

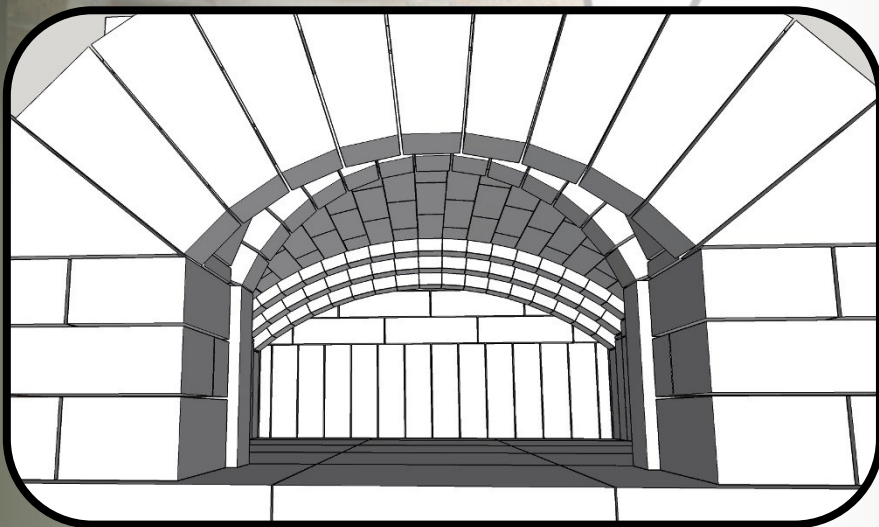
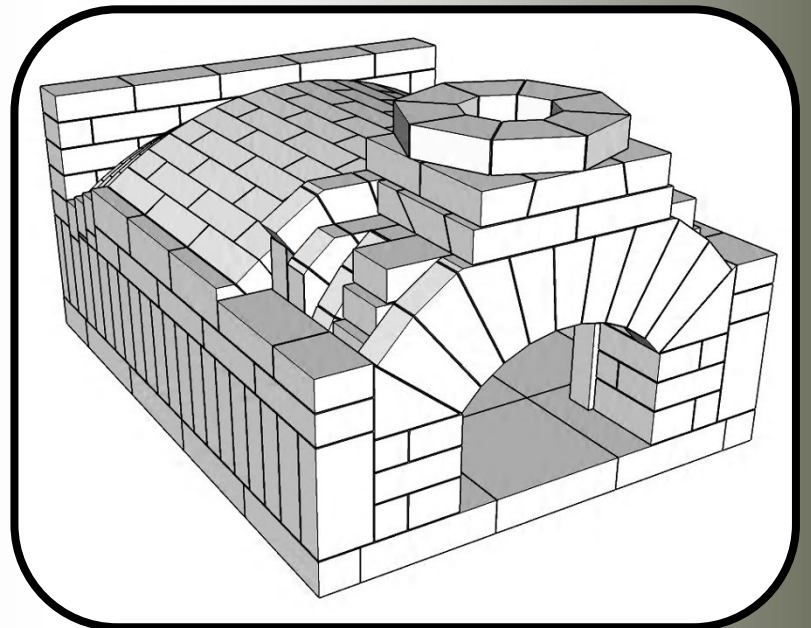
34" Priorfire Bake-Oven

Complete construction guide and plans

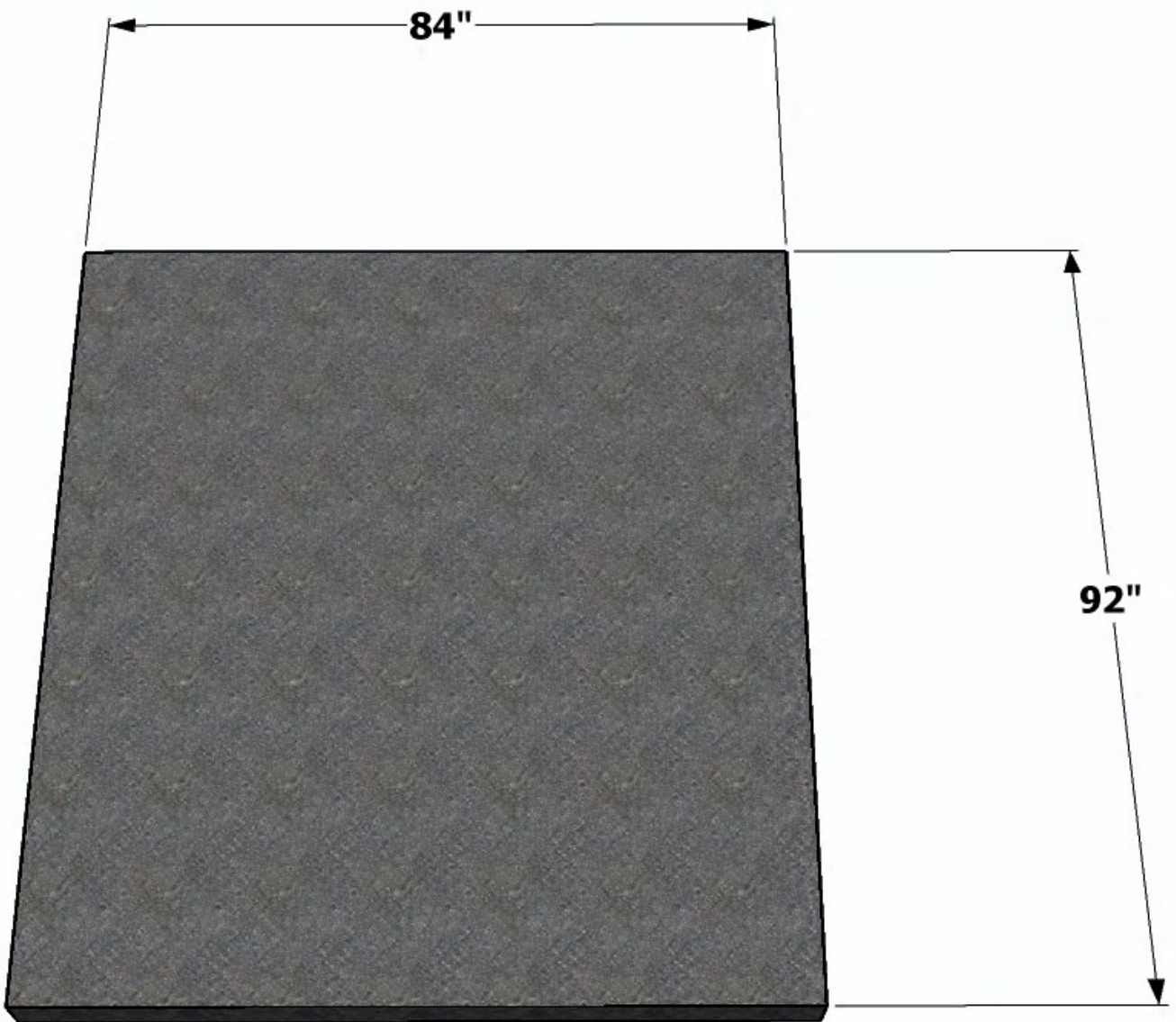
Special Addition for the "Gathering 2016"

Prosperity South Carolina

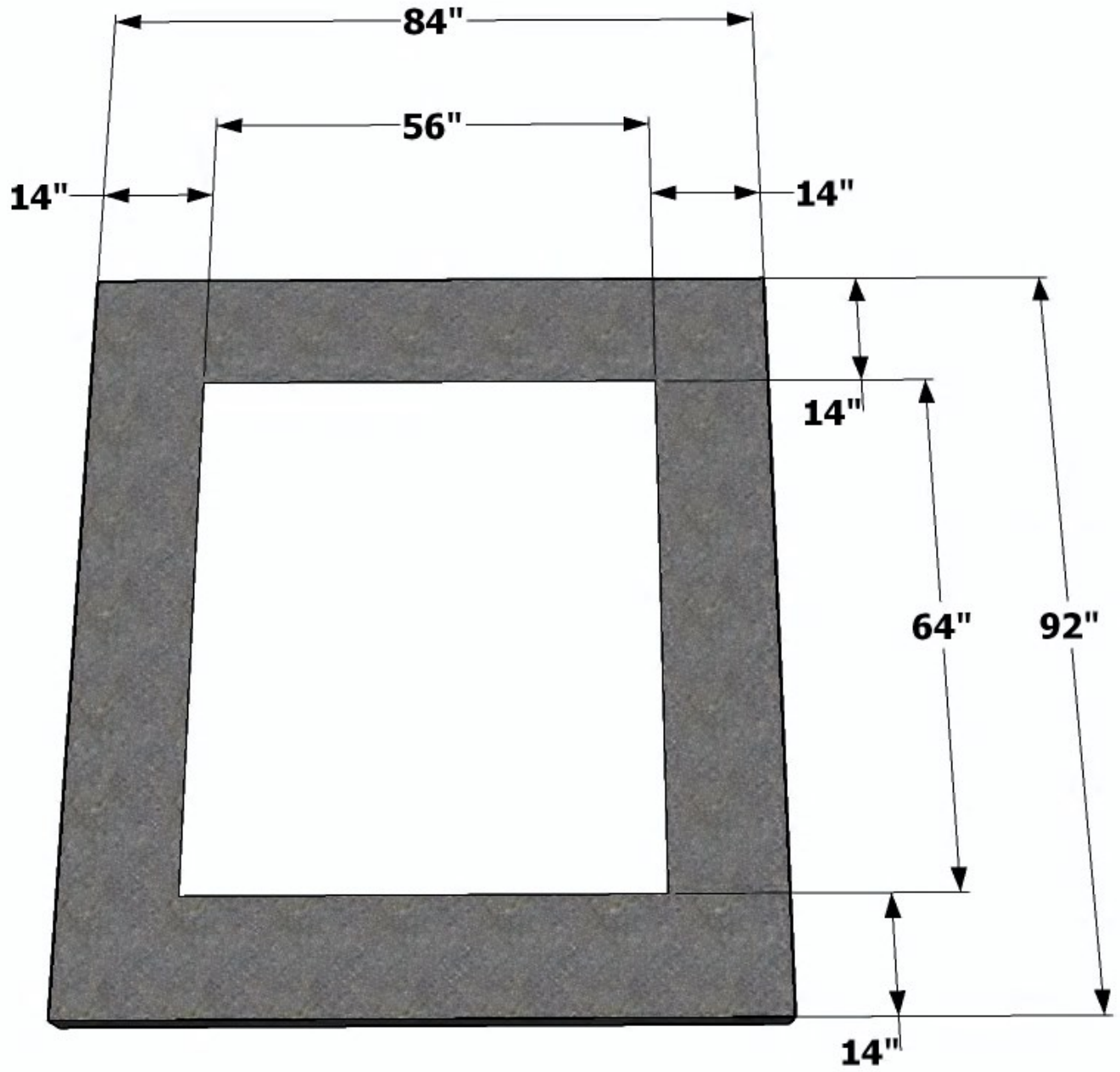
Dedicated to my Friend, Herb Fulmer



Footing base layout dimensions

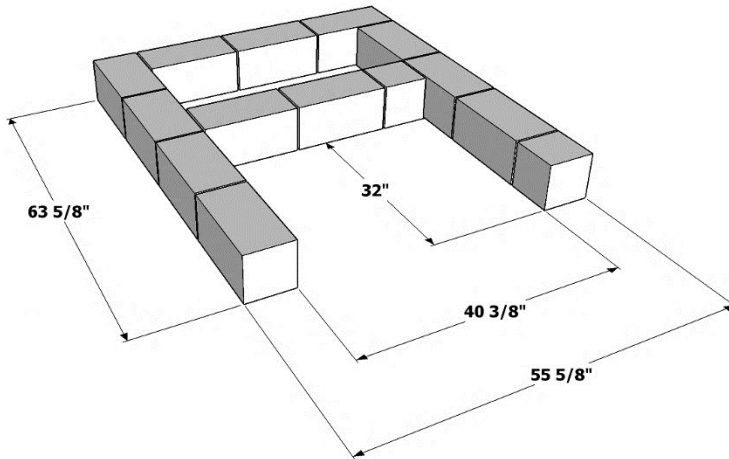


Block foundation base layout location and dimensions

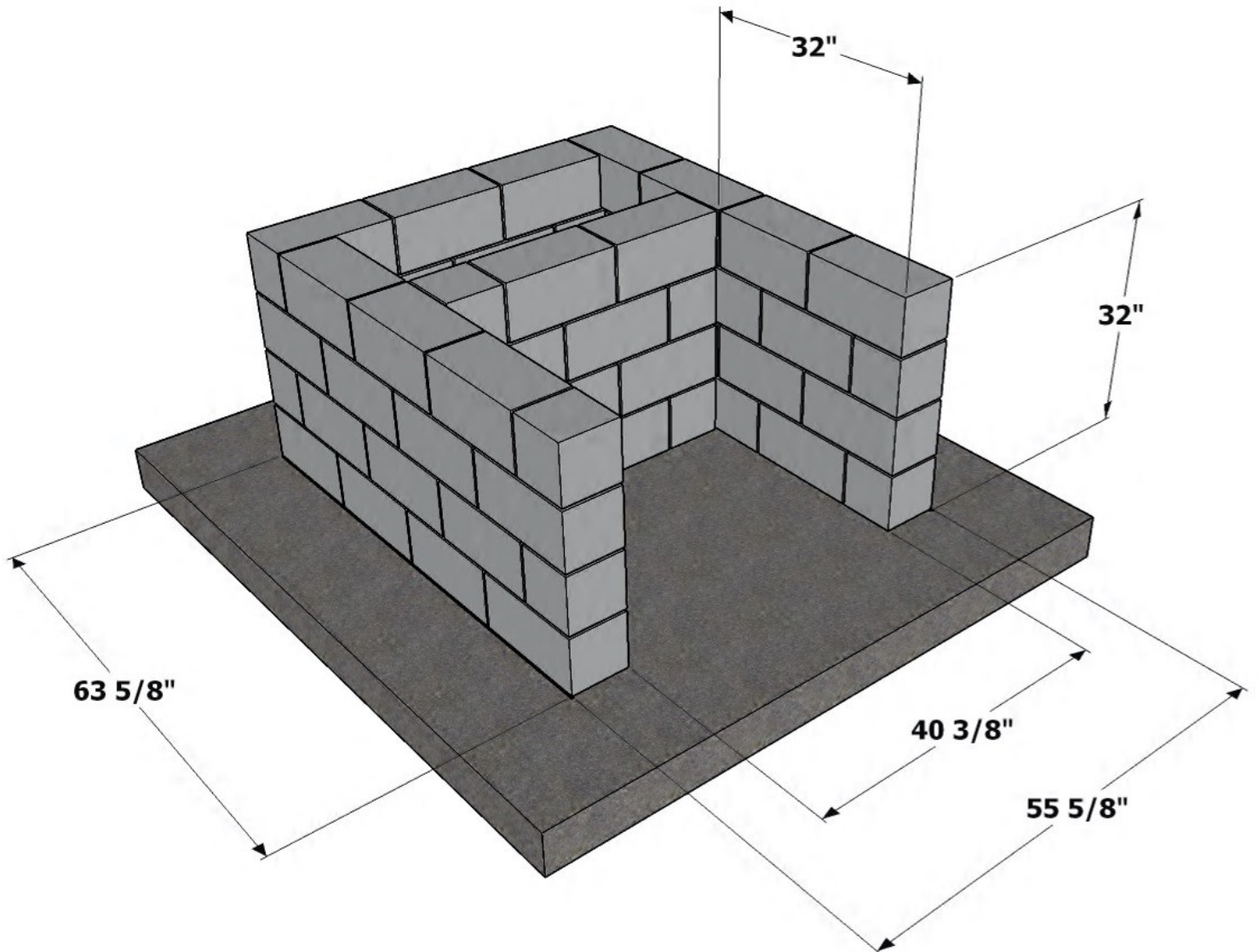
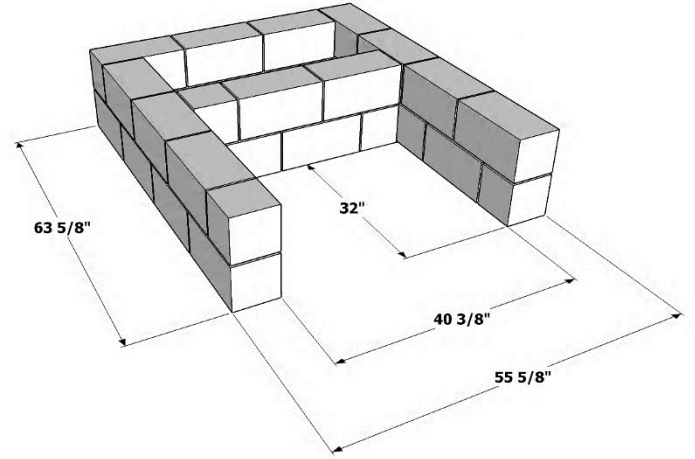


Block foundation base details

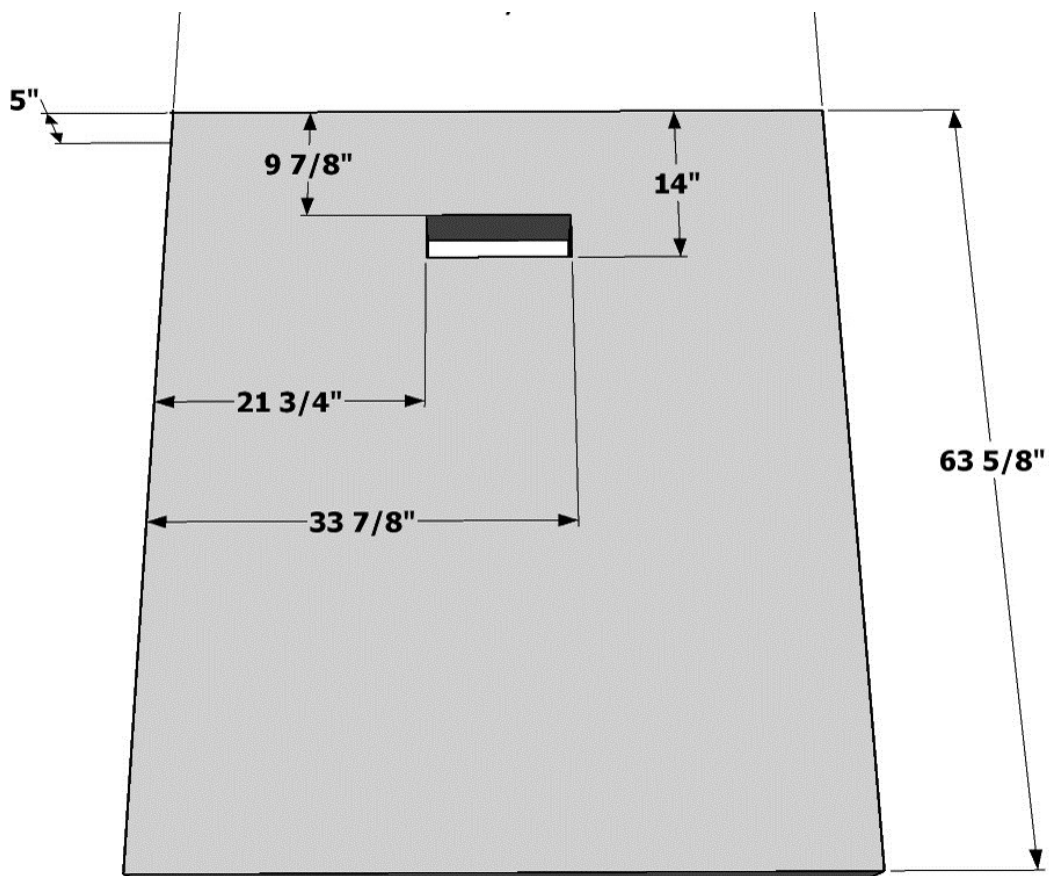
Odd courses



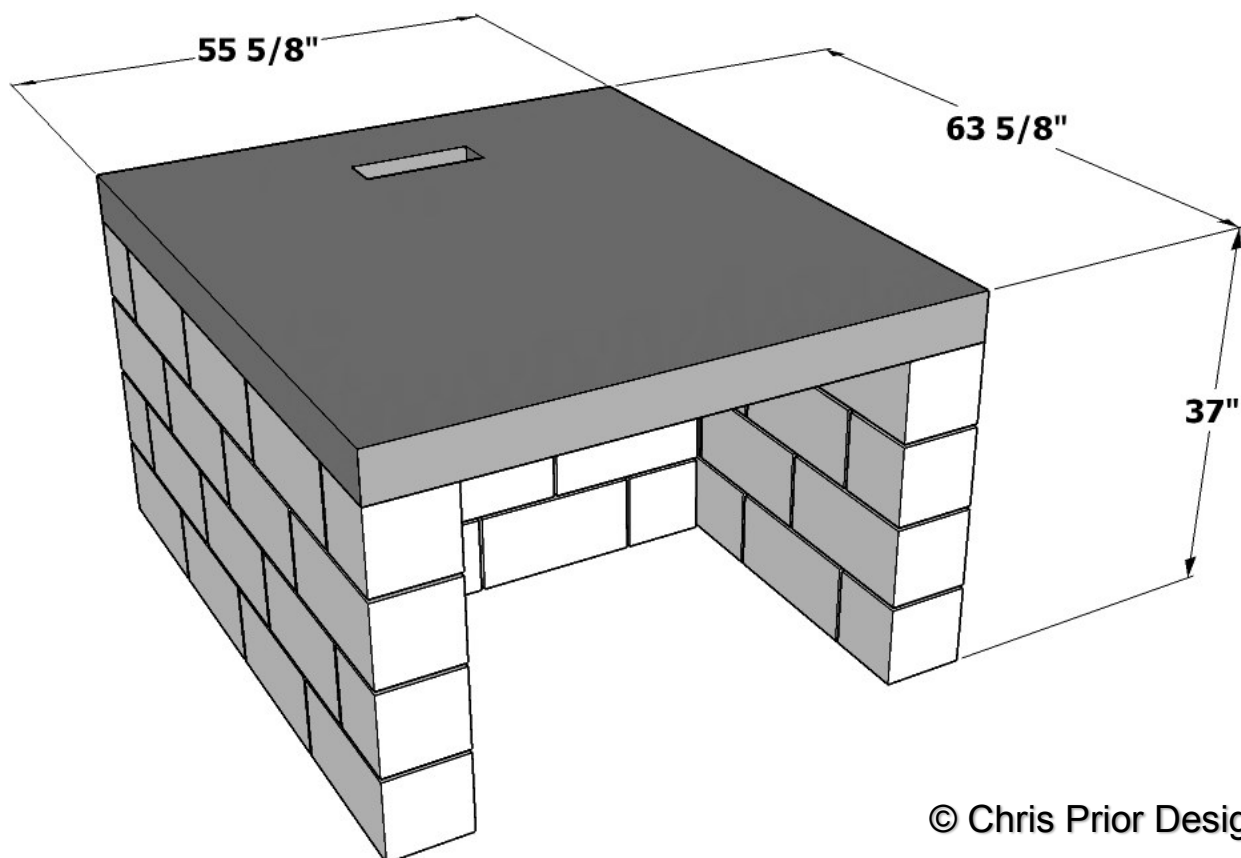
Even courses



Concrete slab with ash dump slot

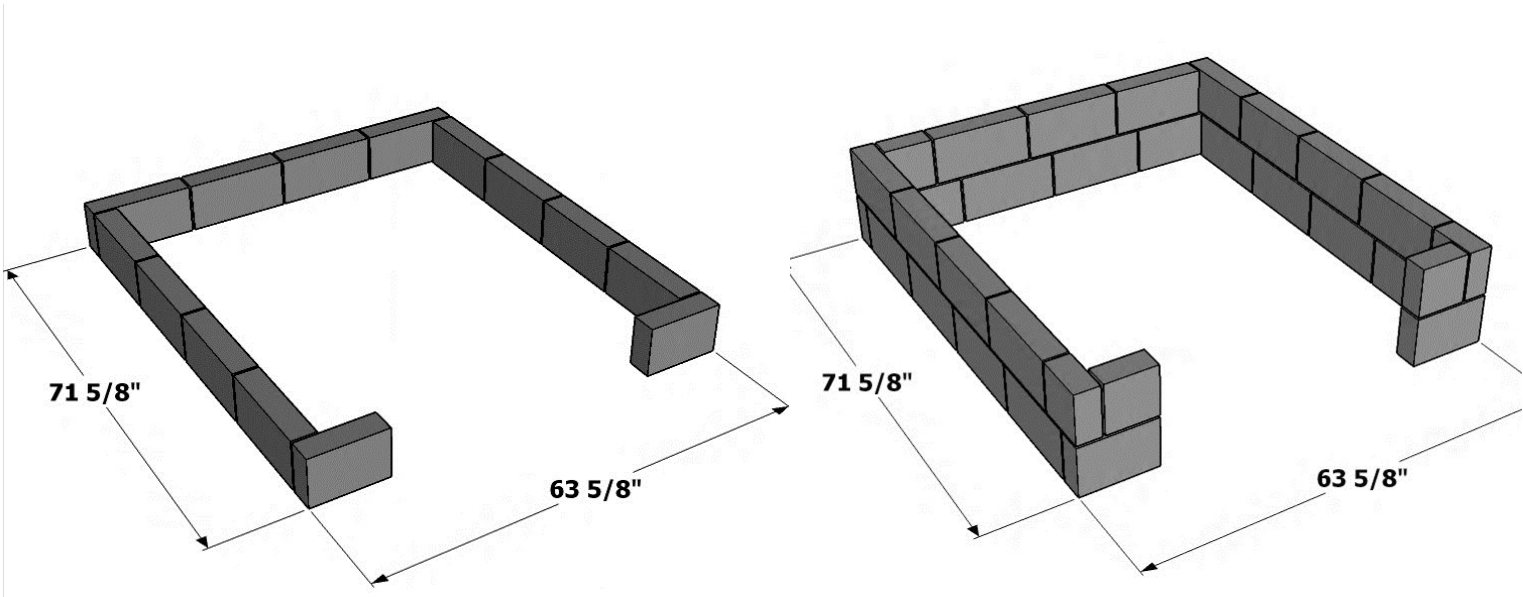
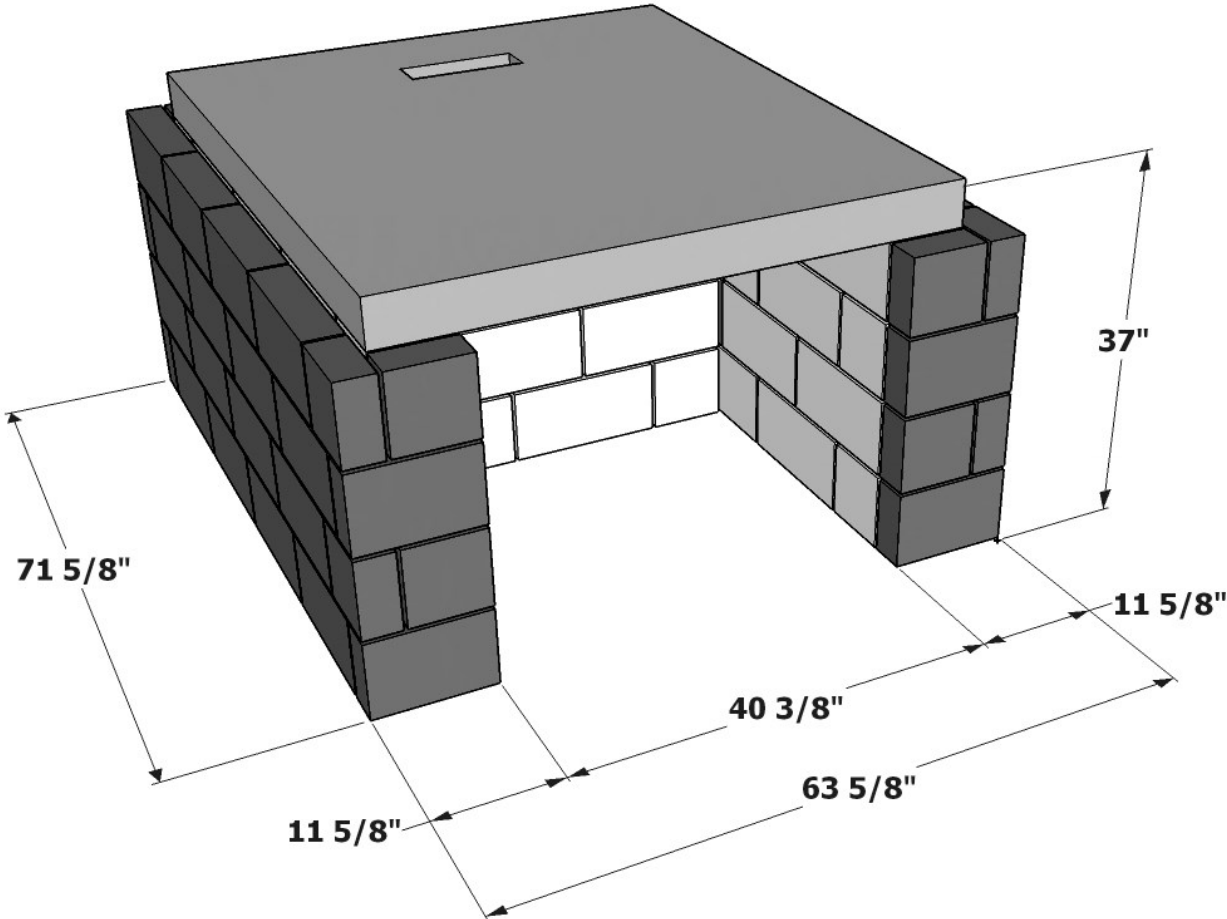


