

R.I. **Lampus**
Company



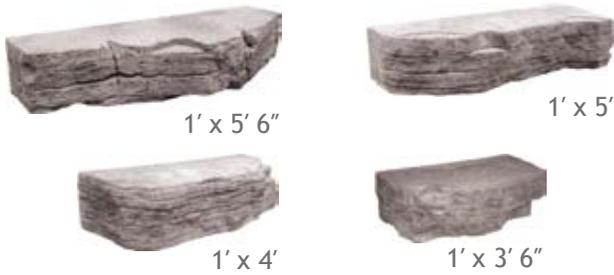
ROSETTA
OUTCROPPING
COLLECTION
INSTALLATION GUIDE

ROSETTA
BELVEDERE
COLLECTION
INSTALLATION GUIDE

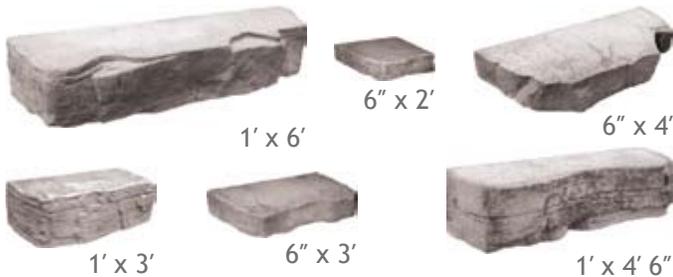


OUTCROPPING

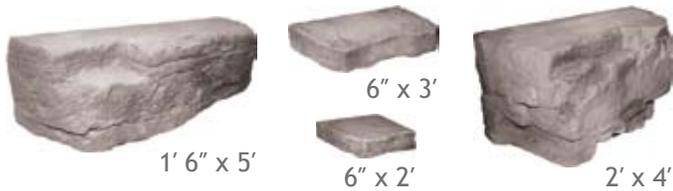
A Pallet



B Pallet



C Pallet



A, B and C Pallets = 18 Sq. Ft. Per Pallet
 • Per Pallet = 4,000 Lbs. • Per Sq. Ft. = 220 Lbs.

4-Sided Corner Pallet



Corners: 2 Pieces Per Pallet
 • Per Pallet = 2,500 Lbs. • Per Piece = 1,250 Lbs.

Irregular Step Pallet



Irregular Steps: 6 Pieces Per Pallet
 • Per Pallet = 3,000 Lbs. • Per Piece = 500 Lbs.

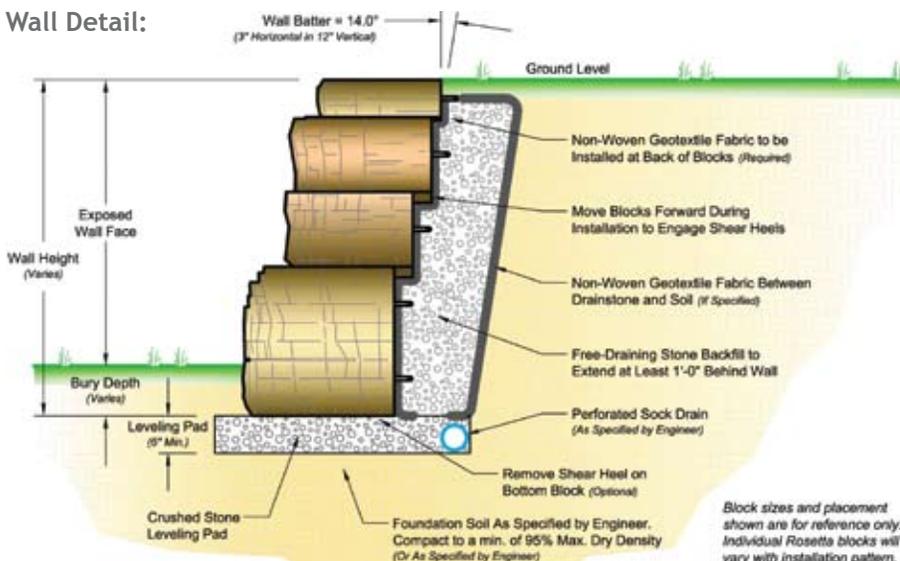
Dimensional Step Pallets



4' Step: 4 Pieces Per Pallet
 • Per Pallet = 1,200 Lbs.
 • Per Piece = 455 Lbs.
 6' Step: 2 Pieces Per Pallet
 • Per Pallet = 2,640 Lbs.
 • Per Piece = 1,320 Lbs.

* All Weights Are Approximate.

Wall Detail:

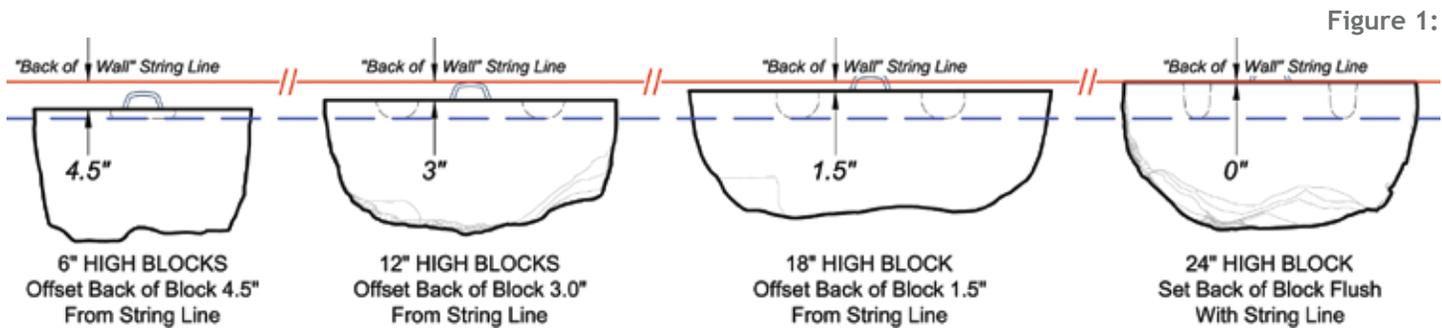
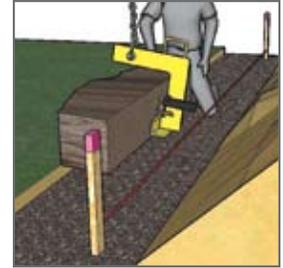


Placing The Bottom Course:

Proper placement of the bottom course of wall stones is critical in determining the overall appearance and integrity of the finished project. Take extra time on this step and the rest of the project will go smoothly. At this point you need to determine the best point of origin for the wall. If you have a fixed point, such as a building corner or a 90° corner, you will want to start the wall from that point and work your way out. This will minimize cutting of blocks. If there are no fixed points, start the wall at the lowest design elevation, as it is easier to step the base up than it is to step the base down.



