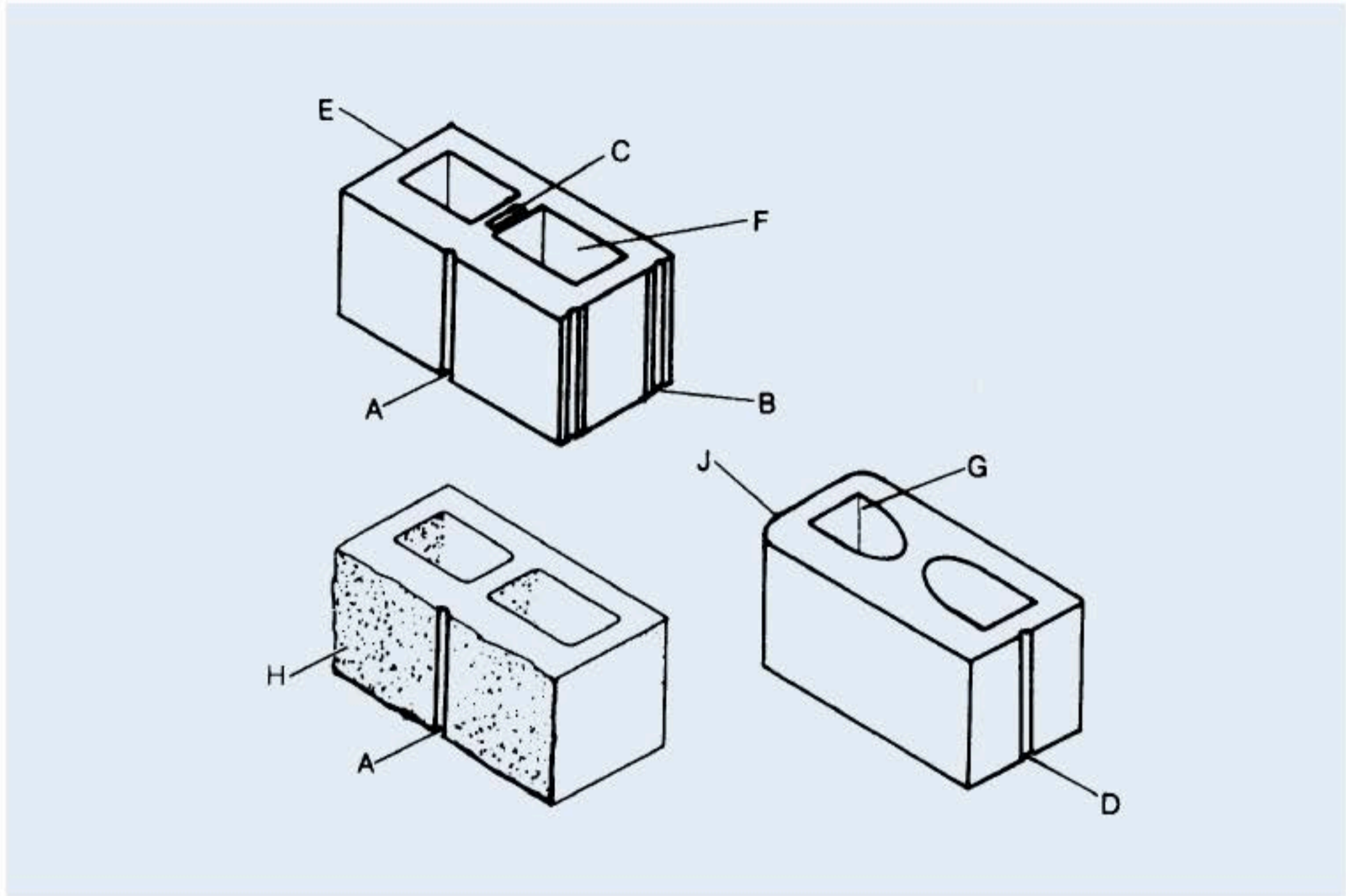


Concrete Block

Concrete Masonry Unit Terms



Concrete Blocks are commonly referred to as “CMUs” (Concrete Masonry Units), “Grey Block” or simply “Concrete Block.” The following are key terms commonly used to further describe different types of concrete block.

- A. Scored/Concave Flute
- B. Stretcher End (Mortar Groove)
- C. Breaker
- D. Sash Groove
- E. Plain End
- F. Rectangular Core
- G. Pear Core
- H. Split Face*
- J. Bullnose (Double shown)

**All split-face masonry units are available in grey and architectural colors.*

Compressive Strength of Concrete Masonry (PSI*)

Comment: ASTM C-90 is the standard of masonry production specifications in the United States. With the approval of ACI 530.1-88 specifications and the issue of ASTM C-90-91, there is one major specification change to note. In the past, block compressive strength (psi) was based on gross area requiring an average 1000 psi. The strength requirements have not changed but the measurements have. All new specifications now are based on net area of 1900 psi.

To assist you in calculating the net area, please follow the formula below.

Given the gross area compressive strength, you may determine the net area by knowing:

- (1) percent solids of unit, or
- (2) equivalent thickness of unit.

Gross Area to Net Area Conversion

*Based on average of 3 units 4" height and above

Example: 8" cmu with a known 1100 psi gross area at 52% solids.

$$\frac{\text{Compressive Strength (Gross Area)} \times 100}{(\%) \text{ Percent Solids}} = \text{Compressive Strength (Net Area)}$$

$$\frac{1100 \text{ psi}}{52\%} \times 100 = 2115 \text{ psi}$$

Example: 8" cmu (7.625 actual size) with a known 1100 psi gross area with an equivalent thickness of 4.0".

$$\frac{\text{Compressive Strength (Gross Area)}}{\text{Equivalent Thickness}} \times \text{Actual Thickness} = \text{Compressive Strength (Net Area)}$$

$$\frac{1100 \text{ psi}}{4.0} \times 7.625 = 2097 \text{ psi}$$

Block manufacturers have gross-area psi data as well as solids and equivalent strength numbers. Most will have the net-area compressive strength psi with future test results.