Concrete slab in position on inner block foundation base

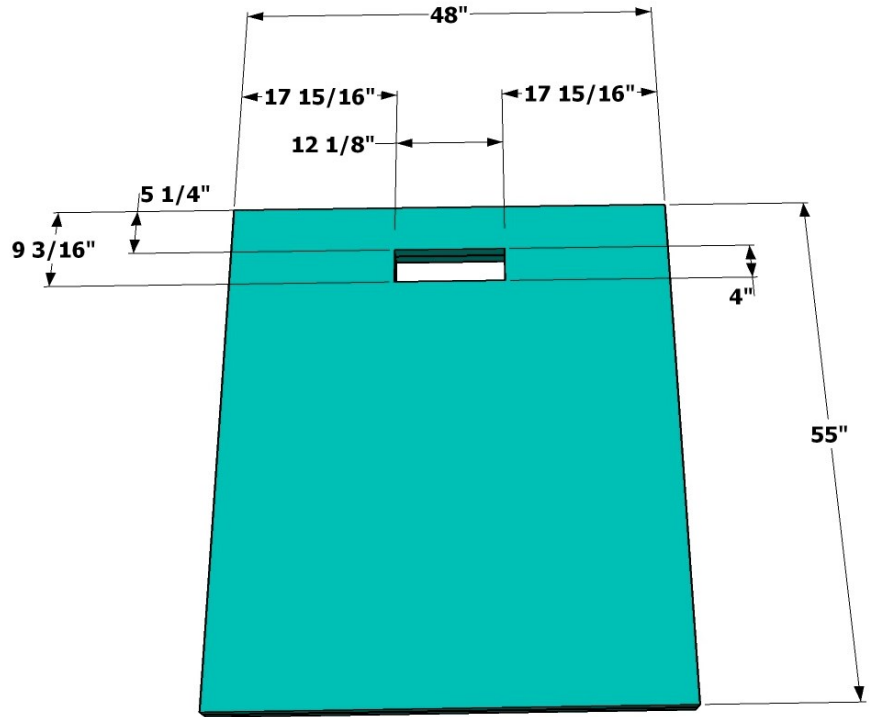


Block base outer

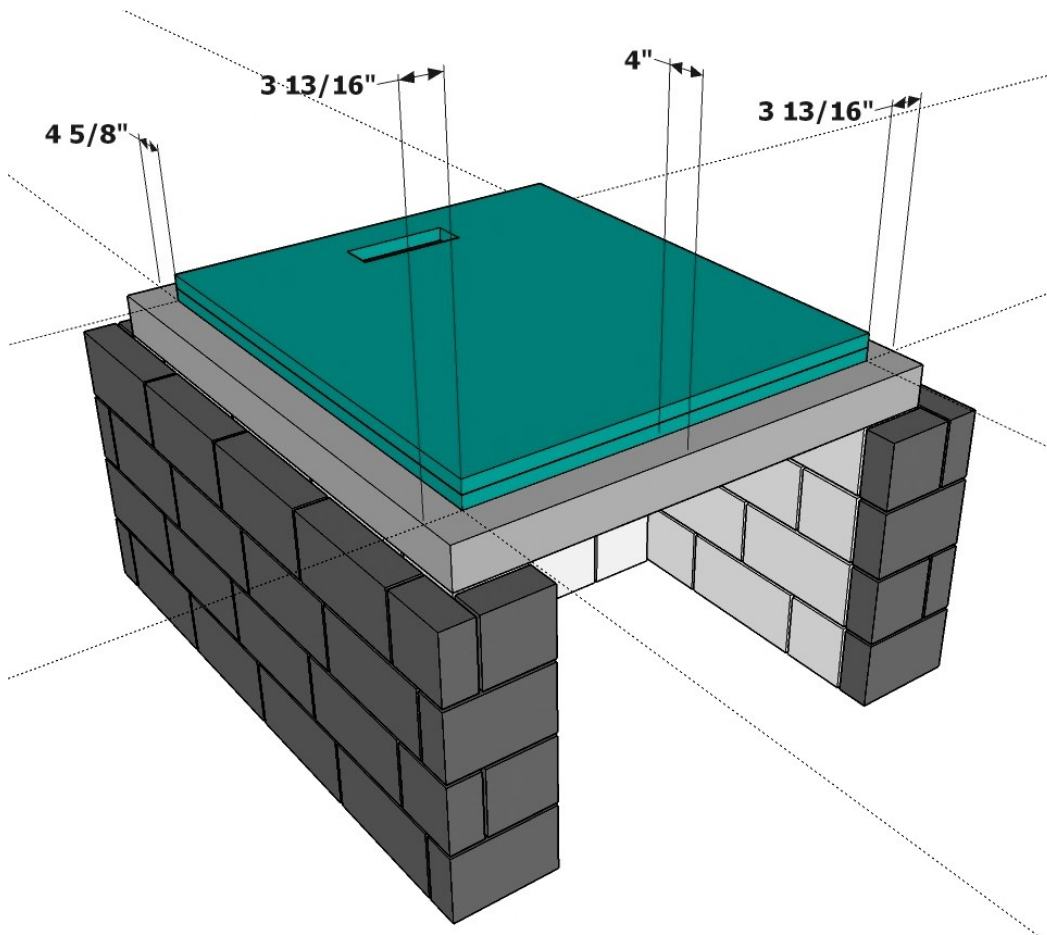
4 x 8 x 16 partition block quantity 60



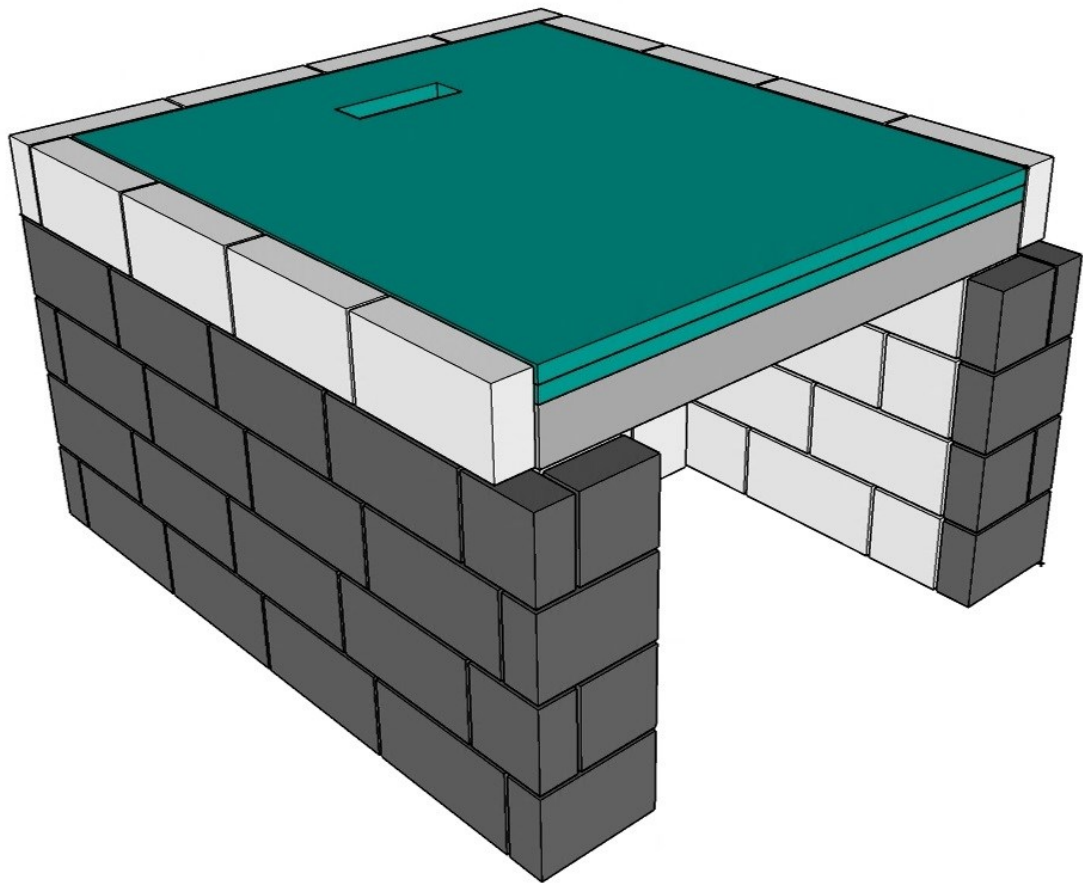
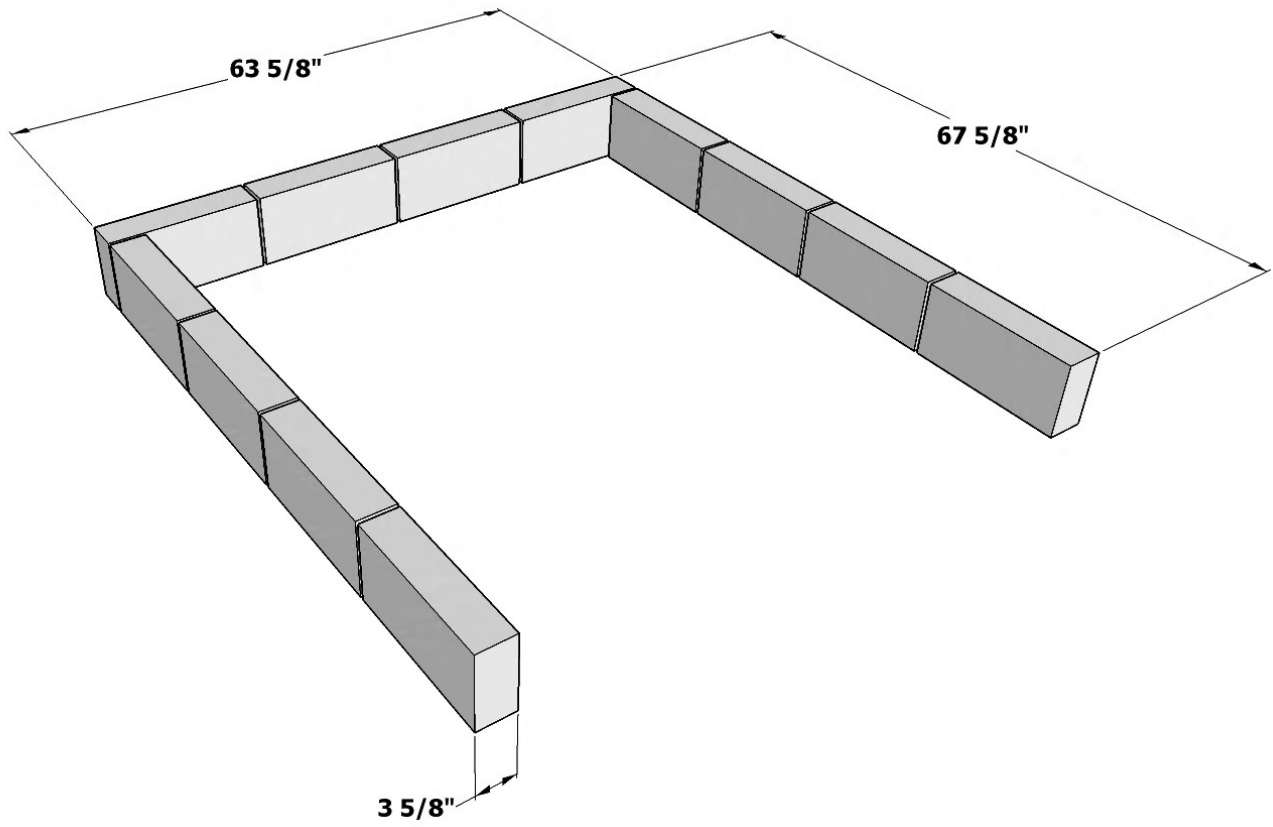
Skamol board details, quantity 2



2 Skamol boards in position

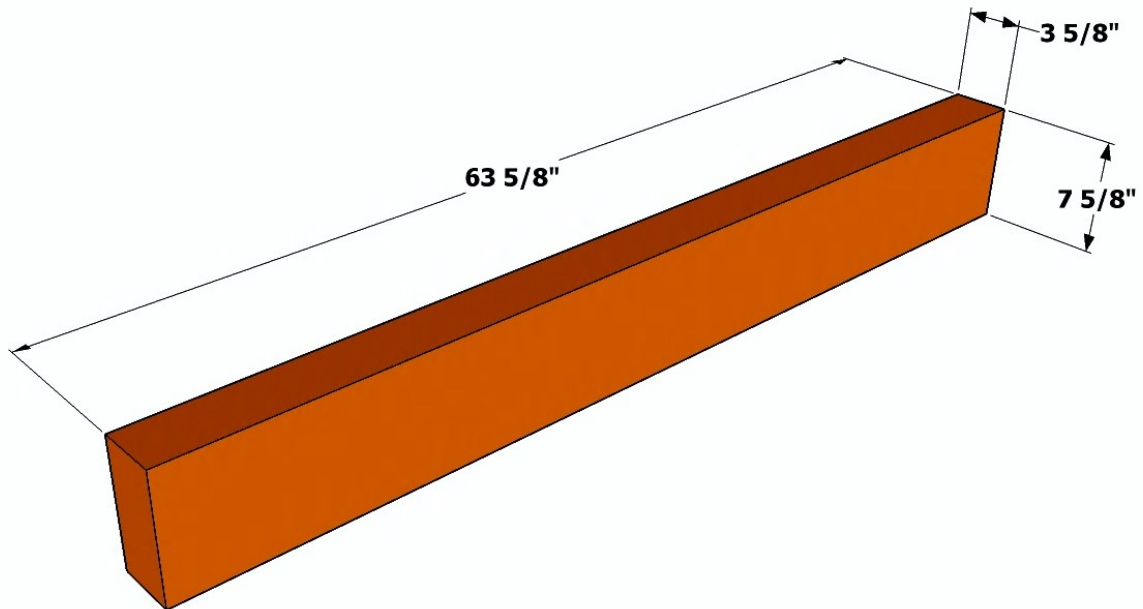


4 x 8 x 16 partition block quantity 12

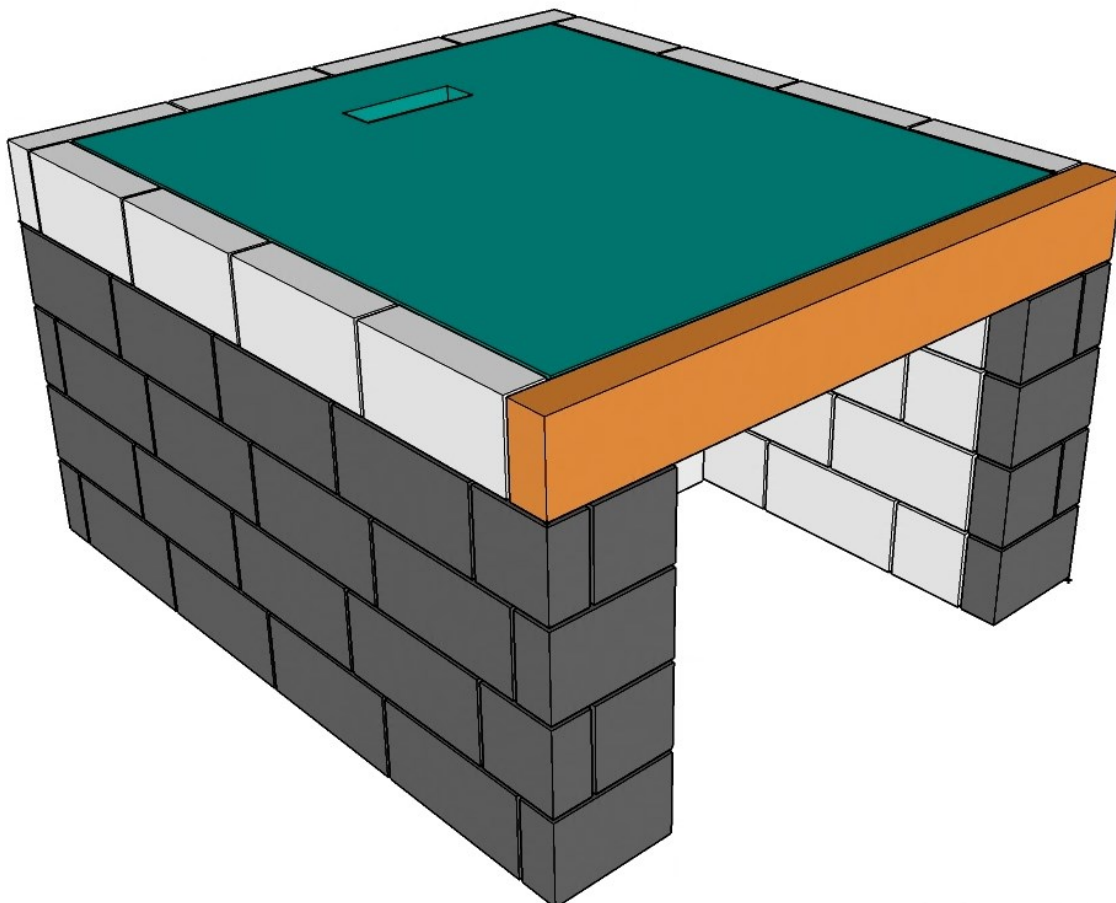


Concrete lintel detail

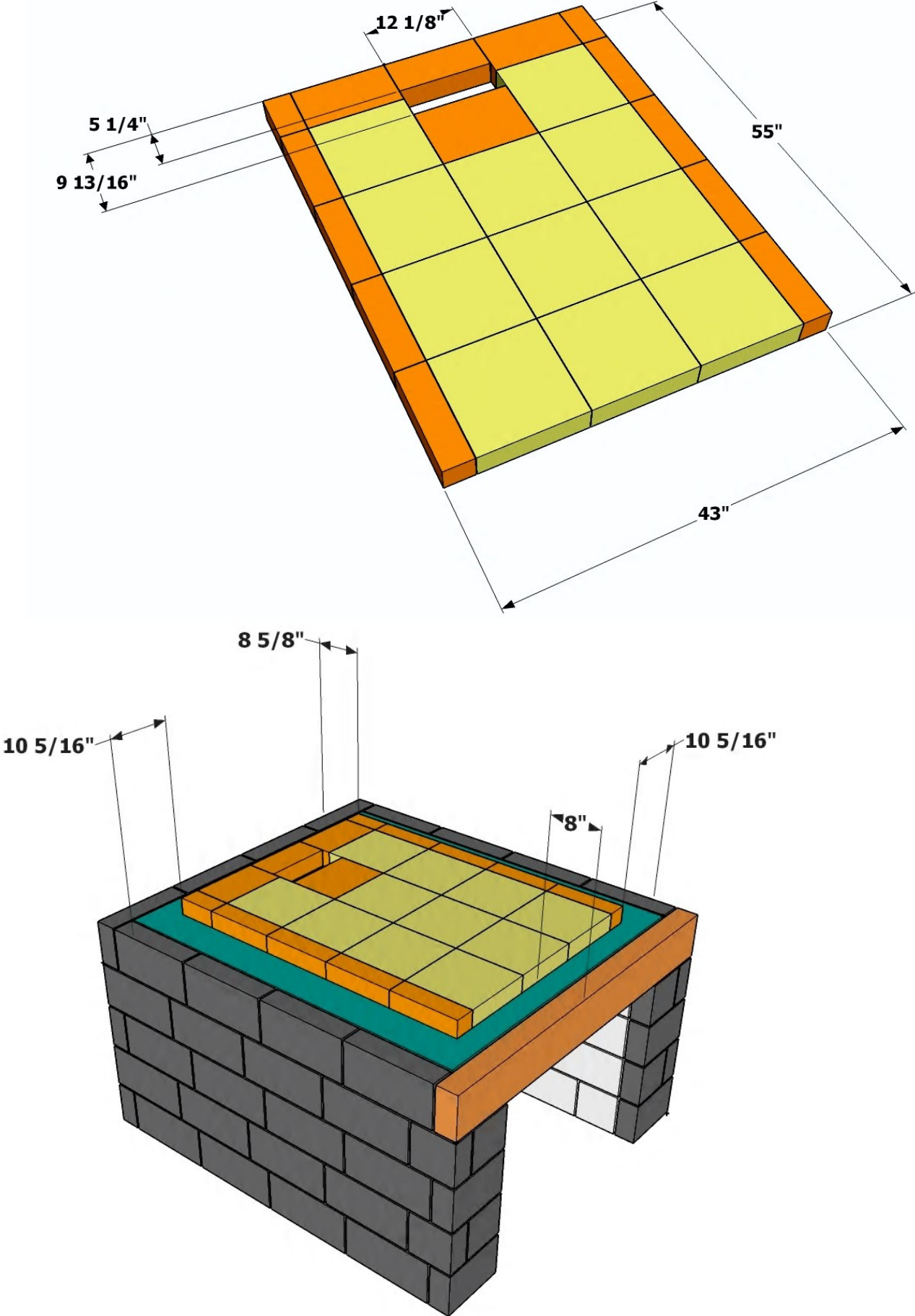
4 x 8 x 64 concrete lintel

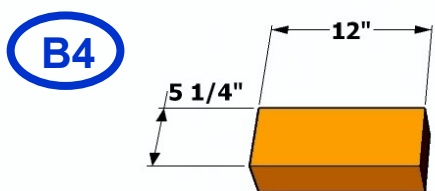
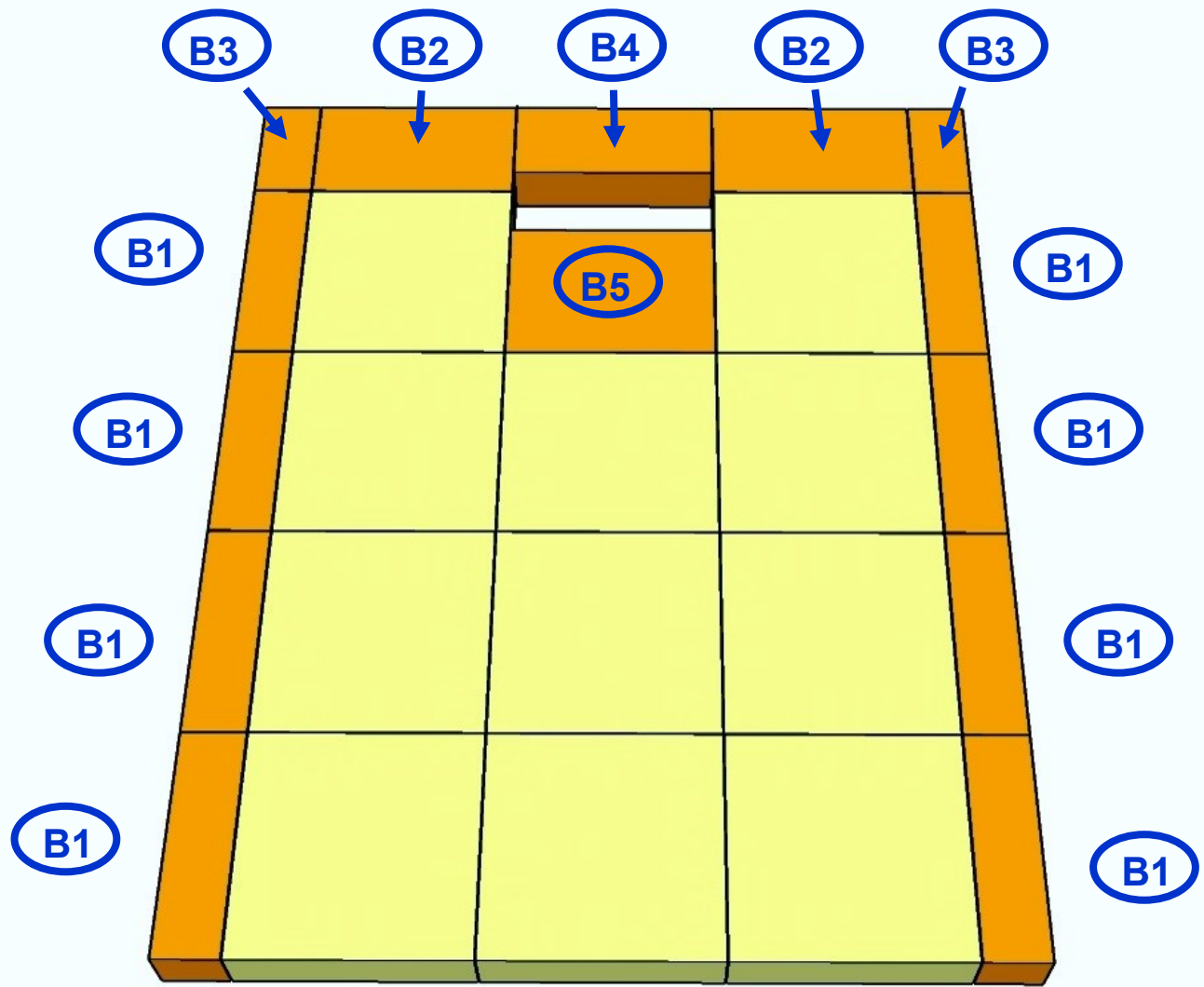


