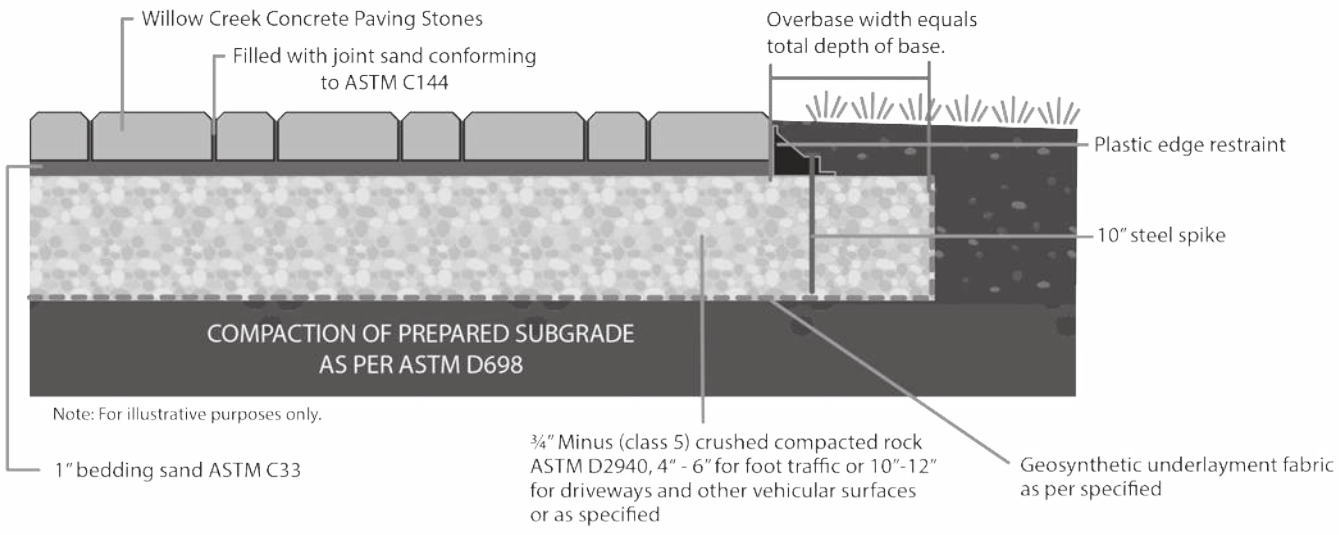
Installation & Design Guidelines

Willow Creek™ Paving Stones



Installation Checklist

PROJECT COMPONENTS

- Willow Creek pavers
- Aggregate base material
  3/4" crushed stone (including finer particles) typically used for road base.
- Bedding sand
  Coarse, washed sand suitable for masonry.
- Edge restraints with 3/8" x 10" landscape spikes
- Joint sand *Dry, washed sand, free of large aggregate that would prevent it from freely flowing into joints. Polymeric joint sand may be used to prevent loss due to water or weeds.*
- Willow Creek Underlayment Fabric (if necessary)
- Paver sealant (optional)
- Concrete adhesive
- Download Willow Creek calculator

POWER TOOLS YOU MAY NEED TO RENT

- Vibrating plate compactor
- Masonry saw with diamond-tip blade

WillowCreekPavingStones.com

figure 1

figure 2

EXCAVATING

Contact utilities to identify underground cables/pipes in/near the area. Mark the perimeter with paint. Excavate beyond the area by a distance equal to the depth of base required (diagram on front cover). Excavate 2 3/8" for pavers, 1" for bedding sand and the required compacted aggregate base (figure 1). Final grade should slope away from building foundation by a minimum 1/8" per foot for proper drainage.

Pound temporary stakes to the correct grade at several locations (figure 2). Use a tamper or vibrating plate compactor to compact loose soil in the excavated area.

Underlayment fabric is recommended under the base for some soil conditions, such as poorly drained clay or silt. It keeps the soil sub-base and aggregate base separate, preventing mixing of soil and aggregate and diluting strength. Place fabric on the top and up the sides of the excavated area.

figure 3

figure 4

COMPACTED AGGREGATE BASE

Place and compact uniform aggregate base layers in the excavated area until the required depth/slope is achieved (figure 3). Use a plate compactor for best results (figure 5). Slightly moisten dry base material, and compact in layers of no more than 4". Start at the perimeter and work toward the center, overlapping each previous pass. Make at least two passes for a flat, smooth base.

figure 5

figure 6

SETTING SCREED GUIDES

Use screed guides to level sand to 1" bedding. Set parallel guides on the compacted base and check grade (figure 6). The top of the guides will be the top of the sand bed and determine the pitch and flatness of the paver surface.

figure 7

figure 8

INSTALLING EDGE RESTRAINTS

To prevent paver shift and ensure interlock, install edge restraints on top of the aggregate base on all unrestrained edges of the area (figure 7). Install edging on one or two sides of the area; start placing pavers along a long, straight edge. (After pavers are laid, install the remaining edging.) Edge restraint ribs can be cut to permit bending of the restraints for curved edges. Stake restraints at all ends, leaving no more than 18" inches between spikes. Note: Circlestone has concentric rings of pavers placed around a center unit. After installing all Circlestone, place restraints around the perimeter. See diagram on page 9 for proper placement of Circlestone.

