Segmental Retaining Walls

Installation Guide
EverLoc® Retaining Walls
P O Box 160
2522 Swords Creek Road
Swords Creek, VA 24649
www.EverLocRetainingWalls.com

Everloc® Installation Guide - 3rd Edition
Text and Drawings by: Billy J. Wauhop, PE
Inventor of EverLoc®

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Helpline: (877) 622-9255

Ph: 276-873-7180 / 877-622-9255     Fax: 276-873-5688
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INTRODUCTION

This document is provided as a guide to contractors and owners specifically for the installation of EverLoc® Segmental Retaining Wall Systems.

It addresses the specific installation steps for engineered and non-engineered EverLoc® systems. These are the general installation methods for EverLoc®. Contractors should also reference the product specific information provided by the geogrid and geotextile manufacturers.

The EverLoc® system is a gravity retaining wall system that relies primarily on its mass (weight) for stability. The system consists of concrete masonry units which are placed without the use of mortar (dry stacked). The system then relies on the proven combination of a mechanical interlock and mass to prevent both sliding at the base of the wall and overturning about the toe of the structure.

The units may also be used in combination with horizontal layers of soil reinforcement (geogrid). The geogrid extends into the earthen backfill to increase the effective width and weight of the gravity mass. The use of geogrid allows EverLoc® walls to be built to virtually any height.

The EverLoc® system is considered a flexible structure, so the base course does not need to be placed below the frost line—provided there is sufficient foundation bearing capacity to support the wall.

TIP
Check local building codes to determine if the project needs engineering or not. If so, follow design drawings EXACTLY. Get approval from the wall designer before making any changes.
GRAVITY WALLS

EverLoc® gravity walls are constructed with either single (typical) or multiple depths of units.

For stability, the EverLoc® gravity structure must have sufficient mass to prevent both sliding at the base and overturning about the toe of the structure. Since the system consists of individual units, dry stacked one atop another, shear capacity is an important component to assure that the units act together as a coherent mass.

Shear capacity provides a means of transferring lateral forces from each course to the succeeding course. This is provided: 1) by the frictional resistance between the EverLoc® units, 2) by the interlock action provided by lugs and grooves which are an integral part of the units, and 3) by the compacted columns of aggregate placed in the open cores of the EverLoc® units.

The batter (or inclination) of the wall contributes to the stability of the finished wall. This batter is achieved through the setback between EverLoc® units from one course to the next. The batter is controlled by the location of lugs and grooves on each unit.

Gravity walls should not be erected over four (4) feet in height (or as governed by state or local building codes) without first having been designed by a qualified licensed engineer. See Drawing 101 & 201 as an example of an EverLoc® gravity retaining wall:

TIP
Gravity wall heights may be reduced if steep top slopes, poor foundation soils, or ground water is encountered. Consult a design professional if any of these conditions are present.
Example of a Gravity Wall
Soil-reinforced walls should be specified 1) when the maximum height (typically four feet) for conventional gravity walls is exceeded or 2) when lower walls are surcharged by sloping backfills, live loads and/or have poor foundations.

A soil-reinforced EverLoc® wall is designed and constructed with multiple layers of soil reinforcement placed between the EverLoc® courses and extending back into the soil behind the wall at designated elevations and lengths.

The soil reinforcement makes the soil in the reinforced zone a cohesive mass, increasing the size and weight of the gravity wall system. The most common types of soil reinforcement are geogrids and geotextiles.

Typical soil-reinforced wall designs, for estimating purposes and determining geogrid requirements, are shown for static, non-seismic conditions (Estimating chart #1 & #3, page 69 & 71) and seismic conditions (Ground Acceleration, A = 0.15g), (Estimating chart #2 & #4, page 70 & 72). See Drawing 102 & 202 as an example of an EverLoc® soil-reinforced retaining wall.

**Rule of Thumb:**

Unless otherwise noted in design drawings, geogrid should extend into the reinforced zone to a depth of 60% of the height of the wall being constructed. Grid length should never be less than four feet.

Example: Wall height of 10 feet  
\[
10 \times 0.60 = 6 \text{ feet grid depth}
\]
Geogrid Placement
The basic elements of the EverLoc® segmental retaining wall system are 1) foundation soil, 2) leveling pad, 3) EverLoc® retaining wall units, 4) drainage pipe, 5) drainage fill, 6) infill soil, 7) retained soil, and 8) soil reinforcement (geogrid). But the first step is excavation.

**Excavation:**

The contractor shall excavate to the lines and grades shown on the approved plans.

There are two basic topographical conditions in which EverLoc® walls may be constructed: “cut” and “fill”.

Cut conditions are when the area is excavated and the wall is installed within the cut area. The fill condition occurs when material is required to be brought onto, or relocated, on-site to meet the proposed grades.

1) **Foundation Soil:**

The foundation soil is the native underlying soil which supports the leveling pad and the reinforced soil zone of a reinforced EverLoc® Wall System.

The foundation soil should be prepared in accordance with local ordinances or recommendations of the engineer. Foundation soil shall be excavated as required to meet the base course leveling dimensions and to meet the outer limits of the reinforced soil zone—as shown on the construction drawings or as directed by the designer.
The native foundation soil must be analyzed to verify that the soil load bearing capacity meets or exceeds the required design conditions.

Foundation soils that do not meet the required strength shall be removed and replaced with soil specified by the design engineer and then compacted to at least 95% of the Maximum Standard Proctor Density as specified in ASTM D698-07el.

TIP
Always consult a qualified professional when moisture is encountered in the foundation soil.

2) Leveling pad:

The leveling pad is a level surface, consisting of crushed stone or unreinforced concrete, which distributes the weight of the EverLoc® units over a wider area and provides a working surface during construction.

The leveling pad is typically placed atop a properly prepared foundation soil and is typically at least six (6) inches wider in front of and behind the first course of EverLoc® units. The leveling pad should be a minimum of six (6) inches deep.

The compacted soil leveling pad should be constructed using material specified by the project engineer or wall designer. It typically consists of soil types normally used for optimum stress distribution and drainage.
Soil types that can provide optimum stress distribution and drainage include:

1) GP (Poorly graded gravel),
2) GW (Well-graded gravel),
3) SP (Poorly graded sand), or
4) SW (Well-graded sand).

The leveling pad should be densely compacted. Compaction shall be with a plate compactor to 95% of Maximum Standard Proctor Density (ASTM D698-07el).

Special cases that may require modified designs include:

1) foundation soils with a low bearing capacity,
2) areas with the water table close to the foundation, or
3) submerged foundations.

Note: Densely graded aggregates may require the use of a whacker type compactor in lieu of the plate compactor.

TIP
Engineers who specialize in segmental retaining walls are easily found and they are your friend when it comes to your wall. For very nominal fees, the engineer will assure that your wall is designed properly. Also, the engineer will provide estimated quantities of EverLoc®, drainage aggregate, geogrid, etc., so you can have a very accurate cost estimate of your project. Need help finding a specialty engineer?—call our HELPLINE.
3) EverLoc® Segmental Retaining Wall Units:

EverLoc® blocks are concrete masonry units that are used to create the mass necessary for structural stability—while also providing durability and an architecturally attractive wall. EverLoc® units are required to meet or exceed the minimum values set forth in these American Society for Testing and Materials (ASTM) Specifications: ASTM C140-09, ASTM C1372-09 and ASTM C1262-09 (where applicable). All EverLoc® units are manufactured in conformance with these industry standards and specifications to assure that the units delivered to your project are uniform in weight, dimensional tolerances, strength, and durability.

All EverLoc® units shall be installed at the proper elevation and orientation as shown in the approved construction plans or as directed by the qualified designer. The completed wall erection shall be within plus or minus 1.25 inches, measured over a 10 foot distance, in either a horizontal or vertical direction—as compared to the design line and grade control.