Concrete lintel in position

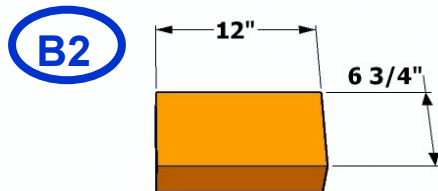


Firebrick base details

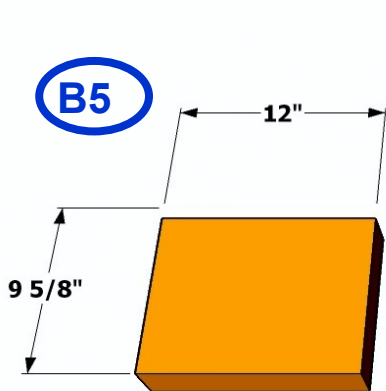




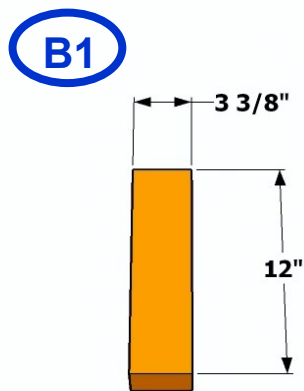
Quantity.....1



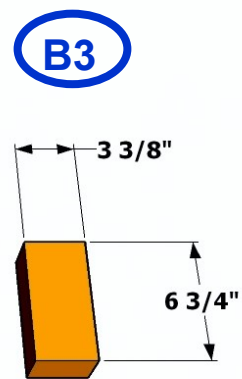
Quantity.....2



Quantity.....1

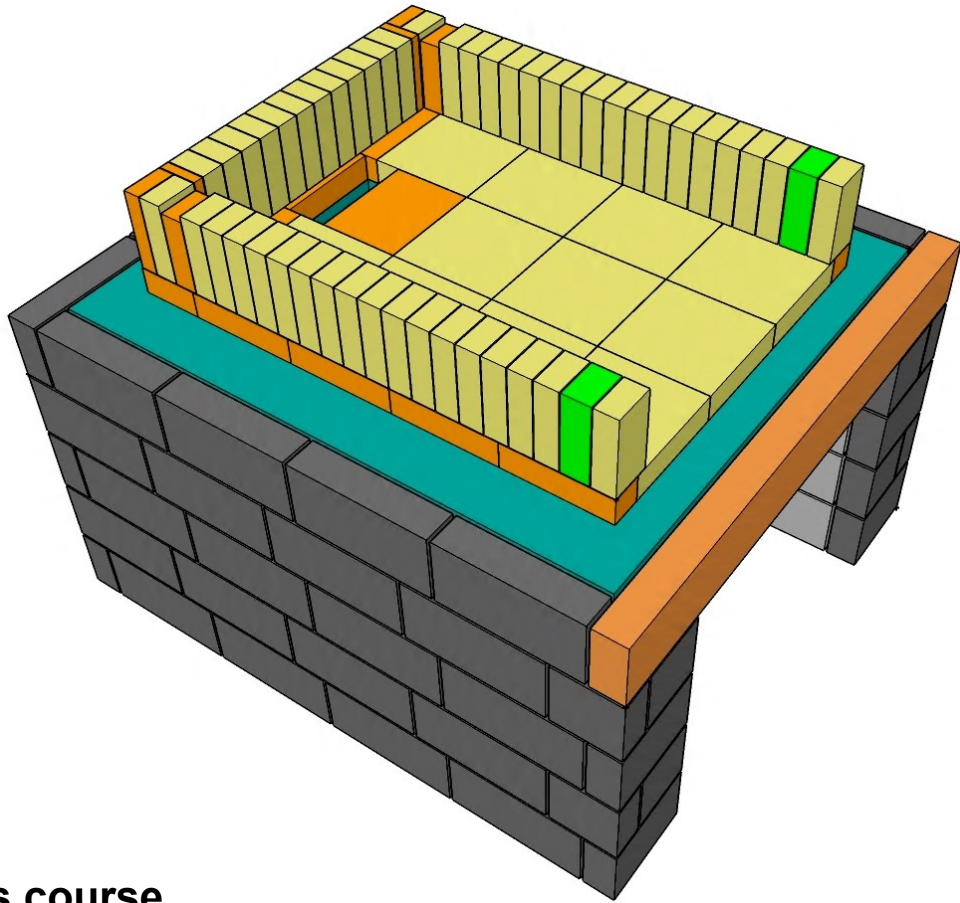


Quantity.....8



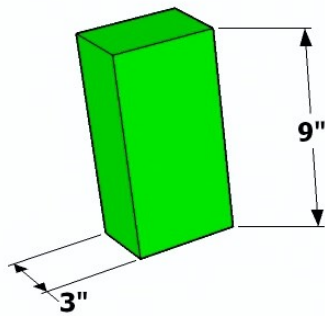
Quantity.....2

Soldier course side and back wall details



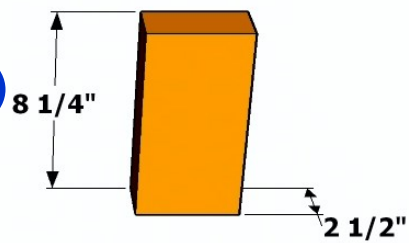
Brick cuts this course

①



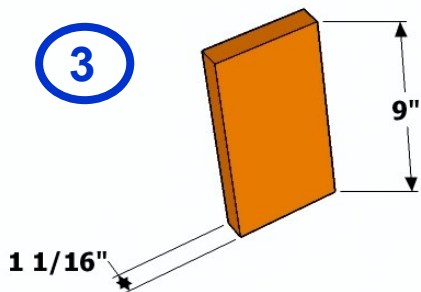
Quantity.....2

②



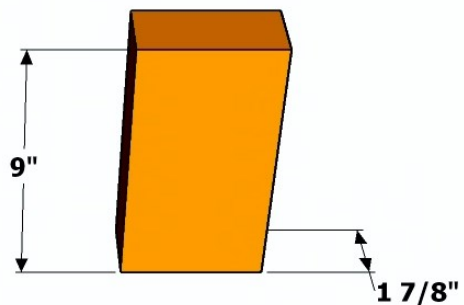
Quantity.....2

③



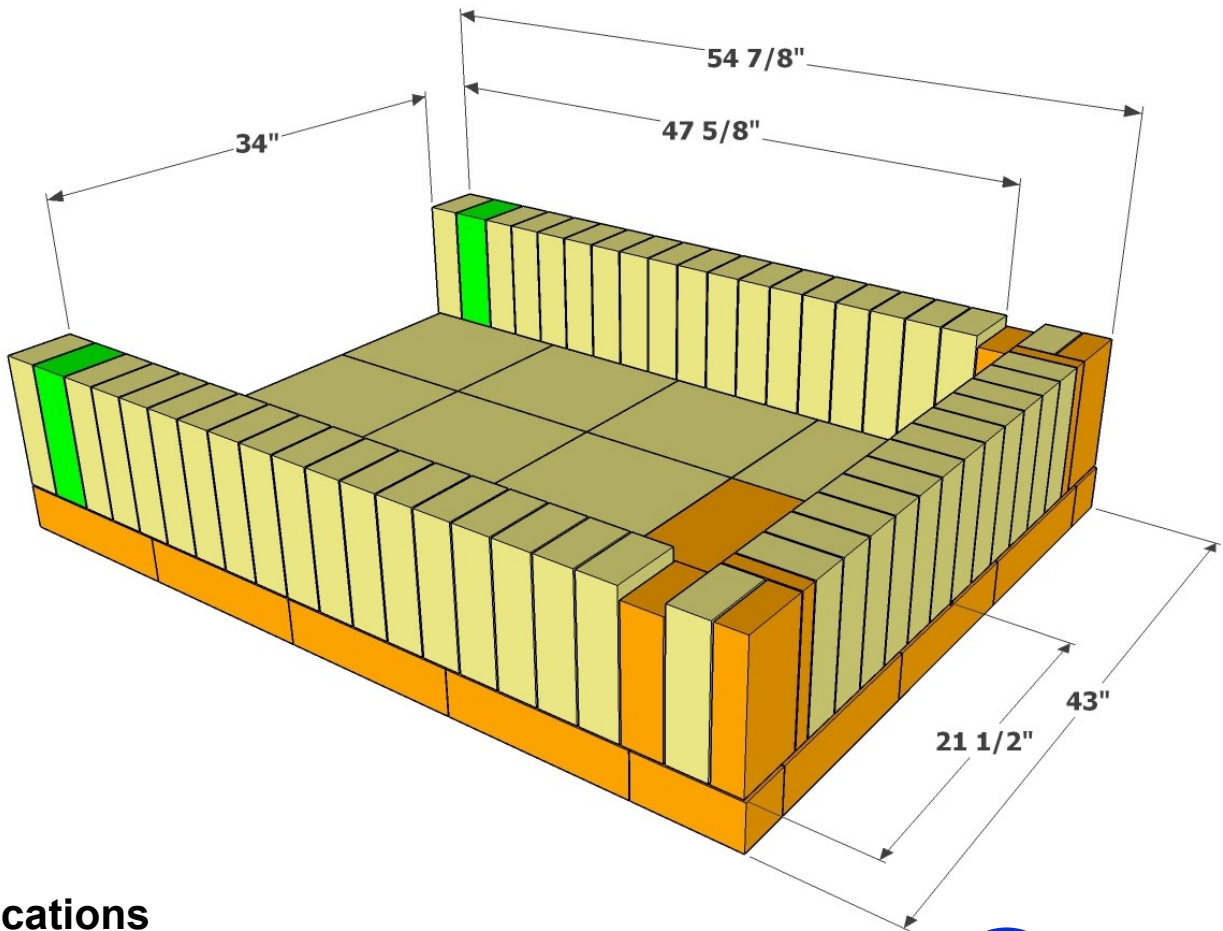
Quantity.....2

④

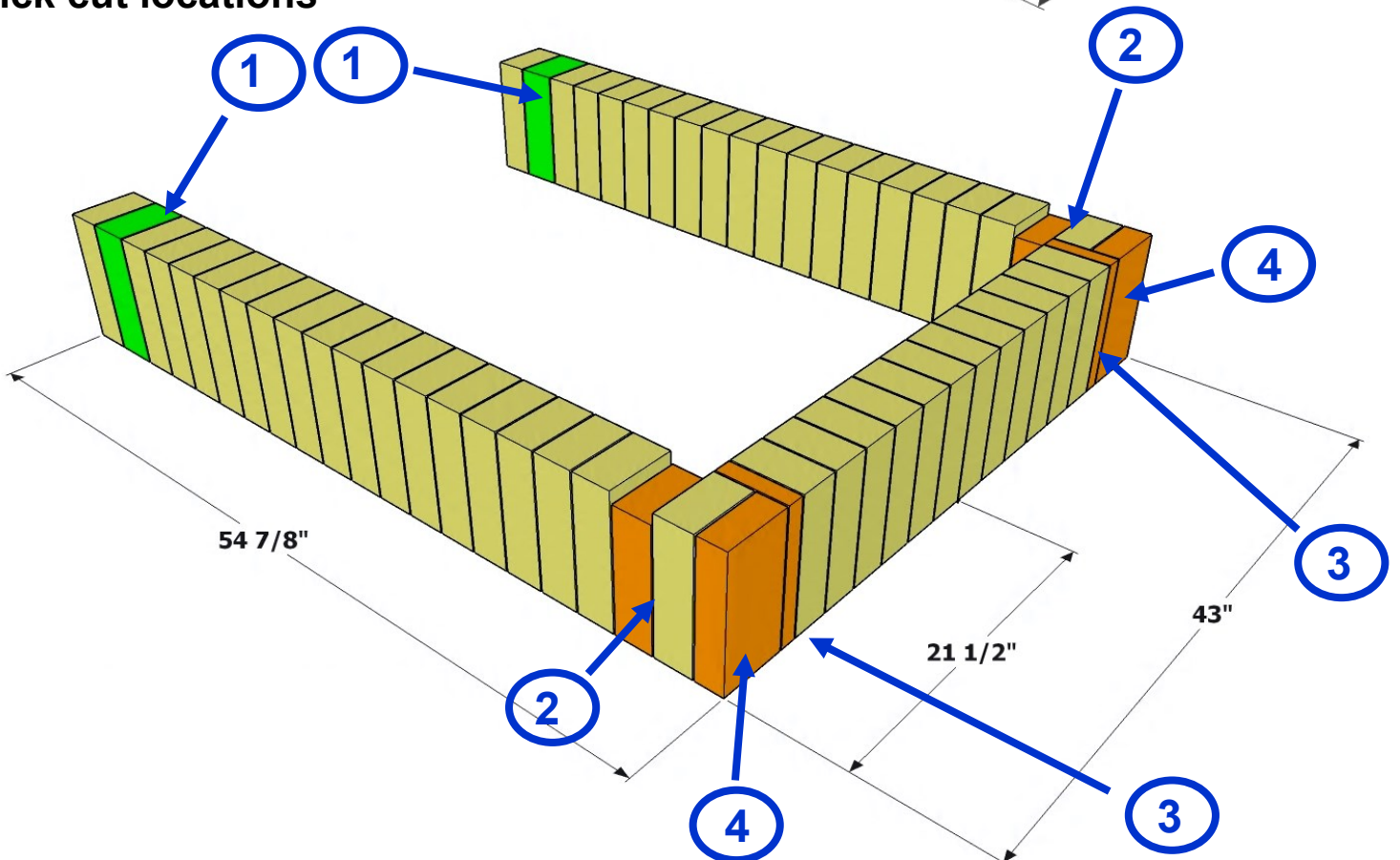


Quantity.....2

Layout details and dimensions



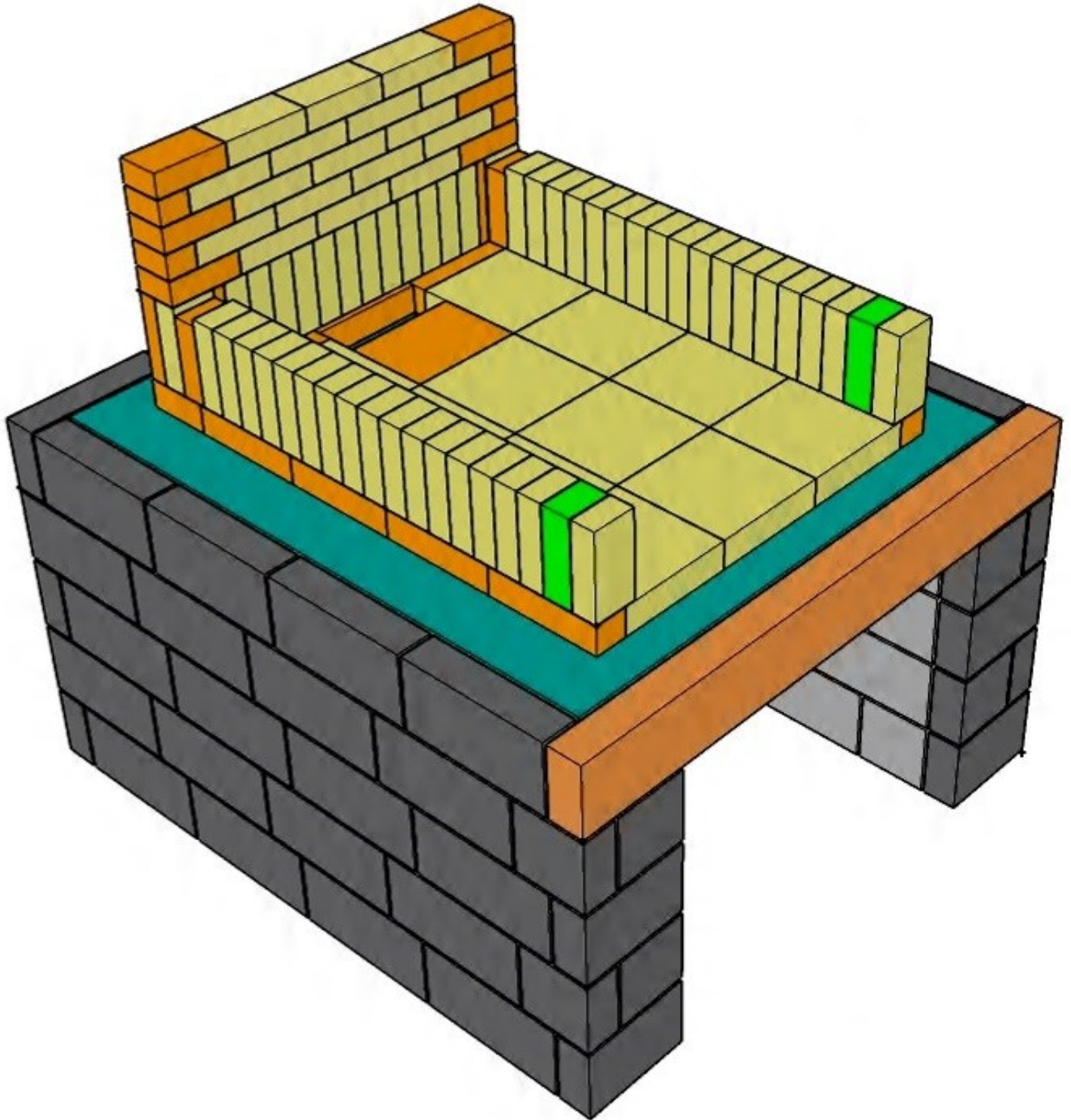
Brick cut locations



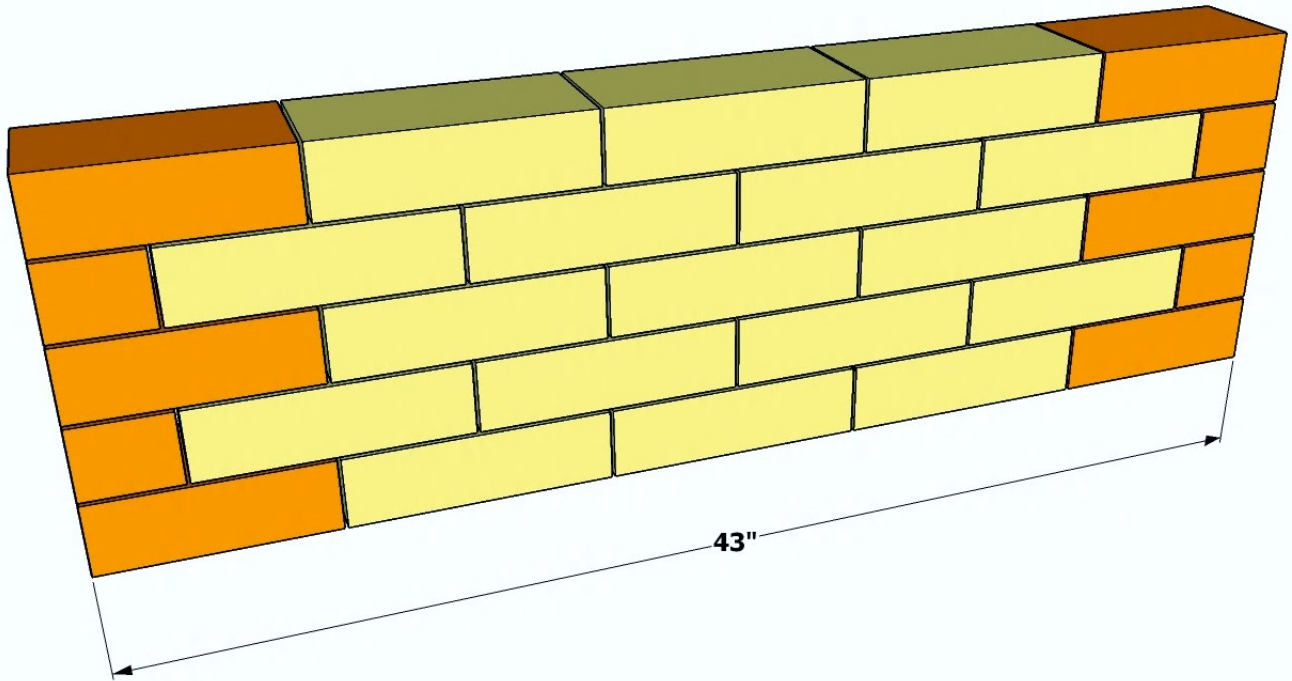
Back wall 5 stretcher courses

17 full brick

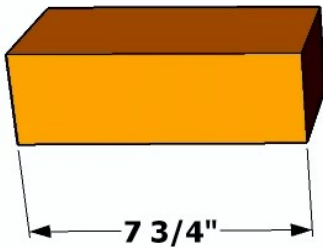
8 brick for the cuts



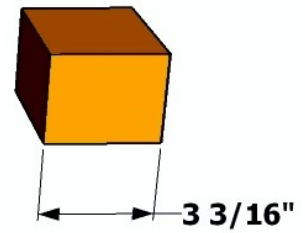
Back wall 5 stretcher courses details



Brick cuts this course



Quantity.....6



Quantity.....4

First step-up arch details

Span: 34"

Rise: 6 1/8"

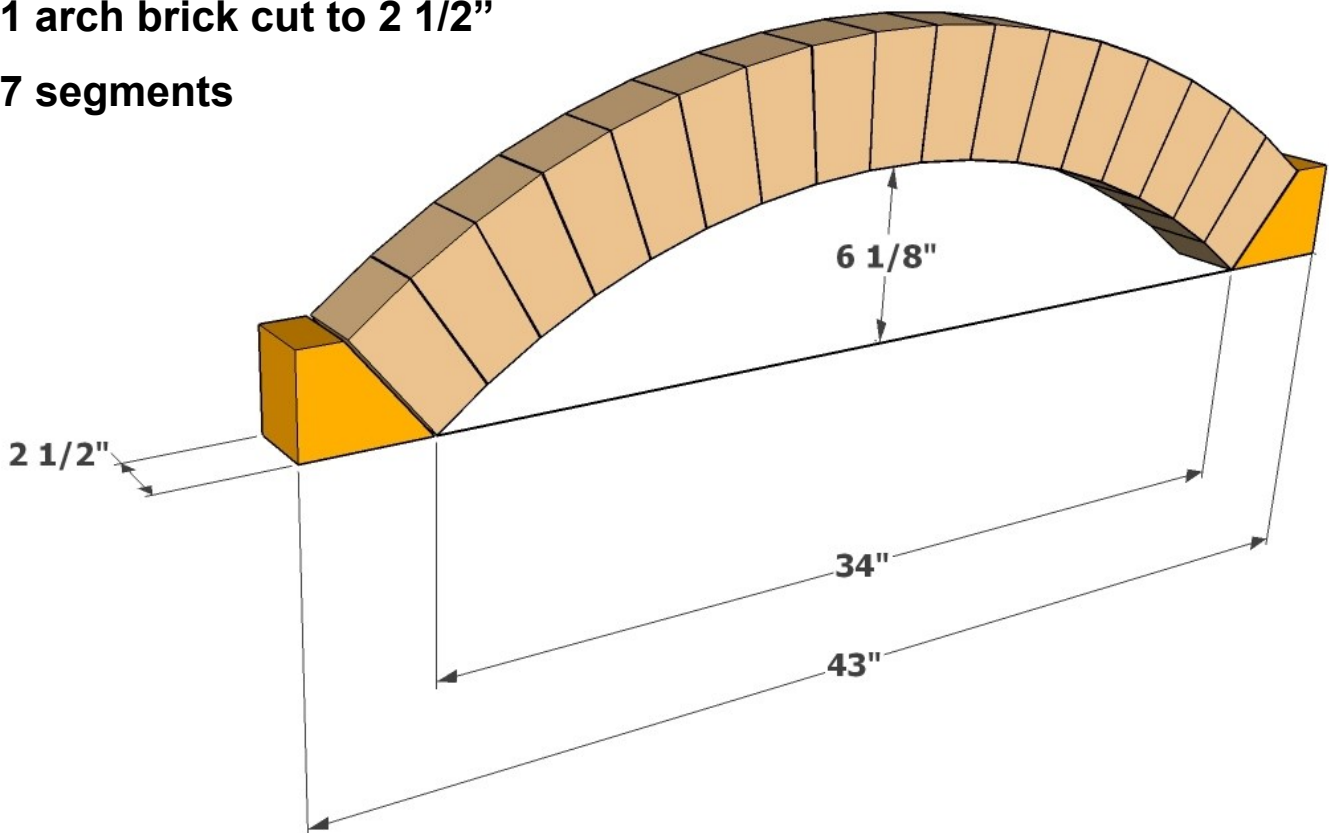
Radius: 26 5/8"

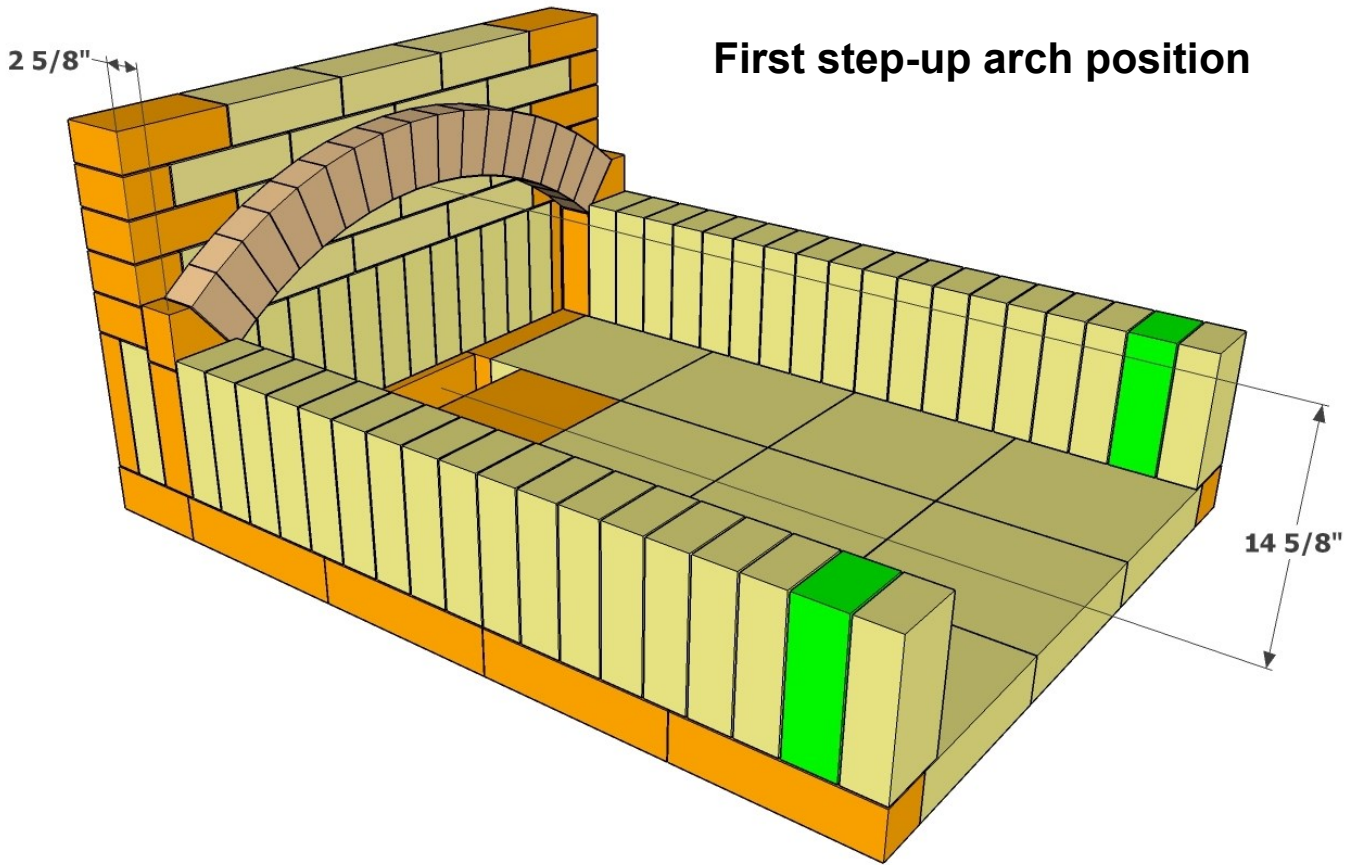
17 segments



#1 arch brick cut to 2 1/2"

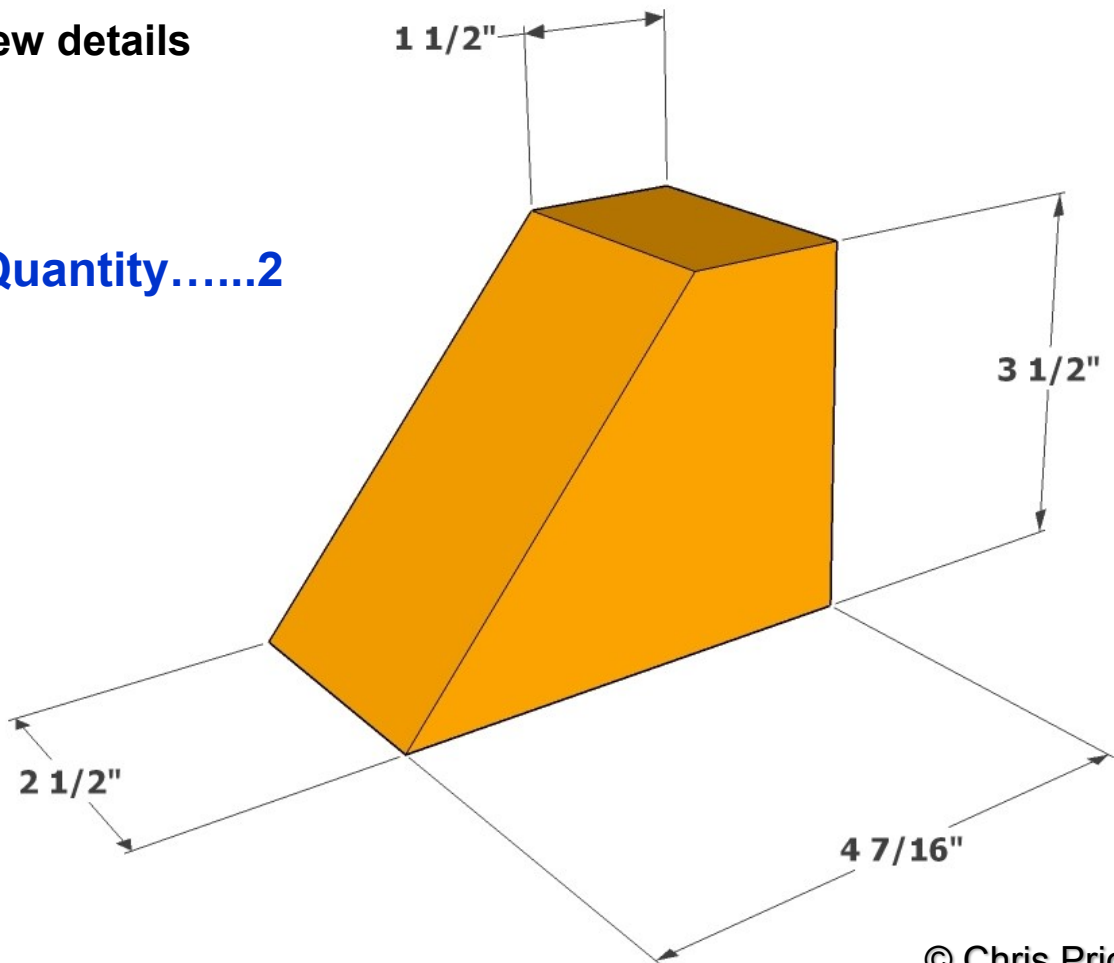
17 segments





Skew details

Quantity.....2



Second step-up arch details

Span: 34"

Rise: 6 1/8"

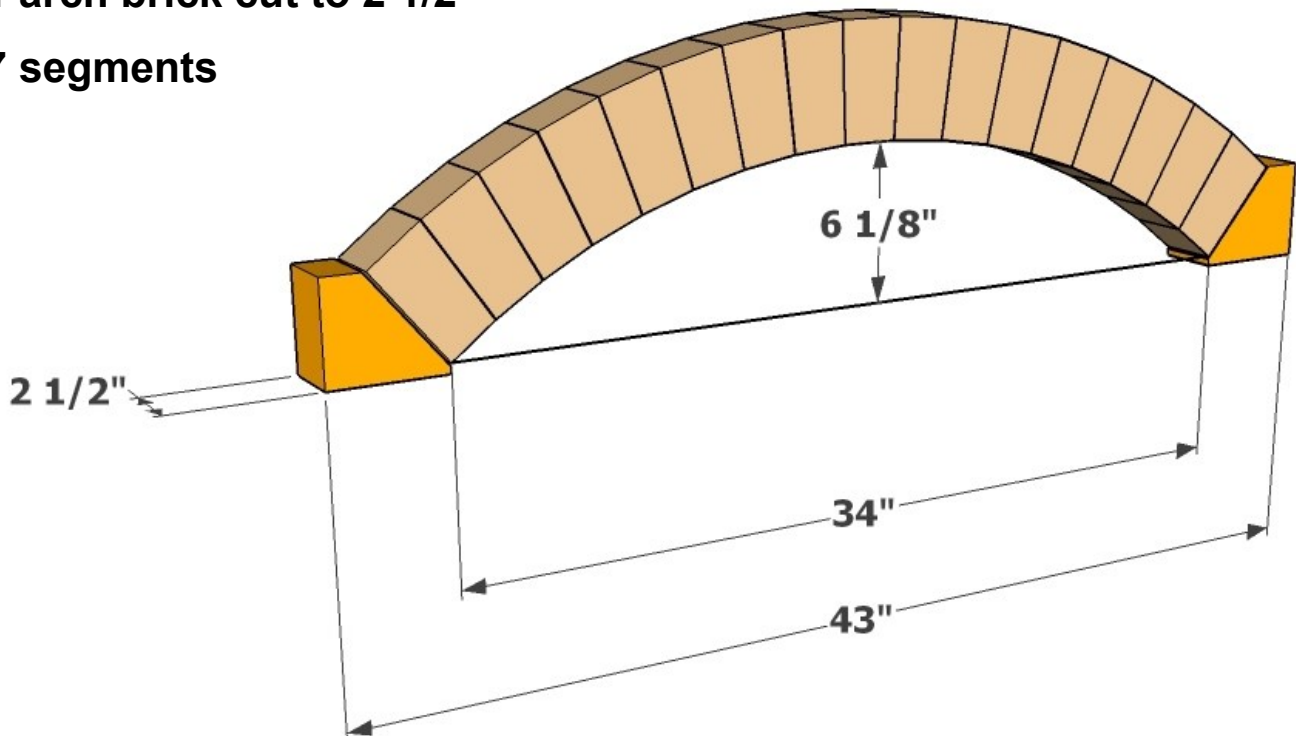
Radius: 26 5/8"

17 segments

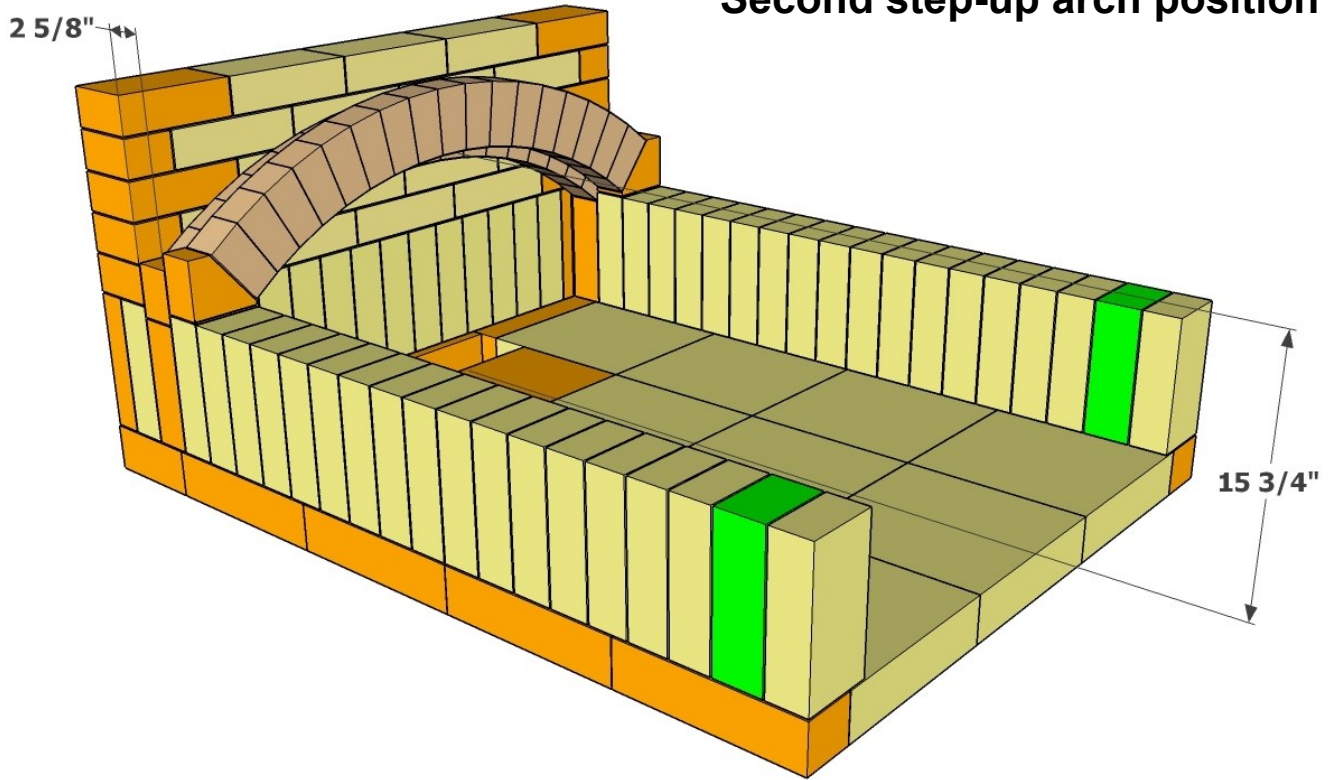


#1 arch brick cut to 2 1/2"

17 segments

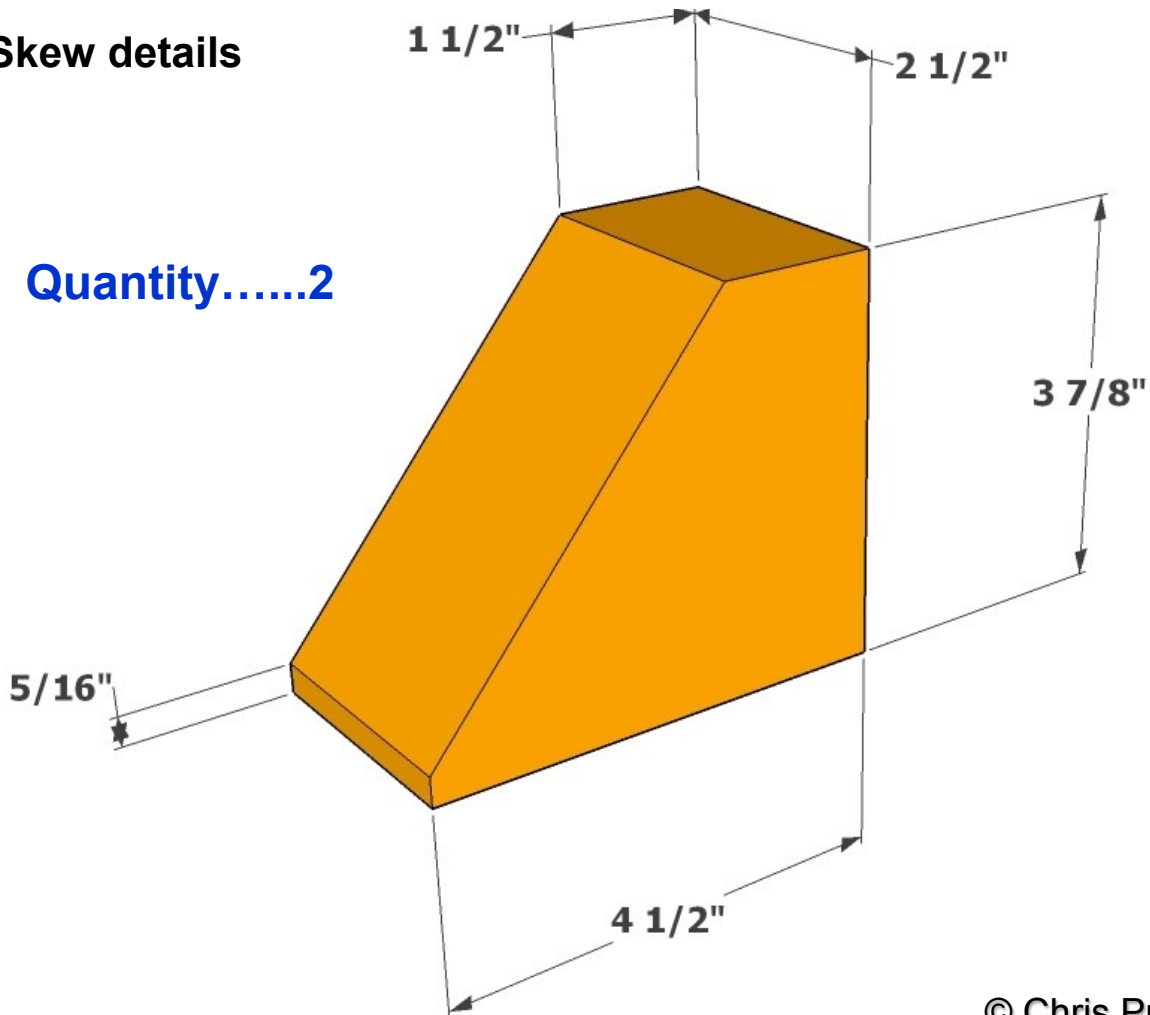


Second step-up arch position



Skew details

Quantity.....2



Third step-up arch details

Span: 34"

Rise: 6 1/8"

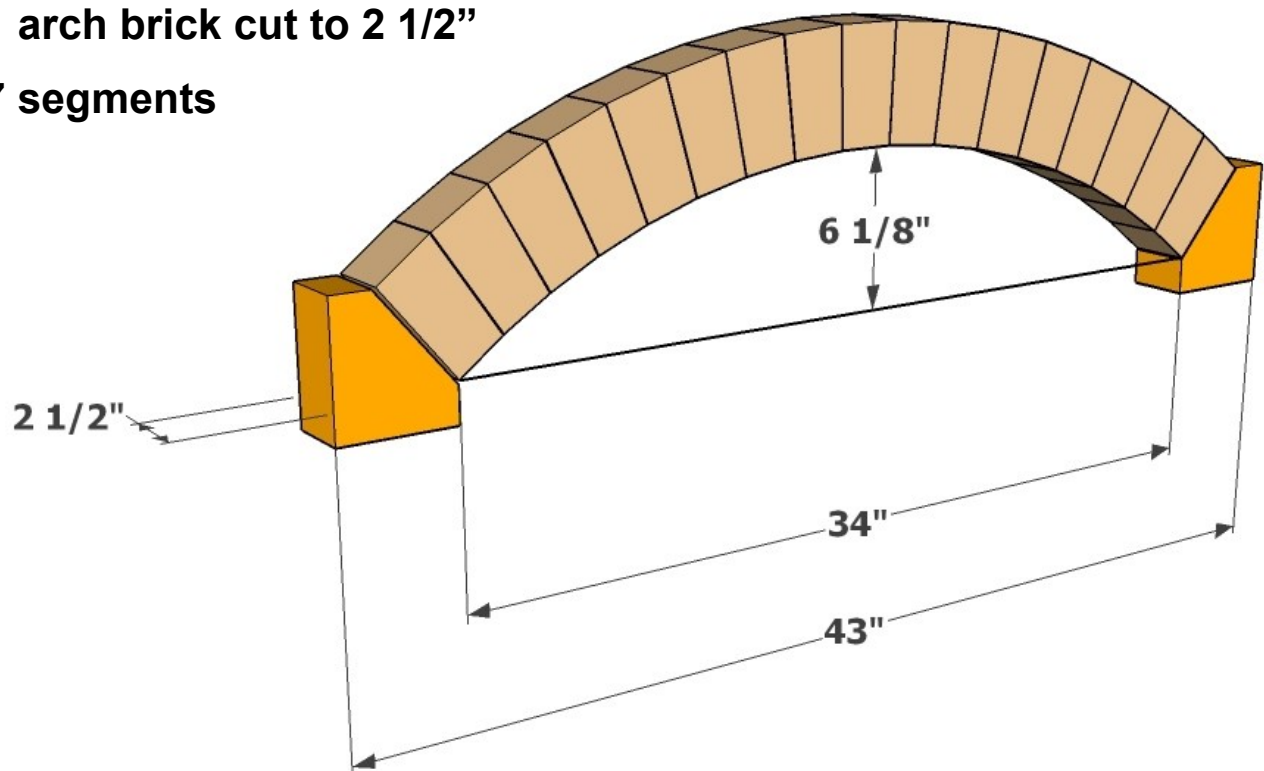
Radius: 26 5/8"