SCREEDING SAND BED

Spread sand around and between the guides to form a bed. Screed the sand by drawing a 2" x 4" board or straight-edge across the top of the guides (figure 8). Remove guides.

figure 9

figure 10

LAYING PAVERS

Lay the first pavers against the edge restraint's longest section. Select pavers at random from different pallets for good color distribution. If possible, start at the low end of the grade and work uphill to prevent shifting. Complete one row at a time, alternating from right to left, then left to right. Use string lines to keep rows straight. Set the pavers carefully into the sand next to each other; do not press or hammer them (figure 9). The paver's ribbed edges will ensure proper spacing. Continue adding pavers until the pattern is complete.

CUTTING PAVERS

Pavers can be cut for curves, corners and angles, to go around objects or fill gaps in patterns. Mark and then cut with a diamond-tip masonry saw for best results (figure 10: photo is for example only - use proper safety equipment). A guillotine splitter or mallet/chisel also may be used. Fill gaps less than 3/8" with sand using a trowel.

figure 11

figure 12

COMPACTING PAVERS

Finish installation of edge restraints. Sweep the surface to remove debris. Make two surface passes with the plate compactor to embed pavers into the sand (figure 11). Make final adjustments in alignment or leveling.

JOINT SAND

Sweep dry joint sand over the pavers and work it into the joints with a push broom (figure 12). When desired, use polymeric sand to prevent loss due to water or erosion. Make at least two passes over the finished installation with a plate compactor. Make the second pass at an angle to the first to level surface, firmly seat pavers into sand, and force sand into the joints for proper interlock. Sweep off excess sand.

Eurostone Estimating Guide

Willow Creek's Eurostone™ pavers feature the texture of natural slate, conveying an elegance that is sure to impress. And at 7cm thick, these pavers are as durable as they are beautiful. The Eurostone family comprises three shapes that work together to make installation a snap. With a simple repeating pattern, you can create patios, driveways and walkways that have a random, natural appearance.

Eurostone pavers are ideal for both standard and permeable applications. Willow Creek Permeable Pavers

EUROSTONE PAVERS		Layers Pallet	Sq. Ft. Layer	Sq. Ft. Pallet	Lbs. Pallet	Ln. Ft. Layer	Ln. Ft. Pallet
EUROSTONE	2.75" (7cm)	8	10.54	84.32	2500	28.35	226.77

Eurostone Pavers

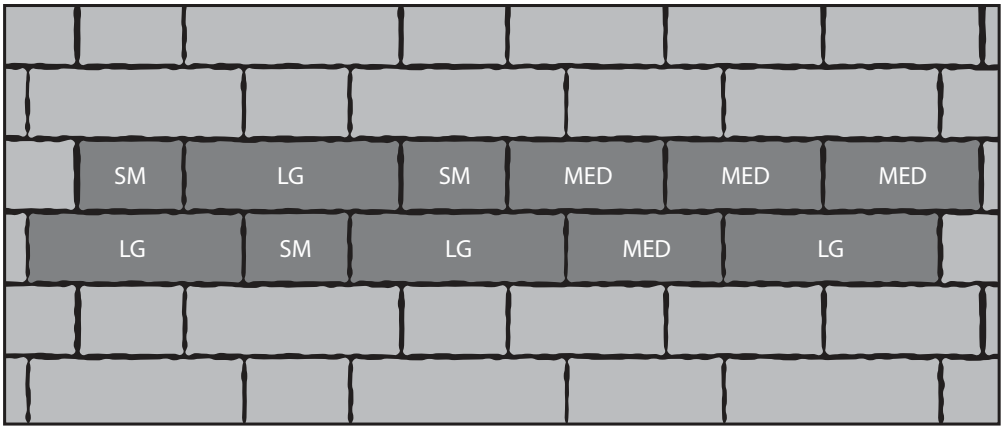
Small: 5 x 6
4.72" x 6.30"

Medium: 5 x 9
4.72" x 9.45"

Large: 5 x 13
4.72" x 12.60"

Eurostone pavers are available in five colors: Black, Bleu, Brik, Creme and Mocha. All three sizes are packaged on the same pallet in a 3:4:4 ratio.

