CONCRETE PRODUCTS TECHNICAL GUIDE





A TCC MATERIALS COMPANY





A TCC MATERIALS®COMPANY

Products available in a wide variety of sizes, shapes, and colors

Certified EnviroTrol™ curing available

Part of the national Concrete Products Group

Amcon Concrete Products, LLC is proud to be a part of the Concrete Products Group (CPG) offering product availability and consistency nationwide. CPG products offered by Amcon include Spec-Brik®, Spec-Brik® Jumbo, Spec-Finish®, WCT® Water Control Technology, and the most recent addition of Spec-Thermal™ Pre-Insulated Masonry.







TABLE OF CONTENTS

Technical Data - Fire Ratings	4
Technical Data - Specifications	5
Technical Data - Sound Transmission	5
Technical Data - Core Filling Data	5
Technical Data - Compressive Strengths	6-7
Delivery Data	8-9
Solid Block	10
4" Block	11
6" Block	12-13
8" Block	14-15
10" Block	16
12" Block	17-18
14" Block	19
16" Block	19
24" Block and Special Shapes	20
Scored Block	21
Soundblox	22-23
Soundcell	24
Rockface/Splitface	25-27
Mammoth Stone® Series	28
Stone Mason™ Series	29
Spec-Brik [®]	30
Sill Block	31-33
8 Rib Split	34
Corduroy	35
4 Flute	36
Patterned Ashlar Bond Examples	37-47
Product Glossary	48-49
Featured Product: Spec-Thermal™ Korfil Hi-R H	50-51

TECHNICAL DATA FIRE RATINGS

RATED FIRE RESISTIVE PERIODS

Fire resistance of concrete masonry units is determined by the "equivalent thickness" of the block and the type of aggregate. The equivalent thickness is theoretical thickness of the block if all the concrete was molded into a solid unit. It is calculated by multiplying the actual thickness by the % of solids. As an example, an 8" block with 52% solids has an equivalent of 4.0 in. $(7.625 \times 52\% = 4)$. The greater the equivalent thickness, the greater the fire rating. Lightweight aggregate (expanded clay) has a better fire rating than standard weight aggregate (siliceous gravel). As an example, an 8" standard weight block has a 1 hour rating and an 8" lightweight block has a 2 hour rating. Filling the cores of the block with grout or other non-combustible material will increase the fire resistance. Applying plaster or gypsum wall board will also increase the fire resistance.

Estimated Fire Resistive Periods of Walls and Partitions of Hollow Concrete Masonry Units

	Minimum eq	Minimum equivalent thickness for ratings of:					
Type of coarse aggregate:	4 hour	3 hour	2 hour	1 hour			
Expanded Clay (lightweight):	5.7"	4.9"	3.9"	2.7"			
Siliceous Gravel (standard weight):	6.2"	5.3"	4.2"	2.8"			

(Based on The International Building Code as adopted by the Minnesota State Building Code)

Block Size (Inches)	Block Core	Face Shell Thickness	Web Thickness	% Solids	Equivalent Thickness in Inches	Fire Rating Std. Weight	Fire Rating Lgt. Weight
4x8x16		1"	1"	75%	2.7	0.75	1
4x8x16		Solid	-	100%	3.6	1.5	1.5
6x8x16		1"	1"	57%	3.2	1	1
6x8x16		2"	1"	87%	4.9	2	3
8x8x16		1 1/4"	1"	52%	4	1	2
8x8x16		1 3/8"	1"	55.3%	4.2	2	2
8x8x16		2 1/8"	1 1/4"	75%	5.8	3	4
8x8x16	Open Core	1 7/8"	1"	56%	4.2	2	2
8x8x16	Open Core	2 1/2"	1"	70%	5.3	3	3
8x8x16	Open Core	3"	1"	81%	6.2	4	4
8x8x16		Solid	-	100%	7.6	4	4
10x8x16		1 3/8"	1 1/8"	51%	4.9	2	3
12x8x16		1 1/4"	1 1/8"	45%	5.2	2	3
12x8x16		1 1/2"	1 1/8"	47%	5.5	3	3
12x8x16		2 1/2"	1 1/8"	60%	7	4	4
12x8x16	Open Core	1 1/2"	1 1/4"	38%	4.4	2	2
12x8x16	Open Core	2 1/8"	1 1/4"	47%	5.4	3	3
12x8x16	Open Core	2 5/8"	1 1/4"	54%	6.3	4	4
14x8x16		1 1/2"	1 1/8"	46%	6.3	4	4
16x8x16		1 1/2"	1 1/8"	44%	6.9	4	4

The above table is based on the International Building Code (IBC) as adopted by the Minnesota State Building Code. More information about determining fire ratings can be found in TEK 7-1C or by contacting Amcon Concrete Products, LLC.

TECHNICAL DATA

SPECIFICATIONS, SOUND TRANSMISSION, AND CORE FILLING DATA

SPECIFICATIONS

All concrete masonry units manufactured by Amcon Block:

- 1) exceed minimum standards as established by ASTM C90 for load bearing concrete masonry units.
- 2) meet all existing code requirements (Minnesota State Building Code is based on the International Building Code—I.B.C.) All standard weight aggregate conforms to the requirements of ASTM C33.

All lightweight aggregate conforms to the requirements of ASTM C331.

SOUND TRANSMISSION

SOUND TRANSMISSION CLASS (STC) FOR SINGLE WYTHE CONCRETE MASONRY WALLS

WALL DESCRIPTION No Surface Treatment:	4"	6"	8"	10"	12"
hollow, standard weight	44	45	48	50	51
hollow, lightweight	41	43	45	47	49
solid, standard weight	45	48	54	55	56

All STC ratings shown are calculated from test data and based on wall weights using standard and lightweight block as manufactured by Amcon Block.

References:

(1) National Concrete Masonry Association Tek Bulletin 13-1B (2008).

CORE FILLING DATA

Wall Thickness	Block Size (Inches)	% Solids	Cu. Ft. of Material to Fill One Block	# of Block Per Cu. Yard
6"	6 x 8 x 16 Regular	57	.22	122
8"	8 x 8 x 16 Regular	52	.27	100
8"	8 x 8 x 16 3-hour Rated	77	.18	151
8"	8 x 8 x 16 BB	-	.23	118.5
10"	10 x 8 x 16 Regular	51	.325	83
12"	12 x 8 x 16 Regular	45	.47	57
12"	12 x 8 x 16 3-hour Rated	47	.46	59
12"	12 x 8 x 16 4-hour Rated	57	.37	73
12"	12 x 8 x 16 Lintel	-	.485	55.5
12"	12 x 8 x 16 BB	-	.42	64.5
14"	14 x 8 x 16 Regular	46	.50	54
16"	16 x 8 x 16 Regular	44	.61	44

TECHNICAL DATA COMPRESSIVE STRENGTHS - UNIT STRENGTH METHOD

COMPRESSIVE STRENGTH EVALUATION OF CONCRETE MASONRY – UNIT STRENGTH METHOD

Compliance with the specified compressive strength (f 'm) of concrete masonry structures is verified by one of two methods: the Unit Strength Method or the Prism Test Method. These two methods are referenced in masonry design codes (ref. 1) specifications (ref. 2), and standards (ref.3) as rational procedures for verifying masonry compressive strength.

The Unit Strength Method is the least expensive and most convenient of the two methods. It is important to note that the Unit Strength Method also yields more conservative results when compared to the Prism Test Method particularly at the higher end of unit masonry strengths, either method is acceptable for verifying compliance with the specified f 'm value of the project.

TABLE 1: The table below is from the 2012 Building Code Requirements for Masonry Structures.

Net Area Compres Concrete Maso	_	Net Area Compressive Strength of Masonry (2), f'm
Type M or S Mortar	Type N Mortar	psi
1,250	1,900	1,350
1,900	2,150	1,500
2,350	2,600	1,750 (1)
2,800	3,050	2,000
3,275	3,550	2,250 (1)
3,750	4,050	2,500
4,275	4,650	2,750 (1)
4,800	5,250	3,000

⁽¹⁾ Linear Interpolation between shown values is permitted. (2) For units less than 4 in. in height, use 85% of the values listed.

TABLE 2: The table below is from the 2015 Building Code Requirements for Masonry Structures. Note that it now recognizes 2,000 psi CMU Walls Using Type S Mortar as having 2,000 psi f'm comprehensive strength. Prior Code editions only recognized a value of 1,500 psi f'm. **This is a 33% improvement over previous Codes, is long overdue, and results in more cost-effective wall structures.**

Net Area Compressiv Concrete Masonry	_	Net Area Compressive Strength of Masonry (2), f 'm
Type M or S Mortar	Type N Mortar	psi
	1,900 (13.10)	1,700 (11.72)
1,900 (13.10)	2,350 (14.82)	1,900 (13.10)
2,000 (13.79)	2,650 (18.27)	2,000 (13.79)
2,600 (17.93)	3,400 (23.44)	2,250 (15.51)
3,250 (22.41)	4,350 (28.96)	2,500 (17.24)
3,900 (26.89)		2,750 (18.96)
4,500 (26.89)		4,500 (26.89)

^{**}Due to the recent changes in International Building Code Requirements, it is important that you check local building codes to confirm current codes for your project location(s)**

TECHNICAL DATA

COMPRESSIVE STRENGTHS - UNIT STRENGTH METHOD (CONT.)

Compliance with the specified f 'm by the Unit Strength Method is based on the net area compressive strength of the CMU's being used and on the type of mortar being used. The masonry assembly is then established in accordance with Table 1. Table 1 is based on criteria found in Section 1.4.B.2.b of Specification for Masonry Structures (ref. 2), and from similar provisions found in Section 2105.2.2.1.2 of the International Building Code (ref. 4). According to both of these documents, use of the Unit Strength Method requires the following:

- Masonry Units must be sampled and tested in accordance with ASTM C 140 Standard Test Method for Sampling and Testing Concrete Masonry Units and Related Units (ref. 5) and meet the requirements of either ASTM C 55 Standard Specifications for Concrete Brick (ref. 6) or ASTM C 90 Standard Specification for Loadbearing Concrete Masonry Units (ref.7).
- 2. Thickness of bed joints used in construction must not exceed 5/8".
- 3. If grouted masonry is used in construction, the grout must either meet the proportion or property specification of ASTM C 476 Standard Specification for Grout for Masonry (ref. 8). When property specifications are used, the compressive strength of the grout is determined in accordance with ASTM C 1019 Standard Test Method of Sampling and testing Grout (ref. 9).
- 4. Mortar must comply with requirements of ASTM C270 Standard Specification for Mortar for Unit Masonry (ref. 10) or ASTM C 1329 Standard Specification for Mortar Cement (ref. 12).