The first course of EverLoc® units shall be placed on the leveling pad. The units shall be checked for level and alignment. The first course is the most important to insure accurate and acceptable results. The installer should ensure that the units are in full contact with the base. Units are placed side by side for the full length of the wall. Alignment may be done by means of a string line or offset. Each unit should be checked with a level side-to-side and front-to-back—then adjusted accordingly.
Use drainage aggregate to fill any openings in the open cores of and between EverLoc® units as required.

Typically, fully 50% of the time needed to build a 6' wall will be spent on the first, base course. Any error, like a high or low spot, will carry up through successive courses. By getting the base course perfect, the rest of the wall will go fast and easy.

**TIP**
Whenever possible, use a laser level to establish positioning of two far reaching units. Pull a string between the two units to aid in leveling successive units. Simply using a handheld, bubble-type level could result in significant variations in horizontal control.

4) **Drainage Pipe**

The drainage pipe shall meet one of the following standards:
1) ASTM F758-95(2007)el for Smooth-Wall PVC Pipe or
2) ASTM F405-05 for Corrugated Polyethylene Pipe.

The drainage collection pipe shall be installed to maintain a gravity flow of water to outside of the reinforced soil zone.

The drainage collection pipe should daylight into a storm sewer manhole or to a sloped area lower than the pipes behind the walls.

The collection drain pipe just behind the first course of EverLoc® units (or embedded in the leveling pad below the first course of EverLoc® units) should be a minimum of 4 inches in diameter.

From the collection drain pipe, “T” off every 40 feet with a lateral drain pipe that will exit through the wall to daylight. A mandatory lateral drain pipe through the wall must be installed at the lowest point of the wall.
While a 4” square hole will allow these drainage pipes to travel through the EverLoc® block, a 4” circular hole will add to the finished appearance of the project. Circular blades that fit drills are commercially available.
5) **Drainage Aggregate:**

Drainage aggregate fill is free-draining granular material placed directly behind the wall to facilitate the removal of groundwater and minimize the buildup of hydrostatic pressure on the wall.

The drainage aggregate forms a continuous drainage column behind the wall (similar to a drain chimney). This allows all water to fall and flow out through the drainage pipes. This prevents or minimizes any water flowing out through the wall and down the face. When this happens, the face of the wall gets stained which can be quite unsightly.

It is also used to fill the hollow cores of the EverLoc® units to increase the weight and shear capacity without introducing any lateral forces against the wall structure. These hollow cores, filled with drainage aggregate, also aid in the removal of groundwater.

In some cases, a geotextile filter is installed between the drainage aggregate fill and the retained soil to protect the drainage fill from clogging with fine aggregates. This also provides insurance that micro fines will not find their way through the wall and stain the face as discussed above.

The drainage aggregate shall be placed to a minimum thickness of 12 inches measured from the back of the EverLoc® unit, or as otherwise shown on the plans. Carefully place drainage aggregate behind and up to the height of the EverLoc® unit to create the drainage column.

Install geotextile if required. Drainage geotextile shall be woven or non-woven fabric with: 1) AOS of 70 - 100, 2) a minimum grab tensile strength of 110 pounds, and 3) a minimum weight of 4 ounces/square yard (or as recommended by the designer).
The drainage aggregate shall be a clean 1 inch minus crushed stone or granular fill of this specification:

**Sieve Size Percent Passing**

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 inch (25.4 mm)</td>
<td>100%</td>
</tr>
<tr>
<td>3/4 inch (19 mm)</td>
<td>75—100%</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>0—60%</td>
</tr>
<tr>
<td>No. 40 (420 micron)</td>
<td>0—50%</td>
</tr>
<tr>
<td>No. 200 (75 micron)</td>
<td>0—5%</td>
</tr>
</tbody>
</table>

**Drainage Aggregate (Inside and behind units)**

**TIP**

It is best to run at plate compactor over the EverLoc® units once the drainage aggregate, infill soil, and retained soil has been placed. Always compact front to rear - from the face of the wall towards the retained soil.
6) **Infill Soil:**

The infill soil is the compacted select fill soil placed behind the drainage aggregate for a gravity wall system. Compact the infill soil in 6 to 8 inch lifts and compacted to a minimum 95% of Standard Proctor Density (ASTM D698-07).  

**NOTE:** NEVER attempt to compact more than 6 to 8 inches per lift—full compaction cannot be obtained with deeper lifts, even with clean drainage aggregate.

7) **Retained Soil:**

Retained soil is the undisturbed soil for cut walls (or the common backfill soil) that is compacted behind the drainage aggregate.

The retained soil shall be placed behind the infill or reinforced soil as shown in the construction plans in 6 to 8 inch compacted lifts; then compacted to a minimum 95% of Standard Proctor Density (ASTM D 698-07).  

Only hand operated compaction equipment shall be allowed within 3 feet of the back of the EverLoc® wall face. Place infill soil in front of the EverLoc® units to lock the base course in place. Compact the drainage aggregate, infill soil, and retained soil.

8) **Soil Reinforcement:**

When EverLoc® walls require soil reinforcement, it is normally required on multiple levels extending from the face of the wall back into the compacted reinforced soil mass. Geosynthetic reinforcement material must be certified to meet the requirements of ASTM D 4595-09 or ASTM D6637-01(2009).
Common brands of soil reinforcement (geogrid) include Huesker, Mirafi, Synteen and Strata.

The soil reinforcement shall be installed at the proper elevation and orientation as shown in the approved construction plans or as directed by the engineer. Additionally, the geosynthetic reinforcement shall be installed in accordance with the manufacturer’s recommendations.

Cut geosynthetic reinforcement to design length L as shown on the plans and install with design strength direction perpendicular to the wall face. Seams or contacting overlaps of geosynthetic reinforcement parallel to the wall face are not permitted. When an overlap is needed, separate the layers of grid with a minimum of 3” of aggregate. Adjacent sections shall be butted in a manner to assure 100% coverage after placement.

Geosynthetic reinforcement should be installed under nominal tension. Apply a nominal tension to the reinforcement and maintain it by staples, stakes, or hand tensioning. The tension applied may be released after the geosynthetic reinforcement has been covered and held in place with soil fill.

Before placing the geosynthetic reinforcement in between the EverLoc® block, first fill inside the hollow cores and between EverLoc® units (drainage aggregate)—as required by the specifications stated previously in this guide.

The reinforced soil zone shall be placed, as shown in construction plans, in 6 to 8 inch lifts and compacted to a minimum 95% of Standard Proctor Density (ASTM D698-07el).

Soil shall be placed, spread and compacted in such a manner that eliminates the development of wrinkles and/or movement of the geosynthetic reinforcement. Only hand operated equipment should be allowed within 3 feet of the back of the wall units.
Reinforced Soil Fill Aggregates shall be a 1 inch minus crushed stone or granular fill of this specification:

**Sieve Size Percent Passing**

<table>
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<th>Sieve Size</th>
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<td>No. 40 (420 micron)</td>
<td>0-60%</td>
</tr>
<tr>
<td>No. 200 (75 micron)</td>
<td>0-35%</td>
</tr>
</tbody>
</table>

NOTE: Drainage aggregate may also be used for the reinforced soil fill aggregate.

Compaction sequence: Always begin compaction directly behind the wall and then proceed with compaction farther and farther away from the wall to the rear of the compacted area.

**TIP**

Only use hand operated compaction equipment, such as a vibratory plate compactor, within 3 feet of the back of the wall face.

Tracked construction equipment shall not be operated directly on the geosynthetic reinforcement. A minimum backfill thickness of 6 inches is required prior to operation of vehicles over the geosynthetic reinforcement. Turning of vehicles should be kept to a minimum to prevent displacing the fill and damaging the geosynthetic reinforcement. Sudden breaking and sharp turns should be avoided.

