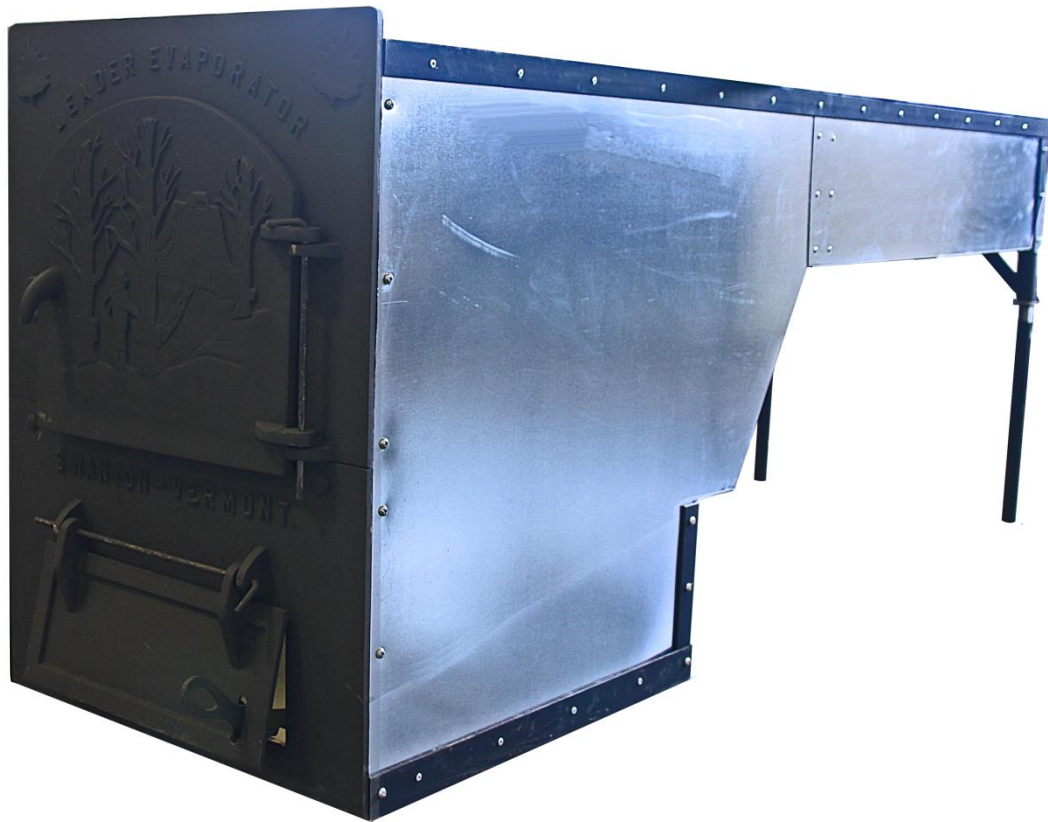


LEADER EVAPORATOR STANDARD 2X6 / 2X8 WOOD FIRED ARCH



Leader Evaporator Co., Inc.

49 Jonergin Drive

Swanton, VT 05488

Tel: 802-868-5444

www.leaderevaporator.com

TABLE OF CONTENTS

EQUIPMENT DESCRIPTION	4
DIAGRAM OF THE STANDARD WOOD FIRED ARCH	6
SETUP OF THE STANDARD WOOD FIRED ARCH.....	6
RECEIVING YOUR ARCH:	6
SUGAR HOUSE SETUP:	6
FOUNDATION FOR THE ARCH	7
SETTING THE ARCH ON THE FOUNDATION:.....	7
INSTALL THE FRONT DRAFT DOOR ADJUSTMENT LATCH.....	8
INSULATING THE ARCH:.....	9
<i>General Notes</i>	9
Cementing of Insulation Board and Bricks	11
Bricks.....	11
Standard Wood Fired Arch Design.....	12
Considerations For A MAX/COMBO Flue Pan	12
<i>Insulating a Drop Flue Arch</i>	12
Insulating a 2X6 Arch	12
Insulation Board	13
Cut Out Diagram.....	13
Front.....	14
Left Side.....	14
Right Side	15
Back.....	15
Rear Grate Shelf to Top of Incline	16
Ash Pit Rear	16
Bricking	17
Floor behind Top of Incline	17
Back.....	17
Left Side.....	18
Right Side	18
Ash Pit Rear	19
Install the Grates	19
Front.....	20
Grate Shelf to Top of Incline.....	20
Insulating a 2X8 Arch	21
Insulation Board	22
Cut Out Diagram.....	22
Front.....	23
Left Side.....	23
Right Side	24
Back.....	24
Rear Grate Shelf to Top of Incline	25
Ash Pit Rear	25
Bricking	26
Floor behind Top of Incline	26
Back.....	26
Left Side.....	27
Right Side	27
Ash Pit Rear	28
Install the Grates	28
Front.....	29
Grate Shelf to Top of Incline.....	29
<i>Insulating a Raised Flue Arch (Not Max Combo)</i>	30
Insulating a 2X6 Arch	30
Cut Out Diagram.....	31
Left Side.....	32
Right Side	33
Back.....	34
Ash Pit Rear	34
Front.....	32
Rear Grate Shelf to Top of Factory Baffle.....	35


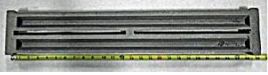



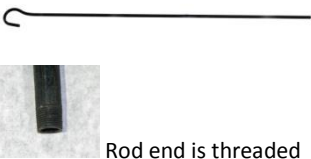

Bricking	36
Arch Floor Behind Factory Baffle.....	36
Left Side.....	37
Right Side	37
Back.....	38
Ash Pit Rear	38
Install the Grates	39
Front.....	39
Grate Shelf to Top of Factory Baffle	40
Rear Baffle.....	40
Baffle Area Completion	41
Insulating a 2X8 Arch	42
Insulation Board	43
Cut Out Diagram.....	43
Left Side.....	44
Right Side	45
Back.....	45
Ash Pit Rear	46
Front.....	44
Rear Grate Shelf to Top of Front Factory Baffle	46
Bricking	47
Rear Floor Behind Front Factory Baffle	47
Left Side.....	47
Right Side	48
Back.....	48
Ash Pit	49
Install the Grates	49
Front.....	50
Rear Grate Shelf to Top of Front Factory Baffle	50
Behind Rear Factory Baffle.....	51
Baffle Area Completion	51
INSTALL TAPER AND STACK	52
<i>Roof Penetration and the Type of Roof Jack:</i>	52
<i>Install the Taper and Stack</i>	52
<i>THE FIRST BOIL</i>	55
OPERATING THE EVAPORATOR	55
DAILY SHUTDOWN	56
MAINTENANCE	56
DAILY.....	56
PERIODIC.....	56
BEGINNING OF SEASON STARTUP.....	56
FEEDBACK.....	56
NOTES	56

EQUIPMENT DESCRIPTION

A standard wood fired arch from Leader Evaporator is designed to have a deeper and wider firebox to increase firing capacity. There is a large draft door to maximize airflow. Grates are designed with a double "V" to give the strongest and most warp resistant properties.

NOTE: Pictures, sketches and drawings presented in this document are not to scale.

The Leader Standard Wood Fired Arch consists of the following parts:

ITEM	LEADER ORDER #	DESCRIPTION / PHOTO	ITEM	LEADER ORDER #	DESCRIPTION / PHOTO
Arch	As Ordered		Grates (Qty: 4)	75021	
Base Stack	512410L (stainless steel)		Smoke stack 2X6 Qty: 3 2X8 Qty: 4	5210S (stainless steel)	
Draft Door Latch Wire tied to draft door of arch	75169		Flue Brush Rod (8')	60071 (6') 60072 (8')	 Rod end is threaded to allow mounting of flue brush
Pipe legs (Qty: 2) Wire tied to inside rear of arch	77021				

OPTIONAL SPARE PARTS, SETUP PARTS AND OPERATIONS EQUIPMENT AND SUPPLIES

ITEM	LEADER ORDER #	DESCRIPTION / PHOTO
Upper Half 24"	75170	
10" Leader Style Roof Jack		 <p>Peak or Side of Roof Style</p>
3000° Full Brick	65003	
Refractory Cement	65001	
10" Stack Cover	5410	




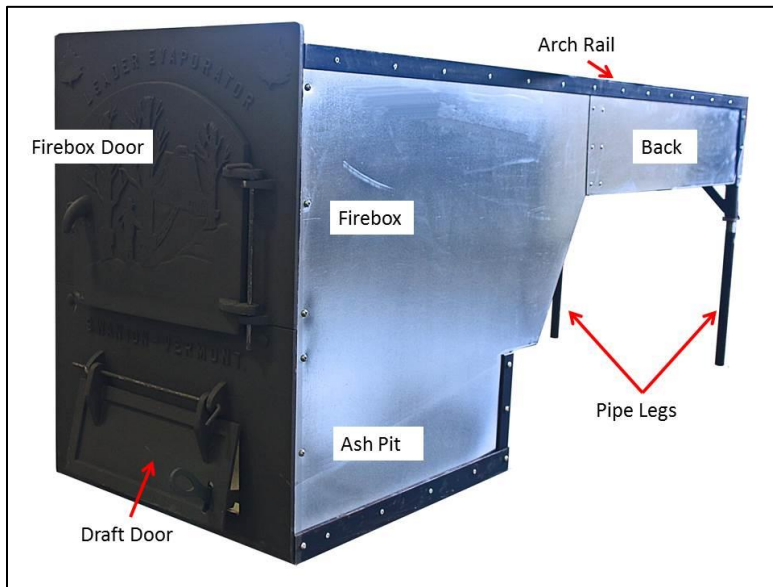
ITEM	LEADER ORDER #	DESCRIPTION / PHOTO
Lower Half 24"	75171	
INSULBOARD 1" – 1'X3' (3 sq. ft)	65000	
3000° Half Brick	65006	
Jaco Firestop Plus (10.5 oz tube)	65196	

DIAGRAM OF THE STANDARD WOOD FIRED ARCH



SETUP OF THE STANDARD WOOD FIRED ARCH

NOTE: The following information pertaining to setup of an arch is to be considered one suggested method. Installations should meet all applicable governmental regulations and standards.

RECEIVING YOUR ARCH:

Upon receipt of the arch, it is recommended the following tasks be performed:

1. Protect all incoming materials from damage and the environment. If possible place the arch at the location where it will be setup (See section titled SUGAR HOUSE SETUP).
2. Unpack all materials and check the received materials against the Equipment Description list provided above.
3. Immediately notify Leader Evaporator or your local dealer if there are questions on the received equipment.

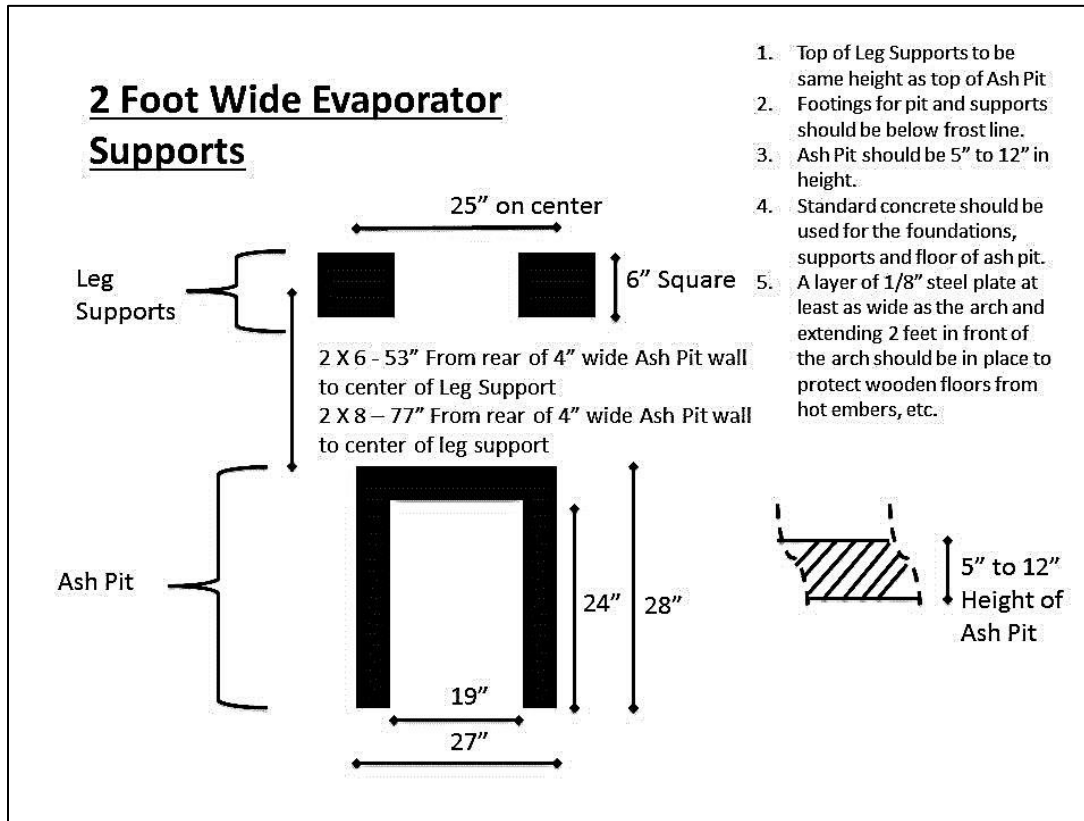
SUGAR HOUSE SETUP:

Prior to setup of the sugar house, it is suggested future needs be considered. The requirements for the setup of the standard arch may not be adequate if in the future additional or larger equipment will be needed. If assistance is needed in determining possible future requirements please contact Leader Evaporator Sales or your local dealer. The following are *minimum* clearances recommended for around the arch. When determining the clearances, keep in mind any additional items/equipment (ex. packaging supplies, canner, table(s), chairs) and where they will be located in the sugar house:

1. Front of the arch: six (6) feet
 - a. Allows room for firing and cleaning out of ashes
2. Back of the arch: three (3) feet
 - a. Allows for cleaning and removal of the stack
3. Sides of the arch: four (4) feet
 - a. Allows for draw off and movement

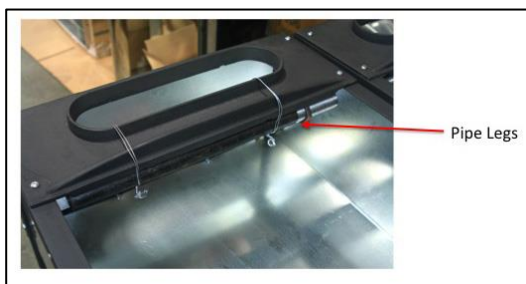
FOUNDATION FOR THE ARCH

The following is one suggested method of preparing a foundation for the arch. The example shown is for a 2 foot wide arch.



SETTING THE ARCH ON THE FOUNDATION:

1. Place the arch on the foundation.
 - a. The firebox of the arch should be centered on the foundation of the Ash Pit.
 - b. The front of the arch should be on the open side of the Ash Pit.