When higher strength masonry materials are specified, it is usually more cost effective to utilize the Prism Test Method to demonstrate compliance with f'm due to the level of conservatism inherent in the Unit Strength Method. If testing larger CMU's using the Prism Method, cutting the units in half prior to constructing the prism will provide a more accurate assessment of the strength of the materials in the masonry prism as well as lessening the likelihood of damage occurring to the prism when handling and transporting. The practice of cutting larger units in half prior to construction of prisms is encouraged in ASTM C 1314 (Note 2) Standard Test Method for Compressive Strength of Masonry Prisms (ref. 3).

DELIVERY DATA

Unit Sizes & Type	Unit Dry Weight	Units per Cube	Weight per Cube*	# Cube 40,000 lb. Max Load	Total # of Blocks Per Load 40,000 lb.	# Cubes 48,000 lb. Max Load**	Total # of Blocks Per Load 48,000 lb.
2 x 8 x 16 Solid (SF)	15	240	3640	11	2640	13	3120
3 x 8 x 16 Solid (SF)	25	135	3415	11	1485	13	1755
4 x 4 x 16 Solid (SF, Bur. or RF)	19	180	3240	12	2160	15	2700
4 x 4 x 24 Solid (RF)	28	120	3410	12	1440	14	1680
4 x 8 x 16 Solid (SF or Bur.)	39	120	4720	8	960	10	1200
4 x 8 x 16 Solid (RF)	39	120	4720	8	960	10	1200
4 x 8 x 12 Solid (SF or Bur.)	26	120	3120	13	1560	16	1920
4 x 8 x 12 Solid (RF)	28	120	3410	12	1440	14	1680
4 x 8 x 24 Solid (SF, RF or Bur.)	60	60	3350	12	720	14	840
4 x 12 x 12 Solid (SF, Bur. or RF)	38	72	2736	15	1080	18	1296
4 x 12 x 16 Solid (SF, Bur. or RF)	54	60	3280	12	720	14	840
4 x 12 x 24 Solid (RF)	84	42	3252	12	504	14	588
4 x 16 x 24 Solid (RF)	102	35	3630	11	385	13	455
4 x 16 x 16 Solid (SF, Bur. or RF)	73	36	2628	15	540	19	684
6 x 4 x 16 Solid (SF, Bur. or RF)	28	120	3120	13	1560	16	1920
6 x 8 x 16 Solid (SF, Bur. or RF)	56	60	3180	13	780	15	900
8 x 8 x 16 Solid (SF or Bur.)	73	60	4420	9	540	10	600
8 x 8 x 16 Solid (RF)	73	60	4420	9	540	10	600
10 x 8 x 16 Solid (SF or Bur.)	85	36	3060	13	468	16	576
10 x 8 x 16 Solid (RF)	87	36	3132	13	468	15	540
12 x 8 x 16 Solid (SF or Bur.)	107	30	3210	13	390	15	450
12 x 8 x 16 Solid (RF)	109	30	3270	12	360	15	450

CODE: SF = Smooth Face Bur. = Burnished Block

RF = Rock Face

•Includes 40 lb. Pallet

•• Due to size and style of trucks and trailers, load weights may vary between 40,000 and 48.000 lb.

^{**}Pallet quantities may vary by plant. Please check with your local plant to verify pallet quantities.**

DELIVERY DATA

Unit Sizes & Type	Unit Dry Weight	Units per Cube	Weight per Cube*	# Cube 40,000 lb. Max Load	Total # of Blocks Per Load 40,000 lb.	# Cubes 48,000 lb. Max Load**	Total # of Blocks Per Load 48,000 lb.
4 x 8 x 16 Cored Std. Wt. (SF or Bur.)	25	120	3040	13	1560	15	1800
4 x 8 x 16 Cored Std. Wt. (RF)	29	120	3530	11	1320	14	1680
4 x 8 x 16 Cored LW (SF, Bur.)	20	120	2400	16	1920	20	2400
6 x 8 x 16 Cored St. Wt. (SF or Bur.)	30.5	100	3090	13	1300	15	1500
6 x 8 x 16 Std. Wt. (RF)	33	100	3340	12	1200	14	1400
6 x 8 x 16 Cored LW (SF or Bur.)	24	100	2440	16	1600	19	1900
8 x 8 x 16 Cored St. Wt. (SF or Bur.)	38	75	3040	13	975	15	1125
8 x 8 x 16 Cored Std. Wt. (RF)	43	60	2640	15	900	18	1080
8 x 8 x 16 Cored LW (SF or Bur.)	29	75	2440	16	1200	19	1425
8 x 8 x 16 Bond Beam Std. Wt. (SF or Bur.)	50	75	3790	11	825	12	900
8 x 8 x 16 Fill Top Std. Wt. (RF)	50	75	3790	11	825	12	900
8 x 8 x 16 Bond Beam LW (SF or Bur.)	39	75	2965	13	975	16	1200
8 x 8 x 16 Three Hour Fire Rated Units	50	75	3750	11	825	12	900
10 x 8 x 16 Cored St. Wt. (SF or Bur.)	46	66	3076	13	858	15	990
10 x 8 x 16 Cored St. Wt. (RF)	54	50	2740	14	700	17	850
10 x 8 x 16 Bond Beam Std. Wt. (SF or Bur.)	58	55	3240	12	660	14	770
10 x 8 x 16 Bond Beam LW (SF or Bur.)	36	55	2360	16	880	20	1100
12 x 8 x 16 Cored Std. Wt. (SF or Bur.)	51	60	3100	13	780	15	900
12 x 8 x 16 Cored Std. Wt. (RF)	50	50	2600	16	800	18	800
12 x 8 x 16 Cored LW (SF or Bur.)	42	60	2570	15	900	18	1080
12 x 8 x 16 Bond Beam Std. Wt. (SF or Bur.)	65	50	3290	12	600	14	700
12 x 8 x 16 Bond Beam Std. Wt. (RF)	67.5	50	3415	11	550	14	700
12 x 8 x 16 Bond Beam LW (SF or Bur.)	51	50	2590	15	750	18	900
12 x 8 x 16 Three Hour Fire Rated Units	58	60	3480	11	660	13	780
14 x 8 x 16 Cored Std. Wt. (SF or Bur.)	59	45	2700	15	675	17	765
14 x 8 x 16 Cored LW (SF or Bur.)	42	45	1930	16	720	20	900
16 x 8 x 16 Cored Std. Wt. (SF)	62	45	2840	14	630	17	765
16 x 8 x 16 Cored Std. Wt. (SF or Bur.)	62	45	2830	14	630	17	765
16 x 8 x 16 Cored LW. (SF or Bur.)	46	30	1400	16	480	20	600

CODE:

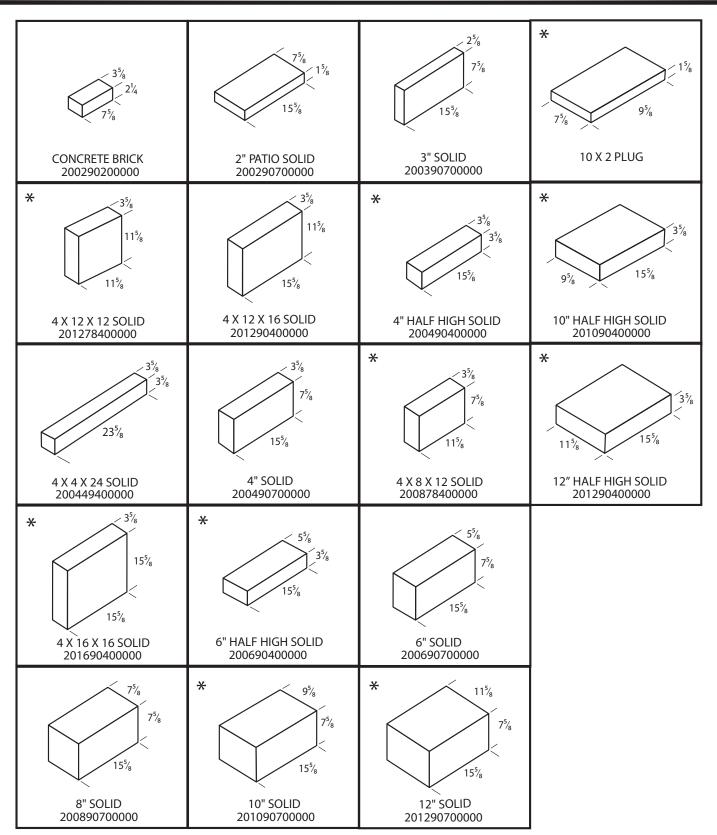
SF = Smooth Face Bur. = Burnished Block

RF = Rock Face LW = Lightweight •Includes 40 lb. Pallet

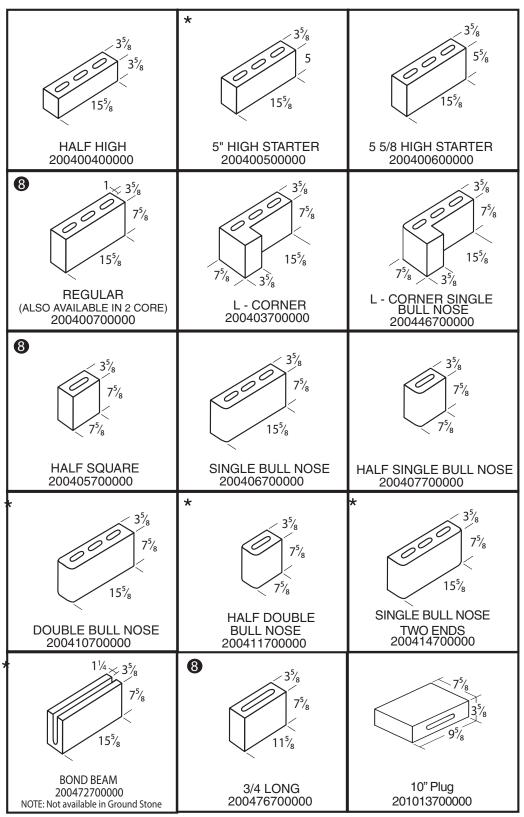
 $\bullet \bullet$ Due to size and style of trucks and trailers, load weights may vary between 40,000 and 48.000 lb..