TABLE 1 Minimum Face Shells and Web Requirements ^A			
Nominal Width (W) of Units, in. (mm)	Face Shell Thickness (t _{fs}), min. in. (mm) ^{B,C}	Webs	
		Web Thickness ^C (t _w), min. in. (mm)	Normalized Web Area (A _{nw}) min. in. ² /ft ² (mm ² /m ²) ^D
3 (76.2) and 4 (102)	3/4 (19)	3/4 (19)	6.5 (45,140)
6 (152)	1 (25)	3/4 (19)	6.5 (45,140)
8 (203) and greater	1 1/4 (32)	3/4 (19)	6.5 (45,140)

^A Average of measurements on a minimum of 3 units when measured as described in Test Methods C140.

^B When this standard is used for units having split surfaces, a maximum of 10% of the split surface is permitted to have thickness less than those shown, but not less than 3/4 in. (19.1 mm). When the units are to be solid grouted, the 10% limit does not apply and Footnote C establishes a thickness requirement for the entire face shell.

^C When the units are to be solid grouted, minimum face shell and web thickness shall be not less than 5/8 in. (16 mm).

^D Minimum normalized web area does not apply to the portion of the unit to be filled with grout. The length of that portion shall be deducted from the overall length of the unit for the calculation of the minimum web cross-sectional area.

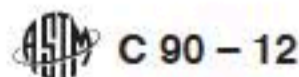
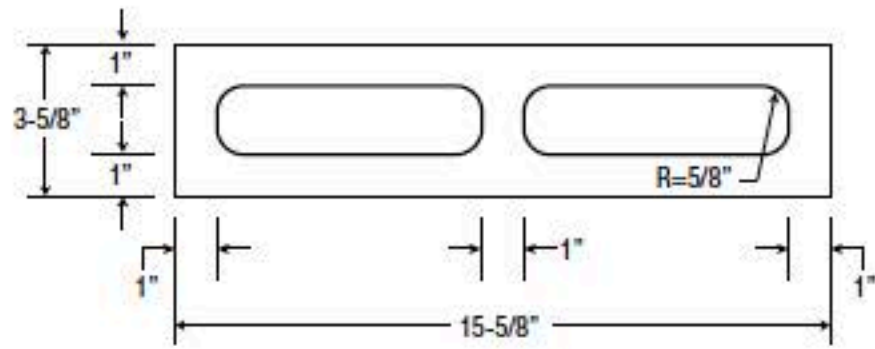


TABLE 2 Strength, Absorption, and Density Classification Requirements

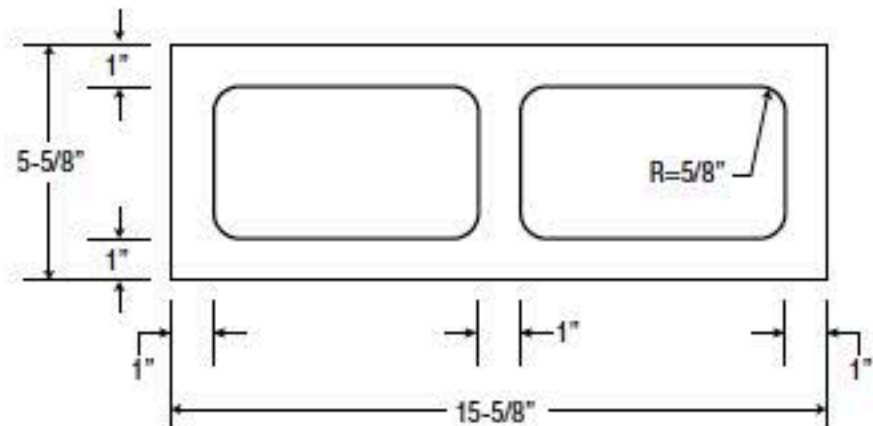
Density Classification	Oven-Dry Density of Concrete, lb/ft ³ (kg/m ³)	Maximum Water Absorption, lb/ft ³ (kg/m ³)		Minimum Net Area Compressive Strength, lb/in ² (MPa)	
	Average of 3 Units	Average of 3 Units	Individual Units	Average of 3 Units	Individual Units
Lightweight	Less than 105 (1680)	18 (288)	20 (320)	1900 (13.1)	1700 (11.7)
Medium Weight	105 to less than 125 (1680-2000)	15 (240)	17 (272)	1900 (13.1)	1700 (11.7)
Normal Weight	125 (2000) or more	13 (208)	15 (240)	1900 (13.1)	1700 (11.7)