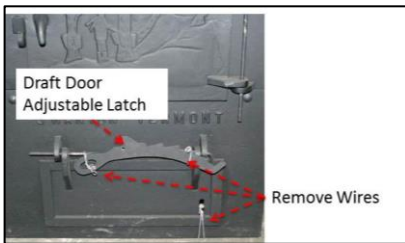


2. The pipe legs are wire tied to the inside rear of the arch for transport. Remove the pipe legs from the arch.
3. Move the pipe leg nuts to a position approximately half way on the threads.
4. Place a pipe leg into each socket. The sockets are located at the rear of the arch. The threaded end of the pipe leg should be inserted into the sockets.
 - a. Seat the pipe legs in the Leg Support.

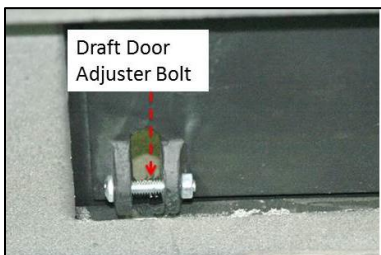


5. Level the arch on the foundation.
 - a. Place a 4-foot level on the rail of the arch front to back. (The rail is the part where the pans are rested).
 - b. Adjust the level of the arch by raising or lowering the pipe leg nuts. The use of two pipe wrenches is suggested. Metal shims may be needed on the front of the arch..
 - c. Place the level on the rail of the arch side-to-side.
 - d. Adjust the level of the arch by raising or lowering the pipe leg nuts.

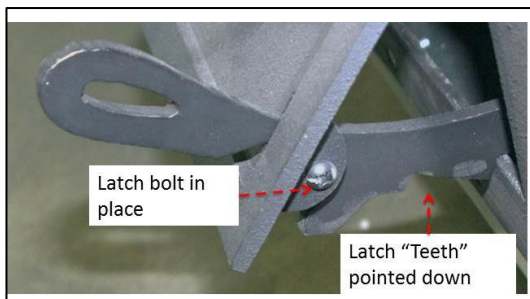
INSTALL THE FRONT DRAFT DOOR ADJUSTMENT LATCH



1. Install the draft door adjustable latch
 - a. The latch is wire tied to the front of the draft door. Remove the wires to free the latch. Remove the wire securing the draft door.



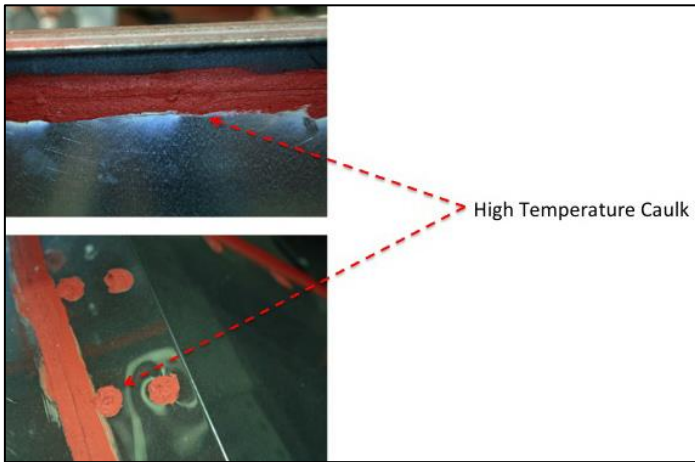
- b. Remove the draft door adjuster bolt. The draft door adjuster bolt is located on the rear of the draft door across the latch slot.



- c. Slide the latch into the slot until the mounting hole in the latch is in line with the bolt holes in draft door. Ensure the "teeth" of the latch are pointed down. Insert the bolt through the bolt holes and the latch and tighten the nut.

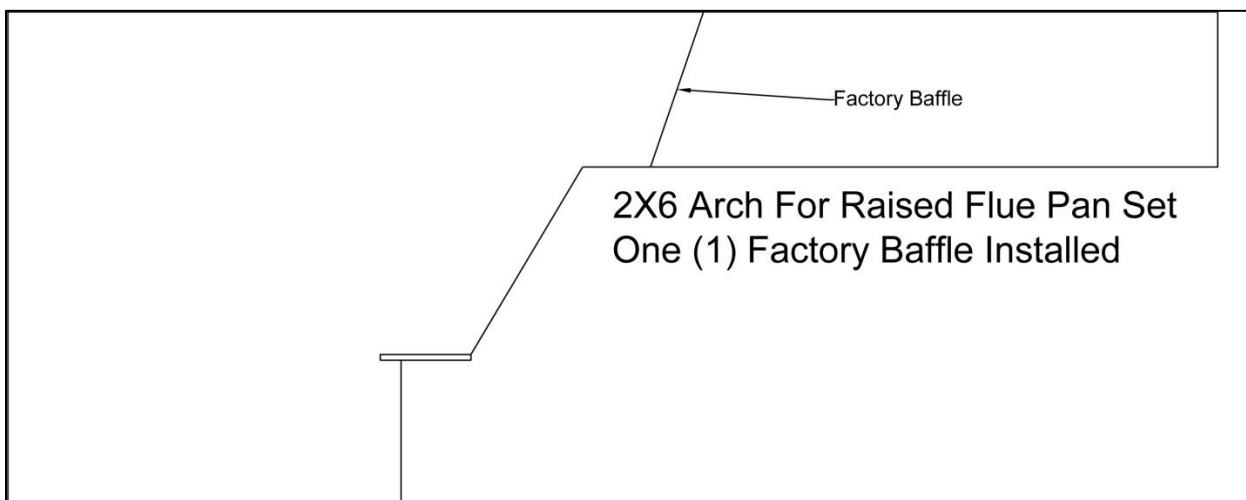
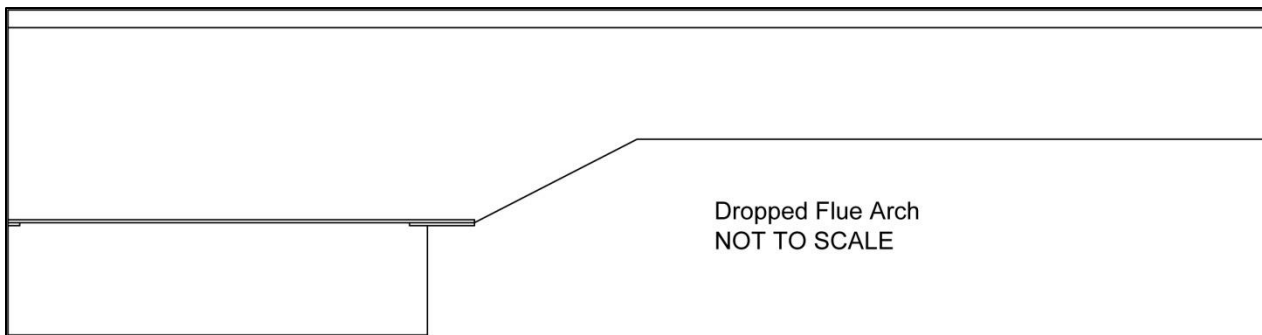
INSULATING THE ARCH:

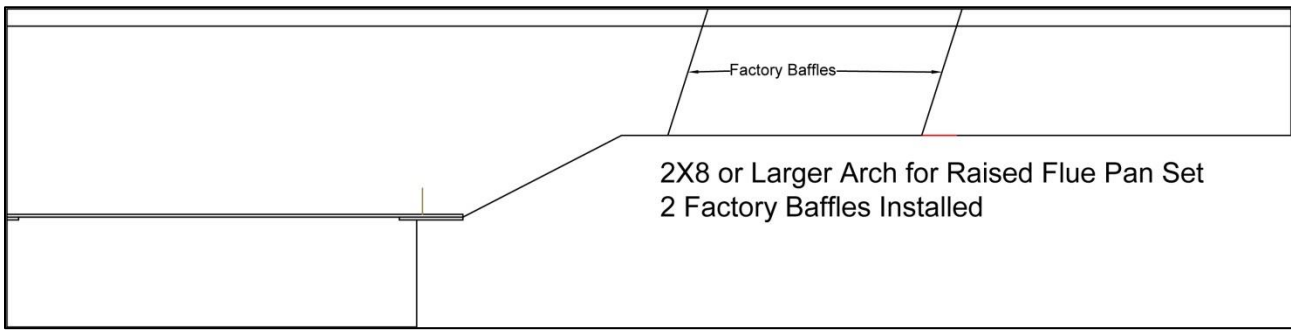
General Notes



1. Prior to insulating the arch it is recommended high temperature caulking (ex. JACO Firestop Plus LEADER Order #65196) be used to seal all joints, rivets and bolts. This is to prevent sparks and smoke from exiting the arch.

2. Each of the presented drawings is accompanied by a table of approximate dimensions for cutting and fitting pieces. The ID for each piece to be cut can be cross referenced between the drawing and the table.
3. Layout of the insulation of the arch will be dependent on the type of evaporator pan set to be used. Arches are built for dropped flue and raised flue pan sets. The difference will be in the factory and user installation of baffles for the raised flue pan sets. Dropped flue pan sets do not use baffles. Raised flue pan sets have factory baffles installed. With the exception of a 2X6 (or smaller), arches for raised flue pans have 2 factory installed baffles. The diagrams below illustrate the arches:





4. Obtain the right number of 3000° fire bricks, refractory cement containers and insulation board:
 NOTE: The quantities on the table are approximate usages. Actual quantities will vary depending on the actual techniques and layouts employed.

Dropped Flue

Arch	Half Bricks	Full Bricks	Insulation Board	Refractory Cement (30 lbs. buckets)
2 X 6	97	14	11	2
2 X 8	115	23	13	2

Raised Flue

Arch	Half Bricks	Full Bricks	Insulation Board	Refractory Cement (30 lbs. buckets)	Vermiculite (bags)
2 X 6	109	16	13	2	1
2 X 8	112	16	12	2	1

5. Begin by fitting the insulation board and bricks in the arch “dry” (no cement). This will allow you to cut and fit all the insulation board and bricks into the arch so the cementing can be done in one continuous application.



NOTE: The use of a wet saw or masonry blade in a circular saw is recommended to cut the bricks where required.

NOTE: The use of a mini hacksaw is suggested for cutting the insulation board.

The following sections are the outline for the preparing and sequencing of the fitting of the insulation board and brick into the arch. Adjustments to shown sizes will be required as the installation proceeds. The rule of “*Measure twice and cut once*” will reduce waste in fitting the pieces. As you go through each of the following pages, cut, “dry fit” then cement the parts into place.

When fitting pieces in the arch there will be bolts and rivets where the pieces are being fit. In order to properly fit for the bolts and rivets either:

- Measure the locations on the sheet and cut out the necessary area for clearance of the rivets/bolts
- OR
- Place the sheet in position and press it against the rivets/bolts in order to mark the rear of the sheet then cut out the marked area to allow for clearance of the rivets/bolts.

NOTE: Insulating sheets at the top of the arch may leave a ¼" gap between the sheet top and the bottom of the arch rail. If this occurs, after the cement has dried, fill the gap with rail gasket material.

Cementing of Insulation Board and Bricks

1. Skim coat a layer of refractory cement to the inside arch wall covering the approximate area of the piece of arch board to be mounted. Place the board against the cement.
2. The cement does not need to dry prior to installing the bricks.
3. To install brick, skim coat the rear of the brick and apply a heavier coat to the sides of the brick. Place it into position. As more bricks are added the cement will be forced from the joints. Scrape and smooth off the excess cement. Make sure all openings between the bricks are filled with cement..
4. Allow the cement to dry for 36 hours at room temperature (65°F or higher).

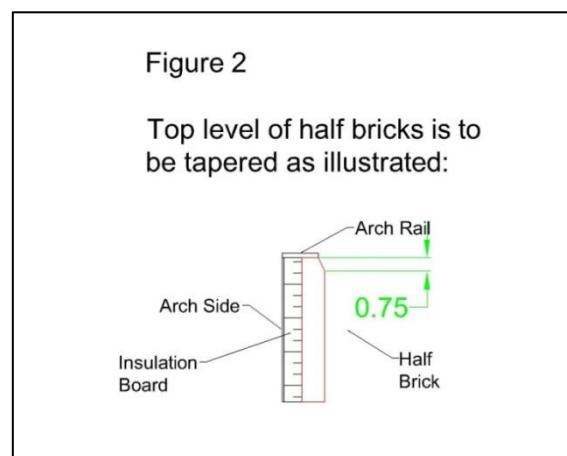
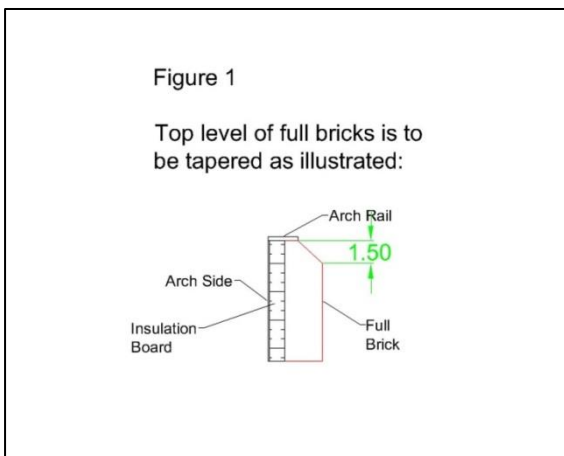
NOTE: THE LAYOUTS AND DIMENSIONS PRESENTED IN THE FOLLOWING PAGES ARE FOR USE AS GUIDELINES. ALWAYS MEASURE AND “DRY FIT” BOARD AND BRICKS PRIOR TO FINAL PLACEMENT.

Bricks

In the drawings standard bricks are labelled as follows:

LABEL	BRICK TYPE
FB	Full Brick (9" X 4.5" X 2.5")
HFB	Half a Full Brick (4.5" X 4.5" X 2.5")
HB	Half Thickness Brick(9" X 4.5" X 1.25")
HHB	Half a Half Thickness Brick (4.5" X 4.5" X 1.25")

The top row of bricks should be cut so they do not prevent the heat from reaching the pans. The bricks will need to be tapered on the top. See the illustration below.



Standard Wood Fired Arch Design

Leader standard wood fired arches have two different overall designs. They are divided by widths; 24" and greater than 24". The generalized design for a 24" is shown in the following pictures.



Two Foot Wide Front



Two Foot Wide Rear

Considerations For A MAX/COMBO Flue Pan

In order to properly direct the heat into the flues of a MAX/COMBO flue pan, additional bricking must be added to form baffles at certain locations.

Baffles should be located as indicated in the following table. The measurements are from the front of the stack collar to the front of the brick baffle. Each baffle requires 3 full bricks.

Flue Pan Length (FT)	Qty of Baffles	Location of Baffles (inches in front of stack collar)	
3	1	20	
4	2	20	30
5	2	20	42
6	2	20	54

1. Begin by bricking the arch as described for a dropped flue arch.
2. At the locations specified in the table run a row of full thickness bricks across the arch.
 - a. The front of the row of bricks will be at the location specified in the table.
 - b. The bricks should be laid face down on the bricks on the floor of the arch.