Nearly all segmental block wall systems have a built in batter to provide greater wall stability. With Outcropping, the batter is 14°, which equals 3" of setback for every vertical foot up. One of the unique features of the Outcropping system is multiple block heights. To provide a uniform wall batter with multiple height blocks, the setback of the blocks varies proportionally with the block height. The setback in blocks is achieved with shear heels which are cast into the Outcropping blocks. For a 6" high block, the shear heels are 1.5" deep (½ times 3"). For a 12" high block, the shear heels are 3" deep (1 times 3"). For a 24" high block, the shear heels are 6" deep (2 times 3"). To ensure proper wall alignment and to account for the multiple height blocks and varying setbacks, you have to adjust the bottom row of blocks based on their height. Setup a traditional string line for the back of the wall, then offset the blocks per the following:

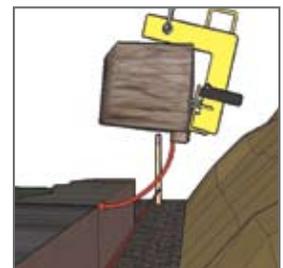


When you follow this step, the bottom blocks are properly placed and the rest of the wall stacks up straight and true. You may find it useful to remove the shear heels from the blocks to be placed on the bottom course. This can be done using a demolition bar. Be sure to do this in a safe manner, keeping you and others away from potential falling hazards.

Using an appropriately rated skid steer or small excavator and the Outcropping Lifting Device, place each block along the string line according to *Figure 1*. Be sure that the safety latch on the Lifting Device is engaged before lifting each block. Use a bar to make small adjustments to bring the blocks into line. After placing each block, check for level both front to back and side to side. If the block is out of level, either pick up the block and correct the base material, or tap it into place using the setting machine and a block of wood (to avoid marring the wall stone). Continue following the above procedures until the entire course of the wall stones has been placed.

Placing The Upper Courses:

Placing the next course of blocks is similar to placing the first course. The primary difference is that you must engage the shear heels of the upper blocks with the backs of the lower blocks. Position the clevis in the Outcropping Lifting Device in such a way that the front of the block is slightly higher than the back of the block. Hold each block behind and approximately 1/2" above the block below. Swing the block toward the face of the block below until both shear heels engage. Set the block down and make final adjustments with a large pry bar. Do not leave any gaps between blocks unless you are constructing a planter pocket.



Backfill:

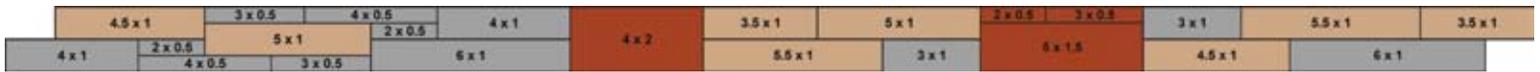
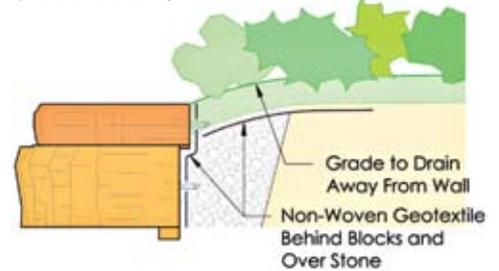
Appropriate selection and placement of backfill is necessary for the structural integrity of the wall. Place only backfill materials which are consistent with the wall design. For safety reasons, do not stack wall stones more than two feet high before backfilling. Before placing backfill materials, place a layer of non-woven geotextile fabric behind the block. This will keep materials from eroding through the small voids between the blocks. Place clean stone a minimum of one foot behind the wall. This creates a continuous drainage course for any water to rapidly reach the drain pipe. Hydrostatic pressure is the number one cause of retaining wall failure. This step is critical in keeping backfill materials dry and structurally sound. Beginning at the back of the clean stone and working away from the wall, place and spread backfill soils Compact soils in lifts of appropriate depth for the compaction equipment being used (typically 4-12”). Backfill materials must be compacted to 95% Standard Proctor. Generally, you should operate compaction equipment parallel to the face of the wall. Start at the back of the blocks, and work your way away from the wall until you reach undisturbed soil. Continue placing and compacting backfill materials until you approximately reach the top of the upper course of blocks. Repeat steps three and four until you have reached finish grade for the wall.

Finishing The Wall:

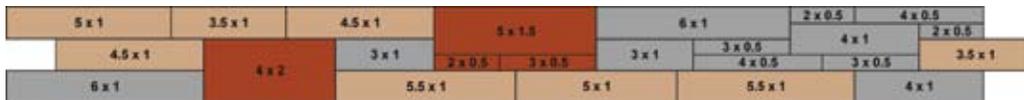
Completing a few simple tasks near the end of the project will ensure that the wall will function properly and look good for years to come. Make sure that the drain pipe is tied into a catch basin or runs to a long term daylight opening. If you are using flexible drainpipe behind the wall, convert it to Schedule 40 PVC or equivalent before outleting from behind the wall. This will insure that the pipe is not easily crushed during future construction.

Place non-woven geotextile fabric over the clean stone. You may need to leave the clean stone down 4” to 6” from the top of the wall to allow for landscaping or other materials. Grade the top of the wall in such a way that water runs off away from the wall. Never leave the top of a wall graded where surface water will pond behind the wall. If future grading is to take place by others, you should have a responsible party sign off regarding this point.

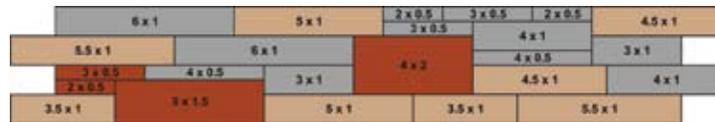
Grade Detail:



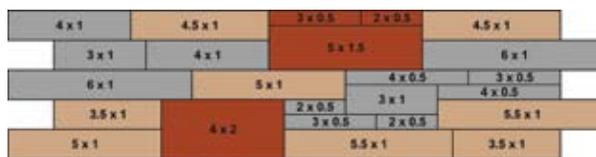
2' x 45'



3' x 30'



4' x 22.5'



5' x 18'

Basic Sample Patterns:

One of the great advantages of the Outcropping system is the ability of a designer or a contractor to lay out a wall in advance, saving time and effort during installation. The following patterns can be used to aid in wall lay-out and design. Each pattern is 90 square feet and uses two A Pallets, two B Pallets, and one C Pallet.

Lifting Device:

The lifting device is intended to be used as an aide to safely set individual Rosetta blocks. It is a below the hook device, used to connect a single Rosetta block to properly rated and installed rigging on construction machinery, such as a backhoe. The maximum working load limit for the block lifting device is 2,000 Lbs. With proper use, inspection and maintenance the lifting device should function for several years.