17 segments

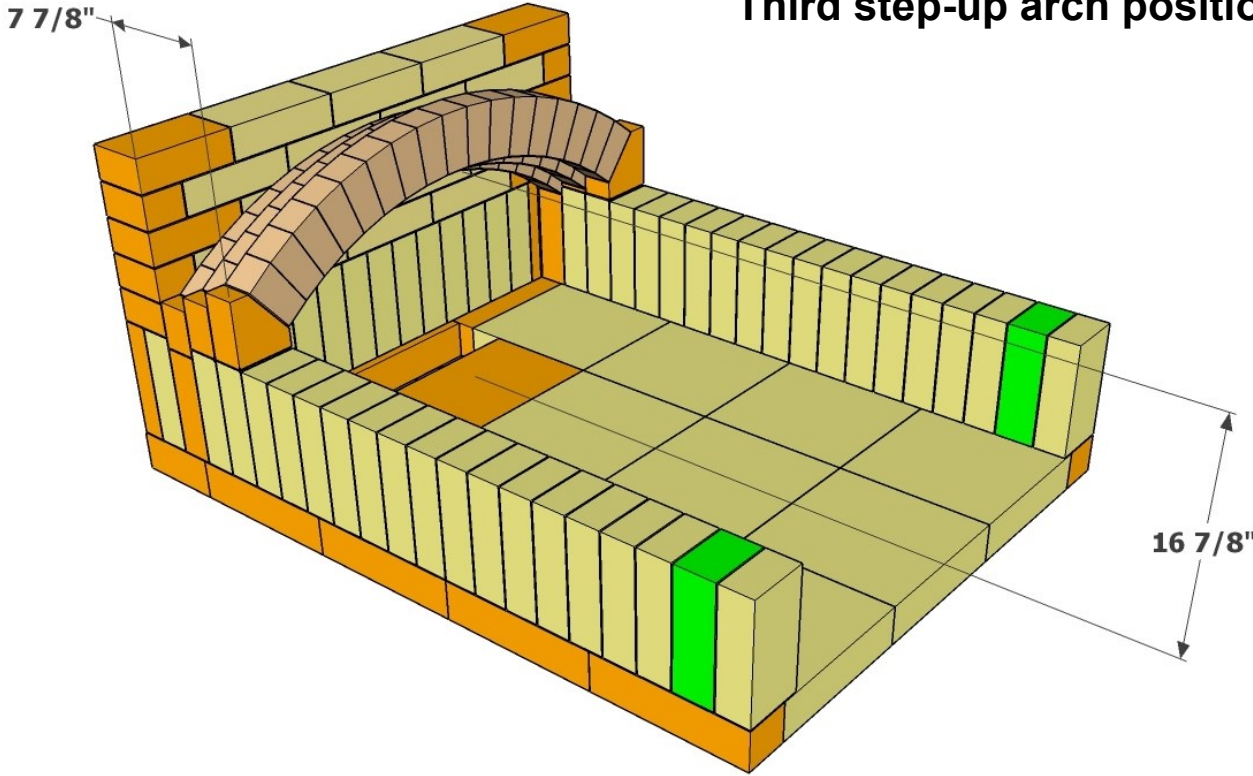


#1 arch brick cut to 2 1/2"

17 segments

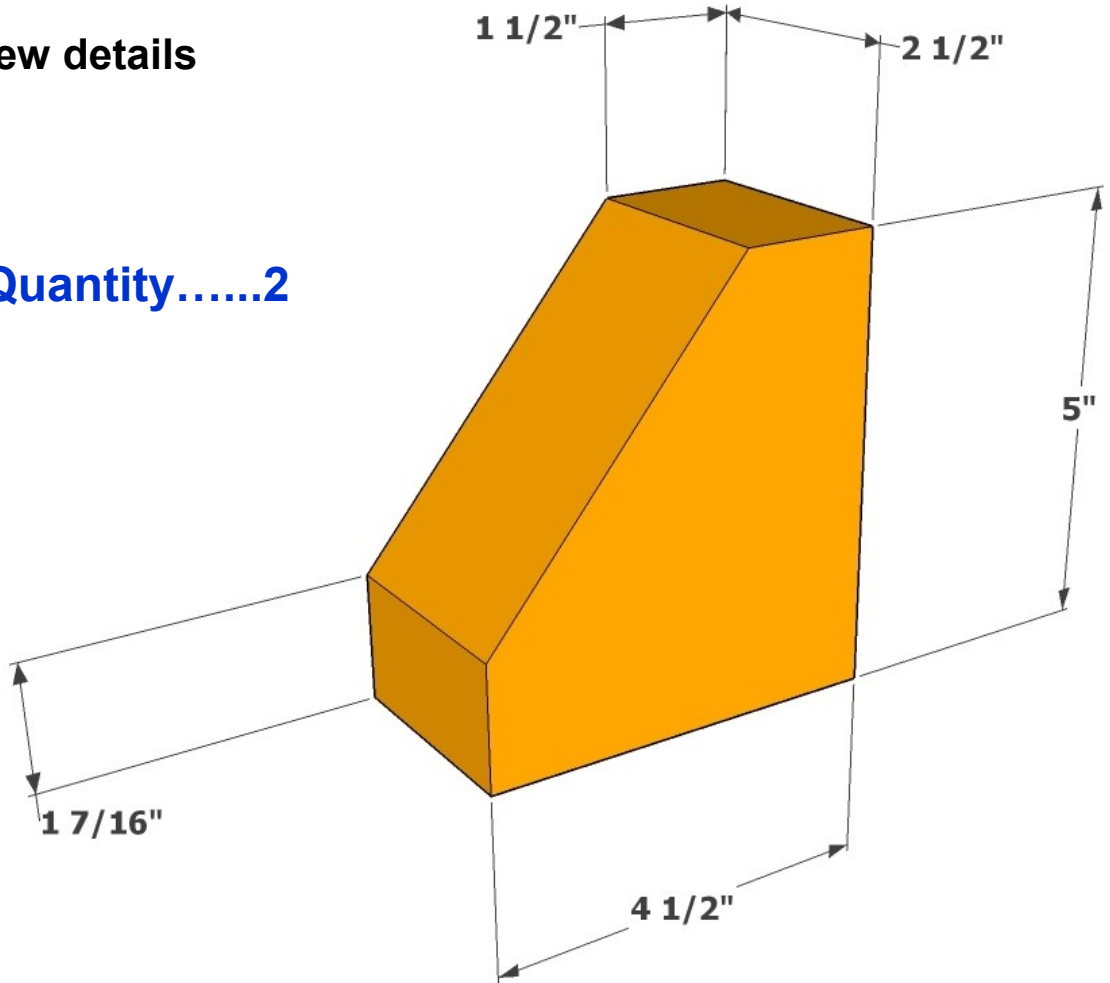


Third step-up arch position



Skew details

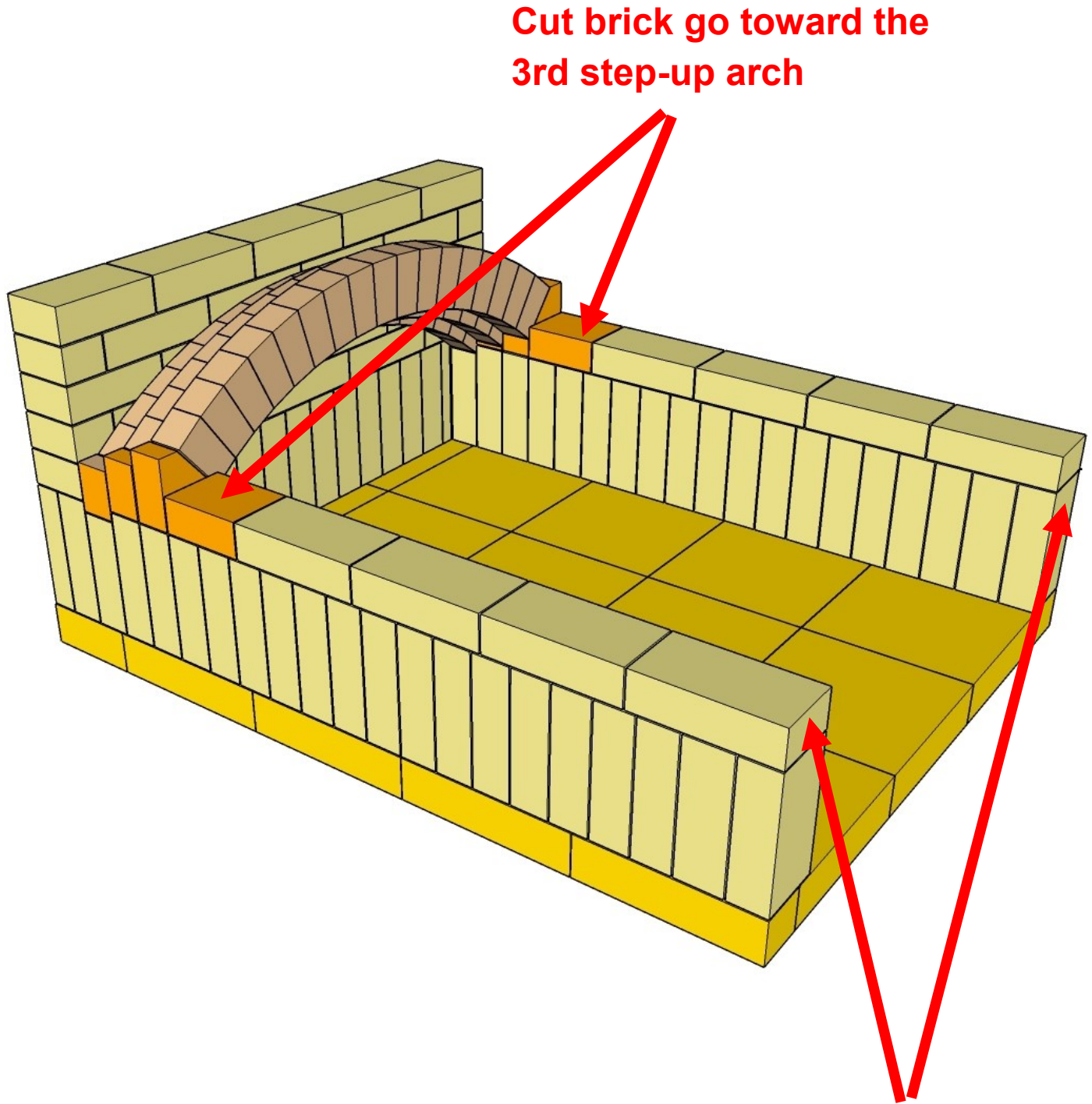
Quantity.....2



Side wall Stretcher course

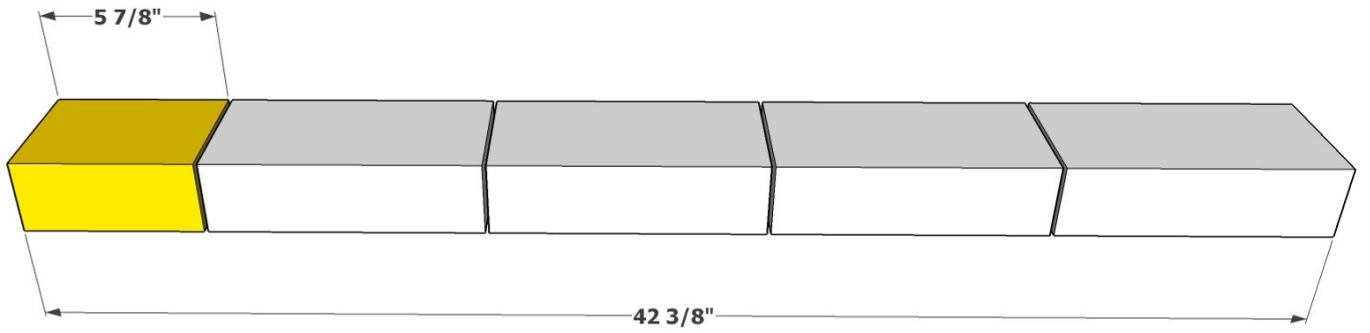
8 Full brick

2 With cuts

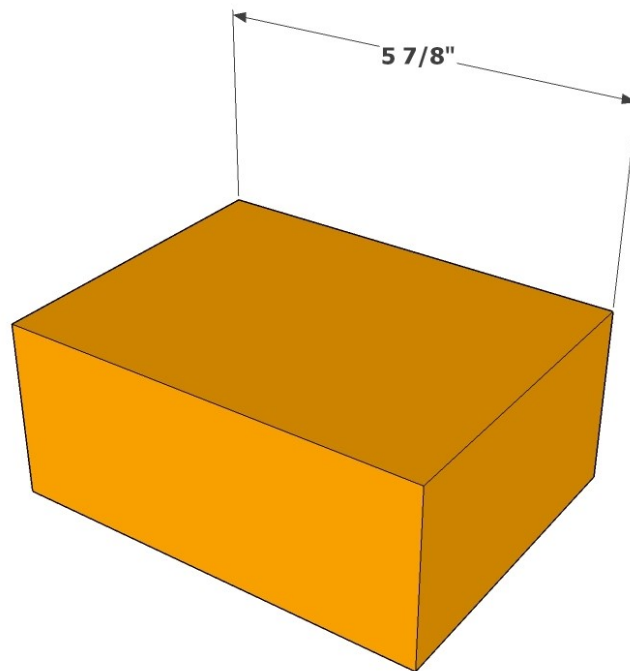


Cut brick go toward the
3rd step-up arch

Front edge of brick is flush and
plumb with the front soldier brick



Quantity.....2



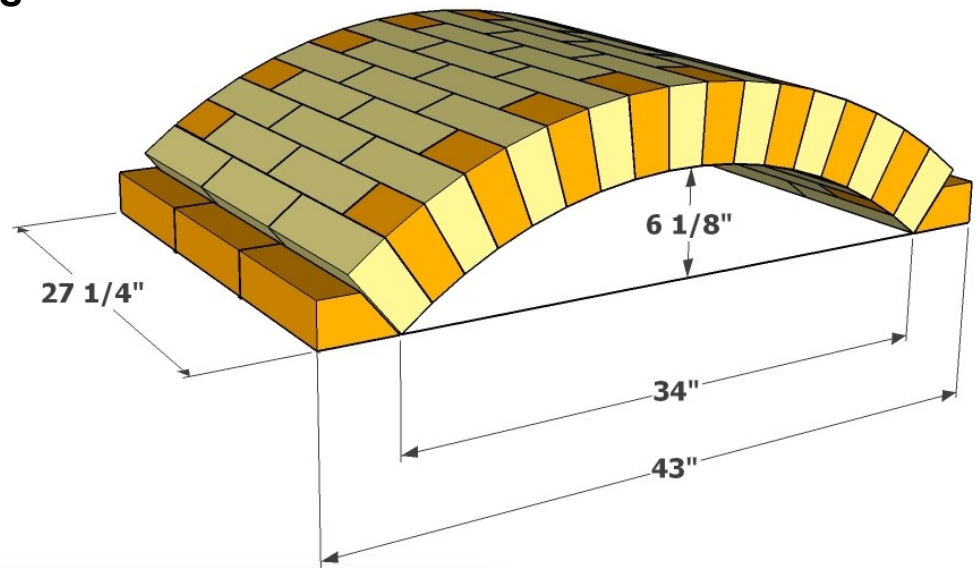
Main oven vault details

Span: 34"

Rise: 6 1/8"

Radius: 26 5/8"

17 segments



The 7 arch forms in position and level front to back

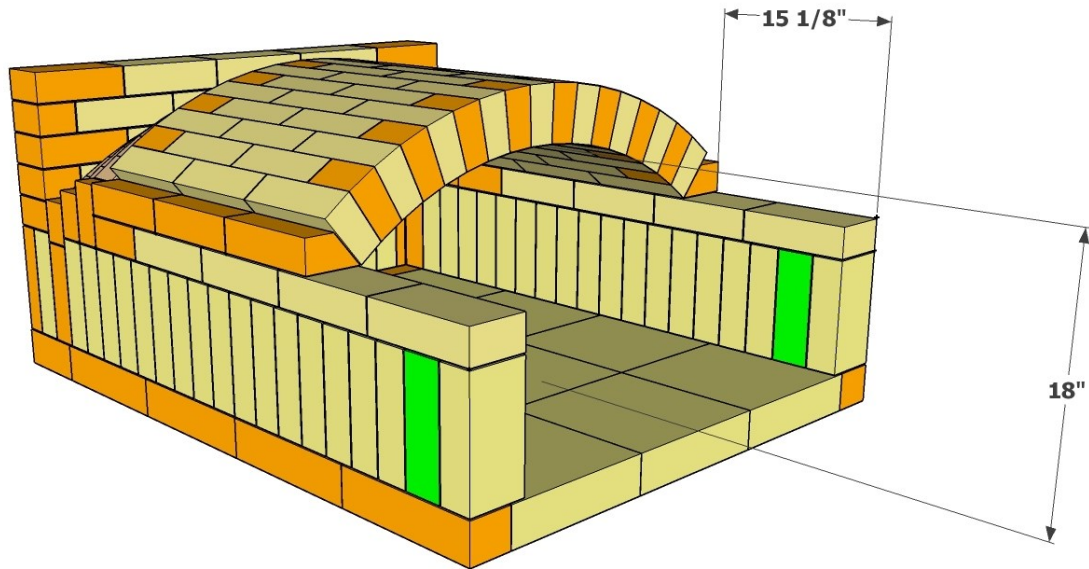
One form centered on each brick joint



Lay the #1 arch brick with a very light mortar joint.

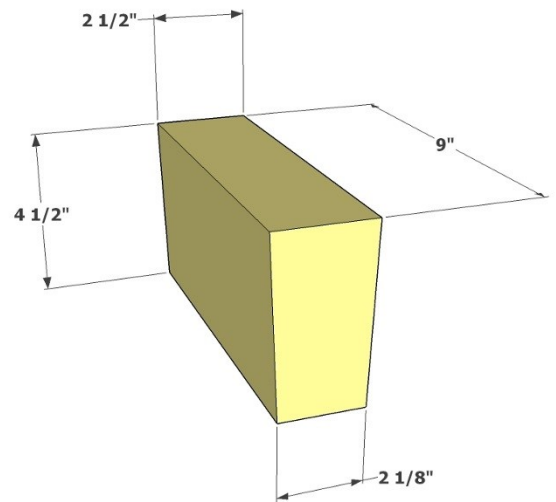
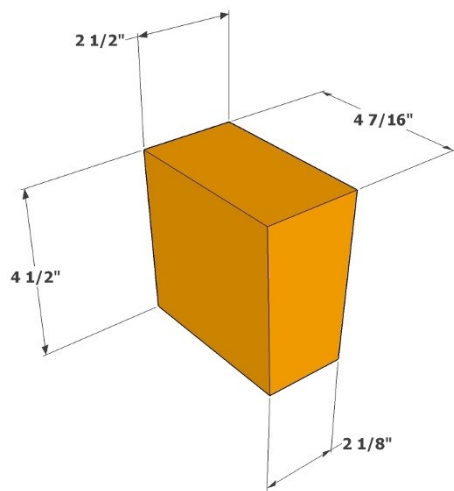
Try to keep mortar off the arch forms.

Work from each side toward center



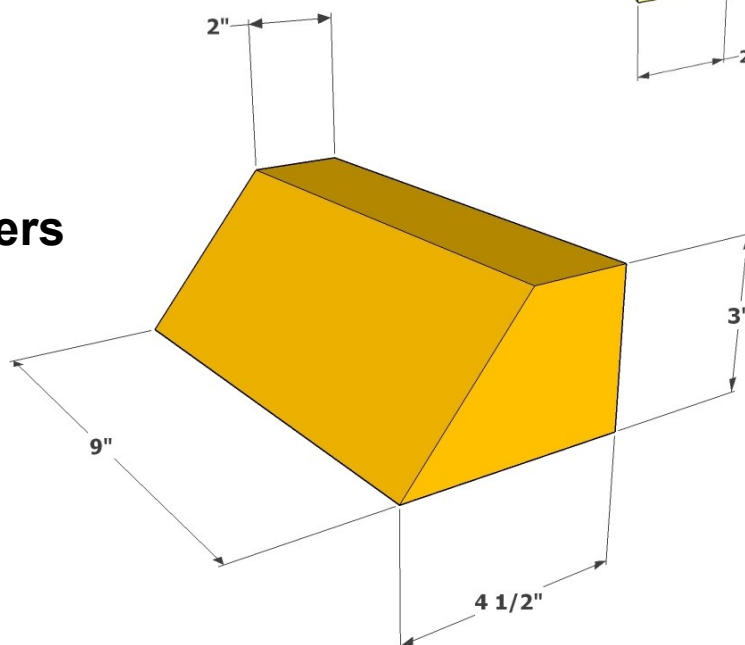
43 full #1 arch brick

8 #1 arch brick cut in half



Skew details

Cut from 3\"/>



Quantity.....6

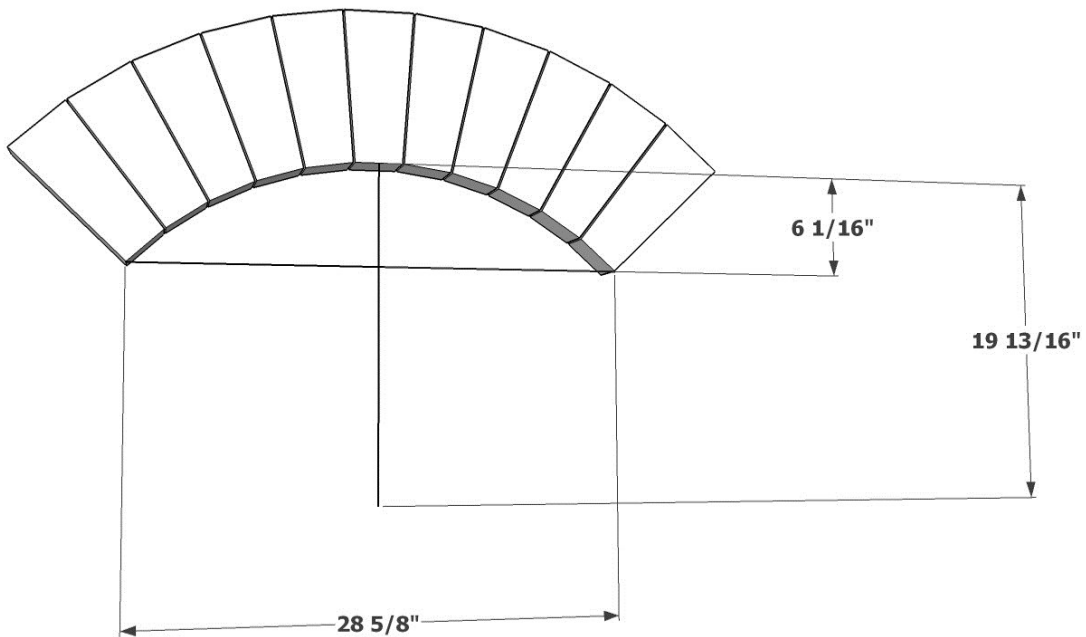
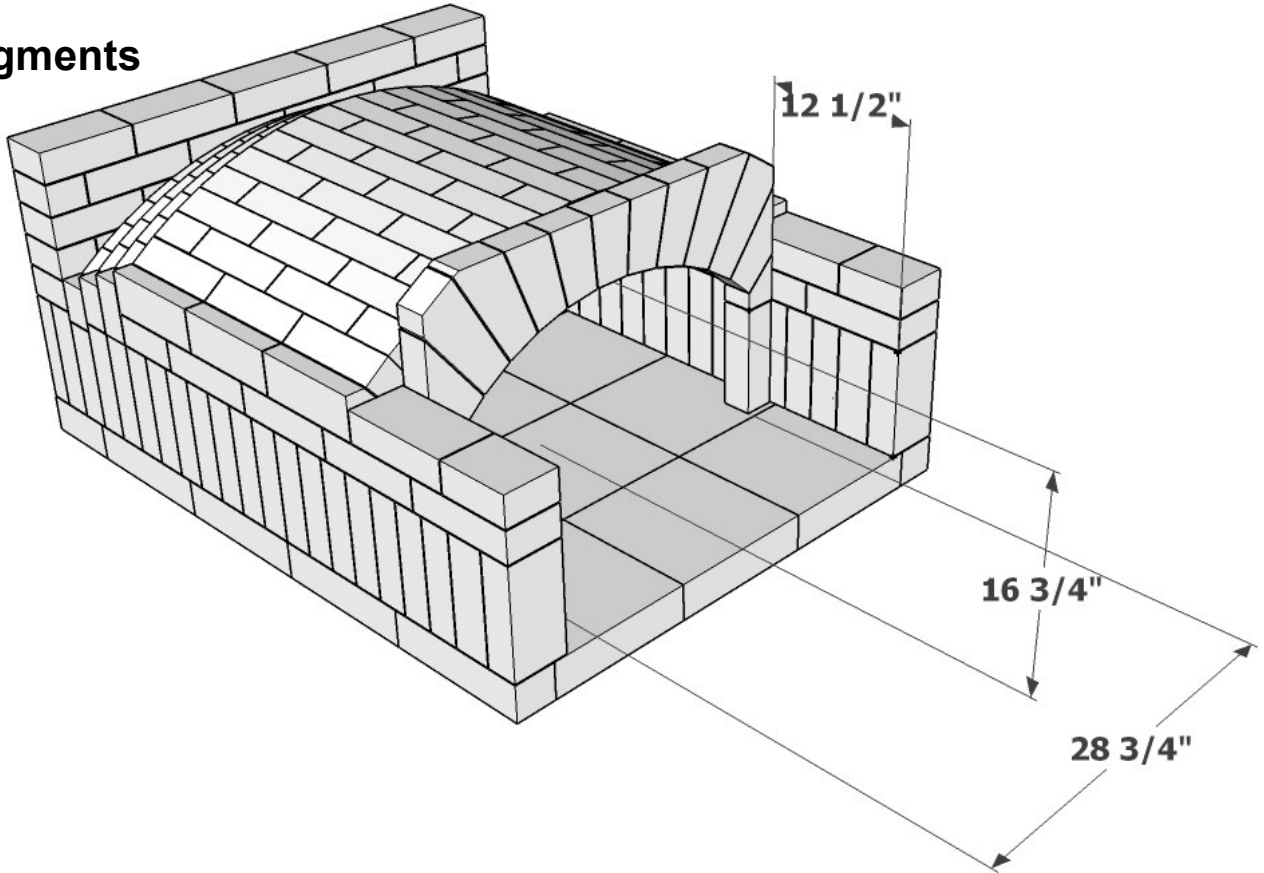
First drop arch details

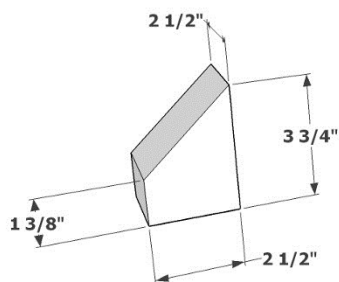
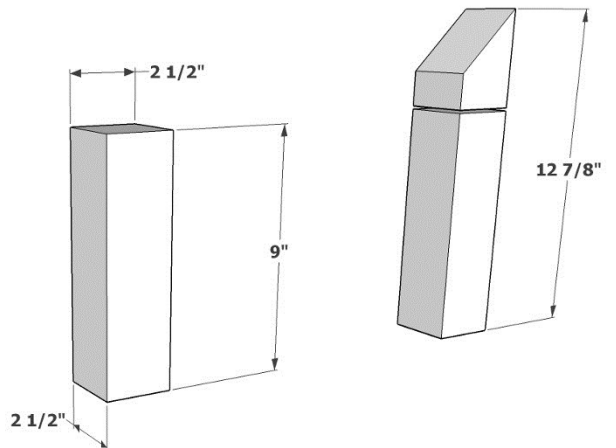
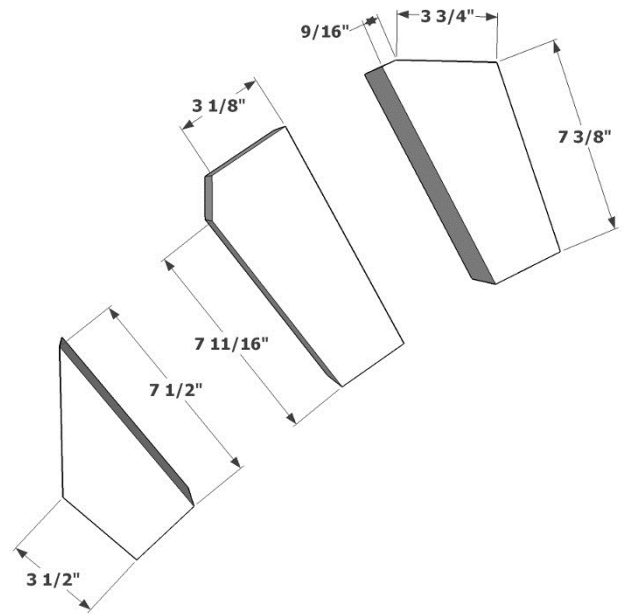
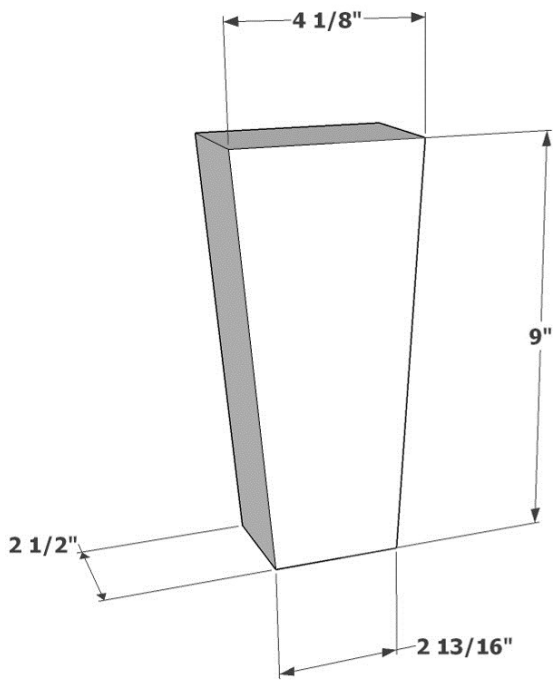
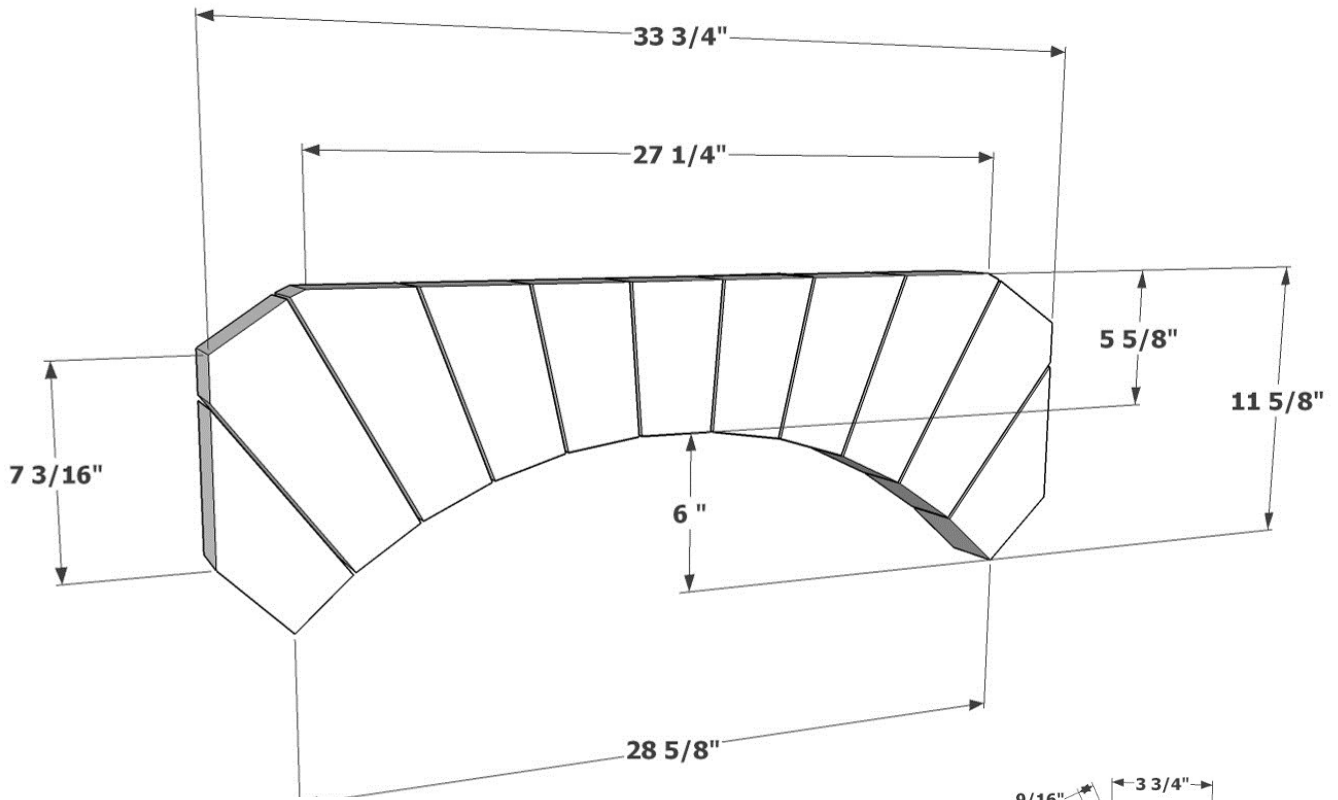
Span: 28 3/4"