Follow the guidelines to placement of reinforcement at corners and curves – refer to the following drawings, 105, 106, 115, 205, 206, 208 & 210.

**TIP**

Geosynthetic reinforcement should be placed over connecting lugs. The ensures more complete connection in addition to keeping the unit true and plumb.
NOTES: ALL WALLS OVER 4’ IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

TYPICAL OUTSIDE RADIUS DETAIL

DISCLAIMER: These typical details are provided for general information purposes only. Anyone making use of these details does so at their own risk and assumes all liability for such use. Site specific design should be performed by a licensed Professional Engineer who is familiar with the actual site conditions, soils, other materials, and local practices.

Specified reinforcement elevation.

Additional reinforcement layer placed next course above specified reinforcement elevation to eliminate gaps.

TYPICAL INSIDE RADIUS DETAIL

TRIM REINFORCEMENT TO FIT CURVE & REMOVE TWO INNER LUGS OF THE EVERLOC BLOCK

DISCLAIMER: These typical details are provided for general information purposes only. Anyone making use of these details does so at their own risk and assumes all liability for such use. Site specific design should be performed by a licensed Professional Engineer who is familiar with the actual site conditions, soils, other materials, and local practices.
Installing Successive Courses of EverLoc® Units:

If the base course has been successfully installed and is true, installing each successive course becomes easier and faster.

1) Ensure that the compacted drainage aggregate and infill soil is level with the top of the EverLoc® units already placed. It is permissible and recommended to run the plate compactor on top of EverLoc® wall units as each course is compacted.

2) Sweep all debris off top of EverLoc® units.
3) Place and move EverLoc® units to engage shear lugs and establish proper setback.
4) As No.3 is being done, a good technique is to interlock each new block with lugs in the groove, then slide the block left or right as it is being placed—this helps any concrete “crumbs” to fall out of the way and to keep the wall level.
5) Check alignment and levelness of units and adjust as needed. (If the base course is true, alignment and levelness are not hard to maintain. But always correct any observed unevenness immediately. If ignored, the unevenness will continue and become more noticeable as the wall gets higher. A 3 lb to 5 lb rubber mallet is a great tool for this step.)
6) Place drainage aggregate, infill soil, and retained soil, with geogrid if required, as stated previously and per the designer’s and/or the manufacturer’s specifications.
7) Compact all drainage aggregate, infill, and retained soil on each lift!! Allow the plate compactor to run over the full lift including the EverLoc® wall unit.
Capping and Finish Grading:

Install EverLoc® cap units.

The contractor shall provide finished grade at the top and bottom of the EverLoc® wall as shown on the plans and provide for positive drainage of water away from the EverLoc® system. Where the backfill above the wall slopes to the wall face, the contractor shall provide a swale to collect surface runoff and direct its flow away from the wall (around the ends of the wall).

EverLoc® wall caps are recommended to be glued in place with a suitable construction adhesive (such as PL Premium by Loctite®) to prevent the accidental removal by vandals, etc.

The contractor shall provide a minimum of 1 foot low permeable soil to cap to the EverLoc® system to minimize infiltration of surface water into the EverLoc® drainage and reinforced soil zone. After topsoil placement, vegetate slopes above and around all wall terminations.
INSTALLING FENCE WALLS:

EverLoc’s rock solid fence walls provide beauty as garden and sitting walls. Taller fence walls provide privacy. Fence walls also serve as superior sound barriers and can effectively block the noise from a busy street.
EverLoc’s fence walls use the same components as a parapet wall, only a fence wall is installed free standing (instead of on top of a retaining wall). Fence walls can be straight or serpentine (curved).

No extra equipment or skills are required to build an EverLoc® fence wall. Installation is similar to normal retaining walls.

EverLoc’s fence wall is simple—it’s created essentially by building 2 parallel retaining walls back to back, so they “lean” toward each other, and then come together (with full back-to-back contact) on the top course. As the wall gets taller, by design it automatically gets wider at the base—creating a strong, rock solid, maintenance-free wall with no extra structural strength needed (no posts!).
Since the total fence is made of 2 walls built back to back, aside from getting a proper footer installed, the whole secret to easy installation lies in proper spacing between the front and back walls when the first course is laid. If these 2 items are done correctly—footer and spacing—the rest of the wall is simply "stack and fill." And then top it with the exclusive WeatherDome™ fence cap with its arched design for superior weather resistance.

To build an EverLoc® fence wall, simply size and install a proper footer (as discussed on Page 9). The size of the footer will be determined from the spacing (discussed below). The footer should be at least 6” wider and longer on all 4 sides than the footprint of the planned fence wall. Use crusher run.

SPACING BETWEEN FRONT AND BACK WALLS OF FENCE:

1 The front and back walls of the total fence wall each have a ¾” setback (just like EverLoc’s retaining wall).
2 The top course of the completed fence wall will have the backs of the front and back units touching back-to-back with full surface contact.
3 The 2nd course down from the top will be spaced 1½” apart (¾” x 2). The 3rd course down from the top will be spaced another 1½” apart for a total of 3”; and so on.
4 Each subsequent course down from the top will spread out an additional 1½”.
5 So, a 40” fence wall (5 courses above grade and a 6th course embedded) would require the base course (the embedded course) to be spaced 7½”—this is the distance between the backs of the parallel walls that make up the fence wall. This space is filled with #57’s as the wall is built.
6 Best practice is to allow slightly more space (5%) than required on the embedded base course—the designed tolerances of EverLoc® allow the fence units to be adjusted inward if necessary, but they cannot move outward.
INSTALLATION STEPS:

1 Install and compact footer with dense grade aggregate (crusher run).
2 Carefully lay 1st course of block maintaining common elevation and parallel lines between the front and back walls of the fence. Embed this course with crusher run to the top of the block.
3 Compact the embedded course fully around and between the block. Run the plate compactor over the block.
4 Stack and fill (with #57’s) subsequent courses to the top of the fence. Tap the block with a rubber mallet to help the #57’s settle.
5 Install the WeatherDome™ cap to complete wall. Secure permanently with glue (PL Premium by Loctite® or equal).

Fence walls are filled with drainage aggregate (#57’s) to add mass and prevent bees from nesting.

See page 53 for a detailed drawing of a typical EverLoc® fence wall.
INSTALLING PARAPET WALLS:

EverLoc’s parapet walls allow the retaining wall to be extended above grade for beauty, safety, or privacy.
EverLoc's exclusive parapet walls are easy to install. Their installation is similar to normal retaining wall installation and no extra skills or equipment are needed.

Parapet walls can be serpentine or straight, just like EverLoc's retaining walls.

Built to code height of 44”, an EverLoc® parapet wall forms a traffic barrier strong enough to stop an automobile at parking lot speeds. Yet, in the event of such an accident, EverLoc® parapet walls are fully repairable back to original appearance.
Parapet walls offer a new way to finish the top of a retaining wall (as opposed to the traditional flat cap). EverLoc's parapet walls can be any height from a single course above grade on up to whatever height is desired (walls above 4' should be reviewed by the project engineer).

Even a short parapet wall (1 or 2 courses) provides an attractive berm alongside a yard, driveway, or parking area—providing assurance that vehicles, bikes, mowers, or children's toys don't go over.

All EverLoc® parapet walls are designed to be capped with the exclusive WeatherDome™ cap, providing a beautiful and functional arch profile for superior weather resistance.

Parapet wall installation requires only the simple addition of a second footer behind the top of the retaining wall.

See “Installing Fence Walls” page 22 through 25 for spacing and other information—the same procedures apply to the parapet wall. Sketch a cross-section of your planned parapet wall and determine the size of footer needed.