Instructions for Use:

1. Inspect the lifting device before use.
2. Review your project safety plan before starting any work.
3. Connect the lifting device to properly rated and installed rigging on the construction equipment.
4. Position the lifting device behind a Rosetta block, with the seat under the lift hook cast into the block.
5. Raise the lifting device until the hook and block are properly seated and engaged.
6. Check to insure the safety latch is closed and safety pin inserted to secure the safety latch in place.
7. Slowly raise the Rosetta block then move it into position and set it.
8. When the block is securely placed, lower the lifting device to release it from the block and hook.



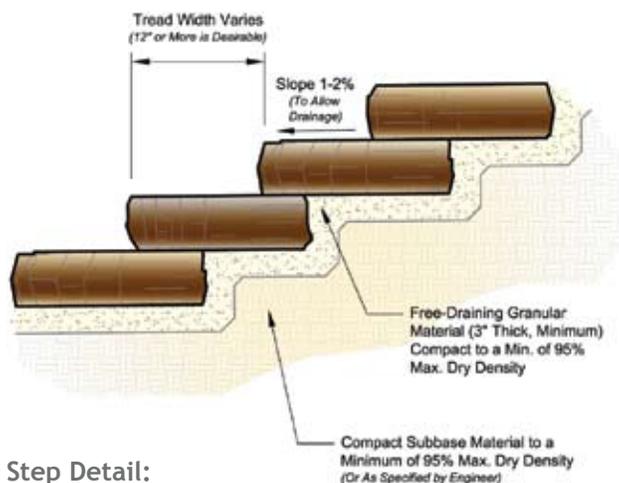
• Positioning the lifter.

Notes:

- A second person will be needed to set the lifting device and turn or guide the block into position.
- Do not make fast sudden movement with the block when it is in the air.
- Do not lift the block over people.
- Do not swing the block on the rigging.
- Do not exceed the 2,000 pound working load limit of the device.
- Only lift a single block at a time.
- Keep hands clear of pinch points while setting the block in place.
- Stand clear of the block during the entire lift.
- Never position your feet under the block during lifting.
- Personal protective equipment should include steel toed safety shoes and/or metatarsal foot protectors.



• Lifter seated and engaged.



Step Detail:

Excavate and grade the area for the first step. Steps should be placed on at least 3" of free draining soil, such as sand or pea-stone. Compact soil to a minimum of 95% Standard Proctor. Place step with either forks or straps using a small excavator or skid-steer to lift the piece into place. Practice safe handling procedures during this process. Fill behind each step with free draining soil and compact to 95% standard proctor. Remember to slope fill to allow for proper drainage when next step is placed. Continue placing steps in this manner until finish grade is reached.

Step Installation:

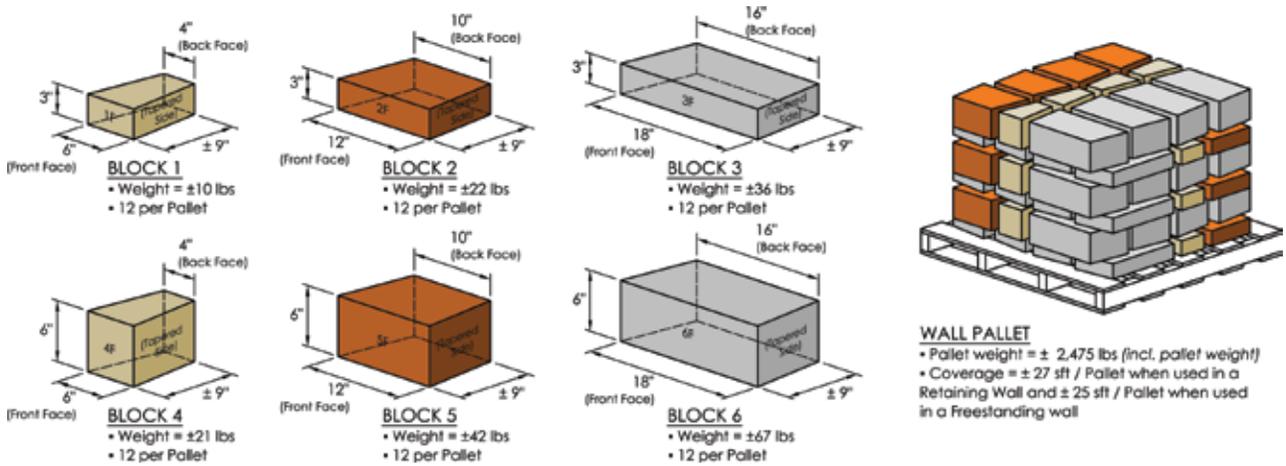
Begin the step installation process by measuring the total rise required and calculating the number of steps to be used. Each step has a 7" rise, and should be sloped approximately $\frac{1}{2}$ " such that the back of the step is higher than the front of the step. This sloping will facilitate surface water drainage. With appropriate sloping, the net rise of each step is 7.5". Divide the total rise by 7.5 to get the number of steps required. Next, calculate the tread width. Generally, when the grade allows, a 12" or wider tread is desirable. To calculate the tread width, divide the total allowable horizontal run minus the width of the top step, by the number of steps minus one. The one less will account for the top step.

Excavate and grade the area for the first step. Steps should be placed on at least 3" of free draining soil, such as sand or pea-stone. Compact soil to a minimum of 95% Standard Proctor. Place step with either forks or straps using a small excavator or skid-steer to lift the piece into place. Practice safe handling procedures during this process. Fill behind each step with free draining soil and compact to 95% standard proctor. Remember to slope fill to allow for proper drainage when next step is placed. Continue placing steps in this manner until finish grade is reached.

BELVEDERE

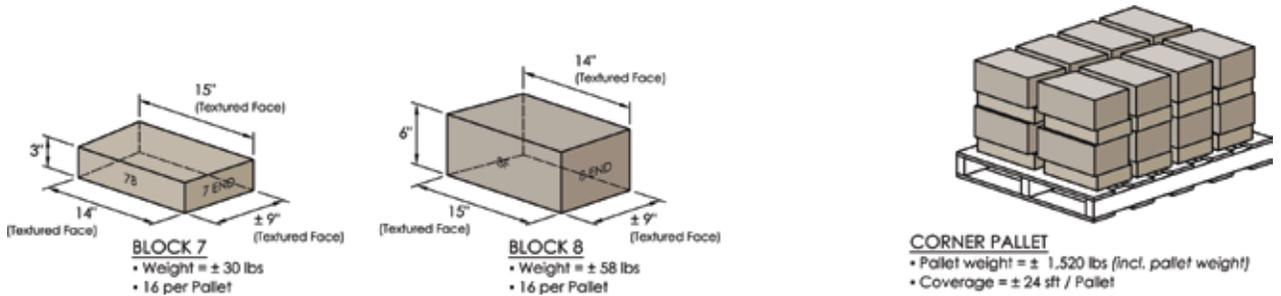
WALL BLOCKS:

Wall blocks are provided in six basic shapes. The blocks are finished on the front and back faces. Both sides of the wall blocks are tapered on each side approximately 1" from the front to the back of the block.



