



B **BORGERT**
PRODUCTS, INC.

EST. 1923

... just better

MANUFACTURER OF PREMIUM CONCRETE
PAVING STONES & WALLS

2014

PRODUCT RESOURCE &
INSTALLATION GUIDE



Borgert Products, Inc. comes with a pedigree.

Family owned and operated, Borgert Concrete Products, Inc. was established in 1923 by Lawrence A. Borgert in East St. Cloud, MN. In 1953, Lawrence's son, Kenneth J. Borgert, took over the business and relocated it to its current location in St. Joseph. As sole owner of Borgert Products, since 2006, I am proud to uphold the same values and traditions of quality products and service unmatched in the industry just as my Grandfather and Father did. In 90 years, we have survived some challenging times which has made us a strong leader in our industry today. We started out manufacturing block and precast and have evolved into Interlocking Concrete Paving Stones and Retaining Walls, with 2013 marking the 35 year anniversary of manufacturing paving stones. Thanks to the creativity and drive of our President, George Strzala, we have been very busy adding new products. Three of our new products, BrukStone, Strassen and PanoMur Wall have been trademarked. In the past 7 years, the Company has also built a satellite yard in Denver, Colorado.

Ultimately, our Company's success is due to the hardworking team of people at Borgert Products. We are fortunate to have skilled and knowledgeable people who work hard to produce quality product, with impeccable service and commitment to our customers. In the 90 years that Borgert has been in business, many changes have occurred and I know that the founders of our Company would be proud as I am for where we are today.



Susan M. Borgert

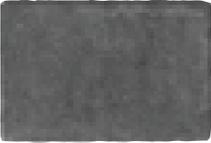
CEO

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Need help figuring your project? Use our Stone Calculator online at www.borgertproducts.com.

Cobble Series

Code	Style & Dimensions	Bands	Cubes	
4MC	Cobble Half Square™ 3" x 6" 80mm x 160mm x 60mm Approximate 3 1/8" x 6 1/4" x 2 3/8" (PSF = 7.4 stones @ 28#)	8.1 SF 226# (60 stones)	56.8 SF 1590# (7 bands)	
4TC	Cobble Square™ 6" x 6" 160mm x 160mm x 60mm Approximate 6 1/4" x 6 1/4" x 2 3/8" (PSF = 3.69 stones @ 28#) *Available in 80mm - See Non-stock Products section.	12.2 SF 342# (45 stones)	85.4 SF 2395# (7 bands)	
4PC	Cobble Rectangle™ 6" x 9"* 160mm x 240mm x 60mm Approximate 6 1/4" x 9 3/8" x 2 3/8" (PSF = 2.46 stones @ 28#) *Available in 80mm - See Non-stock Products section.	18.28 SF 512# (45 stones)	91.4 SF 2559# (5 bands)	
4NC	Cobble Large Square™ 9" x 9" 240mm x 240mm x 60mm Approximate 9 3/8" x 9 3/8" x 2 3/8" (PSF = 1.64 stones @ 28#)	16.5 SF 462# (27 stones)	82.5 SF 2310# (5 bands)	
4RC	Cobble Large Rectangle™ 9" x 12" 240mm x 320mm x 60mm Approximate 9 3/8" x 12 5/8" x 2 3/8" (PSF = 1.22 stones @ 28#)	29.5 SF 835.2# (36 stones)	88.5 SF 2506# (3 bands)	
4QC	Cobble™ Three Quarter 4" x 6" 120mm x 160mm x 60mm Approximate 4 3/4" x 6 1/4" x 2 3/8" (PSF = 4.84 stones)	11.57 SF 324# (56 stones)	81 SF 2268# (7 bands)	
4LC	Cobble™ Large Circle (PSF = 4.92 stones)	6 SF 168# (30 stones)	54 SF 1512# (9 bands)	
4CC	Cobble Circle Center Pack Pieces received in Circle Center Pack: 1 Center stone 19 Small Circle stones 9 Three Quarter stones 3 Half Squares (For rings 6 & 8)	Actual pieces needed per Circle Center: 1 Center stone 16 Small Circle stones 8 Three Quarter stones 3 Half Squares (For rings 6 & 8)	5.6 SF 160#	

Cobble Series (continued)

Code Style & Dimensions

Cubes

4QV 1" Cobble™ Three Quarter 4" x 6"

120mm x 160mm x 25mm
Approximate 4 3/4" x 6 1/4" x 1"
(PSF = 4.84 stones)

81 SF
1015#
(392 pcs)



NOTE: 1" Cobble is suitable for veneers on pedestrian applications only.

STOCK COLORS

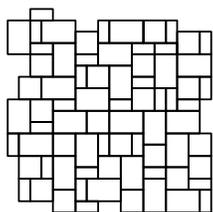
02	Autumn Blend*	16	Millstream	18	Minnesota River*
27	Bronze Granite*	40	North Shore*	10	Golden Brown
12	Granite City (3x6, 6x6 & 6x9 only)				

*Three-color blends require six cubes or more for best blend results.

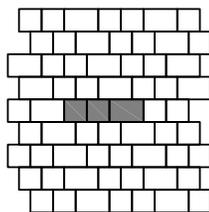
ADDITIONAL SOLID COLORS - Offered in 6" x 6", 6" x 9", 3/4 Stone & Large Circle only.

06	Chamois	08	Charcoal		
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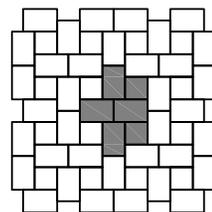
Cobble Patterns



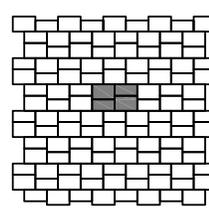
(A) 3 piece Random
3x6 - 16%
6x6 - 34%
6x9 - 50%
Laying Ratio: 1:1:1



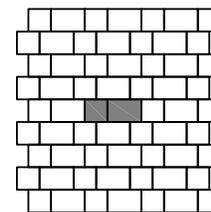
(B) Running Bond
6x6 - 66%
6x9 - 34%
Laying Ratio: 2:1



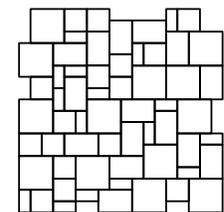
(C) Basket Weave 90°
6x6 - 30%
6x9 - 70%
Laying Ratio: 2:4



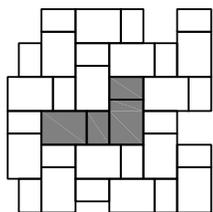
(D) Mixed Runner
3/4 - 60%
3x6 - 40%
Laying Ratio: 2:2



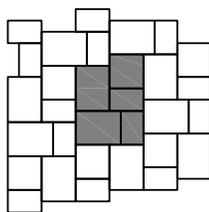
(E) Running Bond
6x6 - 40%
6x9 - 60%
Laying Ratio: 1:1



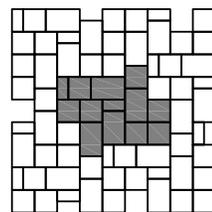
(F) 4 piece Random
3x6 - 10%
6x6 - 21%
6x9 - 27%
9x9 - 42%
Laying Ratio: 1:1:1:1



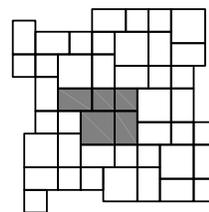
(G) 2 piece
6x9 33%
9x12 67%
Laying Ratio: 2:2



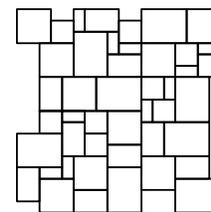
(H) 3 piece
6x9 27%
9x9 20%
9x12 53%
Laying Ratio: 2:1:2



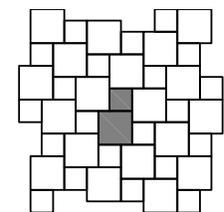
(I) 3 piece
3x6 - 7%
6x6 - 50%
6x9 - 43%
Laying Ratio: 2:7:4



(J) 3 piece
6x6 - 28%
6x9 - 41%
9x9 - 31%
Laying Ratio: 2:2:1

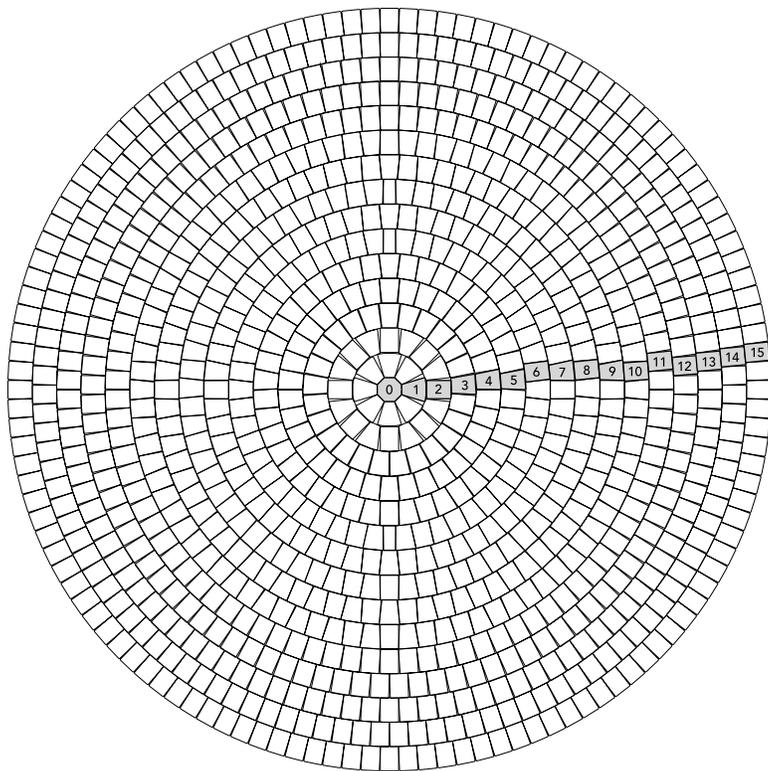


(K) 5 piece Random
3x6 - 6%
6x6 - 11%
6x9 - 18%
9x9 - 27%
9x12 - 38%
Laying Ratio: 1:1:1:1:1



(L) 2 piece
6x6 - 30%
9x9 - 70%
Laying Ratio: 1:1

Cobble/Cracovia Circle Guide



Ring	Circle Dia. (CM)	Circle Dia. (INCH)	Center Circle Stone	Small Circle Stone	Large Circle Stone	Half Stone (3" x 6")	3/4 Stone/Qty. of Bands
0	16	6.3	1				
1	49	19.3		8			
2	81	31.8		8			8
3	113	44.6			26		
4	145	57.4			34		
5	178	70.1			21		21
6	210	82.9			26	2	24
7	243	96.5			30		30
8	275	108.4			34	1	33
9	307	120.7			38		38
10	339	133.5			42		42
11	371	146.2					90
12	404	159.0					97
13	436	171.7					106
14	455	184.4					115
15	501	197.1					124

Rings	Diameter in Feet	Square Feet	Paver Qty. to the Nearest Band			Total Sq. Ft.
			Cir. Ctr. Pak	Lg. Circle	3/4 Stone	
0-2	2.65	5.6	1 Pak	—	—	5.6
3	3.72	10.87	1 Pak	1 Band	—	11.6
4	4.78	17.59	1 Pak	2 Bands	—	17.6
5	5.84	26.79	1 Pak	3 Bands	1 Band	35.18
6	6.91	37.5	1 Pak	4 Bands	1 Band	41.18
7	8.05	50.9	1 Pak	5 Bands	2 Bands	58.76
8	9.03	64.04	1 Pak	6 Bands	2 Bands	64.76
9	10.06	79.46	1 Pak	7 Bands	3 Bands	82.34
10	11.13	97.29	1 Pak	8 Bands	4 Bands	99.88
11	12.18	116.52	1 Pak	1 Cube	5 Bands	117.45
12	13.25	137.89	1 Pak	1 Cube	1 Cube	140.6
13	14.31	160.83	1 Pak	1 Cube	1 Cube+2 Bands	163.76
14	15.37	185.54	1 Pak	1 Cube	1 Cube+4 Bands	186.87
15	16.43	212.01	1 Pak	1 Cube	2 Cubes	221.58

You can begin your circle with your choice of diameter! The packaging of the Cobble Circle makes it easy to order just what you need. The chart above shows the total number of stones per ring. (i.e. Ring 7=96.5 inch diameter which requires 30 pieces of the Large Circle Stone and 30 pieces of the Three Quarter Stone.

***For figuring large circles see the chart on the next page or use our Stone Calculator at www.borgertproducts.com or see page 58 for circle formulas.**

To go the Full Circle, the chart above lists the quantities and square footage of your chosen diameter. (i.e. a 14.31 foot diameter circle requires 1 center pak, 1 cube of Large Circle Stone, and 1 cube plus 2 bands of Three Quarter Stone – giving you a finished area of 163.76 square feet.)

Figuring Large Circles - Cobble/Cracovia

RING	DIA/FT	SQ FT	CIR CTR	LG CIRCLE	3/4 STONE 81sf	TOTAL SQ FT
3	3.72	10.87	1	1 Band		11.6
4	4.78	17.95	1	2 Bands		17.6
5	5.84	26.79	1	3 Bands	1 Band	35.18
6	6.91	37.5	1	4 Bands	1 Band	41.18
7	8.05	50.9	1	5 Bands	2 Bands	58.76
8	9.03	64.04	1	6 Bands	2 Bands	64.76
9	10.06	79.46	1	7 Bands	3 Bands	82.34
10	11.13	97.29	1	8 Bands	4 Bands	99.88
11	12.18	116.52	1	1 Cube	5 Bands	117.45
12	13.25	137.89	1	1 Cube	1 Cube	140.6
13	14.31	160.83	1	1 Cube	1 Cube 2 Bands	163.73
14	15.37	185.54	1	1 Cube	1 Cube 4 Bands	186.87
15	16.43	212.01	1	1 Cube	2 Cubes	221.58
16	17.49	240.25	1	1 Cube	2 Cubes 2 Bands	244.72
17	18.55	270.26	1	1 Cube	2 Cubes 5 Bands	279.43
18	19.61	302.03	1	1 Cube	3 Cubes	302.57
19	20.67	335.56	1	1 Cube	3 Cubes 3 Bands	337.28
20	21.73	371	1	1 Cube	3 Cubes 6 Bands	372
21	22.79	408	1	1 Cube	4 Cubes 3 Bands	418
22	23.85	447	1	1 Cube	4 Cubes 6 Bands	453
23	24.91	487	1	1 Cube	5 Cubes 2 Bands	488
24	25.97	530	1	1 Cube	5 Cubes 6 Bands	534
25	27.03	574	1	1 Cube	6 Cubes 3 Bands	580
26	28.09	620	1	1 Cube	7 Cubes	627
27	29.15	667	1	1 Cube	7 Cubes 4 Bands	673
28	30.21	717	1	1 Cube	8 Cubes 1 Band	719
29	31.27	768	1	1 Cube	8 Cubes 6 Bands	777

Holland Stone

Code	Style & Dimensions	Bands	Cubes
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4HS Holland Stone™
 100mm x 200mm x 60mm
 Approximate 3 7/8" x 7 7/8" x 2 3/8"
 (PSF = 4.5 stones @ 28#)

15.7 SF
 440#
 (72 stones)

94 SF
 2640#
 (6 bands)



4HV 1" Holland
 100mm x 200mm x 32mm
 Approximate 3 7/8" x 7 7/8" x 1"
 (PSF = 4.5 stones @ 14#)

N/A

94SF
 1175#
 (432 pcs)



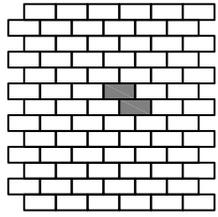
Note: 1" Holland is suitable for veneers on pedestrian applications only.

STOCK COLORS

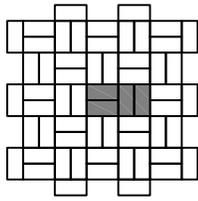
06	Chamois	10	Golden Brown	40	North Shore*
02	Autumn Blend*	16	Millstream	08	Charcoal
27	Bronze Granite*	18	Minnesota River*		

*Three-color blends require six cubes or more for best blend results.

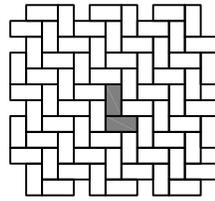
Holland Patterns



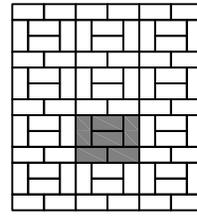
(A) Running Bond



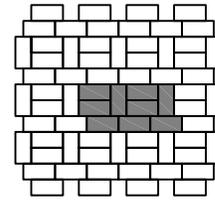
(B) Basket Weave



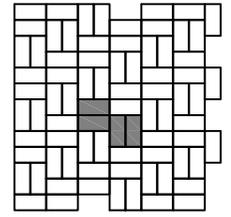
(C) Herringbone90°



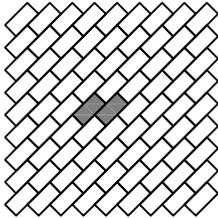
(D) Framed Parquet



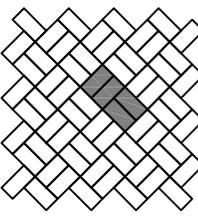
(E) Running Parquet



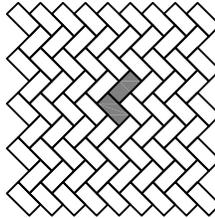
(F) Basket Weave-2



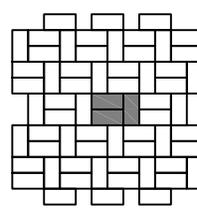
(G) Running Bond90°



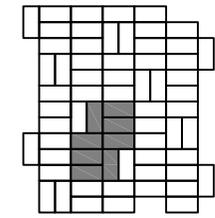
(H) Basket Weave45°



(I) Herringbone45°



(J) Offset Parquet



(K) Balance Parquet

BrükStone

Code	Style & Dimensions	NOT SOLD BY BAND	Cubes
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4BU BrükStone - 80mm / 3 1/8"

14 Various Sizes

Returns on full cubes only

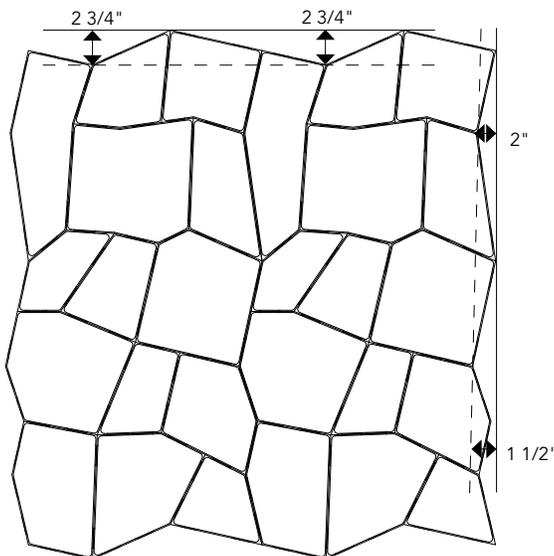
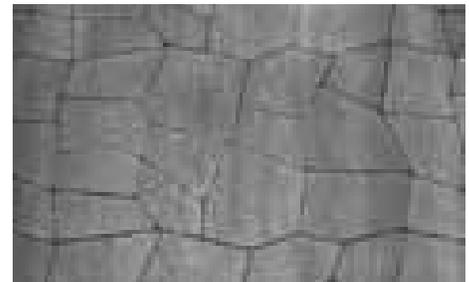
NOTE: There are 6 layers per cube at 12.68 SF per layer.
Layer dimension is 44 3/4" x 41 3/4".

-Surface is textured.

-All borders that are cut in may require additional product.

76.08 SF

2690#



Dimensions for straight edge points are indicated by - - - - -

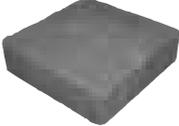
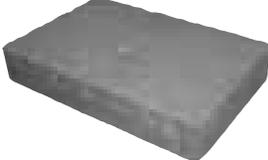
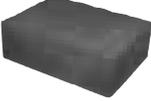
NOTE: All spacer bars must line up with each other. Use a protective plate when compacting BrükStone.

Suggested soldier course products Vavel II and Bavaria II.

STOCK COLORS			
40	North Shore*	18	Minnesota River*
34	Flagstaff*		

*Three-color blends require six cubes or more for best blend results.

Strassen® Bavaria II (Non-tumbled)

Code	Style & Dimensions	Bands	Cubes	
4UBQ	Bavaria II Small Square 5.5" x 5.5" 140mm x 140mm x 70mm (PSF = 4.8 stones @ 31.5#)	9.98 SF 324# (48 stones)	79.8 SF 2595# (8 bands)	
4UBH	Bavaria II Small Rectangle 5.5" x 11" 140mm x 280mm x 70mm (PSF = 2.4 stones @ 31.5#)	20.25 SF 659# (48 stones)	81 SF 2635# (4 bands)	
4UBS	Bavaria II Large Square 11" x 11" 280mm x 280mm x 70mm (PSF = 1.2 stones @ 31.5#)	20.25 SF 659# (24 stones)	81 SF 2635# (4 bands)	
4UBR	Bavaria II Large Rectangle 11" x 16" 280mm x 420mm x 70mm (PSF = .80 stones @ 31.5#)	30 SF 975# (24 stones)	90 SF 2835# (3 bands)	
4UBTQ	Bavaria II Three Quarter 6.5" x 9" 168mm x 225mm x 70mm (PSF = 2.4 stones @ 31.5#)	15 SF 488# (36 stones)	75 SF 2440# (5 bands)	
4UBLC	Bavaria II Large Circle (PSF = 2.5 stones @ 31.5#)	7.2 SF 227# (18 stones)	50.4 SF 1589# (7 bands)	
4UBCP	Bavaria II Circle Center Pack PKG INCLUDES: 1 center stone / 8 small circle / 17 medium circle stone	N/A	10.8 SF 340#	

Use protective plate during compaction.

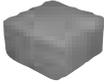
STOCK COLORS					
45	Iron Range*	40	North Shore*	18	Minnesota River*
43	Mesa				

*Three-color blends require six cubes or more for best blend results.

ADDITIONAL SOLID COLORS - for Small Square (5.5 x 5.5, 6.5 x 9 & Large Circle)					
08	Charcoal	98	Western Gold		

NOTE: See page 15 for design patterns.

Vavel Stone II (Non-tumbled)

Code	Style & Dimensions	Bands	Cubes	
4UVA	Vavel II Small Square 7" x 7" 178mm x 178mm x 70mm (PSF = 2.94 stones @ 31.5#)	12.24 SF 385# (36 stones)	85.68 SF 2699# (7 bands)	
4UVB	Vavel II Rectangle 7" x 14" 178mm x 356mm x 70mm (PSF = 1.47 stones @ 31.5#)	24.48 SF 771# (36 stones)	73.44 SF 2314# (3 bands)	
4UVC	Vavel II Large Square 14" x 14" 356mm x 356mm x 70mm (PSF = .74 stones @ 31.5#)	21.76 SF 685# (16 stones)	65.28 SF 2056# (3 bands)	

Use protective plate during compaction.

STOCK COLORS					
45	Iron Range*	40	North Shore*	18	Minnesota River*
43	Mesa				

*Three-color blends require six cubes or more for best blend results.

NOTE: See page 16 for design patterns.