**INSTALLATION STEPS:**

1. First, stop the retaining wall one course short of the top course. From here on up, EverLoc® Express units will be used.
2. Then, create a footer for the back wall of the parapet. Trench out an 8" deep space for the footer behind the retaining wall, line the trench with filter cloth, add 8" of dense graded aggregate (crusher run) and compact.
3. Place Express units on top of retaining wall units to begin the front wall of the parapet.
4. See “Installing Fence Walls”, page 22 through 25, and follow the instructions for spacing.
5 Lay the first course of the back parapet wall. Assure that the back wall of the parapet is level and parallel with the front wall and spaced correctly.

6 Embed the bottom course of the back parapet wall by filling in on all sides (with crusher run) and compacting with plate compactor. Run the plate compactor over the EverLoc® fence units.

7 From this point, simply stack and fill (with 57’s) the rest of the parapet wall. Occasionally tapping the block with a rubber mallet will help the 57’s settle.

8 The final touch is to permanently secure the Weather Dome™ caps in place with glue (PL Premium by Loctite® or equal).

See page 53 for detailed drawing of typical parapet wall.
INSTALLING COLUMN INSETS:

EverLoc's column insets add character, definition, and style to any EverLoc® wall—retaining walls, parapet walls, or fence walls.

Column insets can vary in height depending on the owner’s preference. A common and economical inset consists of 5 courses, with 3 courses embedded in the wall and 2 courses (and cap) rising above the wall (pictured above).

Column Insets

Column insets can vary in height depending on the owner’s preference. A common and economical inset consists of 5 courses, with 3 courses embedded in the wall and 2 courses (and cap) rising above the wall (pictured above).
This 5 course column inset provides a nice degree of relief as the column “emerges” from the wall. Column insets can be used to accent corners, the ends of walls, or can be spaced at intervals to provide an attractive, stately look to the entire wall.

Taller walls look better with taller column insets. The deeper (lower) the column is started in the wall, the more the column will project, adding more relief or definition to the whole wall.

EverLoc's exclusive WeatherDome™ caps finish the column inset with a color matched cap with superior weather resistance.

INSTALLATION STEPS (for 5 course inset in retaining wall):

1. Column insets are built with the standard, 2 face EverLoc® corner unit, 4 to a course. Using hammer and chisel, tap the top lugs off the corners to be used.
2. Also tap the lugs off the wall block onto which the column will set.
3. Establish a “mini” footer to take the weight of the rear of the column—remove enough drainage aggregate to make room for 8” deep footer. Line this space with filter cloth—then fill and compact with crusher run.
4. Lay the first course of 4 corners, using either all right or left hand units. Align the front of the column vertically with the wall unit below. Do not maintain the normal ¾” setback but align vertically.
5. Maintain vertical alignment on each course and secure each course with glue (PL Premium by Loctite® or equal).
6. Lay the subsequent 4 courses on top, alternating between left and right hand corners on each course.
7. Cap the column with EverLoc® WeatherDome™ cap.
8. Use glue to secure the cap permanently.

See page 57 for detailed drawing of typical column inset.
INSTALLING FREE STANDING COLUMNS:

The EverLoc® column can be built free standing as in the picture below:

Columns are built with EverLoc’s standard 2-face corner unit and then capped with the exclusive WeatherDome™ cap.

Each course of the column is comprised of 4 corners—either all right hand units or all left hand units. Each course is then alternated between left hand and right hand units—to produce a beautiful column with proper joint spacing.
Parapet walls offer a new way to finish the top of a retaining wall (as opposed to the traditional flat cap). EverLoc's parapet walls can be any height from a single course above grade on up to whatever height is desired (walls above 4’ should be reviewed by the project engineer). Even a short parapet wall (1 or 2 courses) provides an attractive berm alongside a yard, driveway, or parking area—providing assurance that vehicles, bikes, mowers, or children’s toys don’t go over.

All EverLoc parapet walls are designed to be capped with the exclusive WeatherDome cap, providing a beautiful and functional arch profile for superior weather resistance.

Parapet wall installation requires only the simple addition of a second footer behind the top of the retaining wall. See “Installing Fence Walls” above for spacing and other information—the same procedures apply to the parapet wall.

Sketch a cross-section of your planned parapet wall and determine the size of footer needed.

**INSTALLATION STEPS:**

1. Prepare a proper footer as discussed above and elsewhere in this manual. The footer should have 8” of compacted dense grade aggregate (crusher run). The footer shall be at least 6” wider than the footprint of the column on all sides.

2. The footer should extend below the frost line and needs to be deep enough so the bottom of the column will be embedded (buried) to prevent tilting (#4 below).

3. Prepare corner units by tapping the lugs off with chisel and hammer. Separate left hand from right hand corners.

4. Embed at least one course below grade for tilting resistance. For columns 3-6 feet tall, embed at least 2 courses.

5. For the 1st course, select 4 corners, all right (or left) hand units.

6. Maintain all 4 units at the exact same elevation and assure all 4 units are perfectly level.

7. If the column is to have a light installed on top, introduce the wiring up through the middle of the column.

8. Fill all embedded courses in and around the block with crusher run. Run the plate compactor around and over the block. Compacted crusher run should be level with the tops of the blocks. This locks the base course and anchors the column.

9. Using glue (PL Premium by Loctite® or equal), add the 2nd course, using all left (or right) hand units. Each course shall be glued in this manner. Use a rubber mallet to tap each unit into perfect alignment.

(While an adequate amount of glue needs to be used, too much glue can “float” the top unit and possibly allow it to “float” out of perfect alignment. Too much glue can also be “squished” out from between the stacked block onto exposed faces. Be careful to keep glue away from the exposed faces—construction adhesives are very difficult to remove.).
10 Now gently fill the 2nd course with #57's. (Note: If the 2nd course is embedded, repeat #8 above.) Be gentle so as not cause the 2nd course to move out of alignment (Once the glue sets, this is not a problem.).

11 Proceed with stacking, gluing, and filling subsequent courses until the column is at full height. As each unit is placed, use the rubber mallet to tap each unit into proper alignment. (If electric lighting is planned, continue to bring the wire up through the middle.).

12 If lighting is to be installed, drill the hole for the light mount in the center cap unit. Then be sure to lace the wire through the hole before gluing this unit in place.

13 Finish the column by gluing the exclusive WeatherDome™ column cap onto the top course. The column cap is color matched to the column and is provided as a 3-piece ensemble. 2 of the 3 cap units have rounded edges—these are installed on the outside. The piece without rounded edges goes in the middle.

14 As the 3-piece cap ensemble is installed, install all 3 pieces promptly and make sure they are aligned properly—before the glue sets! Beware of glue “flotation” discussed above and do not allow the cap units to move (float) out of position until the glue has set.

15 Once the glue sets, a permanent, maintenance-free column is yours for a lifetime.

16 Best practice on column building says to go slow, avoid excessive glue, and maintain alignment. Going slow allows the glue to set on each course—so that work on higher courses cannot accidentally misalign courses already in place below.
INSTALLING PARAPET WALLS:

EverLoc’s parapet walls allow the retaining wall to be extended above grade for beauty, safety, or privacy.

INSTALLING RADIUS WALLS:

An advantage of all Everloc® walls is the ease of turning an inside or outside radius—no field cutting (sawing) is needed.

By design, the EverLoc® Traditional (with 60/40 face) creates an upscale random appearance with 2 shapes in the wall. Or, better, add the EverLoc® Full (full face) in a 50/50 blend to your wall, and the random look is expanded to an attractive 3 shape random wall (at no extra cost!). See the picture on the next page.
By virtue of the random appearance, as the radius wall goes up and the block drift off bond (due to the setback of each course), the appearance of the wall simply becomes—desirably—more random.

So, the appearance of your wall takes care of itself with the random array of different shapes.