Insulating a Drop Flue Arch

Insulating a 2X6 Arch

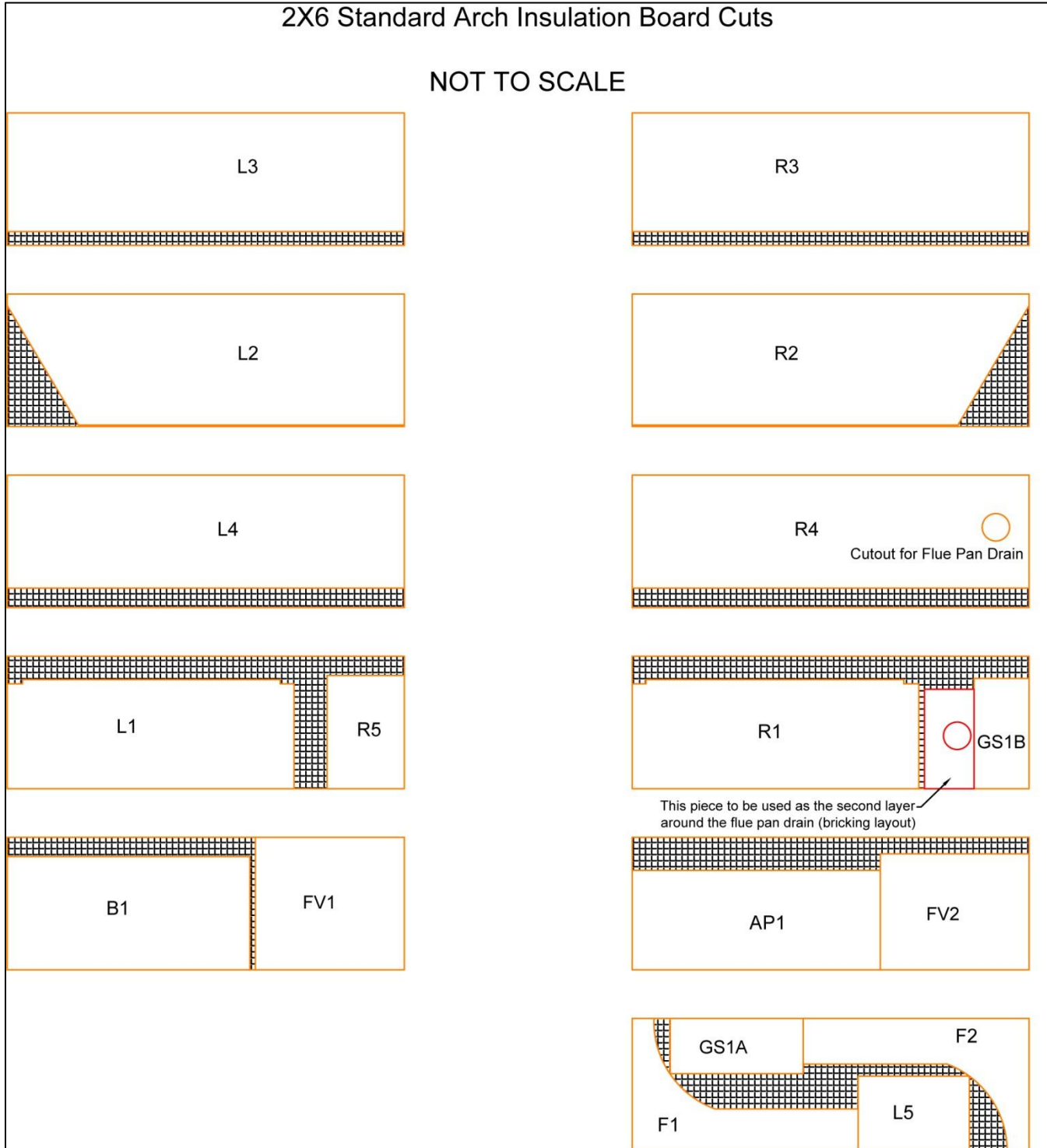
The order of insulation is as follows:

1. INSULATION BOARD
 - a. Front
 - b. Left Side
 - c. Right Side
 - d. Back Board
 - e. Rear Grate Shelf to Top of Incline
 - f. Ash Pit Rear Board
2. BRICKING
 - a. Floor behind Top of Incline
 - b. Left Side
 - c. Right Side
 - d. Back
 - e. Ash Pit Rear
 - f. Install the Grates
 - g. Front
 - h. Grate Shelf to Top of Incline

Insulation Board

Cut Out Diagram

The following are suggested cutout diagrams for use with the insulation board. The sizes for each piece can be found on the section diagrams of the arch.



Front

2X6 Standard ARCH
Front
Insulation Board Layout
NOT TO SCALE

FRONT INSULATION BOARD			
ID	Length	Width	NOTES
F1	20"	12"	Cut out door section as noted
F2	20"	12"	Cut out door section as noted

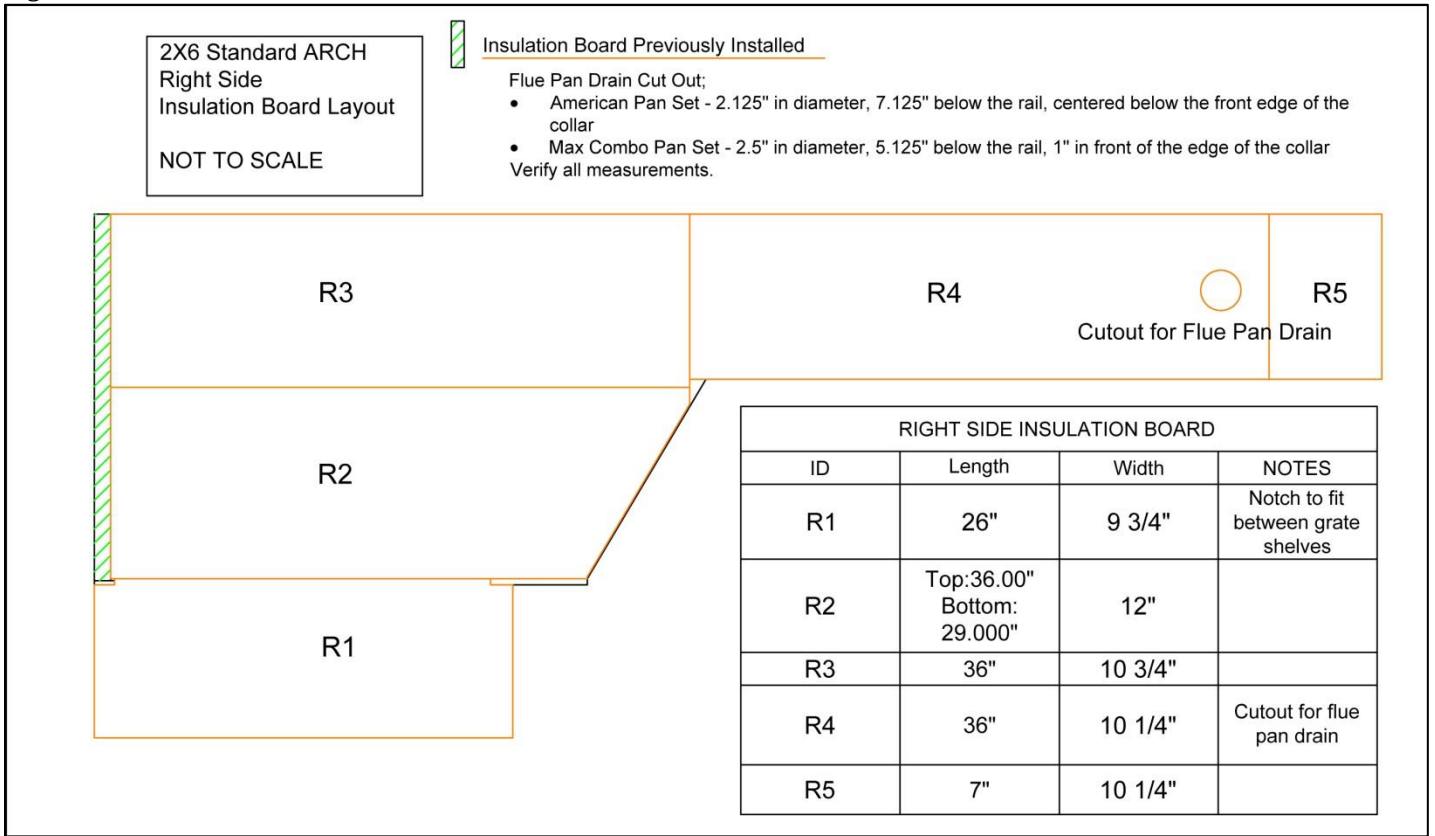
Left Side

2X6 Standard ARCH
Left Side
Insulation Board Layout
NOT TO SCALE

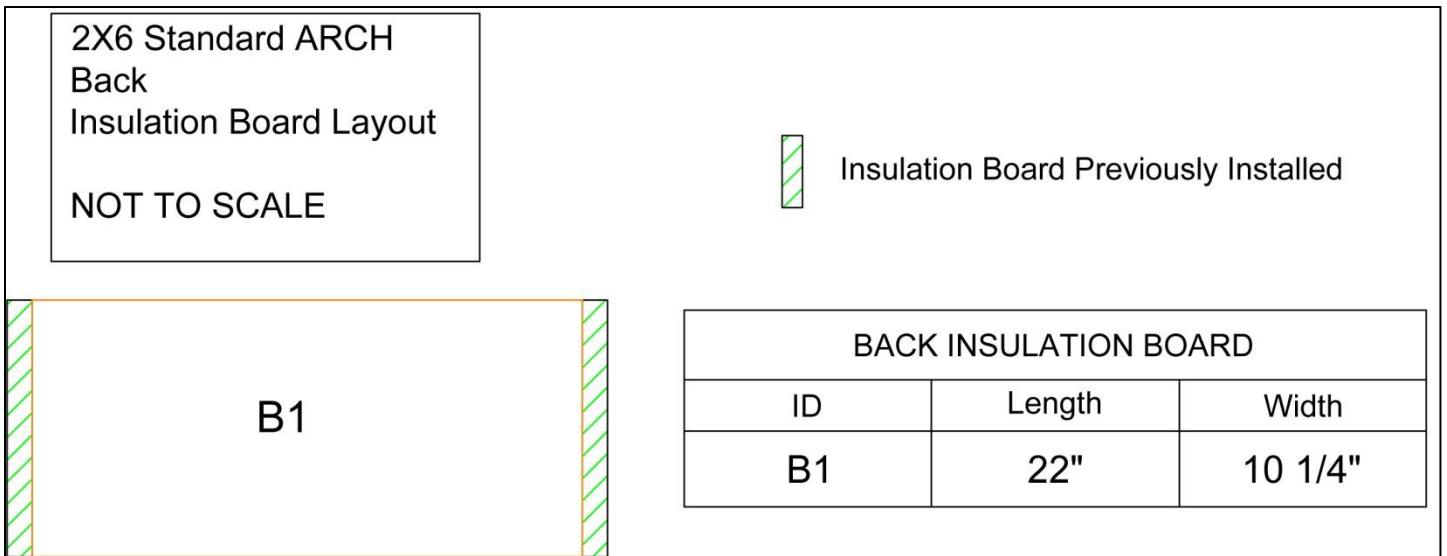
Insulation Board Previously Installed

LEFT SIDE INSULATION BOARD			
ID	Length	Width	NOTES
L1	26"	9 3/4"	Notch to fit between grate shelves
L2	Top:36.00" Bottom: 29.000"	12"	
L3	36"	10 3/4"	
L4	36"	10 1/4"	
L5	7"	10 1/4"	