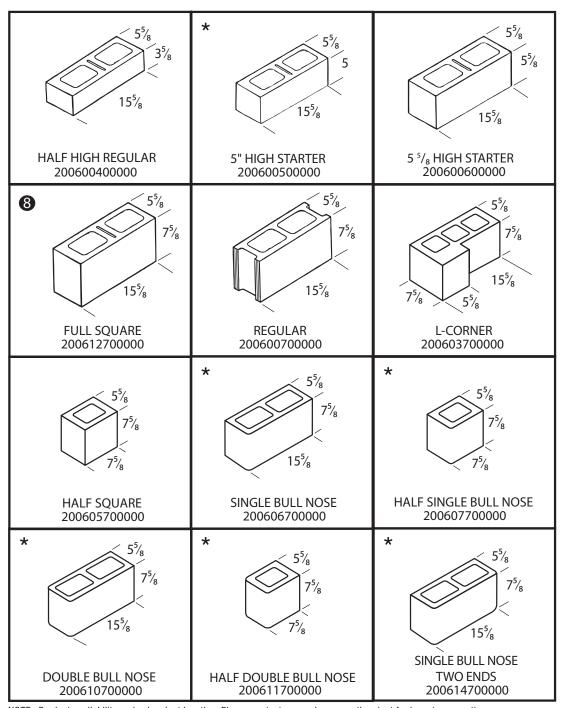
^{**}Pallet quantities may vary by plant. Please check with your local plant to verify pallet quantities.**

SOLID BLOCK

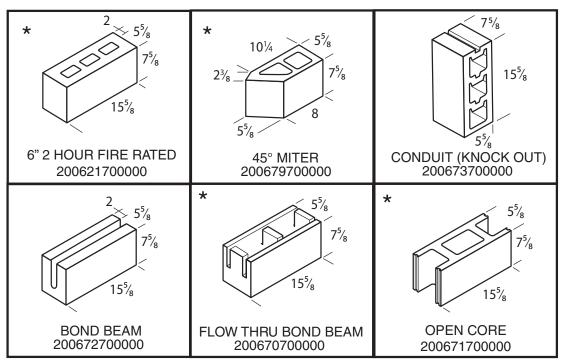


NOTE: Product availability varies by plant location. Please contact your sales rep or the plant for inventory questions. *Denotes units which are normally special-order runs and may be subject to short run charges and/or minimum orders.

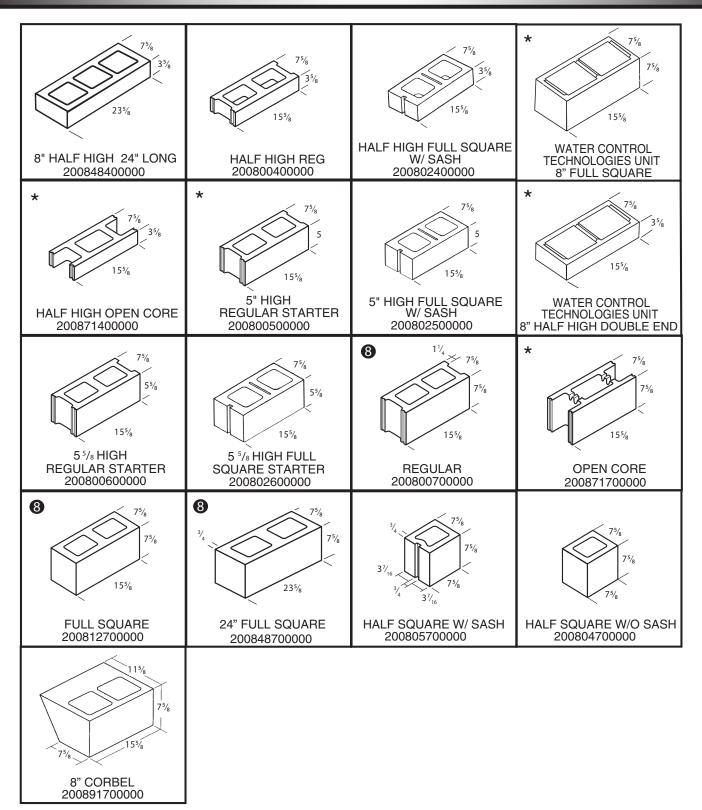




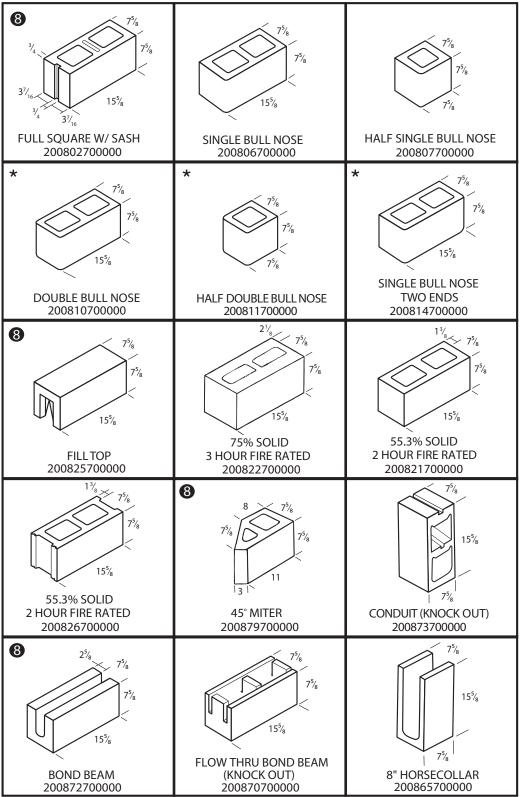
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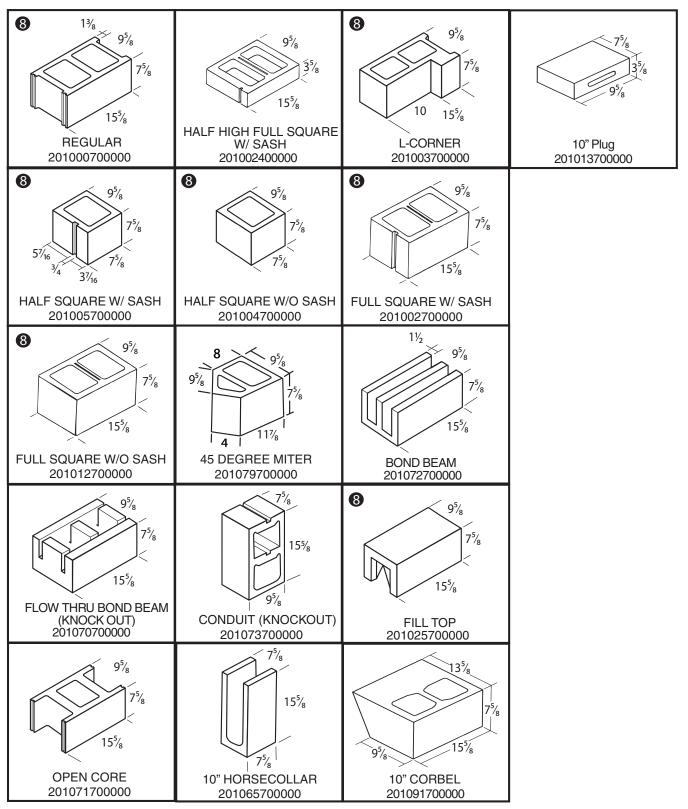


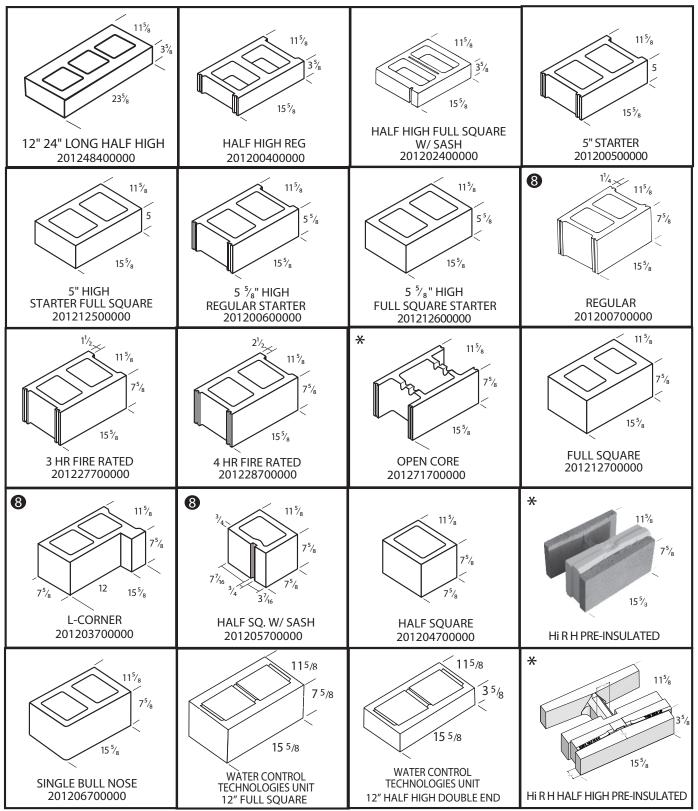
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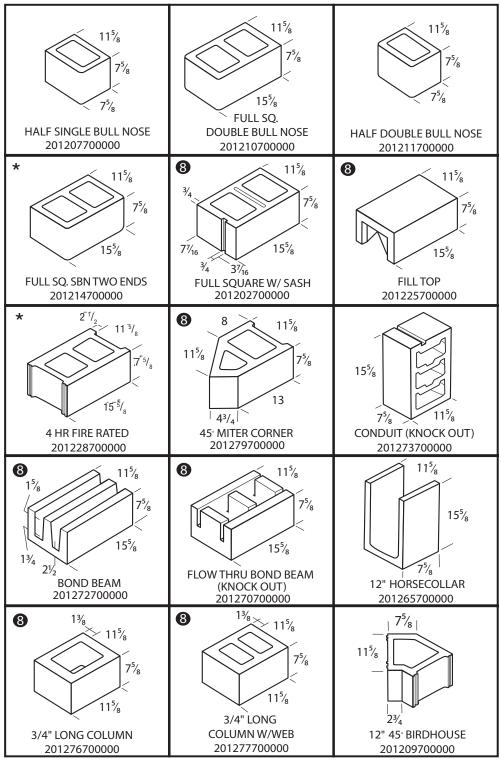
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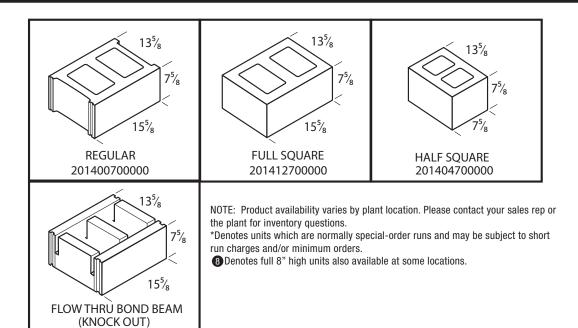
3 Denotes full 8" high units also available at some locations.