Once the block drift over to only a 1/3 bond (6” overlap), simply slip EverLoc’s 6” wide 833 Utility unit into the wall—and keep laying. NO saw cutting is required.

See page 46 for detailed drawing of typical outside radius and page 47 for inside radius.
INSTALLING “NO-SAW” CORNERS:

One of the best features of the EverLoc® system is the 90° corners. Easy to install and highly functional, EverLoc corners provide the only finished outside corner in the retaining wall industry—and with NO sawing or field cutting.

EverLoc® corners offer the following superior features:

1. EverLoc’s unique 2-piece corner system provides a stronger corner and puts each course back on bond with no sawing or field cutting.
2. EverLoc® corners interlock—making perfect positioning and vertical alignment easy and true.
3 The outside edge of every EverLoc® corner is finished, eliminating the ragged edge of common split-face corners.

INSTALLATION STEPS:

1 Each corner is created with EverLoc's unique 2 piece system consisting of the Corner and the 833 Utility.
2 Each Corner has 2 exposed faces—one 12” long and one 9” long, alternating between left and right hand models.
3 Place the first corner on the footer (leveling pad). Place the 833 Utility next to the 12” face of the corner.
4 Lay regular wall units out from each side of the corner assembly.
5 On the 2nd course, select the opposite hand corner and position it on top of the first course. This unit will interlock with the unit below it. (The Corners are not slotted, so tap off the lug(s) on the stretcher block below for full surface contact.).
6 Again, install the 833 Utility next to the long side of the Corner (the 12” side) and continue laying stretchers.
7 Best practice says to start your project at the corner and then build your walls out in both directions from the corner.

See pages 48, 49, 64, and 65 for detailed drawing of EverLoc's 2-piece corner system.
ADDITIONAL DETAILS

Additional details for inside/outside corners, inside/outside radius, stair construction, shoreline installations, and other special installation situations are shown in detail—see pages 42 through 68 for this information.

Estimating charts are shown on pages 69, 70, 71, & 72.
INSTALLING EVERLOC® FIREPIT:

EverLoc’s Fire Pit Kit includes all blocks, caps, ring, log grate, and grill to complete this do-it-yourself feature. The Kit is packaged together and is ready to install. Pit dimensions are 20” high x 55” diameter.

INSTALLATION STEPS:

1. Prepare a proper footer. The footer should be a minimum of six (6) inches of dense grade aggregate. The footer must be compacted and level. Refer to section 2 (Leveling pad) on page 9 for more on preparing a footer.

2. Place the ring onto the footer in the desired location.

3. Position nineteen (19) 425 Traditional units around the ring so that the split surface points outward. The smooth side, or back, should face the ring.
Tip: Be sure there are no gaps between the blocks and there is equal gap between the block and the ring. There should be approximately three eights (3/8) inch gap between the back of the block and the ring.

4 Once correct positioning has been established for the first layer, remove the ring and place to the side.

5 Install the second layer using a suitable construction adhesive (such as PL Premium by Loctite®). Break bond between the layers while maintaining the exact diameter as the first layer. EverLoc’s Fire Pit stacks vertical. There is no setback.

6 Install courses three and four as described in step 5.

7 Install WeatherDome™ caps next using construction adhesive. The caps have been precut to fit previously stacked layers.

8 Finish by dropping in the ring, placing the log grate, and installing the flip up grill.

For more information please visit our website:
www.everlocretainingwalls.com/how
Capping and Finish Grading:
Install EverLoc™ cap units.
The contractor shall provide finished grade at the top and bottom of the EverLoc™ wall as shown on the plans and provide for positive drainage of water away from the EverLoc™ system.
Where the backfill above the wall slopes to the wall face, the contractor shall provide a swale to collect surface runoff and direct its flow away from the wall (around the ends of the wall).
EverLoc™ wall caps are recommended to be glued in place with a suitable construction adhesive (such as PL Premium by Loctite®) to prevent the accidental removal by vandals, etc.
The contractor shall provide a minimum of 1 foot low permeable soil to cap to the EverLoc™ system to minimize infiltration of surface water into the EverLoc™ drainage and reinforced soil zone. After topsoil placement, vegetate slopes above and around all wall terminations.

810 T GRAVITY WALL DETAIL

(NOTES: ALL WALLS OVER 4’ IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.)

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EverLoc Retaining Wall System
Gravity Wall Design
Drawing No. 101
Installing Successive Courses of EverLoc™ Units:

If the base course has been successfully installed and is true, installing each successive course becomes easier and faster.

1) Ensure that the compacted drainage aggregate and infill soil is level with the top of the EverLoc™ units already placed. It is permissible and recommended to run the plate compactor on top of EverLoc wall units as each course is compacted.

2) Sweep all debris off top of EverLoc™ units.

3) Place and move EverLoc™ units to engage shear lugs and establish proper setback.

4) As No.3 is being done, a good technique is to interlock each new block with lugs in the groove, then slide the block left or right as it is being placed—this helps any concrete “crumbs” to fall out of the way and to keep the wall level.

5) Check alignment and levelness of units and adjust as needed. (If the base course is true, alignment and levelness are not hard to maintain. But always correct any observed unevenness immediately. If ignored, the unevenness will continue and become more noticeable as the wall gets higher. A 3 lb to 5 lb rubber mallet is a great tool for this step.)

6) Place drainage aggregate, infill soil, and retained soil, with geogrid if required, as stated previously and per the designer’s and/or the manufacturer’s specifications.

7) Compact all drainage aggregate, infill, and retained soil on each lift!! Allow the plate compactor to run over the full lift including the EverLoc wall unit.

8) Ensure that all walls over 4’ in height or as required by local code should be designed by a licensed professional engineer.

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NOTES: ALL WALLS OVER 4' IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

810 T TIERED WALL DETAIL
N.T.S.

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EverLoc Retaining Wall System
Tiered Wall Design
Drawing No. 103
Reinforced Soil Fill Aggregates shall be a 1 inch minus crushed stone or granular fill of this specification:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Inch (25.4 mm)</td>
<td>100%</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>20-100%</td>
</tr>
<tr>
<td>No. 40 (420 micron)</td>
<td>0-60%</td>
</tr>
<tr>
<td>No. 200 (75 micron)</td>
<td>0-35%</td>
</tr>
</tbody>
</table>

NOTE: Drainage aggregate may also be used for the reinforced soil fill aggregate.

Compaction sequence: Always begin compaction directly behind the wall and then proceed with compaction farther and farther away from the wall to the rear of the compacted area.

Tracked construction equipment shall not be operated directly on the geosynthetic reinforcement. A minimum backfill thickness of 6 inches is required prior to operation of vehicles over the geosynthetic reinforcement. Turning of vehicles should be kept to a minimum to prevent displacing the fill and damaging the geosynthetic reinforcement. Sudden breaking and sharp turns should be avoided.

Follow the guidelines to placement of reinforcement at corners and curves – refer to the following drawings, 105 & 106.

**TIP**

Only use hand operated compaction equipment, such as a vibratory plate compactor, within 3 feet of the back of the wall face.

**TIP**

Geosynthetic reinforcement should be placed over connecting lugs. This ensures more complete connection in addition to keeping the unit true and plumb.

NOTES: ALL WALLS OVER 4’ IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

**TYPICAL SHORELINE PROTECTION DETAIL**

N.T.S.