Dimensions

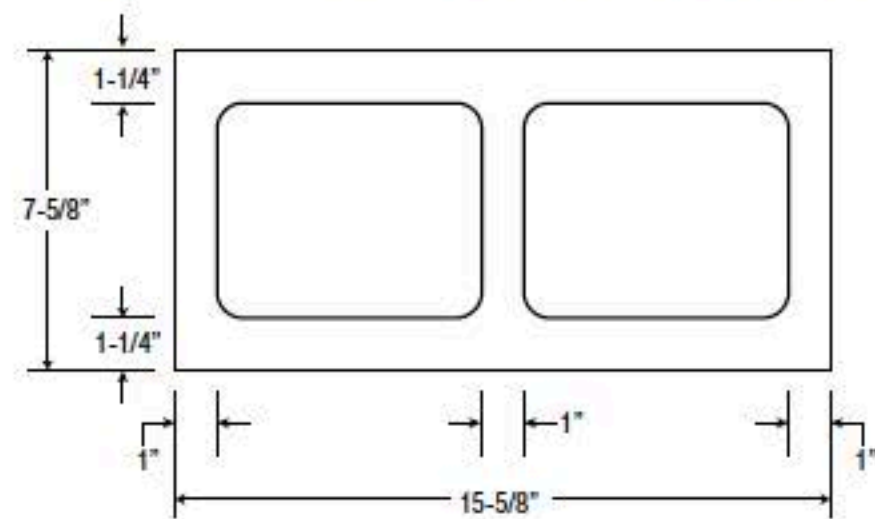
4-Inch Unit Configurations



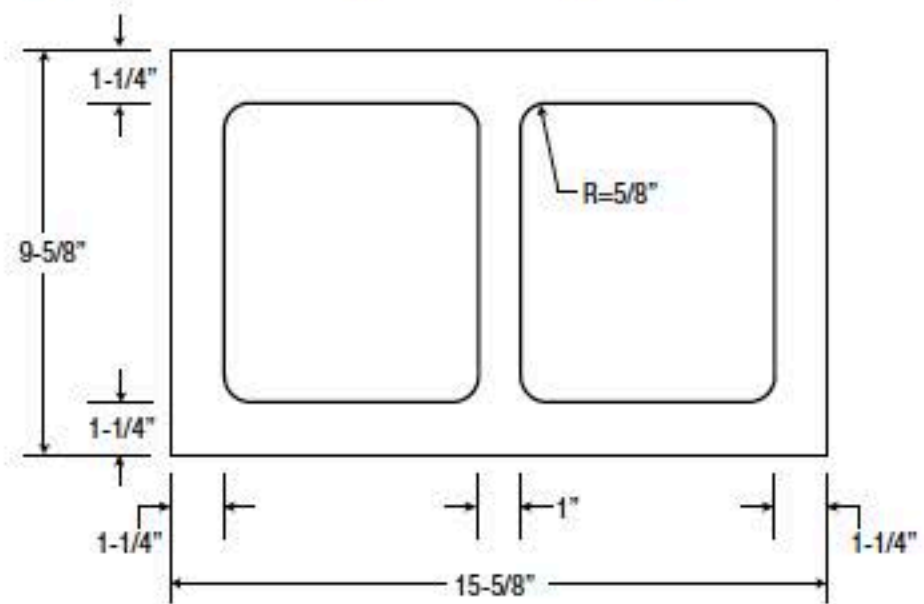
6-Inch Unit Configurations



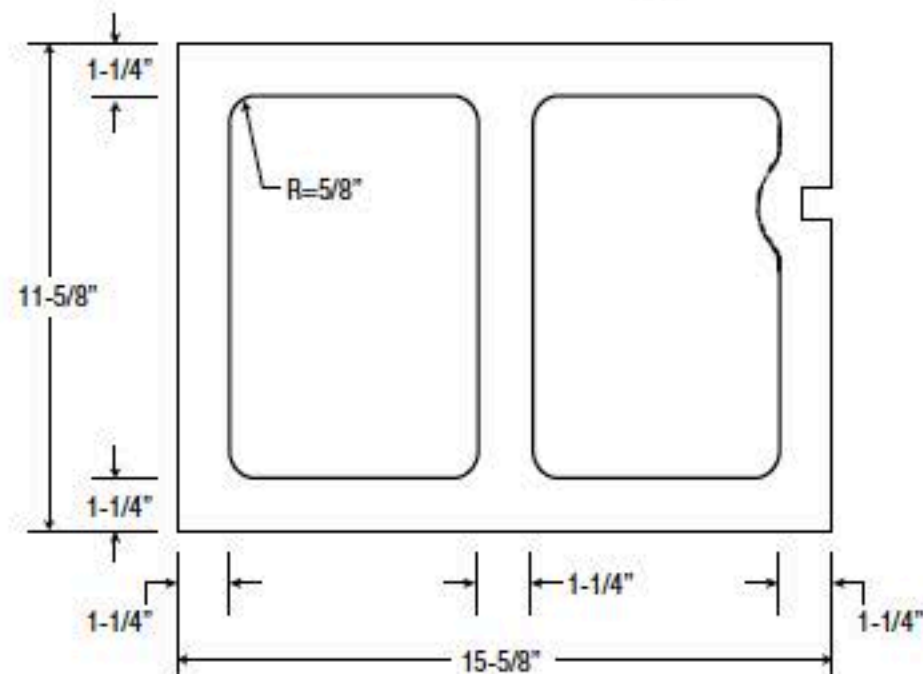
8-Inch Unit Configurations



10-Inch Unit Configurations



12-Inch Unit Configurations



2" Units

2x4x8



Concrete Brick

2 1/4 x 8 x 16



Solid

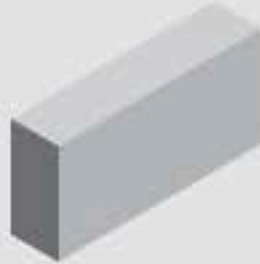
2 5/8 x 8 x 16



Solid

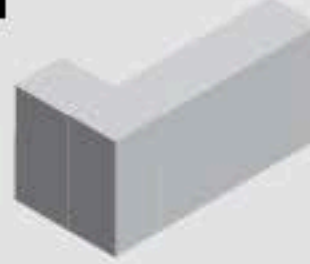
4" Units

4x8x16



Solid

4x8x16



Return Corner

4x4x16



Half-High

4x8x16



Regular

4x8x16



Single Score

4x8x8



Half

4x8x16



Single Bullnose

4x8x16



Double Bullnose
One End

4x8x16



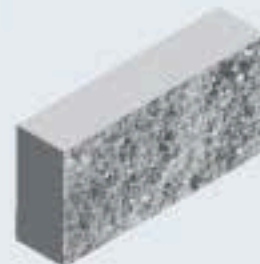
Double Bullnose
One Side

4x4x16



Half-High
Split Face

4x8x16



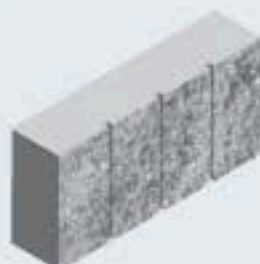
Split Face

4x8x16



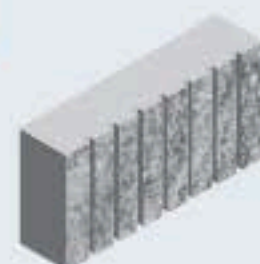
Split Face
Single Flute

4x8x16



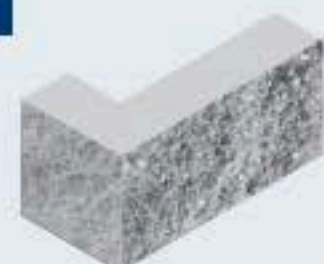
Split Face
Triple Flute

4x8x16



Split Face
Eight Flute

4x8x16



Split Face Return Corner

4x8x16 Single Score Available