NOTE: To avoid scuffing the textured surface of the pavers, it is recommended that compactors be fitted with protective pads.



Install Eurostone pavers randomly or simplify installation by repeating the 11-paver pattern shown above (3:4:4 ratio) to create a random appearance.

Slatestone Estimating Guide

Slatestone pavers' robust earth tones convey a deep, rich elegance that is sure to impress. And at 7cm thick, these pavers are as durable as they are beautiful. The Slatestone family comprises three shapes that work together to make installation a snap. With a simple repeating pattern, you can create patios, driveways and walkways that have a random, natural appearance.

Slatestone pavers are ideal for both standard and permeable applications.

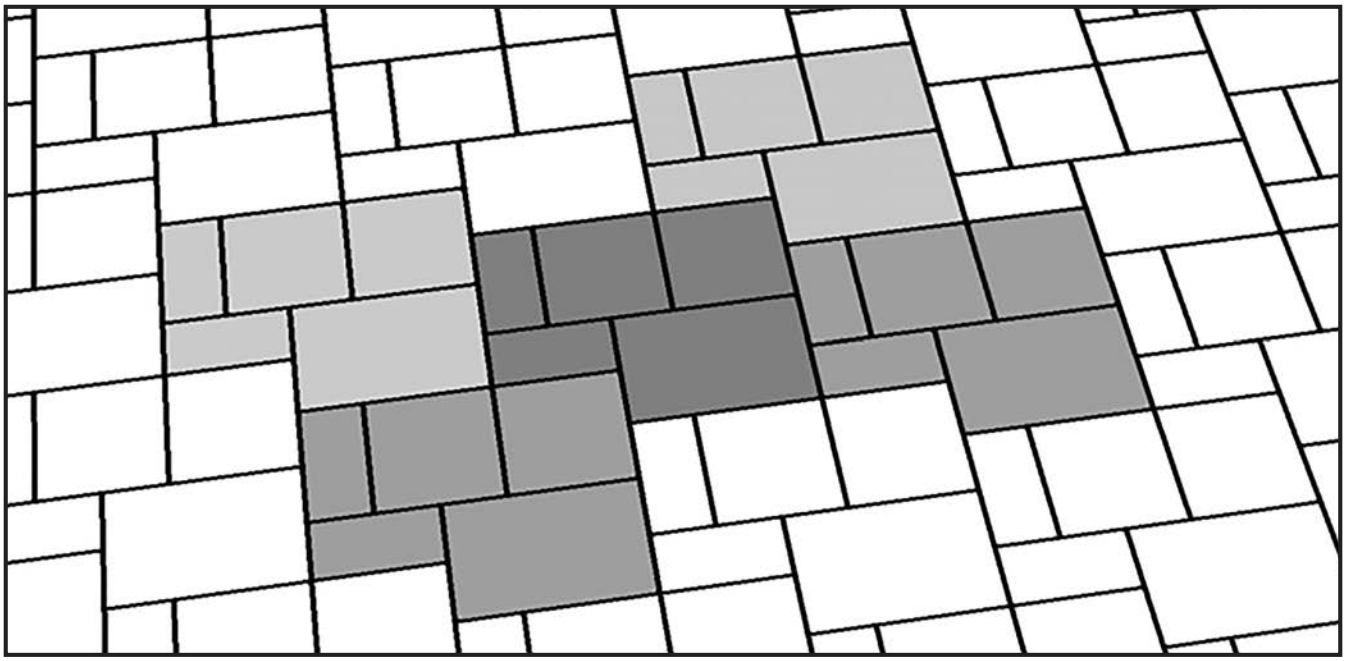
5 x 9
4.72″ x 9.45″

9 x 9
9.45″ x 9.45″

Slatestone pavers are sold in random bundles only. The 2:2:1 paver ratio lets you create a random appearance with a repeating 5-paver group, simplifying installation. **NOTE: To avoid scuffing the textured surface of the pavers, it is recommended that compactors be fitted with protective pads.**

9 x 14
9.45″ x 14.17″

SLATESTONE PAVERS Random Bundles		Layers / Pallet	Sq. Ft. / Layer	Sq. Ft. / Pallet	Lbs. / Pallet
 SLATESTONE	2.75″ (7cm)	8	11.16	89.28	2825



Brickstone Estimating Guide

NOTE: Shown here are just a few of the many patterns that you can create with Willow Creek Brickstone pavers. For additional ideas, download our Project Calculator (http://www.willowcreekpavingstones.com/paver-project-calculator) or contact your Willow Creek supplier.