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Common brands of soil reinforcement (geogrid) include Huesker, Mirafi, Synteen and Strata. The soil reinforcement shall be installed at the proper elevation and orientation as shown in the approved construction plans or as directed by the engineer. Additionally, the geosynthetic reinforcement shall be installed in accordance with the manufacturer's recommendations. Cut geosynthetic reinforcement to design length L as shown on the plans and install with design strength direction perpendicular to the wall face. Seams or contacting overlaps of geosynthetic reinforcement parallel to the wall face are not permitted. When an overlap is needed, separate the layers of grid with a minimum of 3” of aggregate. Adjacent sections shall be butted in a manner to assure 100% coverage after placement. Geosynthetic reinforcement should be installed under nominal tension. Apply a nominal tension to the reinforcement and maintain it by staples, stakes, or hand tensioning. The tension applied may be released after the geosynthetic reinforcement has been covered and held in place with soil fill. Before placing the geosynthetic reinforcement in between the EverLoc™ block, first fill inside the hollow cores and between EverLoc™ units (drainage aggregate)—as required by the specifications stated previously in this guide. The reinforced soil zone shall be placed, as shown in construction plans, in 6 to 8 inch lifts and compacted to a minimum 95% of Standard Proctor Density (ASTM D698-07el). Soil shall be placed, spread and compacted in such a manner that eliminates the development of wrinkles and/or movement of the geosynthetic reinforcement. Only hand operated equipment should be allowed within 3 feet of the back of the wall units.

TYPICAL OUTSIDE RADIUS DETAIL

N.T.S.

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6) **Infill Soil:**
The infill soil is the compacted select fill soil placed behind the drainage aggregate for a gravity wall system. Compact the infill soil in 6 to 8 inch lifts and compacted to a minimum 95% of Standard Proctor Density (ASTM D698-07el).

**NOTE:** NEVER attempt to compact more than 6 to 8 inches per lift—full compaction cannot be obtained with deeper lifts, even with clean drainage aggregate.

7) **Retained Soil:**
Retained soil is the undisturbed soil for cut walls (or the common backfill soil) that is compacted behind the drainage aggregate. The retained soil shall be placed behind the infill or reinforced soil as shown in the construction plans in 6 to 8 inch compacted lifts; then compacted to a minimum 95% of Standard Proctor Density (ASTM D 698-07el).

Only hand operated compaction equipment shall be allowed within 3 feet of the back of the EverLoc™ wall face. Place infill soil in front of the EverLoc™ units to lock the base course in place. Compact the drainage aggregate, infill soil, and retained soil.

8) **Soil Reinforcement:**
When EverLoc™ walls require soil reinforcement, it is normally required on multiple levels extending from the face of the wall back into the compacted reinforced soil mass. Geosynthetic reinforcement material must be certified to meet the requirements of ASTM D 4595-09 or ASTM D6637-01(2009).

**NOTES:** ALL WALLS OVER 4’ IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

**TYPICAL INSIDE RADIUS DETAIL**

N.T.S.

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**EverLoc Retaining Wall System**

**Inside Radius Design**

**Drawing No.**

106
The drainage aggregate shall be a clean 1 inch minus crushed stone or granular fill of this specification:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 inch (25.4 mm)</td>
<td>100%</td>
</tr>
<tr>
<td>3/4 inch (19 mm)</td>
<td>75—100%</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>0—60%</td>
</tr>
<tr>
<td>No. 40 (420 micron)</td>
<td>0—50%</td>
</tr>
<tr>
<td>No. 200 (75 micron)</td>
<td>0—5%</td>
</tr>
</tbody>
</table>

Drainage Aggregate (Inside and behind units)

TIP
It is best to run at plate compactor over the EverLoc® units once the drainage aggregate, infill soil, and retained soil has been placed. Always compact front to rear - from the face of the wall towards the retained soil.

NOTES: ALL WALLS OVER 4’ IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

810 T EVEN CORNER DETAIL

810 T ODD CORNER DETAIL

810 T SERIES CORNER ASSEMBLY DETAIL

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EverLoc Retaining Wall System

810 Corner Detail

Drawing No. 107
5) Drainage Aggregate:

Drainage aggregate fill is free-draining granular material placed directly behind the wall to facilitate the removal of groundwater and minimize the buildup of hydrostatic pressure on the wall. The drainage aggregate forms a continuous drainage column behind the wall (similar to a drain chimney). This allows all water to fall and flow out through the drainage pipes. This prevents or minimizes any water flowing out through the wall and down the face. When this happens, the face of the wall gets stained which can be quite unsightly.

It is also used to fill the hollow cores of the EverLoc™ units to increase the weight and shear capacity without introducing any lateral forces against the wall structure. These hollow cores, filled with drainage aggregate, also aid in the removal of groundwater.

In some cases, a geotextile filter is installed between the drainage aggregate fill and the retained soil to protect the drainage fill from clogging with fine aggregates. This also provides insurance that micro fines will not find their way through the wall and stain the face as discussed above.

The drainage aggregate shall be placed to a minimum thickness of 12 inches measured from the back of the EverLoc™ unit, or as otherwise shown on the plans. Carefully place drainage aggregate behind and up to the height of the EverLoc™ unit to create the drainage column.

Install geotextile if required. Drainage geotextile shall be woven or non-woven fabric with:

1) AOS of 70 - 100,
2) a minimum grab tensile strength of 110 pounds,
3) a minimum weight of 4 ounces/square yard (or as recommended by the designer).

NOTES: ALL WALLS OVER 4’ IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

810 T SERIES
CORNER
ASSEMBLY
DETAIL

N.T.S.

810 T GEOGRID CORNER
DETAIL

N.T.S.

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While a 4" square hole will allow these drainage pipes to travel through the EverLoc™ block, a 4" circular hole will add to the finished appearance of the project. Circular blades that fit drills are commercially available.

**Drainage Pipe Placement**

**810 T ODD CORNER DETAIL**

**810 T EVEN CORNER DETAIL**

**NOTES: ALL WALLS OVER 4’ IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.**

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**EverLoc Retaining Wall System**

**810 Corner Detail- Inside**

**Drawing No. 109**
Use drainage aggregate to fill any openings in the open cores of and between EverLoc™ units as required.

Typically, fully 50% of the time needed to build a 6’ wall will be spent on the first, base course. Any error, like a high or low spot, will carry up through successive courses. By getting the base course perfect, the rest of the wall will go fast and easy.

4) Drainage Pipe

The drainage pipe shall meet one of the following standards:

1) ASTM F758-95(2007)el for Smooth-Wall PVC Pipe or
2) ASTM F405-05 for Corrugated Polyethylene Pipe.

The drainage collection pipe shall be installed to maintain a gravity flow of water to outside of the reinforced soil zone.

The drainage collection pipe should daylight into a storm sewer manhole or to a sloped area lower than the pipes behind the walls.

The collection drain pipe just behind the first course of EverLoc™ units (or embedded in the leveling pad below the first course of EverLoc™ units) should be a minimum of 4 inches in diameter. From the collection drain pipe, “T” off every 40 feet with a lateral drain pipe that will exit through the wall to daylight. A mandatory lateral drain pipe through the wall must be installed at the lowest point of the wall.

TIP

Whenever possible, use a laser level to establish positioning of two far reaching units. Pull a string between the two units to aid in leveling successive units. Simply using a handheld, bubble-type level could result in significant variations in horizontal control.

810 T ODD CORNER DETAIL

N.T.S.
EverLoc™ Segmental Retaining Wall Units:

EverLoc™ blocks are concrete masonry units that are used to create the mass necessary for structural stability—while also providing durability and an architecturally attractive wall. EverLoc™ units are required to meet or exceed the minimum values set forth in these American Society for Testing and Materials (ASTM) Specifications: ASTM C140-09, ASTM C1372-09 and ASTM C1262-09 (where applicable). All EverLoc™ units are manufactured in conformance with these industry standards and specifications to assure that the units delivered to your project are uniform in weight, dimensional tolerances, strength, and durability.

EverLoc™ Units

All EverLoc™ units shall be installed at the proper elevation and orientation as shown in the approved construction plans or as directed by the qualified designer. The completed wall erection shall be within plus or minus 1.25 inches, measured over a 10 foot distance, in either a horizontal or vertical direction—as compared to the design line and grade control.