Cracovia

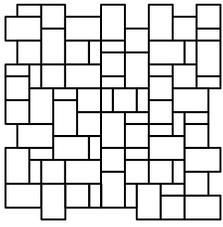
Code	Style & Dimensions	Bands	Cubes	
4TTM	Cracovia Half Square 3" x 6" 80mm x 160mm x 60mm Approximate 3 1/8" x 6 1/4" x 2 3/8" (PSF = 7.4 stones @ 28#)	8.1 SF 226# (60 stones)	56.8 SF 1590# (7 bands)	
4TTQ	Cracovia Square 6" x 6" 160mm x 160mm x 60mm Approximate 6 1/4" x 6 1/4" x 2 3/8" (PSF = 3.69 stones @ 28#)	12.2 SF 342# (45 stones)	85.4 SF 2395# (7 bands)	
4TTP	Cracovia Rectangle 6" x 9" 160 mm x 240mm x 60mm Approximate 6 1/4" x 9 3/8" x 2 3/8" (PSF = 2.46 stones @ 28#)	18.28 SF 512# (45 stones)	91.4 SF 2559# (5 bands)	
4TTN	Cracovia Large Square 9" x 9" 240mm x 240mm x 60mm Approximate 9 3/8" x 9 3/8" x 2 3/8" (PSF = 1.64 stones @ 28#)	16.5 SF 462# (27 stones)	82.5 SF 2310# (5 bands)	
4TQC	Cracovia Three Quarter 4" x 6" 120mm x 160mm x 60mm Approximate 4 3/4" x 6 1/4" x 2 3/8" (PSF = 4.84 stones)	11.57 SF 324# (56 stones)	81 SF 2268# (7 bands)	
4TLC	Cracovia Large Circle (PSF = 4.92 stones)	6 SF 168# (30 stones)	54 SF 1512# (9 bands)	
4TCC	Cracovia Circle Center Pack Pieces received in Circle Center Pack: 1 Center stone 19 Small Circle stones 9 Three Quarter stones 3 Half Squares (For rings 6 & 8)	Actual pieces needed per Circle Center: 1 Center stone 16 Small Circle stones 8 Three Quarter stones 3 Half Squares (For rings 6 & 8)	5.6 SF 160 #	

Note: Cracovia is packaged the way it is to be laid. DO NOT flip material.

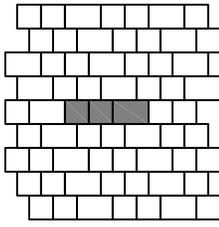
STOCK COLORS					
43	Mesa	18	Minnesota River*	98	Western Gold (4x6 & Lg Circle only)
44	Grand Canyon*	40	North Shore*	08	Charcoal (4x6 & Lg Circle only)

*Three-color blends require six cubes or more for best blend results.

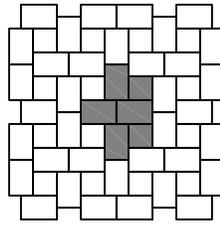
Cracovia Patterns



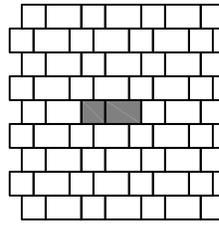
(A) 3 piece Random
3x6 – 16%
6x6 – 34%
6x9 – 50%
Laying Ratio: 1:1:1



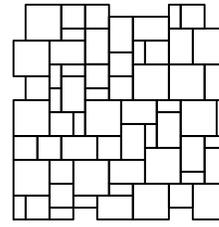
(B) Running Bond
6x6 – 66%
6x9 – 34%
Laying Ratio: 2:1



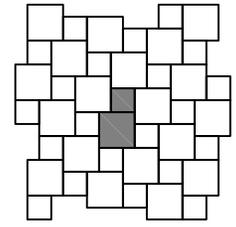
(C) Basket Weave 90°
6x6 – 30%
6x9 – 70%
Laying Ratio: 2:4



(D) Running Bond
6x6 – 40%
6x9 – 60%
Laying Ratio: 1:1



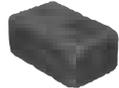
(E) 4 piece Random
3x6 – 10%
6x6 – 21%
6x9 – 27%
9x9 – 42%
Laying Ratio: 1:1:1:1



(F) 2 piece
6x6 – 30%
9x9 – 70%
Laying Ratio: 1:1

*For circles see Cobble/Cracovia Circle page 6

Strassen® Classic (Tumbled)

Code	Style & Dimensions	Bands	Cubes	
4SM	Classic Half Rectangle 4" x 6" 104mm x 173mm x 70mm Approximate 4 1/4" x 6 3/4" x 2 3/4" (PSF = 5.06 stones @ 31.5#)	4.75 SF 150# (24 stones)	52.2 SF 1650# (11 bands)	
4ST	Classic Rectangle 6" x 8" 173mm x 208mm x 70mm Approximate 6 3/4" x 8 1/4" x 2 3/4" (PSF = 2.53 stones @ 31.5#)	9.49 SF 299# (24 stones)	66.4 SF 2093# (7 bands)	
4SP	Classic Large Rectangle 8" x 13" 208mm x 348mm x 70mm Approximate 8 1/4" x 13 5/8" x 2 3/4" (PSF = 1.28 stones @ 31.5#)	9.38 SF 295# (12 stones)	56.3 SF 1770# (6 bands)	
4STQ	Classic Three Quarter 6.5" x 9" 168mm x 225mm x 70mm (PSF = 2.4 stones @ 31.5#)	7.5 SF 236# (18 stones)	52.5 SF 1652# (7 bands)	
4SLC	Classic Large Circle (PSF = 2.5 stones @ 31.5#)	7.2 SF 235# (18 stones)	50.4 SF 1852# (7 bands)	
4SCP	Classic Circle Center Pack Package includes: 1 center stone / 8 small circle / 17 medium circle stone	N/A	10.8 SF 340#	

STOCK COLORS

37	Boulder Blend*	34	Flagstaff*	18	Minnesota River*
----	----------------	----	------------	----	------------------

*Three-color blends require six cubes or more for best blend results.

Strassen® Classic Patterns

(A) 1 Piece
8x13 - 100%

(B) 1 Piece
6x8 - 100%

(C) 1 Piece
4x6 - 100%

(D) 2 Piece
4x6 - 34%
6x8 - 66%
Laying Ratio: 1:1

(E) 2 Piece
4x6 - 34%
6x8 - 66%
Laying Ratio: 1:1

(F) 2 piece
4x6 - 34%
6x8 - 66%
Laying Ratio: 2:2

(G) 3 Piece Random
4x6 - 19%
6x8 - 23%
8x13 - 58%
Laying Ratio: 1:1:1

(H) 3 Piece
4x6 - 9%
6x8 - 17%
8x13 - 74%
Laying Ratio: 1:1:2

(I) 3 Piece
4x6 - 19%
6x8 - 23%
8x13 - 58%
Laying Ratio: 1:1:1

(J) 3 Piece
4x6 - 24%
6x8 - 24%
8x13 - 52%
Laying Ratio: 4:2:2

(K) 3 Piece
4x6 - 19%
6x8 - 23%
8x13 - 58%
Laying Ratio: 1:1:1

(L) 2 piece
4x6 - 60%
6x8 - 40%
Laying Ratio: 6:2

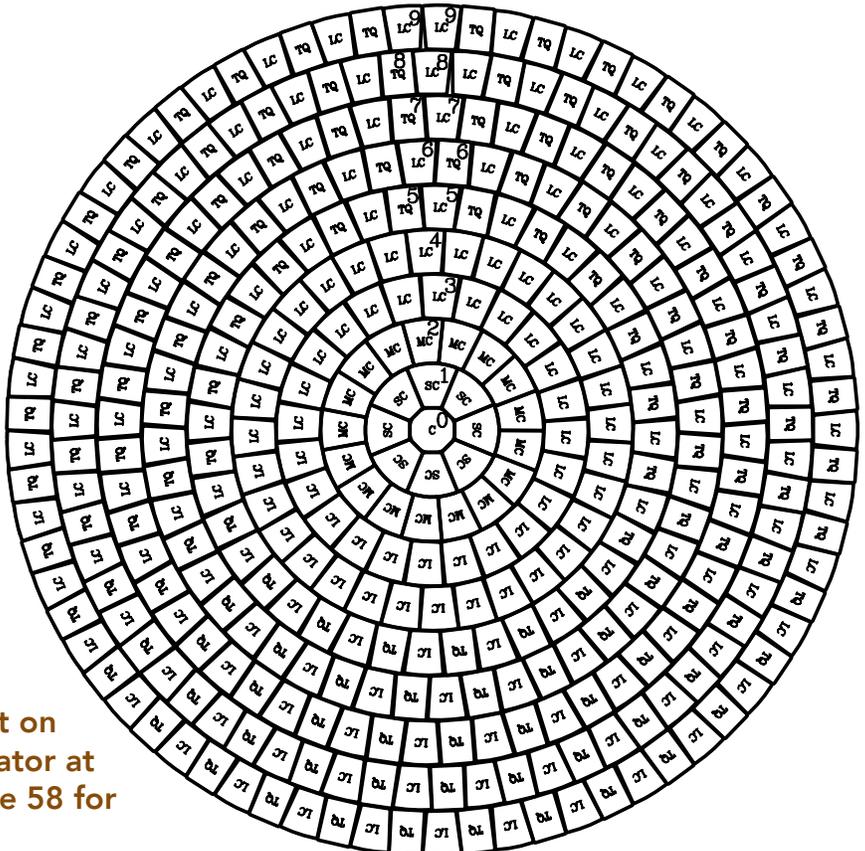
Classic has no spacer bars. Lay loosely with 1/16" joint minimum.

Strassen® Classic, Bavaria and Bavaria II Circle Guide

Ring	Diam. feet	C	SC	MC	LC	TQ
0	.74	1				
1	2.2		8			
2	3.69			17		
3	5.16				24	
4	6.64				32	
5	8.13				20	20
6	9.63				24	24
7	11.1				28	28
8	12.59				33	32
9	14.08				37	36

KEY

C, SC, MC = Center Pack, needed for all circles
 LC = Large Circle
 TQ = Three Quarter

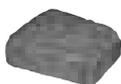


***For figuring large circles see the chart on the next page or use our Stone Calculator at www.borgertproducts.com or see page 58 for circle formulas.**

Rings	Diameter in Feet	Square Feet	Paver Qty. to the Nearest Band			
			CTR PACK	LG CIRCLE	BAVARIA ¾ STONE	BAVARIA II ¾ STONE
0	.74		1			
1	2.2		1			
2	3.69		1			
3	5.16	20.91	1	2 Bands		
4	6.64	34.62	1	3 Bands		
5	8.13	51.84	1	5 Bands	2 Bands	1 Band
6	9.62	72.68	1	6 Bands	3 Bands	2 Bands
7	11.1	96.76	1	1 Cube 1 Band	4 Bands	3 Bands
8	12.59	124.39	1	1 Cube 2 Bands	6 Bands	3 Bands
9	14.08	155.7	1	1 Cube 4 Bands	1 Cube 1 Band	1 Cube
10	15.56	190.15	1	2 Cubes	1 Cube 4 Bands	1 Cube 1 Band
11	17.05	228.18	1	2 Cubes 2 Bands	1 Cube 6 Bands	1 Cube 2 Bands
12	18.53	269.38	1	2 Cubes 5 Bands	2 Cubes 2 Bands	1 Cube 3 Bands
13	20.02	314.78	1	3 Cubes 1 Band	2 Cubes 5 Bands	2 Cubes
14	21.5	363.05	1	3 Cubes 4 Bands	3 Cubes 1 Band	2 Cubes 1 Band
15	22.98	414.75	1	4 Cubes 1 Band	3 Cubes 4 Bands	2 Cubes 3 Bands
16	24.46	469.89	1	4 Cubes 4 Bands	4 Cubes 1 Band	3 Cubes
17	25.94	528.48	1	5 Cubes	4 Cubes 4 Bands	3 Cubes 2 Bands

To go the Full Circle, the chart to the left lists the quantities and square footage of your chosen diameter. (i.e. a 20.02 foot diameter circle requires 1 center pak, 3 cubes plus 1 band of Large Circle Stone, and 2 cubes plus 5 bands of Bavaria Three Quarter Stone or 2 cubes of Bavaria II Three Quarter Stone - giving you a finished area of 314.78 square feet.)

Strassen® Bavaria (Tumbled)

Code	Style & Dimensions	Bands	Cubes	
4BQ	Bavaria Small Square 5.5" x 5.5" 140mm x 140mm x 70mm (PSF = 4.8 stones @ 31.5#)	6.25 SF 197# (30 stones)	50.0 SF 1576# (8 bands)	
4BH	Bavaria Small Rectangle 5.5" x 11" 140mm x 280mm x 70mm (PSF = 2.4 stones @ 31.5#)	7.56 SF 238# (18 stones)	60.48 SF 1904# (8 bands)	
4BS	Bavaria Large Square 11" x 11" 280mm x 280mm x 70mm (PSF = 1.2 stones @ 31.5#)	15.12 SF 476# (18 stones)	60.48 SF 1904# (4 bands)	
4BR	Bavaria Large Rectangle 11" x 16" 280mm x 420mm x 70mm (PSF = .80 stones @ 31.5#)	22.5 SF 709# (18 stones)	67.5 SF 2127# (3 bands)	
4BTQ	Bavaria Three Quarter 6.5" x 9" 168mm x 225mm x 70mm (PSF = 2.4 stones @ 31.5#)	7.5 SF 236# (18 stones)	52.5 SF 1652# (7 bands)	
4BLC	Bavaria Large Circle (PSF = 2.5 stones @ 31.5#)	7.2 SF 227# (18 stones)	50.4 SF 1589# (7 bands)	
4BCP	Bavaria Circle Center Pack PKG INCLUDES: 1 center stone / 8 small circle / 17 medium circle stone	N/A	10.8 SF 340#	

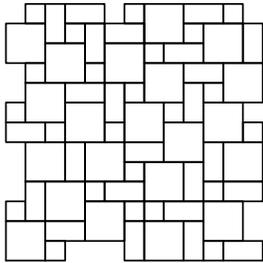
Strassen® Bavaria (continued)

STOCK COLORS

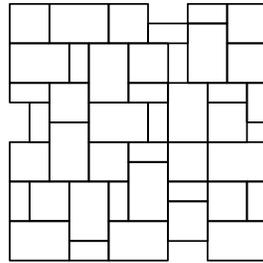
18	Minnesota River*	40	North Shore*	45	Iron Range*
43	Mesa	98	Western Gold (5x5, 6x9 & Lg Circle only)	08	Charcoal (5x5, 6x9 & Lg Circle only)

*Three-color blends require six cubes or more for best blend results.

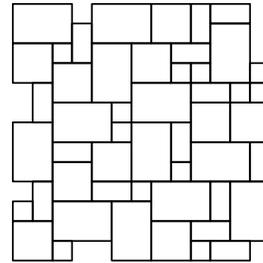
Strassen® Bavaria and Bavaria II Patterns



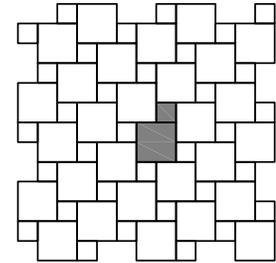
(A) 3 piece random
5x5 - 16%
5x11 - 34%
11x11 - 50%
laying Ratio: 1:1:1



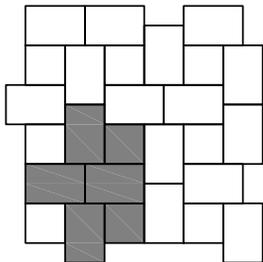
(B) 3 piece random
5x11 - 16%
11x11 - 34%
11x16 - 50%
laying Ratio: 1:1:1



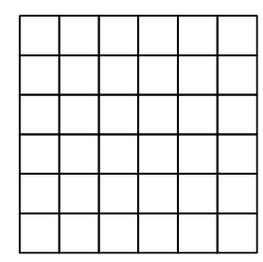
(C) 4 piece random
5x5 - 13%
5x11 - 25%
11x11 - 25%
11x16 - 37%
laying Ratio: 1:1:1:1



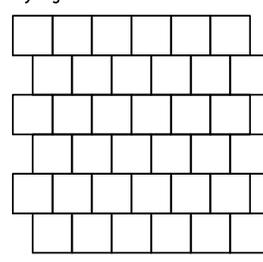
(D) 2 piece
5x5 - 20%
11x11 - 80%
Laying Ratio: 1:1



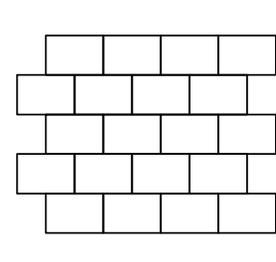
(E) 2 piece
11x11 - 30%
11x16 - 70%
laying Ratio: 2:4



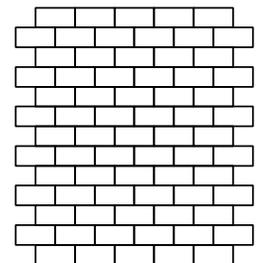
(F) 1 piece
11x11 - 100%



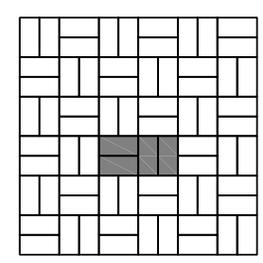
(G) 1 piece
11x11 - 100%



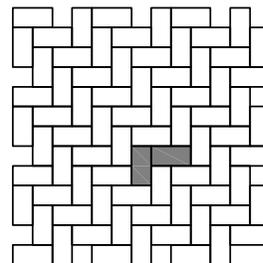
(H) 1 piece
11x16 - 100%



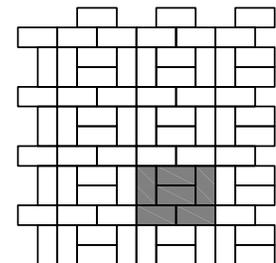
(I) 1 piece
5x11 - 100%



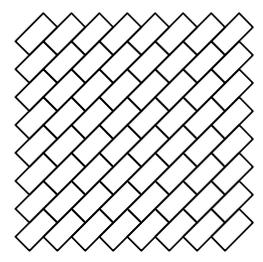
(J) 1 piece
5x11 - 100%



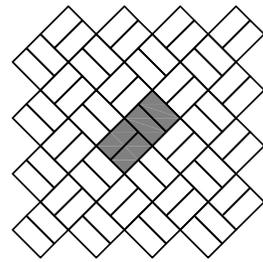
(K) 1 piece
5x11 - 100%



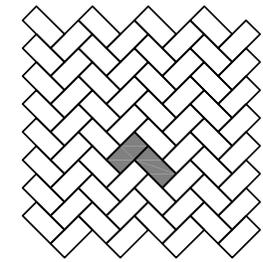
(L) 1 piece
5x11 - 100%



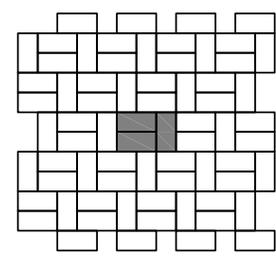
(M) 1 piece
5x11 - 100%



(N) 1 piece
5x11 - 100%



(O) 1 piece
5x11 - 100%



(P) 1 piece
5x11 - 100%

Vavel Stone (Tumbled)

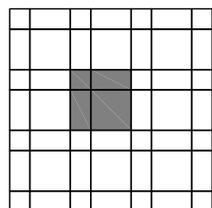
Code	Style & Dimensions	Bands	Cubes	
4VA	Vavel Small Square 7" x 7" 178mm x 178mm x 70mm (PSF = 2.94 stones @ 31.5#)	8.16 SF 257# (24 stones)	48.96 SF 1542# (6 bands)	
4VB	Vavel Rectangle 7" x 14" 178mm x 356mm x 70mm (PSF = 1.47 stones @ 31.5#)	21.76 SF 685# (32 stones)	65.28 SF 2056# (3 bands)	
4VC	Vavel Large Square 14" x 14" 356mm x 356mm x 70mm (PSF = .74 stones @ 31.5#)	21.76 SF 685# (16 stones)	65.28 SF 2056# (3 bands)	

Use protective plate during compaction.

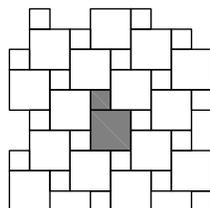
STOCK COLORS					
45	Iron Range*	40	North Shore*	18	Minnesota River*
43	Mesa				

*Three-color blends require six cubes or more for best blend results.

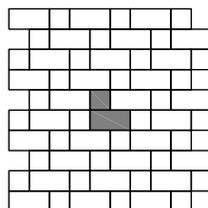
Vavel Stone and Vavel Stone II Patterns



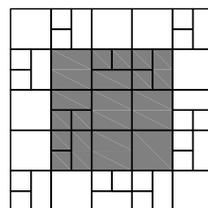
(A) 3 piece
7x7 - 10%
7x14 - 45%
14x14 - 45%
Laying Ratio: 1:2:1



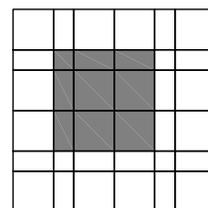
(B) 2 piece
7x7 - 20%
14x14 - 80%
Laying Ratio: 1:1



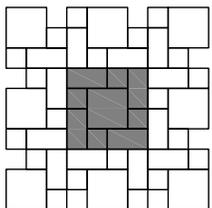
(C) 2 piece
7x7 - 34%
7x14 - 66%
Laying Ratio: 1:1



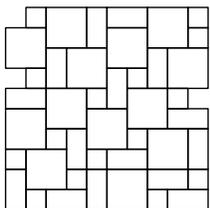
(D) 3 piece
7x7 - 22%
7x14 - 22%
14x14 - 56%
Laying Ratio: 8:4:5



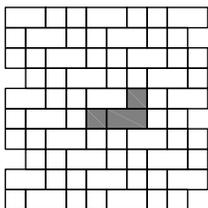
(E) 3 piece
7x7 - 4%
7x14 - 32%
14x14 - 64%
Laying Ratio: 1:4:4



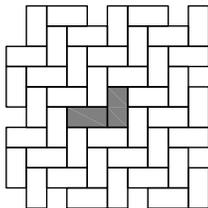
(F) 3 piece
7x7 - 25%
7x14 - 50%
14x14 - 25%
Laying Ratio: 4:4:1



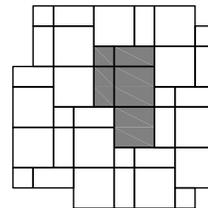
(G) 3 piece Random
7x7 - 14%
7x14 - 29%
14x14 - 57%
Laying Ratio: 1:1:1



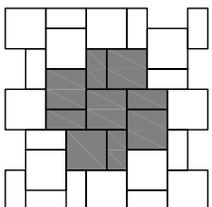
(H) 2 piece
7x7 - 50%
7x14 - 50%
Laying Ratio: 2:1



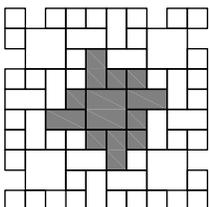
(I) 1 piece
7x14 - 100%



(J) 3 piece
7x7 - 8%
7x14 - 31%
14x14 - 61%
Laying Ratio: 1:2:2



(K) 2 piece
7x14 - 29%
14x14 - 71%
Laying Ratio: 4:5



(L) 3 piece
7x7 - 33%
7x14 - 45%
14x14 - 22%
Laying Ratio: 6:4:1



Aqua-Bric™

Code	Style & Dimensions	NOT SOLD BY THE BAND		Cubes
------	--------------------	----------------------	--	-------

4AQ Aqua-Bric™ - 80mm

5" x 10" x 3 1/8"
(PSF = 3.19 stones @ 35.5#)
(MINIMUM STOCK Item - LEAD TIME REQUIRED)
*Available in tumbled - See Non-stock Product section.

81 SF
2876#
(240 pcs)



STOCK COLORS

02	Autumn Blend*	20	Pewter	18	Minnesota River*
40	North Shore				

*Three-color blends require six cubes or more for best blend results.

Code	Style & Dimensions	NOT SOLD BY THE BAND		Cubes
------	--------------------	----------------------	--	-------

4AR Aqua-Bric™ - Ashlar - 80mm

Random sizes: 5" x 5", 5" x 10", 10" x 10" x 3 1/8"
(Cube includes 120 - 5x5, 108 - 5x10, 36 - 10x10)
NOTE: Mould configured for mechanical installation.

75.22 SF
2670#
(264 pcs)



STOCK COLORS

02	Autumn Blend*	18	Minnesota River*		
----	---------------	----	------------------	--	--

*Three-color blends require six cubes or more for best blend results.

Code	Style & Dimensions	NOT SOLD BY THE BAND		Cubes
------	--------------------	----------------------	--	-------

4EP Holland Priora® - 80mm

100mm x 200mm x 80mm
(PSF = 4.62 stones @ 27.7#)

78 SF
2160#
(360 pcs)



STOCK COLOR

18	Minnesota River*				
----	------------------	--	--	--	--

*Three-color blends require six cubes or more for best blend results.

Code	Style & Dimensions	NOT SOLD BY THE BAND		Cubes
------	--------------------	----------------------	--	-------

4HE Holland Stone™ - 80mm

For border w/ Eco-Stone and Aqua-Bric
(MINIMUM STOCK Item - LEAD TIME REQUIRED)

64 SF
2272#
(288 pcs)



STOCK COLORS

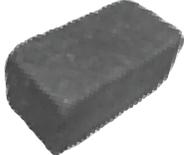
02	Autumn Blend*	18	Minnesota River*	40	North Shore*
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*Three-color blends require six cubes or more for best blend results.