Split Face Return Corner
Single Flute

4x8x16

Split Face Return Corner
Triple Flute

4x8x16

Split Face Return Corner
Eight Flute

4" Units

6x8x16

Square End Regular

6x8x16

Regular w/Sash

6x8x16

Single Score

6" Units

6x8x16

Single Bullnose

6x8x16

Double Bullnose
One End

6x8x16

Double Bullnose
One Side

6x8x16

Restricted Open
Bottom Lintel

6x8x16

Solid Bottom Lintel

6x8x8 SBN & DBN Available

Half w/ Sash

6x8x8

Sill Block Smooth

6x4x16

Half-High Restricted
Open Bottom Lintel

6x4x16

Half-High

6x8x8

Split Face
Sill Block

6x8x16

Split Face

6x8x14

Split Face Corner

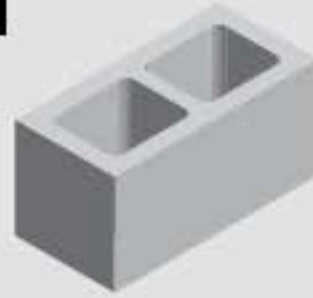
8" Units

8x8x16



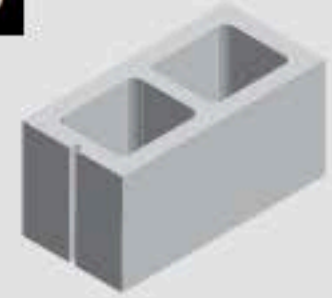
Stretcher
(Call for Availability)

8x8x16



Square End Regular

8x8x16



Regular w/Sash

8x8x16



Single Bullnose

8x8x16



Double Bullnose
One End

8x8x16



Double Bullnose
One Side

8x8x16



Restricted Open
Bottom Lintel

8x8x16



Solid Bottom Lintel

8x8x8



Half w/Sash

SBN &
DBN
Available

8x8x16



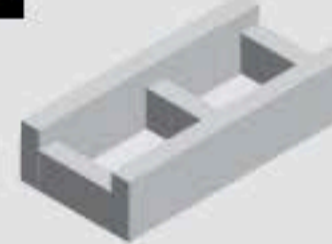
Pilaster
(Call for Availability)