Rise: 6 1/8"

Radius: 19 7/8"

11 segments





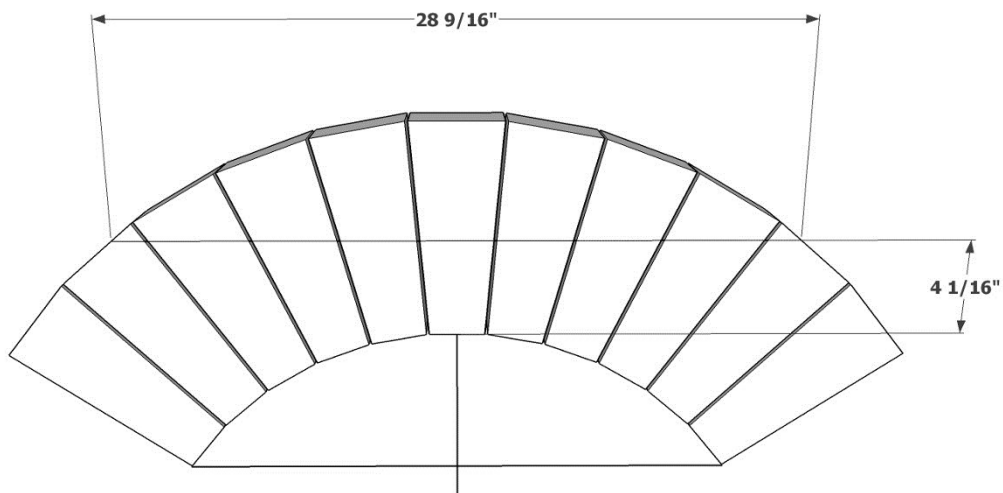
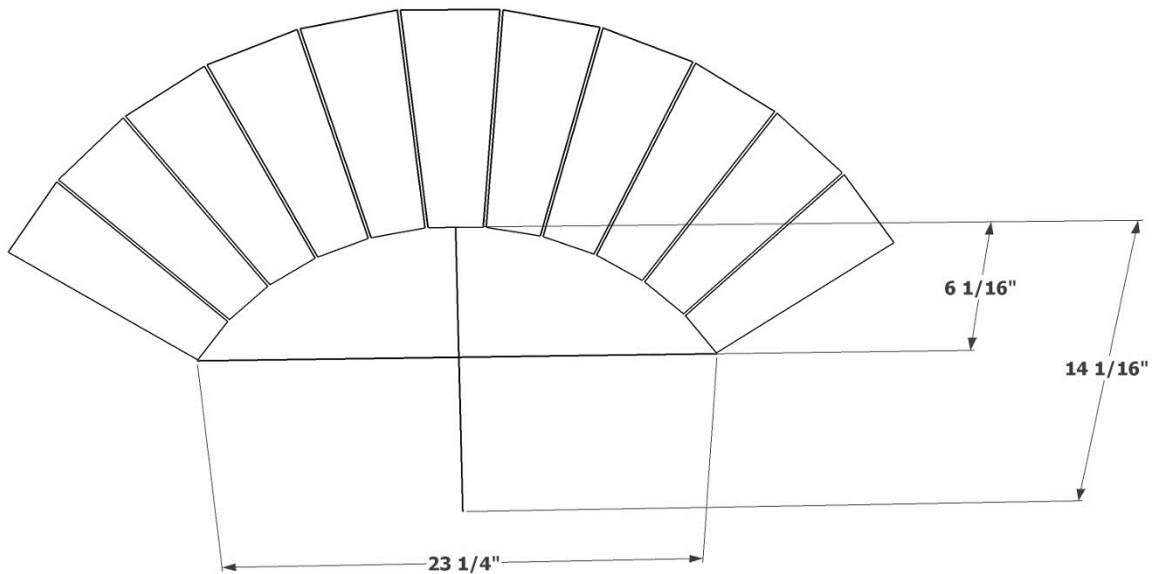
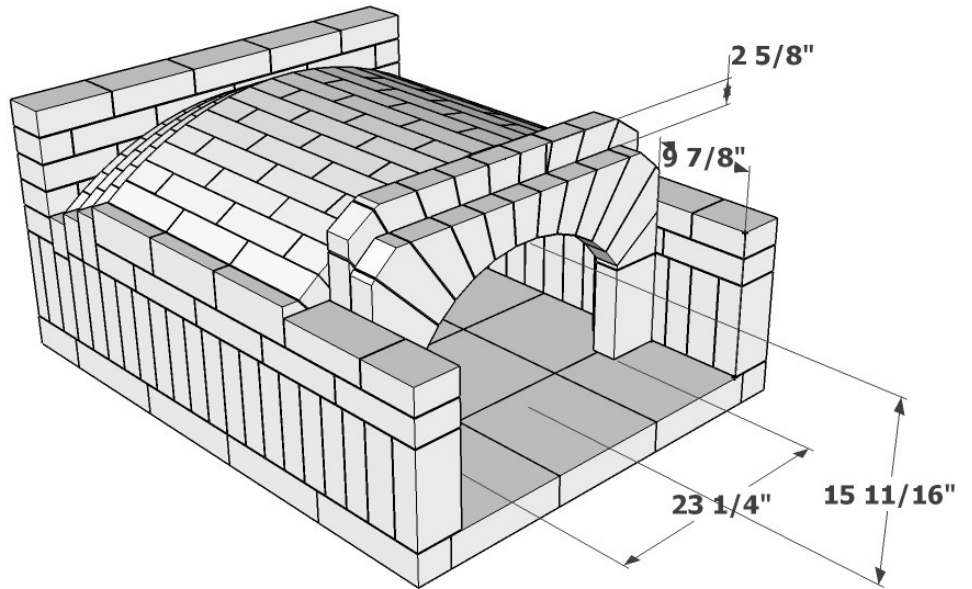
Second drop arch details

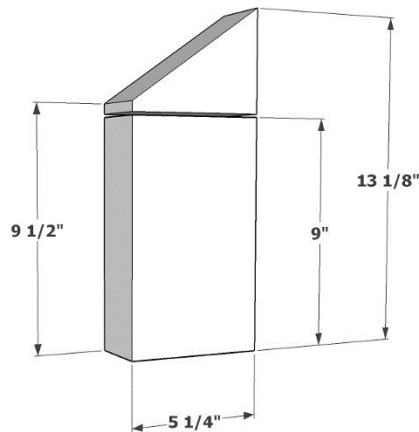
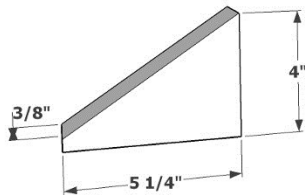
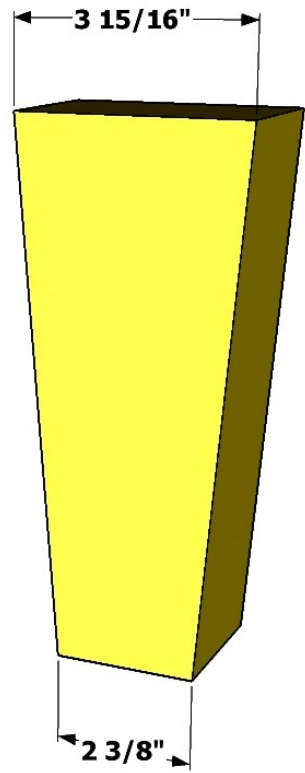
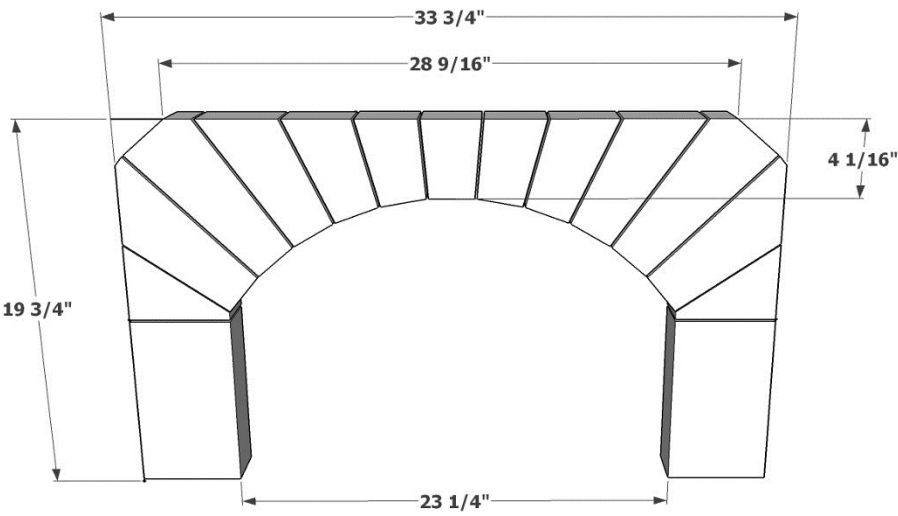
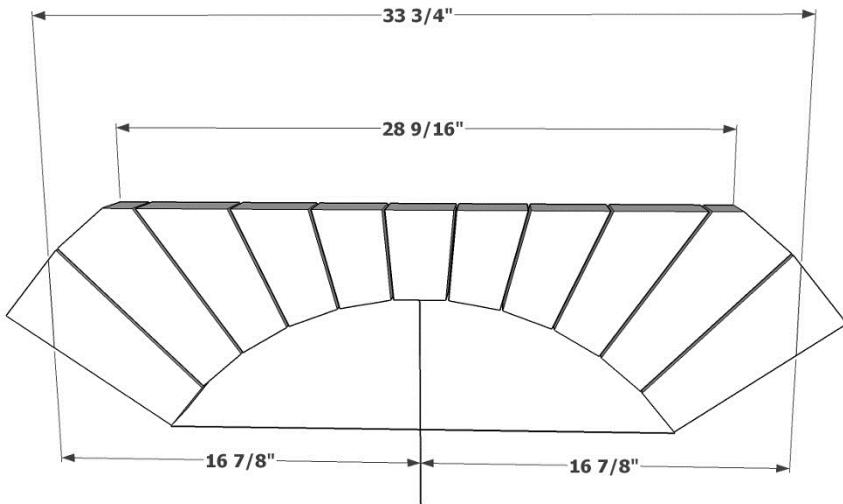
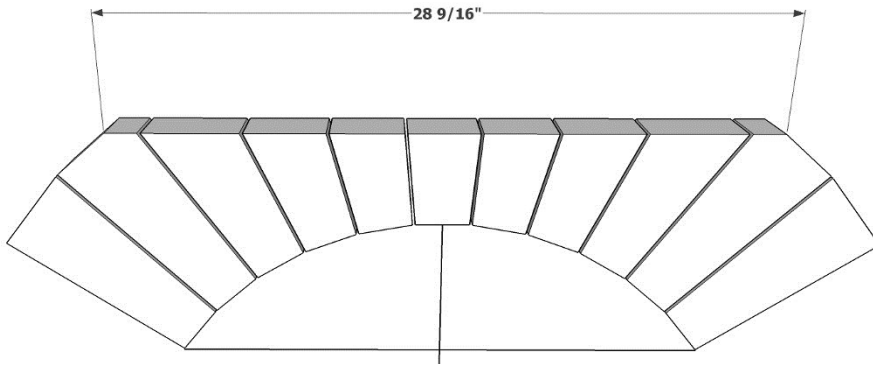
Span: 23 1/4"

Rise: 6 1/8"

Radius: 14 1/8"

11 segments





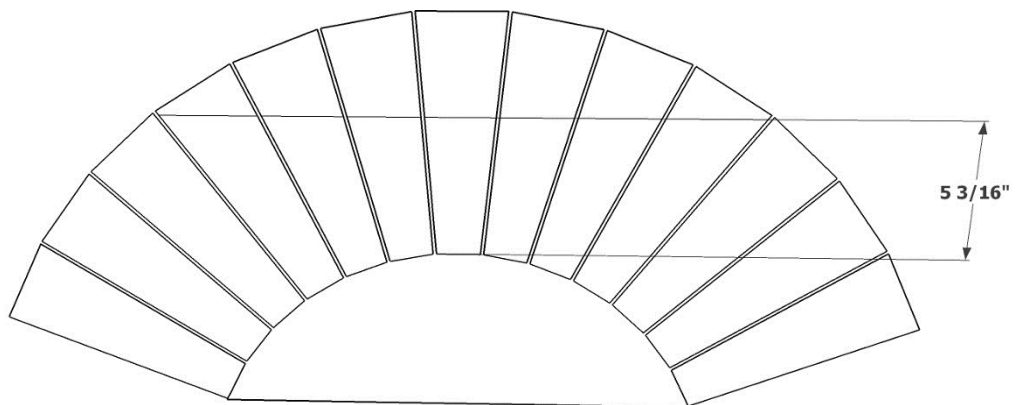
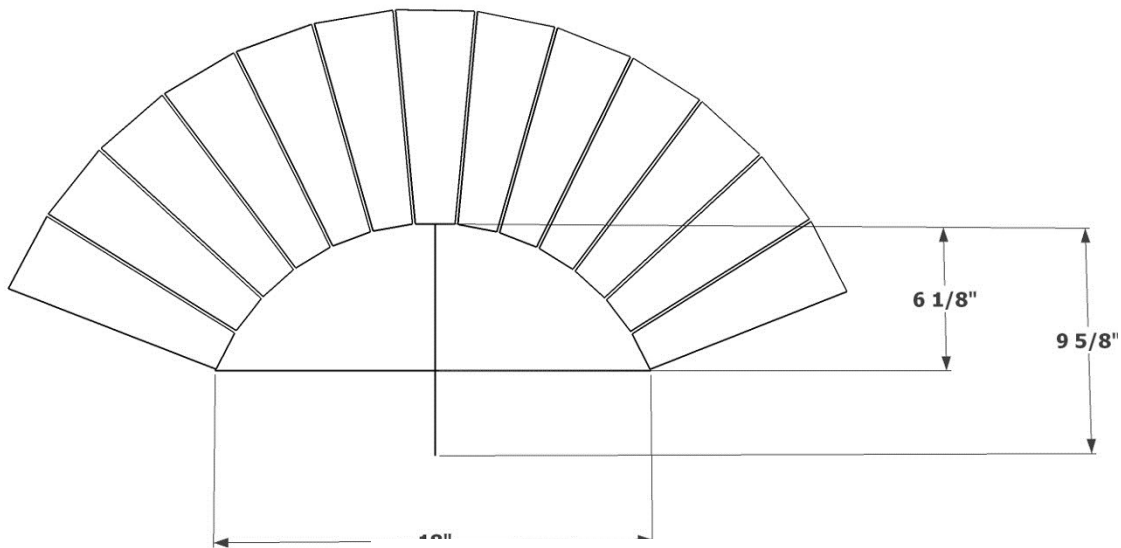
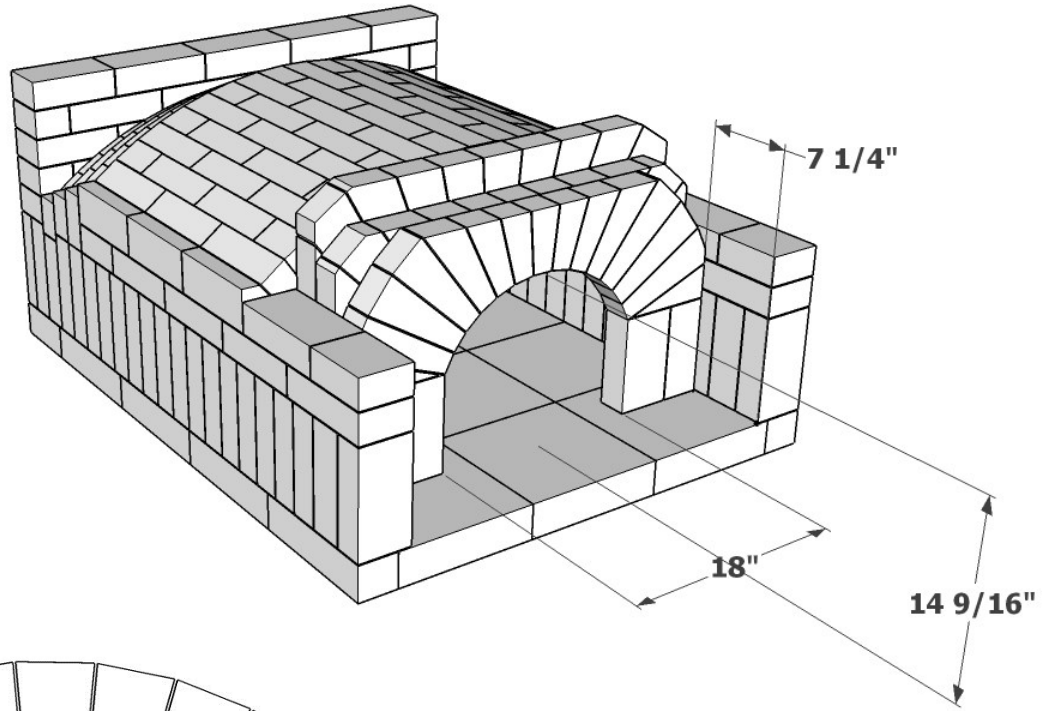
Third drop arch details

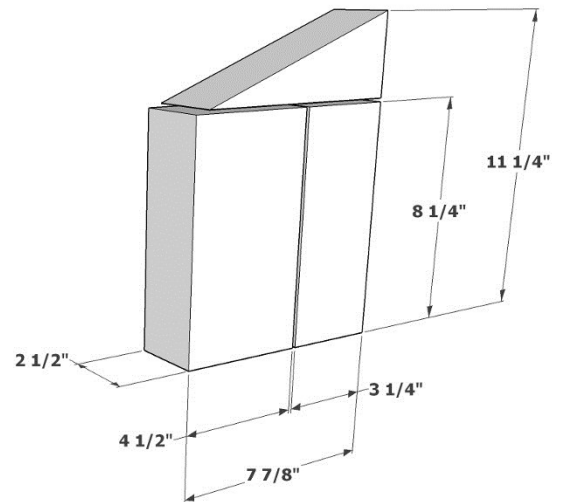
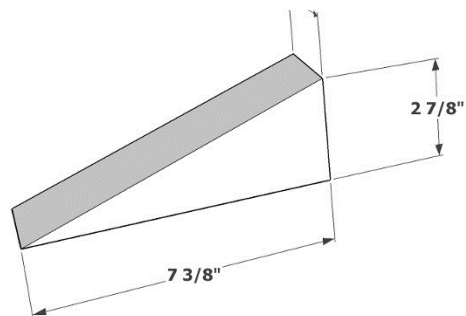
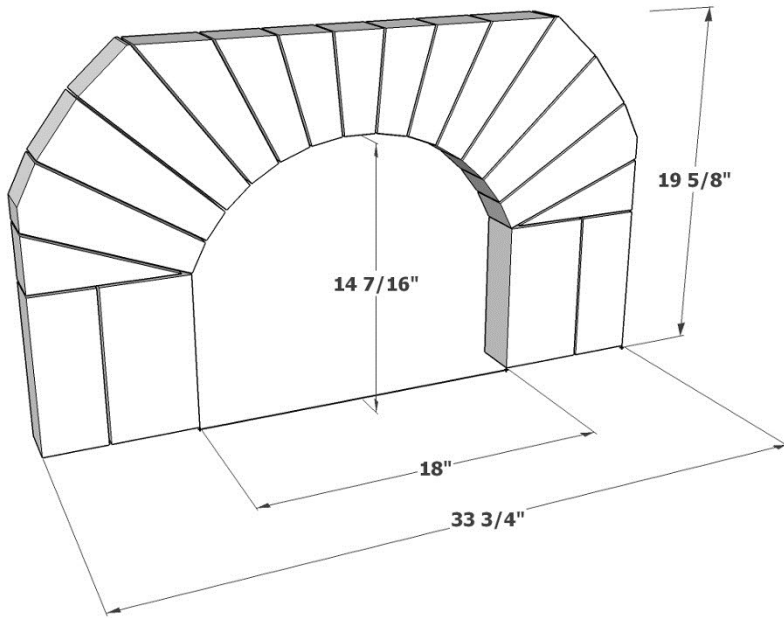
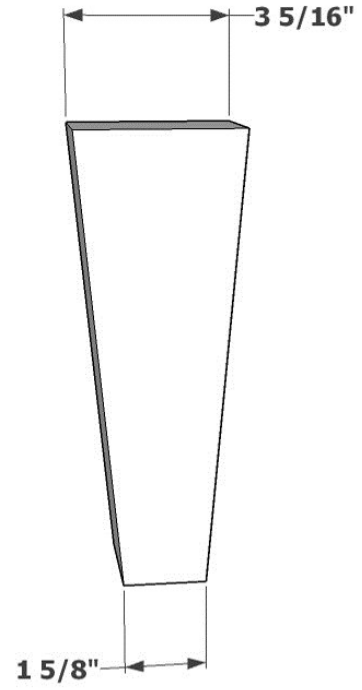
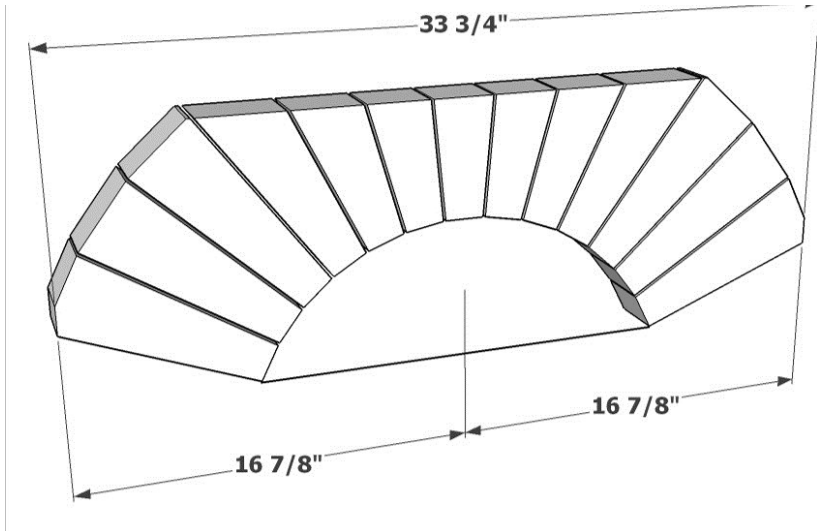
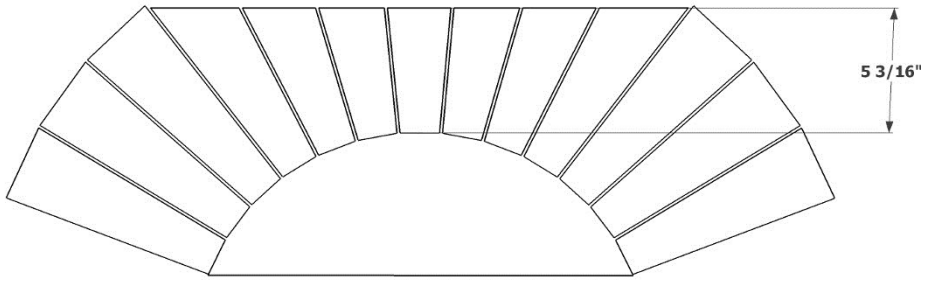
Span: 18"

Rise: 6 1/8"

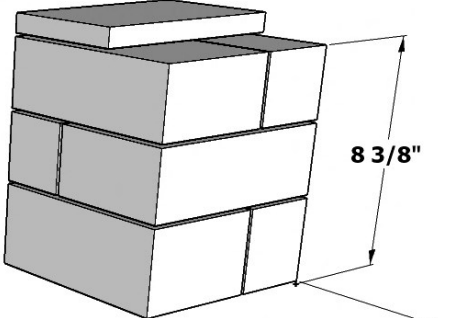
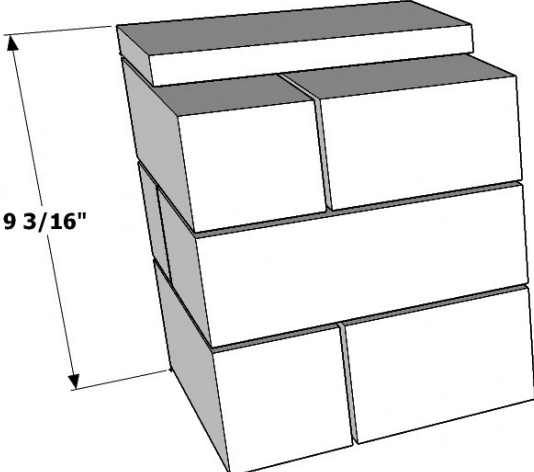
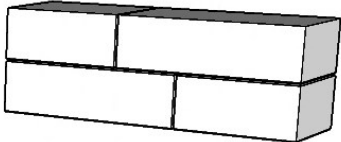
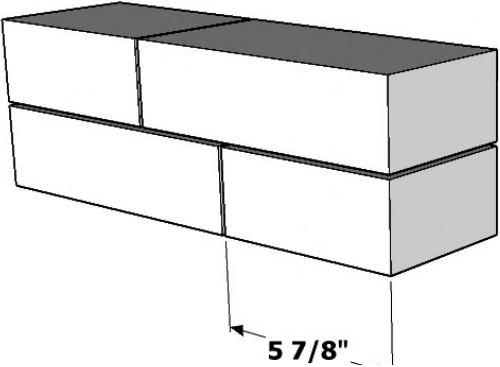
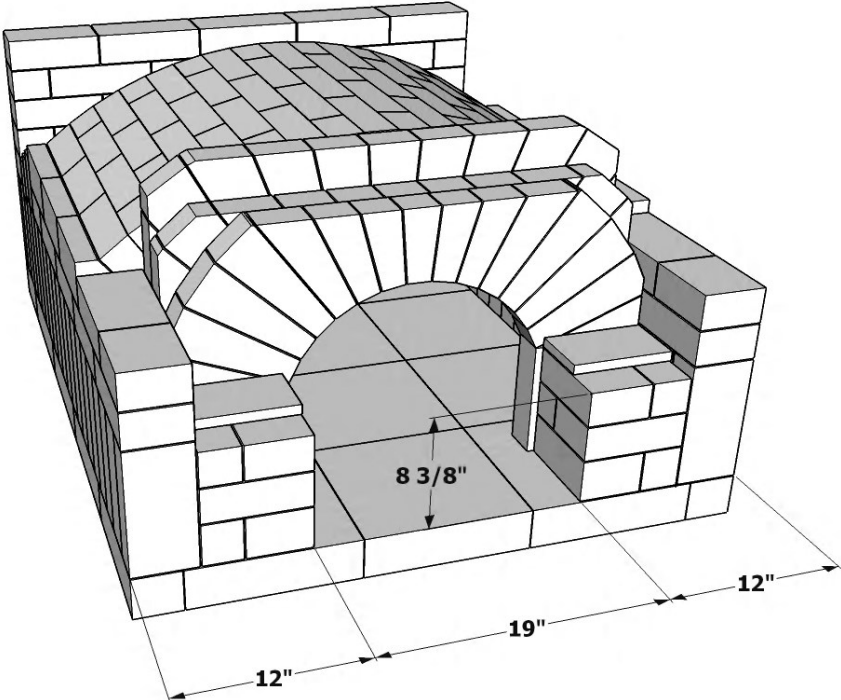
Radius: 9 5/8"

13 segments





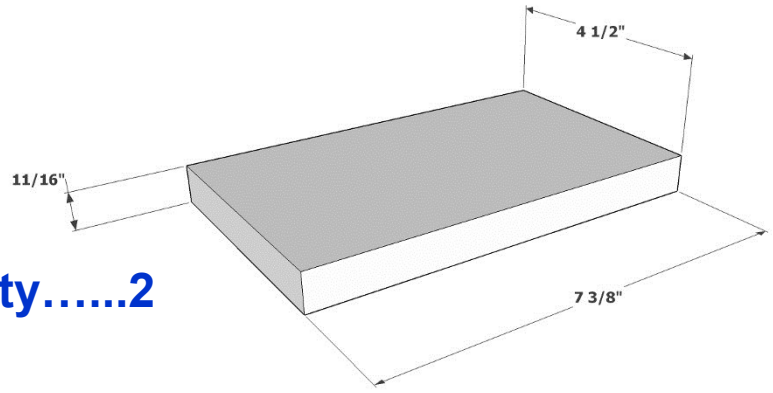
Flue spillway base



19"

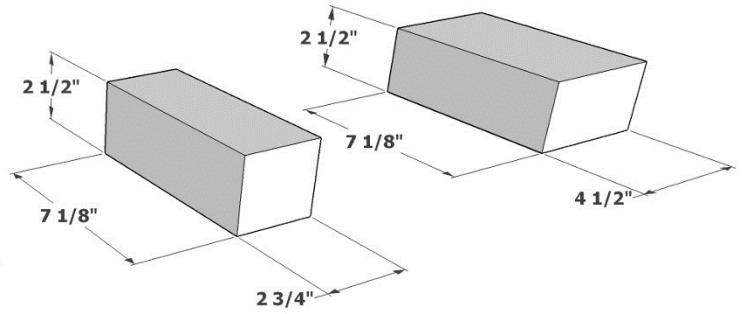
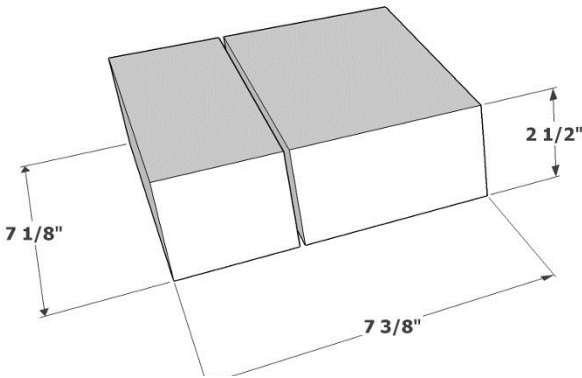
33 3/4"

Course 4



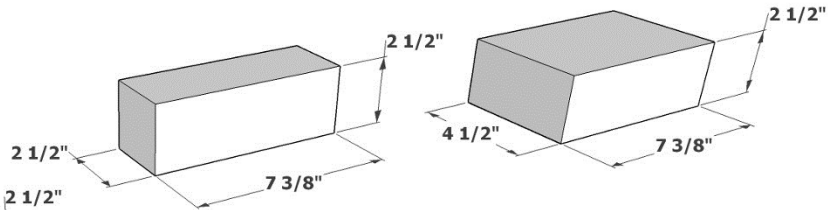
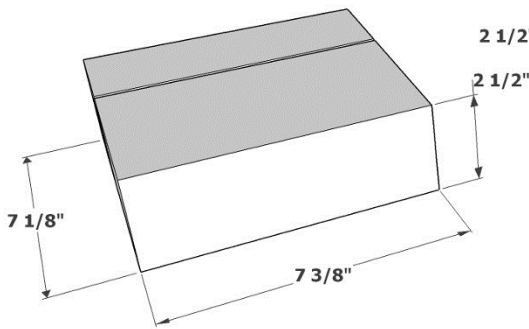
Quantity.....2

Course 3



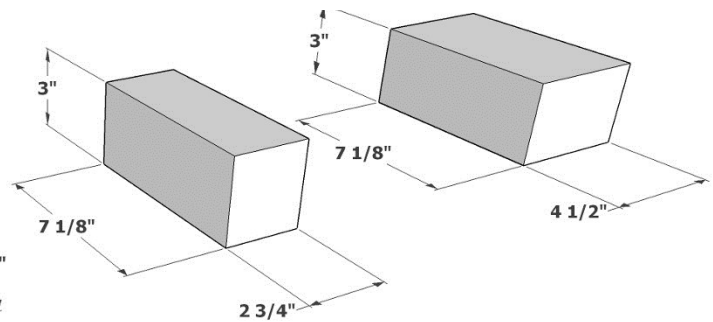
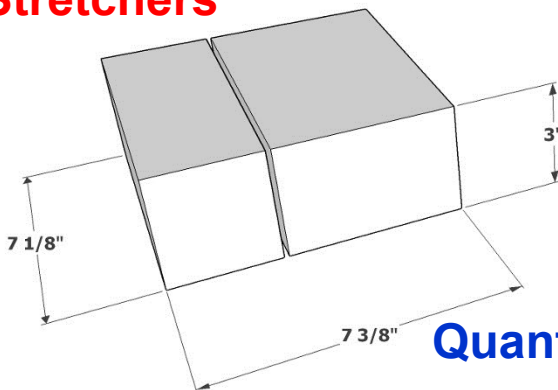
Quantity.....2 each