For additional permeable options, see Non-stock Products on page 32.
See page 51 for cross section drawing.

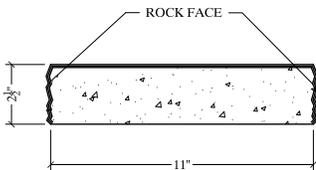
RETAINING WALLS

Strassen® Wall (Tumbled)

Code	Style & Dimensions	Bands	Cubes	
8SWA	Strassen® Wall Pallet "A" 4"H x 12"L x 8"D 200mm x 300mm x 100mm Approximate 7 7/8" x 11 3/4" x 4"	N/A	96 pcs 2700#	
To figure quantity: Sq. ft. of wall ÷ .33 = number of units needed.				
8SWB	Strassen® Wall Pallet "B" 4"H x 8"L x 8"D	N/A	96 pcs 1650#	
8SWC	Strassen® Wall Pallet "C" 4"H x 4"L x 8"D	N/A	144 pcs 1175#	
8ST	Strassen® Wall Trapezoid 4"H x 8"D Wide end = 7.75" Narrow end = 5.5"	N/A	105 pcs 1575#	
5SPC	Strassen® Precast Wall Cap 2"H x 11"D x 30"W	N/A	24 pcs 1718#	SEE BELOW A
5SPF	Strassen® Precast Fire Kit Cap (4 units per trapezoid fire ring)	N/A	18 pcs 1590#	SEE BELOW B

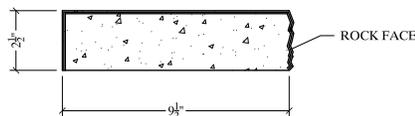
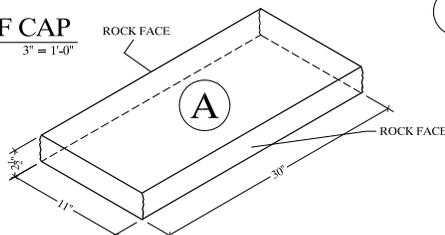
STRASSEN WALL STOCK COLORS					
37	Boulder Blend*	30	Limestone	18	Minnesota River*
34	Flagstaff*	40	North Shore*	45	Iron Range
08	Charcoal (Strassen precast cap color & fire kit cap)	30	Limestone (Strassen precast cap color & fire kit cap)		

*Three-color blends require six cubes or more for best blend results. Expect more pronounced contrasts with blend colors.



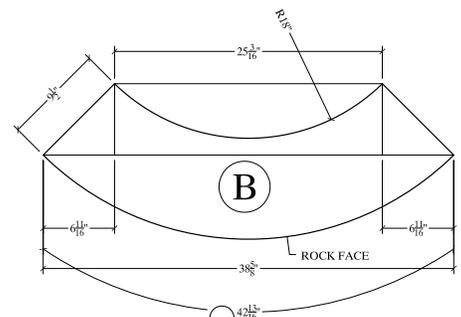
A DETAIL OF CAP
3" = 1'-0"

Strassen® Precast Wall Cap



B DETAIL OF CAP
3" = 1'-0"

Strassen® Precast Fire Kit Cap



Strassen Wall Details

Number of Strassen Wall Needed – Using 8" Side

Wall Height	No. of Courses	Wall Length Measured in Feet					
		5 ft.	10 ft.	20 ft.	30 ft.	40 ft.	50 ft.
4 in.	1	7.5 pcs.	15 pcs.	30 pcs.	45 pcs.	60 pcs.	75 pcs.
8 in.	2	15 pcs.	30 pcs.	60 pcs.	90 pcs.	120 pcs.	150 pcs.
12 in.	3	22.5 pcs.	45 pcs.	90 pcs.	135 pcs.	180 pcs.	225 pcs.
16 in.	4	30 pcs.	60 pcs.	120 pcs.	180 pcs.	240 pcs.	300 pcs.

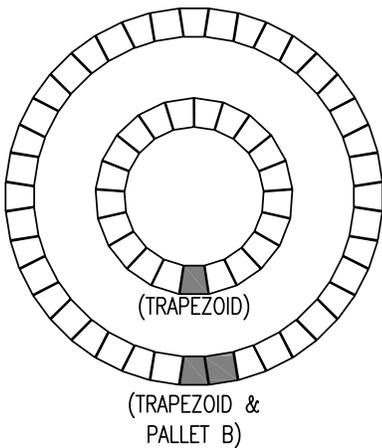
***See Borgert Stone Calculator for figuring larger walls at www.borgertproducts.com**

Number of Strassen Wall Needed – Using 12" Side

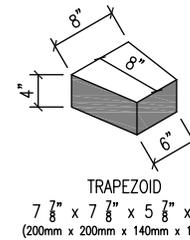
Wall Height	No. of Courses	Wall Length Measured in Feet					
		5 ft.	10 ft.	20 ft.	30 ft.	40 ft.	50 ft.
4 in.	1	5 pcs.	10 pcs.	20 pcs.	30 pcs.	40 pcs.	50 pcs.
8 in.	2	10 pcs.	20 pcs.	40 pcs.	60 pcs.	80 pcs.	100 pcs.
12 in.	3	15 pcs.	30 pcs.	60 pcs.	90 pcs.	120 pcs.	150 pcs.
16 in.	4	20 pcs.	40 pcs.	80 pcs.	120 pcs.	160 pcs.	200 pcs.

Maximum wall height not to exceed 16"

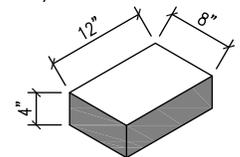
Strassen Wall and Strassen Trapezoid Details



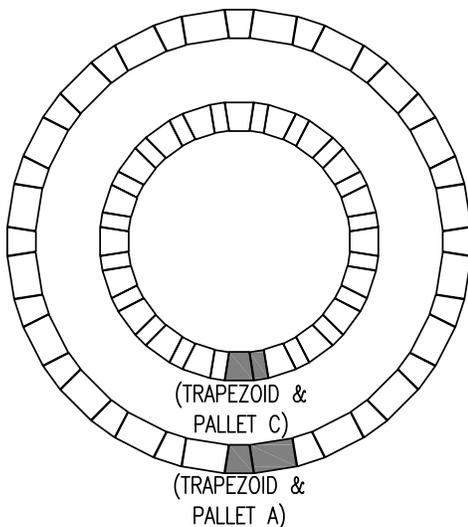
(TRAPEZOID) 1 piece
Strassen Trapezoid Units – 21
Radius: inside 1'-7" / outside 2'-3"
Diameter: inside 3'-2" / outside 4'-6"



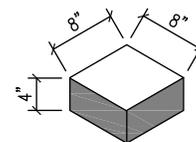
(TRAPEZOID & PALLET A) 2 piece
Strassen Trapezoid Units – 20
Strassen Wall Units – 20
Radius: inside 4'-8" / outside 5'-4"
Diameter: inside 9'-4" / outside 10'-8"
Laying Ratio: 1:1



PALLET A
7 7/8" x 11 3/4" x 4"
(200mm x 300mm x 100mm)

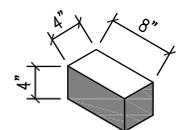


(TRAPEZOID & PALLET B) 2 piece
Strassen Trapezoid Units – 20
Strassen Wall Units – 20
Radius: inside 3'-8" / outside 4'-4"
Diameter: inside 7'-4" / outside 8'-8"
Laying Ratio: 1:1



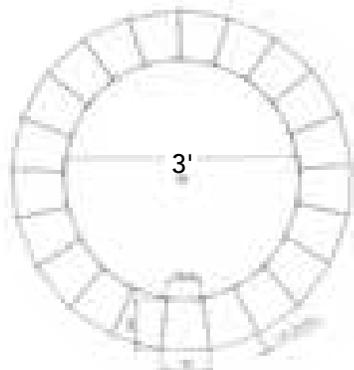
PALLET B
7 7/8" x 7 7/8" x 4"
(200mm x 200mm x 100mm)

(TRAPEZOID & PALLET C) 2 piece
Strassen Trapezoid Units – 20
Strassen Wall Units – 20
Radius: inside 2'-6 1/2" / outside 3'-2 1/2"
Diameter: inside 5'-1" / outside 6'-5"
Laying Ratio: 1:1



PALLET C
7 7/8" x 4" x 4"
(200mm x 100mm x 100mm)

8KFR - Fire Ring - Strassen Wall Trapezoid Fire Kit



Packing List

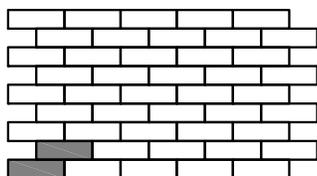
- (63) Strassen Wall Trapezoid Units (21 units per layer)
- (1) 3' x 12" high Metal Ring
- (3) 10.5 oz. Tubes SRW Adhesive

Wall Colors: MN River, Boulder Blend, Flagstaff, North Shore, Limestone, Iron Range

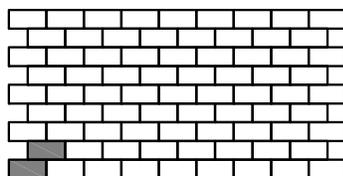
Strassen Precast Fire Kit Cap Colors: Charcoal, Limestone
(sold separately) - 4 needed per fire ring

Note: Please allow 5 days notice on kits. No returns on unused kit items.

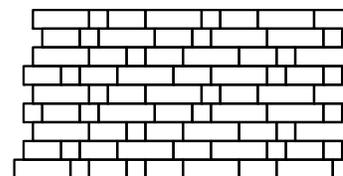
Strassen Wall Patterns



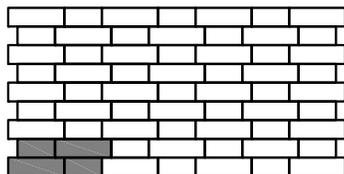
(A)
Pallet "A"
4"H x 12"L x 8"D - 100%



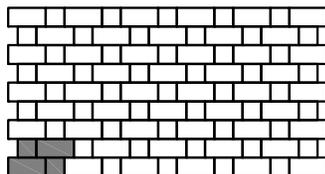
(B)
Pallet "B"
4"H x 8"L x 8"D - 100%



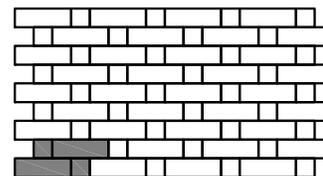
(D) Random
Pallet "A"
4"H x 12"L x 8"D - 50%
Pallet "B"
4"H x 8"L x 8"D - 33%
Pallet "C"
4"H x 4"L x 8"D - 17%
laying Ratio: 1:1:1



(E)
Pallet "A"
4"H x 12"L x 8"D - 60%
Pallet "B"
4"H x 8"L x 8"D - 40%
laying Ratio: 1:1



(F)
Pallet "B"
4"H x 8"L x 8"D - 67%
Pallet "C"
4"H x 4"L x 8"D - 33%
laying Ratio: 1:1



(G)
Pallet "A"
4"H x 12"L x 8"D - 75%
Pallet "C"
4"H x 4"L x 8"D - 25%
laying Ratio: 1:1

Strassen Column Details

Approx. Column Height	Number of Columns (20" x 20")				
	1	2	3	4	5
2 courses 8 in.	8	16	24	32	40
3 courses 12 in.	12	24	36	48	60
4 courses 16 in.	16	32	48	64	80
5 courses 20 in.	20	40	60	80	100
6 courses 24 in.	24	48	72	96	120
7 courses 28 in.	28	56	84	112	140
8 courses 32 in.	32	64	96	128	160

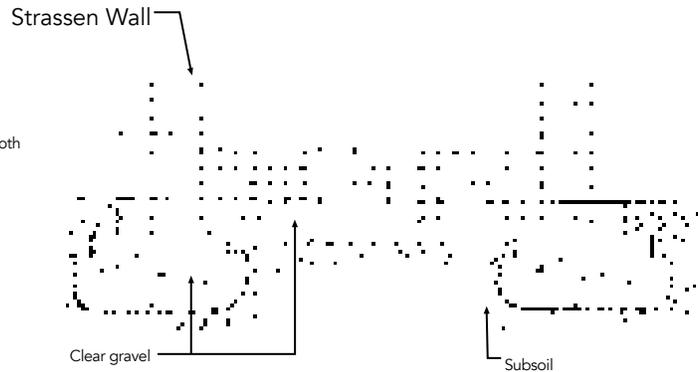
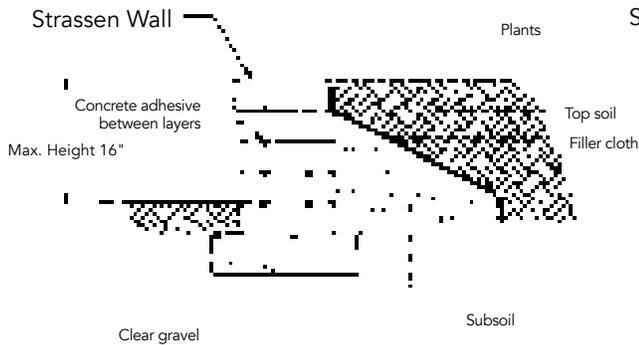
Maximum column height not to exceed 32"

Adhesive is used to secure corners and top row units.
 A 12" solid wall, random pattern = 24 square foot face per cube
 An 8" deep wall, running bond = 32 square foot face per cube

Column Details:
 Dimension of column = 20" x 20"
 Strassen Wall units per foot = 12
 Strassen Wall for Caps = 6 units (24" x 24")

Cap Details:
 Strassen Wall or see page 28 for other pillar cap options.

Strassen Wall Cross Sections

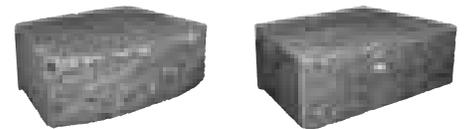


GardenStone Wall Units

Code	Item	Weight per Unit	Units per Pallet	Weight per Pallet
------	------	-----------------	------------------	-------------------

GardenStone 4"H x 12"L x 8"D

8GWC	Curved Face	26#	100	2600#
8GW	Straight Face	26#	100	2600#



STOCK COLORS					
20	Pewter	33	Buff	18	Minnesota River*
02	Autumn Blend*				

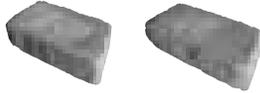
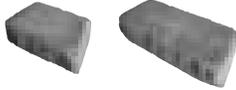
*Three-color blends require six cubes or more for best blend results.

TO MAKE CIRCLES

16 units are needed to make the smallest diameter circle - inside diameter = 47", outside diameter = 63"

To figure quantity: Sq. ft. of wall ÷ .33 = number of units needed.
 Maximum height = 3' without design considerations.

Madera Wall (Aged)

Code	Item	Weight per Unit	Units per Pallet	Weight Per Pallet	Per Pallet	Pieces Per Layer
8MWA	Pallet "A"		36	2035#	15 SF	3 layers
	Piece #1 - 6"H x 8"L x 12"D	32#	12		(30 LinFt)	12 pcs
	Piece #2 - 6"H x 12"L x 12"D	55#	12			
	Piece #3 - 6"H x 16"L x 12"D	78#	12			
						
8MWB	Pallet "B"		18	2440#	18 SF	3 layers
	Piece #5 - 6"H x 24"L x 12"D	124#	9		(36 LinFt)	6 pcs
	Piece #6 - 6"H x 28"L x 12"D	147#	9			
						
8MWC	Pallet "C"		18	2440#	18 SF	3 layers
	Piece #4 - 6"H x 20"L x 12"D	101#	9		(36 LinFt)	6 pcs
	Piece #7 - 6"H x 32"L x 12"D	170#	9			
						
8MWD	Pallet "D" - 3" High		72	2035#	15 SF	6 layers
	Piece #1 - 3"H x 8"L x 12"D	16#	24		(60 LinFt)	12 pcs
	Piece #2 - 3"H x 12"L x 12"D	27.5#	24			
	Piece #3 - 3"H x 16"L x 12"D	39#	24			
						
8MWJ	Pallet "E" - Madera Jumper					
	12"H x 6"L x 12"D	68#	36	2448#		
						
8MC	Madera Column Unit					
	6"H x 8"L x 12"D	47#	54	2538#		
						
8CMC	Madera Split Cap					
	3"H x 14"W x 15"D	50#	36	1800#		
						

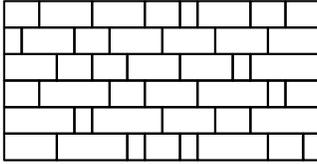
NOTE: See pages 52-55 for more retaining wall information and basic grid charts. Engineering form available on pages 56-57.

STOCK COLORS					
18	Minnesota River*	40	North Shore*	43	Mesa
45	Iron Range				

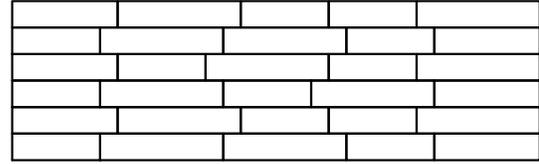
*Three-color blends require six cubes or more for best blend results.

NOTE: Madera is for freestanding and/or gravity walls.

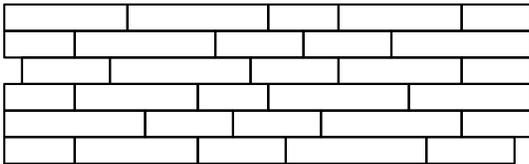
Madera and Morteza Wall Patterns



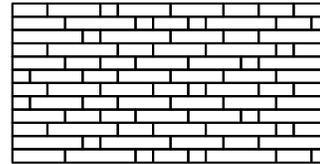
(A)
 Pallet "A"
 Piece #1 - 6"Hx 8"Lx12"D
 Piece #2 - 6"Hx12"Lx12"D
 Piece #3 - 6"Hx16"Lx12"D
 laying Ratio: 1:1:1



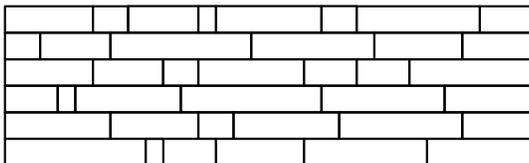
(B)
 Pallet "B"
 Piece #5 - 6"Hx24"Lx12"D
 Piece #6 - 6"Hx28"Lx12"D
 laying Ratio: 1:1



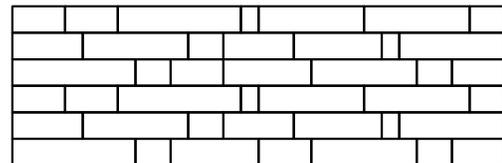
(C)
 Pallet "C"
 Piece #4 - 6"Hx20"Lx12"D
 Piece #7 - 6"Hx32"Lx12"D
 laying Ratio: 1:1



(D)
 Pallet "D"
 Piece #1 - 3"Hx 8"Lx12"D
 Piece #2 - 3"Hx12"Lx12"D
 Piece #3 - 3"Hx16"Lx12"D
 laying Ratio: 1:1:1

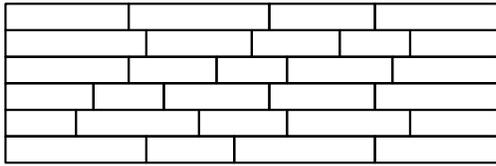


(E)
 Pallets "A" "B" "C"
 Piece #1 - 3"Hx 8"Lx12"D
 Piece #2 - 3"Hx12"Lx12"D
 Piece #3 - 3"Hx16"Lx12"D
 Piece #4 - 6"Hx20"Lx12"D
 Piece #5 - 6"Hx24"Lx12"D
 Piece #6 - 6"Hx28"Lx12"D
 Piece #7 - 6"Hx32"Lx12"D
 laying Ratio: 1:1:1:1:1:1:1



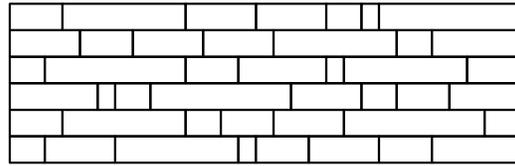
(F)
 Pallets "A" "B"
 Piece #1 - 3"Hx 8"Lx12"D
 Piece #2 - 3"Hx12"Lx12"D
 Piece #3 - 3"Hx16"Lx12"D
 Piece #5 - 6"Hx24"Lx12"D
 Piece #6 - 6"Hx28"Lx12"D
 laying Ratio: 1:1:1:1:1

Madera and Morteza Wall Patterns Continued



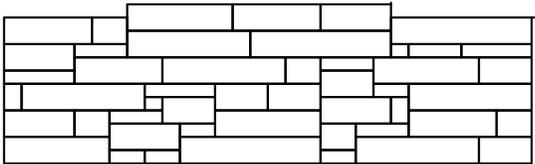
- (G)
 Pallets "B" "C"
 Piece #4 - 6"Hx20"Lx12"D
 Piece #5 - 6"Hx24"Lx12"D
 Piece #6 - 6"Hx28"Lx12"D
 Piece #7 - 6"Hx32"Lx12"D

laying Ratio: 1:1:1:1



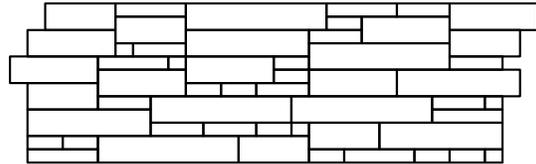
- (H)
 Pallets "A" "C"
 Piece #1 - 3"Hx 8"Lx12"D
 Piece #2 - 3"Hx12"Lx12"D
 Piece #3 - 3"Hx16"Lx12"D
 Piece #4 - 6"Hx20"Lx12"D
 Piece #6 - 6"Hx28"Lx12"D

laying Ratio: 1:1:1:1



- (L)
 Pallet "A" "B" "C" "D"
 Piece #1 - 6"Hx 8"Lx12"D
 Piece #2 - 6"Hx12"Lx12"D
 Piece #3 - 6"Hx16"Lx12"D
 Piece #4 - 6"Hx20"Lx12"D
 Piece #5 - 6"Hx24"Lx12"D
 Piece #6 - 6"Hx28"Lx12"D
 Piece #7 - 6"Hx32"Lx12"D
 Piece #1 - 3"Hx 8"Lx12"D
 Piece #2 - 3"Hx12"Lx12"D
 Piece #3 - 3"Hx16"Lx12"D

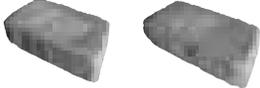
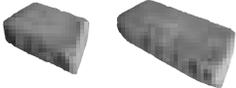
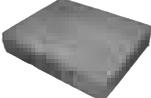
laying Ratio: 1:1:1:1:1:1:1:1



- (K)
 Pallet "C" "D"
 Piece #1 - 3"Hx 8"Lx12"D
 Piece #2 - 3"Hx12"Lx12"D
 Piece #3 - 3"Hx16"Lx12"D
 Piece #4 - 6"Hx20"Lx12"D
 Piece #7 - 6"Hx32"Lx12"D

laying Ratio: 1:1:1:1:1

Morteza Wall Units (Non-aged)

Code	Item	Weight per Unit	Units per Pallet	Weight Per Pallet	Per Pallet	Pieces Per Layer
8UMWA	Pallet "A"		36	2035#	15 SF (30 LinFt)	3 layers 12 pcs
	Piece #1 - 6"H x 8"L x 12"D	32#	12			
	Piece #2 - 6"H x 12"L x 12"D	55#	12			
	Piece #3 - 6"H x 16"L x 12"D	78#	12			
8UMWB	Pallet "B"		18	2440#	18 SF (36 LinFt)	3 layers 6 pcs
	Piece #5 - 6"H x 24"L x 12"D	124#	9			
	Piece #6 - 6"H x 28"L x 12"D	147#	9			
8UMWC	Pallet "C"		18	2440#	18 SF (36 LinFt)	3 layers 6 pcs
	Piece #4 - 6"H x 20"L x 12"D	101#	9			
	Piece #7 - 6"H x 32"L x 12"D	170#	9			
8UMWD	Pallet "D" - 3" High		72	2035#	15 SF (60 LinFt)	6 layers 12 pcs
	Piece #1 - 3"H x 8"L x 12"D	16#	24			
	Piece #2 - 3"H x 12"L x 12"D	27.5#	24			
	Piece #3 - 3"H x 16"L x 12"D	39#	24			
8UMWJ	Pallet "E" - Morteza Jumper					
	12"H x 6"L x 12"D	68#	36	2448#		
8UMC	Morteza Column Unit					
	6"H x 8"L x 12"D	47#	54	2538#		
8UCMC	Morteza Split Cap					
	3"H x 14"W x 15"D	50#	36	1800#		
	*Same as Bavaria II Paver					

NOTE: See pages 52-55 for more retaining wall information and basic grid charts. Engineering form available on pages 56-57.