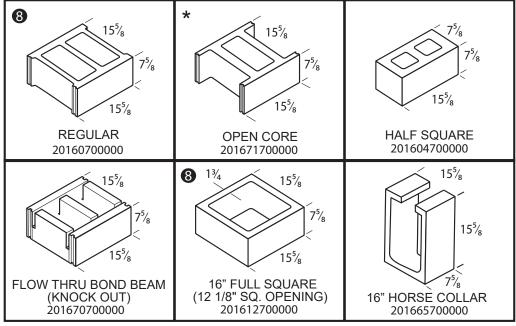
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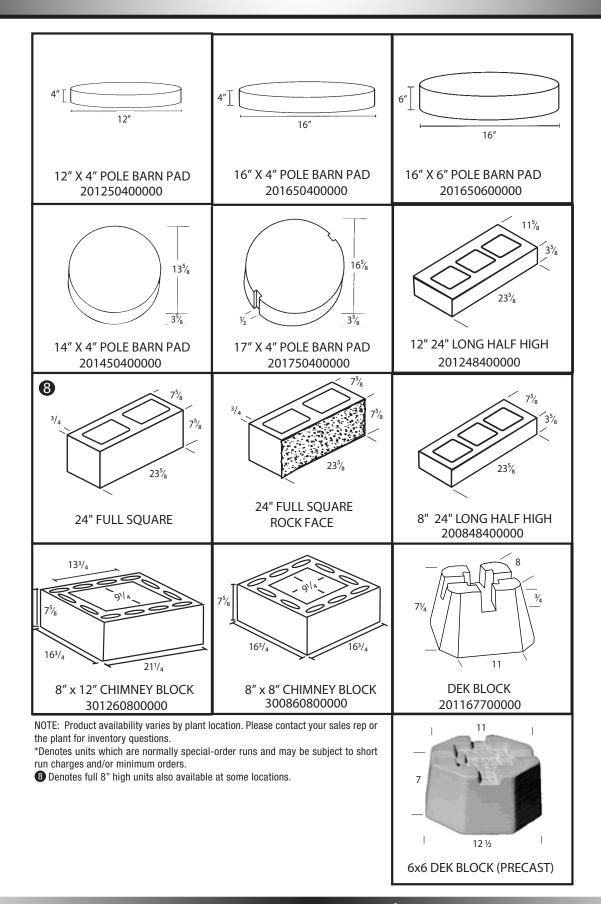


16" BLOCK

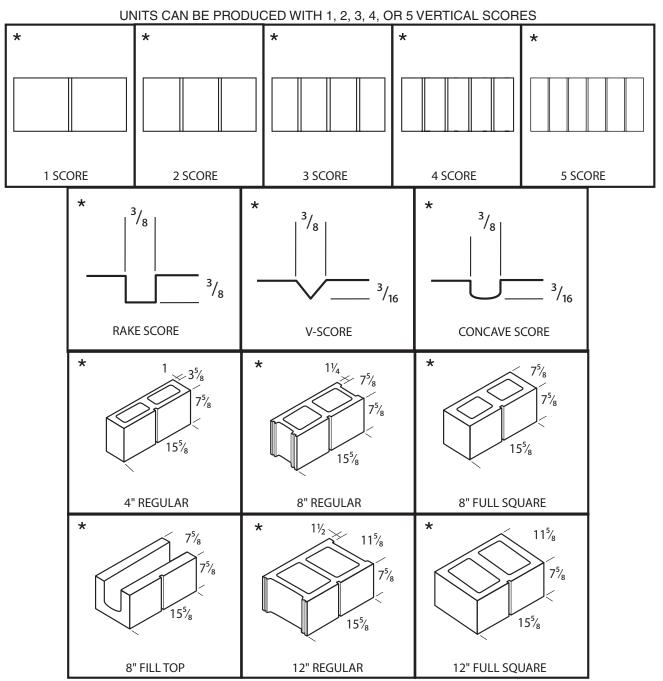
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24" BLOCK & SPECIAL SHAPES



SCORED BLOCK



SOUNDBLOX

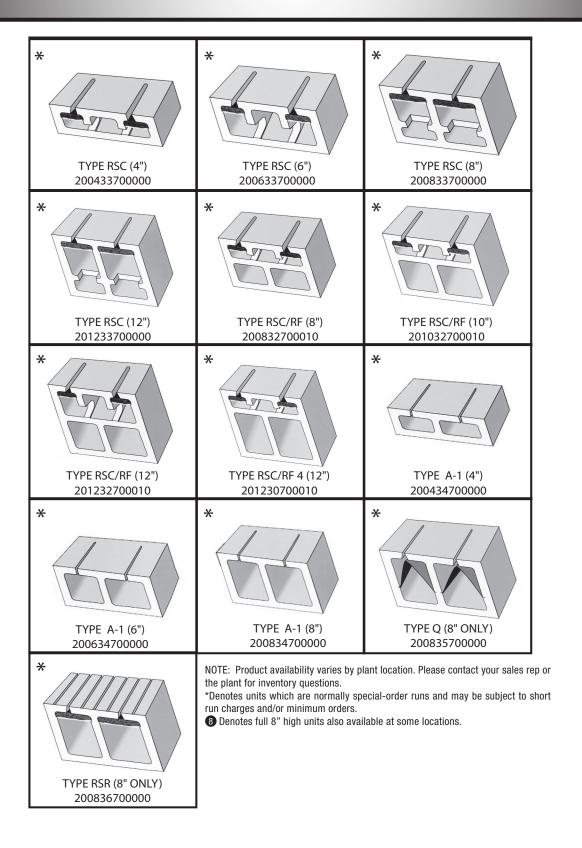
SOUND ABSORPTION COEFFICIENTS - TYPE RSC/RF and RSC

	NRC	.80	.80	.85	.80	08'	98'	08'	98'
	2000	.65	.65	.59	.65	.65	.59	.51	*
	4000	.58	.58	.51	.58	.58	.51	.64	.59
	3150	89.	89.	.56	89.	89.	.56	.70	*
	2500	.73	.73	89.	.73	.73	89.	69.	*
	2000	98.	8.	.67	.80	.80	.	.70	.54
	1600	77.	77.	.70	.77	.77	.70	.61	*
Frequency - Hertz	1250	9/.	9/.	77.	92.	92.	77.	09'	*
quency	1000	.72	.72	9/.	.72	.72	92.	.58	.94
Frec	800	9/.	9/.	.75	9/.	92.	22.	.62	*
	630	68.	89.	.84	.89	68.	.84	62'	*
	200	1.02	1.02	.91	1.02	1.02	16.	86'	1.09
	400	1.16	1.16	76.	1.16	1.16	26'	88'	*
	315	1.12	1.12	1.05	1.12	1.12	1.05	06'	*
	250	.64	.64	1.14	.64	.64	1.14	66.	92.
	200	.36	.36	.93	.36	.36	.93	1.17	*
	160	.22	.22	.70	.22	.22	.70	.85	*
	125	2 .	2 .	.48	.18	.18	.48	.48	.57
Exposed Slots/	Cavities	2/2	2/2	2/2	2/2	2/3	2/3	2/4	2/4
Surface		PAINTED	PAINTED	PAINTED	PAINTED	PAINTED	PAINTED	PAINTED	PAINTED
Type		RSC/RF	RSC/RF	RSC/RF	RSC/RF-4	RSC	RSC	RSC	RSC
<u>0</u>	3	-∞	10"	12"	12"	4"	9	≅	12"

The above sound absorption data was determined by tests conducted at Geiger and Hamme Acoustical Laboratory in strict compliance with ASTM C423 specifications. Actual installed performance may vary.

* Measurements at these frequencies were not taken.

SOUNDBLOX



SOUNDCELL



SOUNDCELL (8") 200831700000



SOUNDCELL (12") 201231700000



ACOUSTADE (8") 200837700000



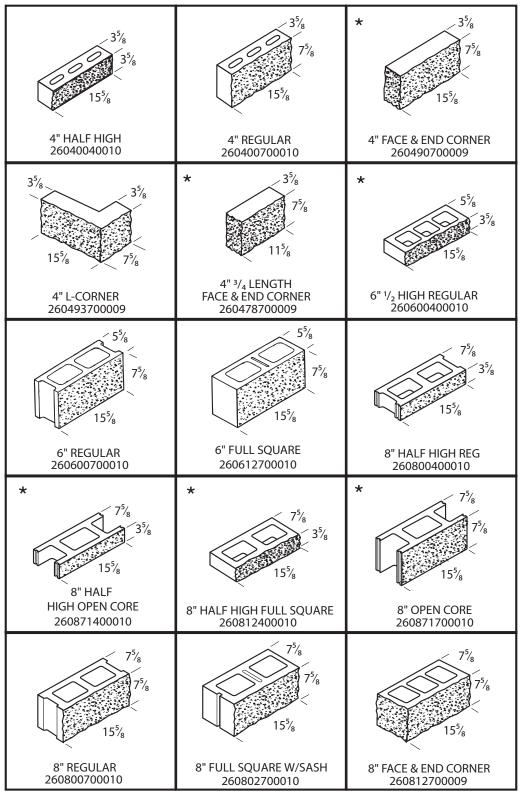
ACOUSTADE (12") 201237700000

NOTE: Product availability varies by plant location. Please contact your sales rep or the plant for inventory questions.

- *Denotes units which are normally special-order runs and may be subject to short run charges and/or minimum orders.
- 8 Denotes full 8" high units also available at some locations.