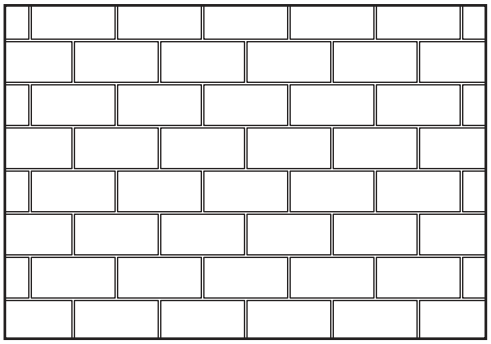
STEP 1 Calculate your project area (square feet).

STEP 2 Estimate possible waste and add to project area to determine total square feet of Brickstone needed. For patterns that require significant cutting, consider adding up to 1/2 square foot for every lineal foot of project perimeter.

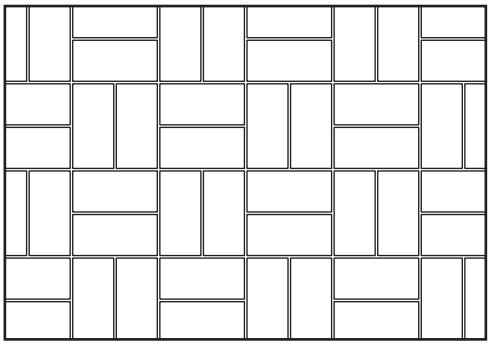
STEP 3 The illustrations to the right show some Brickstone pattern options. Use the chart below to calculate the number of vertical bands to order for your desired pattern. Please order in whole band quantities only.

BRICKSTONE BAND/PALLET QUANTITIES

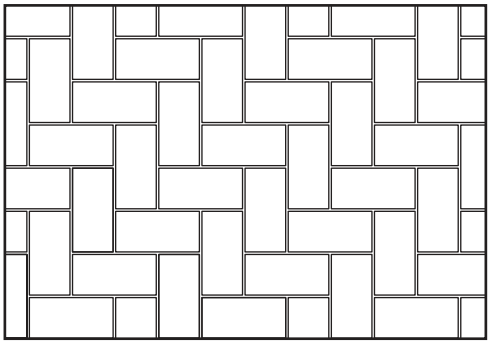
6 cm Size	Pavers Per SF	Pavers Per Band	SF Per Band	Bands Per Pallet	SF Per Pallet
4"x8"	4.55	72	15.84	6	95.04



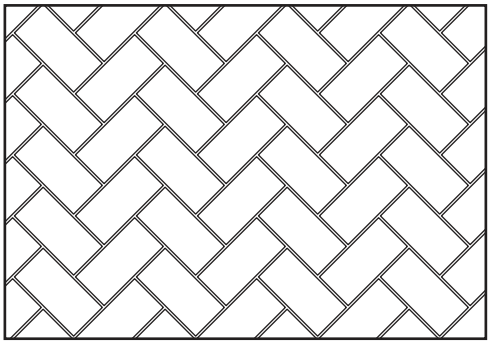
Running Bond



Basket Weave



Herringbone



Diagonal Herringbone

Cobblestone Estimating Guide

NOTE: Shown here are just a few of the many patterns that you can create with Willow Creek Cobblestone pavers. For additional ideas, download our Project Calculator (http://www.willowcreekpavingstones.com/paver-project-calculator) or contact your Willow Creek supplier.

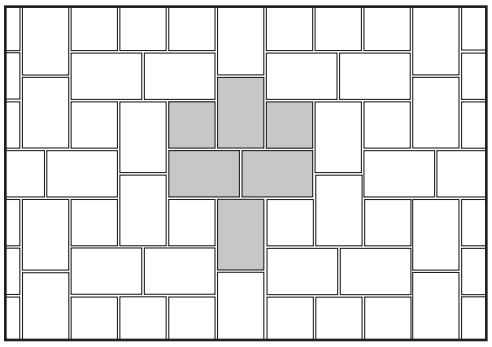
STEP 1 Calculate your project area (square feet).

STEP 2 Estimate possible waste and add to project area to determine total square feet of pavers needed. For patterns that require significant cutting, consider adding up to 1/2 square foot for every lineal foot of project perimeter.

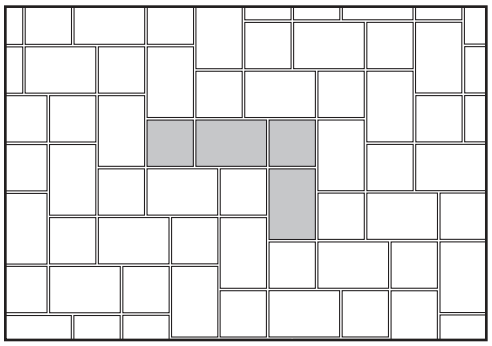
STEP 3 The illustrations to the right show some Cobblestone pattern options and percentages of individual sizes required to create these patterns. Use the chart below to calculate the number of bands of each size to order for your desired pattern. Please order in whole band quantities only.