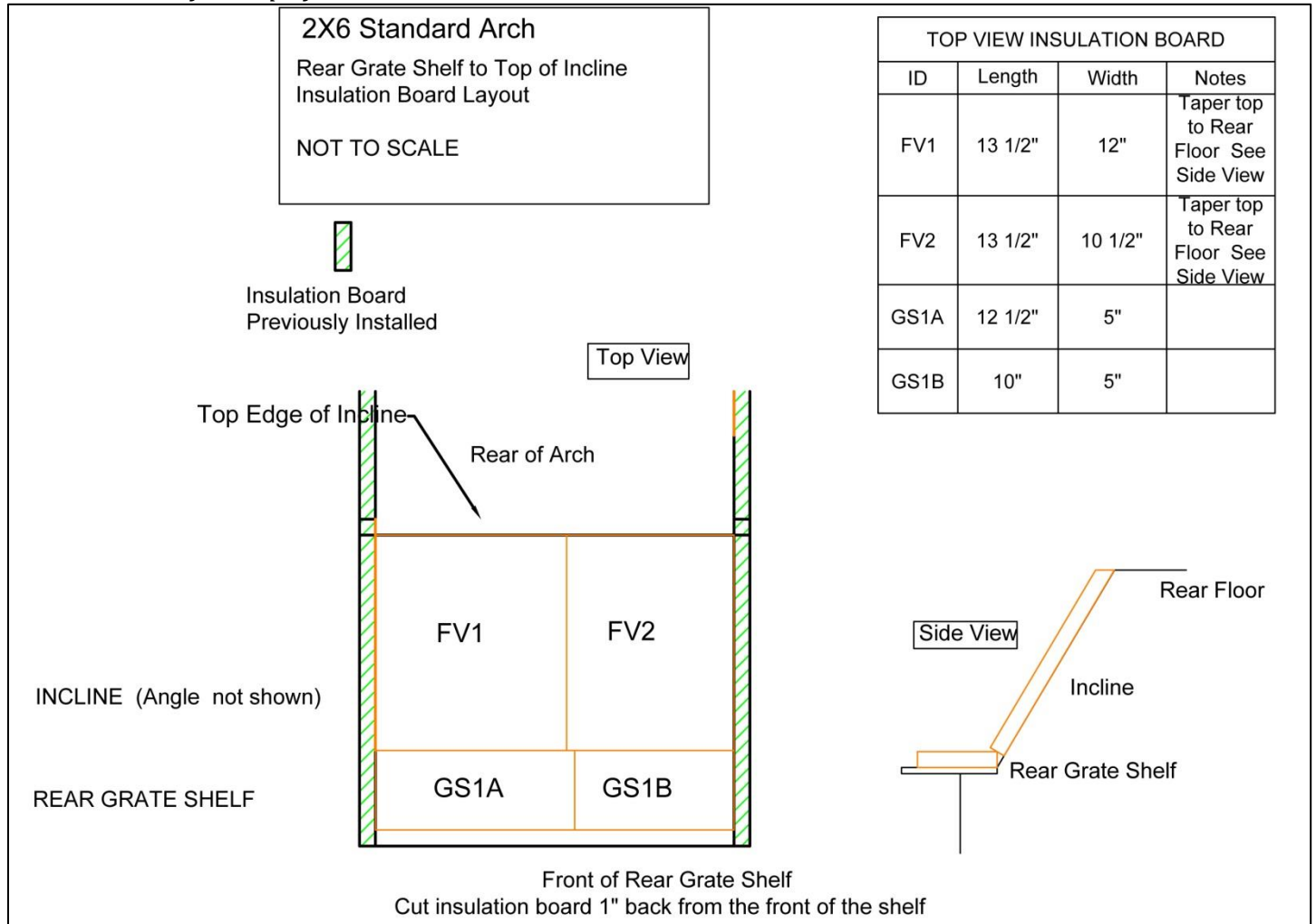
Right Side



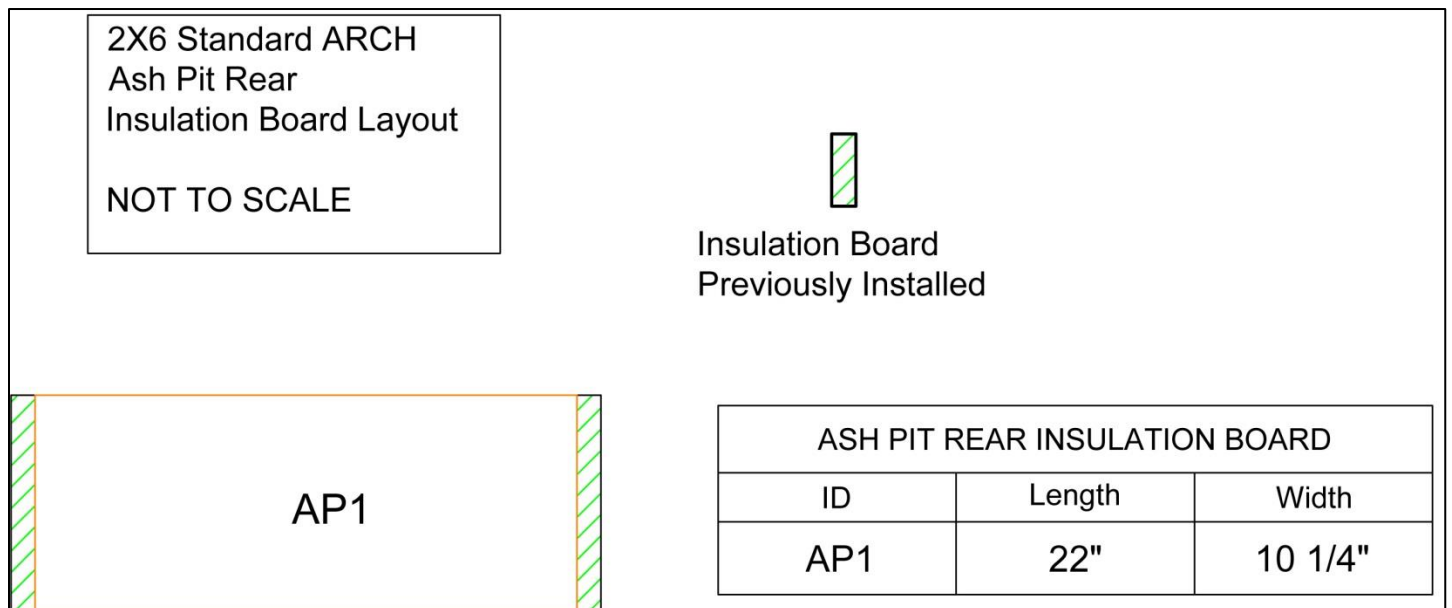
Back



Rear Grate Shelf to Top of Incline

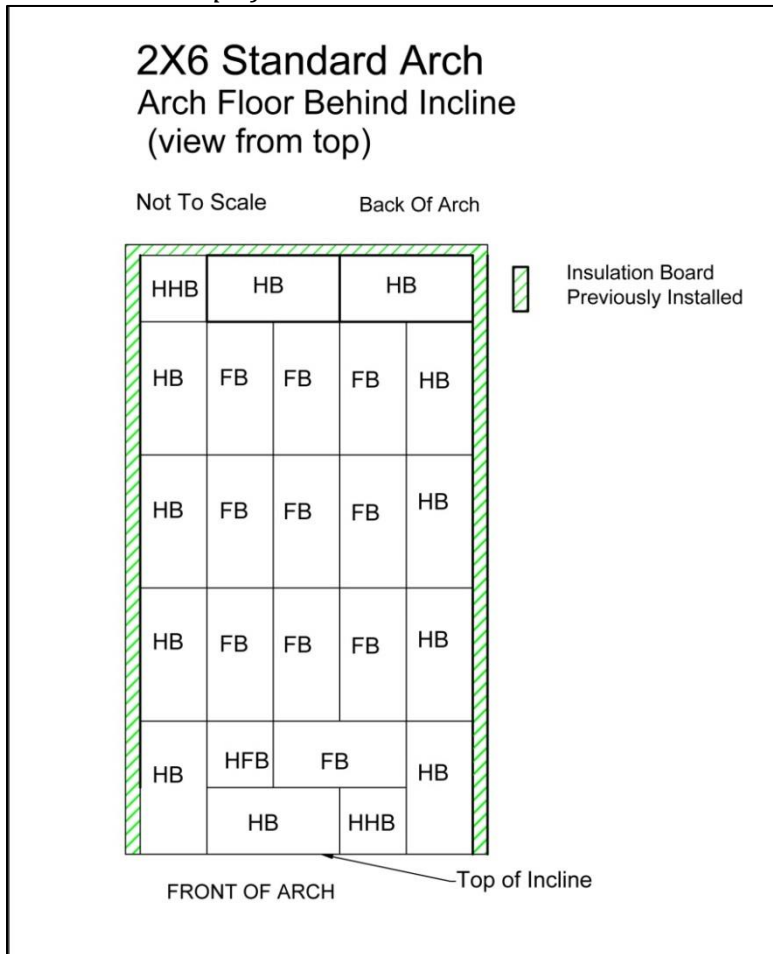


Ash Pit Rear

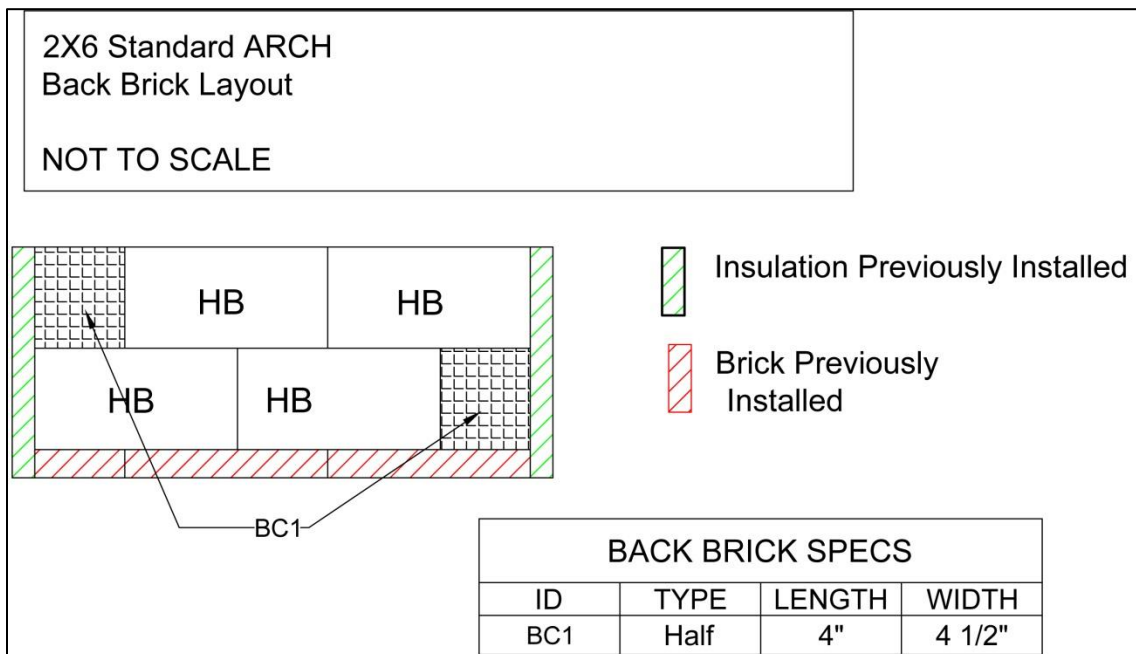


Bricking

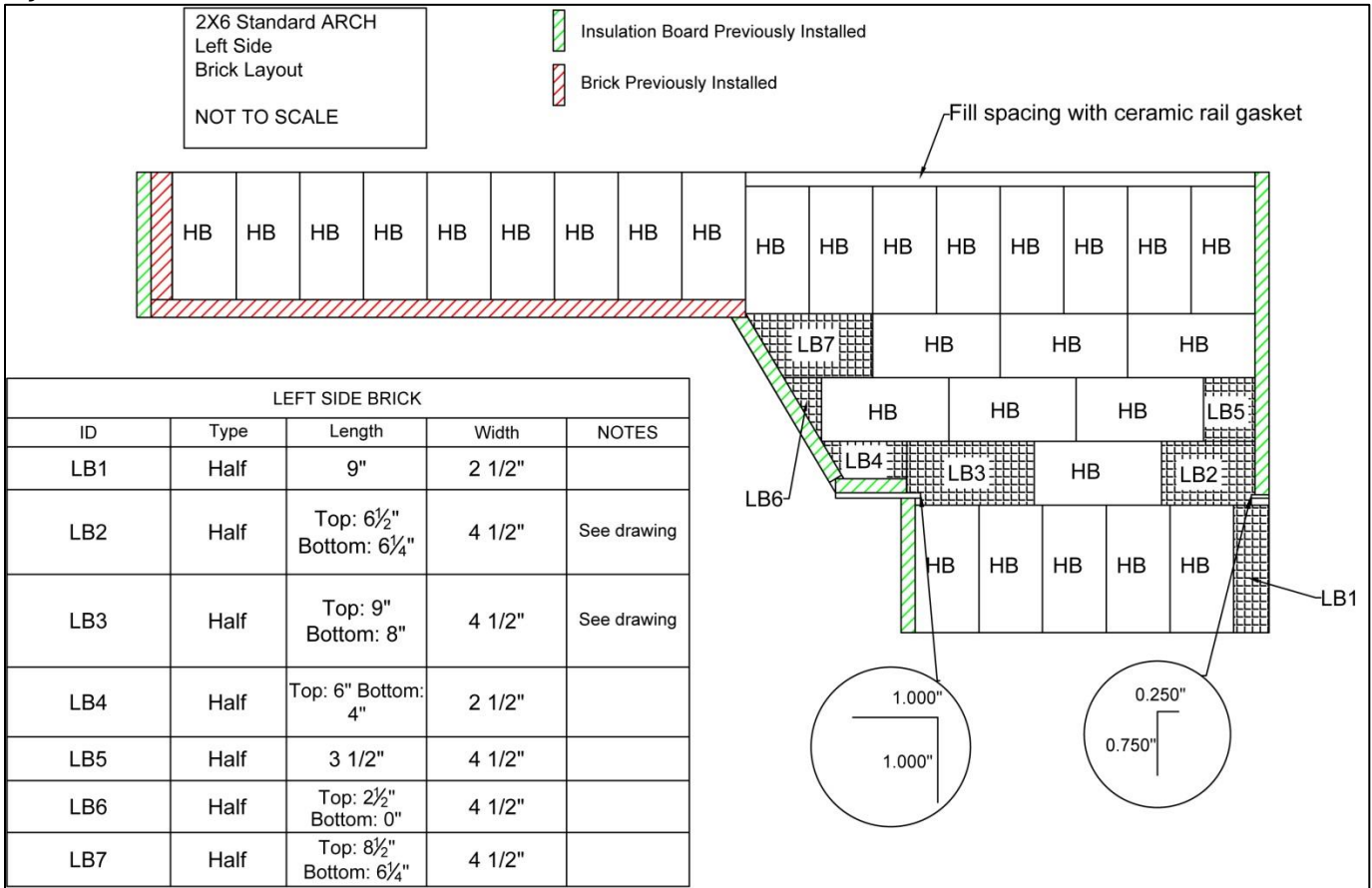
Floor behind Top of Incline



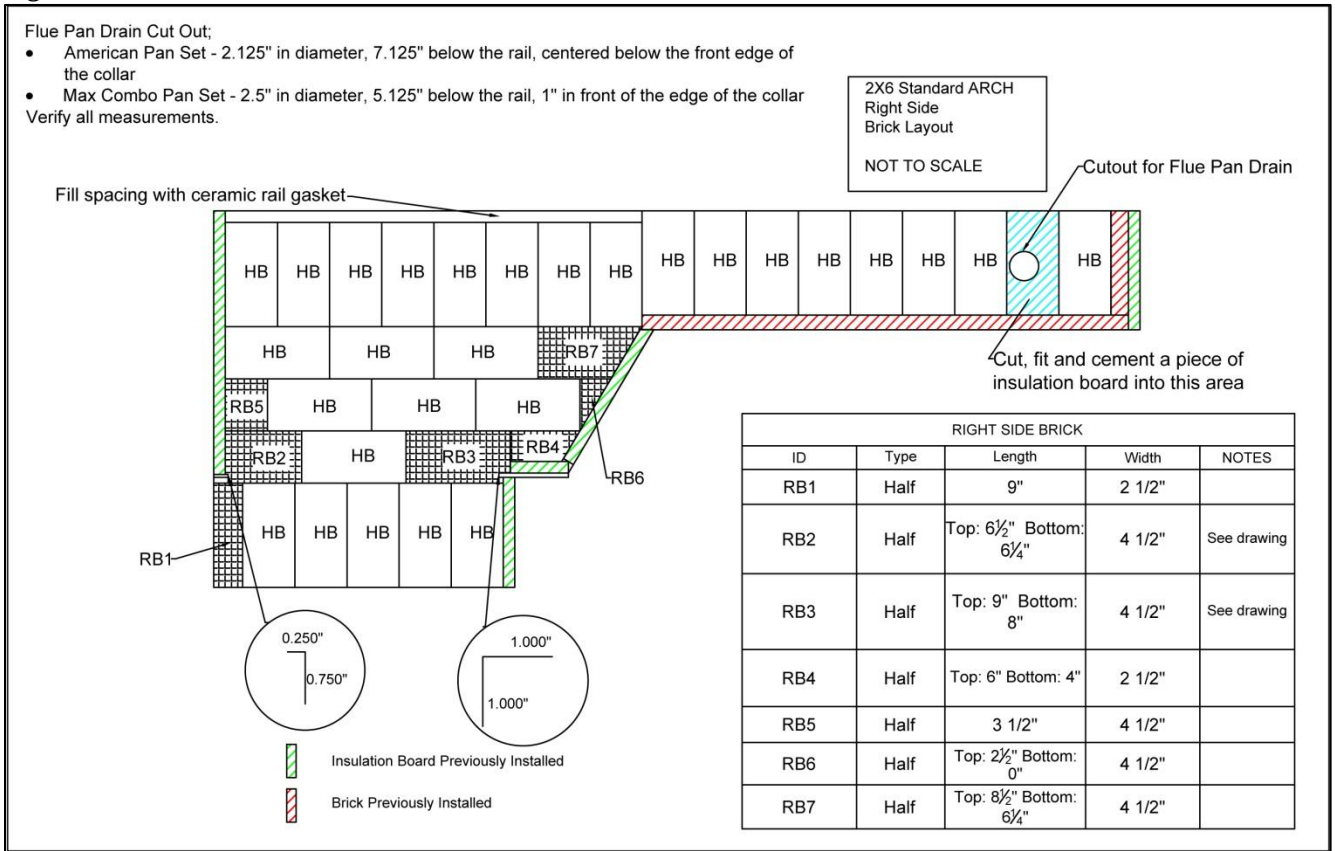
Back



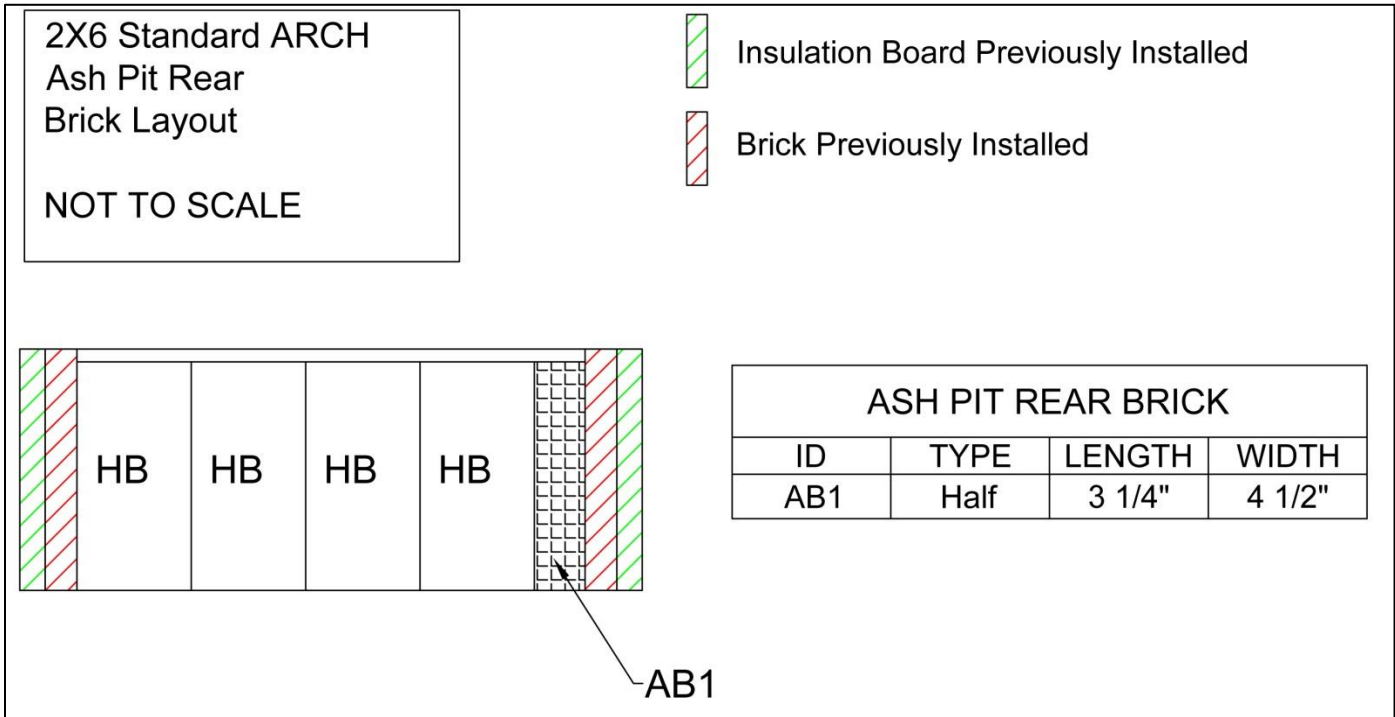
Left Side



Right Side



Ash Pit Rear



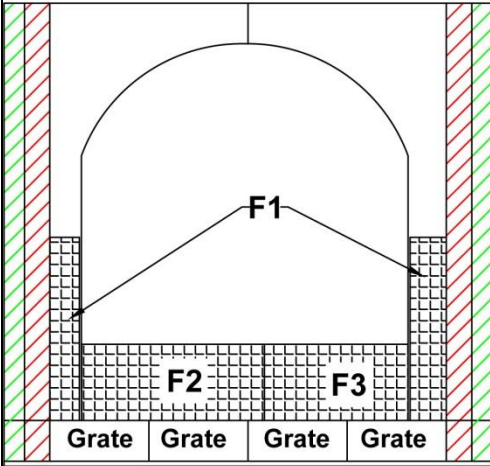
Front

2X6 Standard ARCH
Front
Brick Layout

NOT TO SCALE

Insulation Board Previously Installed

Brick Previously Installed



FRONT INSULATION BOARD			
ID	Type	Length	Width
F1	Full	9"	1 1/2"
F2	Full	9"	3 3/4"
F3	Full	7"	3 3/4"

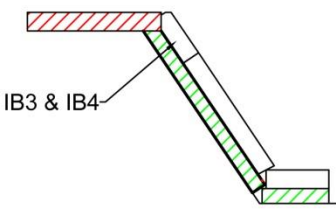
DO NOT CEMENT THE BRICKS
 THEY WILL NEED TO BE TAKEN
 OUT IN ORDER TO REMOVE THE
 GRATES.

Grate Shelf to Top of Incline

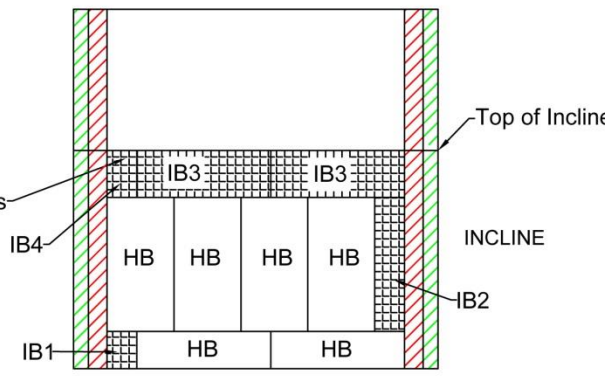
2X6 Standard ARCH
 Grate Shelf to Top of Front Factory Baffle
 Brick Layout

NOT TO SCALE

Side View



Pitch of INCLINE
 flattened for illustration



GRATE SHELF TO TOP OF INCLINE BRICK SPECS			
ID	TYPE	LENGTH	WIDTH
IB1	Half	2"	4 1/2"
IB2	Half	9"	2"
IB3	Half	9"	Field Fit With Taper