8x4x16



Half High

8x4x16



Half-High Restricted
Open Bottom Lintel

8x4x16



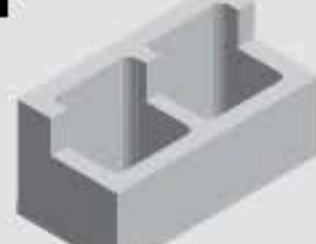
Half-High
Solid Bottom Lintel

8x8x16



Conduit Block With
Knockout Webs

8x8x16



Cut Header

8x8x8



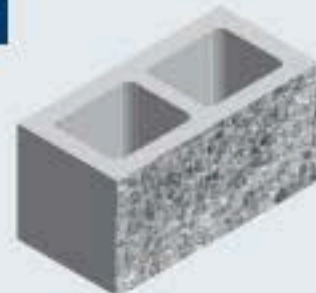
Sill Block Smooth

8x8x8



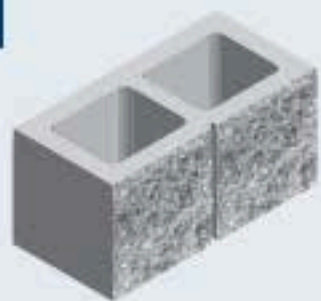
Split Face
Sill Block

8x8x16



Split Face

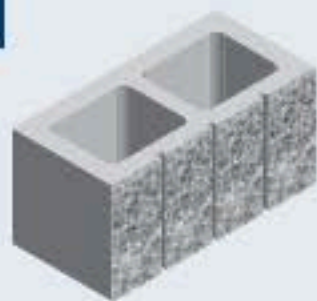
8x8x16



Single Score Available

Split Face Single Flute

8x8x16



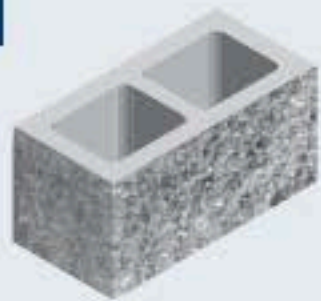
Split Face Three Flutes

8x8x16



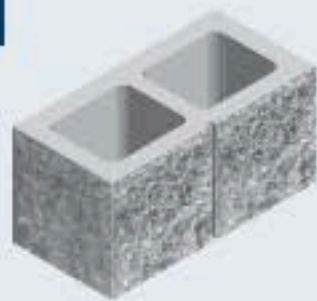