STOCK COLORS					
18	Minnesota River*	40	North Shore*	43	Mesa
45	Iron Range				

*Three-color blends require six cubes or more for best blend results.

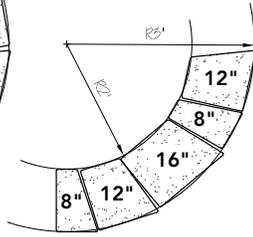
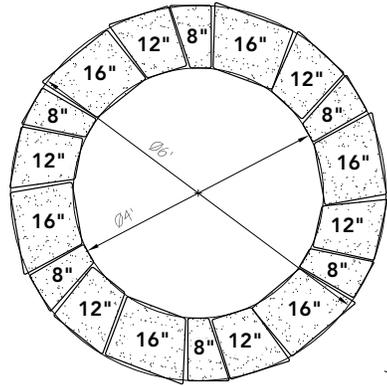
NOTE: Morteza is for freestanding and/or gravity walls.

Madera and Morteza Wall Units Circles

Radius with Pallet "A" pieces (See pages 22 & 25 for piece # and cube configuration.)

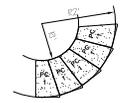
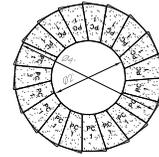
Inner diameter = 4'
Outer diameter = 6'

- Pc 1: 6 pcs
- Pc 2: 6 pcs
- Pc 3: 6 pcs



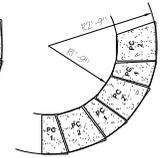
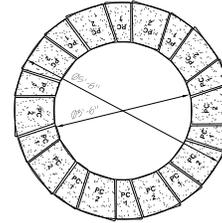
Inner diameter = 2'
Outer diameter = 4'

- Pc 1: 19 pcs



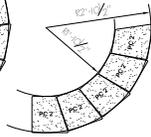
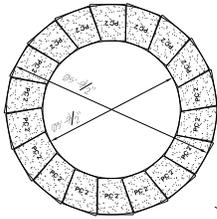
Inner diameter = 3'6"
Outer diameter = 5'6"

- Pc 1: 10 pcs
- Pc 2: 10 pcs



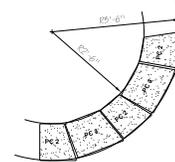
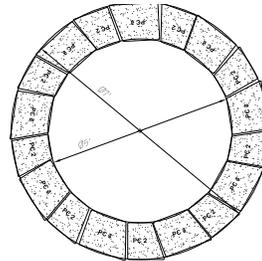
Inner diameter = 4'
Outer diameter = 6'

- Pc 2: 18 pcs



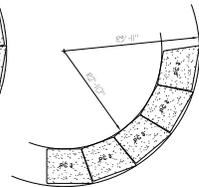
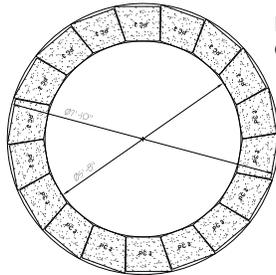
Inner diameter = 5'
Outer diameter = 7'

- Pc 2: 9 pcs
- Pc 3: 9 pcs



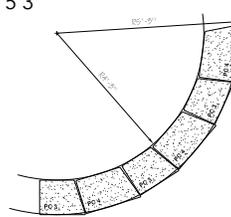
Inner diameter = 5'8"
Outer diameter = 7'10"

- Pc 3: 18 pcs



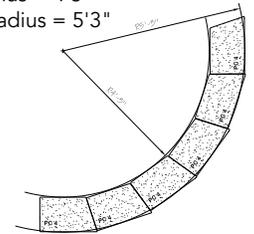
Inside radius = 4'3"
Outside radius = 5'3"

- Pc 3
- Pc 4



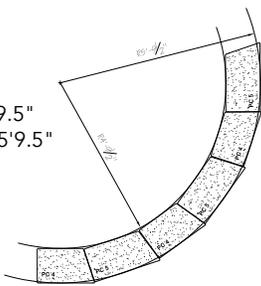
Inside radius = 4'3"
Outside radius = 5'3"

- Pc 4



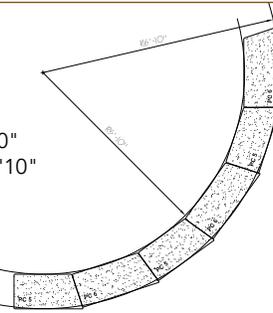
Inside radius = 4'9.5"
Outside radius = 5'9.5"

- Pc 4
- Pc 5



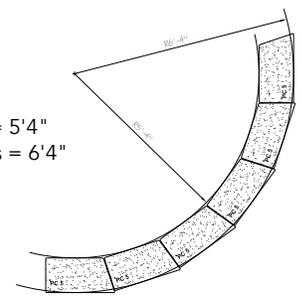
Inside radius = 5'10"
Outside radius = 6'10"

- Pc 5
- Pc 6



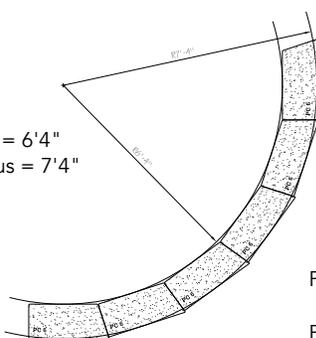
Inside radius = 5'4"
Outside radius = 6'4"

- Pc 5



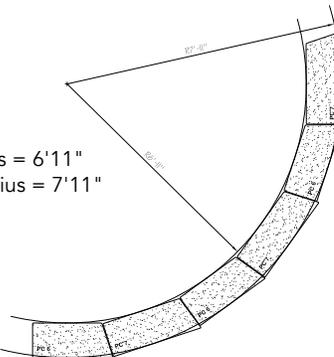
Inside radius = 6'4"
Outside radius = 7'4"

- Pc 6



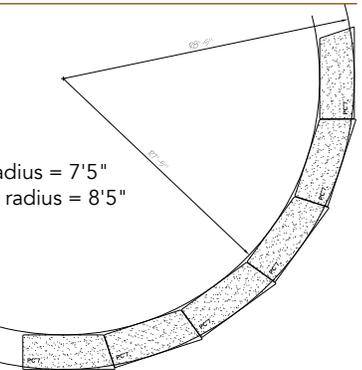
Inside radius = 6'11"
Outside radius = 7'11"

- Pc 6
- Pc 7



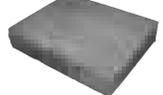
Inside radius = 7'5"
Outside radius = 8'5"

- Pc 7



NOTE: For the radii using only one size, not all pieces in the pallet will be used. Extra pieces cannot be returned for credit.

PanoMur Wall

Code	Item	Weight per Unit	Units per Pallet	Weight per Pallet	
8PW	PanoMur Wall 6" Split Face 6"H x 16"W x 12"D	45#	45	2025#	
8PC	PanoMur Caps - Split 3 1/2"H x 16"W x 12 1/2"D	47#	60	2850#	
8PQ	PanoMur Corner Units 6"H x 16"W x 8"D	60#	36	2160#	

Core fill with crushed aggregate.

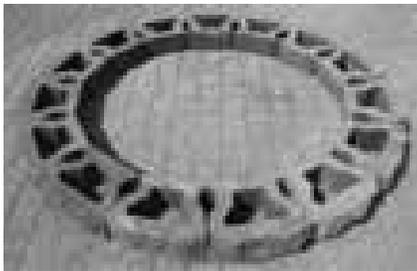
To figure quantity: Sq. ft. of wall ÷ .67 = number of units needed.

NOTE: See pgs. 52-55 for more retaining wall information and basic grid charts. Engineering form available on pgs 56-57.

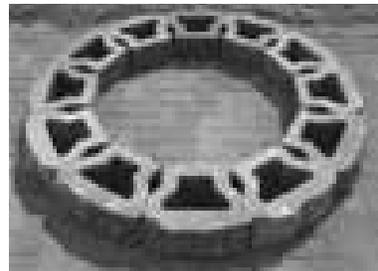
STOCK COLORS					
33	Buff	12	Granite City	18	Minnesota River*
10	Golden Brown				

*Three-color blends require six cubes or more for best blend results.

PanoMur Wall Smallest Circle Dimensions

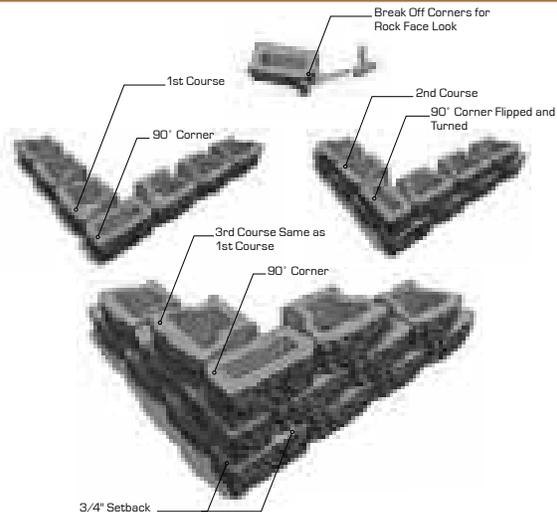
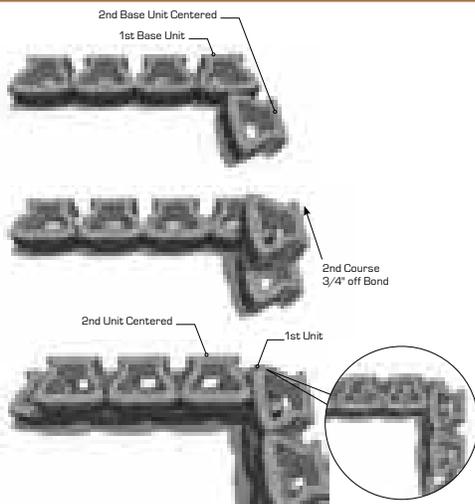


Standard PanoMur Full Unit Circle
15 Units Total
Diameter
6 1/2 ft outside diameter
4 1/2 ft inside diameter
Radius
3 1/4 ft outside radius
2 1/4 ft inside radius
These measurements are nominal



PanoMur Unit Circle with Handhelds Removed
12 Units Total
Diameter
5 1/2 ft outside diameter
3 1/2 ft inside diameter
Radius
2 3/4 ft outside radius
1 3/4 ft inside radius
These measurements are nominal

PanoMur Inside and Outside Corner Details



Accents

Code	Item	Bands	Cubes
7BN	Bullnose 3" x 12" x 2 3/8" <i>*Available in tumbled - see Non-Stock Product Section.</i>	75 pcs 531#	300 pcs 2125# (4 bands)



STOCK COLORS

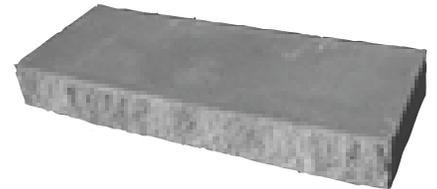
06	Chamois	08	Charcoal	18	Minnesota River*
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**Three-color blends require six cubes or more for best blend results.*

Code	Item	Weight/Unit	Units/Pallet	Weight/Pallet
8SU	Borgert Step Unit 18" x 48" x 6"	350#	6	2100#

STOCK COLORS

18	Minnesota River*	20	Pewter
30	Limestone	32	Slate
12	Granite City	33	Buff
40	North Shore*		



***Due to the large scale of this unit, use care when handling.**

**Three-color blends require six cubes or more for best blend results.*

Code	Item	Weight/Unit	Units/Pallet	Weight/Pallet
	Pillar Cap - Sloped Top or Flat 24" x 24" x 2 1/4" Available with Rockface Edge or Smooth Edge	150#	8	1200#



5PCR - Rockface Edge Sloped
5FCR - Rockface Flat



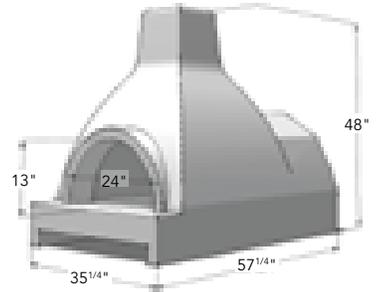
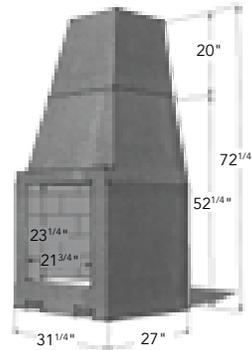
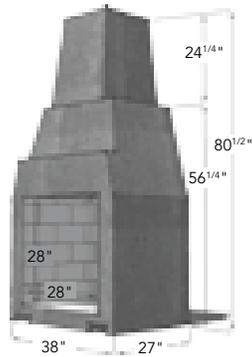
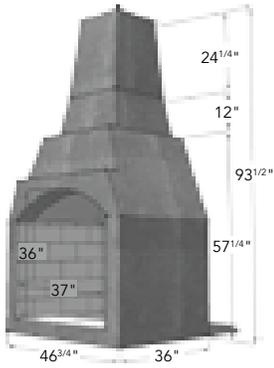
5PC - Smooth Edge Sloped
5FC - Smooth Edge Flat

STOCK COLORS

08	Charcoal	30	Limestone	04	Brown
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Outdoor Fireplace Units

Code	Item	Code	Item	Code	Item	Code	Item
5FPA	46" King Arthur 2500#	5FPG	38" Guinevere 1650#	5FPC	31" Camlann 1220#	5FPL	Lancelot Outdoor Oven 1500#



NOTES: See installation details for the fireplaces using our Strassen Wall on pages 36-42.

Walls are not included with units

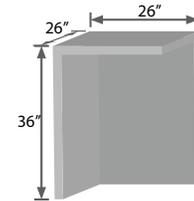
Units include fire brick already installed and forking points for ease of setting in place with machine.

***Stress cracks in fireplaces and ovens are micro fractures that are a normal occurrence and do not affect the structural integrity of the unit, nor are grounds for rejection.**

****Lancelot oven must be veneered.**

Code	Item	Weight/Unit
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5FPB Side Wood Storage Box 260#
36"H x 26"W x 26"D



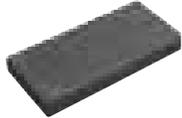
King of Hearths Details

	King Arthur	Guinevere	Camlann	Lancelot	Side Box
Weight	2500#	1650#	1220#	1500#	260#
Angle Iron Piece	48"	32"	31"	N/A	N/A
Stone Veneer	70 SF	46 SF	28-32 SF	26-30 SF	12 SF In / Out
Lin ft Corners	36	28	24	18	
Sparker Cap Mount Size	13 x 13	13 x 13	13 x 13	9 x 9	N/A

Borgert Patterned Stepping Stones

Code	Item	Weight/Unit	Units/ Pallet	Bands	Weight/Pallet	
7SC	16" Cobble Face 15 7/8" x 15 7/8" x 2" 40 - North Shore 06 - Chamois 10 - Golden Brown	42.5#	60	3 20 pcs 850#	2550#	
7SH	16" Holland Face 15 7/8" x 15 7/8" x 2" 40 - North Shore 06 - Chamois 10 - Golden Brown	42.5#	60	3 20 pcs 850#	2550#	
7SM	16" Majestic Marquis 15 7/8" x 15 7/8" x 2" 40 - North Shore 10 - Golden Brown 06 - Chamois	42.5#	60	3 20 pcs 850#	2550#	

Borgert Slabs and Edging

Code	Item	Weight/Unit	Units/ Pallet	Bands	Weight/Pallet	
7S12N	12" Plain Square Stepping Stone 11 7/8" x 11 7/8" x 2 3/8" 20 - Pewter	28#	108	4 27 pcs 759#	3036#	
7S16N	16" Plain Square Stepping Stone 15 7/8" x 15 7/8" x 2" 20 - Pewter	42.5#	60	3 20 pcs 850#	2550#	
7PB	Patio Block (Beveled Edge) 7 7/8" x 15 7/8" x 1 7/8" 20 - Pewter 04 - Brown 06 - Chamois	17#	180	3 60 pcs 850#	3060#	

LAWN EDGING

7CE	Centipede 3 1/8" x 4" x 12" 04 - Brown 06 - Chamois 20 - Pewter 16 - Millstream 08 - Charcoal	12#	200	4 50 pcs 600#	2400#	
7BE	BorderStone (Bullets) 3 1/8" x 4" x 12" 04 - Brown 06 - Chamois 20 - Pewter 16 - Millstream 08 - Charcoal 18 - MN River 10 - Golden Brown 40 - North Shore	12#	200	4 50 pcs 600#	2400#	

*Patterned Stepping Stones, Slabs and Edging NOT available in Colorado.

Non-Stock Products

Code	Style & Dimensions	Cubes (Not sold by the band)		
4DH	Double Holland™ 200mm x 200mm x 60mm Approximate 7 7/8" x 7 7/8" x 2 3/8" (PSF = 2.25 stones @ 28#)	94 SF 2632# (216 pcs)		
4HQ	Holland Stone Square™ 300mm x 300mm x 60mm Approximate 11 7/8" x 11 7/8" x 2 3/8" (PSF = 1 Stone @ 28#)	108.52 SF 3036# (108 pcs)		
4HT	Holland II™ 100mm x 200mm Approximate 3 7/8" x 7 7/8" (PSF = 4.5 stones @ 28#)	60mm Height 94 SF 2632# (432 pcs)	80mm Height 64 SF 2272# (288 pcs)	
4PP	Plaza Rectangle™ 160mm x 240mm Approximate 6 1/4" x 9 3/8" (PSF = 2.46 stones @ 28#)	60mm Height 91.4 SF 2559# (225 pcs)	80mm Height 60.97 SF 2164# (150 pcs)	
4DR	UNI-Décor® 140mm x 230mm x 60mm Approximate 5 3/8" x 9" x 2 3/8" (PSF = 3.5 stones @ 28#)	91.5 SF 2562# (320 pcs)		
4SR	UNI-Stone™ 112.5mm x 225mm x 60mm Approximate 4 1/2" x 8 7/8" x 2 3/8" (PSF = 3.6 stones @ 28#)	87.5 SF 2450# (315 pcs)		
4SY	Symetry® 60mm Height Approximate 4 3/8" x 10 3/4" x 2 3/8" (PSF = 3.04 stones @ 28#)	84 SF 2352# (256 pcs)		
4TS	Town Square™ 160mm x 160mm x 60mm Approximate 6 1/4" x 6 1/4" x 2 3/8" (PSF = 3.69 stones @ 28#)	91.06 SF 2549# (336 pcs)		

NON-STOCK ITEMS: PLEASE CALL FOR QUOTE, LEAD TIME, AND ORDER REQUIREMENTS.
We guarantee 2 weeks delivery on all our special orders (6-8 weeks for our Colorado location).
All special orders are full cube quantities only.

Code	Style & Dimensions	Cubes (Not sold by the band)	
------	--------------------	---------------------------------	--

4H725 Holland Stone™ - 70mm
 100mm x 200mm x 70mm
 Approximate 3 7/8" x 7 7/8" x 2 3/4"
 (PSF = 4.5 stones @ 35.5#)

80 SF
 2600#
 (360 pcs)



4HE Holland Stone™ - 80mm
 100mm x 200mm x 8cm
 Approximate 3 7/8" x 7 7/8" x 3 1/8"
 (PSF = 4.5 stones @ 35.5#)

64 SF
 2272#
 (288 pcs)



4TC8 Cobble™ - 80mm 6" x 6"
 160mm x 160mm x 80mm
 Approximate 6 1/4" x 6 1/4" x 3 1/8"
 (PSF = 3.69 stones @ 35.5#)

56.94 SF
 2021#
 (210 pcs)



4PC8 Cobble™ - 80mm 6" x 9"
 160mm x 240mm x 80mm
 Approximate 6 1/4" x 9 3/8" x 3 1/8"
 (PSF = 2.46 stones @ 35.5#)

60.94 SF
 2163#
 (150 pcs)



7BNT Tumbled Bullnose
 3" x 12" x 2 3/8"

300 pcs
 2125#



4BW Bulovar Linear Slab - 3" x 16" x 4" - 100mm
 3" x 15 3/4" x 4"
 (PSF = 3.1 stones @ 44#)

67.7 SF
 2975#
 (210 pcs)



Non-Stock Permeable

4OL UNI Opti-Loc - 80mm
 (PSF = 1.76 stones @ 35.5#)
 Layer is 42" x 47.5"

81.6 SF
 2897#



NOTE: Mould configured for mechanical installation.

4ES UNI ECO-Stone® - 80mm
 4 1/2" x 9" x 3 1/8"
 (PSF = 3.55 stones @ 35.5#)

78.9 SF
 2800#
 (280 pcs)



NOTE: Mould configured for mechanical installation.

4AQM Aqua-Bric™ - 80mm - Machine Lay
 5" x 10" x 3 1/8" @ 35.5# SF
 (90° Herringbone Pattern)

79 SF
 2805#
 (252 pcs)



NOTE: Mould configured for mechanical installation.

4TA Tumbled Aqua-Bric™ - 80mm
 5" x 10" x 3 1/8" @ 35.5# SF

72.9 SF
 2588#
 (216 pcs)



NON-STOCK ITEMS: PLEASE CALL FOR QUOTE, LEAD TIME, AND ORDER REQUIREMENTS.
 We guarantee 2 weeks delivery on all our special orders (6-8 weeks for our Colorado location).
All special orders are full cube quantities only.

Selecting Colors

Colors are shown as accurately as possible. Due to the nature of the product, color preference and variables in print reproduction, colors will not match exactly. Make final color selection from actual samples.

Choosing Blends

Borgert Products manufactures pavers and walls in various blend colors that consist of either two or three colors. When choosing a blend, it is important to keep in mind that some of the pavers will be dominant in one of the colors and some will be a combination of the colors that are in that particular blend. (i.e., Millstream is a blend consisting of red & charcoal - some pavers will be entirely red, some will be entirely charcoal, and others will be a combination of the two colors.)

*Three-color blends require six cubes or more for best blend results.

**3x6, 6x6 & 6x9 only.

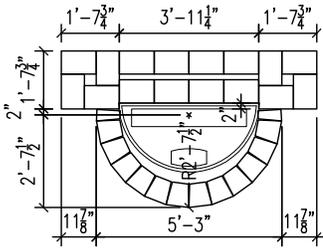
	Brown	Chamois	Charcoal	Pewter	*Autumn Blend	*Boulder Blend	*Bronze Granite	Buff	*Flagstaff	Golden Brown	*Grand Canyon	*Granite City	Limestone	Mesa	Millstream	*Minnesota River	*North Shore	Slate	Western Gold	*Iron Range
Cobble Series™** <i>(all sizes)</i>				☒		☒			☒		☒				☒	☒	☒			
Additional Cobble <i>(only 4x6, 6x6, 6x9)</i>	☒	☒																		
Cobble 1"™ (4x6)				☒		☒			☒						☒	☒	☒			
Holland Stone™	☒	☒		☒		☒			☒						☒	☒	☒			
Holland 1"	☒	☒		☒		☒			☒						☒	☒	☒			
BrükStone®								☒							☒	☒				
Strassen® Bavaria II															☒	☒	☒			☒
Vavel II™															☒	☒	☒			☒
Tumbled Cracovia <i>(all sizes)</i>		☒ <small>4x6 & Large Circle Only</small>							☒				☒		☒	☒	☒			☒ <small>4x6 & Large Circle Only</small>
Strassen® Classic					☒			☒							☒					
Vavel™															☒	☒	☒			☒
Strassen® Bavaria															☒	☒	☒			☒
Add'l Bavaria & Bavaria II <i>(only 5.5x5.5, 6.5x9 & Large Circle)</i>		☒																		☒
Strassen® Wall Series					☒			☒			☒				☒	☒	☒			☒
PanoMur Wall™								☒	☒	☒					☒					
PanoMur Split Cap								☒	☒	☒					☒					
Madera Wall															☒	☒	☒			☒
Morteza Wall															☒	☒	☒			☒
Madera & Morteza Split Cap															☒	☒	☒			☒
GardenStone <i>(Straight and Curved)</i>				☒	☒		☒								☒					
Pillar Cap	☒	☒									☒									
Aqua-Bric™				☒	☒										☒	☒				
Aqua-Bric™ Ashlar				☒											☒					
Holland Priora®															☒					
Holland 8cm				☒											☒	☒				
Step Unit				☒				☒		☒	☒				☒	☒	☒			
Bullnose	☒	☒													☒					

*For best results always select from more than one cube at a time and pay attention to the number of cubes required for the color(s) selected. Three-color blends require six cubes or more for best blend results.

