

Basic Training

Concrete Block 101



Concrete Masonry Units are manufactured using the following ingredients:

- **Portland Cement**
- **Normal Weight Aggregates**
- **Light Weight Aggregates**
- **Admixtures**
- **Water**



Portland Cement



**Cement gives the
block its strength**



Normal Weight Aggregates



May consist of any of these materials:

- **Sand**
- **Gravel**
- **Marble Chips**
- **Used as fillers in the block**



Light Weight Aggregates



- **Increases fire rating**
- **Makes block lighter**
- **Made from expanded clay**



Admixtures



**Added to the mix
during production**

**Increase water
repellency**



Water



Water is added in various proportions depending on the mix design



How is concrete block manufactured?



Raw Materials



Raw materials are weighed out in proportions and transported via conveyor to the mixer.



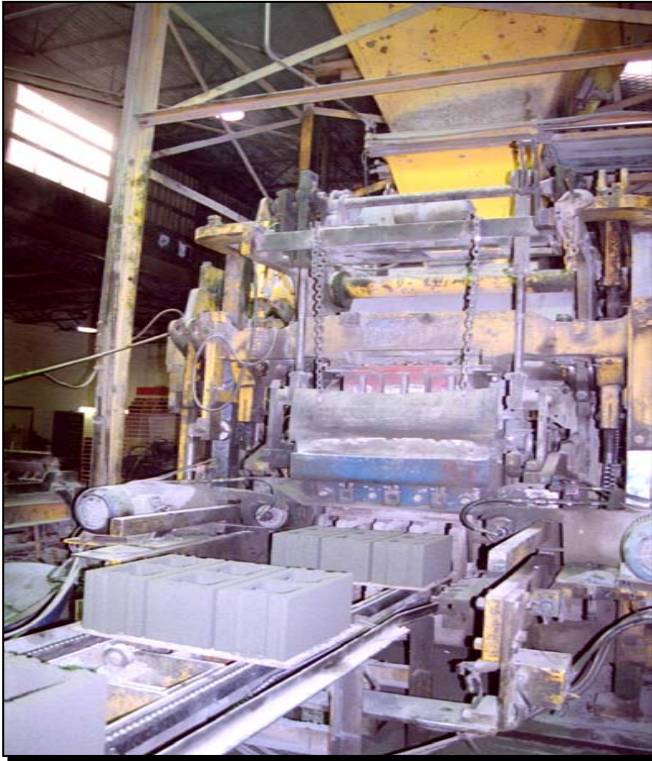
Mixer



**All raw materials
are mixed for 7
minutes.**



Block Machine



From the mixer the materials enter the block machine. They fall into a mold and are vibrated for 7 seconds.



Mold Removal



After the mold is removed the blocks are able to stand by themselves. They are not hard however. You could grab a chunk out of the block.



Kilns



Block remain in the kilns for 24 hours. They are baked in a moist steam heat at 140 degrees Fahrenheit.



Concrete Masonry Units

Concrete masonry units are manufactured in several types:

- Grey Block
- Split Face
- Split Rib
- Concrete Brick



Grey Block

Regular Concrete Block



Manufactured in the following sizes:

4"

6"

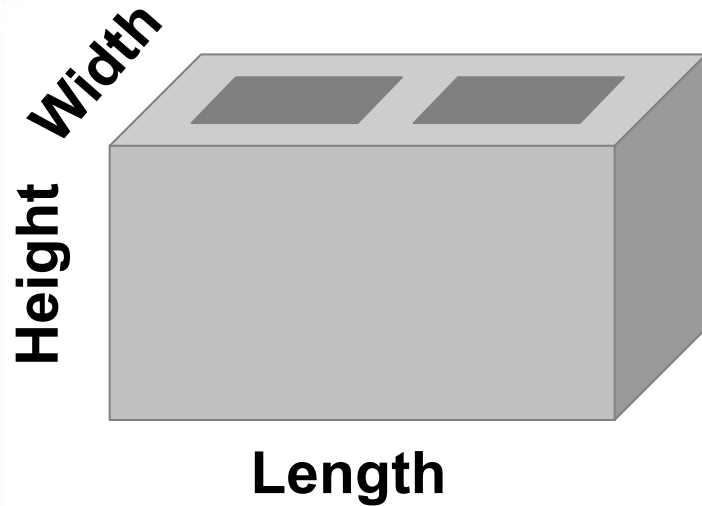
8"