Course 2



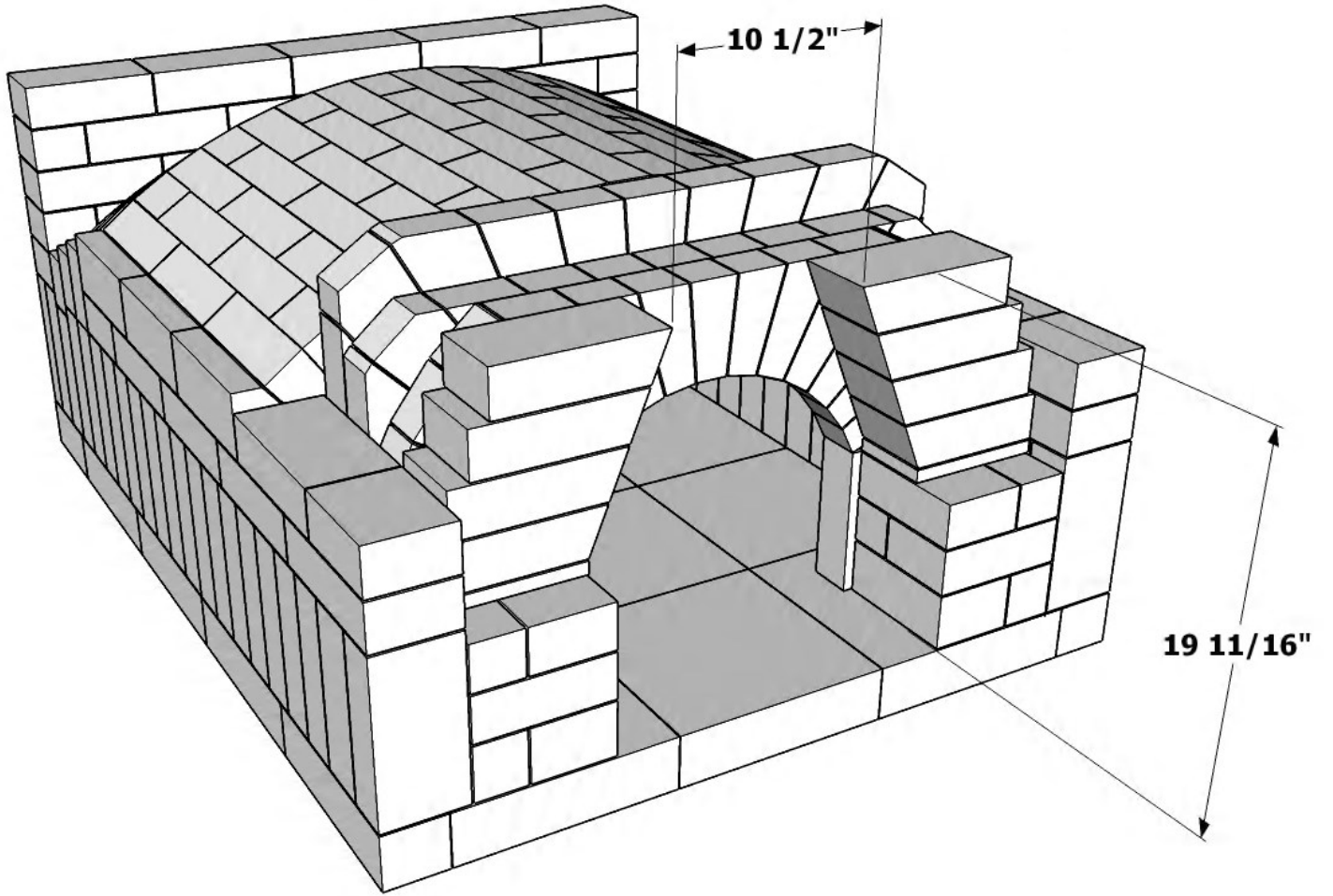
Quantity.....2 each

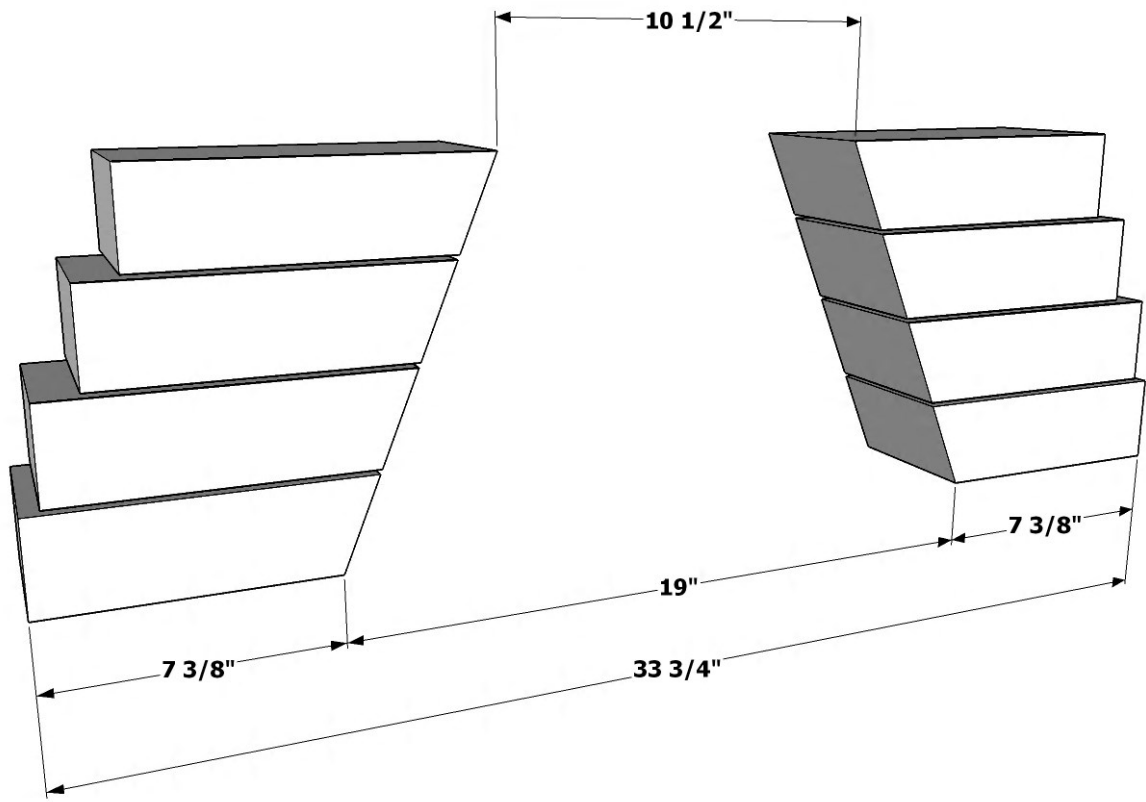
Course 1
3" Stretchers



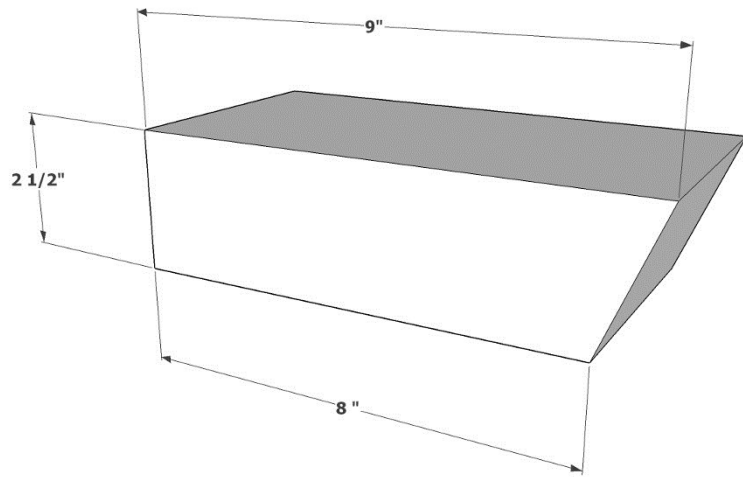
Quantity.....2 each

Flue transition details

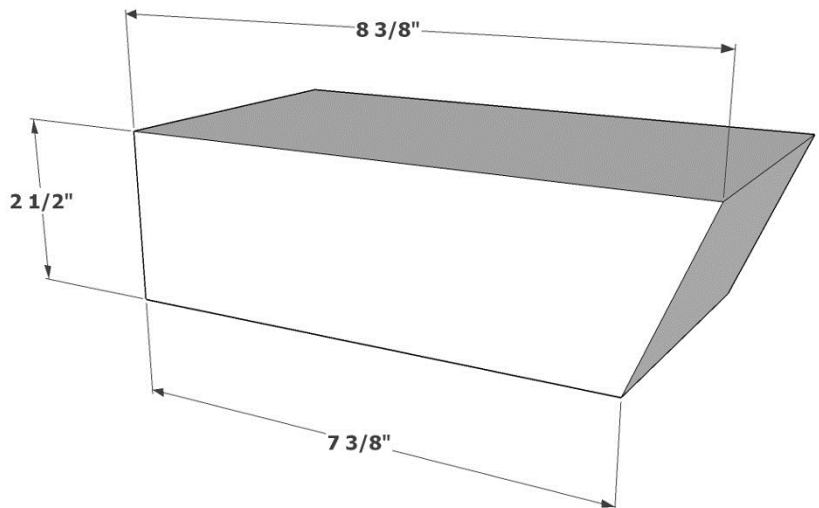




Quantity.....6



Quantity.....2



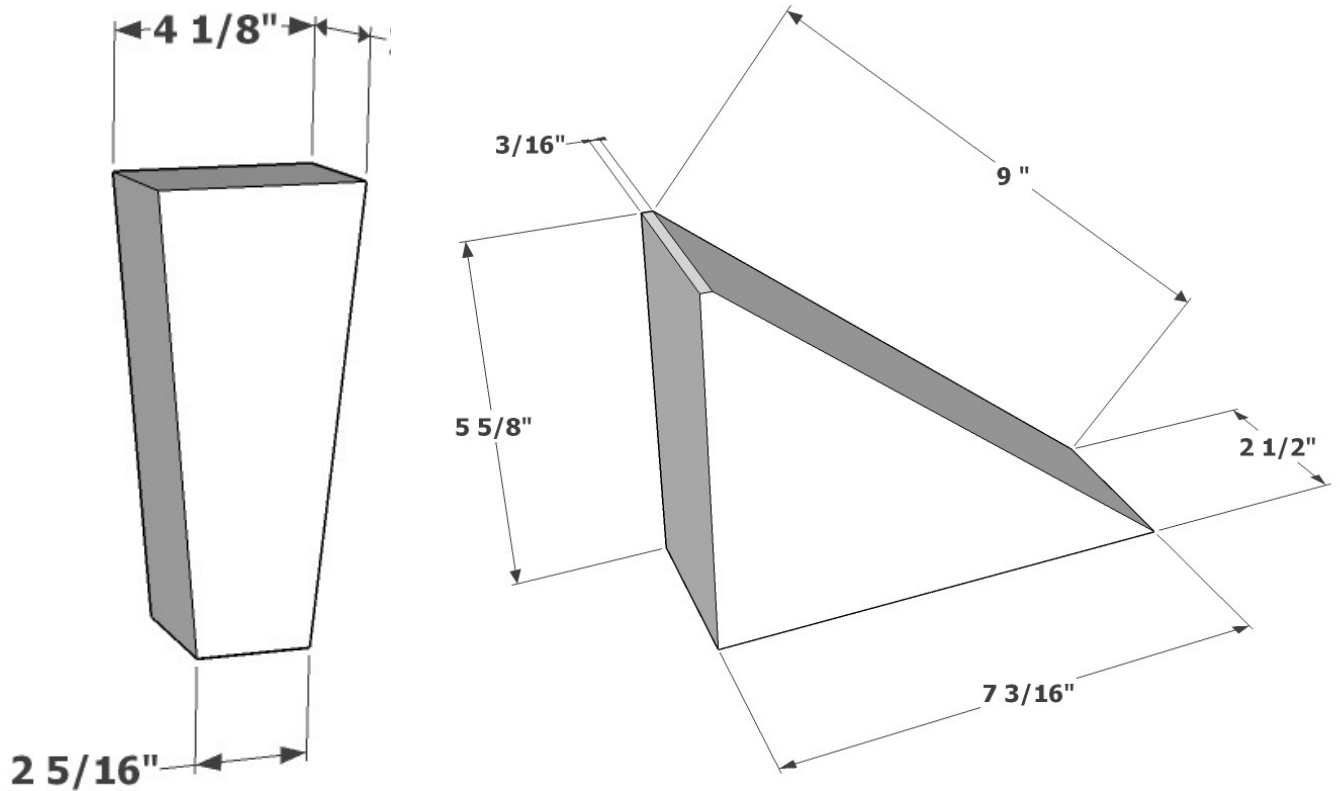
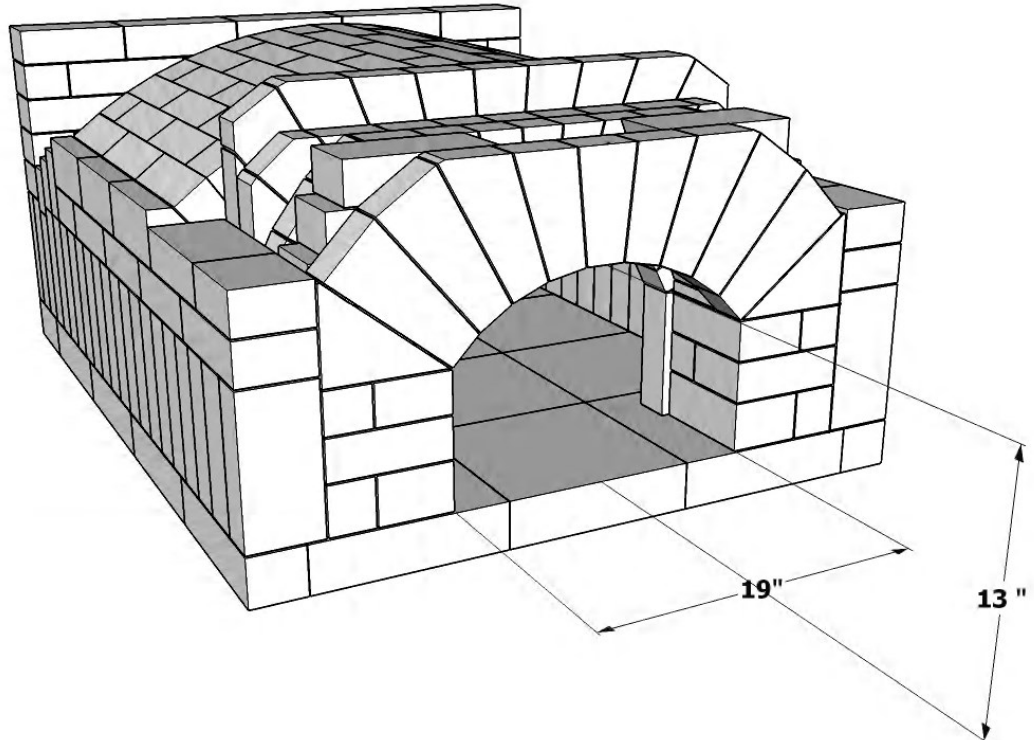
Front arch details

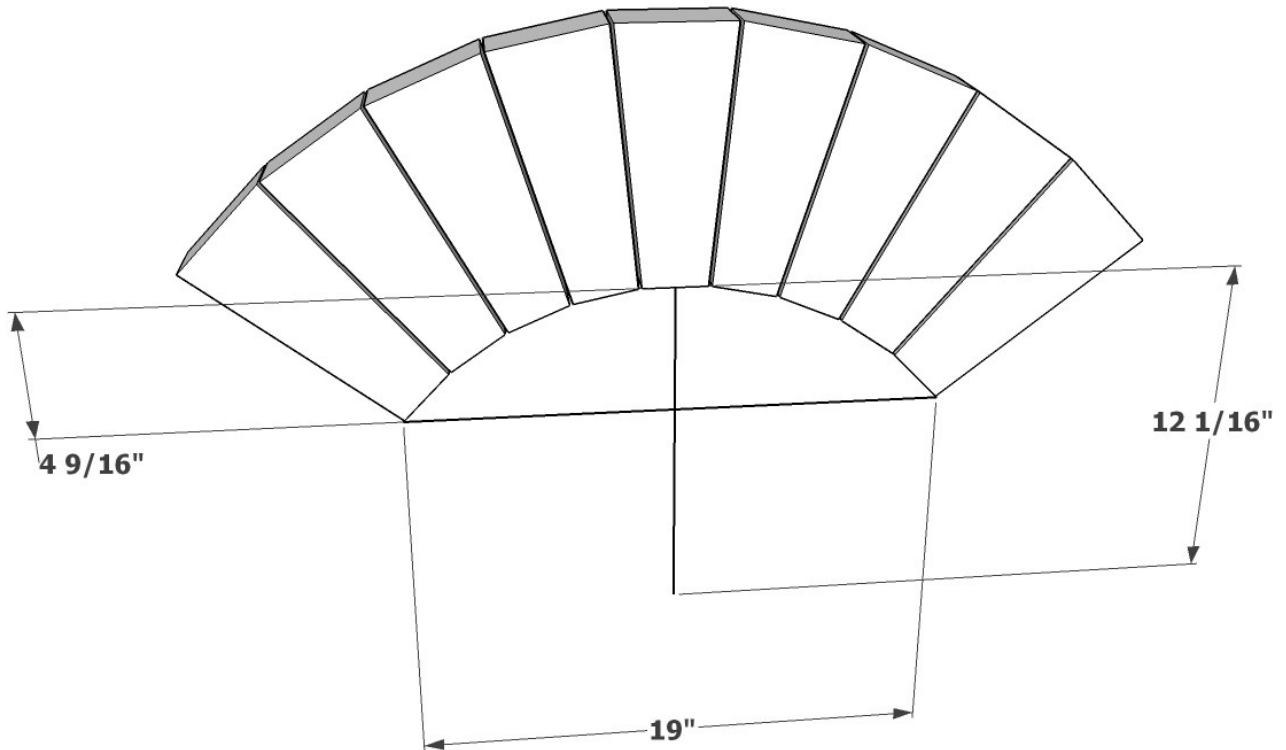
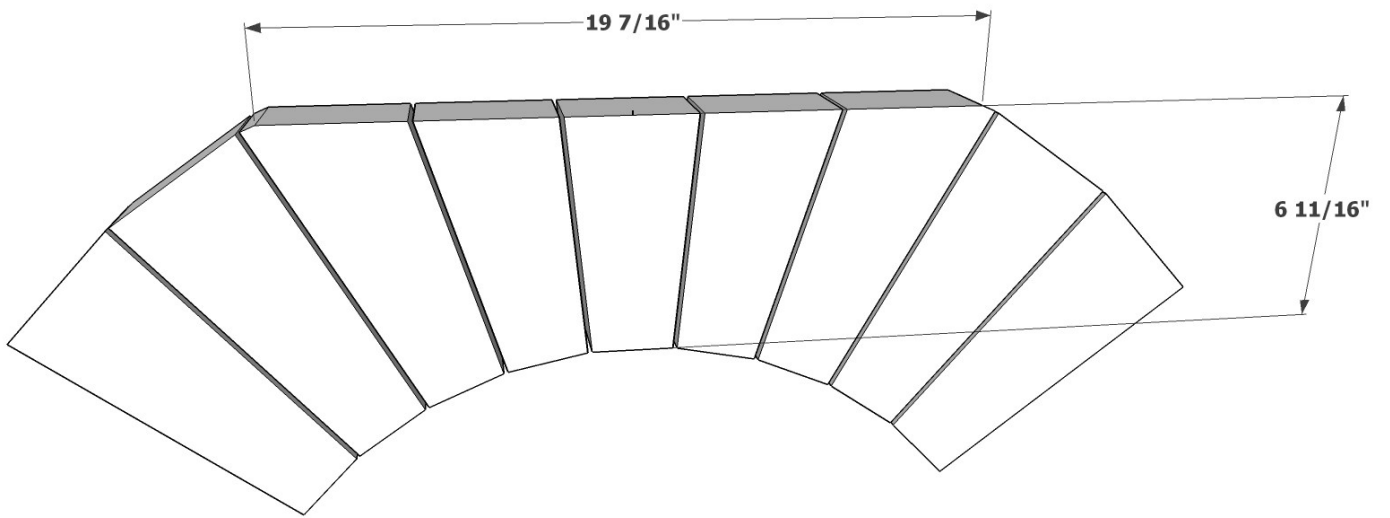
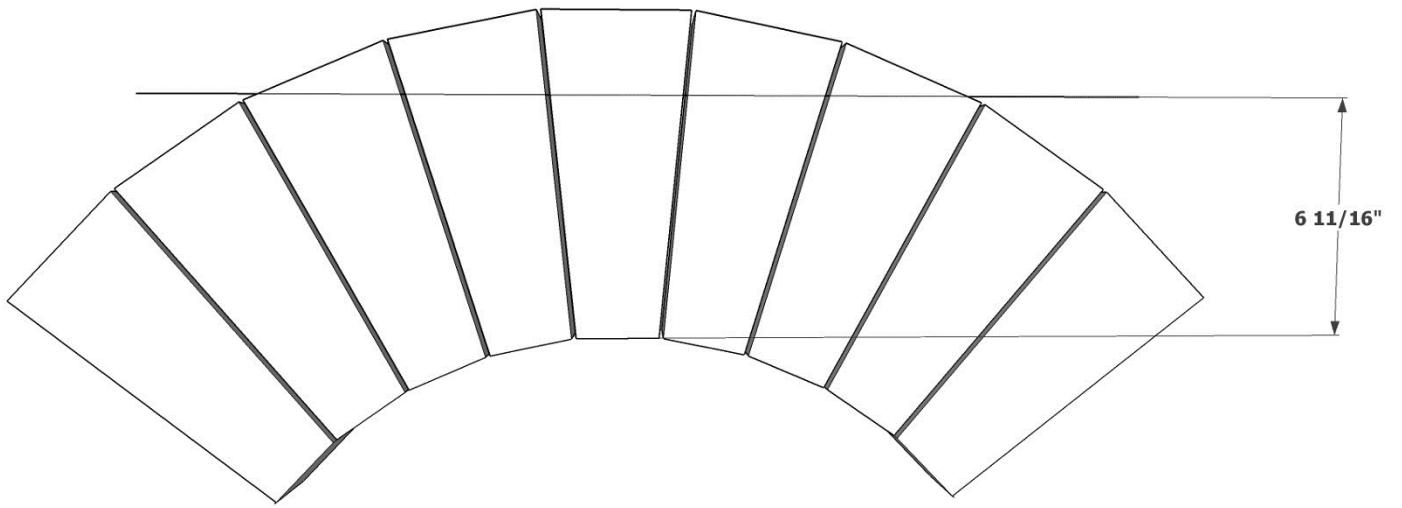
Span: 19"

Rise: 4 5/8"

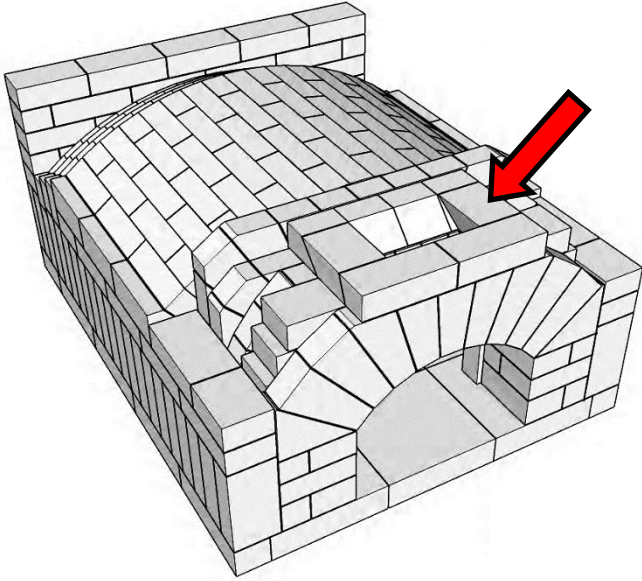
Radius: 12 1/8"

9 segments





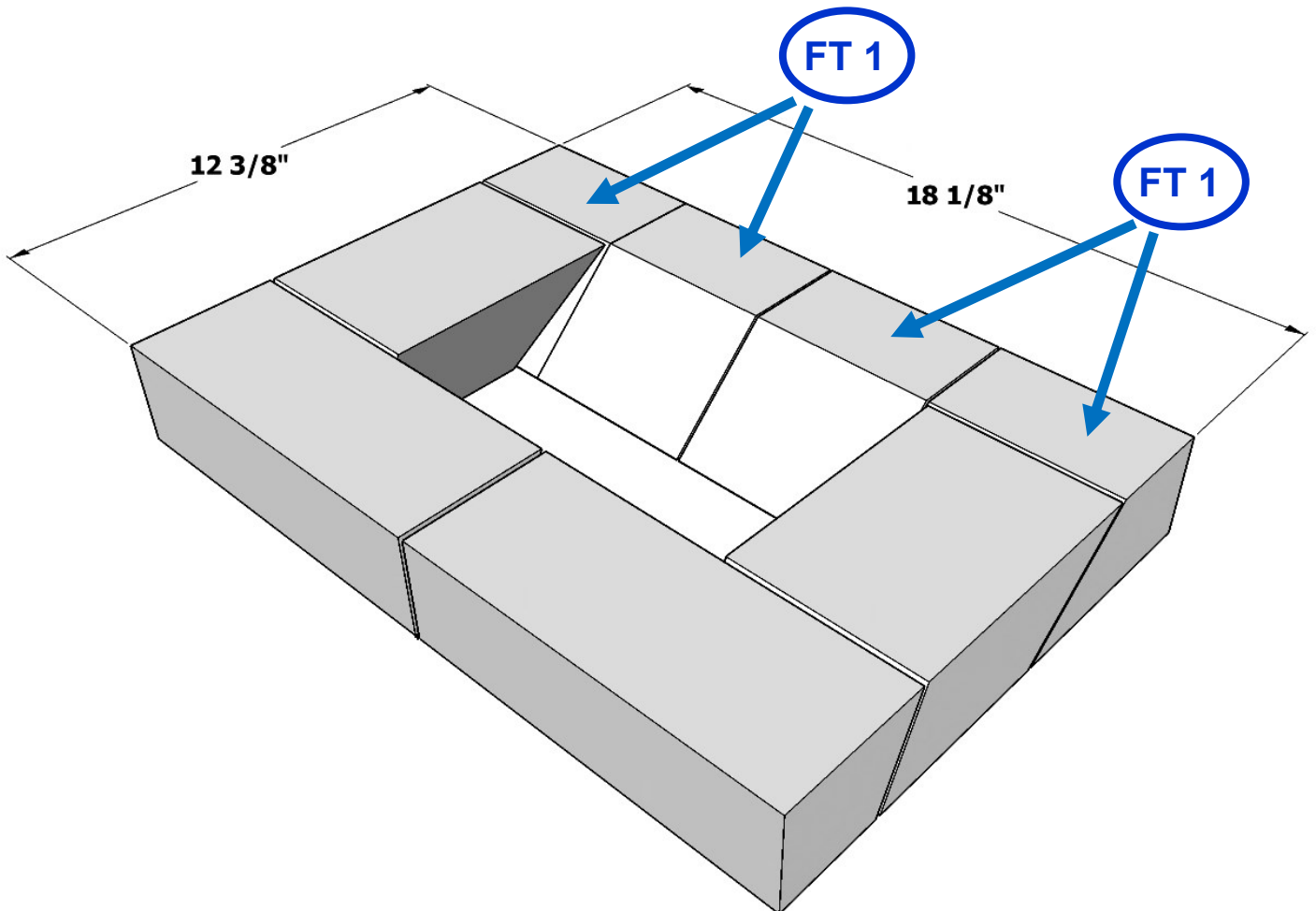
Flue transition details.....Course 1



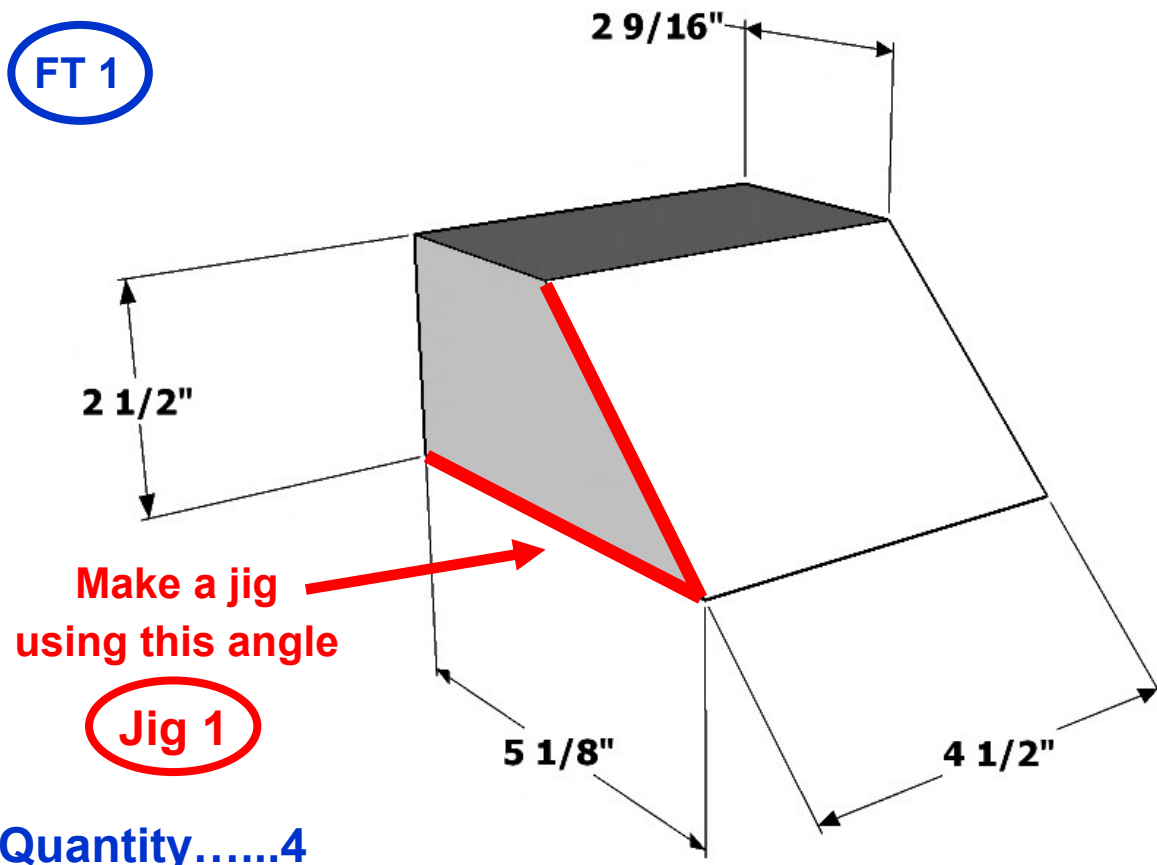
There are a number of compound cuts needed to fabricate the flue transition

It is helpful to make a 3 jigs to aid in the cutting of the compound angles

- Jig 1** Back slope angle
- Jig 2** Side slope angle
- Jig 3** Front slope angle