The first course of EverLoc™ units shall be placed on the leveling pad. The units shall be checked for level and alignment. The first course is the most important to insure accurate and acceptable results. The installer should ensure that the units are in full contact with the base. Units are placed side by side for the full length of the wall. Alignment may be done by means of a string line or offset. Each unit should be checked with a level side-to-side and front-to-back—then adjusted accordingly.

BASE STEP DETAIL

N.T.S.

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EverLoc Retaining Wall System

810 T Base Step Detail

Drawing No. 111
Soil types that can provide optimum stress distribution and drainage include:

1) GP (Poorly graded gravel),
2) GW (Well-graded gravel),
3) SP (Poorly graded sand), or
4) SW (Well-graded sand).

The leveling pad should be densely compacted. Compaction shall be with a plate compactor to 95% of Maximum Standard Proctor Density (ASTM D698-07el).

Special cases that may require modified designs include:

1) foundation soils with a low bearing capacity,
2) areas with the water table close to the foundation, or
3) submerged foundations.

Note: Densely graded aggregates may require the use of a whacker type compactor in lieu of the plate compactor.

Tip: Engineers who specialize in segmental retaining walls are easily found and they are your friend when it comes to your wall. For very nominal fees, the engineer will assure that your wall is designed properly. Also, the engineer will provide estimated quantities of EverLoc™, drainage aggregate, geogrid, etc., so you can have a very accurate cost estimate of your project. Need help finding a specialty engineer?---call our HELPLINE.

Notes: All walls over 4’ in height or as required by local code should be designed by a licensed professional engineer.
The native foundation soil must be analyzed to verify that the soil load bearing capacity meets or exceeds the required design conditions. Foundation soils that do not meet the required strength shall be removed and replaced with soil specified by the design engineer and then compacted to at least 95% of the Maximum Standard Proctor Density as specified in ASTM D698-07el.

2) Leveling pad:
The leveling pad is a level surface, consisting of crushed stone or unreinforced concrete, which distributes the weight of the EverLoc™ units over a wider area and provides a working surface during construction. The leveling pad is typically placed atop a properly prepared foundation soil and is typically at least six (6) inches wider in front of and behind the first course of EverLoc™ units. The leveling pad should be a minimum of six (6) inches deep. The compacted soil leveling pad should be constructed using material specified by the project engineer or wall designer. It typically consists of soil types normally used for optimum stress distribution and drainage.

TIP
Always consult a qualified professional when moisture is encountered in the foundation soil.

NOTES: ALL WALLS OVER 4’ IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

STAIR DETAIL
N.T.S.

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EverLoc Retaining Wall System
Stair Detail
Drawing No. 113
RETAILING WALL COMPONENTS

The basic elements of the EverLoc™ segmental retaining wall system are 1) foundation soil, 2) leveling pad, 3) EverLoc™ retaining wall units, 4) drainage pipe, 5) drainage fill, 6) infill soil, 7) retained soil, and 8) soil reinforcement (geogrid). But the first step is excavation.

Excavation:
The contractor shall excavate to the lines and grades shown on the approved plans.

There are two basic topographical conditions in which EverLoc™ walls may be constructed: “cut” and “fill”. Cut conditions are when the area is excavated and the wall is installed within the cut area. The fill condition occurs when material is required to be brought onto, or relocated, on-site to meet the proposed grades.

1) Foundation Soil:
The foundation soil is the native underlying soil which supports the leveling pad and the reinforced soil zone of a reinforced EverLoc™ Wall System. The foundation soil should be prepared in accordance with local ordinances or recommendations of the engineer. Foundation soil shall be excavated as required to meet the base course leveling dimensions and to meet the outer limits of the reinforced soil zone—as shown on the construction drawings or as directed by the designer.

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PROPOSED STAIRWAY
NOT TO SCALE
Four Unit - Right-End Column Detail

Four Unit - Left-End Column Detail

Three 7.67" x 23" Domed Cap Units

Notes: All walls over 4' in height or as required by local code should be designed by a licensed professional engineer.

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Soil-reinforced walls should be specified 1) when the maximum height (typically four feet) for conventional gravity walls is exceeded or 2) when lower walls are surcharged by sloping backfills, live loads and/or have poor foundations.

A soil-reinforced EverLoc™ wall is designed and constructed with multiple layers of soil reinforcement placed between the EverLoc™ courses and extending back into the soil behind the wall at designated elevations and lengths.

The soil reinforcement makes the soil in the reinforced zone a cohesive mass, increasing the size and weight of the gravity wall system. The most common types of soil reinforcement are geogrids and geotextiles.

Typical soil-reinforced wall designs, for estimating purposes and determining geogrid requirements, are shown for static, non-seismic conditions (Estimating chart #1, page 57) and seismic conditions (Ground Acceleration, $A = 0.15g$), (Estimating chart #2, page 58). See Drawing 102 as an example of an EverLoc™ soil-reinforced retaining wall.

**Rule of Thumb:**

Unless otherwise noted in design drawings, geogrid should extend into the reinforced zone to a depth of 60% of the height of the wall being constructed. Grid length should never be less than four feet.

Example: Wall height of 10 feet $10 \times 0.60 = 6$ feet grid depth

**NOTES:** ALL WALLS OVER 4' IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

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**EverLoc Retaining Wall System**

**In-Line Column Detail**

**Drawing No.**

116
EVERLOC RETAINING WALL SYSTEM

GRAVITY WALL DESIGN

Drawing No.
201

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NOTES: ALL WALLS OVER 2’ IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

EXPRESS GRAVITY WALL DESIGN
N.T.S.
DISCLAIMER: These typical details are provided for general information purposes only. Anyone making use of these details does so at their own risk. The information contained herein is general in nature and is based on the actual site conditions, soils, other materials, and local practices. A qualified Professional Engineer should be consulted. Notes: All walls over 2' in height or as required by local code should be designed by a licensed professional engineer.
TYPICAL SHORELINE PROTECTION DETAIL
N.T.S.

NOTES: ALL WALLS OVER 2' IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

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<table>
<thead>
<tr>
<th>Everloc Retaining Wall System</th>
<th>Shoreline Protection Wall Design</th>
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<tbody>
<tr>
<td>Drawing No. 204</td>
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DISCLAIMER: These typical details are provided for general information purposes only. Anyone making use of these details does so at their own risk and assumes all liability for such use. Site specific design should be performed by a licensed Professional Engineer who is familiar with the actual site conditions, soils, other materials, and local practices.

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<th>Outside Radius Design</th>
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DISCLAIMER: These typical details are provided for general information purposes only. Anyone making use of these details does so at their own risk and assumes all liability for such use. Site specific design should be performed by a licensed Professional Engineer who is familiar with the actual site conditions, soils, other materials, and local practices.

Everloc Retaining Wall System

Inside Radius Design

Drawing No. 206
NOTES: All walls over 2’ in height or as required by local code should be designed by a licensed professional engineer.

Express Even Corner Detail
N.T.S.

Express Odd Corner Detail
N.T.S.

Express Corner Assembly Detail
N.T.S.

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<table>
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NOTES: ALL WALLS OVER 2' IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

DISCLAIMER: These typical details are provided for general information purposes only. Anyone making use of these details does so at their own risk and assumes all liability for such use. Site specific design should be performed by a licensed Professional Engineer who is familiar with the actual site conditions, soils, other materials, and local practices.
Express Corner Detail – Inside

Drawing No. 209

Everloc Retaining Wall System

NOTES: ALL WALLS OVER 2’ IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

BLOCKS TO BE INSTALLED SUCH THAT 9” OF BLOCK PERPENDICULAR TO PLACED BLOCK IS COVERED – SUBSEQUENT COURSES TO BE PLACED IN SAME MANNER

EXPRESS BLOCK

9” EXPOSED BLOCK (TYP ALL COURSES)

EXPRESS ODD CORNER DETAIL N.T.S.