IB4	Half	2"	Field Fit With Taper

Insulation Previously Installed

Brick Previously Installed

Standard Wood Fired Arch - Two Foot In Width 2018

Page:

20

Insulating a 2X8 Arch

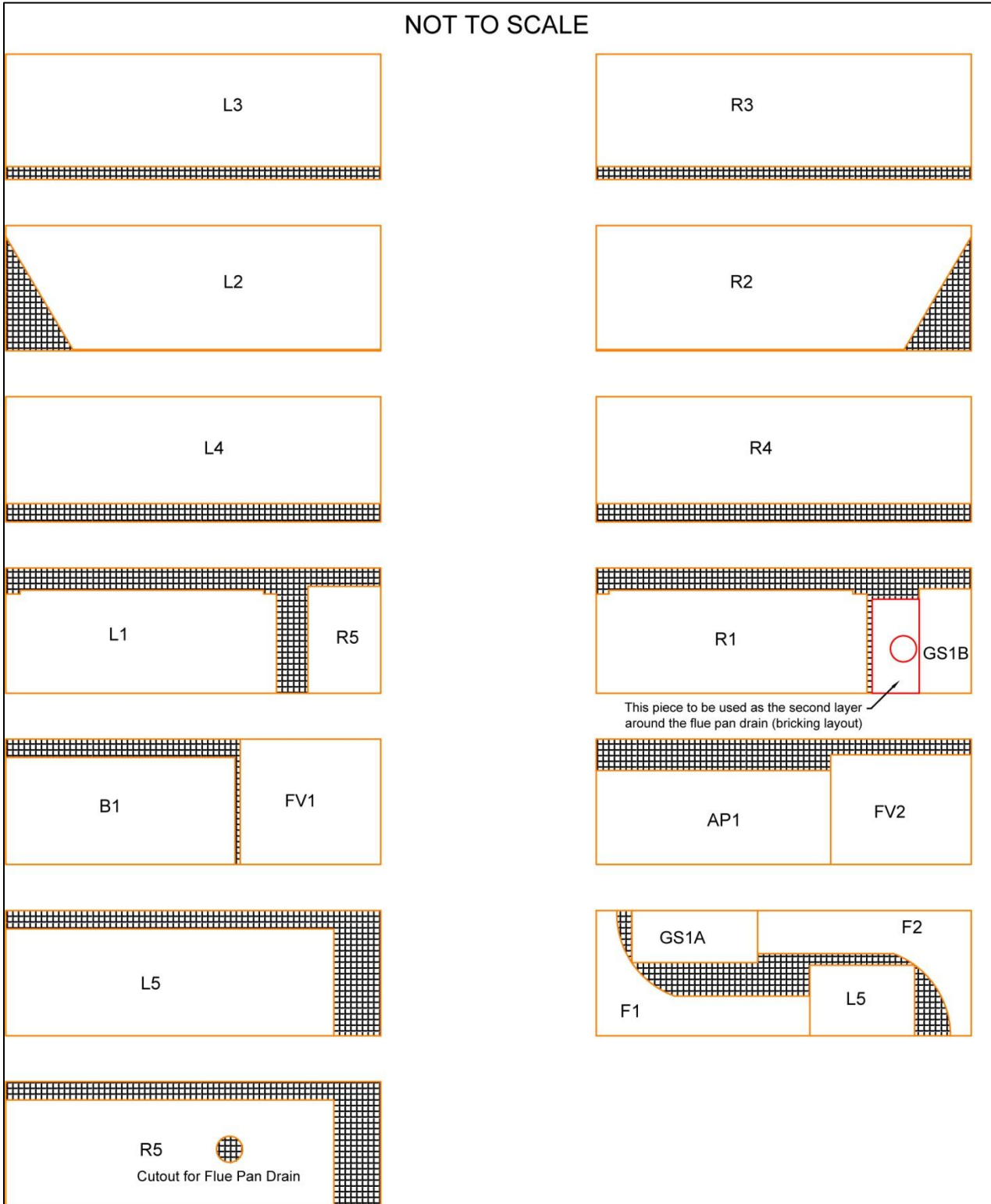
The order of insulation is as follows:

1. INSULATION BOARD
 - a. Front
 - b. Left Side
 - c. Right Side
 - d. Back
 - e. Rear Grate Shelf to Top of Incline
 - f. Ash Pit Rear
2. BRICKING
 - a. Floor behind Top of Incline
 - b. Left Side
 - c. Right Side
 - d. Back
 - e. Ash Pit Rear
 - f. Install the Grates
 - g. Front
 - h. Grate Shelf to Top of Incline

Insulation Board

Cut Out Diagram

The following are suggested cutout diagrams for use with the insulation board. The sizes for each piece can be found on the section diagrams of the arch.



Front

2X8 Standard ARCH
Front
Insulation Board Layout

NOT TO SCALE

Cut Sides at door 4" wide

Cut insulation board to fit above the lip over the door

FRONT INSULATION BOARD			
ID	Length	Width	NOTES
F1	20"	12"	Cut out door section as noted
F2	20"	12"	Cut out door section as noted

Grates shown for spacing purposes.
Grates will be installed in a later step.

Left Side

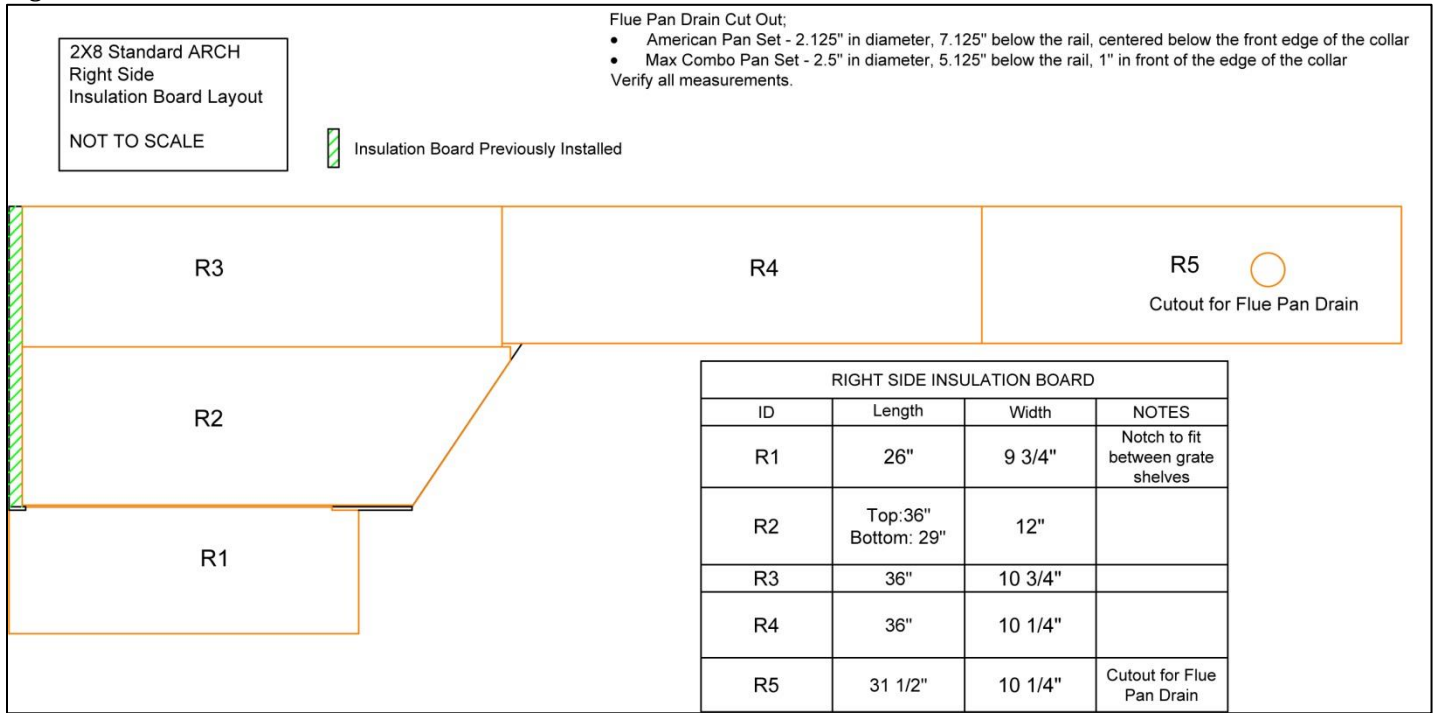
2X8 Standard ARCH
Left Side
Insulation Board Layout