COBBLESTONE BAND/PALLET QUANTITIES

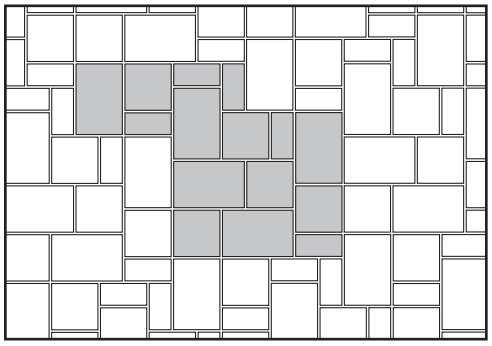
Size	Pavers Per SF	Pavers Per Band	SF Per Band	# Bands Per Pallet	SF Per Pallet
6"x3"	7.14	54	7.56	7	52.92
3/4 Stone	4.76	63	13.23	7	92.61
6"x6"	3.70	45	12.15	7	85.05
6"x9"	2.44	45	18.45	5	92.25
9"x12"	1.22	27	22.14	4	88.56



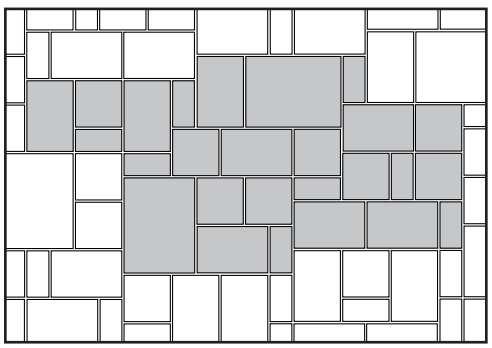
Basket Weave Pattern
25% 6" x 6" and 75% 6" x 9"



Herringbone Pattern
40% 6" x 6" and 60% 6" x 9"

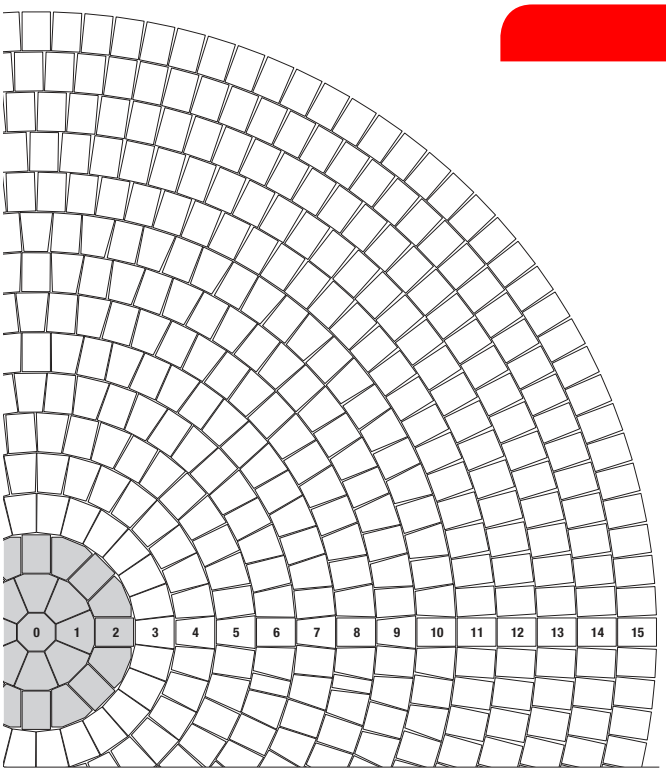


Three-Size Random
17% 6" x 3", 33% 6" x 6", 50% 6" x 9"



Four-Size Random
14% 6" x 3", 26% 6" x 6", 40% 6" x 9",
20% 9" x 12"

Circlestone Estimating Guide



STEP 1 Determine your circle diameter.

STEP 2 Using the table on the next page, read across the line of the appropriate row/diameter to calculate product order quantities needed in addition to the starting Center Pack. The prepackaged Center Pack must be ordered for all circles except when installing firepit. Shaded portions of the illustration represents materials provided in the Center Pack.

EXAMPLE Construction of a 14-foot-diameter circle requires 1 Center Pack plus 1 pallet and 1 band of 3/4 Stones, and 4 bands of Large Circle stones.