EXPRESS EVEN CORNER DETAIL N.T.S.

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NOTES: ALL WALLS OVER 2' IN HEIGHT OR AS REQUIRED BY LOCAL CODE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.

L: GEOSYNTHETIC REINFORCEMENT DESIGN LENGTH
H: TOTAL FINISHED WALL HEIGHT

SPECIFIED GEOSGRID REINFORCEMENT ELEVATION

ALTERNATE REINFORCEMENT H/4 EXTENSION ON SUBSEQUENT SPECIFIED REINFORCEMENT ELEVATIONS

H/4

EXPRESS ODD CORNER DETAIL
N.T.S.

9" EXPOSED BLOCK (TYP ALL COURSES)

EXPRESS BLOCK

BLOCKS TO BE INSTALLED SUCH THAT 9" OF BLOCK PERPENDICULAR TO PLACED BLOCK IS COVERED - SUBSEQUENT COURSES TO BE PLACED IN SAME MANNER

DISCLAIMER: These typical details are provided for general information purposes only. Anyone making use of these details does so at their own risk and assumes all liability for such use. Site specific design should be performed by a licensed Professional Engineer who is familiar with the actual site conditions, soils, other materials, and local practices.

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<th>Everloc Retaining Wall System</th>
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</thead>
<tbody>
<tr>
<td>Express Inside</td>
</tr>
<tr>
<td>Reinforced Corner</td>
</tr>
</tbody>
</table>

Drawing No. 210
The new EverLoc Gettysburg™ pattern from EverLoc® Retaining Walls is a user friendly, multipiece system that will change the way you think about patterned walls. There are no complicated diagrams to remember making it easier to install. Only two basic shapes make up the EverLoc Gettysburg™. Utilization of EverLoc’s dress joint provides a true multipiece, stacked stone appearance that anyone can install. Installation costs are reduced with EverLoc’s great features combined with the EverLoc Gettysburg™ pattern making this upscale look a cost-effective choice. Consider the EverLoc Gettysburg™ for your next project.
EverLoc Gettysburg™ Pattern

Consult a Civil Engineer for walls requiring geogrid fabric for placement.

To Calculate Total Number of Pieces:

Total Square Footage /3 = ________ =  
______ pcs of 810T (Yellow)  
______ pcs of 810F (Blue)  
______ pcs of 450T (Purple)  
______ pcs of 450F (Green)  

Note: Wall can be built with either the standard 12” deep EverLoc® Units or the EverLoc Express™ Units.
GRAVITY WALLS

EverLoc™ gravity walls are constructed with either single (typical) or multiple depths of units. For stability, the EverLoc™ gravity structure must have sufficient mass to prevent both sliding at the base and overturning about the toe of the structure. Since the system consists of individual units, dry stacked one atop another, shear capacity is an important component to assure that the units act together as a coherent mass.

Shear capacity provides a means of transferring lateral forces from each course to the succeeding course. This is provided:
1) by the frictional resistance between the EverLoc™ units,
2) by the interlock action provided by lugs and grooves which are an integral part of the units, and
3) by the compacted columns of aggregate placed in the open cores of the EverLoc™ units.

The batter (or inclination) of the wall contributes to the stability of the finished wall. This batter is achieved through the setback between EverLoc™ units from one course to the next. The batter is controlled by the location of lugs and grooves on each unit.

Gravity walls should not be erected over four (4) feet in height (or as governed by state or local building codes) without first having been designed by a qualified licensed engineer. See Drawing 101 as an example of an EverLoc™ gravity retaining wall:

TIP
Gravity wall heights may be reduced if steep top slopes, poor foundation soils, or ground water is encountered. Consult a design professional if any of these conditions are present.

Important Note: This chart is NOT to be used for construction. It is for information purposes only. Designs for construction must be completed by a competent engineer and must be appropriately stamped and sealed.
**INTRODUCTION**

This document is provided as a guide to contractors and owners specifically for the installation of EverLoc™ Segmental Retaining Wall Systems. It addresses the specific installation steps for engineered and non-engineered EverLoc™ systems. Contractors should also reference the product specific information provided by the geogrid and geotextile manufacturers.

The EverLoc™ system is a gravity retaining wall system that relies primarily on its mass (weight) for stability. The system consists of concrete masonry units which are placed without the use of mortar (dry stacked). The system then relies on the proven combination of a mechanical interlock and mass to prevent both sliding at the base of the wall and overturning about the toe of the structure.

The units may also be used in combination with horizontal layers of soil reinforcement (geogrid). The geogrid extends into the earthen backfill to increase the effective width and weight of the gravity mass. The use of geogrid allows EverLoc™ walls to be built to virtually any height.

The EverLoc™ system is considered a flexible structure, so the base course does not need to be placed below the frost line—provided there is sufficient foundation bearing capacity to support the wall.

**TIP**

Check local building codes to determine if the project needs engineering or not. If so, follow design drawings EXACTLY. Get approval from the wall designer before making any changes.

---

### EVERLOC® RETAINING WALL SYSTEMS – ESTIMATING CHART No. 2

<table>
<thead>
<tr>
<th>Geogrid Elev (E) ft</th>
<th>Geogrid Length (L) ft</th>
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<th>L</th>
<th>E</th>
<th>L</th>
<th>E</th>
<th>L</th>
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<td>8</td>
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</tbody>
</table>

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Date: 2012-03-20
**EVERLOC® RETAINING WALL SYSTEMS – ESTIMATING CHART No. 3**

**EXPRESS UNITS – SG350 GEOGRID**


<table>
<thead>
<tr>
<th>Geogrid Elev E ft</th>
<th>Geogrid Length (L)</th>
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<td>20</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FOR ALL SOILS:**

- $\gamma = 30^\circ$
- $\gamma = 120 \text{ lb/ft}$
- $\gamma = 25^\circ$

| | FOR ALL SOILS: |
| | 18.67 | 12.0 |
| | 17.33 | 13.0 |
| | 14.00 | 12.0 |
| | 12.67 | 10.0 |
| | 11.33 | 10.0 |
| | 10.00 | 10.0 |

- $\gamma = 30^\circ$
- $\gamma = 120 \text{ lb/ft}$
- $\gamma = 25^\circ$

- $\gamma = 30^\circ$
- $\gamma = 120 \text{ lb/ft}$
- $\gamma = 25^\circ$

| | FOR ALL SOILS: |
| | 8.67 | 9.0 |
| | 7.33 | 7.0 |
| | 6.67 | 6.0 |
| | 5.33 | 5.0 |
| | 4.66 | 4.0 |
| | 3.33 | 2.0 |
| | 0.66 | 0.0 |

**Important Note:** This Chart is Not to be used for construction. It is for information purposes only. Design for construction must be completed by a competent engineer and must be appropriately stamped and sealed.
### EVERLOC® RETAINING WALL SYSTEMS – ESTIMATING CHART No. 4
\[ \text{EXPRESS UNITS – SG350 GEOGRID} \]

**NCMA Method 3rd Edition (2009) - SEISMIC CONDITIONS - A=0.15**

<table>
<thead>
<tr>
<th>Geotextile Elev (E) ft</th>
<th>Geotextile Length (L) ft</th>
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<th>E</th>
<th>L</th>
<th>E</th>
<th>L</th>
<th>E</th>
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FOR ALL SOILS:

18.67 16.0
17.33 15.0
16.00 14.0
14.00 13.0
14.00 13.0
12.00 12.0
12.00 12.0
11.33 10.0
10.00 10.0
8.67 9.0
7.33 7.0
6.67 7.0
4.66 6.0
3.33 5.0
2.00 4.0
0.67 4.0

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REFERENCES