NOT TO SCALE

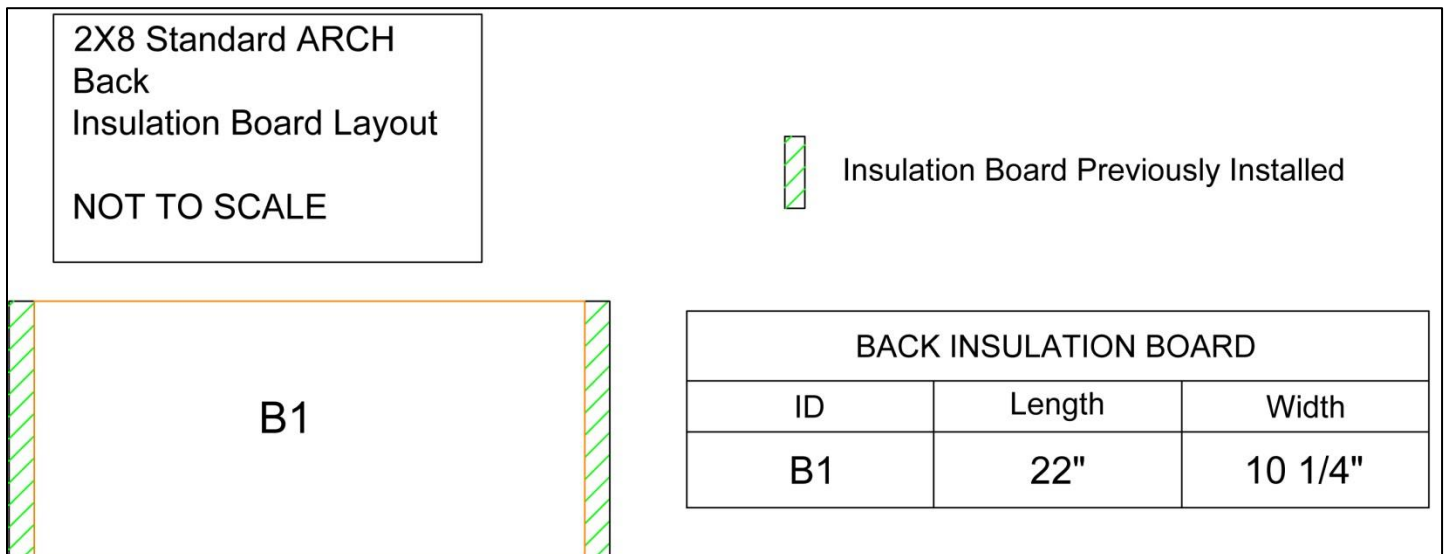
Insulation Board Previously Installed

LEFT SIDE INSULATION BOARD			
ID	Length	Width	NOTES
L1	26"	9 3/4"	Notch to fit between grate shelves
L2	Top: 36" Bottom: 29"	12"	
L3	36"	10 3/4"	
L4	36"	10 1/4"	
L5	31 1/2"	10 1/4"	