INSTALLATION NOTE When installing a row of Circlestone containing more than one component type, alternate components throughout row.

SOME HELPFUL HINTS

Area of circle = diameter squared ___ x 0.7854
or radius squared ___ x 3.1416
Circumference of a circle = diameter x 3.1416

EXAMPLE

For a 6-foot-diameter circle:

Calculate Area =

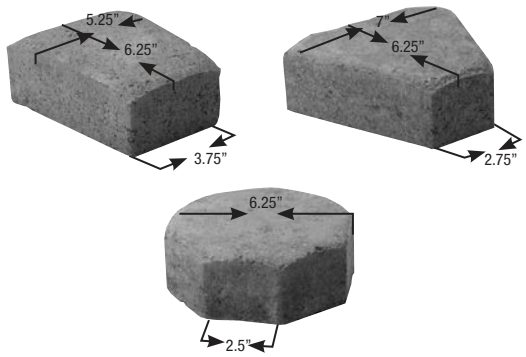
6' x 6' x 0.7854 = 28.3 square feet (using diameter)

or

3' x 3' x 3.1416 = 28.3 square feet (using radius)

Calculate Circumference =

6' x 3.1416 = 18.8 linear feet around circle



INSTALLING A FIREPIT

When installing a circle with a firepit in the center, simply omit the Center Pack. This will yield an opening of 32" diameter.

1. Depending on the depth of the base, the rim of the firepit may be placed directly onto the compacted base.
2. Ensure that you have ample drainage inside the ring.
3. You may use the Large Circle pavers to surround the firepit to the top edge.
4. Use concrete adhesive to secure the pavers encircling the firepit.

Please use the table on the next page for quantities when ordering Circlestone pavers.