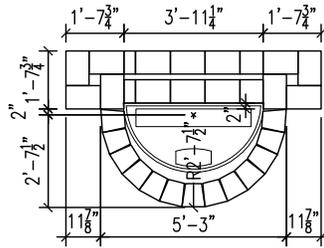
Colors are not limited. For special orders, call your Borgert representative. Not all products are stocked in Colorado.

IDEA SECTION

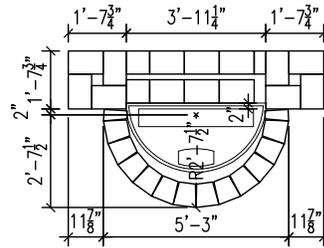
Suggested Layouts for Fountains using Strassen Wall



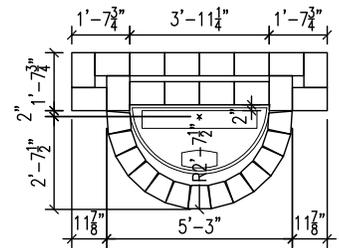
- Layer 1
 16 - 12"x8"x4"
 0 - 8"x8"x4"
 0 - 4"x8"x4"
 12 - Trapezoid
 2 - 1/2 Trapezoid (cut piece)



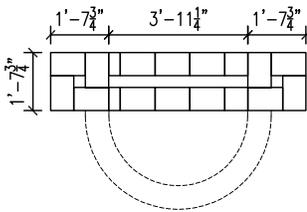
- Layer 2
 14 - 12"x8"x4"
 2 - 8"x8"x4"
 2 - 4"x8"x4"
 13 - Trapezoid
 0 - 1/2 Trapezoid (cut piece)



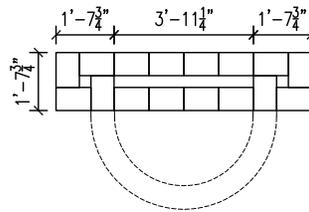
- Layer 3
 14 - 12"x8"x4"
 2 - 8"x8"x4"
 1 - 4"x8"x4"
 12 - Trapezoid
 2 - 1/2 Trapezoid (cut piece)



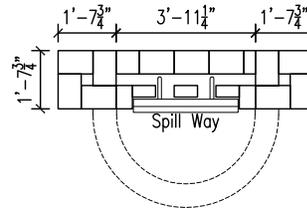
- Layer 4
 16 - 12"x8"x4"
 0 - 8"x8"x4"
 0 - 4"x8"x4"
 13 - Trapezoid
 0 - 1/2 Trapezoid (cut piece)



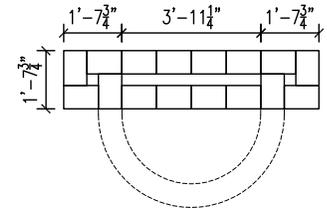
- Layer 5
 14 - 12"x8"x4"
 2 - 8"x8"x4"
 2 - 4"x8"x4"



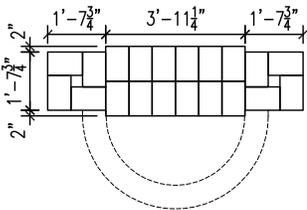
- Layer 6
 16 - 12"x8"x4"
 0 - 8"x8"x4"
 0 - 4"x8"x4"



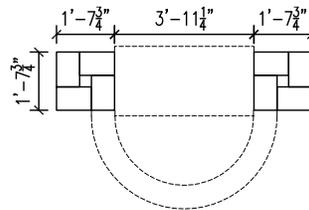
- Layer 7
 11 - 12"x8"x4"
 1 - 8"x8"x4"
 4 - 4"x8"x4"
 2 - 6"x8"x4" (cut piece)



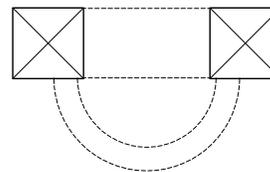
- Layer 8
 16 - 12"x8"x4"
 0 - 8"x8"x4"
 0 - 4"x8"x4"



- Layer 9
 20 - 12"x8"x4"
 0 - 8"x8"x4"
 0 - 4"x8"x4"



- Layer 10
 8 - 12"x8"x4"
 0 - 8"x8"x4"
 0 - 4"x8"x4"

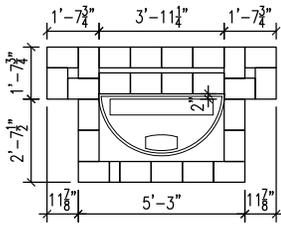


- Layer 10
 2 - 24"x24" Concrete caps

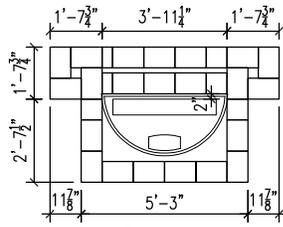
Items used:

- (145) Strassen Wall Pallet A (4"H x 12"L x 8"D)
- (7) Strassen Wall Pallet B (4"H x 8"L x 8"D)
- (9) Strassen Wall Pallet C (4"H x 4"L x 8"D)
- (2) Strassen Wall (cut piece) (4"H x 6"L x 8"D)
- (50) Strassen Trapezoid Wall
- (4) Strassen 1/2 Trapezoid Wall (cut piece)
- (2) Concrete Caps (24" x 24") - see pg. 23
- (6) 10 oz. Tubes SRW Adhesive
- (1) Easy Pro Viente Falls Pond with Blue Light

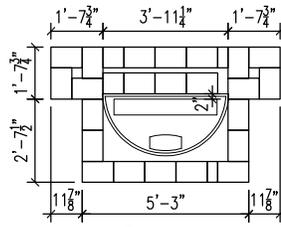
Suggested Layouts for Fountains using Strassen Wall



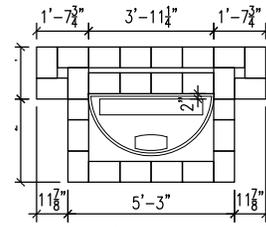
- Layer 1
 25 - 12"x8"x4"
 0 - 8"x8"x4"
 1 - 4"x8"x4"



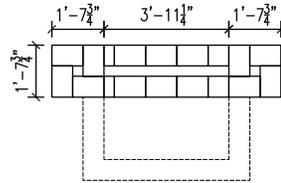
- Layer 2
 22 - 12"x8"x4"
 4 - 8"x8"x4"
 2 - 4"x8"x4"



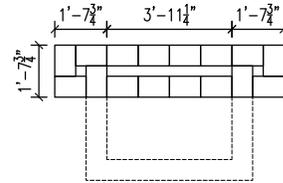
- Layer 3
 23 - 12"x8"x4"
 2 - 8"x8"x4"
 2 - 4"x8"x4"



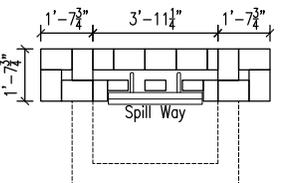
- Layer 4
 24 - 12"x8"x4"
 2 - 8"x8"x4"
 0 - 4"x8"x4"



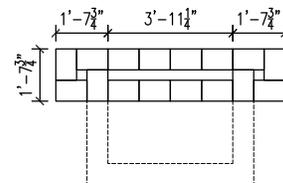
- Layer 5
 14 - 12"x8"x4"
 2 - 8"x8"x4"
 2 - 4"x8"x4"



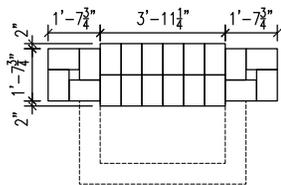
- Layer 6
 16 - 12"x8"x4"
 0 - 8"x8"x4"
 0 - 4"x8"x4"



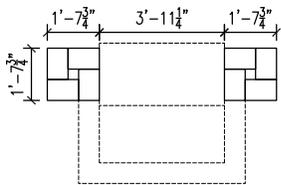
- Layer 7
 11 - 12"x8"x4"
 1 - 8"x8"x4"
 4 - 4"x8"x4"
 2 - 6"x8"x4" (cut piece)



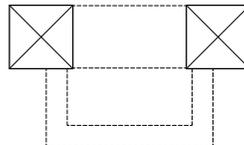
- Layer 8
 16 - 12"x8"x4"
 0 - 8"x8"x4"
 0 - 4"x8"x4"



- Layer 9
 20 - 12"x8"x4"
 0 - 8"x8"x4"
 0 - 4"x8"x4"



- Layer 10
 8 - 12"x8"x4"
 0 - 8"x8"x4"
 0 - 4"x8"x4"



- Layer 10
 2 - 24"x24" Concrete caps

Items used:

- (179) Strassen Wall Pallet A (4"H x 12"L x 8"D)
- (11) Strassen Wall Pallet B (4"H x 8"L x 8"D)
- (11) Strassen Wall Pallet C (4"H x 4"L x 8"D)
- (2) Strassen Wall (cut piece) (4"H x 6"L x 8"D)
- (2) Concrete Caps (24" x 24") - see pg. 23
- (6) 10 oz. Tubes SRW Adhesive
- (1) Easy Pro Viante Falls Pond with Blue Light

Outdoor Fireplace Installation and Operation

A) ITEMS TO CONSIDER BEFORE INSTALLATION

The outdoor wood fireplaces constructed by The King of Hearths are a very high quality precast fireplace meant to enhance your outdoor living. They are not meant to be used inside a roofed area or building. Clearances to combustible materials are a major consideration. The stack of your fireplace is equipped to accept a chimney cap. A cap with a spark arrestor is required. There should be no combustible materials within 8 feet of the cap. The front of the fireplace opening requires a minimum of a 4 foot area where there should be no combustible materials. This includes items as wood decking, furniture and the like. Look for items such as power lines and trees in your yard area to make sure you have a safe clearance.

B) PAD REQUIREMENTS

Your King of Hearths outdoor fireplace is constructed from a high strength light weight concrete. Because of this it is only necessary to either use one of our precast hearths or to pour a pad to place your fireplace. Because the fireplace itself does not need assembly or to be mortared together a traditional frost foundation is not required. You will need to remove all organic material (plant matter and topsoil) under your slab or hearth. That material needs to be replaced with gravel material and then compacted for support similar to what is done in preparation for proper sidewalk or driveway installations. Minimum pad dimensions are:

King Arthur 50 inches wide by 40 inches deep

Guinevere 42 inches wide by 32 inches deep

The pad should be poured a minimum of 6 inches deep. A rebar mat needs to be installed in a checkerboard fashion with 12 inch centers. This will keep the pad from splitting and putting undue pressure on the fireplace. If using one of our hearths it will only be necessary to level the hearth. In the event you are using a sidebox it will be necessary to enlarge the pad width by 24 inches. Pads should cure for 3 days before placement of your fireplace.

C) FIREPLACE PLACEMENT

Once your pad or hearth installation is complete you can place your fireplace. Remove the stack from firebox. Your fireplace will come on a sturdy pallet in order to safely get the fireplace close to its final placement. It is not recommended to remove the fireplace from the pallet until it is placed next to the slab or hearth. The pallet will ensure proper weight displacement of the fireplace when coming across rough terrain. On the rear of the firebox there will be 2 fork pockets to lift the fireplace from its pallet and place onto the slab or hearth. It is advisable to center the fireplace on your slab or hearth for equal weight distribution. The stack needs to be placed at this point. Make sure it is centered on the opening in the top of the firebox. It is not necessary to mortar the stack. When you complete your facing with cultured stone, cultured brick or stucco it will lock in and seal your stack. The King Arthur has a 2 piece stack to accommodate the larger firebox.

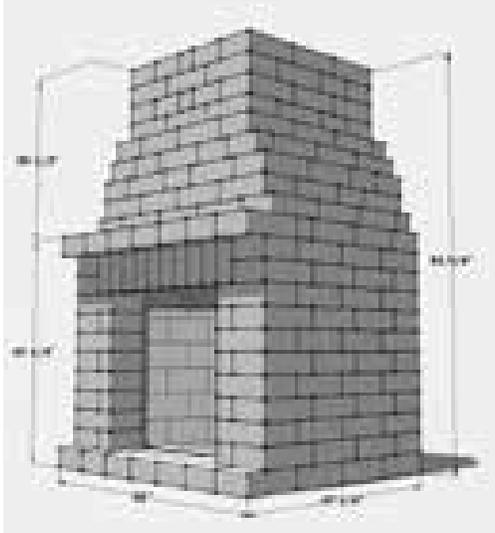
D) BURNING YOUR FIREPLACE

It is recommended at this point before the facing is applied to build a few small fires. Make sure you have a proper chimney cap installed. Your King Of Hearths fireplace already has the firebrick installed. You can burn right on the bottom of the fireplace or install a log grate if you wish. This preburn is recommended to temper the unit. All materials including concrete will react to heat. This process will help bring the materials to a near final rest before the facing is applied. Your fireplace is meant to burn wood. Burning garbage, wood treated with preservatives or other materials can create temperatures much hotter than wood. In other words protect your investment. Never use gasoline or diesel fuel to start your fireplace. The preferred method would be using cardboard or kindling for starter.

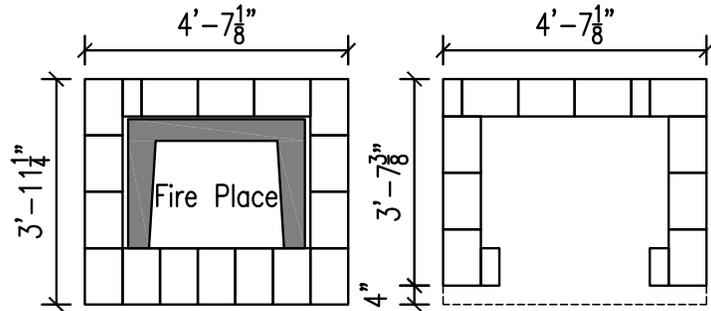
E) FINISHING YOUR FIREPLACE

Your King Of Hearths fireplace is left purposely with a semi rough surface. This rougher surface ensures a good bond between the precast and your finish material whether it be a cultured material, stone facing or stucco. It is recommended to leave a small gap of a quarter inch between the bottom of the fireplace veneer and pad. The reason for this is to prevent your facing from contacting the hearth or slab during the months when some movement can take place. Your King Of Hearths dealer will be able to make proper recommendations for your application. In the event you select to install one of our sideboxes with your fireplace you will notice that the height is slightly higher than the flat part of the firebox. This is done intentionally to ensure that a proper slope is installed in the veneer applied to prevent water and or ice pooling where the 2 precast units join. It is not necessary to anchor the sidebox to the firebox. The weight of the sidebox and the locking done by the veneer makes this not needed.

38" Guinevere Outdoor Fireplace Ideas (WALL SOLD SEPARATELY)

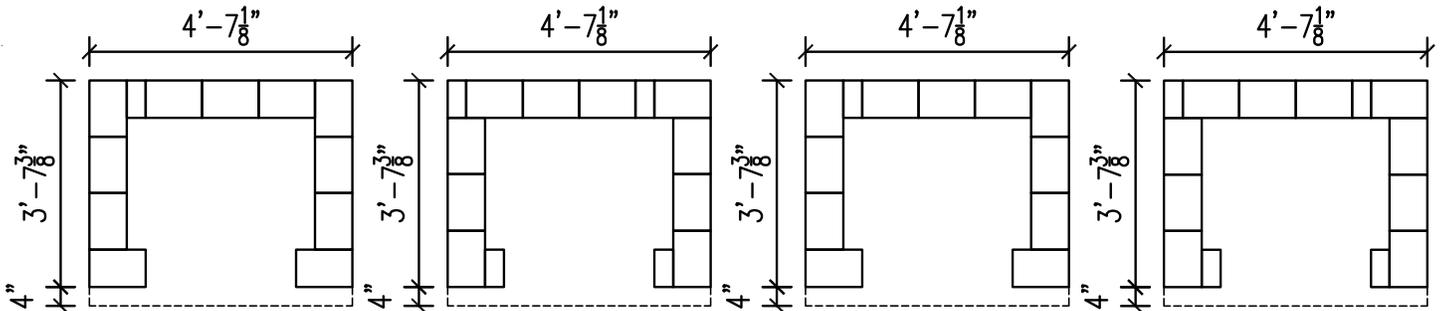


By Layers in Plan View



- Layer 1
 16 - 12"x8"x4"
 0 - 8"x8"x4"
 1 - 4"x8"x4"

- Layer 2
 10 - 12"x8"x4"
 0 - 8"x8"x4"
 4 - 4"x8"x4"

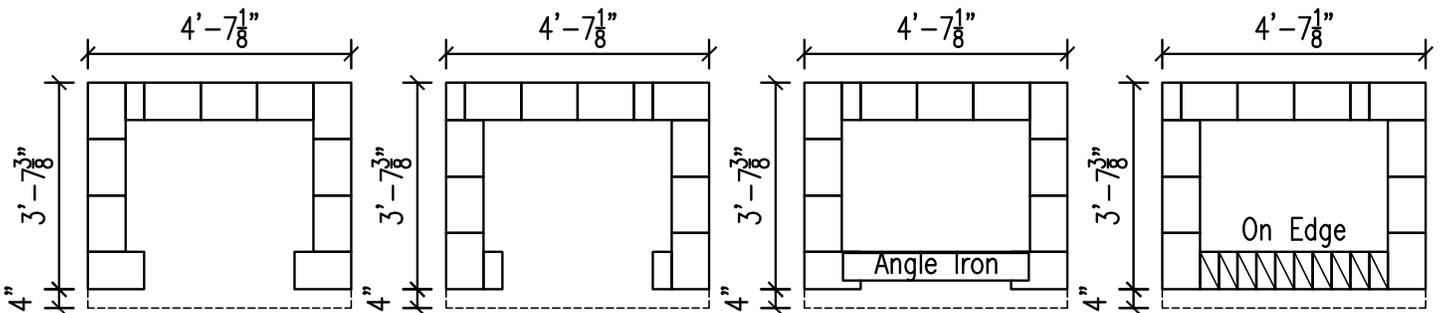


- Layer 3
 11 - 12"x8"x4"
 0 - 8"x8"x4"
 1 - 4"x8"x4"

- Layer 4
 10 - 12"x8"x4"
 0 - 8"x8"x4"
 4 - 4"x8"x4"

- Layer 5
 11 - 12"x8"x4"
 0 - 8"x8"x4"
 1 - 4"x8"x4"

- Layer 6
 10 - 12"x8"x4"
 0 - 8"x8"x4"
 4 - 4"x8"x4"

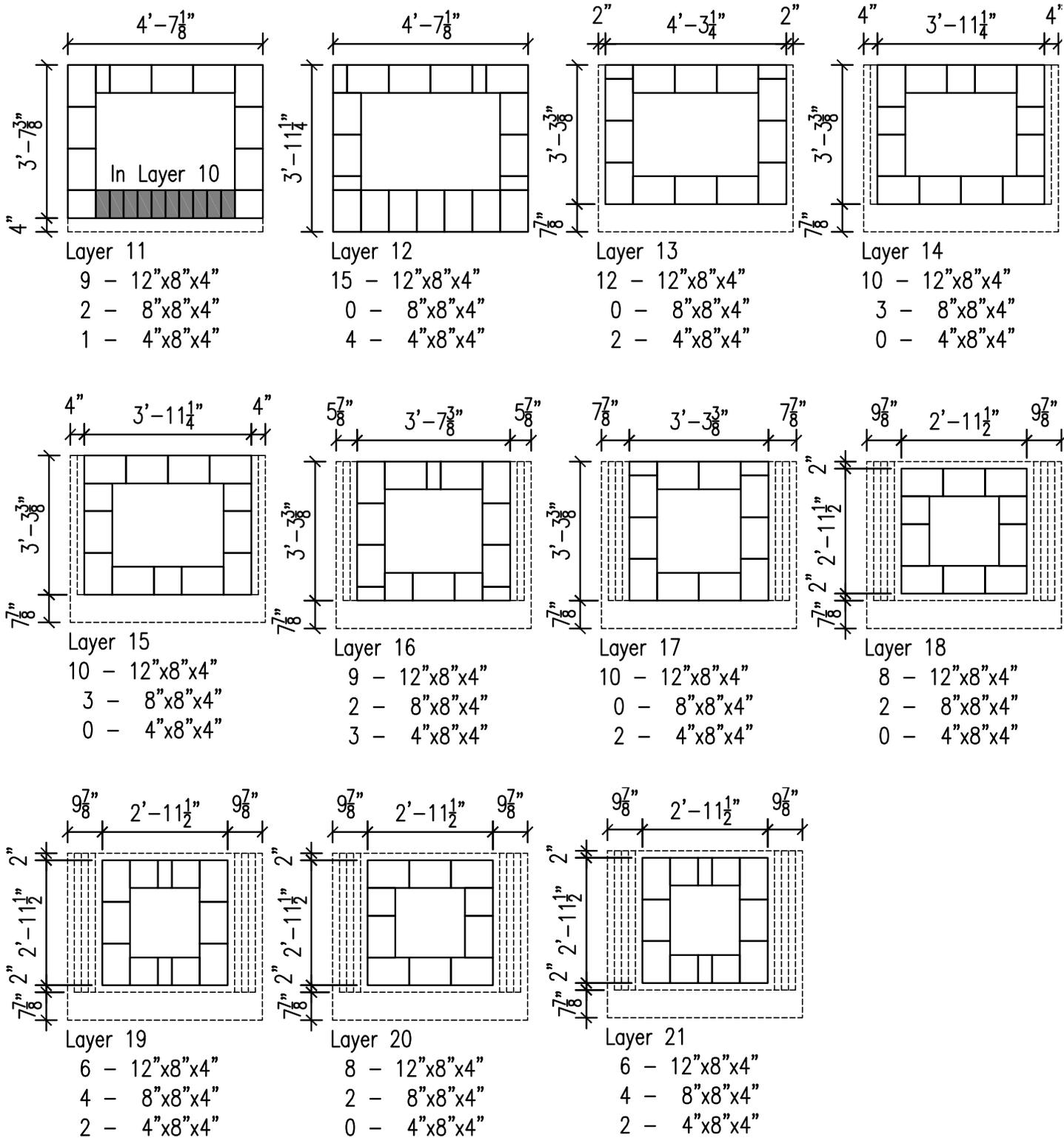


- Layer 7
 11 - 12"x8"x4"
 0 - 8"x8"x4"
 1 - 4"x8"x4"

- Layer 8
 10 - 12"x8"x4"
 0 - 8"x8"x4"
 4 - 4"x8"x4"

- Layer 9
 11 - 12"x8"x4"
 0 - 8"x8"x4"
 1 - 4"x8"x4"

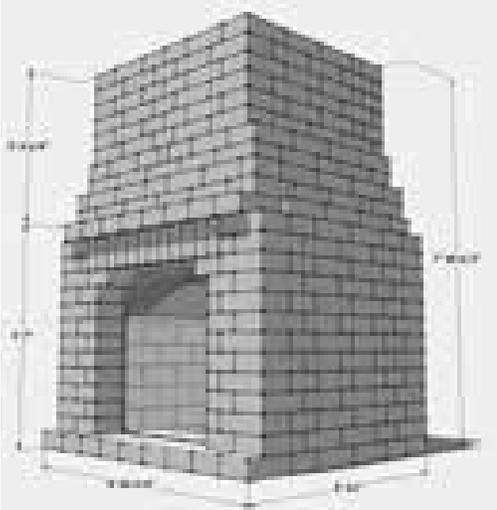
- Layer 10
 10 - 12"x8"x4"
 10 - 8"x8"x4"
 2 - 4"x8"x4"