10"

12"



CMU Dimensions



**Dimensions for CMU
expressed as:**

Width x Height x Length

Nominal

4 x 8 x 16

6 x 8 x 16

8 x 8 x 16

10 x 8 x 16

12 x 8 x 16

or

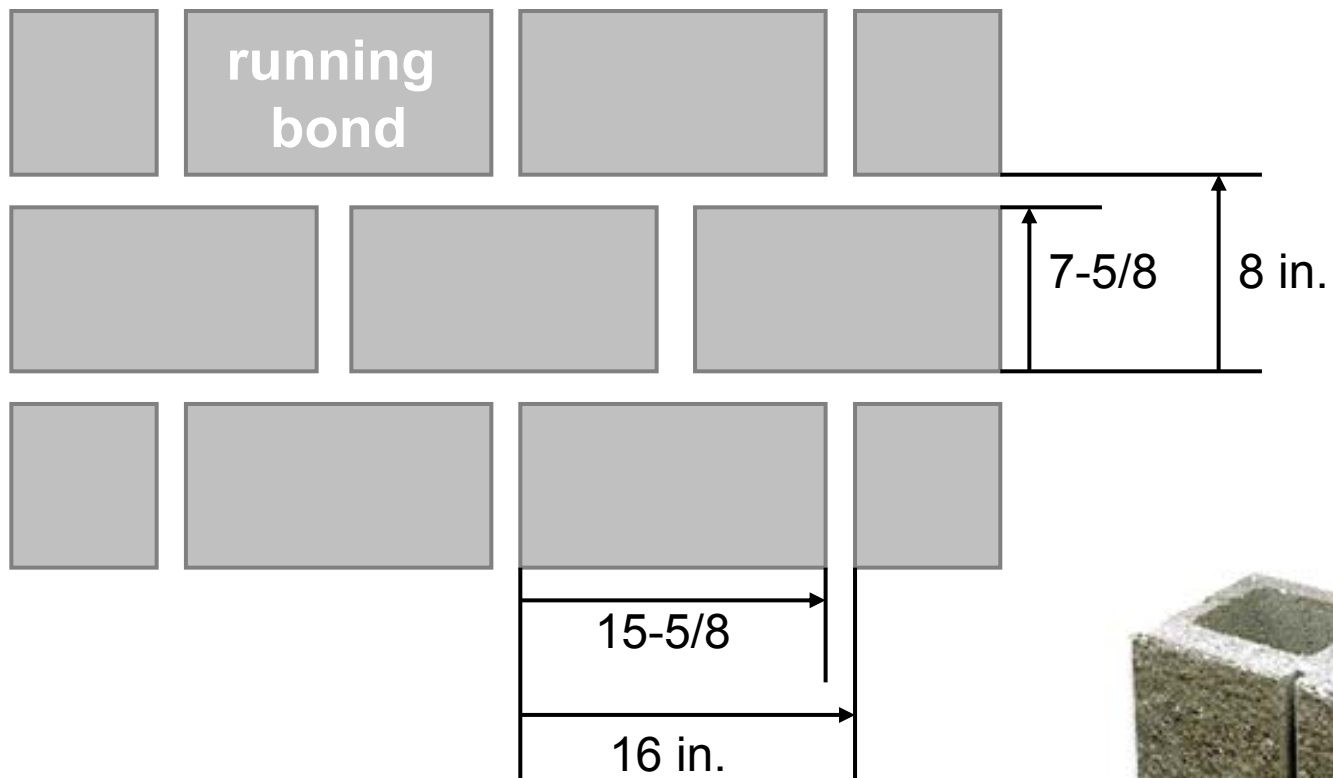
Actual / Standard / Specified

7-5/8 x 7-5/8 x 15-5/8



Nominal Dimensions

Nominal dimensions are equal to the standard dimensions plus the thickness of one mortar joint (typically $\frac{3}{8}$ in.)