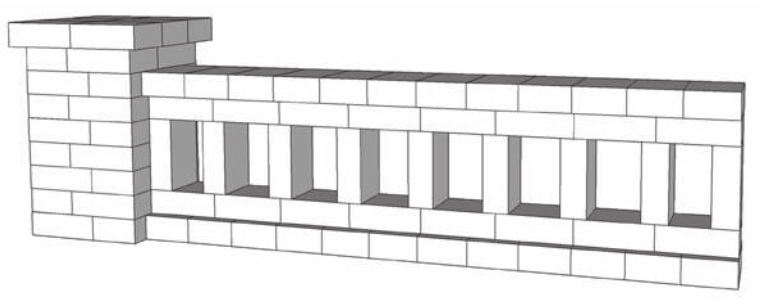
Circlestone Ordering Guide

CIRCLE DIMENSIONS				CIRCLE COMPONENTS							ORDER QUANTITIES			
ROWS	Diameter in Inches	Diameter in Feet	Square Feet	Center	Small Circle	6" x 3"	3/4 Stone	Large Circle	6" x 6"	6" x 9"	3/4 Stone	Large Circle	6" x 6"	6" x 9"
0	6.5	0.5	0.2	1							* Center Pack (includes 3 - 6" x 3" pavers, two for row 6 and one for row 8)			
1	19.5	1.6	2.0		3									
2	32.0	2.7	5.7		3		8							
3	44.5	3.7	10.8					26				1 band		
4	57.5	4.8	18.0					34				2 bands		
5	70.0	5.8	26.4				21	21			1 band	3 bands		
6	83.0	6.9	37.4			2*	24	26			1 band	3 bands		
7	96.0	8	50.3				30	30			2 bands	4 bands		
8	108.5	9	63.6			1*	33	34			2 bands	5 bands		
9	121.0	10.1	80.1				38	38			3 bands	6 bands		
10	133.5	11.1	96.8				42	42			3 bands	7 bands		
11	146.0	12.2	116.9				90				5 bands	7 bands		
12	158.5	13.2	136.8				97				6 bands	7 bands		
13	171.0	14.3	160.6				106				1P + 1B	7 bands		
14	183.5	15.3	183.2				115				1P + 3B	7 bands		
15	196.0	16.3	208.5				124				1P + 5B	7 bands		
16	208.5	17.4	237.7				132				2 pallets	7 bands		
17	221.0	18.4	265.8				140				2P + 2B	7 bands		
18	233.5	19.5	298.5						117		2P + 2B	7 bands	3 bands	
19	246.0	20.5	329.9				2		122		2P + 2B	7 bands	6 bands	
20	258.5	21.5	362.9						130		2P + 2B	7 bands	1P + 1B	
21	271.0	22.6	400.9						136		2P + 2B	7 bands	1P + 5B	
22	283.5	23.6	437.2				1		142		2P + 2B	7 bands	2P + 1B	
23	296.0	24.7	478.9						149		2P + 2B	7 bands	2P + 4B	
24	308.5	25.7	518.5						155		2P + 2B	7 bands	3P + 1B	
25	321.0	26.8	563.8						161		2P + 2B	7 bands	3P + 4B	
26	333.5	27.8	606.7						168		2P + 2B	7 bands	4P + 1B	
27	346.0	28.8	651.1						174		2P + 2B	7 bands	4P + 5B	
28	358.5	29.9	701.8						180		2P + 2B	7 bands	5P + 2B	
29	371.0	30.9	749.5						1	124	2P + 2B	7 bands	5P + 2B	3 bands
30	383.5	32.0	803.8							129	2P + 2B	7 bands	5P + 2B	1P + 1B
31	396.0	33.0	854.9							133	2P + 2B	7 bands	5P + 2B	1P + 4B
32	408.5	34.0	907.5				1			137	2P + 2B	7 bands	5P + 2B	2P + 2B
33	421.0	35.1	967.1						1	141	2P + 2B	7 bands	5P + 2B	3 pallets
34	433.5	36.1	1023.0							145	2P + 2B	7 bands	5P + 2B	3P + 3B
35	446.0	37.2	1086.3							150	2P + 2B	7 bands	5P + 2B	4P + 2B
36	458.5	38.2	1145.5							154	2P + 2B	7 bands	5P + 2B	5 pallets
37	471.0	39.3	1212.4			1				158	2P + 2B	7 bands	5P + 2B	5P + 4B
38	483.5	40.3	1274.9						1	162	2P + 2B	7 bands	5P + 2B	6P + 2B
39	496.0	41.3	1339.0						1	166	2P + 2B	7 bands	5P + 2B	7P + 1B
40	508.5	42.4	1411.2						1	170	2P + 2B	7 bands	5P + 2B	8 pallets
41	521.0	43.4	1478.6						1	174	2P + 2B	7 bands	5P + 2B	8P + 4B
42	533.5	44.5	1554.5						1	178	2P + 2B	7 bands	5P + 2B	9P + 3B
43	546.0	45.5	1625.1						1	182	2P + 2B	7 bands	5P + 2B	10P + 2B
44	558.5	46.5	1697.4						1	186	2P + 2B	7 bands	5P + 2B	11P + 1B
45	571.0	47.6	1778.6						1	190	2P + 2B	7 bands	5P + 2B	12 pallets
46	583.5	48.6	1854.1						1	194	2P + 2B	7 bands	5P + 2B	12P + 4B
47	596.0	49.7	1939.0						1	198	2P + 2B	7 bands	5P + 2B	13P + 4B
48	608.5	50.7	2017.8						1	202	2P + 2B	7 bands	5P + 2B	14P + 3B
49	621.0	51.8	2106.3						1	206	2P + 2B	7 bands	5P + 2B	15P + 3B
50	633.5	52.8	2188.5						1	210	2P + 2B	7 bands	5P + 2B	16P + 2B
51	646.0	53.8	2272.1						1	214	2P + 2B	7 bands	5P + 2B	17P + 2B
52	658.5	54.9	2366.0						1	218	2P + 2B	7 bands	5P + 2B	18P + 2B
53	671.0	55.9	2453.0						1	222	2P + 2B	7 bands	5P + 2B	19P + 2B
54	683.5	57.0	2550.5						1	226	2P + 2B	7 bands	5P + 2B	20P + 2B
55	696.0	58.0	2640.7						1	230	2P + 2B	7 bands	5P + 2B	21P + 2B
56	708.5	59.0	2732.6						1	234	2P + 2B	7 bands	5P + 2B	22P + 2B
57	721.0	60.1	2835.4						1	238	2P + 2B	7 bands	5P + 2B	23P + 3B
58	733.5	61.1	2930.6						1	242	2P + 2B	7 bands	5P + 2B	24P + 3B
59	746.0	62.2	3037.0						1	246	2P + 2B	7 bands	5P + 2B	25P + 3B
60	758.5	63.2	3137.1						1	250	2P + 2B	7 bands	5P + 2B	26P + 1B

Ledgestone Installation Guide

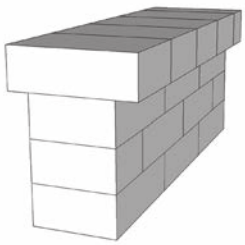
STONEHENGE WALL

Create an open wall with spaces between upright units. After laying the base course, align a second course on the 8-inch sides, as shown. Use concrete adhesive to adhere each unit to the course below. Then set a row of upright units, spaced to bridge the joints in the course below, as shown, and secure with adhesive. The next course repeats the second course, and the top course repeats the base course.