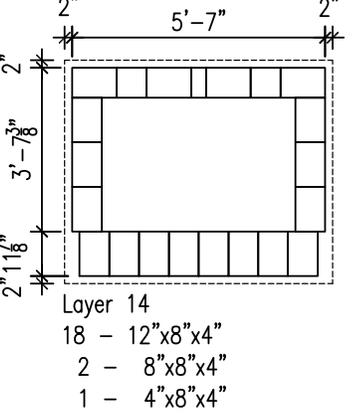
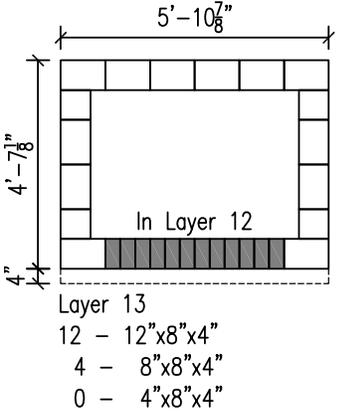
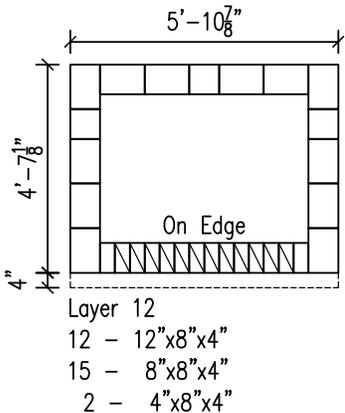
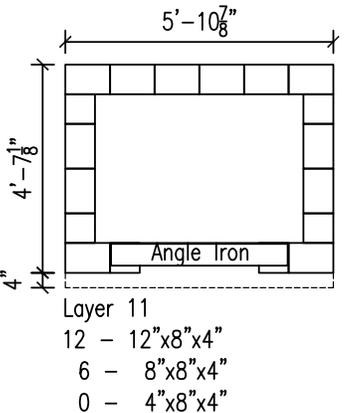
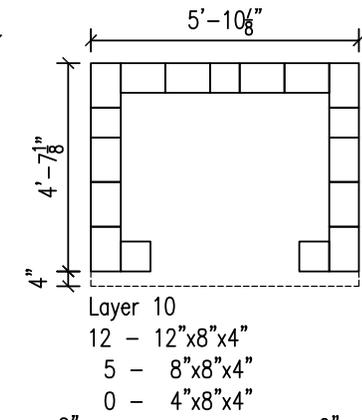
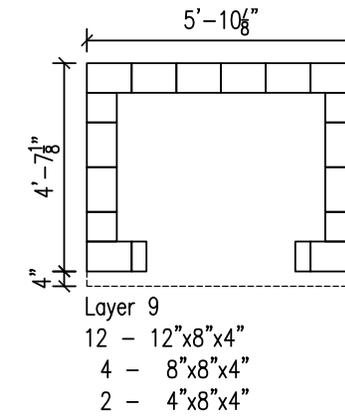
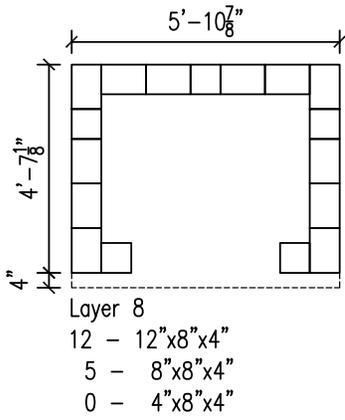
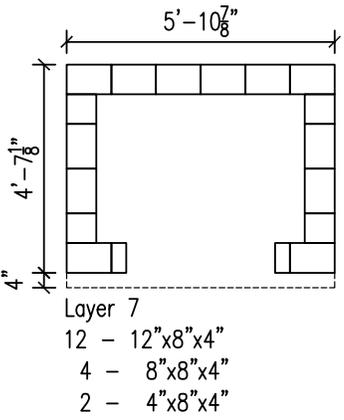
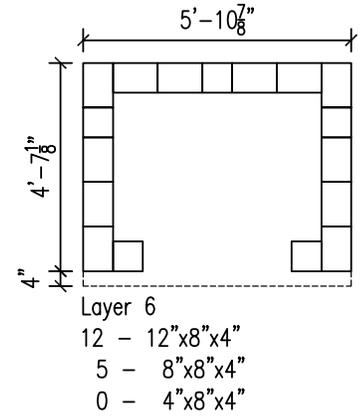
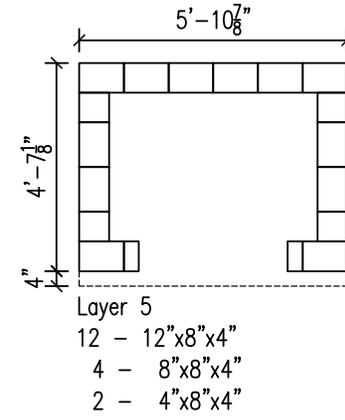
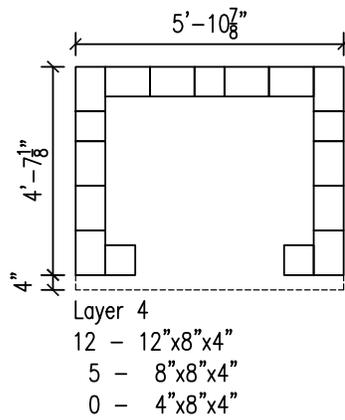
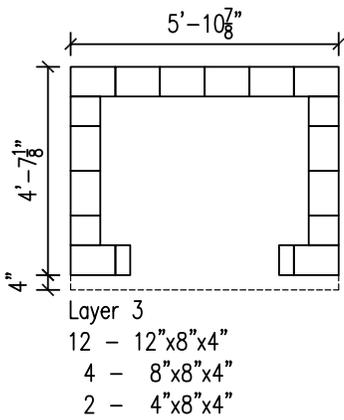
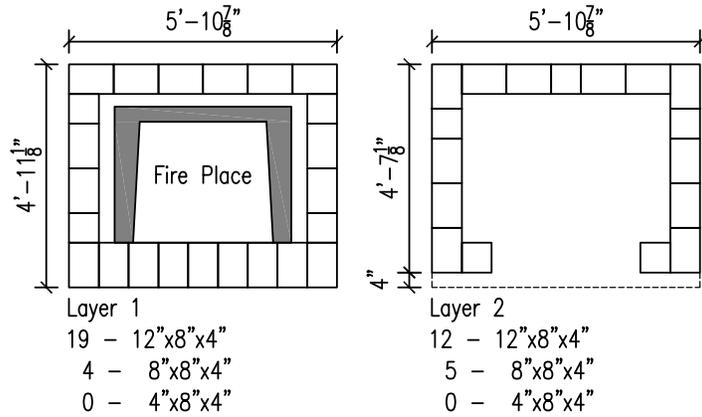
Total Count
 213 - Strassen Wall Pallet A (4"H x 12"L x 8"D)
 32 - Strassen Wall Pallet B (4"H x 8"L x 8"D)
 39 - Strassen Wall Pallet C (4"H x 4"L x 8"D)

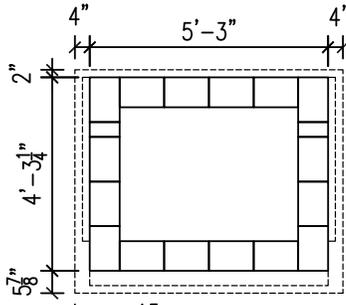
NOTE: The dimensions shown are approximate. Due to possible variations with the fireplace insert, positioning of the Strassen Wall may have to be adjusted slightly (more gap between units) to fit the dimensions shown.

46" King Arthur Outdoor Fireplace Ideas (WALL SOLD SEPARATELY)

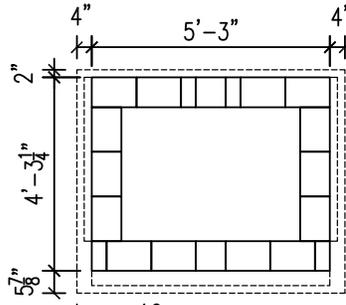


By Layers in Plan View

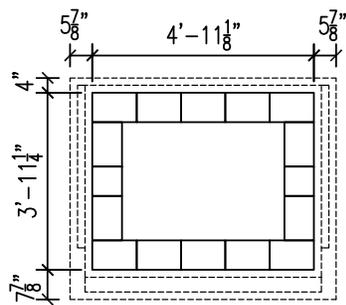




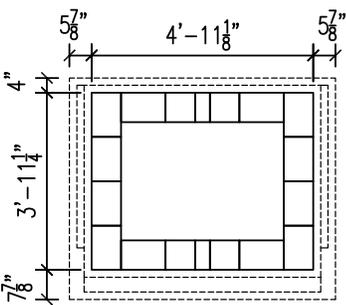
Layer 15
 16 - 12"x8"x4"
 0 - 8"x8"x4"
 2 - 4"x8"x4"



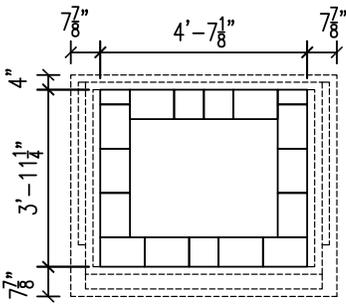
Layer 16
 14 - 12"x8"x4"
 2 - 8"x8"x4"
 4 - 4"x8"x4"



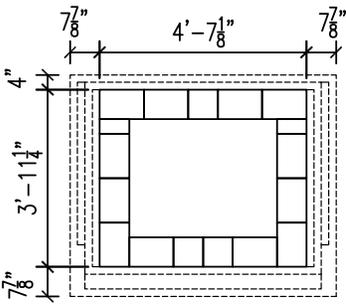
Layer 17
 14 - 12"x8"x4"
 2 - 8"x8"x4"
 0 - 4"x8"x4"



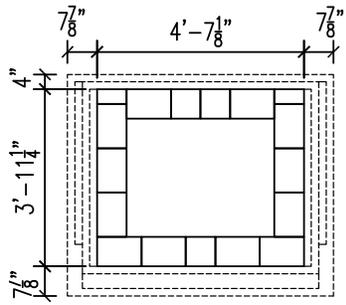
Layer 18
 12 - 12"x8"x4"
 4 - 8"x8"x4"
 2 - 4"x8"x4"



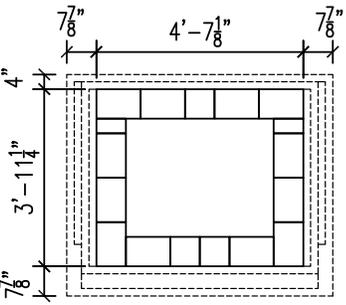
Layer 19
 12 - 12"x8"x4"
 3 - 8"x8"x4"
 2 - 4"x8"x4"



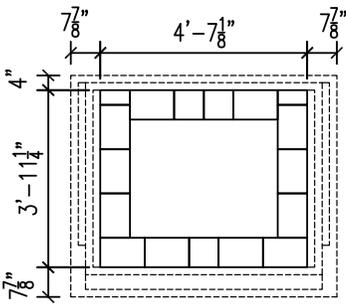
Layer 20
 12 - 12"x8"x4"
 3 - 8"x8"x4"
 2 - 4"x8"x4"



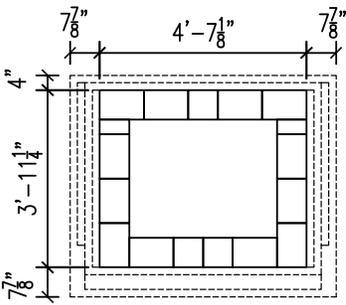
Layer 21
 12 - 12"x8"x4"
 3 - 8"x8"x4"
 2 - 4"x8"x4"



Layer 22
 12 - 12"x8"x4"
 3 - 8"x8"x4"
 2 - 4"x8"x4"



Layer 23
 12 - 12"x8"x4"
 3 - 8"x8"x4"
 2 - 4"x8"x4"

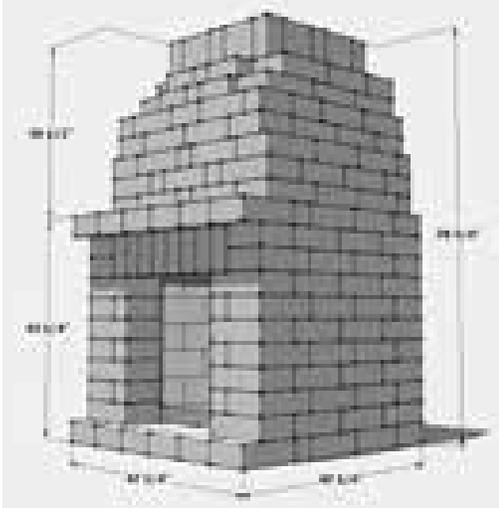


Layer 24
 12 - 12"x8"x4"
 3 - 8"x8"x4"
 2 - 4"x8"x4"

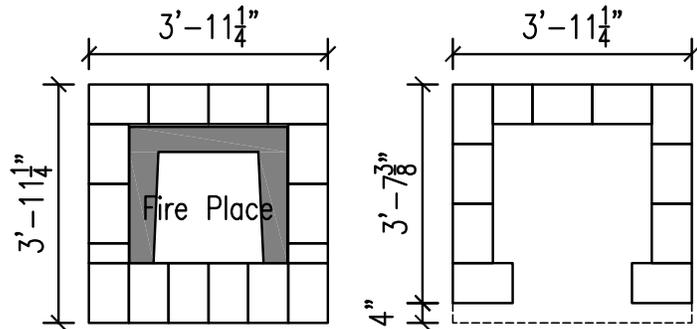
Total Count

- 309 - Strassen Wall Pallet A (4"H x 12"L x 8"D)
- 98 - Strassen Wall Pallet B (4"H x 8"L x 8"D)
- 31 - Strassen Wall Pallet C (4"H x 4"L x 8"W)

31" Camlann Outdoor Fireplace Ideas (WALL SOLD SEPARATELY)

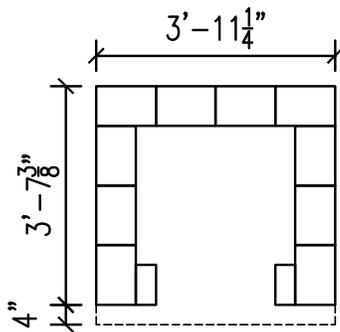


By Layers in Plan View

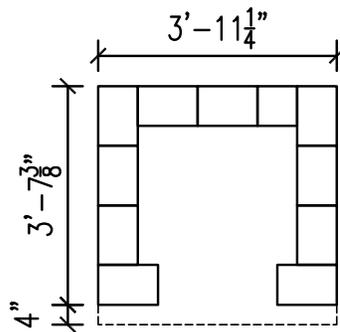


- Layer 1
 14 - 12"x8"x4"
 1 - 8"x8"x4"
 0 - 4"x8"x4"

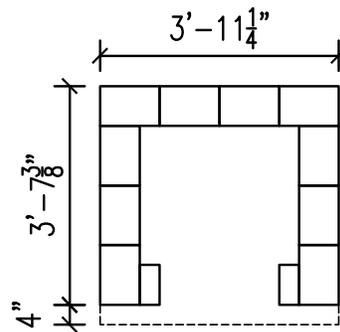
- Layer 2
 10 - 12"x8"x4"
 1 - 8"x8"x4"
 0 - 4"x8"x4"



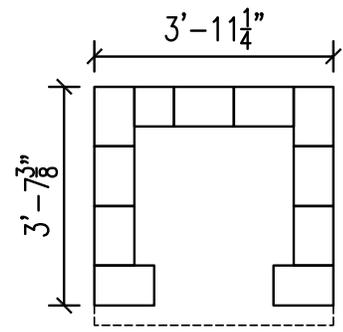
- Layer 3
 10 - 12"x8"x4"
 0 - 8"x8"x4"
 2 - 4"x8"x4"



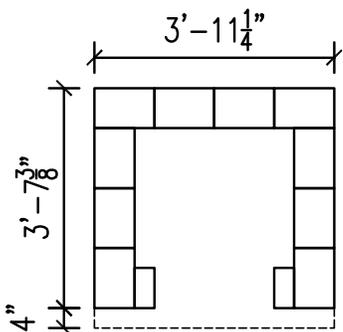
- Layer 4
 10 - 12"x8"x4"
 1 - 8"x8"x4"
 0 - 4"x8"x4"



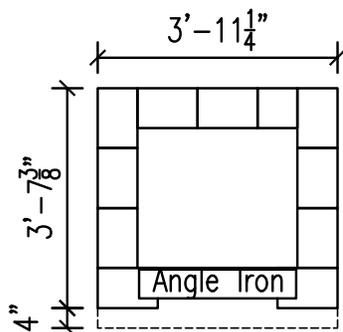
- Layer 5
 10 - 12"x8"x4"
 0 - 8"x8"x4"
 2 - 4"x8"x4"



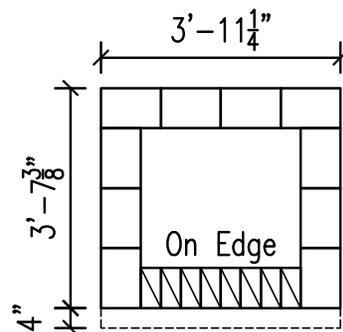
- Layer 6
 10 - 12"x8"x4"
 1 - 8"x8"x4"
 0 - 4"x8"x4"



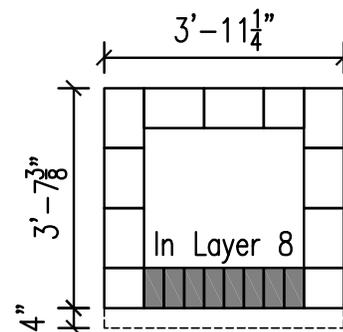
- Layer 7
 10 - 12"x8"x4"
 0 - 8"x8"x4"
 2 - 4"x8"x4"



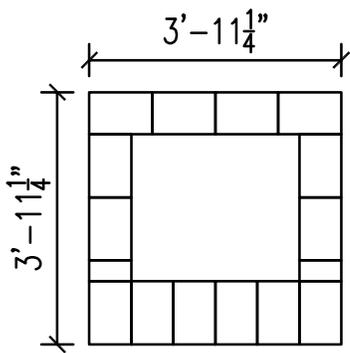
- Layer 8
 10 - 12"x8"x4"
 1 - 8"x8"x4"
 0 - 4"x8"x4"



- Layer 9
 10 - 12"x8"x4"
 8 - 8"x8"x4"
 0 - 4"x8"x4"

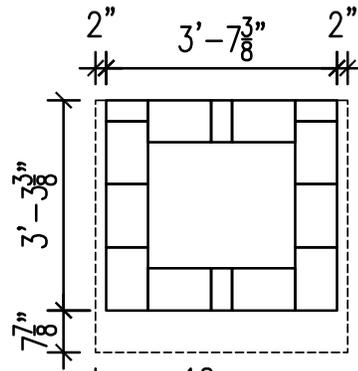


- Layer 10
 8 - 12"x8"x4"
 3 - 8"x8"x4"
 0 - 4"x8"x4"



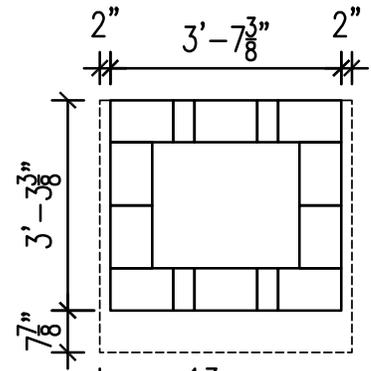
Layer 11

- 14 - 12"x8"x4"
- 0 - 8"x8"x4"
- 2 - 4"x8"x4"



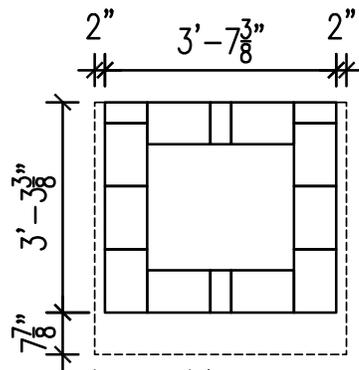
Layer 12

- 10 - 12"x8"x4"
- 0 - 8"x8"x4"
- 4 - 4"x8"x4"



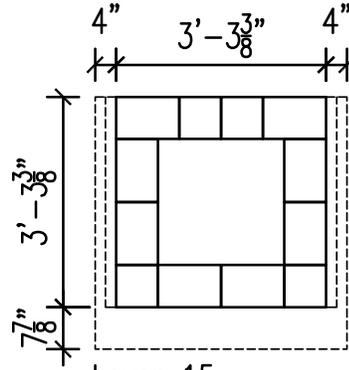
Layer 13

- 10 - 12"x8"x4"
- 0 - 8"x8"x4"
- 4 - 4"x8"x4"



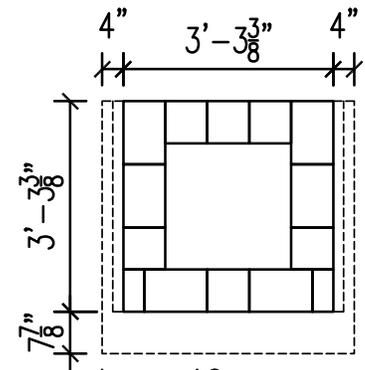
Layer 14

- 10 - 12"x8"x4"
- 0 - 8"x8"x4"
- 4 - 4"x8"x4"



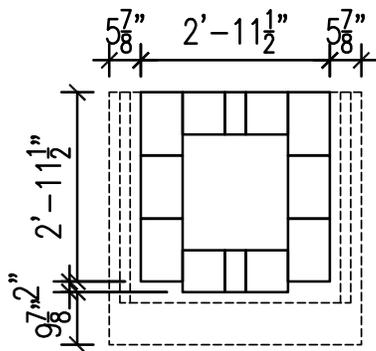
Layer 15

- 8 - 12"x8"x4"
- 4 - 8"x8"x4"
- 0 - 4"x8"x4"



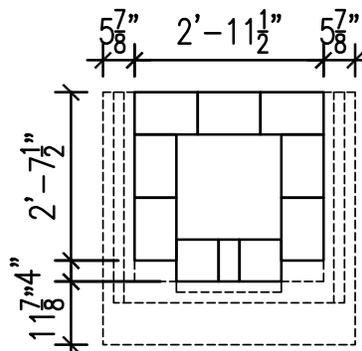
Layer 16

- 6 - 12"x8"x4"
- 6 - 8"x8"x4"
- 2 - 4"x8"x4"



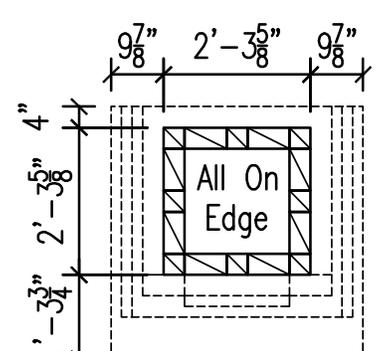
Layer 17

- 6 - 12"x8"x4"
- 4 - 8"x8"x4"
- 2 - 4"x8"x4"



Layer 18

- 7 - 12"x8"x4"
- 2 - 8"x8"x4"
- 1 - 4"x8"x4"



Layer 19

- 0 - 12"x8"x4"
- 8 - 8"x8"x4"
- 8 - 4"x8"x4"

Total Count

- 173 - Strassen Wall Pallet A (4"H x 12"L x 8"D)
- 39 - Strassen Wall Pallet B (4"H x 8"L x 8"D)
- 35 - Strassen Wall Pallet C (4"H x 4"L x 8"W)

NOTE: Due to possible variations with the fireplace insert, positioning of the Strassen Wall may have to be adjusted slightly.

Slabs and Precast Furnishings

Code	Item	Weight Per Unit	Units Per Pallet	Weight Per Pallet
PLAIN STEPPING STONES				
5SN01	12" Plain Round	17#	108	1836#
7S12N	12" Plain Square	28#	108	3036#
7S16N	16" Plain Square	42.5#	60	2550#
5SN07	16" Plain Round	41#	60	2460#
5SN04	18" Plain Square (Roof Projects Only)	58#	48	2784#
5SN05	24" Plain Round	80#	24	1920#
5SN06	24" Plain Square	95#	24	2280#
EXPOSED AGGREGATE STEPPING STONES				
5SE01	12" Exposed Agg. Round 12"	17#	108	1836#
5SE02	12" Exposed Agg. Square 12"	24#	108	2592#
5SE13	16" Exposed Agg. Round 16"	40#	60	2400#
5SE14	16" Exposed Agg. Square 16"	40#	60	2400#
5SE06	24" Exposed Agg. Round 24"	80#	24	1920#
5SE07	24" Exposed Agg. Square 24"	80#	24	1920#
STAIR STACKERS				
5RE01	6" H x 17" W x 34" L - Eulls Pewter	150#	10	1500#
SPLASH BLOCK				
5PS01	Small 12" x 30"	50#	24	1200#

IMPORTANT NOTE: Not all Borgert Stepping Stones, Slabs, Edging and Precast Furnishings are stocked in Colorado. Inquire for availability.