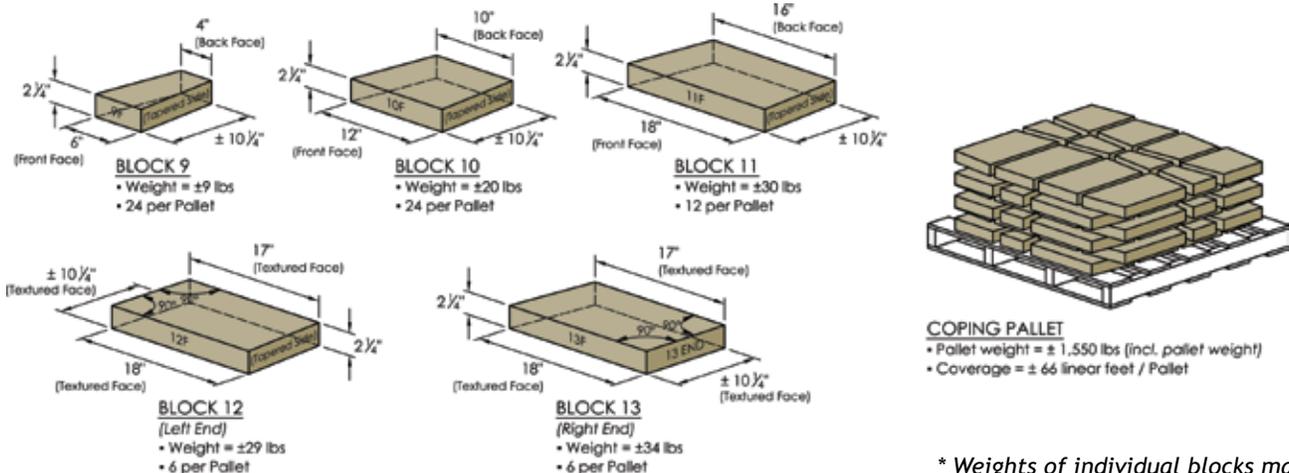
CORNER BLOCKS:

Corner blocks are provided in two sizes. The blocks are finished on three sides. The fourth side is tapered to fit with retaining wall blocks. The corner blocks can be used to construct columns, provide a finished end on a free standing wall and to make 90° corners.



COPING BLOCKS (CAPS):

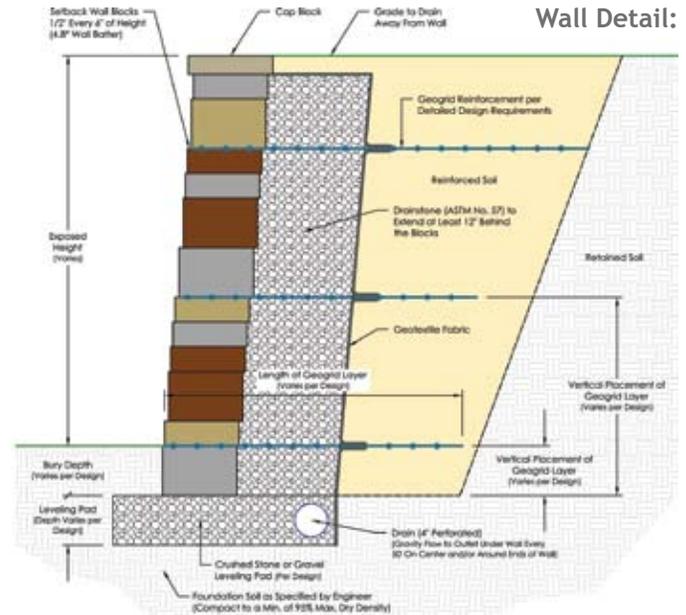
Coping blocks are provided in five basic sizes. There are three standard coping blocks which are finished on the front, back and two faces. The standard coping blocks are tapered and approximately 1" on each side from the front to the back. There are also two end units which are finished on the front, back, top and one of the sides. The other side is tapered approximately 1" from the front to the back. The end units are useful for constructing corners and ends



* Weights of individual blocks may vary.

RETAINING WALL INSTALLATION:

1. Review all plans and specification for the project. Make sure you understand the detailed design for the project before starting construction.
2. Footing excavation should be to the depth shown in the engineered plans for the wall, but at least 6" (150 mm) below the elevation of the bottom block of the wall.
3. Footing excavation width should be a minimum of 27" (690 mm), which will provide 6" (150 mm) in front of and 12" (300 mm) behind the bottom block.
4. Existing soil sub-grade should be compacted to a minimum of 95% of standard proctor before foundation material is introduced. Sub-grade soil should be firm native soil, dry and stable. Consult a soils engineer if in doubt.
5. Place leveling pad material as specified in the wall design Compact using a vibrator plate compactor.
6. Install a 4" (100 mm) diameter perforated drain pipe in the lowest portion of the free-draining stone, either on the bottom of the crushed stone leveling pad or immediately on top of the slow-draining road gravel leveling pad, depending on the detailed design. Daylight the drain pipe at the ends and/or through the face of the wall to allow for drainage.
7. Walls shall have the bottom courses buried to the depth shown on the engineered design. A minimum depth of 6" (150 mm) is required for all walls.
8. Place the bottom course of wall blocks. Take care to level the blocks both parallel and perpendicular to the wall.
9. Backfill the first 12" (300 mm) behind the blocks and triangle shaped areas between the blocks with ASTM No. 57 drainstone. Place a layer of non-woven geotextile fabric immediately behind the drainstone and then place the retained or reinforced soil.
10. Drainstone and backfill shall be placed in maximum 6" (150 mm) lifts and compacted to a minimum of 95% of standard proctor. Hand compaction with a vibratory plate compactor shall be used within 3' (1 m) of the retaining blocks.
11. Place successive units, drainstone, and compacted backfill to the desired grade/wall height.
12. The top of the wall must be graded to direct surface water away from the wall.
13. Coping layer should be adhered with a concrete adhesive.



This drawing is for reference only.
Final design for construction must be prepared by a registered professional engineer, using the actual conditions of the proposed site.
Final wall design must contain both internal and external drainage and shall be approved by the Professional Engineer who is responsible for the wall design.
Block size and placement shown are for reference only. Individual between blocks will vary with installation pattern.