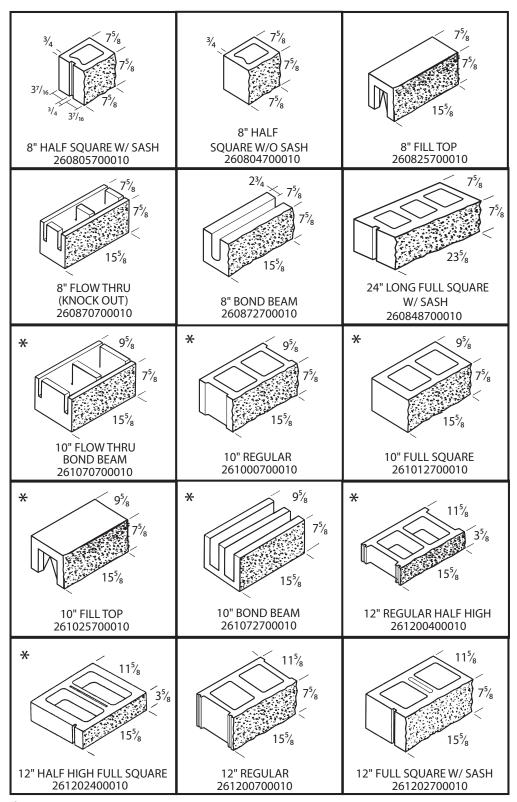


ROCKFACE/SPLITFACE

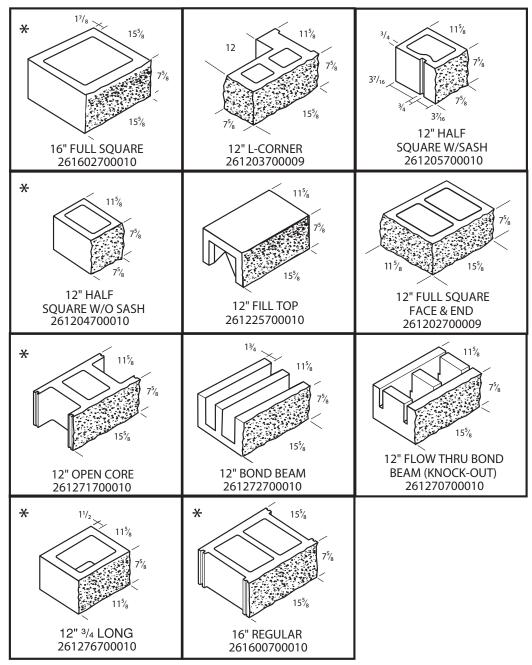


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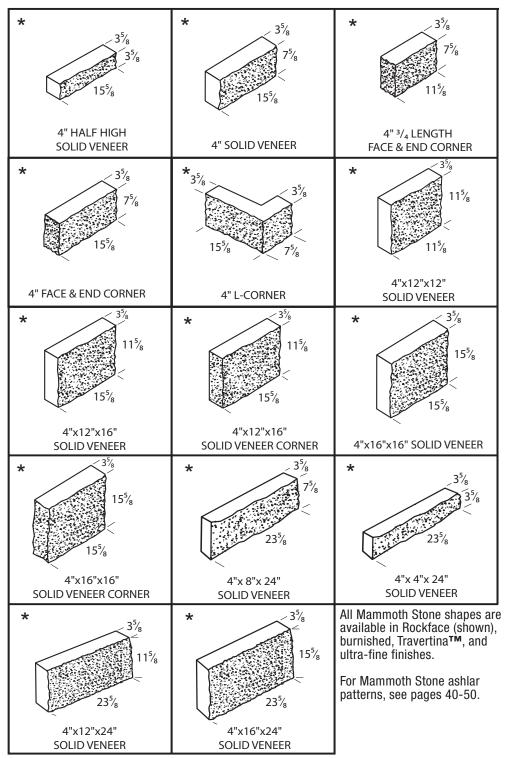
ROCKFACE/SPLITFACE



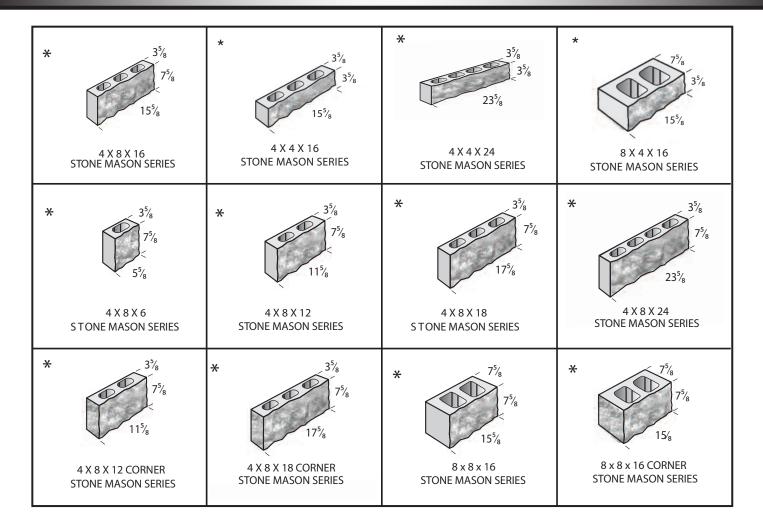
ROCKFACE/SPLITFACE



MAMMOTH STONE® SERIES



STONE MASON™ SERIES

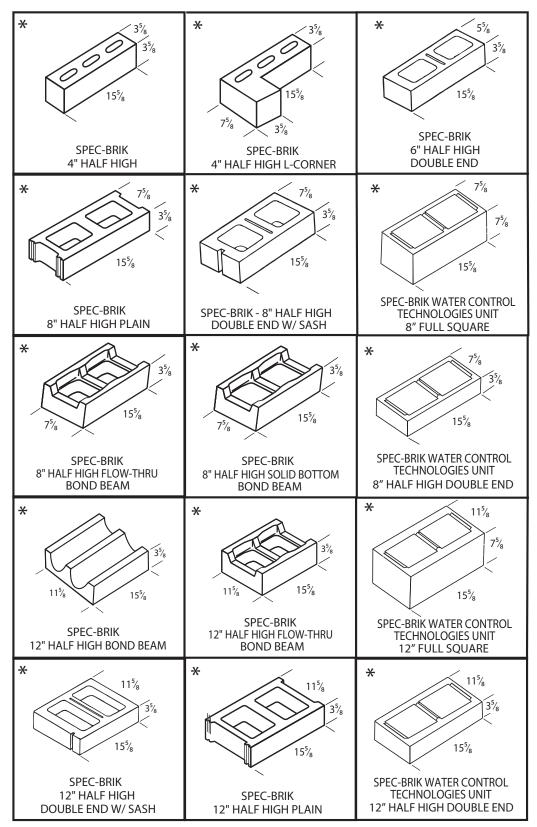


18" Long, 12" Long and 6" Long Mixed Cubes: Square Feet per cube- 73.6 Pieces per cube- 120 (40 pieces of each size) Weight per cube- 2880 lb..

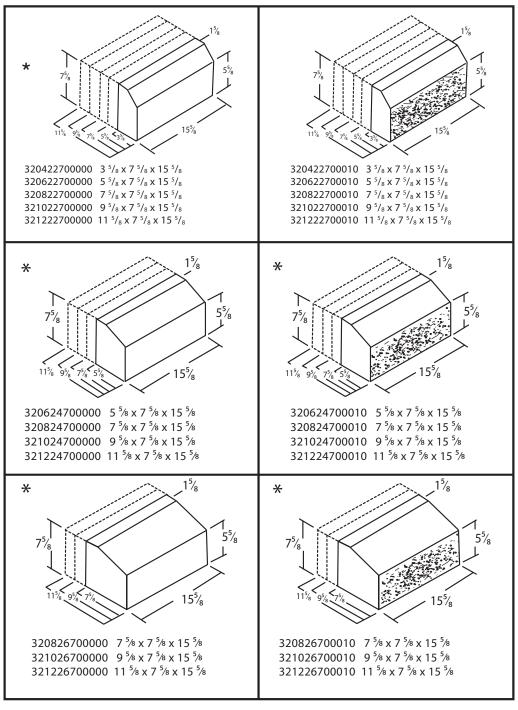
24" Long, 12" Long and 6" Long Mixed Cubes: Square feet per cube- 69.12 Pieces per cube- 96 (32 pieces of each size) Weight per cube- 2688 Mixed 18" Long Corner, 12" Long Corner & 6" Long Plain Cubes: Square feet per cube- 88.8 Pieces per cube- 120 (40 pieces of each size) Weight per cube 2880

* Special Order - Units may be subject to short run charges and minimum order requirements.

SPEC-BRIK®

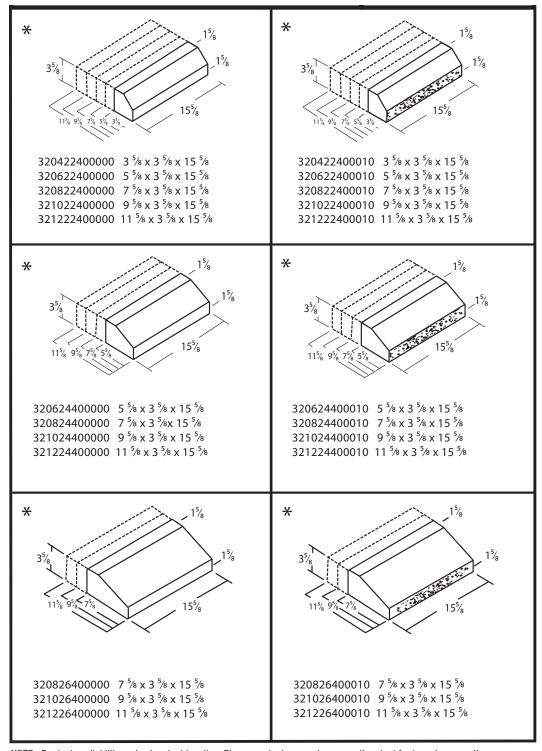


SILL BLOCK



NOTE: Product availability varies by plant location. Please contact your sales rep or the plant for inventory questions. *Denotes units which are normally special-order runs and may be subject to short run charges and/or minimum orders.

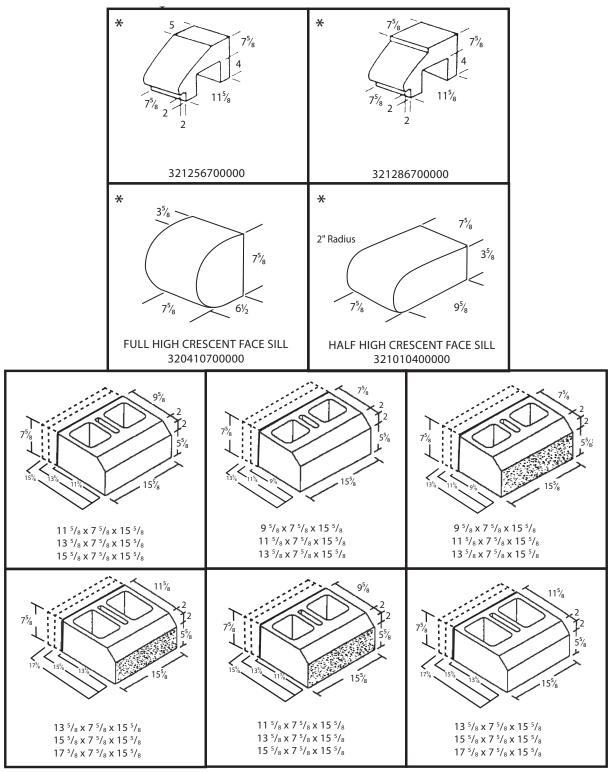
SILL BLOCK



NOTE: Product availability varies by plant location. Please contact your sales rep or the plant for inventory questions.
*Denotes units which are normally special-order runs and may be subject to short run charges and/or minimum orders.

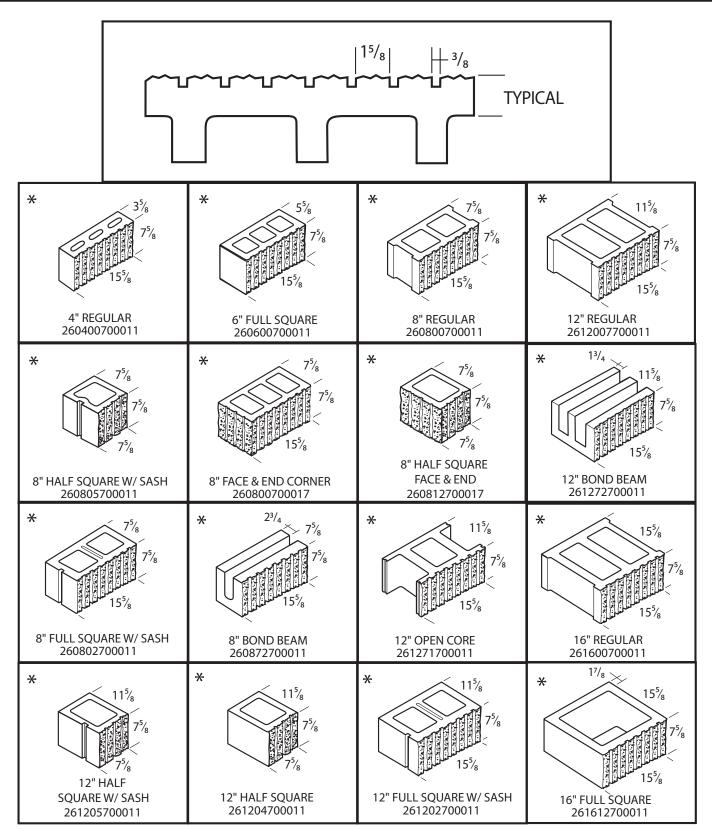
*Denotes full 8" high units also available at some locations.