Products and Equipment

Code	Item	Size	Per Bundle Case/Box	Units Per Pallet
PAVE TECH EDGE RESTRAINT				
5PE01	RIGID EDGE - Bundle	7'	12	84 FT
5PE02	FLEX EDGE - Bundle	7'	12	84 FT
	PAVE EDGE BY THE PALLET	7'	49	4116 FT
	Mixed Pallet -			
	FLEX	7'	25	2100 FT
	RIGID	7'	24	2016 FT
5PE03	INDUSTRIAL SPECIAL ORDER	10'	12	120 FT



LANDSCAPE SPIKES				
5MSS1	SINGLES	10"		
5MS00	CASE LOT	10"	150 (approx.)	
5MSS2	SINGLES	12"		
5MS01	CASE LOT	12"	125 (approx.)	

ADHESIVES/BONDS

This is the adhesive that the contractors ask for as "SRW." Professional strength adhesive for masonry, concrete, brick, block, pavers and other common landscaping materials.

- Works on wet or frozen surfaces

5MA02	SRW ADHESIVE - CASE LOT	10 oz.	12	
5MA02S	SRW ADHESIVE - SINGLE TUBE	10 oz.		
5MA04	SRW ADHESIVE - CASE LOT	28 oz.	12	
5MA04S	SRW ADHESIVE - SINGLE TUBE	28 oz.		



Joint Stabilizer

Code Item

PAVE CHEM SANDLOCK® (organic sand joint stabilizer)

- Organic and non-toxic
- Odorless
- Environmentally safe
- Will not deteriorate
- Works in all climates
- Non-staining
- Effective against ants
- Activates with water
- Self healing
- Totally inert binding agent
- Safe around plants, animals and people
- Available as an Additive and Premix

SANDLOCK is a better environmental and more economical option than chemical joint stabilizers. It is an excellent choice for concrete, clay brick or natural stone pavements. SANDLOCK will save time and money over chemical joint stabilizers because activation requires only one thorough saturation of the pavement with water. Numerous light mistings are not necessary. Joints are activated immediately, without fear of binder washout that may occur with polymeric sands.

SANDLOCK is an organic joint sand stabilizer for flexible and semi-rigid pavement systems using. When activated with water, SANDLOCK forms a natural, rubberized 'glue', that binds the joint sand. SANDLOCK remains flexible and will accommodate thermal movement. Its 'self healing' properties allow SANDLOCK to rebind loosened material with any moisture. SANDLOCK reduces sand loss due to wind, traffic, moisture or thermal movement. SANDLOCK does not dilute like water based chemical sealers or break down from ultraviolet light. No harsh chemical cleaners are needed prior to application.

WARNING: Do not mix, stage, or come into contact with asphalt. SANDLOCK will dry out the oils in asphalt and will cause damage. Always use common sense. If using SANDLOCK for any other purpose, please call before use. MSDS and Architectural Specification Sheet available.

5SL10	Master Pack 2 lb. Tubs	58#	24
5SL10S	Single Tub	2#	N/A
5SL01	5 Gallon Pail	25#	N/A
55L50	SANDLOCK Premix 50# Bag	50#	60



Fabrics/Geogrid

Code Item

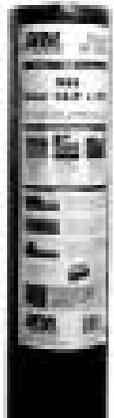
GEOTEXTILE FABRIC - SRW SS5 FOR UNDER BASE

SRW Woven polypropylene geotextiles provide excellent puncture and tear resistant properties, along with high tensile strength. The primary use of wovens are for separation.

Silt Film Wovens: Use for soil separation and reinforcement over moderate sub-grades, under roadways, parking lots and residential streets. This fabric will improve the long-term performance of your project 50-70% and may save you as much as 30% in base materials costs.

Features: Easy Installation: Conforms easily to the ground and offers good resistance to installation abuse. Versatile: Chemically stable in a wide range of aggressive environments. Sizes: Available in retail and large construction roll sizes.

5MG50	12.5 x 27 (Folded)
5MG04	12.5 x 54
5MG51	12.5 x 108
5MG52	17.5 x 51.5
5MG53	17.5 x 103

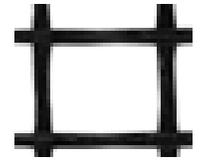


Code	Item
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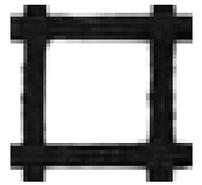
GEOGRID - FOR RETAINING WALL

SRW Geogrid is composed of high molecular weight, high tenacity multifilament polyester yarns that are woven into a stable network placed under tension. These yarns are then coated with a PVC material.

5MG60	UNIVERSAL (BI-DIRECTIONAL) - Walls up to 6' 4' x 50'
5MG61	6' x 50'
5MG62	SRW 3 SERIES (BI-DIRECTIONAL) - Walls up to 10' 6' x 150'
5MG63	SRW 5 SERIES 6' x 150'



SERIES 3



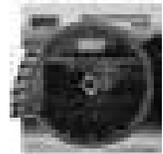
SERIES 5

Miscellaneous

Code	Item	Size	Per Case
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5MS51	SAW BLADES SRW SAW BLADE (do-it-yourselfer)	7"	6 PACK
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Prices F.O.B. St. Joseph, MN



SAW BLADE (DIAMOND)

PAVE TECH® / PROBST EQUIPMENT

5MP02 PAVERADJUSTER™
(w/replacement blade)
Designed to be used standing up, the PAVERADJUSTER is the easiest way to adjust bond lines.



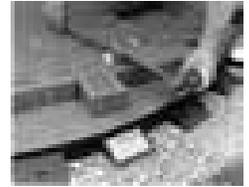
5MP15 PAVERPAW™
One handed option for the ever so popular larger pavers. Operating range: 6 - 10"



5MP08 PAVERADJUSTER™ BLADES
(set of 2 replacement blades)



5MP05 QUICKDRAW™
Designed to mark the soldier courses. Unit glides along most edge restraints (like PAVE EDGE®) or the guide wheel rolls along curbs, walls, and more.



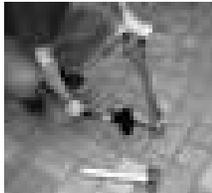
5MP06 PAVERCART™
Moves banded and non-banded pavers around the jobsite in a fraction of time all other methods require. If there is one tool you need, this is it. Save time and money by reducing needless labor hours!



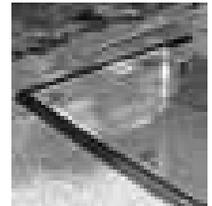
5MP17 SLABGRABBER™
Works greats on retaining wall blocks and slabs. 3 different sizes to accommodate a large range of products. The carrying capacity is 130 lbs, with an opening range of 4 1/4" - 24" depending on size.

5MP18 WALLSPLITTER™
The WALLSPLITTER's cutting height is 3/8" to 12", making this extremely universal on all types of concrete and clay. Creates the same look and texture of a split-face without the needless chiseling one endures without a splitter. A large two-sided loading table works great for the largest of units, while tiltable on one side for undercuts. A floating upper blade ensures uniform contact, along with it being four-sided.

5MP01 PAVEREXTRACTOR™
The professional's answer to paver removal. Why risk damaging surrounding pavers by using screwdrivers? The serrated spring steel tooth extract most pavers, including pavers without spacer bars.



5MP136 PAVER SQUARE PRO™
A quick and easy way to establish 90° angles when starting to lay pavers. Lightweight stainless steel unfolds into a 48" x 68" layout square. When stored, dimensions are 3" wide by 73" long.



5MP10 PAVEREXTRACTOR™ BLADES
(set of 2 replacement blades)

5MP59 PAVERSAVER UNI-MAT™
A universal (22" x 30") urethane rubber mat that can be trimmed to the size of almost any compactor plate. Designed to reduce damage to textured surface pavers, clay brick, natural stone, and paving slabs.



5MP146 PAVERSCRIBE™
When marking pavers without a soldier course, the PAVERSCRIBE is an indispensable aid that not only reduces time needed for those difficult marking/cutting, but also results in uniform spacing for a more professional appearance.



5MP611 HAMMER
EH3028 19" Handle
Blk/White Head
Wood handle hammer with cast iron head housing. This hammer offers two striking surfaces, with interchangeable heads. They come standard with one black medium hard rubber head, and one white hard nylon head.



5MP42 KNEESEATS™ (set of 2)



To order tools please go to www.pavetech.com or call 800.728.3832.

Installation Guide to Paver Walkways and Patios

Tools Needed:

- Wooden stakes
- Wide blade masons chisel
- Masons string (twine)
- Stiff bristle street broom
- 3-5lb. rubber hammer
- Hard tooth garden rake
- Chalk line
- 25 ft. measure tape
- 1" diameter sand screed guides (pipe, wood, etc.)
- 6-8 ft. 2" x 4" or 2" x 6"
- Small pry bar
- 4 ft. Level
- Wheelbarrow
- Flat shovel

Rental: (Look in Yellow Pages for local rentals)

- 3hp to 5hp plate compactor (not a jumping jack)
- Mason diamond saw
- Block/Paver splitter

INSTALLATION

First measure area you intend to pave. Determine square footage by multiplying (length x width = square footage) add 5% for breakage and cutting. Measure lineal feet of open edges, those not up against a permanent structure such as a house, etc. This will indicate lineal footage of PAVE EDGE required. Draw a plan on a piece of paper showing all important dimensions. Take this plan to your supplier so that they can help you determine the proper amount of materials needed to complete your project.

Using the 3-4-5 triangle method to determine a perpendicular line, measure parallel lines from the perpendicular line to establish a boundary. Place stakes every 4 feet to 6 feet and at corners. These stakes should be 8" outside of the planned edge of the pavers. NOTE: You can check to make sure an area is

square by making sure both sets of cross corners measure the exact same distance.

EXCAVATION

NOTE: Before any digging call your local utility companies to locate any underground lines.

Using a flat shovel cut evenly to remove sod/dirt to a depth of at least 7" (18cm) to allow room for 2-3/8" (6cm) paver, compacted sand, minimum of 4" (10cm) compacted crushed stone base (more if soil is very soft). If the house is of new construction there might be potential for settling next to the foundation. We suggest you increase base thickness to 6" (15cm) or a total excavation of 9" (23cm) within 2 feet (1 meter) of new foundation. Excavation should be 6" (15cm) wider on sides where PAVE EDGE edge restraint is to be used.

BASE PREPARATION

This is very important. The more time and effort you put into the preparation of the base, the better the project and the longer it will last. Use either 3/4" (19mm) or 1/2" (13mm) graded base material that includes sizes down to fine dust. This material is easier to compact and will give a tight, close-knit surface of compaction.

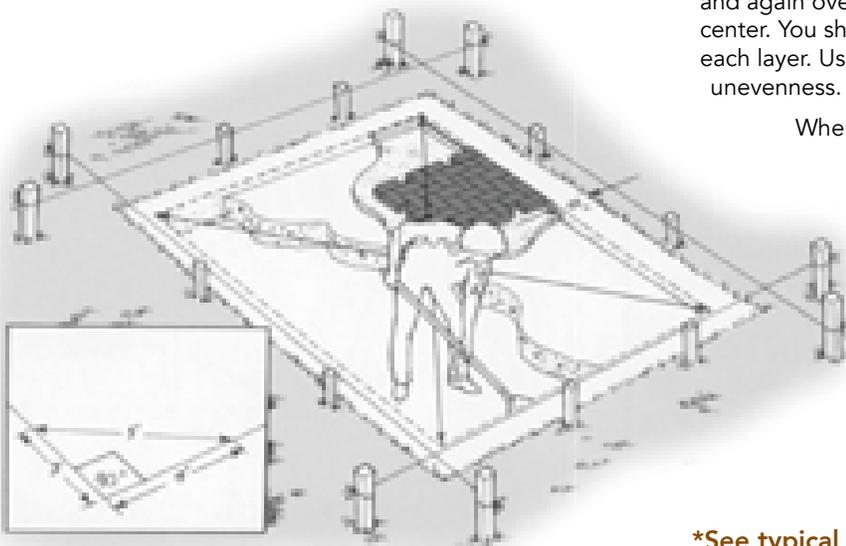
Method of Compaction:

First, run your plate compactor over the excavated soil. (Make sure no soil gets stuck to the bottom of the plate compactor). Each pass should overlap the previous one by about 4". Now spread your gravel base material out evenly in about 2" layers. If material is dry and dusty use a garden hose to thoroughly wet it down, this helps make the gravel faster to compact and easier to rake. Start around the outer perimeter with the plate compactor and again overlap each pass about 4" working towards the center. You should make at least two complete passes for each layer. Use the hard tooth garden rake to smooth out any unevenness.

When finished with the base it should be very smooth and flat. If you were to put a straight edge flat on the surface there should be no more than a 1/4" (6mm) maximum gap anywhere along the straight edge and the base.

Slope and Grade:

Slope and Grade are important to ensure proper run-off. It is best to plan a 1/4" (6mm) per foot drop, but try not to exceed 1/2" (12mm) per foot.



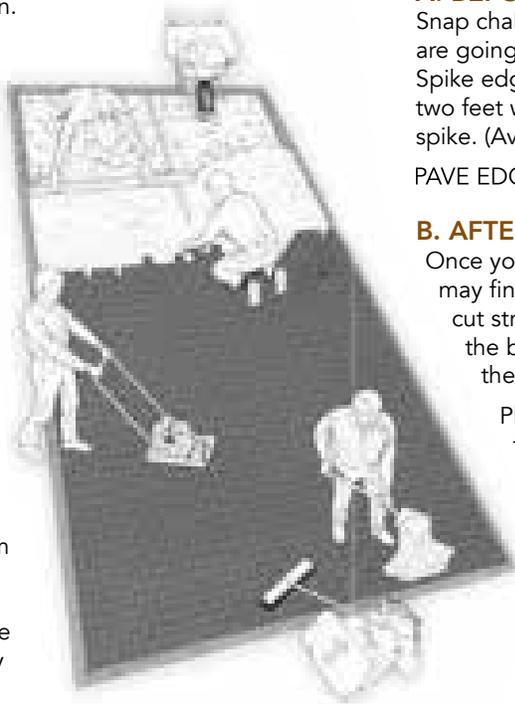
*See typical cross section on page 51.

SAND SETTING BED

NOTE: It is important to keep your sand dry and covered in case of rain.

Do not attempt to level any area or surface irregularities with the sand. This will result in an uneven surface and unwanted settling.

Lay your screed guides (1" (25mm) electrical conduit, 1" strips of wood or other suitable rigid 1" guide) 4' to 6' apart and parallel. Work from side to side with your screed guides, screed a 10' section of sand. You will use the 6 ft. to 8 ft. 2"x 6" to loosely spread the sand and to strike off any excess. DO NOT walk on or work from your screeded sand. Do not worry about voids that screed guides have left after you have removed them. You will lightly fill them with sand and trowel them smooth as you are laying the pavers.



LAYING THE PAVERS

(Instructions for Small Areas Only)

Starting from a permanent edge such as a house, driveway, or even a piece of PAVE EDGE, lay your first paver starting from either side. (As you start laying Pavers, work from right to left, then left to right and so on, one row of pavers at a time.) Set the pavers lightly onto the sand, never press them or hammer them in. Be sure to allow 6" (15cm) to PAVE EDGE on the open sides later. If you are starting with PAVE EDGE as a starting point (see pave edge installation below), run a string line across the front of the laying edge about every 4 feet.

If there are some Pavers lagging behind, go about three rows of Pavers back and using a small pry bar, wedge between the Pavers and pry the Pavers forward until they are in line again.

Do not worry too much about gaps at this point, they will even out during tamping later. Many different laying patterns are possible, but herringbone provides the best surface interlock.

Set the pavers hand tight, but DO NOT use a hammer to adjust the pavers or set them. If you are doing the project over a couple of days, cover the entire area with plastic overnight if rain is expected. Do not lay Pavers over the 6" (15cm) extended base area where PAVE EDGE is to be set later.

CUTTING THE PAVERS

You will need to cut pavers if you have to go around a post or come up against an existing structure or where a radius is desired.

You do not need to cut (except maybe 1/2" stones) on sides where PAVE EDGE is installed. Mark any stones to be cut with a crayon or chalk and allow for up to a 1/4" (6mm) gap between the stone and the edge. This will be filled with sand later. You should use either a diamond blade mason saw or a paver splitter.

PAVE EDGE Installation

A. BEFORE SAND SCREEDING

Snap chalkline on base material before you screed sand if you are going to start laying your pavers from a PAVE EDGE line first. Spike edging so that the chalk line remains visible. Spike every two feet with 10" (25cm) x 3/8" (9mm) diameter steel landscape spike. (Available through your paver supplier.)

PAVE EDGE not only holds the Pavers, but the sand as well.

B. AFTER PAVERS HAVE BEEN LAID

Once you have completed the laying of pavers on the sand you may finish placing the PAVE EDGE spikes. First, using a trowel, cut straight down the side of the pavers into the sand down to the base and pull back the sand. Be careful not to scrape up the base material.

Placing the edging flat onto the base, push PAVE EDGE frost heave lip under the sand, using a hammer to tap against the back of the PAVE EDGE until the edging is tight to the pavers. Now, spike the edging approximately every two feet. Pound the spikes in until the head of the spike is touching the edging.



C. USE PAVE EDGE RIGID FOR STRAIGHT AREAS

D. USE PAVE EDGE FLEXIBLE FOR CURVED AREAS

THE FINAL STEP

Assuming that you have now laid all your pavers, placed and spiked all your PAVE EDGE, you are ready for the last step.

NOTE: During this step the pavers will settle in about 1/4" lower during compaction (only if 1" loose screeded sand has been used). This should be their final height.

A. Sweep any debris or loose sand off of the Pavers.

B. Using a vibratory plate compactor, 3 HP to 5 HP, you should make at least two passes over the pavers. Starting around the perimeter and working inward, overlap each pass 2 to 4 inches. Make the second pass at a 45 degree angle to your first. The first pass of the compactor will accomplish the following:

- will level the Pavers
- compact the sand bedding
- force sand up into the joint

C. Repeat Step B if pavers are not yet level and flat.

D. Using a DRY medium or coarse washed sand for the joints, spread a thin layer of the jointing sand over the surface. Use a stiff bristle street broom and sweep back and forth over the entire pavement until sand has stopped filling into joints.

E. Now, alternating between compacting and sweeping, continue to work the material into the joint. If when you make a pass with the plate compactor and no more joints open up, you are then finished.

F. Sweep off all excess sand and backfill edges with top soil and sod or seed. (Be sure to water freshly seeded or sodded areas regularly.)

Congratulations! YOU have now installed a maintenance free pavement for your patio or walkway. Yours to enjoy for a long time to come.

Base/Sand Guide

BASE/SAND

5MB00 Class 2 Granite Base
 5MC10 Granite Sand
 5MC00 Washed Sand

5CC01 1/4" minus chips (for permeable pavement) 2,000 lb. sack
 5MC01 Granite Sand 2,000 lb. sack



HOW TO FIGURE SAND AND BASE NEEDED

1. Convert all measurements to feet:

1" = .0833' 2" = .1666' 3" = .25' 4" = .3333' 5" = .4166' 6" = .50'
 7" = .5833' 8" = .6666' 9" = .75' 10" = .8333' 11" = .9166' 12" = 1'

2. Length x Width x Depth = Cubic Feet 3. Cubic feet divided by 27 = Cubic Yards needed for project.

EXAMPLE Base and sand for a 20' x 20' area with a 6" base and 1" of sand cushion is as follows:

6" Base: $20 \times 20 \times .50 = 200$ cubic feet / 200 divided by 27 = 7.40 yards base material needed.

1" Sand: $20 \times 20 \times .0833 = 33.33$ cubic feet / 33.33 divided by 27 = 1.23 yards of sand needed.

Information on Efflorescence (White Haze)

Borgert pavers provide long-lasting, durable, yet flexible pavement that adds value to any real estate. Beautiful, yet practical, Borgert pavers are the best paving system for your money. It is our belief that you know more about our pavers and efflorescence.

What is Efflorescence?

There is a chance that after a few weeks or months pass, a white haze may appear on the surface of the pavers. This is known as efflorescence. It may appear randomly or in certain areas, and will be more pronounced on dark colored pavers. The white haze may give the impression that the color of the pavers is fading. When wet, the white disappears and the color of the pavers is enhanced. When they dry, the white haze reappears.

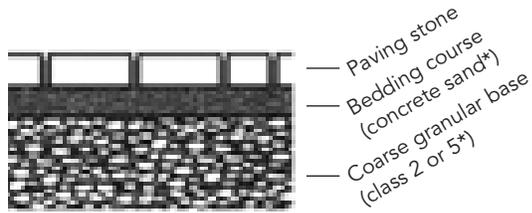
Efflorescence is Completely Natural and Will Disappear with Time

There's no reason to be concerned that your pavers are damaged or defective. The concrete pavers are experiencing a natural process. It is a condition in all cement-based products, as well as in many other paving products. But the condition will usually correct itself with time and exposure to the elements.

Eliminating Efflorescence

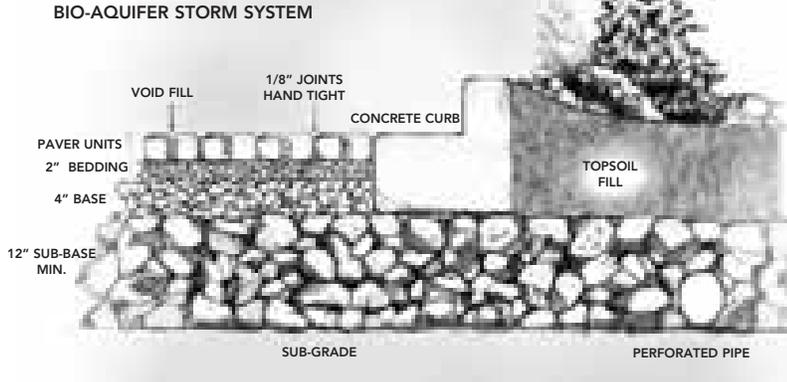
Borgert Products uses a chemical additive in the concrete to reduce the likelihood of efflorescence. In most cases, they do the job. Completely eliminating the chance of efflorescence, however, isn't possible because it's a natural byproduct of hardened concrete. It will stop when no more calcium hydroxide is available to move to the surface. There are cleaners available that can remove efflorescence. These will enhance the natural beauty of your concrete paver project. Use only cleaners specifically made for concrete pavers. Do not use muratic acid.

Typical Cross Section of Concrete Paving Stone



*Recommended by Borgert Products

Permeable Cross Section



Note: Base thickness / details are site specific.
 Consult an engineer.
 See www.borgertproducts.com for local stone gradations.

ASTM Test Requirements for Interlocking Concrete Paving Stone

Borgert pavers exceed industry standards assuring you optimal value. The chart below explains it best.

ASTM REQUIREMENTS	BORGERT'S TEST RESULTS
(average of 3 units) 8,000 psi	(average of 3 units) 13,000 psi
5% absorption	2.5% absorption

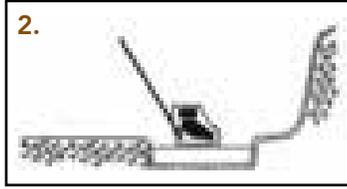
NOTE: Out of 3 pavers no individual paver can be less than 7,200 psi and no individual paver over 7% absorption.

Installation Guide for PanoMur Retaining Walls

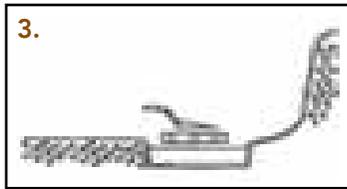
***See SRW's "Standard Engineering and How-To Guide" for more information.**



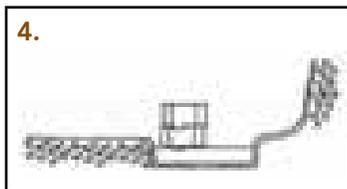
1. Excavate
Dig a base trench 24 inches to 36 inches wide and a minimum of 12 inches deep. Remove all vegetation and unsuitable organic soils (Do not use these for structural backfill). Compact soil base properly.



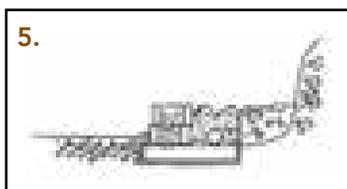
2. Prepare Leveling Pad
Fill trench with 6 inches of well graded gravel and compact firmly with vibrating compaction equipment.