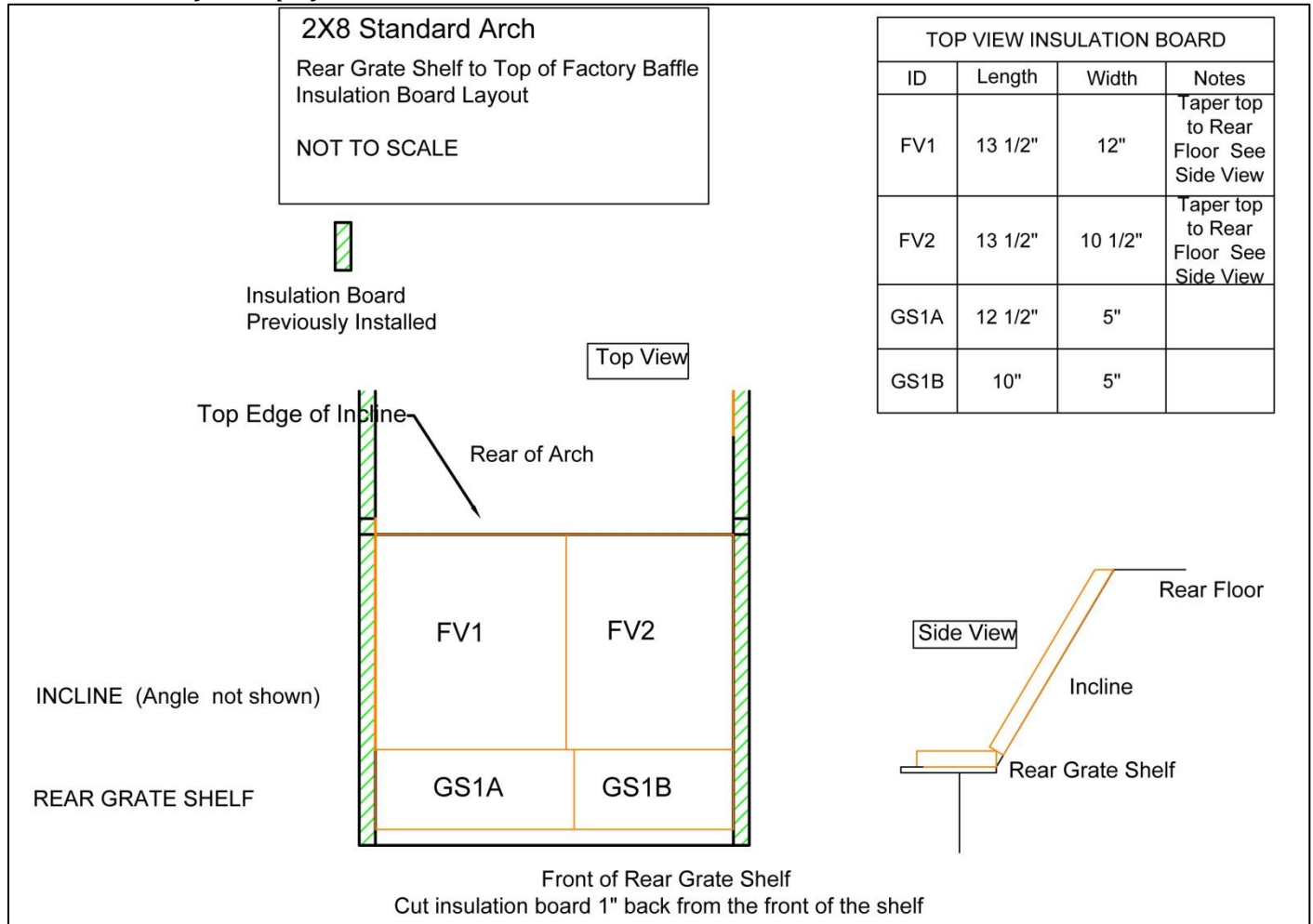
Right Side



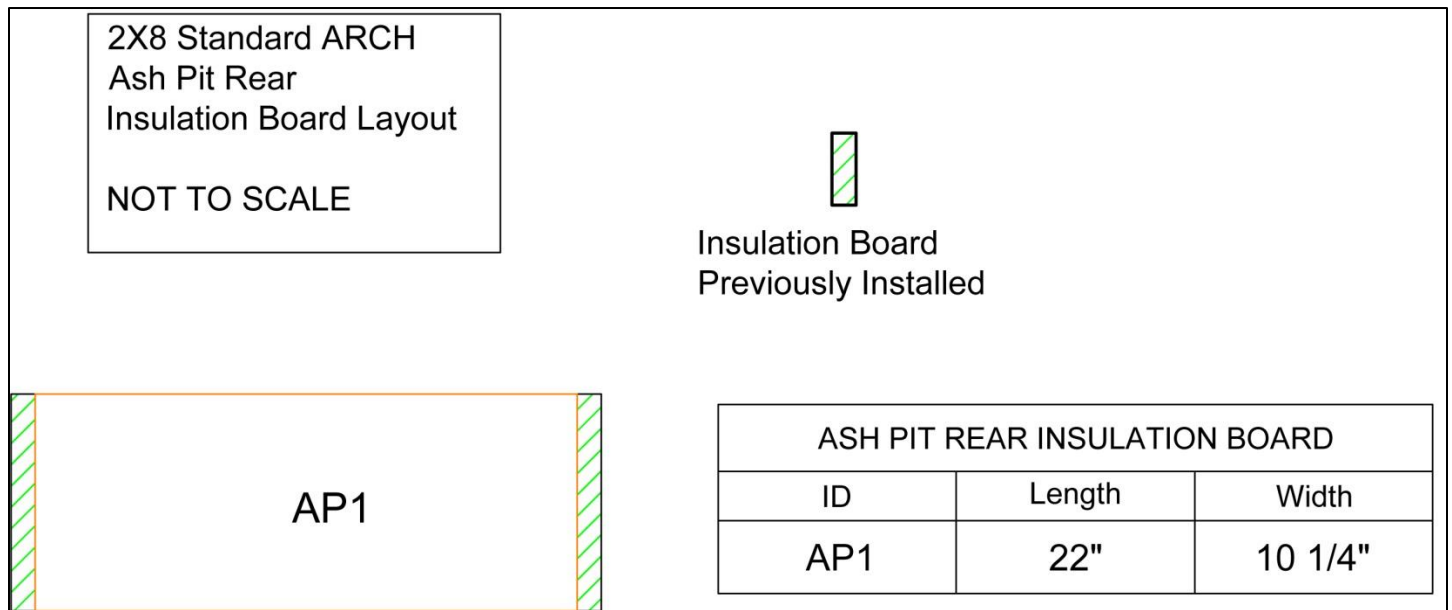
Back



Rear Grate Shelf to Top of Incline

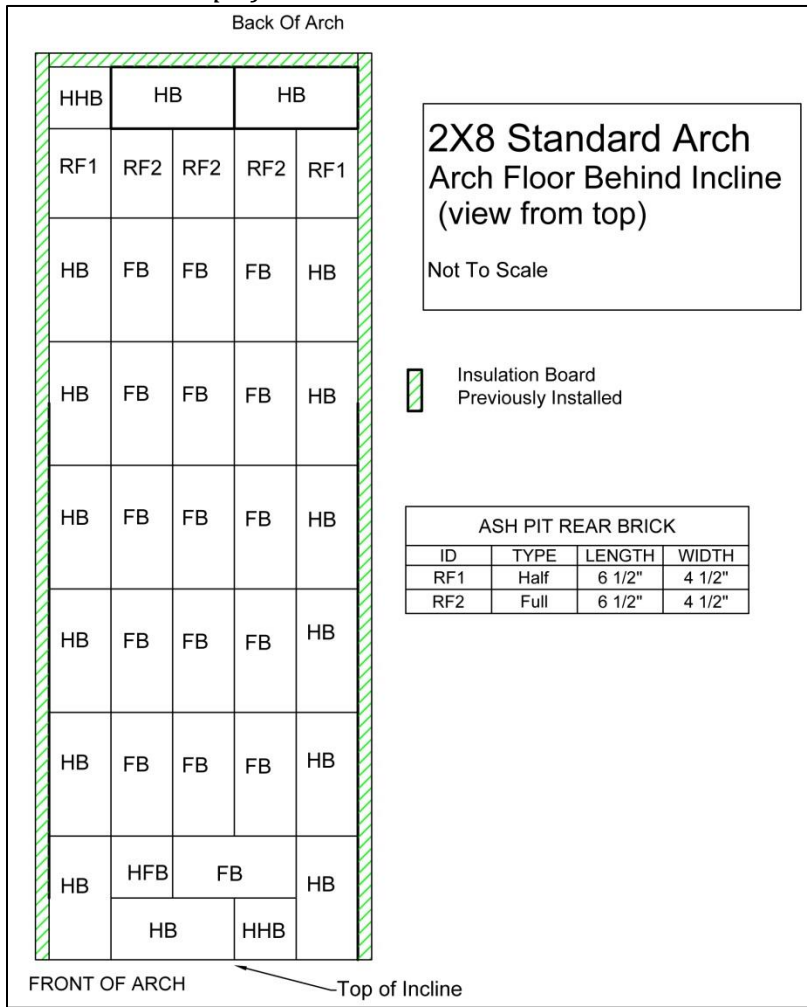


Ash Pit Rear

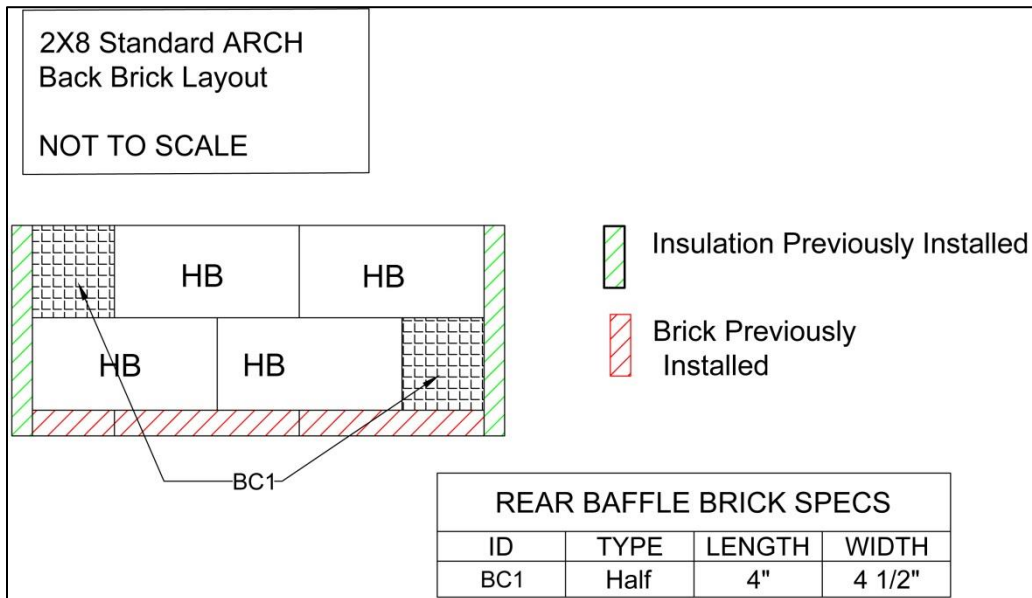


Bricking

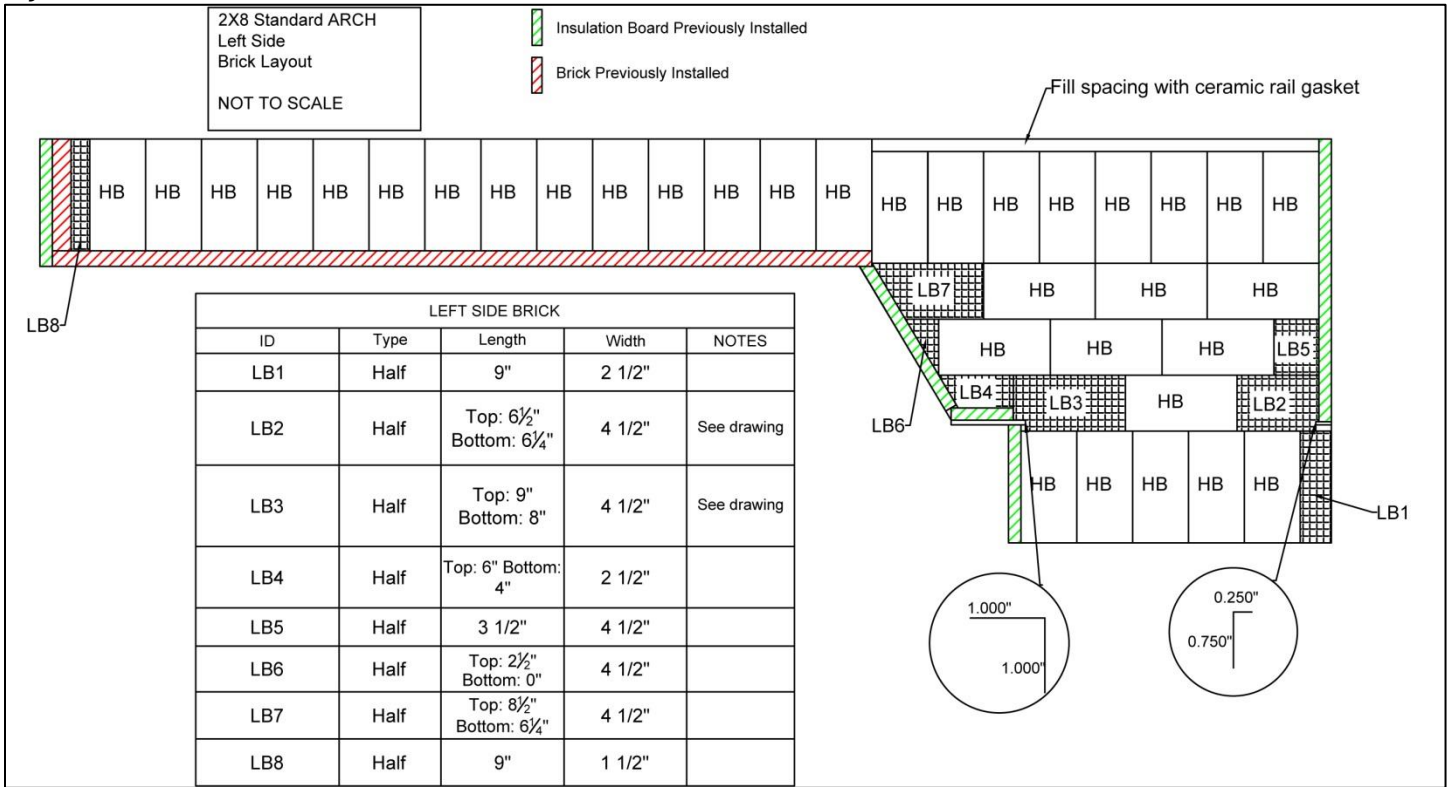
Floor behind Top of Incline



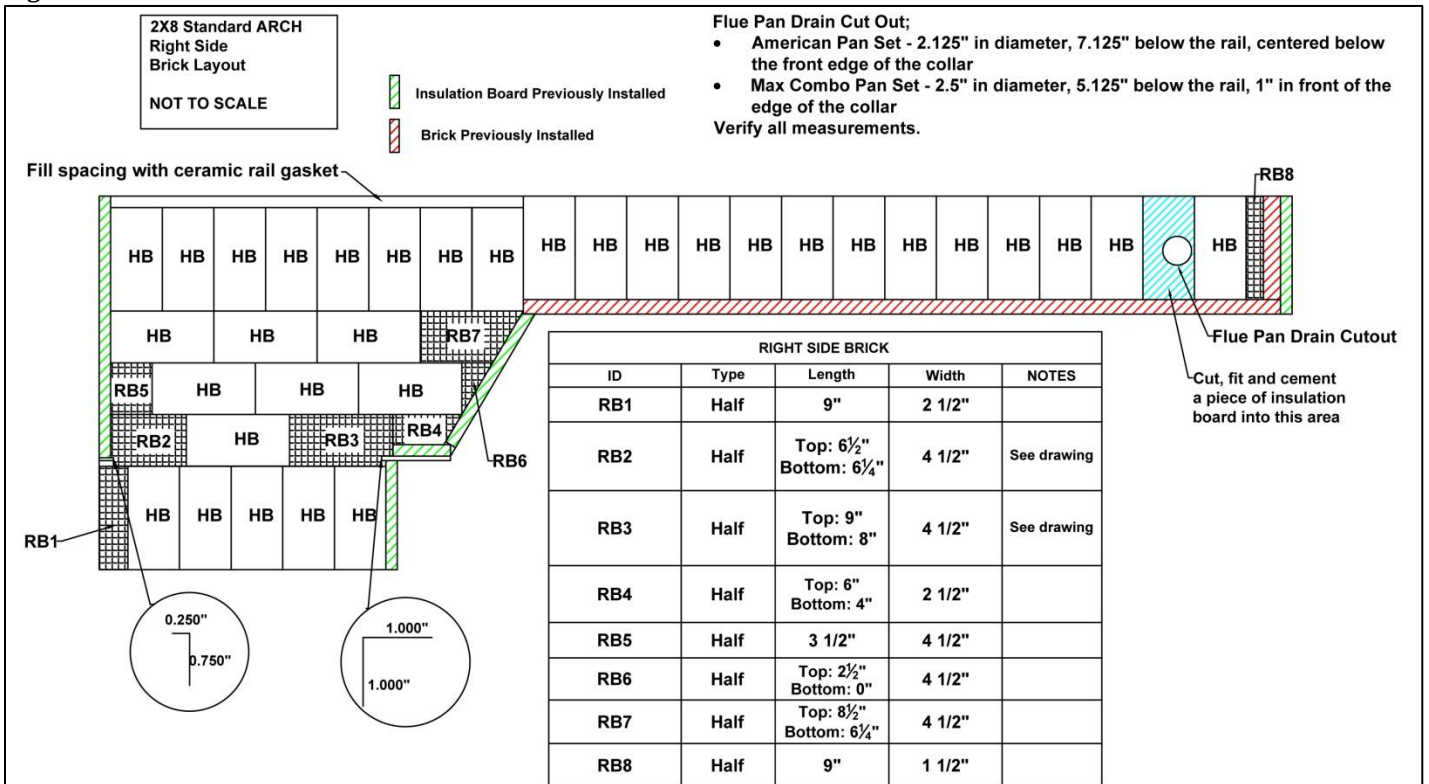
Back



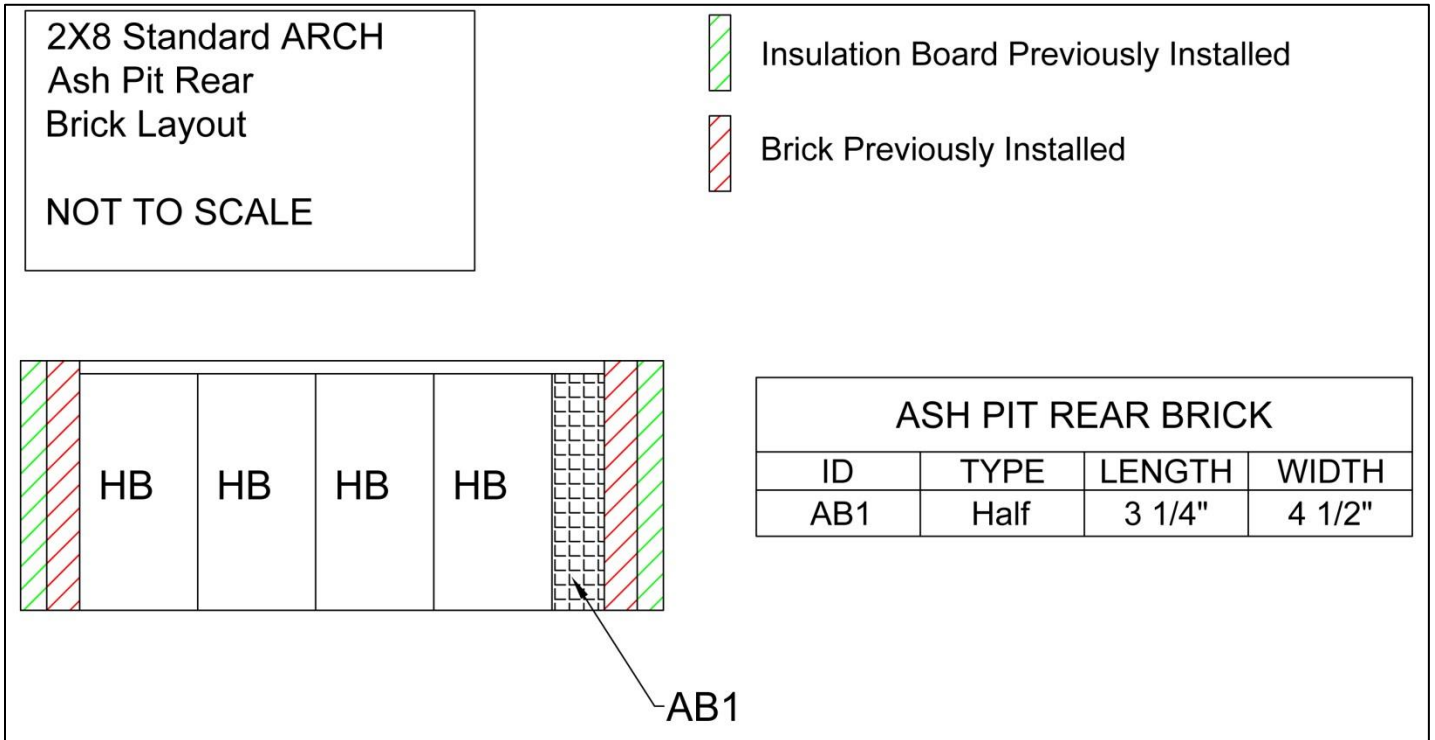
Left Side



Right Side



Ash Pit Rear



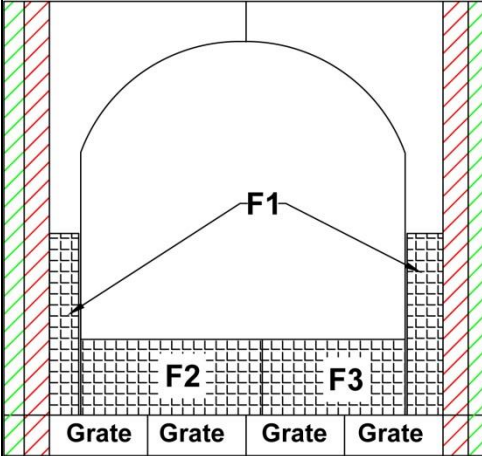
Front

2X8 Standard ARCH
Front
Brick Layout

NOT TO SCALE

Insulation Board Previously Installed

Brick Previously Installed



FRONT INSULATION BOARD			
ID	Type	Length	Width
F1	Full	9"	1 1/2"
F2	Full	9"	3 3/4"
F3	Full	7"	3 3/4"

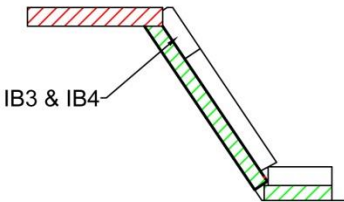
DO NOT CEMENT THE BRICKS
 THEY WILL NEED TO BE TAKEN
 OUT IN ORDER TO REMOVE THE
 GRATES.

Grate Shelf to Top of Incline

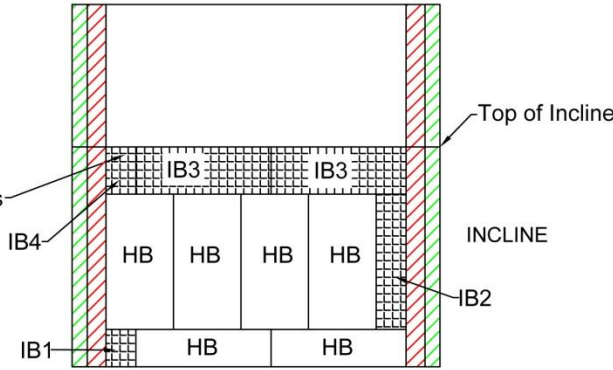
2X8 Standard ARCH
 Grate Shelf to Top of Incline
 Brick Layout

NOT TO SCALE

Side View



Pitch of INCLINE
 flattened for illustration



GRATE SHELF TO TOP OF INCLINE BRICK SPECS			
ID	TYPE	LENGTH	WIDTH
IB1	Half	2"	4 1/2"
IB2	Half	9"	2"
IB3	Half	9"	Field Fit With Taper
IB4	Half	2"	Field Fit With Taper

Insulation Previously Installed

Brick Previously Installed

Standard Wood Fired Arch - Two Foot In Width 2018

Page:

29

Insulating a Raised Flue Arch (Not Max Combo)

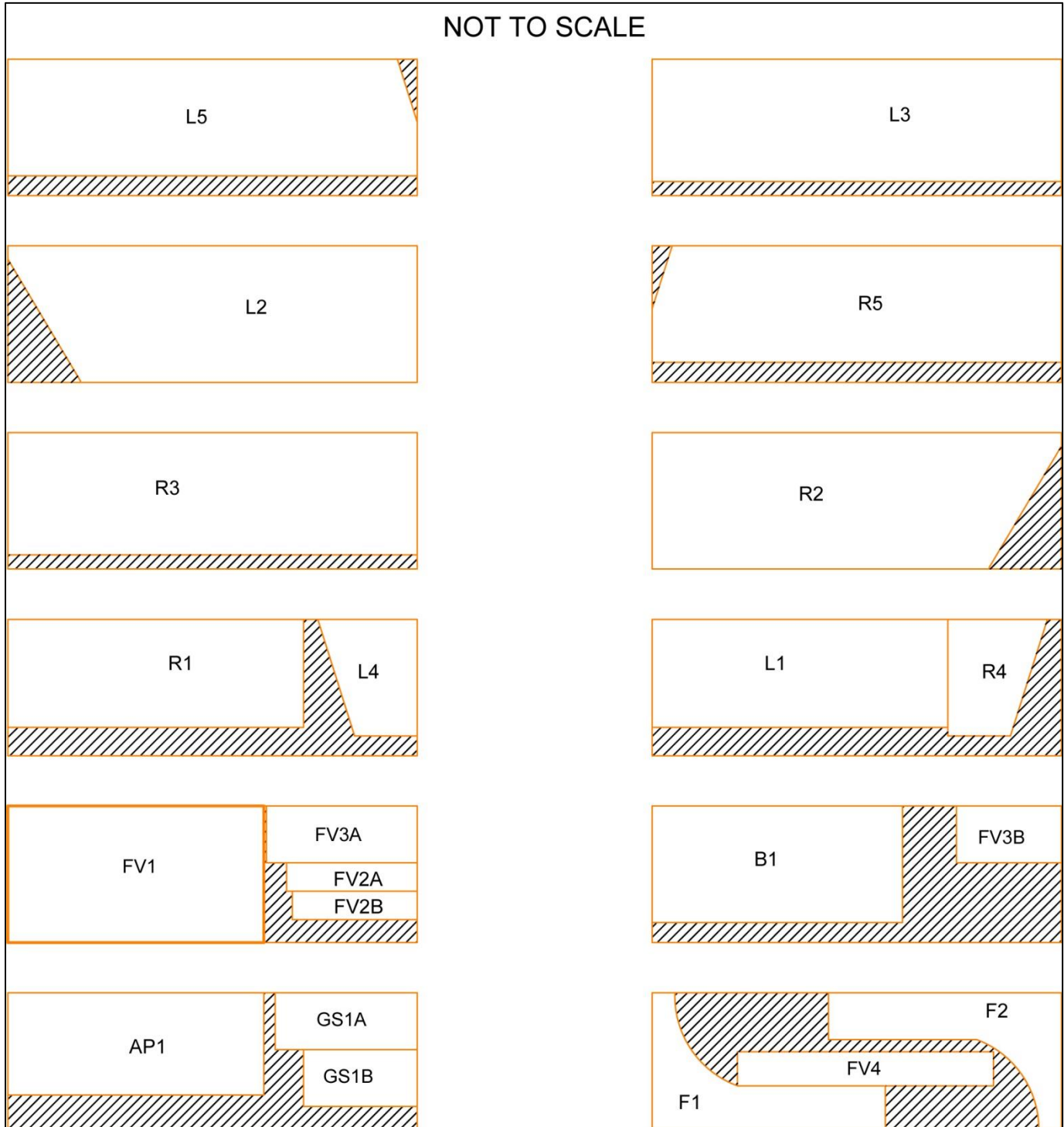
Insulating a 2X6 Arch

The order of insulation is as follows:

1. INSULATION BOARD
 - a. Front
 - b. Left Side
 - c. Right Side
 - d. Back
 - e. Ash Pit Rear
 - f. Rear Grate Shelf to Top of Factory Baffle
2. BRICKING
 - a. Floor behind Top of Incline
 - b. Left Side
 - c. Right Side
 - d. Back
 - e. Ash Pit Rear
 - f. Install the Grates
 - g. Front
 - h. Grate Shelf to Top of Incline
 - i. Rear Baffle
 - j. Baffle Area Completion

Cut Out Diagram

The following are suggested cutout diagrams for use with the insulation board. The sizes for each piece can be found on the section diagrams of the arch.