SILL BLOCK

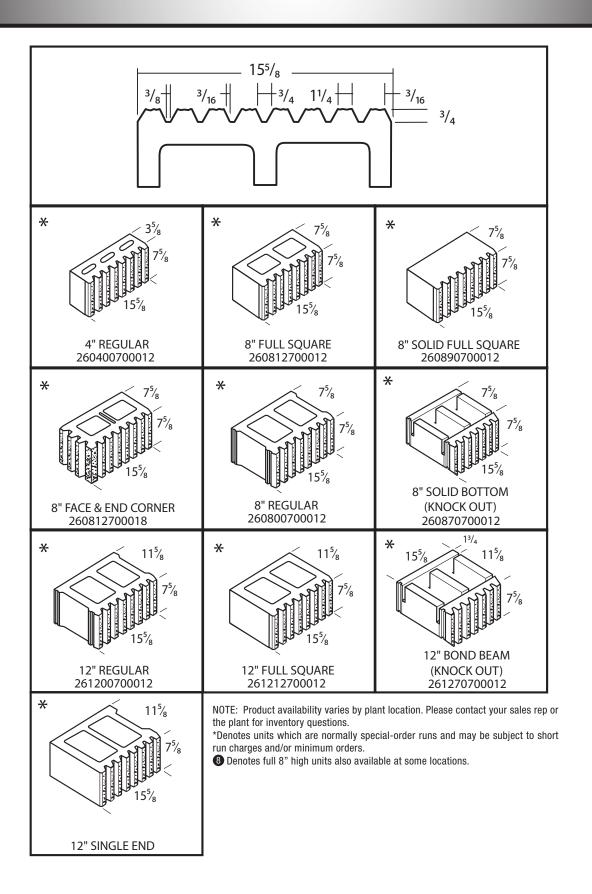


NOTE: Product availability varies by plant location. Please contact your sales rep or the plant for inventory questions. *Denotes units which are normally special-order runs and may be subject to short run charges and/or minimum orders.

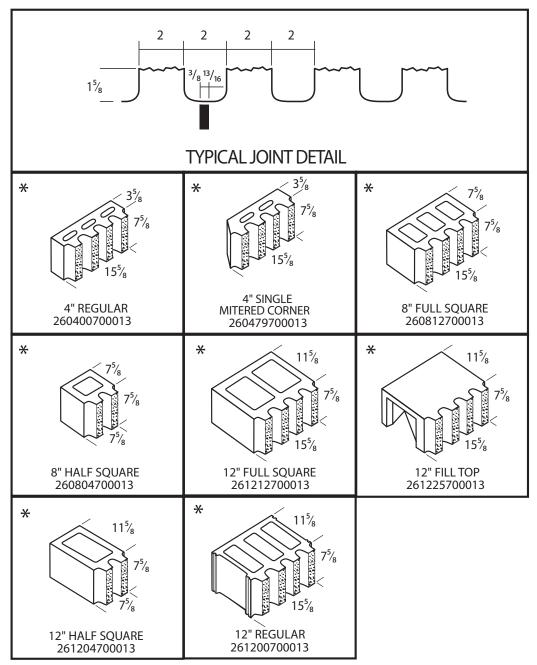
8 RIB SPLIT



CORDUROY



4 FLUTE



NOTE:

4 Flute (smooth flutes) available in:

1.

4" Regular

4" 45° Mitered Solid

8" Full Square

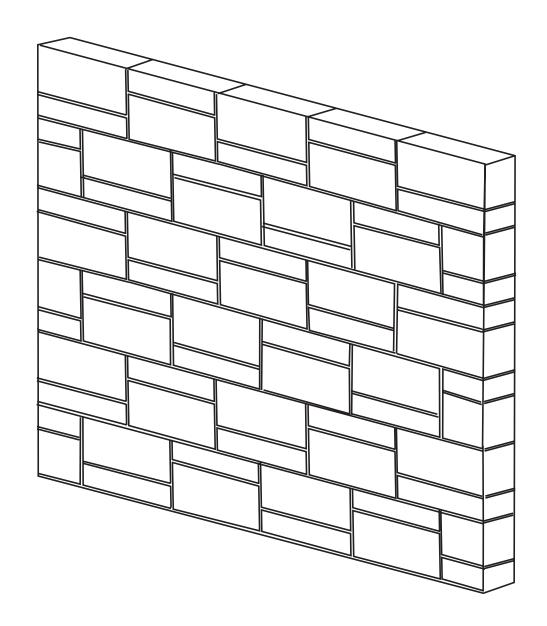
12" Full Square

5 Flute (broken flute face) available in:

4" Full Square

12" Single Square End

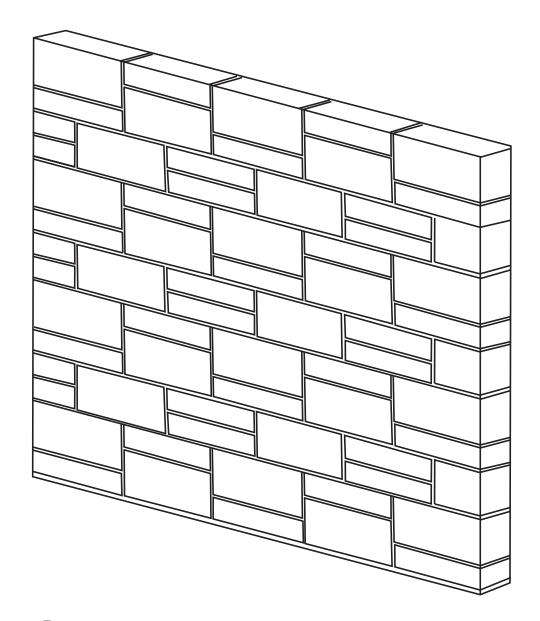
NOTE: Product availability varies by plant location. Please contact your sales rep or the plant for inventory questions. *Denotes units which are normally special-order runs and may be subject to short run charges and/or minimum orders.



Pattern A Unit Sizes:

 $3^{5}/_{8} \times 3^{5}/_{8} \times 15^{5}/_{8}$ $3^{5}/_{8} \times 7^{5}/_{8} \times 15^{5}/_{8}$

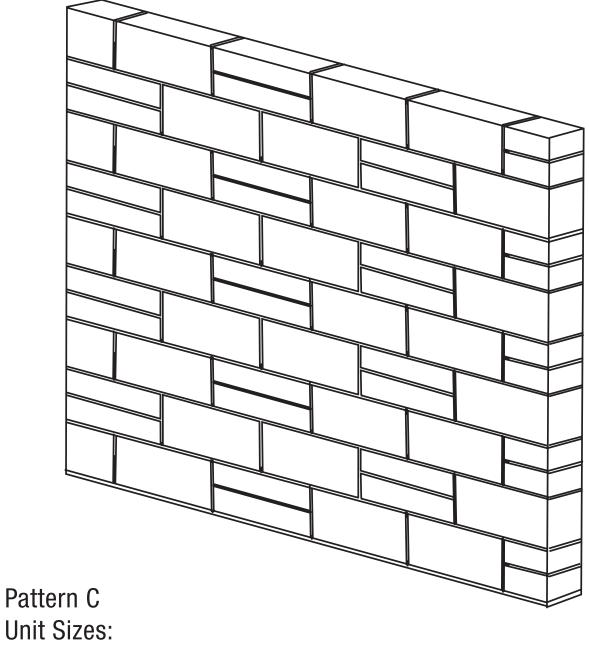
This pattern can also be made using 6, 8, or 12 inch units in Rockface, Mammoth Stone™, Travertina™, Ultra-Fine, or Burnished CMU's. This pattern can also be used with 8 inch Stone Mason™ units.



Pattern B Unit Sizes:

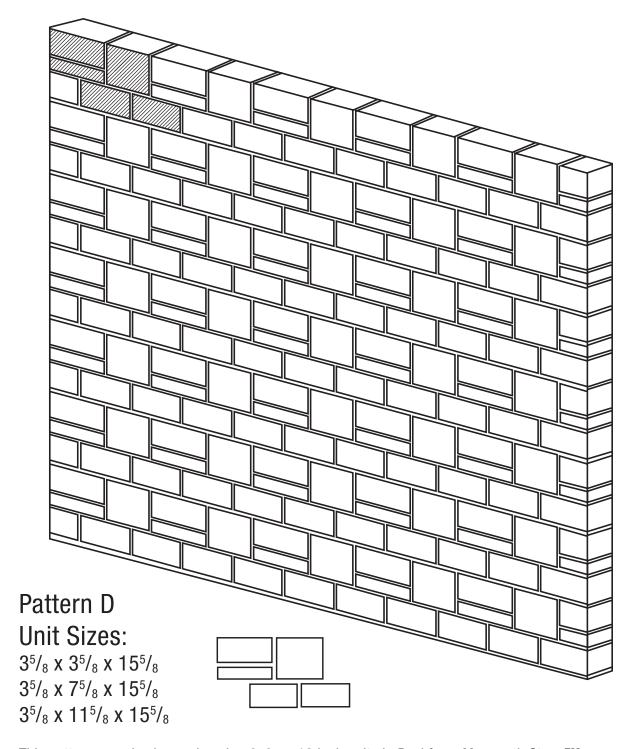
3⁵/₈ x 3⁵/₈ x 15⁵/₈ 3⁵/₈ x 7⁵/₈ x 15⁵/₈

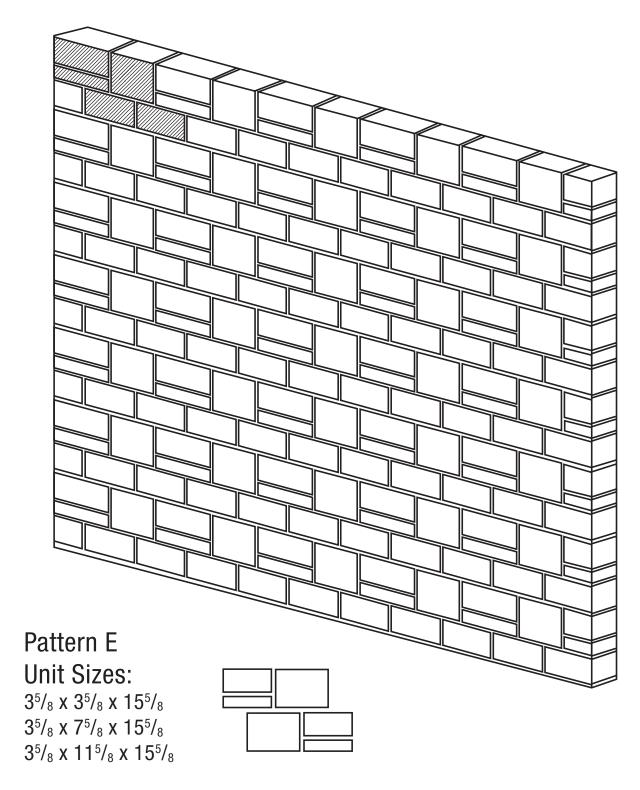
This pattern can also be made using 6, 8, or 12 inch units in Rockface, Mammoth Stone™, Travertina™, Ultra-Fine, or Burnished CMU's. This pattern can also be used with 8 inch Stone Mason™ units.