FT 1



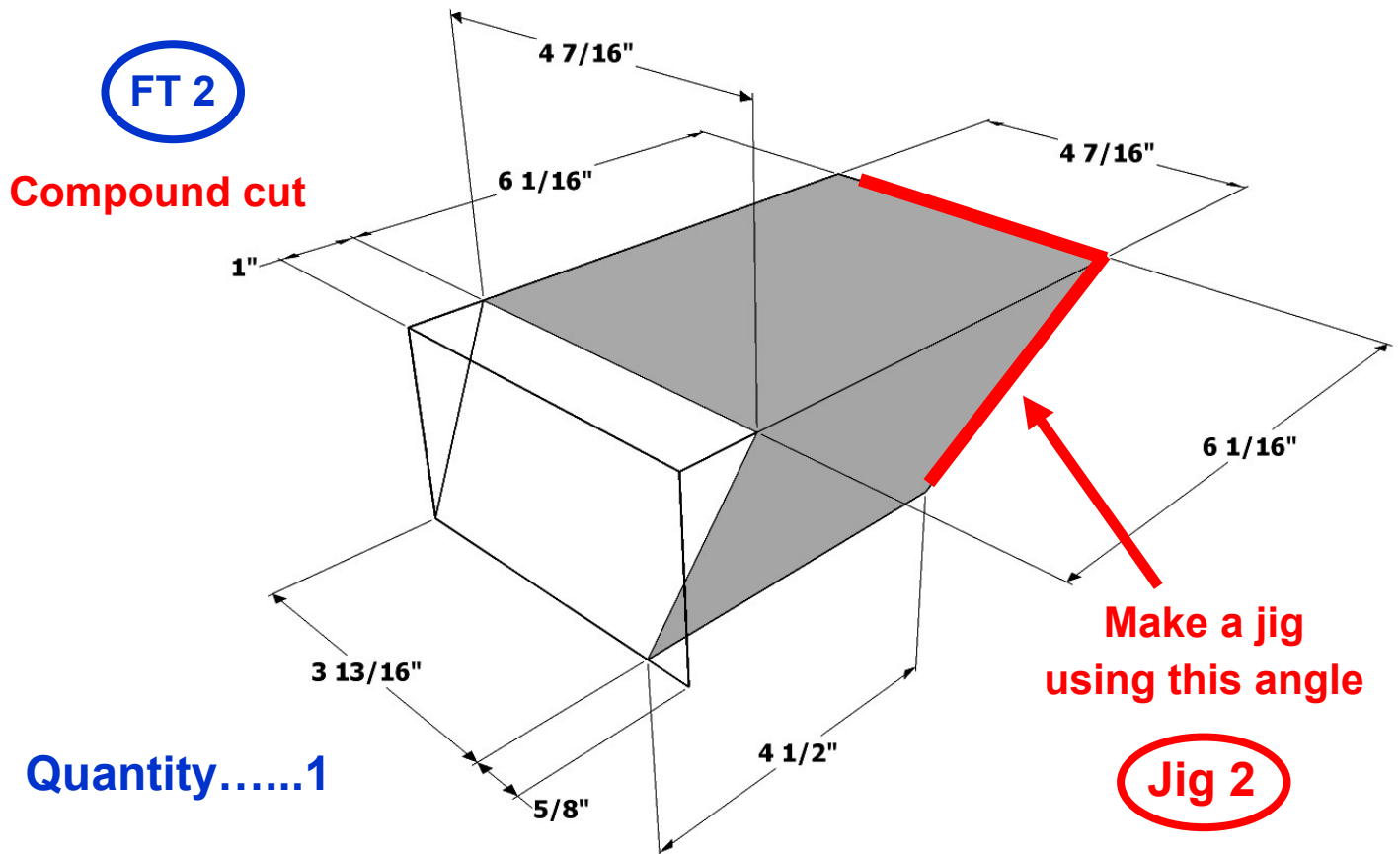
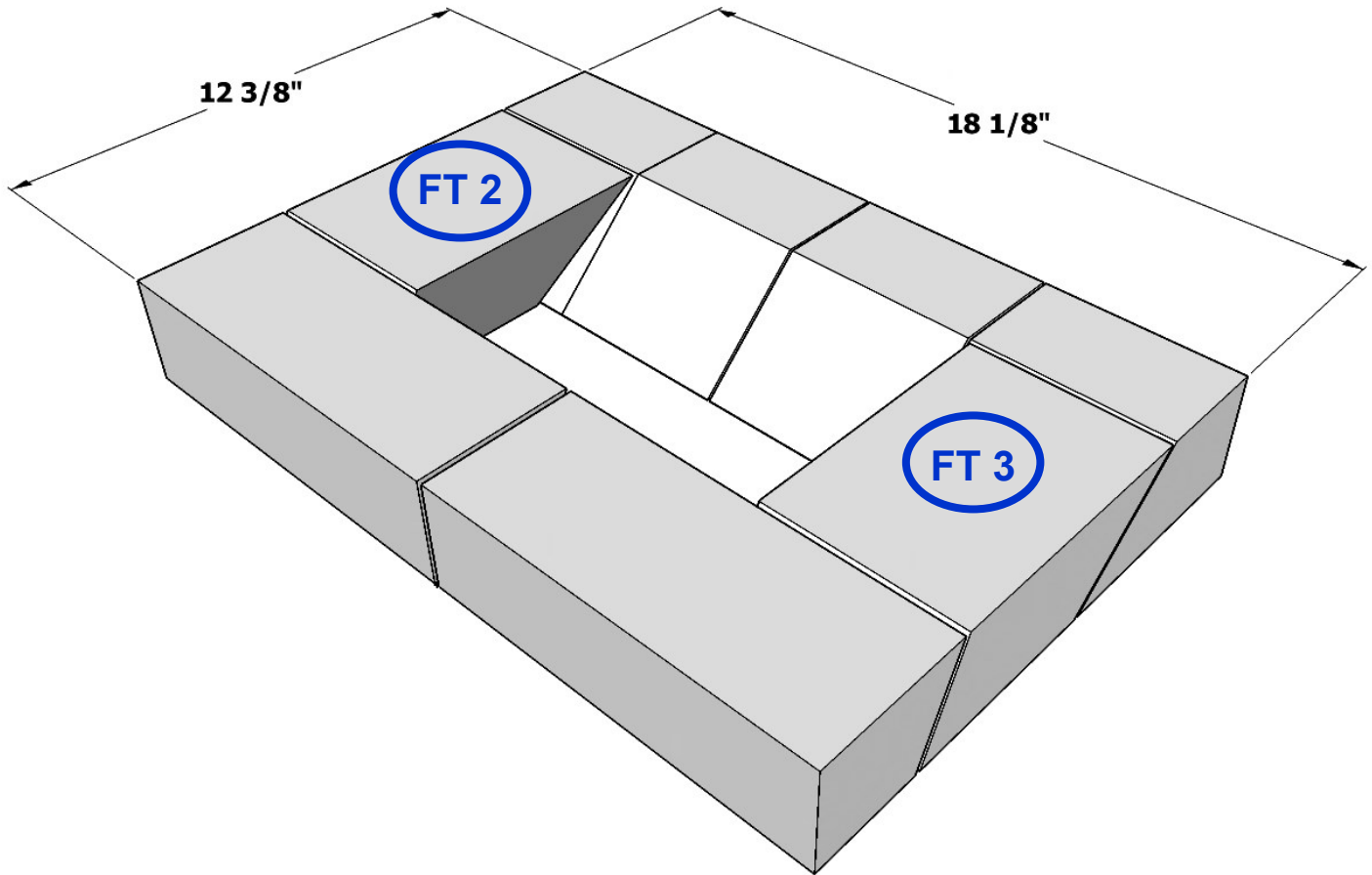
Quantity.....4