3. Level the Base
Level the gravel base from front to back and side to side. This procedure will ensure a straight and stable wall.



4. Lay your First Course
Use a string line to align your first row of units. For smooth curves, use a flexpipe as your guide. Place each unit edge to edge, lining up the back of the units.



5. Build your Wall
Sweep the top of each course of units to clear debris. Half-stagger the next course so each unit is centered on two units below. Pull each unit forward to lock connecting lugs in place.

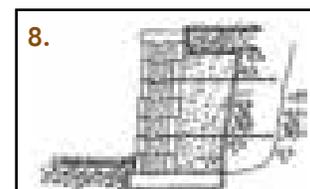
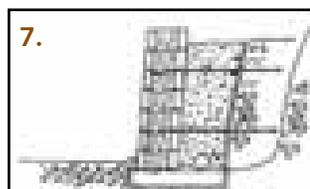
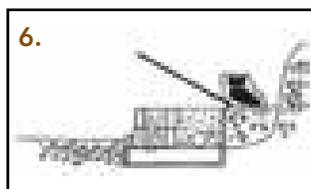
6. Install Backfill
Place perforated drainage pipe behind the base of your wall. Add 12 inches of free-

draining gravel behind the wall. Fill the hollow core of the units with same materials. Place the backfill materials in layers of no more than 12 inches deep. Compact each layer well, making sure to keep your compaction equipment 12 inches away from the back of your wall.

7. Reinforce Wall
Place the geosynthetics on top and as close to the front of the units as possible. Lock the next course of units into place. Gently tension the geosynthetics toward the back of the compacted backfill. Repeat the backfilling steps. Always work from the back of the wall toward the end of the reinforced zone.

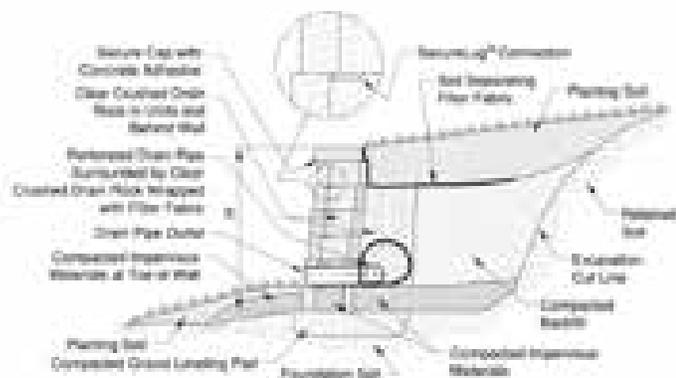
8. Cap your Wall
Sweep off the top course of units. Secure caps to the top of the wall using an approved concrete adhesive. Use a level piece of string to properly align the capping. Place filter soil separation fabric on top of the backfill and drainage materials as well as the back side of the wall. Cover with top soil.

Please note:
A qualified engineer should be consulted on PanoMur walls exceeding 3 feet (or 6 courses) in height.

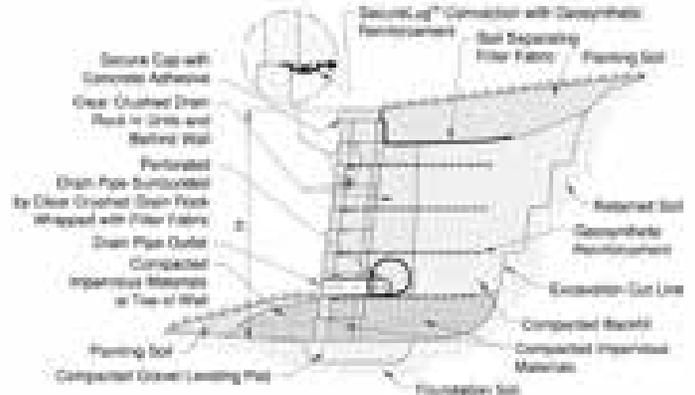


Retaining Wall Cross Sections

Typical Gravity Cross Section



Typical Geo-Reinforced Cross Section





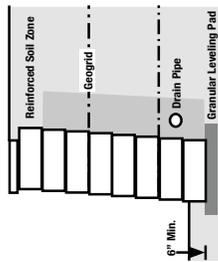
GEOGRID PLACEMENT TABLES for walls up to 8' using PanoMur Block and SRW 3 Series Geogrid

If used without the stamped engineering, the final determination of the suitability of the contemplated use, and its manner of use, are the sole responsibility of the user, and the user expressly releases all parties of any and all liability that might arise as a result. These designs have been performed with National Concrete Masonry Association (NCMA) software and have been analyzed for the appropriate factors of safety. © 2009 Hardscape Technical Services • Visit www.hardscapetech.com for stamped engineering services and additional design charts.

Grid Specification: SRW 3 Series - 1041 LTDS • Block Dimensions: 6"(H) x 16"(W) x 12"(D) • Covers: 2/3 Sq.Ft.

26 Degree Soil

Flat at Top and Bottom of Wall
No Surcharge



GEOGRID PLACEMENT

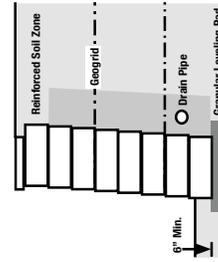
• Grid is measured from the face of the wall.

Exposed Hgt wo/c	0'6"	1'0"	1'6"	2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"
Amount Buried	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"
Total Hgt wo/cap	1'0"	1'5"	2'	2'5"	3'	3'5"	4'	4'5"	5'	5'5"	6'	6'5"	7'	7'5"	8'	8'5"
Grid Sq Yd per Ln Ft	0.000	0.000	0.000	0.000	0.444	0.472	0.889	0.917	0.972	1.000	1.472	1.583	1.772	1.833	2.500	2.694
Grid total depth	-	-	-	-	4.00	4.25	8.00	8.25	8.75	9.00	13.25	14.25	15.50	16.50	22.50	24.25
# Block per Ln Ft	1.50	2.25	3.00	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.50	11.25	12.00	12.75
# Cap per Ln Ft	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75

See "Material Estimating" for Adhesive estimate

30 Degree Soil

Flat at Top and Bottom of Wall
No Surcharge



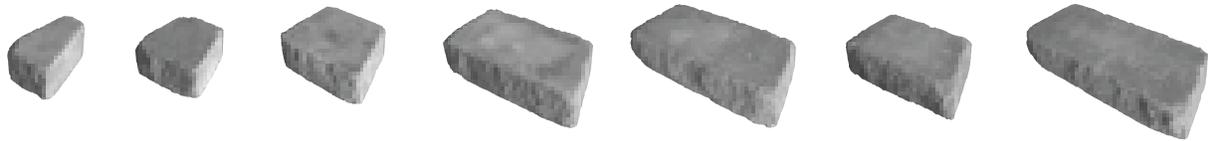
GEOGRID PLACEMENT

• Grid is measured from the face of the wall.

Exposed Hgt wo/c	0'6"	1'0"	1'6"	2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"
Amount Buried	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"
Total Hgt wo/cap	1'0"	1'5"	2'	2'5"	3'	3'5"	4'	4'5"	5'	5'5"	6'	6'5"	7'	7'5"	8'	8'5"
Grid Sq Yd per Ln Ft	0.000	0.000	0.000	0.000	0.000	0.444	0.889	0.889	0.944	1.417	1.500	1.639	1.750	1.833	2.417	2.611
Grid total depth	-	-	-	-	-	4.00	8.00	8.00	8.00	12.75	13.50	14.75	15.75	16.75	21.75	23.50
# Block per Ln Ft	1.50	2.25	3.00	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.50	11.25	12.00	12.75
# Cap per Ln Ft	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75

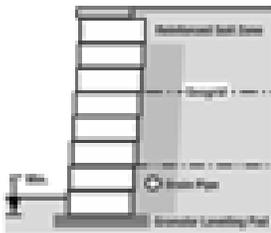
See "Material Estimating" for Adhesive estimate

Madera Wall and Morteza Wall



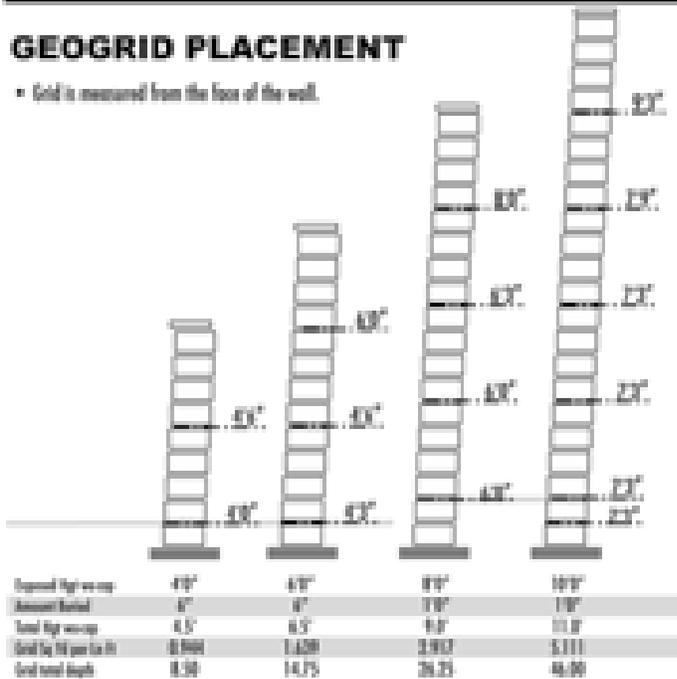
26 Degree Soil

Flat at Top and Bottom of Wall
No Surcharge



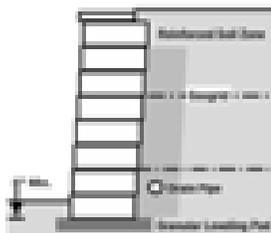
GEOGRID PLACEMENT

• Grid is measured from the face of the wall.



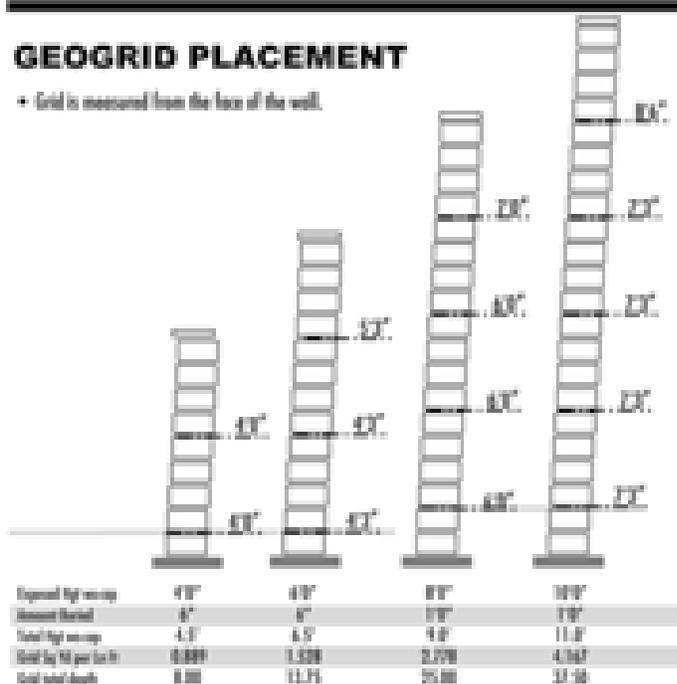
30 Degree Soil

Flat at Top and Bottom of Wall
No Surcharge



GEOGRID PLACEMENT

• Grid is measured from the face of the wall.



*See SRW's "Standard Engineering and How-To Guide" for more information.

GEOGRID PLACEMENT TABLES

for walls up to 10' using Madera Block and SRW 5 Series Geogrid

These charts are applicable for site soils when the friction angle is 26 - 30 degrees and the moist unit weight is 125 lbs. per cubic foot. That is typical for inorganic clays of low to medium plasticity. Site soils are assumed for the reinforced soil, backfill soil, and foundation soil.

1. Sample designs are to be used for preliminary design only when actual soil, site geometry, and surcharge conditions are conservatively represented by the assumptions of the tables in all situations. A qualified engineer using actual design conditions for the proposed site should perform the final as-built design.
2. Sample designs have been prepared exclusively for the use of SRW 5 Series Geogrid.
3. **MINIMUM FACTORS OF SAFETY:** 1.5 for internal reinforcement pullout and tensile overstress, 1.5 for external sliding, 2.0 for external overturning and bearing capacity. NO provision or analysis included for global stability or seismic design.
4. Sample designs require adequate drainage provisions for both the reinforced wall fill and retained backfill.
5. Geogrid must be one continuous piece from the face of the retaining wall block to the back of the reinforced soil mass. No splicing of geogrid. Geogrid must butt together at edges (but must not be overlapped). Geogrid must be pulled taut and fastened before backfill is placed.
6. Follow the installation instructions that are supplied with the retaining wall system that you are purchasing. (Which should include foundation preparation, block alignment, core filling of block, drainage rock placement, backfill placement, and compaction.)
7. See your local building department for permitting requirements.
8. Each design is to be used up to the indicated height only. When the retaining wall exceeds that height a higher design shall be used.
9. When the retaining wall steps up at the bottom of the wall, bottom geogrid layers should be moved up with the steps and not dropped off until the next layer of geogrid is encountered.
10. Light traffic is auto or empty pickup truck loading. Any vehicle traffic or parking loads exceeding light traffic vehicle weights at the top of the retaining wall shall require a special site specific preliminary design.
11. If there is a slope at the bottom of the wall, additional embedment depth of the bottom courses and additional geogrid may be required.
12. If your site does not fit the above site configurations, call SRW Products at (800)752-9326 for a free site specific preliminary design.

© 2008 Hantecap Technical Services
Visit www.hantecaptech.com for stamped engineering services and additional design charts.

***See SRW's "Standard Engineering and How-To-Guide" for more information.**

Property Owner _____

Contractor/Installer _____

Property Address _____

Property Address _____

City _____ State _____ Zip _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Phone _____ Fax _____

Email _____

Email _____

PROJECT NAME:

WALL INFORMATION

Block Being Used: _____

Maximum exposed wall height (ft): _____

Is your retaining wall project multi-tiered or terraced (Multi-tiered walls are not presently included in this standard engineering program)?

YES NO

Are grading plans available that show wall placement, elevations, linear footage with grade lines and/or wall face profiles?

YES NO

- If YES, include the plans with this request form.
- If NO, sketches of a plan view and/or the wall face profile(s) must be provided with this engineering request (see graph sheets and instructions provided for sketching of retaining walls)

Photographs of the proposed retaining wall site must be provided with this engineering request. (see "Photograph Instructions")

SLOPE INFORMATION

(See "Slope Angle Determination Instructions")

Top of wall

Is there a slope at the top of the wall (see diagram)?

YES NO

- If YES, indicate the angle of slope (example, 2 horizontal to 1 vertical)

Horizontal _____ to Vertical _____

- Is the slope rise (elevation change from top of wall to top of slope) the same as or greater than 2 times the height of the wall (see diagram)?

YES NO

- If NO, indicate the slope height (ft) _____

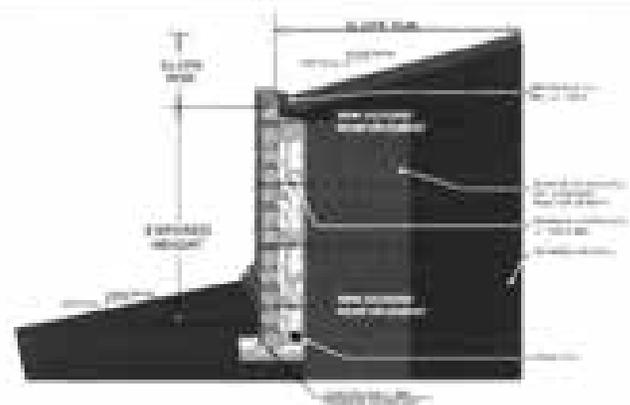
Bottom of wall

Is there a slope at the bottom/front of the wall (see diagram)?

YES NO

- If YES, indicate the angle of slope (example, 2 horizontal 1 vertical)

Horizontal _____ to Vertical _____



SURCHARGE (Load) INFORMATION

Indicate type of load at the top of the wall

- Lawn or grassy Light auto parking/Drive
 Heavy truck parking/Highway

Is there any other loading within 2 times the height of the retaining wall?

YES NO

- Indicate what type of loading it is _____
- Indicate load distance from top of wall _____ (measured in feet from the face of the retaining wall)

SOILS INFORMATION

Is there a soils report available?

YES NO

- If yes, include soils report with this request form.
- If no, include soil sample as outlined in soil sampling instructions.

Leveling pad shall consist of well graded sand & gravel, gravel, or drainage aggregate.

WATER INFORMATION

Is internal or external water involved (External water would include run-off at the top of wall and/or a pond, lake, or stream at the bottom of wall. Internal water could be seepage out of the retained soil.)?

YES NO

- If yes, indicate how water is involved.

continued on page 57

OTHER

Is there a steel, wood, or PVC fence at top of wall?

YES NO

Are there utilities etc. needing to go through the facing or reinforced soil?

YES NO

RETURN STAMPED ENGINEERING

To _____

Property Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Email _____

ADDITIONAL INFORMATION

Please write below anything additional that you feel the engineer needs to know about the retaining wall.

PRODUCT INFORMATION

What retailer did you (or plan to) purchase the supplies for this project? _____

What company manufactured the block unit you are using for this project? _____

PAYMENT INFORMATION

Account Number _____ Exp. Date ____/____ Business Personal

3-digit Number (on back of card) _____ VISA MASTERCARD OTHER _____

Name on Card _____

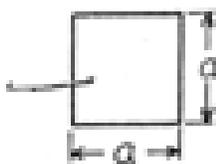
Complete Billing Address: _____ City _____ State _____ Zip _____

PLEASE FILL OUT ALL ITEMS ON THIS FORM.

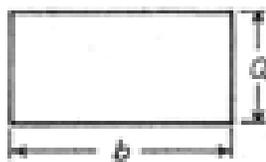
By submitting and signing this form I certify that the information provided herein is accurate and correct. HTS will forward all required information to a licensed and registered engineer in the state of the project. If any site conditions change (e.g. water seepage, soil changes, surcharge changes, or height changes etc.), are encountered, construction of retaining wall must be stopped and Hardscape Technical Services informed of the new conditions before placing ANY retaining wall units. It can then be determined if the stamped designs are appropriate or if changes are required. If faxed or emailed documentation is acceptable for your local building authorities, the turnaround time is estimated to be no longer than five working days from the day that Hardscape Technical Services receives all the required information, including payment. HOWEVER, if raised embossed stamping is required by your local building authorities, add the necessary time to return the stamped engineering by means other than electronic.

Information Supplied by (please print) _____

Signature (required) _____ Date (required) _____



Area of a square = $a \times a$

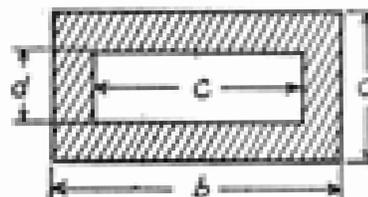
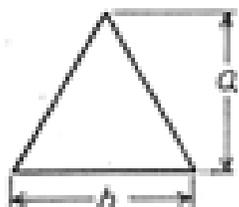


Area of a rectangle = $a \times b$



Area of a Triangle = $\frac{a \times b}{2}$

Equilateral triangles
 $a = .866 \times b$
 Area = $\frac{.866 \times b \times b}{2}$



Area of a hollow rectangle = $(a \times b) - (d \times c)$

Circles

Circumference equals $3.1416 \times D$

Diameter equals $\frac{\text{Circumference}}{3.1416}$



Area equals $1.1416 \frac{(D \times D)}{4}$ or $3.1416 R^2$ or $.7854 D^2$ or $.0796 (\text{circumference})^2$

Length of arc equals number of degrees \times diameter \times 0.008727

To find side of an inscribed square multiply diameter by 0.7071 or multiply circumference by 0.2251 or divide circumference by 4.4428

The side of inscribed cube equals radius of sphere \times 1.1547

To find side of an equal square multiply diameter by .8862

Square: The thickness multiplied by 1.155 equals diameter of its circumscribing circle

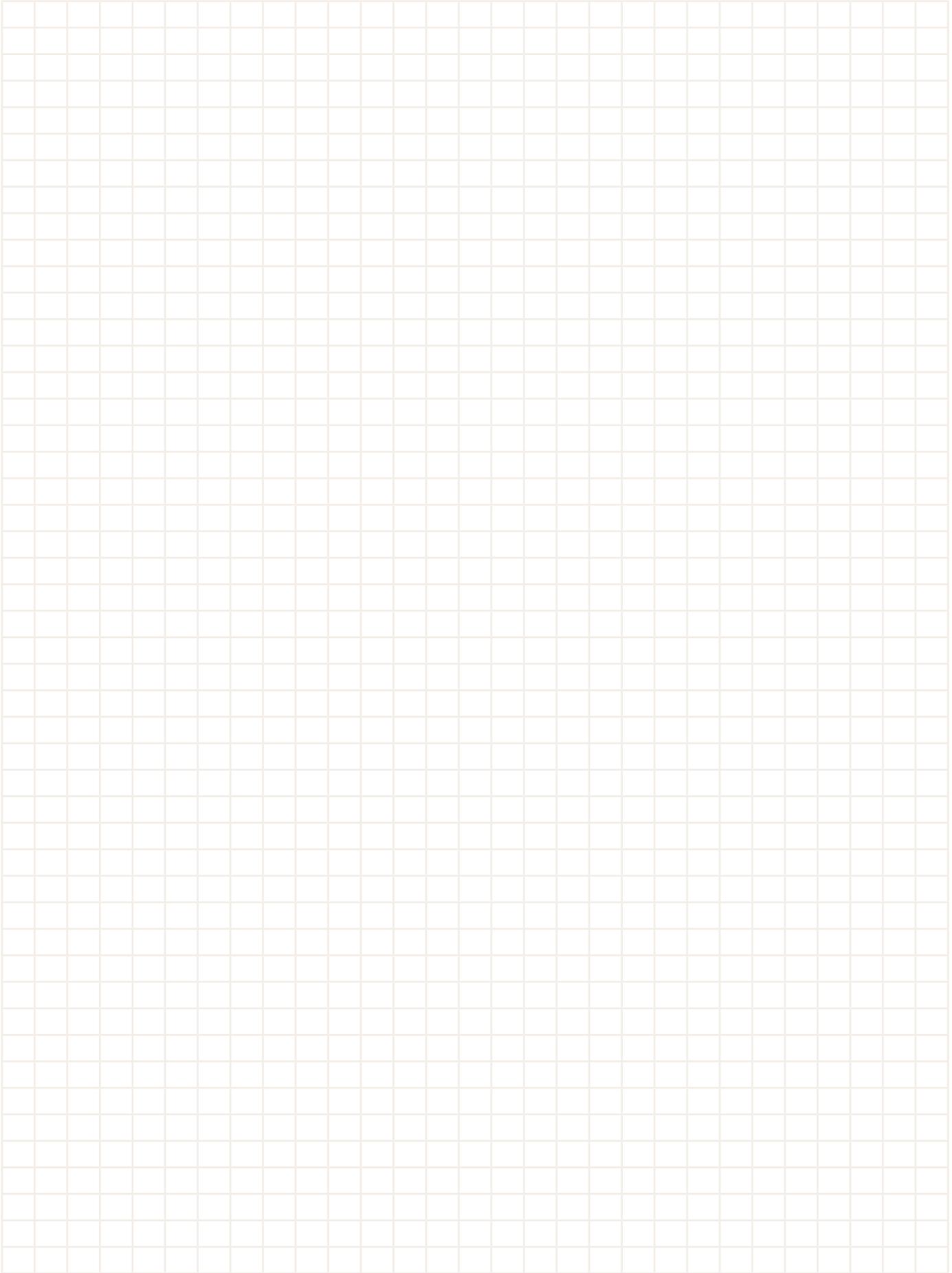
Hexagon: The thickness multiplied by 1.155 equals diameter of the circumscribing circle

Octagon: The thickness multiplied by 1.082 equals the diameter of the circumscribing circle

A side of a square multiplied by 4.443 equals circumference of its circumscribing circle; multiplied by 1.128 equals diameter of a circle of equal area multiplied by 3.547 equals circumference of a circle of equal area.

Area of a Parallelogram = Base \times Altitude

Area of a Trapezoid = $\frac{1}{2}$ the sum of the parallel sides \times perpendicular height





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PAVING STONES & WALLS

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