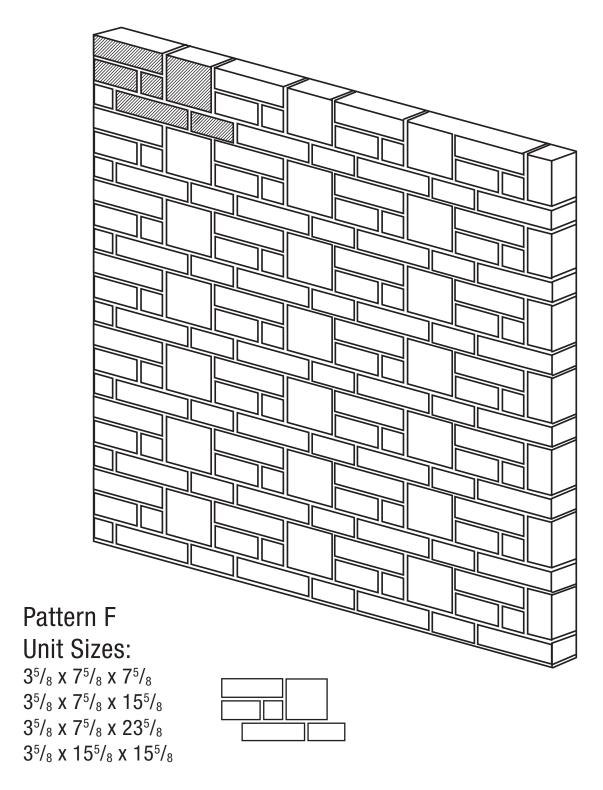


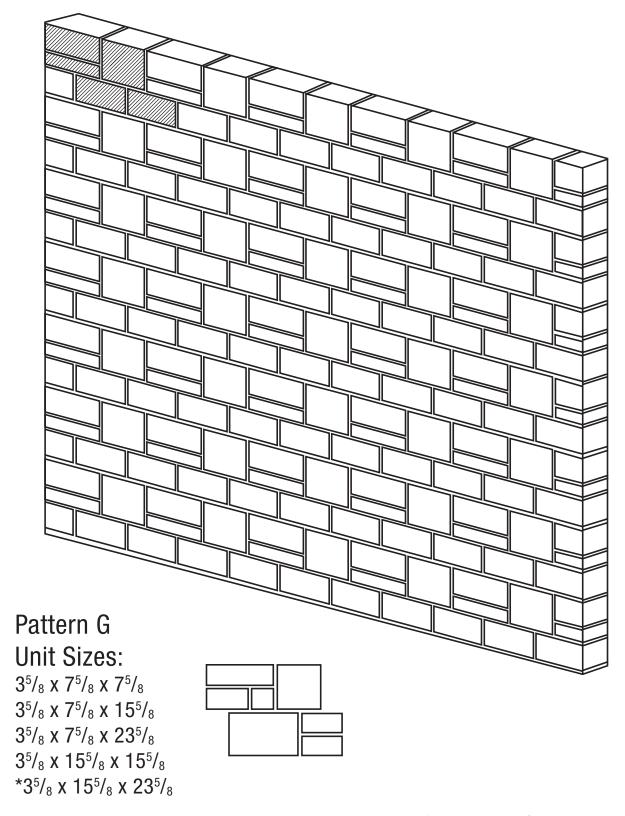
 $3^{5}/_{8} \times 3^{5}/_{8} \times 15^{5}/_{8}$ $3^{5}/_{8} \times 7^{5}/_{8} \times 15^{5}/_{8}$

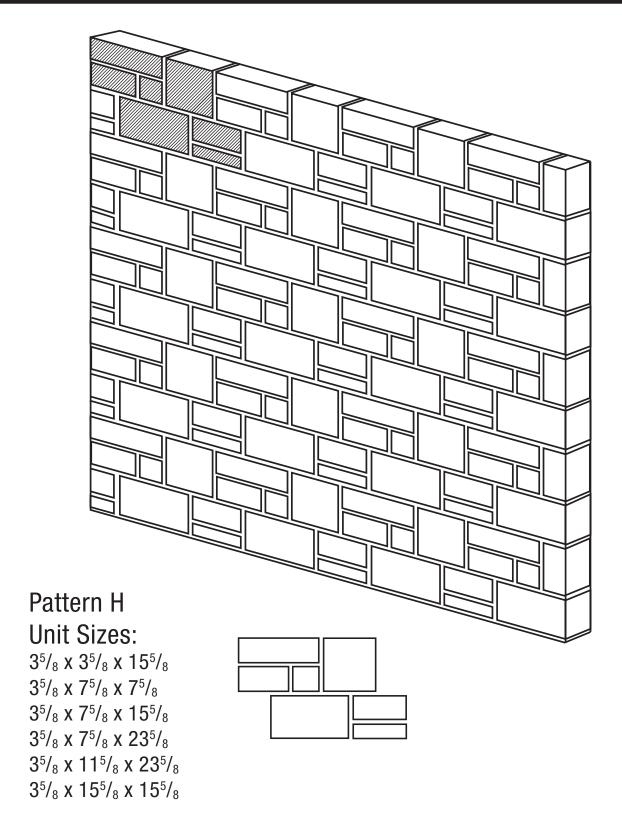
This pattern can also be made using 6, 8, or 12 inch units in Rockface, Mammoth Stone™, Travertina™, Ultra-Fine, or Burnished CMU's. This pattern can also be used with 8 inch Stone Mason™ units.

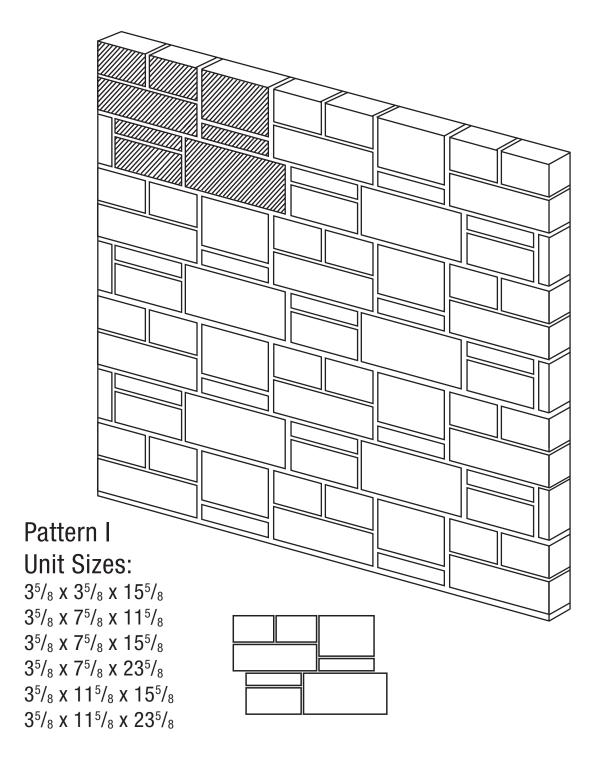


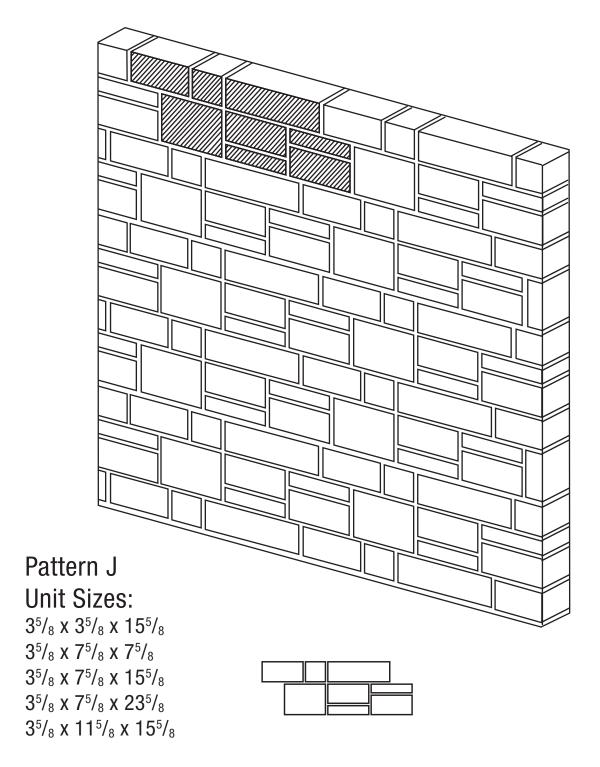


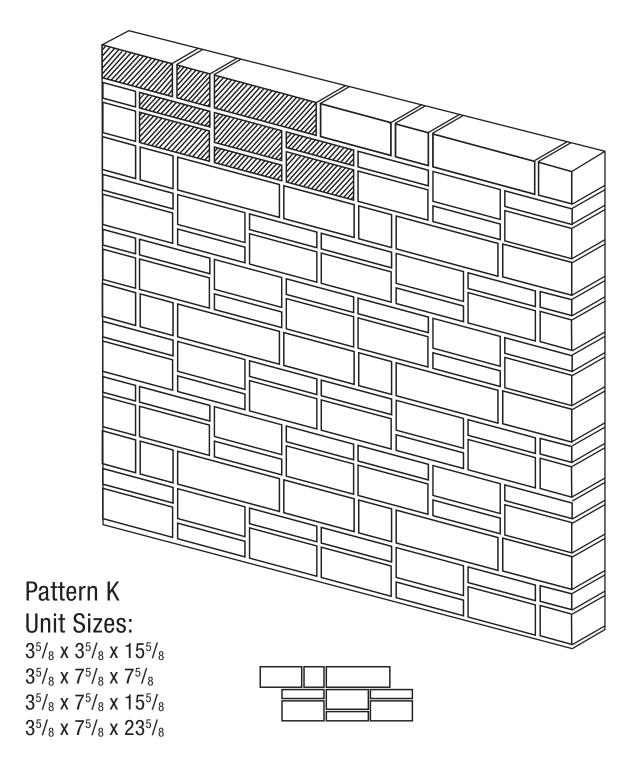












PRODUCT GLOSSARY

ALLAN BLOCK® FENCE SYSTEMS

The patented Allan Block Fence System is an attractive an economical choice for privacy, commercial containment, and noise barrier applications. Allan Block Fence Systems are available in a range of attractive colors.