Split Face

- **Manufactured in pairs**
- **Available with a single score**



Machine Split



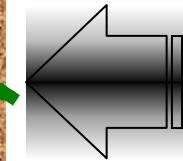
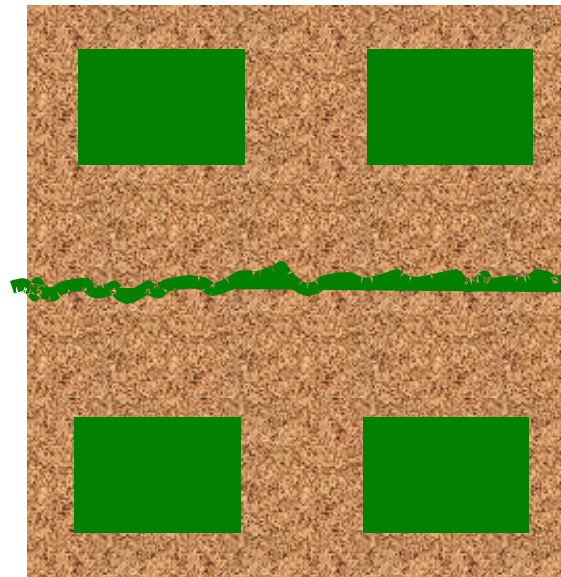
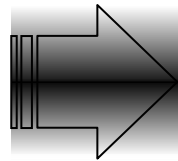
Split face block are split from the top, bottom, and both sides.



Split-Face Concrete Masonry

Unit that is cracked under pressure to expose the inner matrix of the concrete masonry

Siamese Unit is Mechanically cracked under pressure



Unit are then separated exposing the “interior” as a finished surface.

“New” surface irregularities are not grounds for product rejection.



Split Rib



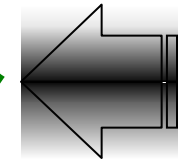
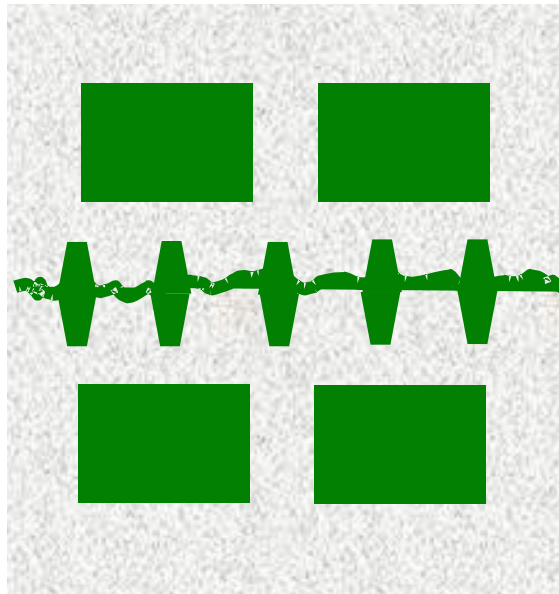
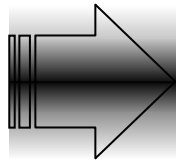
Manufactured the same way as split face but have 8 distinct ribs.



Split-Ribbed Concrete Masonry

Same process as split-face but with grooves molded in to provide finished “rib” relief

Siamese Unit is
Mechanically
cracked under
pressure



Unit are then
separated
exposing the
“interior” as a
finished surface.

“New” surface
irregularities
are not grounds
for product
rejection.