Split Face Eight Flutes

8x8x16



Split Face Corner

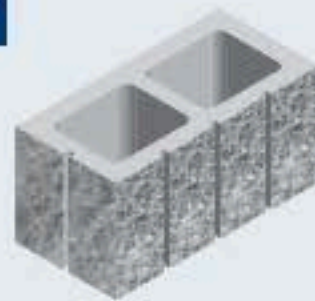
8x8x16



Split Face Corner Single Flute

Single Score Available

8x8x16



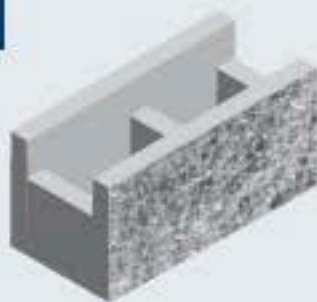
Split Face Corner Three Flutes

8x8x16



Split Face Corner Eight Flutes

8x8x16



Split Face Lintel Open/Solid Bottom

Available With Flutes & Score

8x4x16



Half-High Split Face

8x4x16



Half-High Split Face Corner

10x8x16



Square End Regular

10x8x16



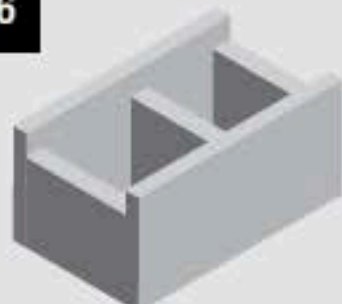
Regular w/Sash

10x8x8



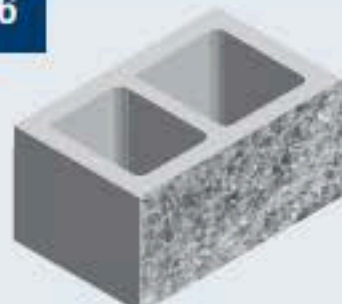
Half w/Sash

10x8x16



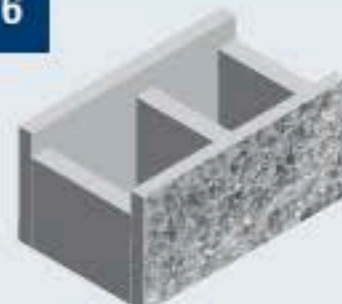
