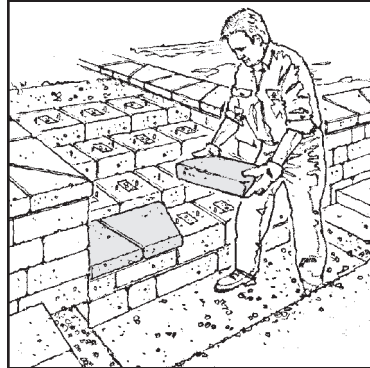
The same materials and techniques that are used on the Keystone Country Manor wall leveling pad (see page 5), are required for the stair leveling pad.

STAIR SUPPORT UNITS



Vertically double stack the base support units to create a foundation for the stair "tread" units. Use pins and construction adhesive as required for a unified stair/step assembly.

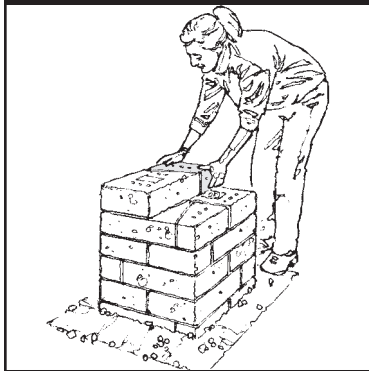
STAIR TREAD



The Keystone Universal Cap makes a great stair tread. Use Keystone Kapseal adhesive or the equivalent to secure the treads to the stair support units. Caps will create a two-inch overhang, but can be field trimmed as required to allow for flush installation. At sides of stairs, try to pattern stair tread pieces to near 1/2 unit size. Avoid small sliver pieces if possible.

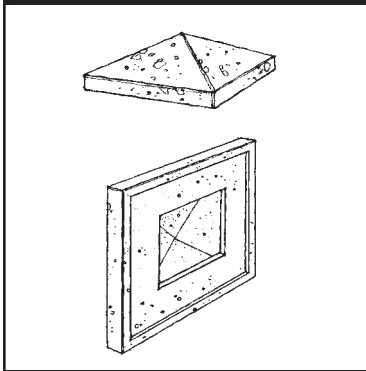
PROJECTS - COLUMNS AND COLUMN CAPS

FREESTANDING COLUMN



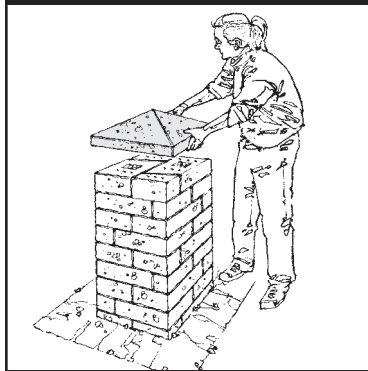
Build the column in an overlap pattern on consecutive courses to the desired height. Make sure the column top is dry and free of dust or other debris. Use Keystone Kapseal adhesive or the equivalent to connect column units and corners.

PLACING KAPSTONE



With the Keystone KapStone turned upside down apply a construction adhesive to the recessed ledge area on the underside of the cap. Apply the adhesive in a 1/4" bead, making sure that the adhesive will be in position to make good contact with each unit on the top course of the column.

KAPSTONE DETAIL



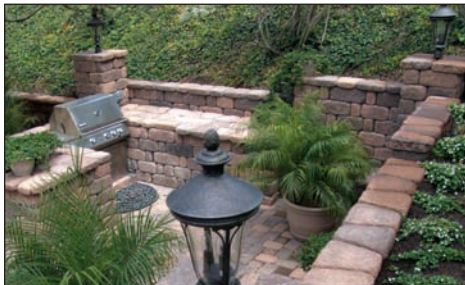
The 24" x24" Keystone KapStone cap fits over the 20" x20" Keystone Country Manor column, masking the top of wall joints and leaving a clean finished look. Keystone KapStones can also be utilized with other columns of a comparable size. Keystone KapStones have the ridges, clefting and authentic textures of traditional granite, limestone or flagstone.

ADDITIONAL RESOURCES

Keystone offers several additional resources for the planning and installation of Keystone Country Manor. **Dreamscapes** is a design idea book featuring images of actual Country Manor walls assembled in a number of common applications. Dreamscapes offers great ideas for your Country Manor project including terraces, planters, columns and more.

The **Keystone Country Manor Design and Construction Manual** is an expanded version of this Pocket Guide, providing comprehensive content on the product line and installation recommendations.

The Keystone website, www.keystonewalls.com, is a great resource for information on all of the Keystone products including Keystone Country Manor. The website offers a photo library of beautiful projects, product specifications, and information on where to buy Keystone products.





Retaining Excellence

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Keystone
COUNTRY
MANOR[®]

Old World Charm