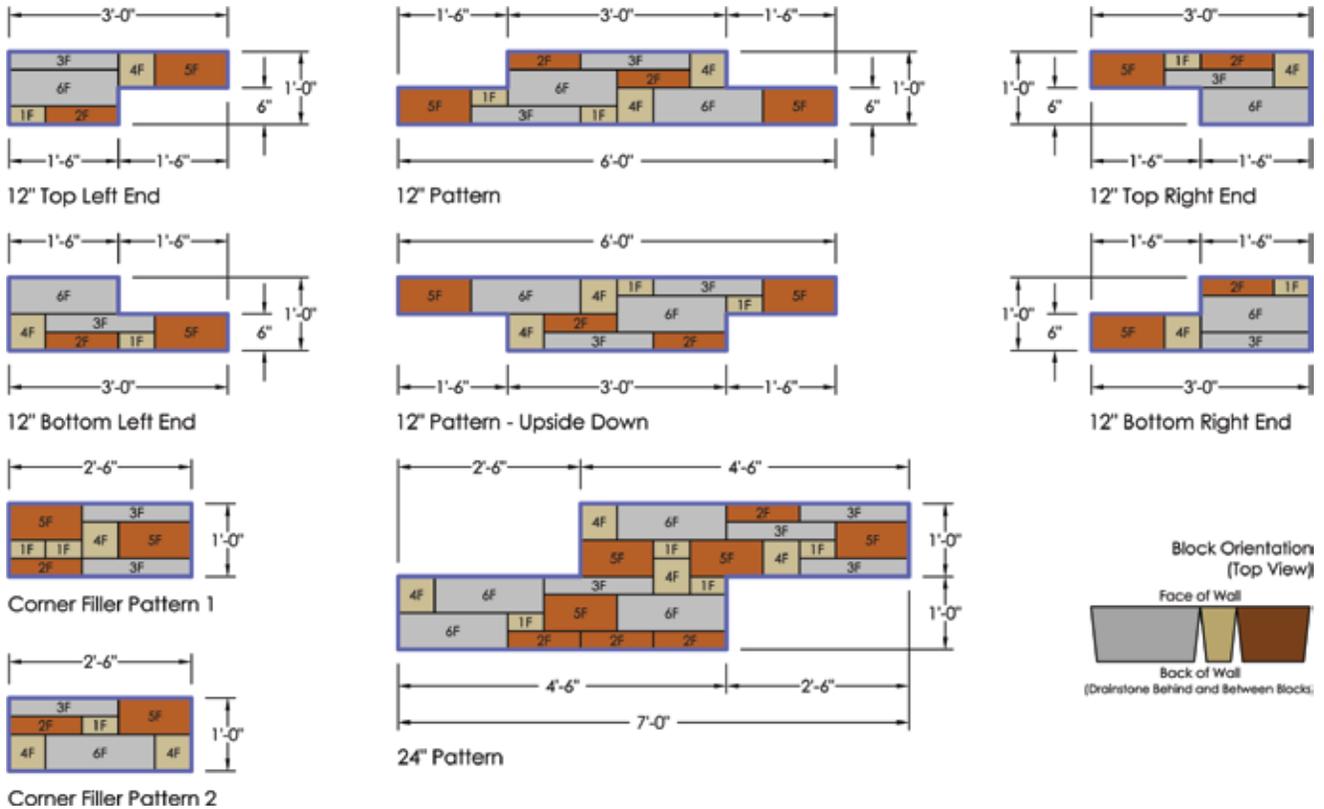
ADDITIONAL REQUIREMENTS FOR GEOGRID INSTALLATION (If Required)

14. Geogrid layers shall be installed to the lengths and elevations detailed in the wall design.
15. Geogrid shall be placed starting at the face of the retaining block and extending to the reinforced soil. Take care to install the geogrid with the strong direction (roll direction) into the reinforced soil zone and not parallel to the wall.
16. Pull the geogrid taut to eliminate any folds and pretension the geogrid. Pin or secure the back edge of the geogrid before placing the reinforced fill.
17. Place and compact the reinforced fill starting at the back of the blocks and continuing back into the retained soil. Backfill shall be placed in maximum 6" (150 mm) thick layers and compacted to 95% of standard proctor. Hand compaction with a vibratory plate shall be used within 3 feet (1 m) of the retaining wall blocks.
18. Tracked construction equipment shall not be used directly on the geogrid. A minimum of 6" (150 mm) of fill is required between tracked equipment and geogrid to prevent damage to the grid. Rubber-tired equipment may pass over the geogrid when traveling at low speeds of 5 mph (8 km/h) or less.
19. Avoid any sudden stopping or turning of construction equipment in the reinforced fill zone to prevent moving or damaging the geogrid layers.
20. Follow geogrid manufacturer's requirements, including requirements for vertical separation and overlap of geogrid.

RETAINING WALL PATTERNS:

Here are some sample patterns to help you get started. These base patterns can be fit together in multiple ways to make walls of varying heights and lengths. Try these patterns or make your own random pattern. These patterns are NOT required and are presented for reference only. They are most useful for long, straight sections of retaining walls. Retaining walls are typically constructed with the front face of the block exposed. The v-shaped notches which appear on the back of wall between adjacent blocks must be filled with drainstone.

Notation: The blocks shown below are labeled to be consistent with the convention used throughout this guide. For example, 4F would indicate the front (or longer) face of block 4, and 2B would indicate the back (or shorter) face of block 2.



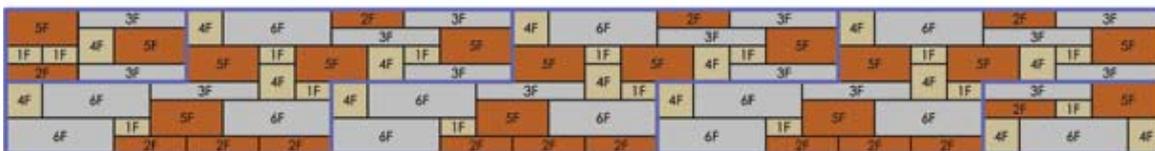
12" High Wall



18" High Wall



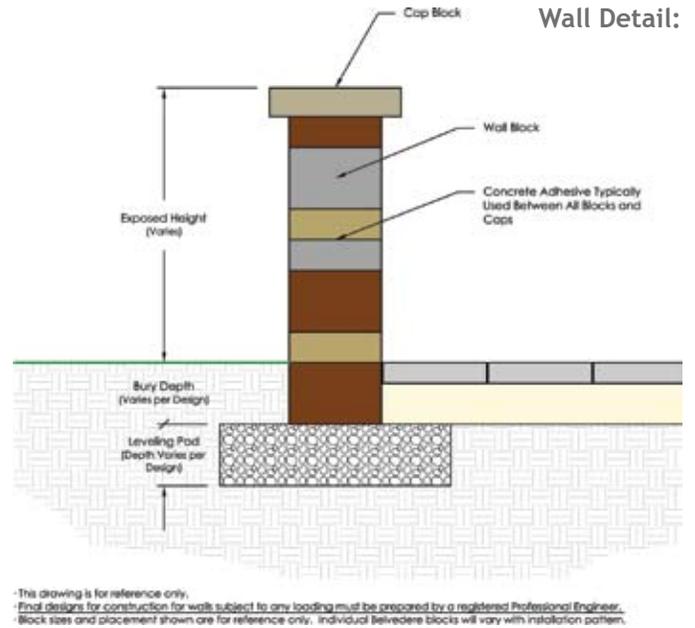
24" High Wall



FREESTANDING WALL INSTALLATION:

This page shows typical construction details for Belvedere freestanding walls. These drawings are representative of major components required in wall construction. Belvedere freestanding walls are intended to be low walls (24" or lower) used in a garden or patio setting. Taller walls, walls intended to act as railings or barriers, walls constructed in other settings, or walls subject to applied loads will require project specific engineering.

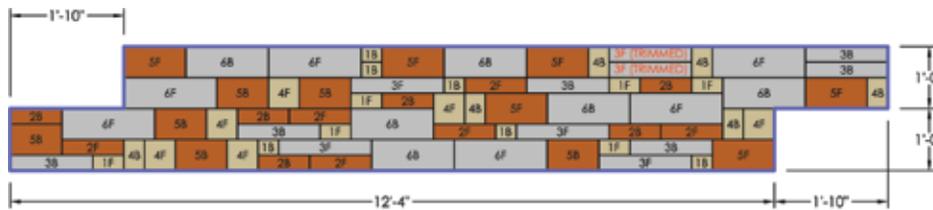
1. Footing excavation should be to the depth shown in the engineered plans for the wall, but at least 6" (150 mm) below the elevation of the bottom block in the wall.
2. Footing excavation width should be a minimum of 21" (530 mm), which will provide 6" (150 mm) in front of and behind the bottom block.
3. Existing soil sub-grade should be compacted to a minimum of 95% maximum dry density before foundation material is introduced. Sub-grade soil should be firm native soil, dry and stable. Consult a soils engineer if in doubt.
4. Place crushed stone or well-graded road gravel leveling pad material as specified in wall design. Compact using a vibrator plate compactor.
5. Walls shall have the bottom course buried to the depth shown in the engineered design. Typically, walls are buried 4" to 6" (100 to 150 mm).
6. Place the bottom course of wall blocks. Take care to level the blocks both parallel and perpendicular to the wall. Adjacent blocks should be placed so the tapers on the sides are going opposite directions to provide a uniform wall face with no gaps on either side of the wall.
7. Place successive units to the desired wall height.
8. Typically, concrete adhesive is used between all blocks and the coping layer to help provide additional stability of the blocks.



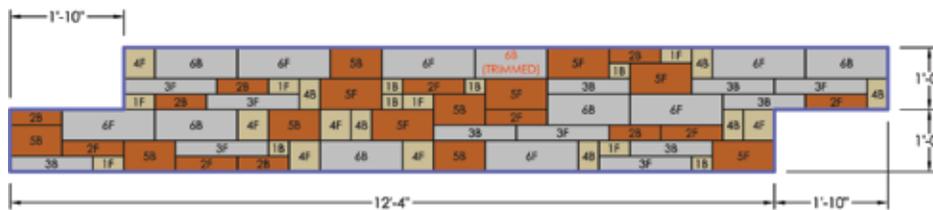
Wall Detail:

FREESTANDING RETAINING WALL PATTERNS:

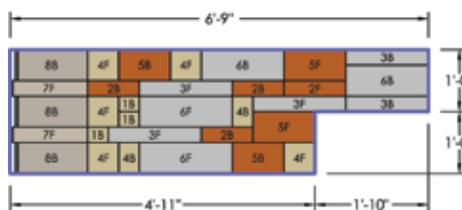
Notation: The blocks shown below are labeled to be consistent with the convention used throughout this guide. For example, 4F would indicate the front (or longer) face of block 4, and 2B would indicate the back (or shorter) face of block 2.



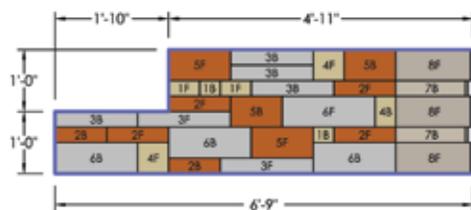
24" Pattern A
Wall Section Shown = 24.67 sft
(1 Wall Pallet)
Note: 2" must be trimmed from (2) 3" blocks to make this pattern



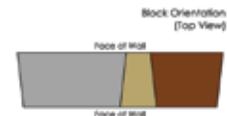
24" Pattern B
Wall Section Shown = 24.67 sft
(1 Wall Pallet)
Note: 2" must be trimmed from (1) 6" block to make this pattern



24" High Vertical End - Left
Wall Section Shown = 11.67 sft (Approx. 1/2 Wall Pallet)
Note: Vertical End Jogs In and out approximately 1" between blocks

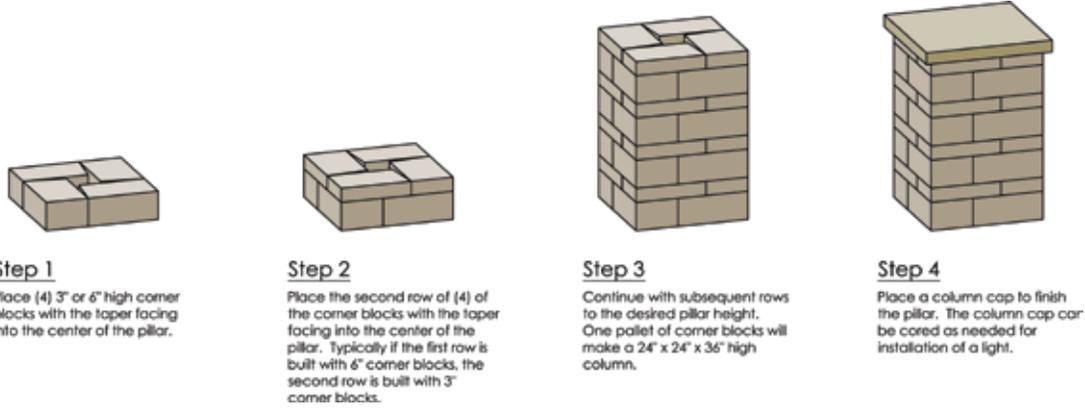


24" High Vertical End - Right
Wall Section Shown = 11.67 sft (Approx. 1/2 Wall Pallet)
Note: Vertical End Jogs In and out approximately 1" between blocks