Restricted Open/Solid Bottom Lintel

10x8x16



Split Face

10x8x16

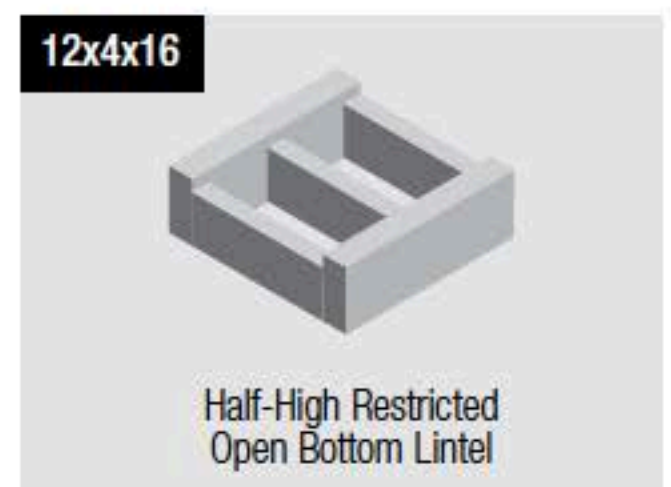
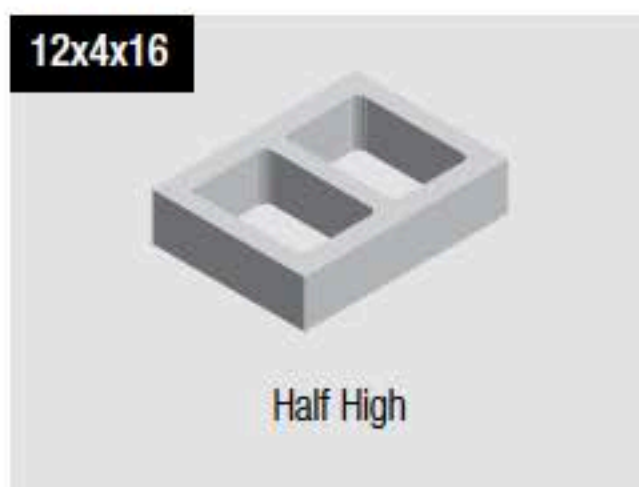
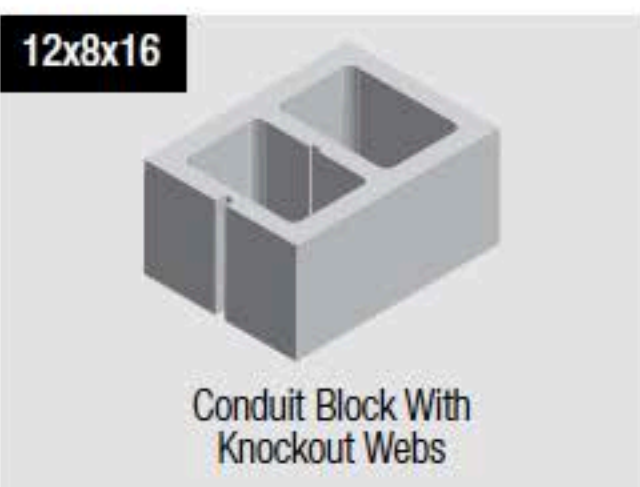
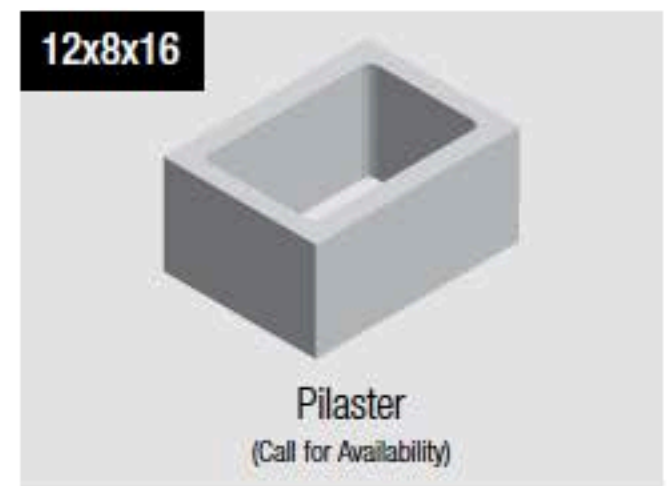
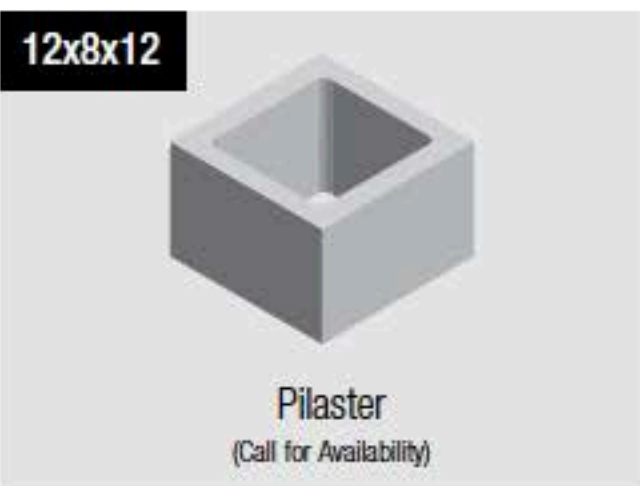
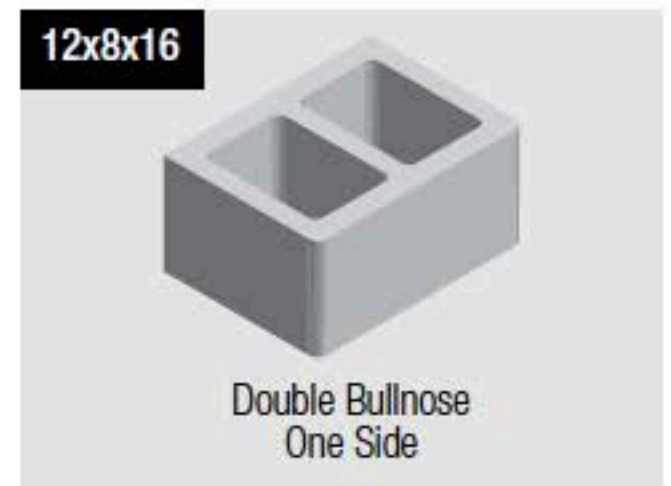
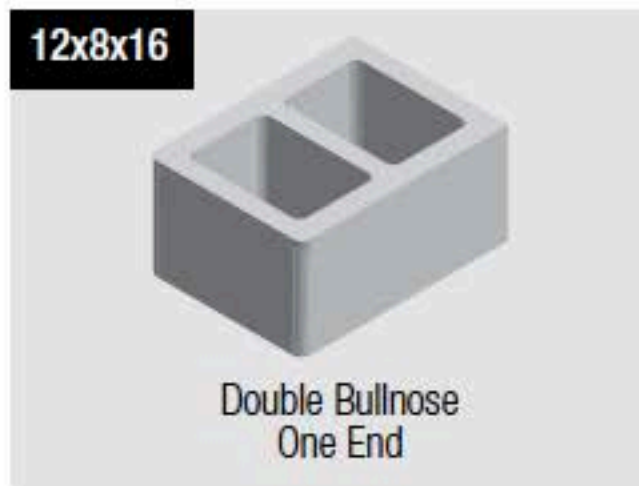
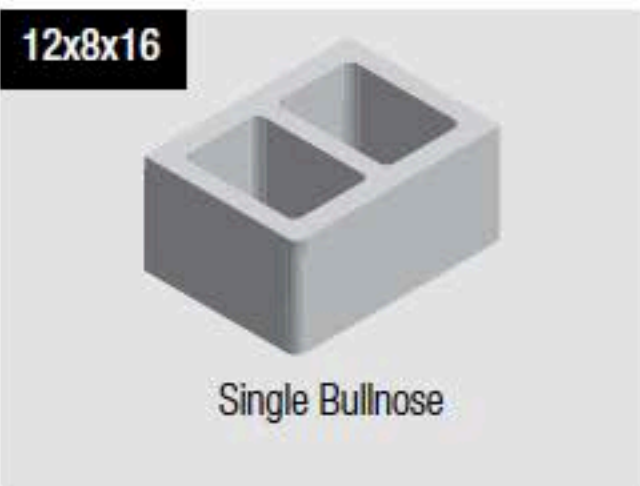
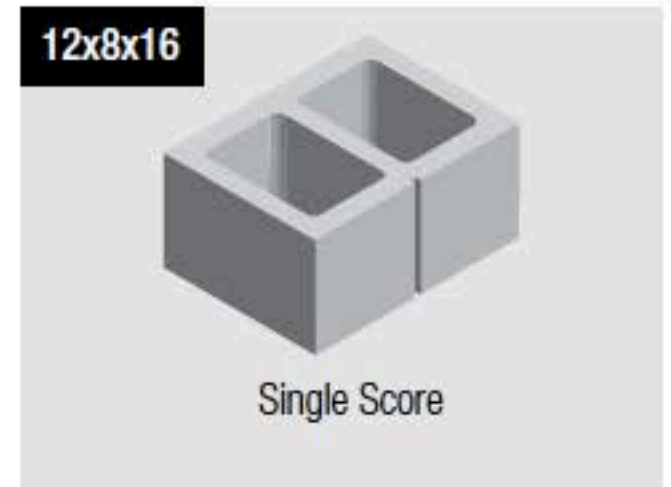
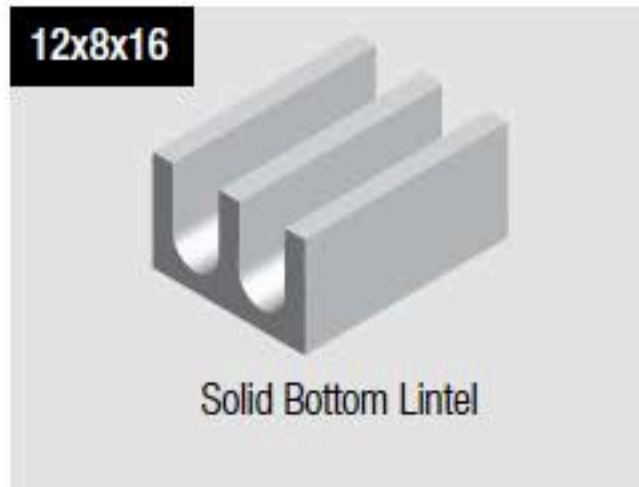
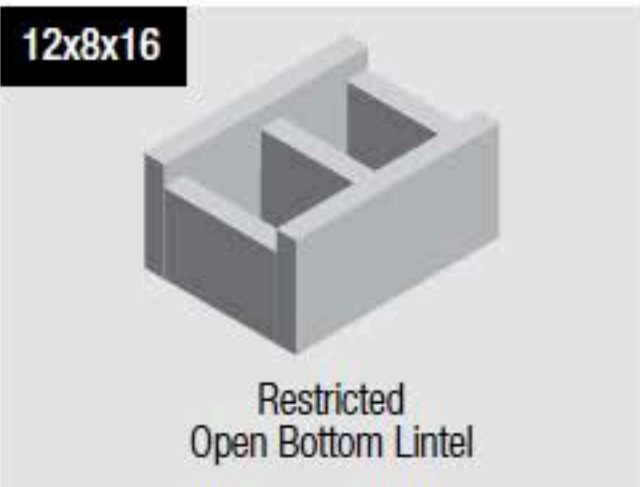
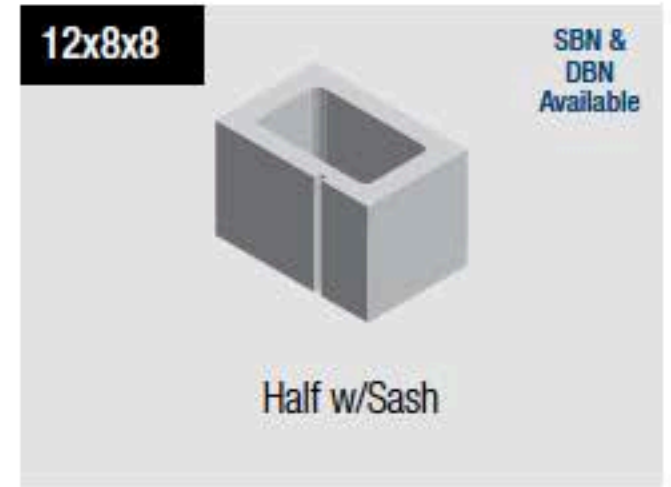
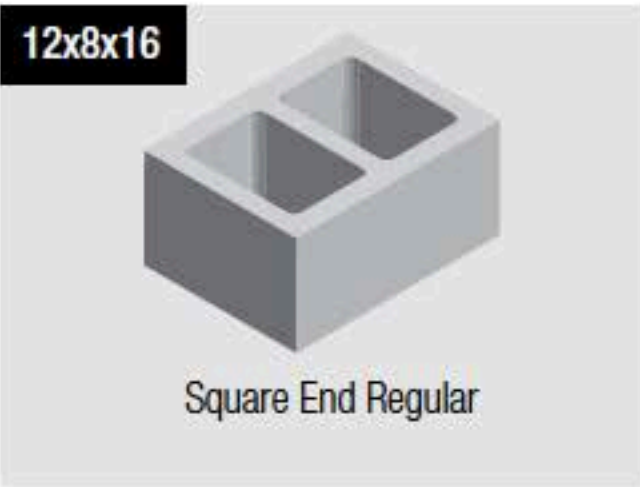