FT 1

FT 1

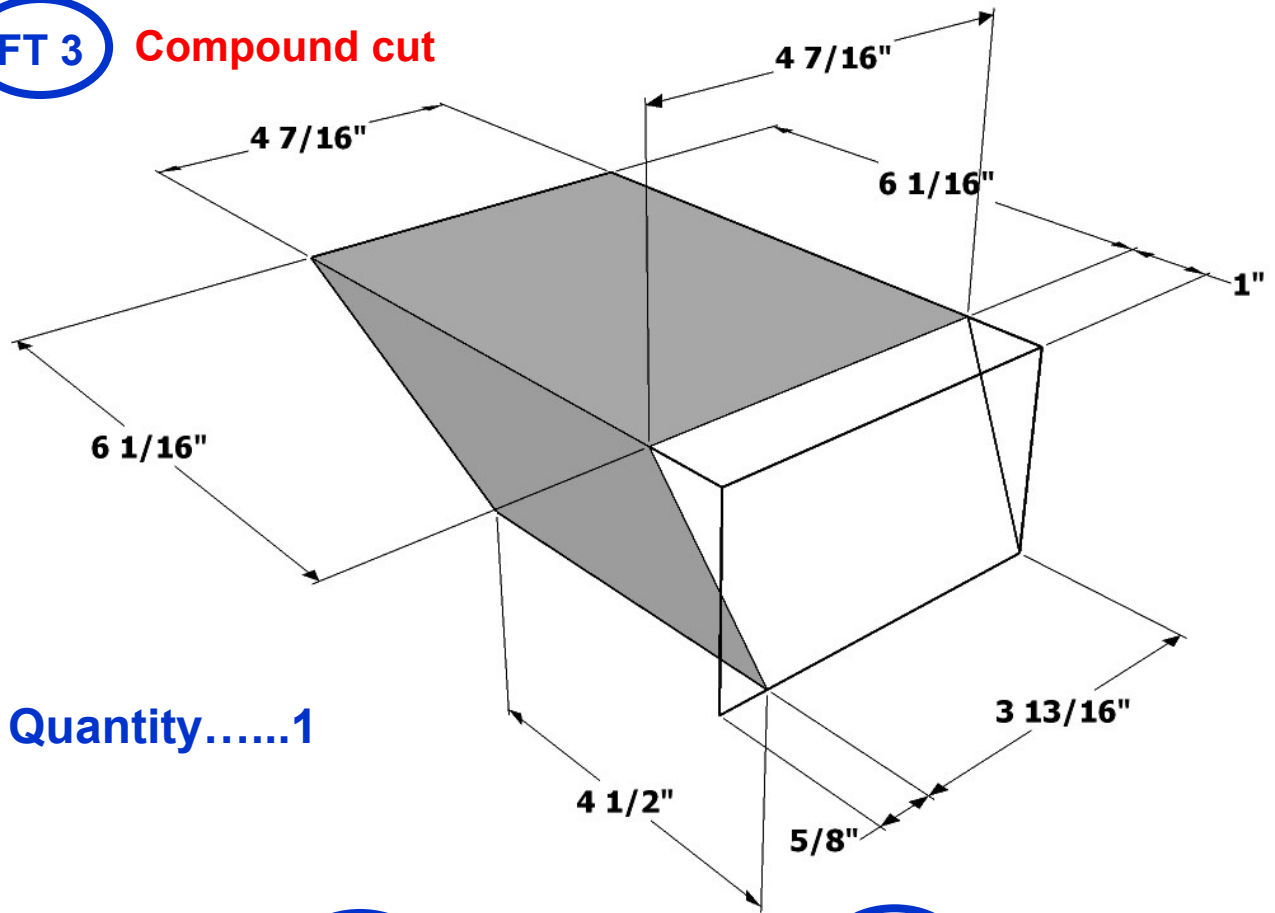


Flue transition details.....Course 1



FT 3

Compound cut



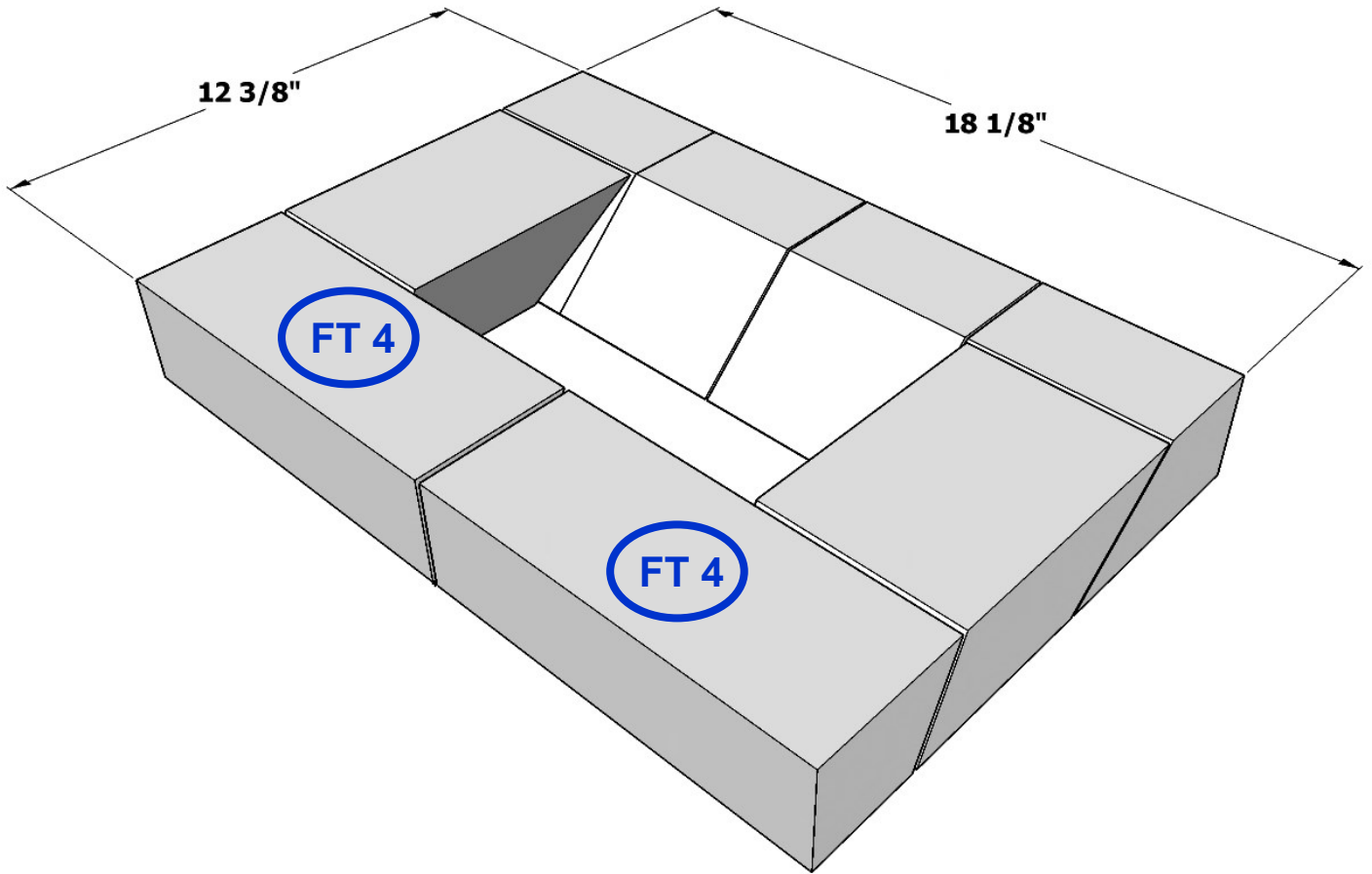
Quantity.....1

FT 2

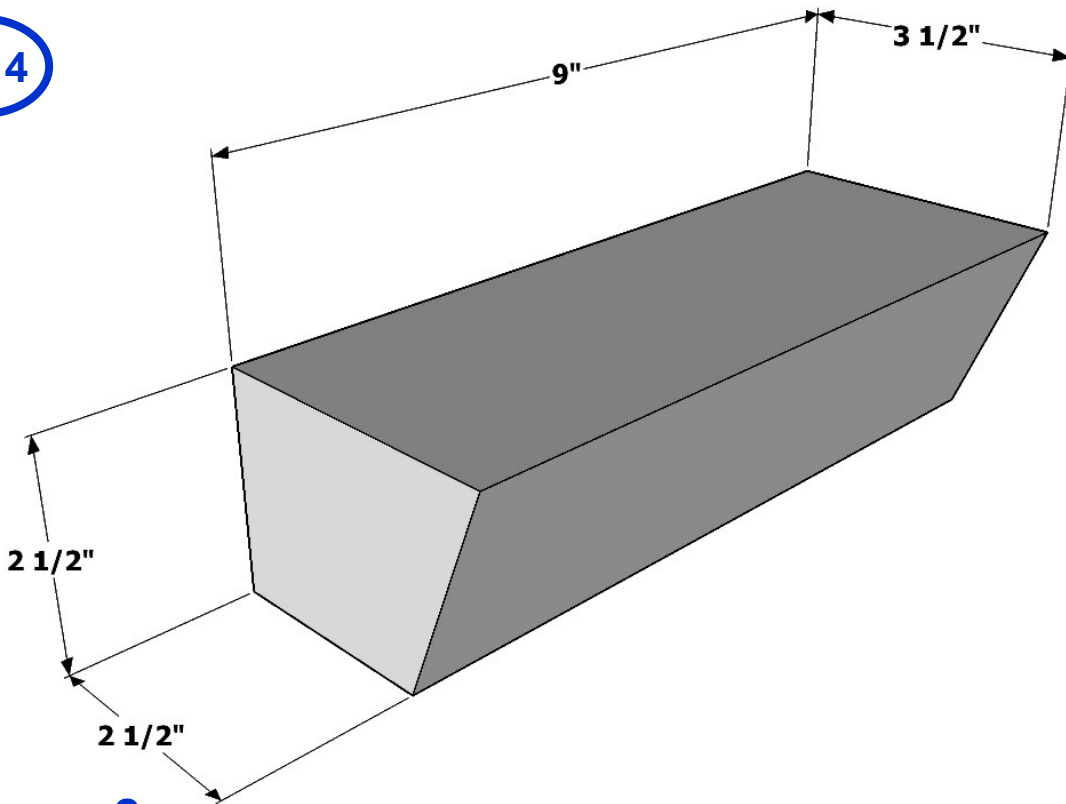
FT 3



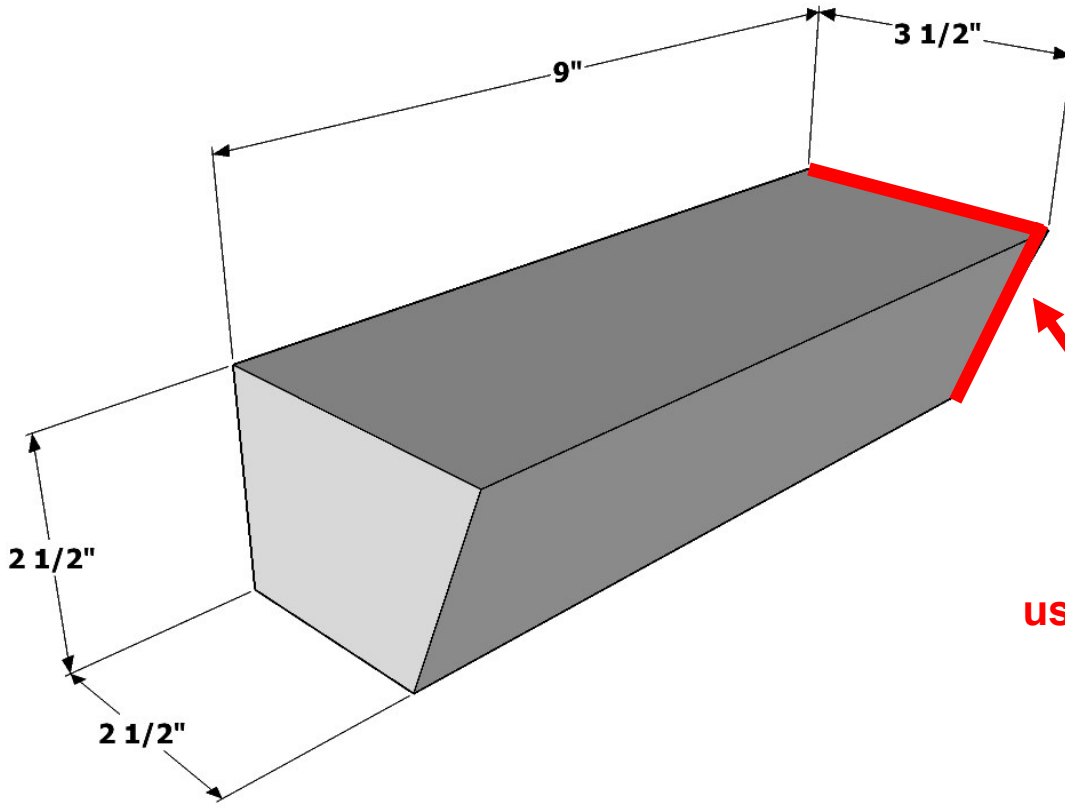
Flue transition details.....Course 1



FT 4



Quantity.....2



Make a jig using this angle

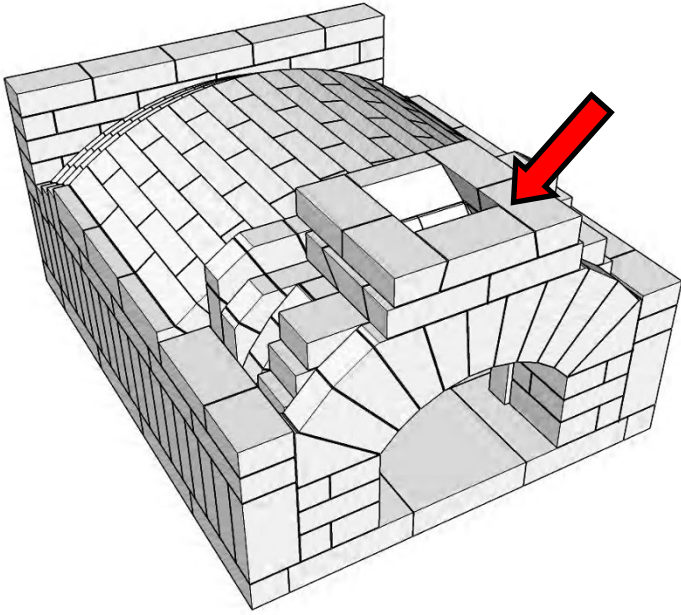
Jig 3

FT 4

FT 4

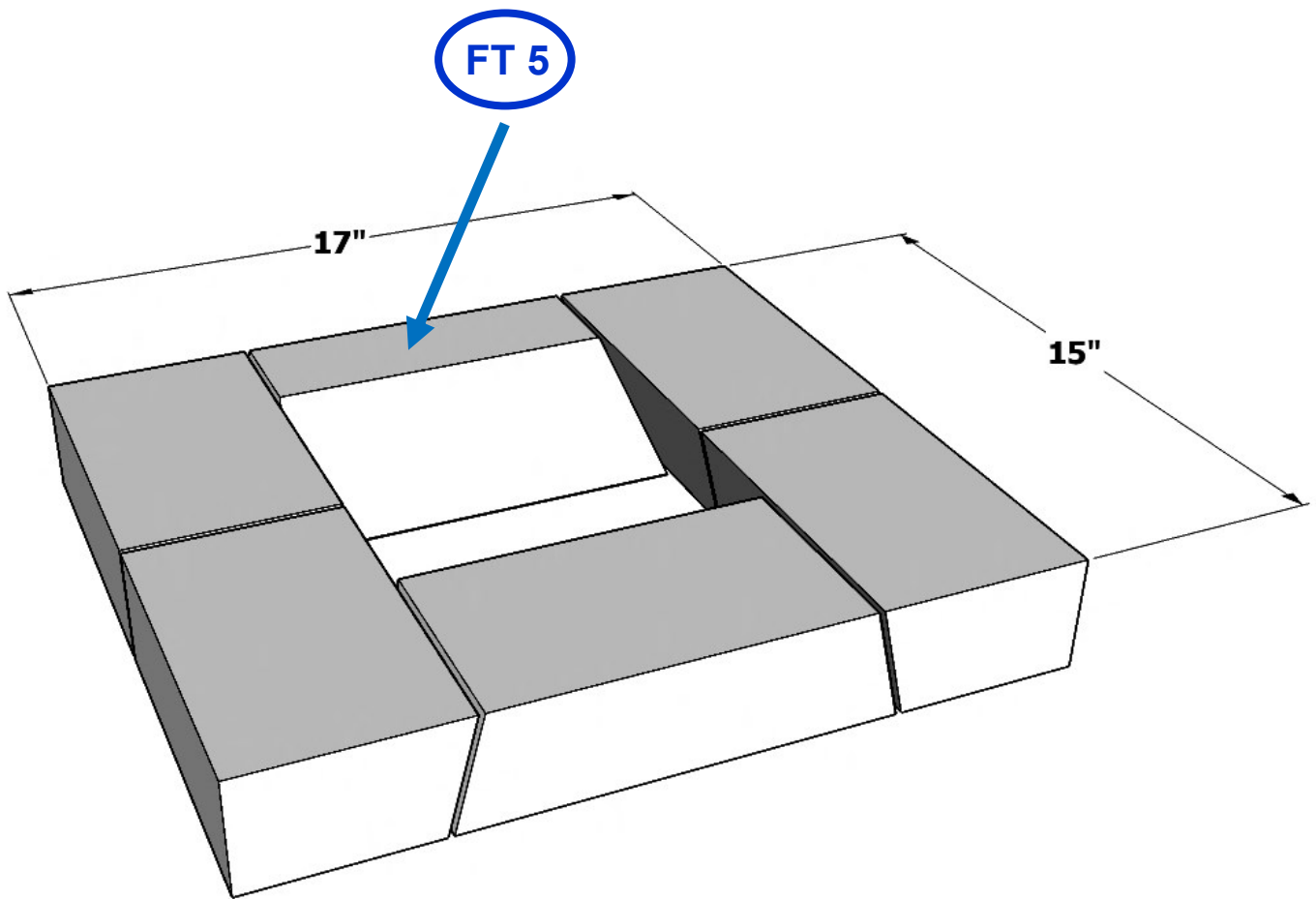


Flue transition details.....Course 2



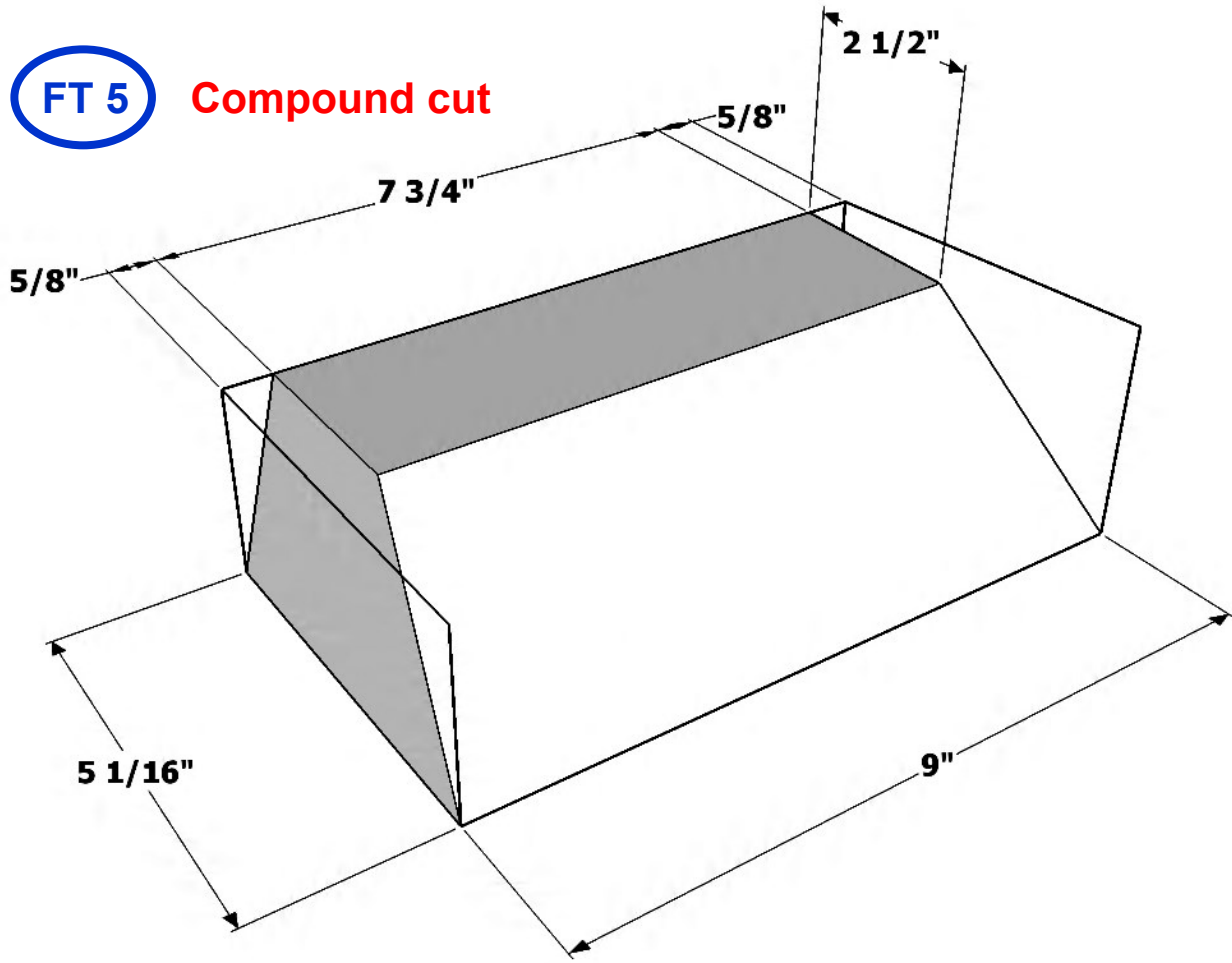
Use jig 1 to cut the compound angle

Jig 1



FT 5

Compound cut

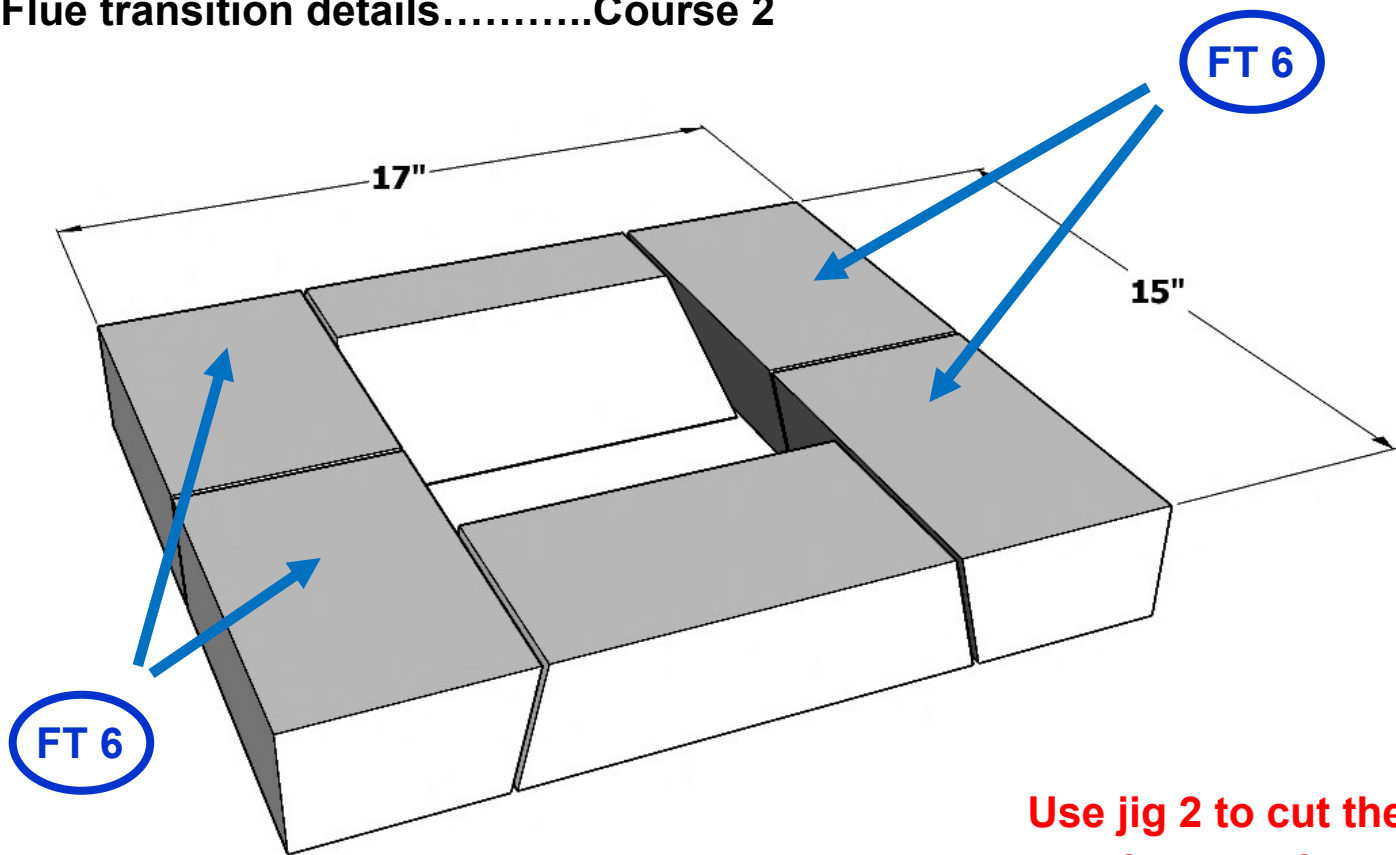


Quantity.....1

FT 5

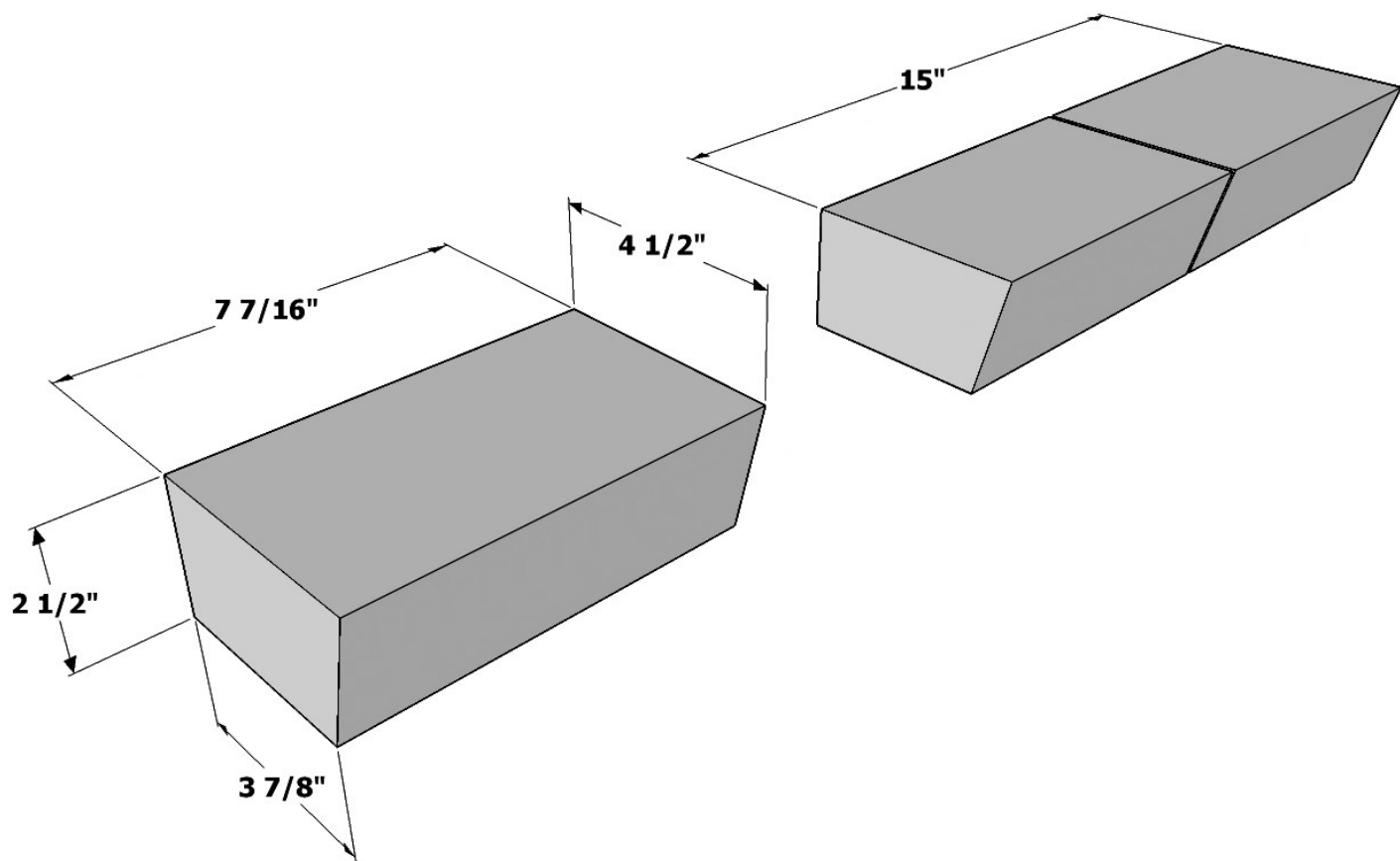


Flue transition details.....Course 2

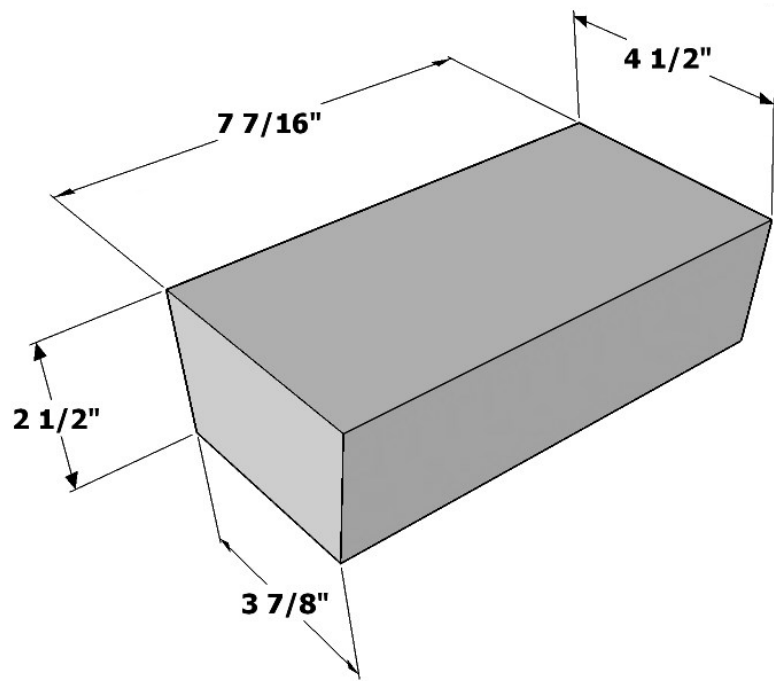


Use jig 2 to cut the slope angle

Jig 2



FT 6



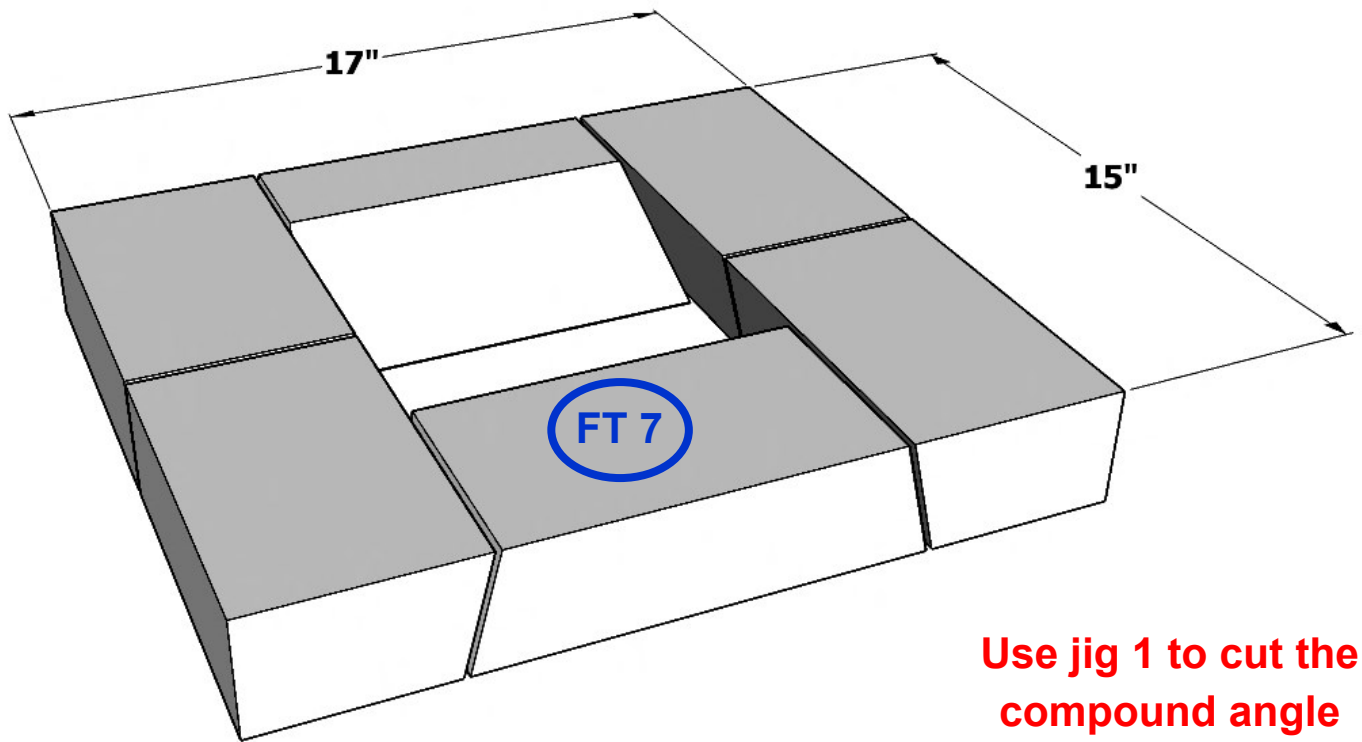
Quantity.....4

FT 6

FT 6

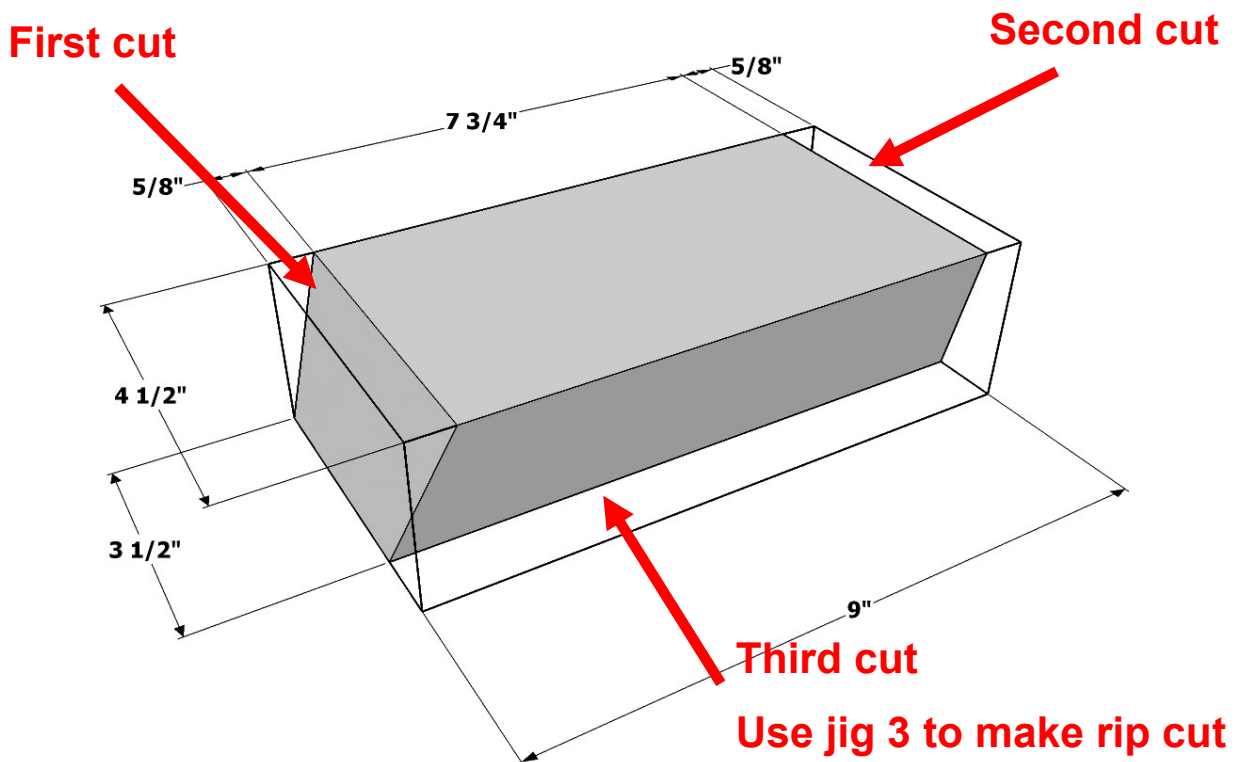


Flue transition details.....Course 2



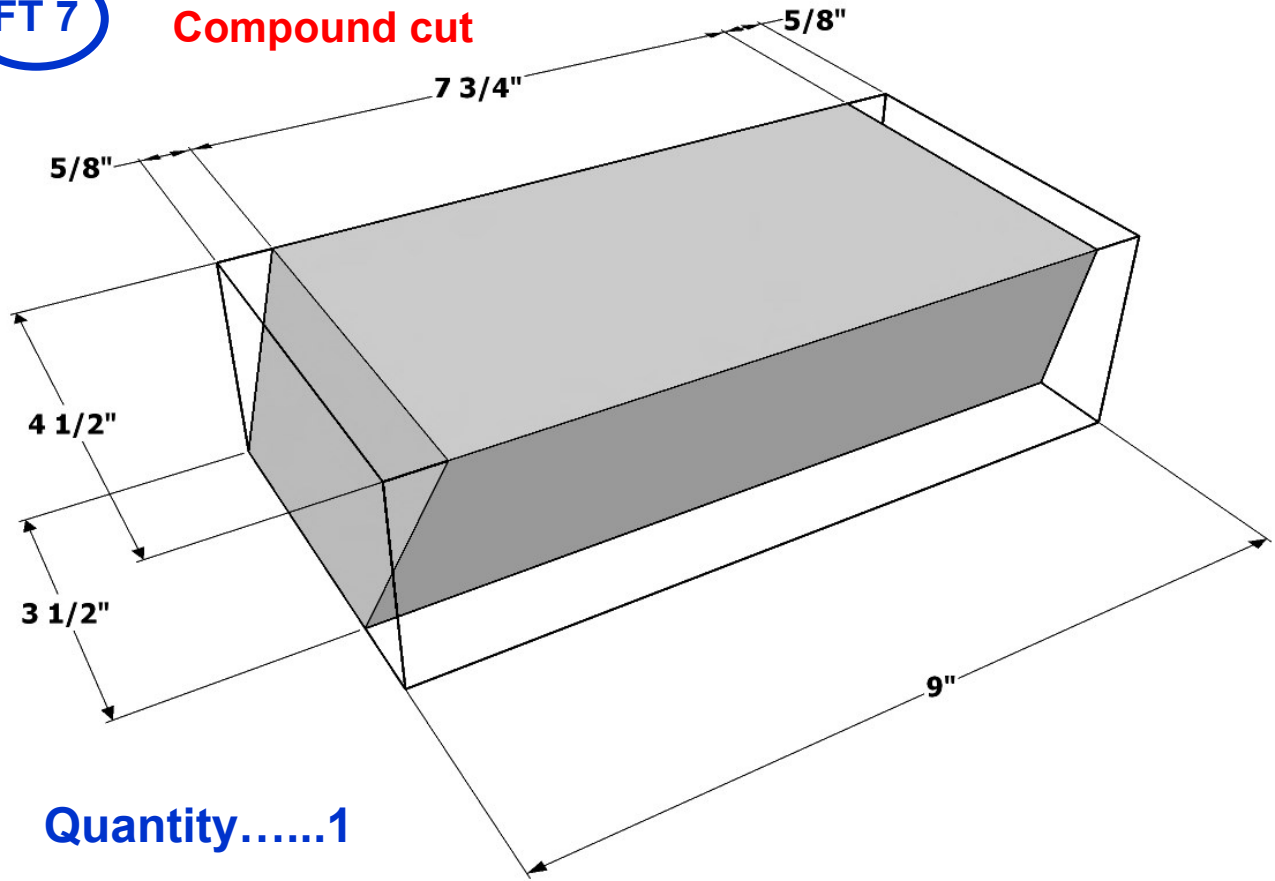
Use jig 1 to cut the compound angle

Jig 3



FT 7

Compound cut



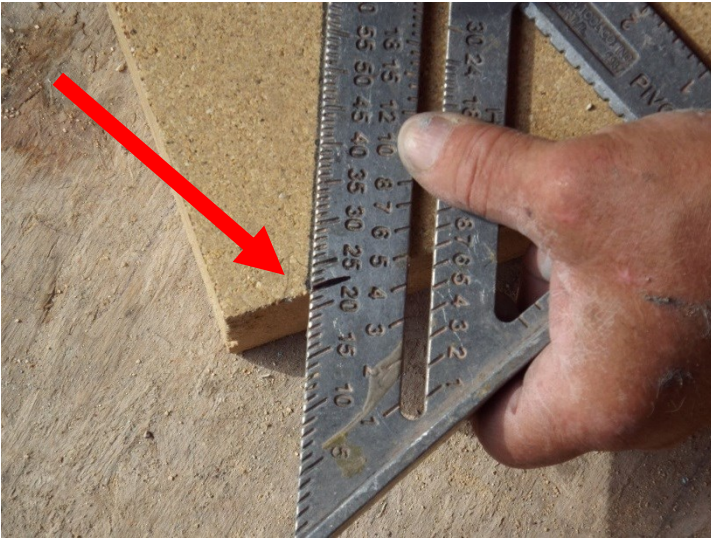
Quantity.....1

FT 7



Octagon flue base course

The two angles on each of the 8 segments of the octagon are cut at 22.5 degrees. That number is 1/2 of a 45° degree angle.



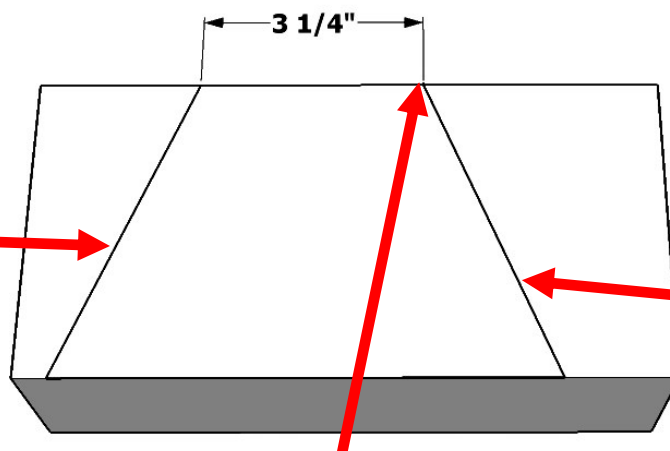
Place a speed square near one edge of the brick and set it to 22 1/2°

Draw a line across the brick along the edge of the speed square



Copy that angle with a bevel square and draw a second angle mirror image to the first

First mark a 22 1/2° angle on one side of the brick



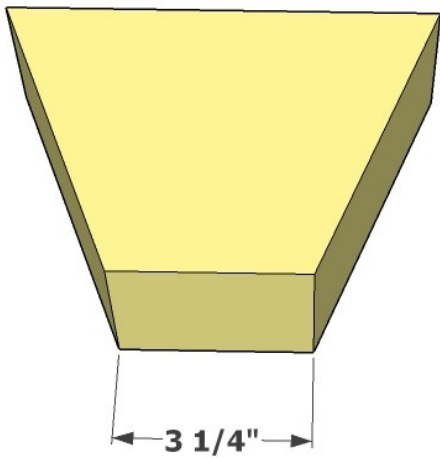
Third mark a mirror image 22 1/2° angle on the opposite side of the brick at the 3 1/4\"/>

Second measure and mark a point 3 1/4\"/>

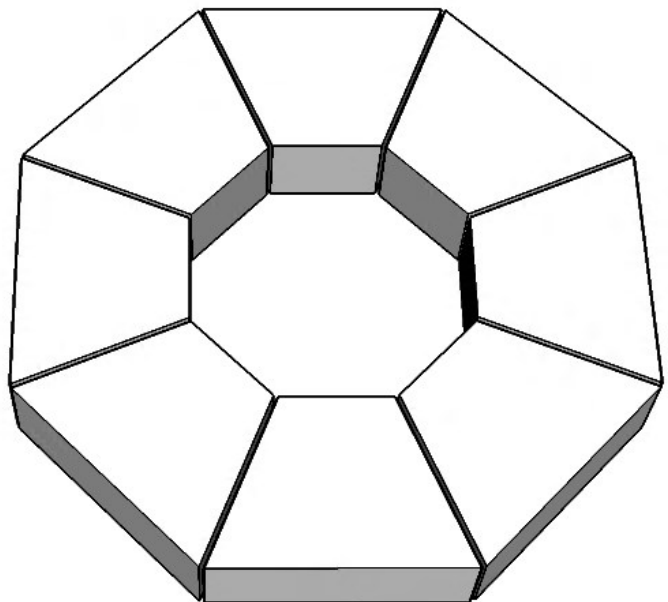


Finished octagon segment.
Mark and cut a total of 8 segments

OCT

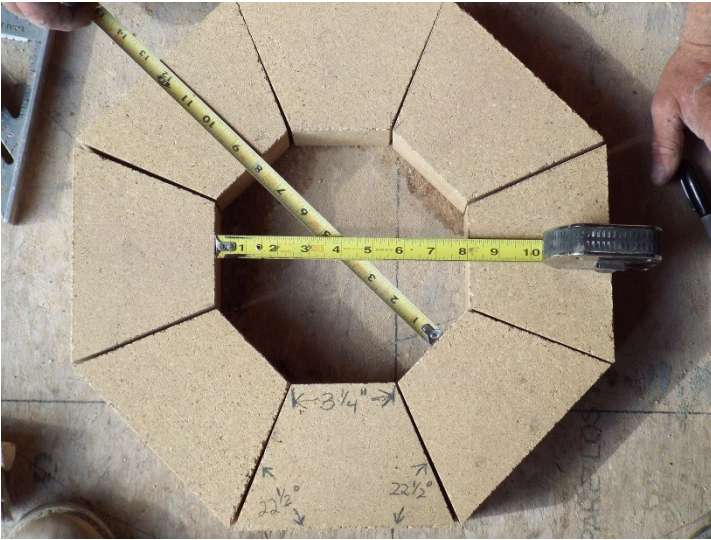


OCT



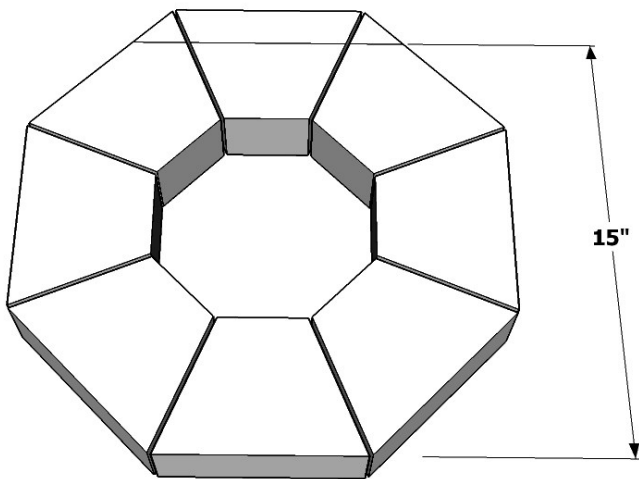
Quantity.....8

Octagon flue base course

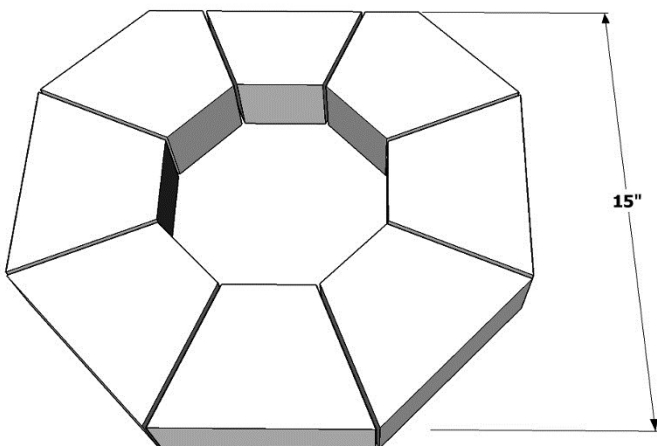


Layout the octagon on the work table.

Arrange the brick segments so that any pair of the 8 brick are exactly 8" apart,



Measure and draw a line 15" back that is parallel to the front of the octagon



This line will cover the 3 brick at the back.

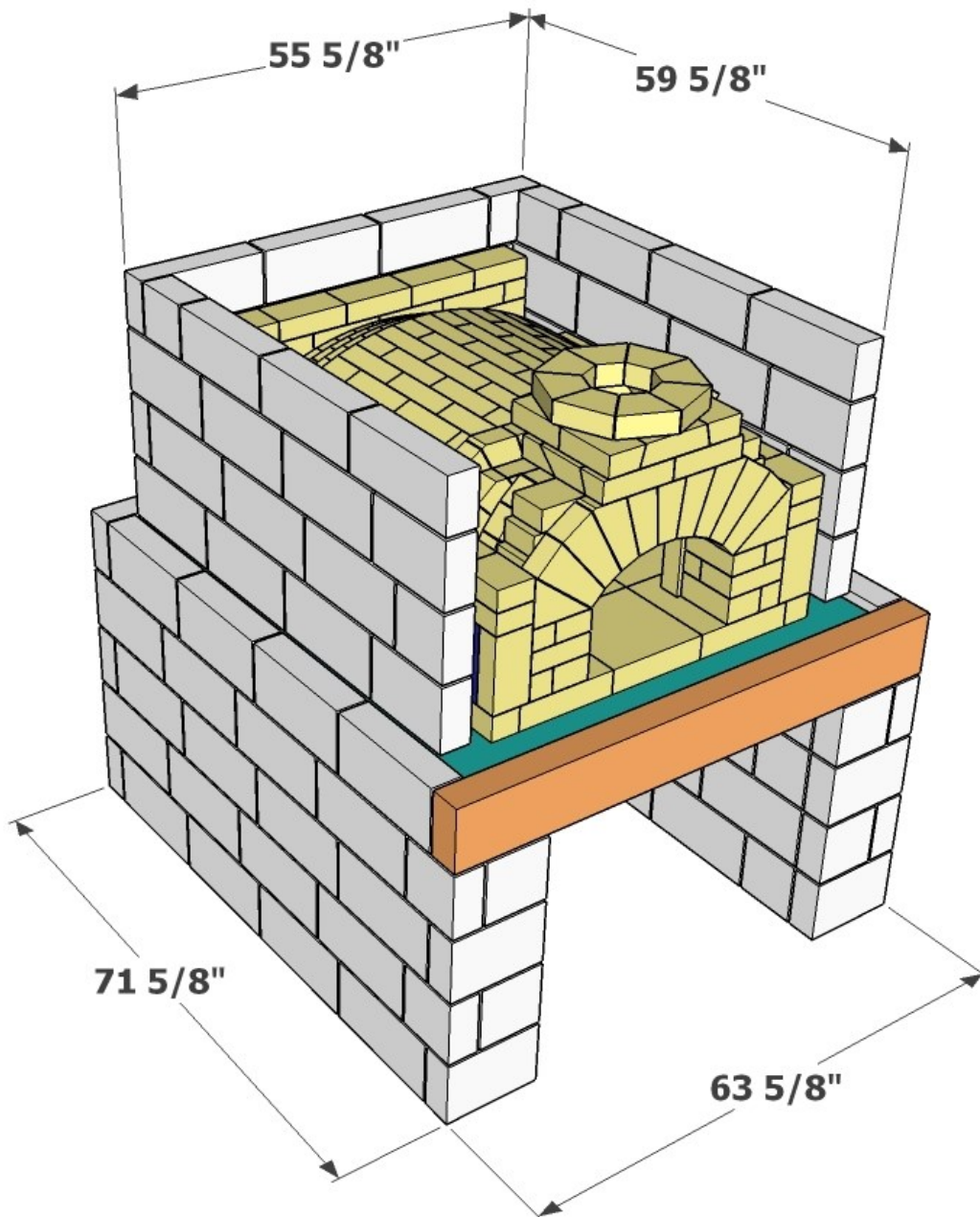
Mark and cut these brick at the line

The octagon in position

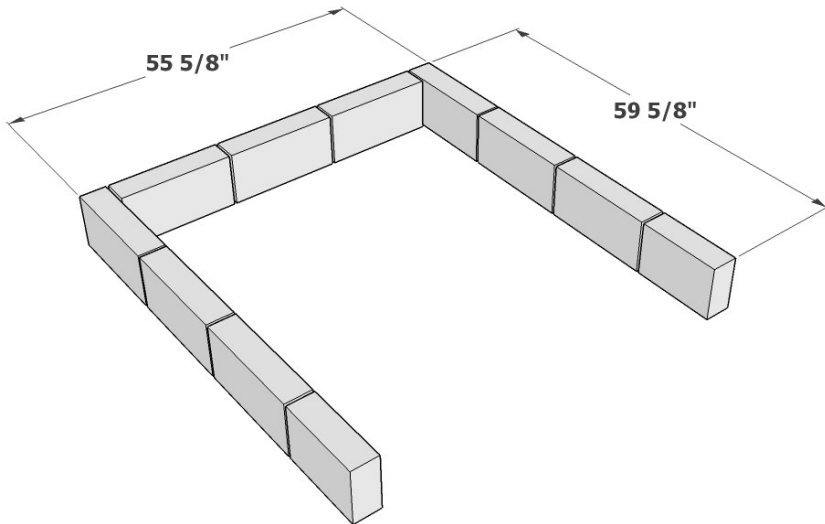


Oven surround blockwork

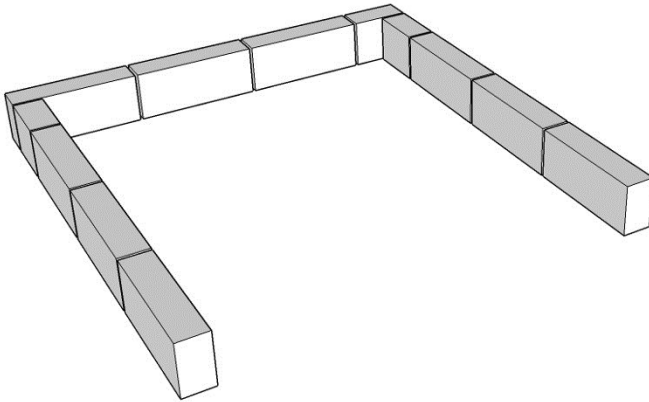
Build a 3 sided surround with 4" x 8" x 16" partition block. It should be 4 courses high, plumb square level and true.



Block pattern for the odd numbered courses



Block pattern for the odd numbered courses



Block surround completed



Insulate the oven dome and pour concrete

Completely cover the oven, top sides and back, with a minimum of 1" ceramic wool.



Install wood bracing if concrete is to be poured if the blockwork is freshly laid up.





Mix concrete and pour over the 1" ceramic wool.

Be sure it is wet enough to completely fill the gap on the sides and back of the oven



After the sides and back are completely filled, cover the top of the oven with concrete



Add concrete until it is about level with the top of the blockwork

Chimney connection methods

The chimney to vent the oven is designed to be an 8" round flue. It can either be constructed with a masonry façade, or a Class A factory built chimney

8" diameter anchor plate installed on the octagon transition

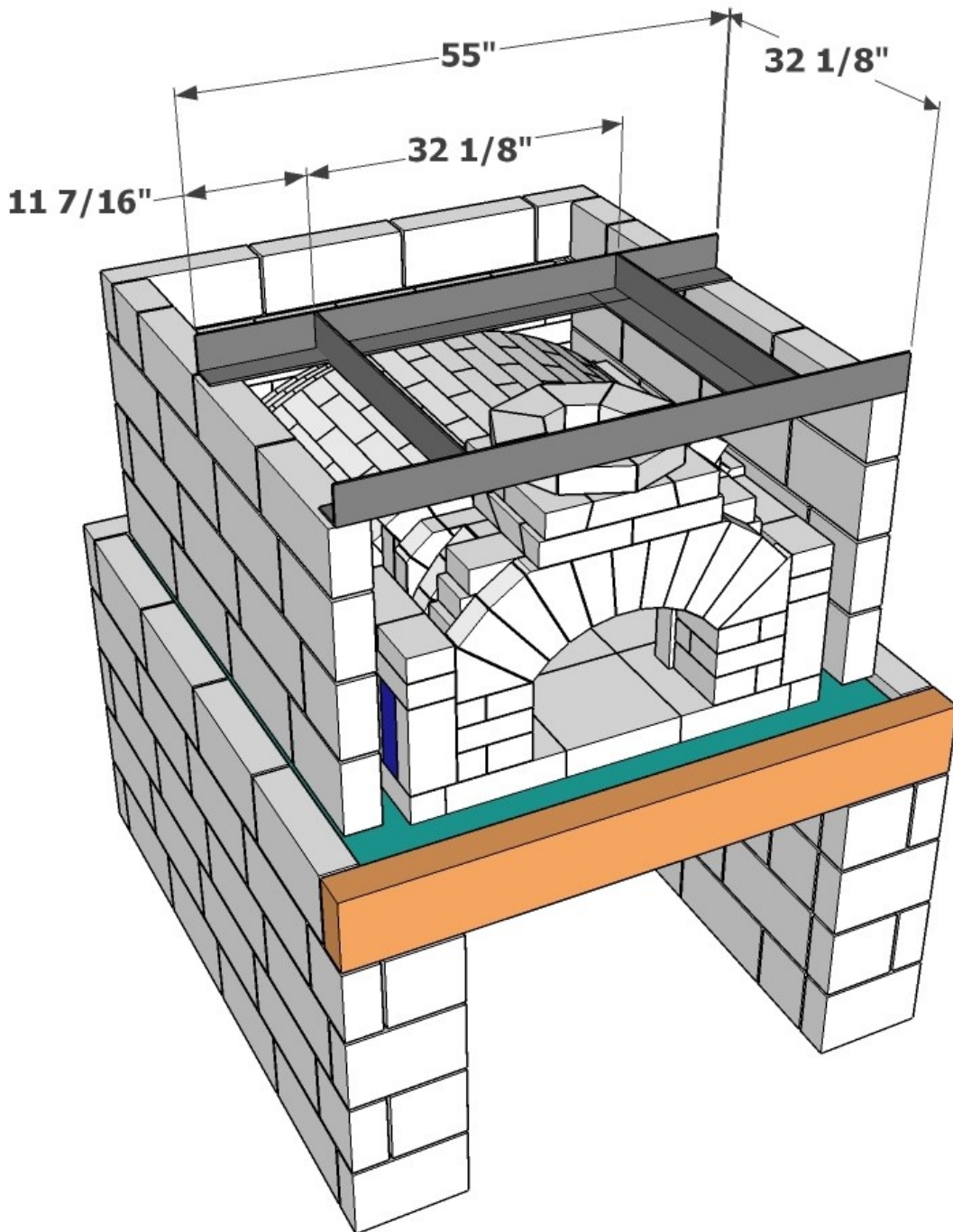


Typical angle iron frame supported by the block surround as a means to support the masonry chimney

A minimum of 3 1/2" x 3 1/2" x 1/4" steel angle iron should be used.

If you are going to use brick,

Size the angle so it courses out with the brick you will be using



The oven façade





Materials List

Firebrick needed to construct the oven

225	9 x 4 1/2 x 2 1/2	Straights	Medium heat Duty
100	9 x 4 1/2 x 2 1/2	#1 Arch	High heat Duty
10	9 x 6 3/4 x 2 1/2	Large 9's	High Heat Duty
20	12 x 12 x 3	Tiles	High Heat Duty
10	9 x 4 1/2 x 3	Straights	Medium heat Duty
3	Bags Heat Stop 50		
2	Sheets SKAMOTEC 225		