BURNISHED CMU

For load—bearing or veneer applications, the natural beauty of exposed, ground aggregate in Amcon's burnished CMUs make them and excellent choice where smart appearance and durability are important.

CMU

Concrete Masonry Unit (CMU) is a concrete block manufactured on a block machine to standardized sizes and used in building construction. Available in a wide variety of shapes, colors, textures, and sizes for flexibility in architectural design.

ENVIROTROL™

Amcon's EnviroTrol curing system incorporates numerous cycles of high temperature, steam, and carbon dioxide (CO2) to aggressively accelerate the hydration process. The results are architectural units which are dry, color consistent, resistant to carbonation shrinkage, and have a greatly—reduced efflorescence potential when compared to conventionally cured CMUs.

LEDGEROCK®

Amcon's own Commercial Retaining Wall System (or "Big Block") composed of large—format, interconnecting, precast block which allows users to build taller, stronger walls. The faces are molded uniquely for Amcon from actual native Midwestern stone and can be stained with solid or blended colors after installation.

MAMMOTH STONE® SERIES

Use separately or combine shapes in this innovative product line to simulate natural stone with ashlar patterns to create a signature look on your next project. This veneer—depth family of shapes is available in either a rockface or burnished finish in any of the Amcon colors.

NOVABRIK®

A self-ventilated mortarless concrete brick siding system, Novabrik is ideal for residential or commercial retrofit or new construction. Ideal for cold weather installation because no heat and cover are required! Available in a wide variety of attractive colors.

ROCKFACE CMU

For load—bearing or veneer applications, the full face split of Amcon's rockface CMUs are available in a wide range of sizes and colors with a variety of fittings and accent pieces.

PRODUCT GLOSSARY

SPEC-BRIK®

Ideal for projects with "brick or better" requirements, Spec-Brik is available in a range of blends and combines the proven durability and economy of concrete masonry with the rich traditional beauty of brick in a full depth structural or veneer system.

SPEC-FINISH®

Amcon Concrete Products and the Concrete Products group have partnered with Tnemec Coatings and ACM Chemistries Inc. to introduce the first true High Performance Coated Concrete Masonry Wall System on the market today.

SRW

Segmental Retaining Wall units are manufactured on a block machine to standardized sizes and used to retain earth for vertical grade changes and be constructed into a gravity wall (usually limited by height) or reinforced soil walls (for taller walls). Amcon offers a variety of options including Allan Block®, Keystone®, and LedgeRock®.

STONE MASON™ SERIES

Experience the timeless appearance and texture of authentic, hand—dressed, natural stone with the strength and economy of a CMU. The Stone Mason Series is available in either an 8" full depth unit or in a 4 piece random pattern veneer system and is ideal for communities with "brick or better" requirements.

SUSTAINABLE SOLUTIONS

Amcon's Sustainable Solutions CMU mix designs are a proprietary blend of recycled materials used as a partial replacement for ordinary portland cement (OPC) and virgin sand aggregates (50% pre—consumer waste content) which are perfect for any project including LEED and projects incorporating Minnesota Sustainability Guidelines. These mix designs are available in most Amcon products.

TRAVERTINA™ SERIES

Features a unique, multi-dimensional burnished, recessed facial texture similar to natural travertine stone, but with the economy of a CMU.

ULTRA-FINE FINISH

Contains a finer aggregate and more cement, along with premium—graded sands to create a smoother, finer, more satin—like texture on smooth—face architectural CMUs. Ultra—Fine Finish is available in any of the smooth—face shapes, including structural units, sills, and our Mammoth Stone® Series.

FEATURED PRODUCT: SPEC-THERMAL® KORFIL HI-R H



PRE-INSULATED MASONRY

High Performance Pre-Insulated Masonry

The *Hi-R H Wall System* is a specially designed concrete masonry unit and individually molded insulation insert that provide industry best thermal performance in compliance with prevailing Codes and Standards. The *Hi-R H* Masonry Unit has been designed to provide reduced thermal bridging even more than prior Hi-R designs. The block and the insulation are combined at the block manufacturing plant prior to delivery to the job site. The assembly provides a wall system capable of achieving higher thermal R-values than conventional masonry, while providing full Code-based load resistance. A Structural Design Guide is available upon request.

Insulation Inserts

Hi-R H Inserts are made by **Concrete Block Insulating Systems, Inc.** from flame-retardant treated expandable polystyrene. Like all foamed plastics, good fire procedures must be followed during storage and installation. Inserts give off no toxic products of combustion, except carbon monoxide and carbon dioxide, concentrations of which are far less than those given off by equal volumes of more dense building construction products. Expandable polystyrene contains no fluorocarbons and no formaldehyde.

Masonry Units

Hi-R H Masonry Units are available in precision faced and architectural decorative faced units. Units are available in 12 inch widths with nominal 8 inch x 16 inch face dimensions. Check for availability in your region.

Applicable Standards

- ASTM C 578, Type X, replacing Federal Specifications HH-I-524C. Specification for Rigid Cellular Polystyrene Thermal Insulation.
- ASTM C 90 Standard Specification for Load-bearing Concrete Masonry Units.

THERMAL PROPERTIES:

The Values below are for Pre-insulated Hi-R H Masonry Units. The Thermal Properties tables show the thermal resistance (R_t), including inside and outside air surface resistances of 0.68 and 0.17 h*ft2-°F/BTU, respectively, and the U-Factors for the various densities of concrete masonry units indicated. U-Factors are based on conventional 3/8" Mortar Joint Construction. U-Factor units are Btu/hr/sqft/Deg.F. The results below are calculated based on the results of a third party thermal analysis that was completed making use of the Hot Box Test Data from three accredited laboratory services. A complete Engineering Report dated November 20, 1996, including Addendum Added Nov. 1, 2002, is available upon request. It covers the thermal values of the Hi-R Masonry Wall System.

12" Wide Hi-R H Wall System								
Density of Block lb/ft ³	Wall Type 1*		Wall Type 2**		Wall Type 3***			
	R _t	U	R _t	U	R _t	U		
80	18.417	0.054	19.82	0.050	21.247	0.047		
95	16.337	0.061	17.74	0.056	19.167	0.052		
100	15.647	0.064	17.05	0.059	18.477	0.054		
110	14.297	0.070	15.70	0.064	17.127	0.058		
120	12.987	0.077	14.39	0.070	15.817	0.063		
125	12.347	0.081	13.75	0.073	15.177	0.066		
135	11.137	0.090	12.54	0.080	13.967	0.072		

12" Wide Cavity Wall with 4" Dense Outer Wyth; ¾" Air Space and 8"Hi-R H Wall System								
Density of Block lb/ft ³	Wall Type 1*		Wall Type 2**		Wall Type 3***			
	R _t	U	R _t	U	R _t	U		
80	15.88	0.063	17.28	0.058	18.71	0.053		
95	13.90	0.072	15.30	0.065	16.73	0.060		
100	13.26	0.075	14.66	0.068	16.09	0.062		
110	12.04	0.083	13.44	0.074	14.87	0.067		
120	10.89	0.092	12.29	0.081	13.72	0.073		
125	10.35	0.097	11.75	0.085	13.18	0.076		
135	9.34	0.107	10.74	0.093	12.17	0.082		

- * Wall Type 1: Hi-R H Wall System only; Hi R H Units with fully grouted cells (125 lb./ft³ density grout).
- ** Wall Type 2: Hi-R H Wall System, Hi R H Units with fully grouted cells (125 lb./ft³ density grout); 1/2 inch gypsum board on furring strips.
- *** Wall Type 3: Hi-R H Wall System, Hi R H Units with fully grouted cells (125 lb./ft³ density grout); 1/2 inch foil-backed gypsum board on furring strips.



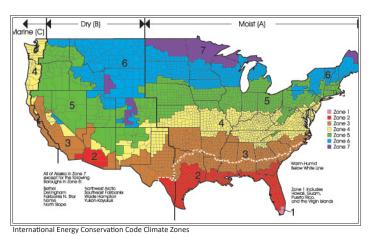
The Two-Piece CBIS Korfil Hi-R H inserts form a lap joint with adjacent inserts, both above and below and from side to side, for maximum insulation efficiency.

Please visit: www.amconconcreteproducts.com or

www.concreteproductsgroup.com
for design and construction
resources including CAD details,
design and construction videos and
structural design guidance



Hi-R H units are suitable for construction of bond beams without the need for any modifications to the units and the insulation inserts remain fully in place



The Hi-R H Wall System allows the construction of single wythe masonry walls that meet the stringent R-Value requirements of the 2015 IECC in all climate zones

MAXIMUM U-FACTORS FOR COMMERCIAL MASS WALLS PRESCRIPTIVE REQUIREMENTS (2015 IECC)					
	All Other	Group R			
Zone 1	U-0.151	U-0.151			
Zone 2	U-0.151	U-0.123			
Zone 3	U-0.123	U-0.104			
Zone 4 (except Marine)	U-0.104	U-0.090			
Zone 5 (& Marine 4)	U-0.090	U-0.080			
Zone 6	U-0.80	U-0.071			
Zone 7	U-0.071	U-0.061			
Zone 8	U-0.061	U-0.061			

IECC (2015): Section C402 BUILDING ENVELOPE REQUIREMENTS and Table 402.1. BUILDING ENVELOPE REQUIREMENTS OPAQUE ELEMENT, MAXIMUM U-FACTORS.



Insulated corners are built using conventional masonry fittings and Hi-R H units

LOCATIONS

Corporate Headquarters: 2025 Centre Pointe Blvd, Mendota Heights, MN 55120

Corporate Phone: 651–688–9116 www.amconconcreteproducts.com



Mendota Heights, MN

Corporate Office

Fergus Falls, MN

Gray Block Architectural Block

Waite Park, MN

Precast Products

Annandale, MN

Precast & Gray Block

Rapid City, SD (TCC)

Hardscape Products Architectural Block

& Gray Block

Harrisburg, **SD**

Hardscape Products
Gray Block

Architectural Block

Medford, MN

Gray Block Architectural Block St. Joseph, MN

Hardscape Products
Precast Products
Gray Block

St. Cloud, MN

Gray Block Architectural Block

New London, MN

Hardscape Products
Gray Block
Architectural Block

Amcon Concrete Products Supports and is a Proud Member of the following Associations:

