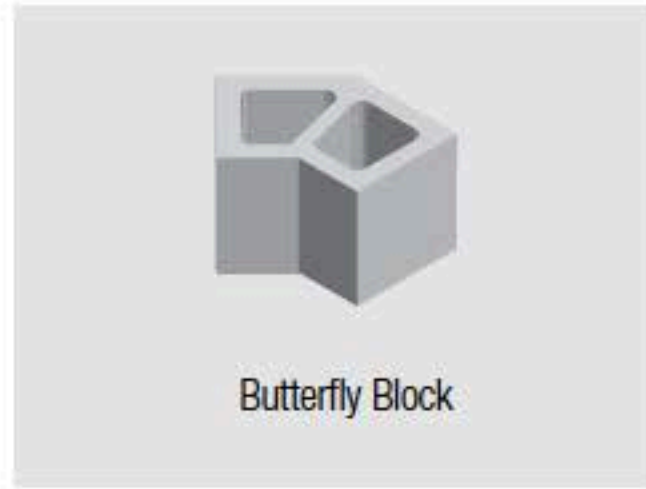
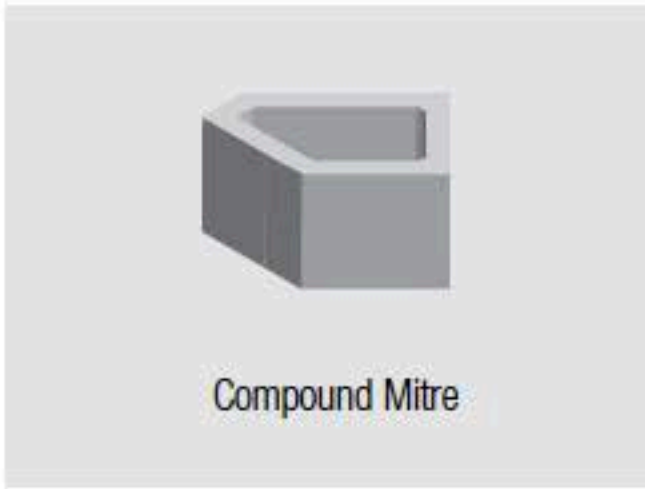
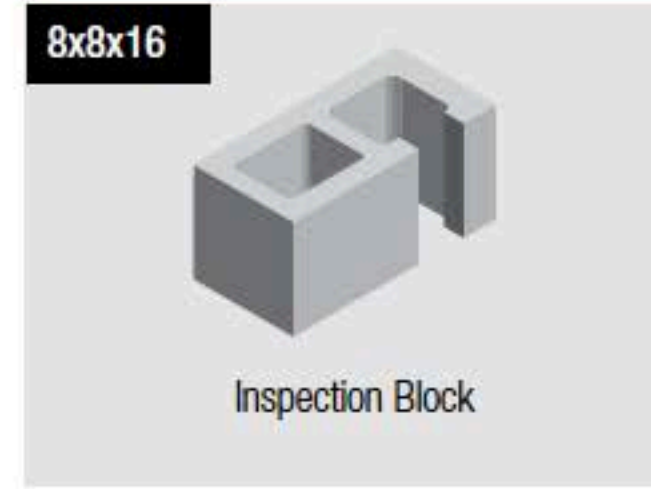
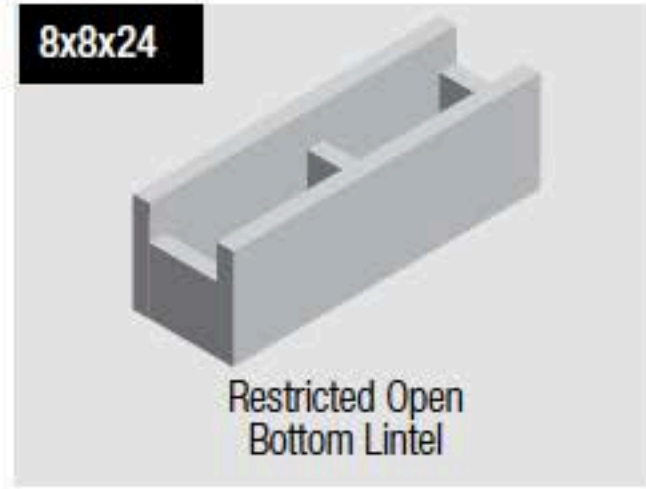
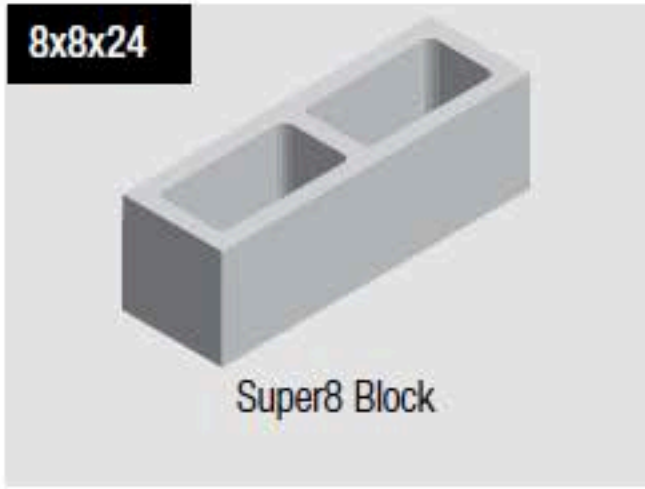
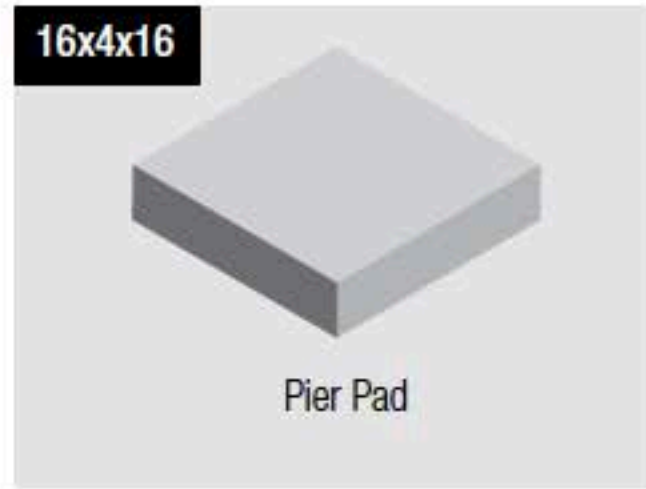
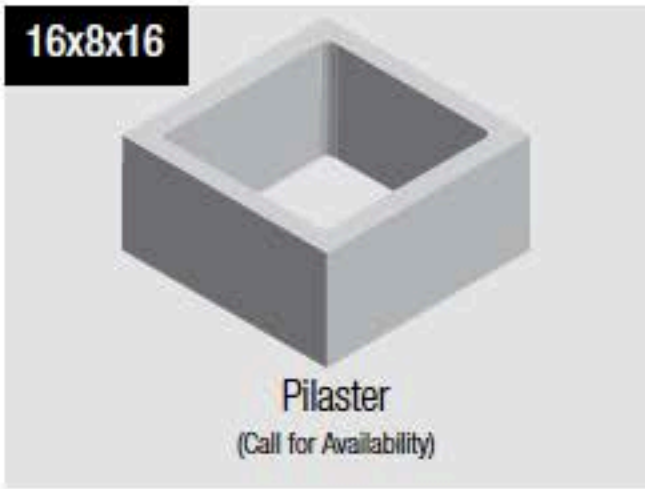
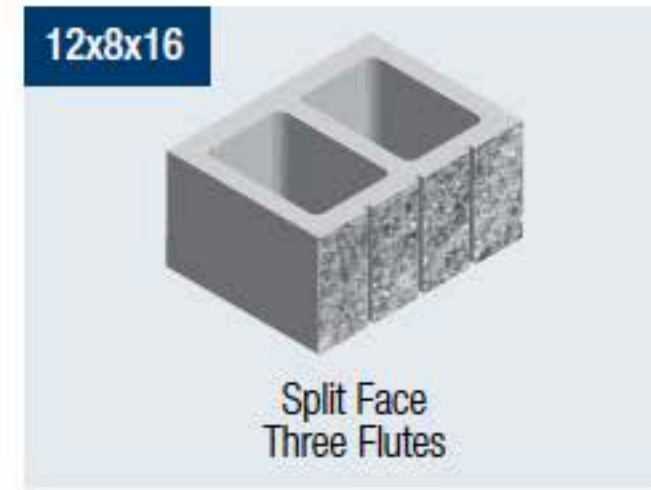
Split Face Lintel Open/Solid Bottom

8" Units

10" Units

12" Units





12" Units

16" Units

Special Units

Notes