PILLAR INSTRUCTIONS:

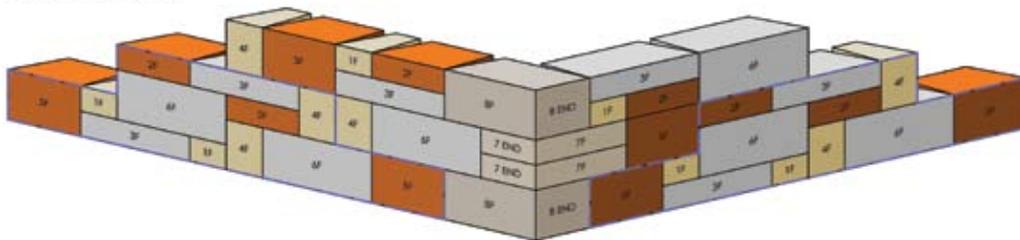
Pillars make nice ends to freestanding walls, formal stair openings, stand-alone monuments and other areas to enhance your Belvedere project. The basic steps of pillar construction are shown here.



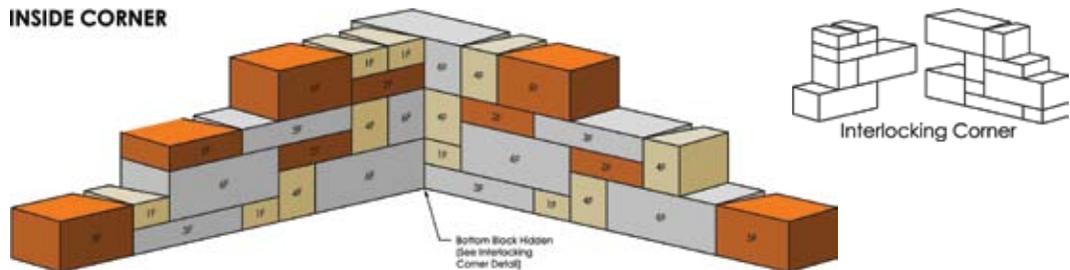
90° CORNER INSTRUCTIONS:

Plan to take some time to properly work corners into the larger retaining wall and freestanding wall patterns. Place blocks in an overlapping, interlocking pattern at corner for added wall stability. These illustrations are shown without batter for clarity. Blocks in a retaining wall should be adjusted slightly in place and trimmed as needed to allow wall construction with a proper batter.

OUTSIDE CORNER

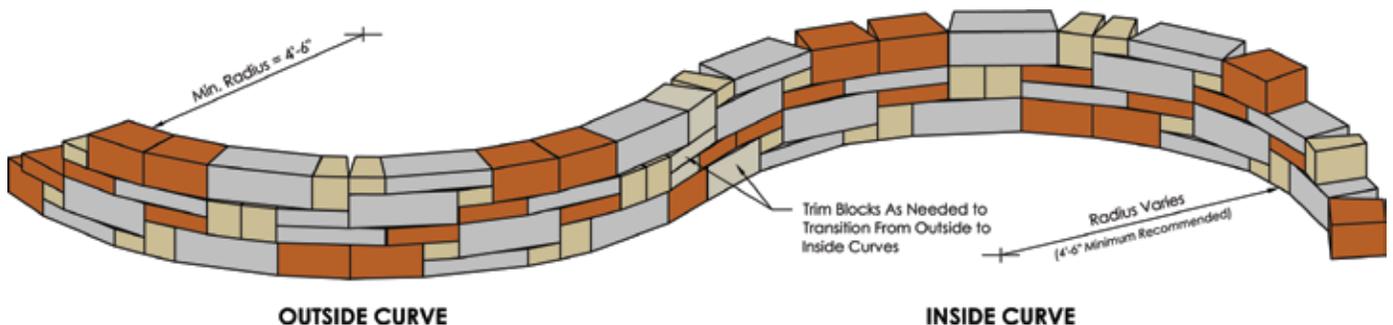


INSIDE CORNER



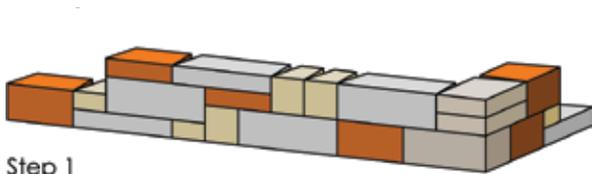
CURVED WALLS:

The taper on the sides of the blocks allow for construction of a wide range of curves in both retaining and freestanding walls. Remember, when retaining walls are constructed with a batter, the radius on outside curves becomes smaller with each course and the radius on inside curves becomes larger with each course due to the block setback. This illustration is shown without batter for clarity. Blocks in a retaining wall should be adjusted slightly in place and trimmed as needed to allow wall construction with a proper batter.



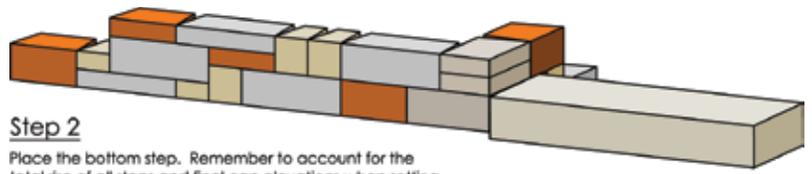
INSIDE STEPS:

This illustration shows typical construction details for making stair openings into a wall using Belvedere blocks and Rosetta dimensional steps. Stairs are a focal point in any project and need to be constructed properly. With some advance planning, installation can be easy and look great. These illustrations are shown without batter for clarity. Blocks in a retaining wall should be adjusted slightly in place and trimmed as needed to allow wall construction with a proper batter.



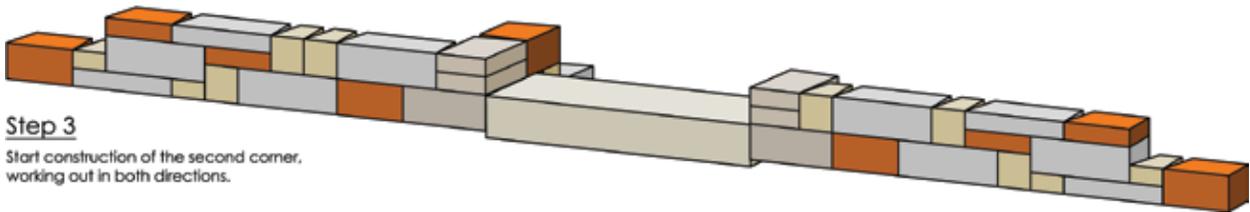
Step 1

Start construction of the first corner, working out in both directions.