CAPPING

Finish any Ledgestone wall with Ledgestone units laid perpendicular to the wall. Secure caps to the wall using concrete adhesive.

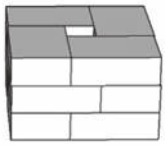


FREESTANDING COLUMN

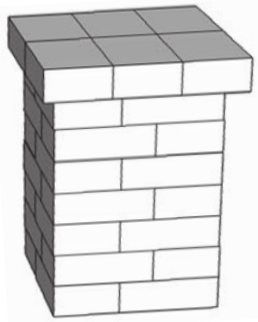
Place the first course in a square as shown on your prepared base. Place the second course on the first, so that the joints between units are staggered. Secure each unit to the course below with concrete adhesive. Place the third course with units arranged in the same pattern as the first course. Place the fourth course with units arranged in the same pattern as the second. Continue alternating between the two patterns to desired height. Columns can be capped with six units (as shown), cut Bullnose units, or natural or manufactured stone. Note: The 4" x 4" opening inside a column can accommodate a light post.

1ST COURSE

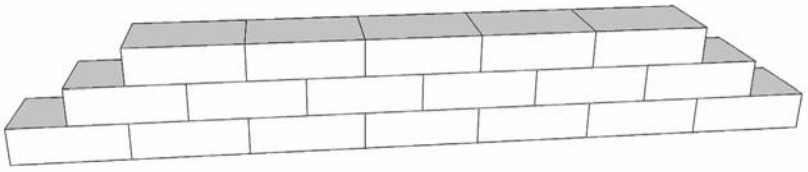
2ND



3RD



20" X 20" COLUMN

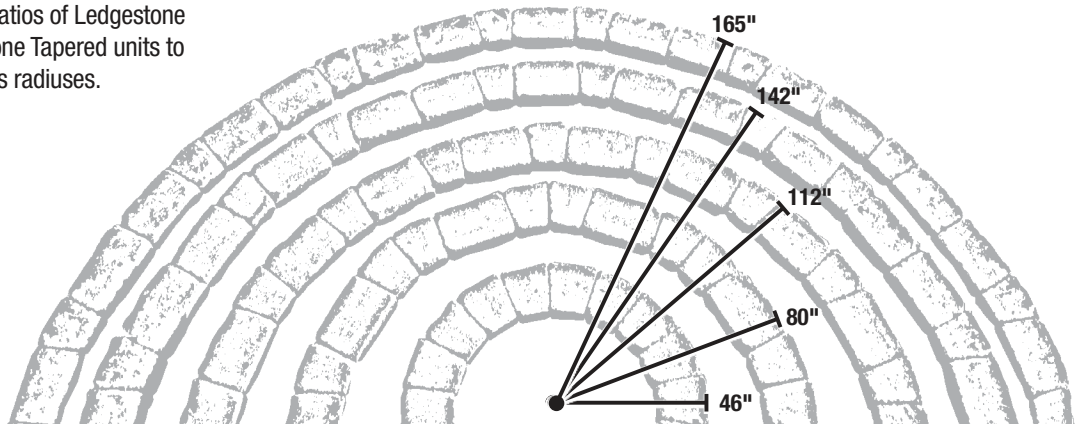


HALF BOND WALL

Create a half-bond pattern by centering joints halfway between units in adjacent courses. After laying the base course, start the next course and every other course with a half unit on one end to achieve half bond. Apply concrete adhesive to the top of the lower unit and secure the half unit to it. Continue adding whole units until the second course is complete. Repeat for each subsequent course. Raise a stringline to maintain alignment.

LEDGESTONE OUTSIDE RADIUSES

Use varying ratios of Ledgestone and Ledgestone Tapered units to create various radiuses.



Ledgestone Kits

BAR & GRILL

GRILL ISLAND

TWO-TIER BAR

68" BAR

U BAR

CORNER BAR

WATERFALL

FIRE RING

FIRE TABLE

KIT NAME	DIMENSIONS
BAR & GRILL	80″w x 32″d x 46″h
GRILL ISLAND	68″w x 24″d x 36″h
FIREPLACE	60″w x 52″d x 90″h
WOODBOX	36″w x 32″d x 42″h
TWO-TIER BAR	92″w x 32″d x 46″h
68″ BAR	68″w x 20″d x 42″h
WATERFALL	52″w x 40″d x 32″h
FIRE RING	46″dia x 12″h
CORNER BAR	104″w x 80″d x 46″h
U BAR	116″w x 56″d x 46″h
FIRE TABLE	36″w x 60″d x 36″ h
WOODFIRE OVEN	44″w x 52″d x 92″ h

WOODFIRE OVEN

FIREPLACE

WOODBOX

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