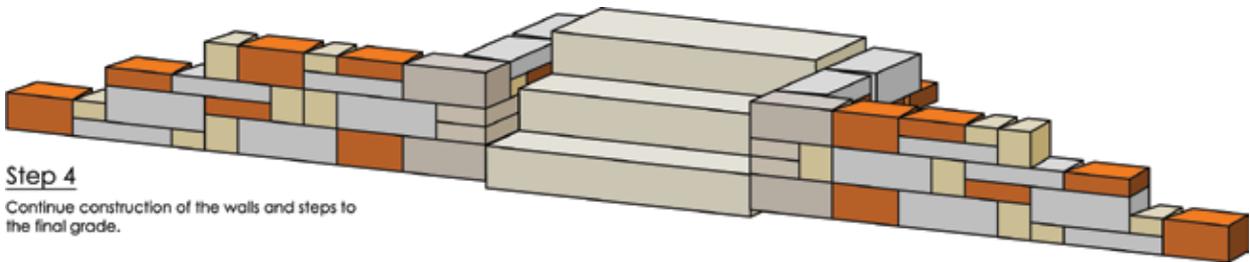
Step 2

Place the bottom step. Remember to account for the total rise of all steps and final cap elevations when setting the grade for the bottom step. Also remember to place the steps at a 1% - 2% grade to allow surface water drainage and avoid ponding on the steps.



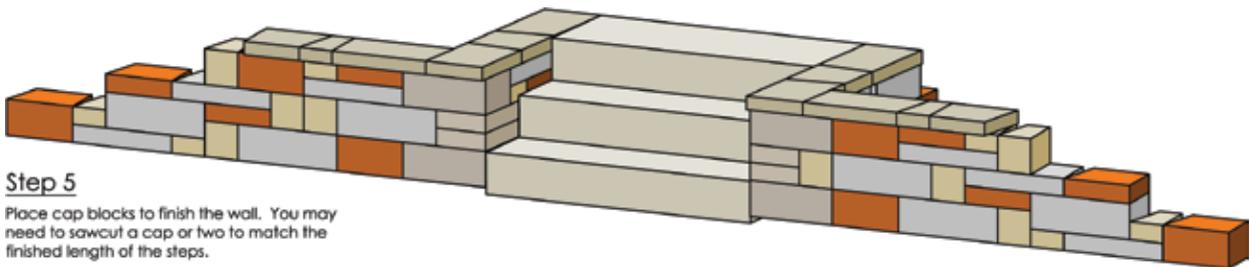
Step 3

Start construction of the second corner, working out in both directions.



Step 4

Continue construction of the walls and steps to the final grade.



Step 5

Place cap blocks to finish the wall. You may need to sawcut a cap or two to match the finished length of the steps.

OUTCROPPING COLOR

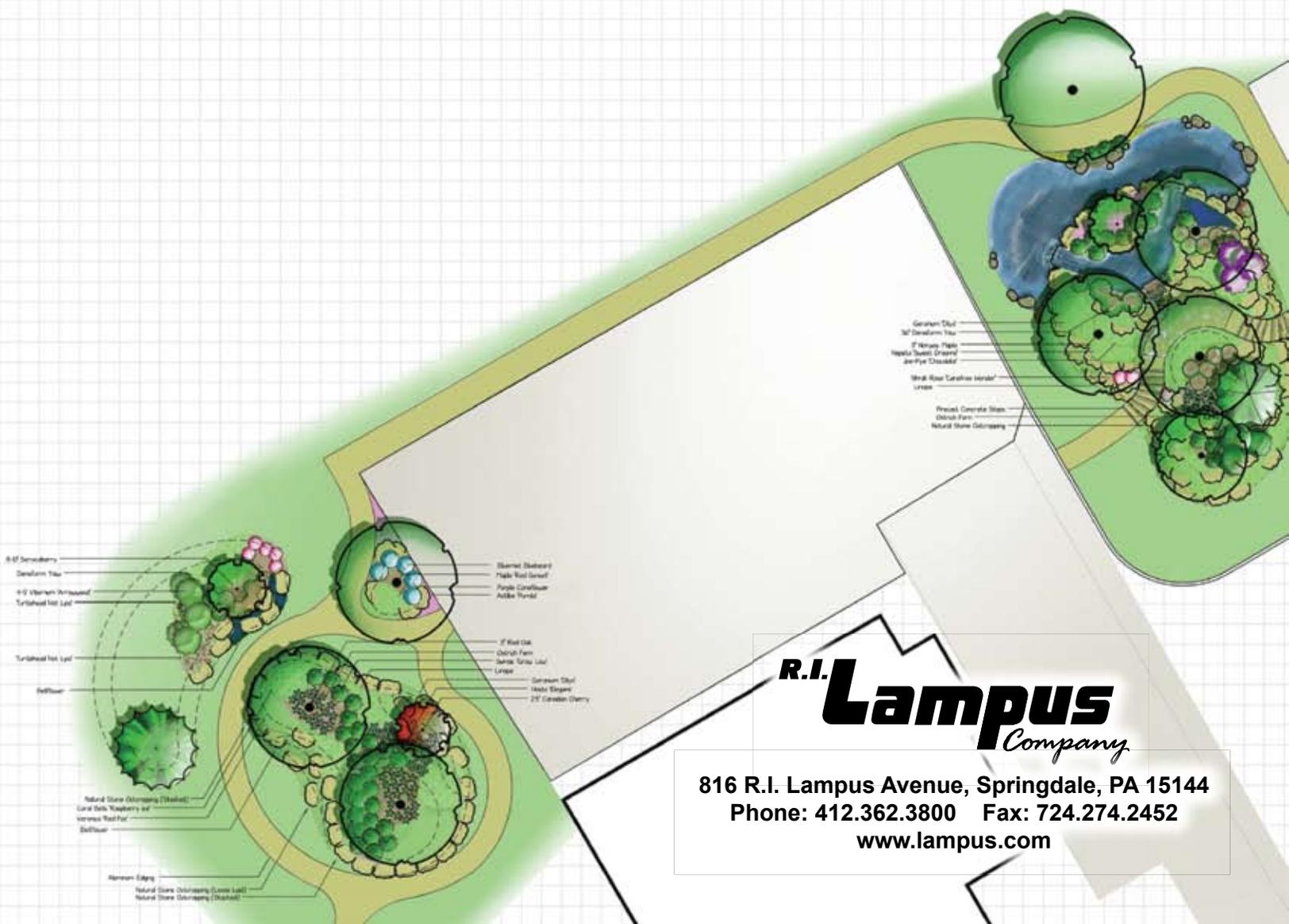


Mountain Rustic

BELVEDERE COLOR



Mountain Rustic



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