Front

2X6 Standard ARCH
Front
Insulation Board Layout
NOT TO SCALE

FRONT INSULATION BOARD			
ID	Length	Width	NOTES
F1	20"	12"	Cut out door section as noted
F2	20"	12"	Cut out door section as noted

Grates shown for spacing purposes.
Grates will be installed in a later step.

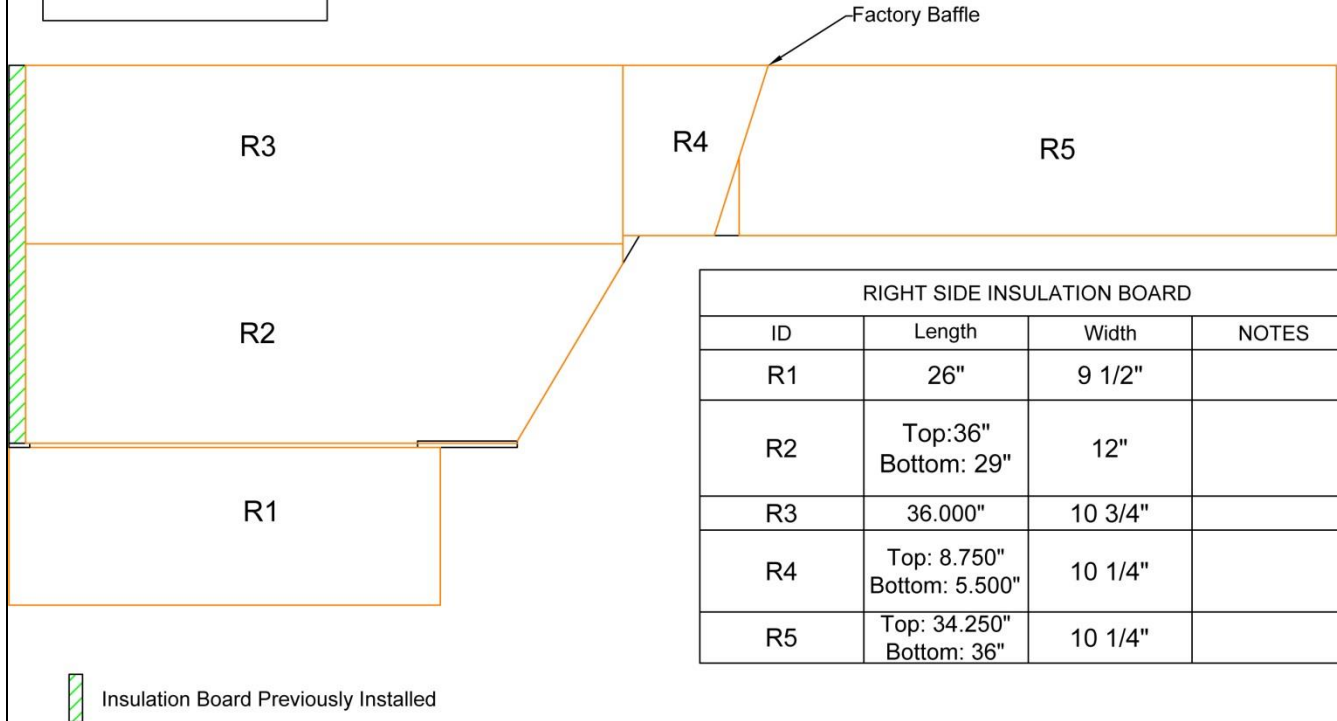
Left Side

2X6 Standard ARCH
Left Side
Insulation Board Layout
NOT TO SCALE

LEFT SIDE INSULATION BOARD			
ID	Length	Width	NOTES
L1	26"	9 1/2"	
L2	Top: 36" Bottom: 29"	12"	
L3	36"	10 3/4"	
L4	Top: 8 3/4" Bottom: 5 1/2"	10 1/4"	
L5	Top: 34 1/4" Bottom: 36"	10 1/4"	

Right Side

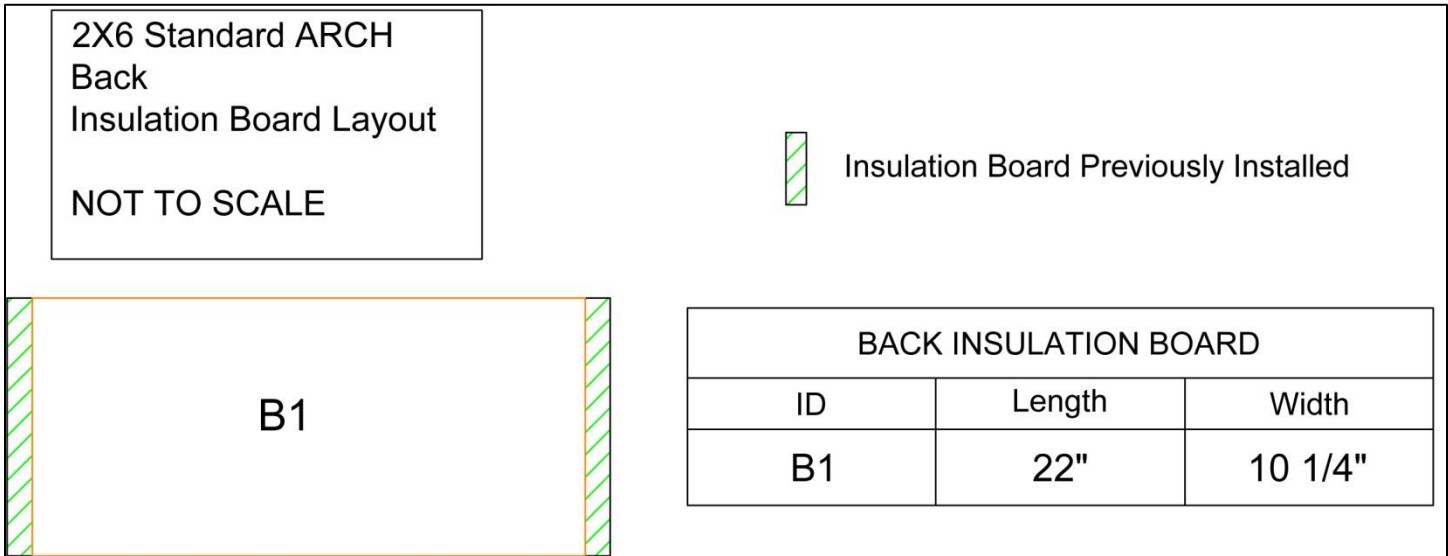
2X6 Standard ARCH
 Right Side
 Insulation Board Layout
 NOT TO SCALE



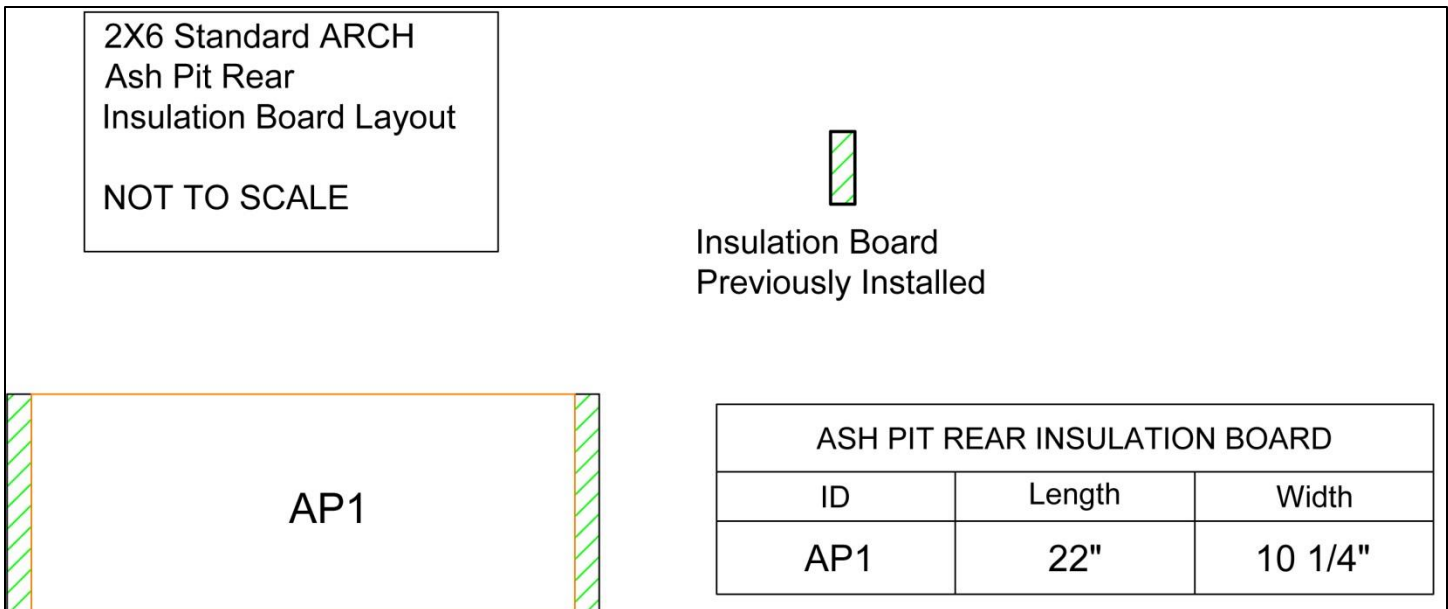
RIGHT SIDE INSULATION BOARD			
ID	Length	Width	NOTES
R1	26"	9 1/2"	
R2	Top:36" Bottom: 29"	12"	
R3	36.000"	10 3/4"	
R4	Top: 8.750" Bottom: 5.500"	10 1/4"	
R5	Top: 34.250" Bottom: 36"	10 1/4"	

 Insulation Board Previously Installed

Back



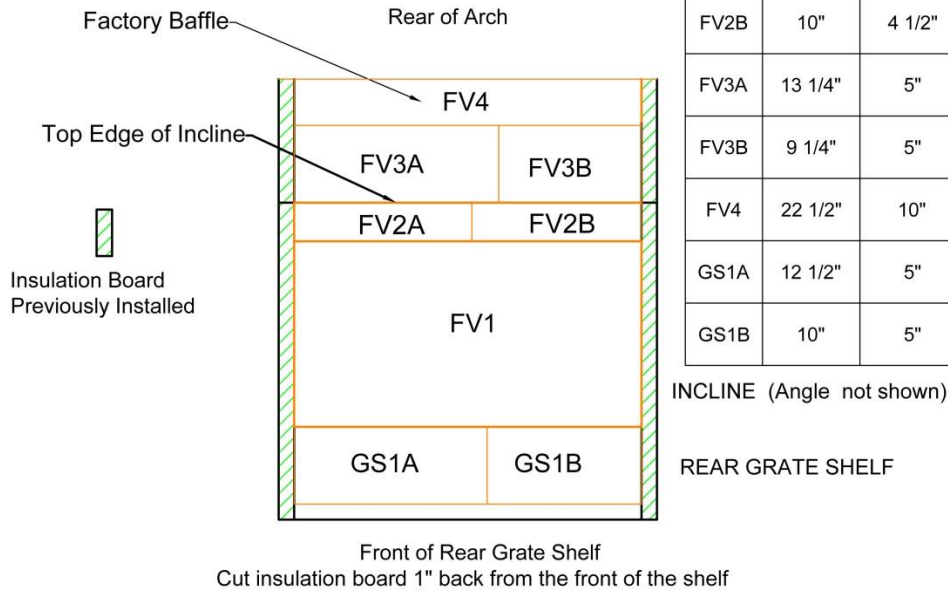
Ash Pit Rear



Rear Grate Shelf to Top of Factory Baffle

2X6 Standard Arch
 Rear Grate Shelf to Top of Factory Baffle
 (View from above arch)
 Insulation Board Layout
 NOT TO SCALE

TOP VIEW INSULATION BOARD		
ID	Length	Width
FV1	22 1/2"	9 1/4"
FV2A	11 1/2"	4 1/2"
FV2B	10"	4 1/2"
FV3A	13 1/4"	5"
FV3B	9 1/4"	5"
FV4	22 1/2"	10"
GS1A	12 1/2"	5"
GS1B	10"	5"



Bricking

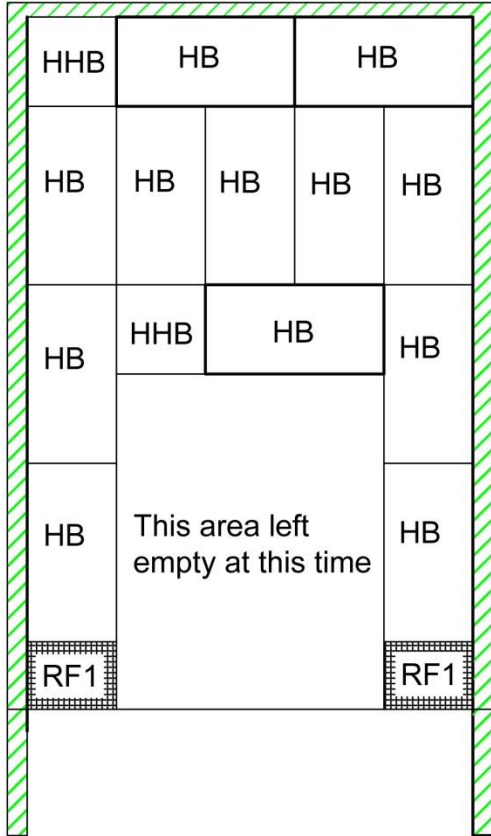
Arch Floor Behind Factory Baffle


2X6 Standard Arch

Arch Floor Behind Factory Baffle Brick Layout (view from top)

Not To Scale

Back Of Arch



 Insulation Board
Previously Installed

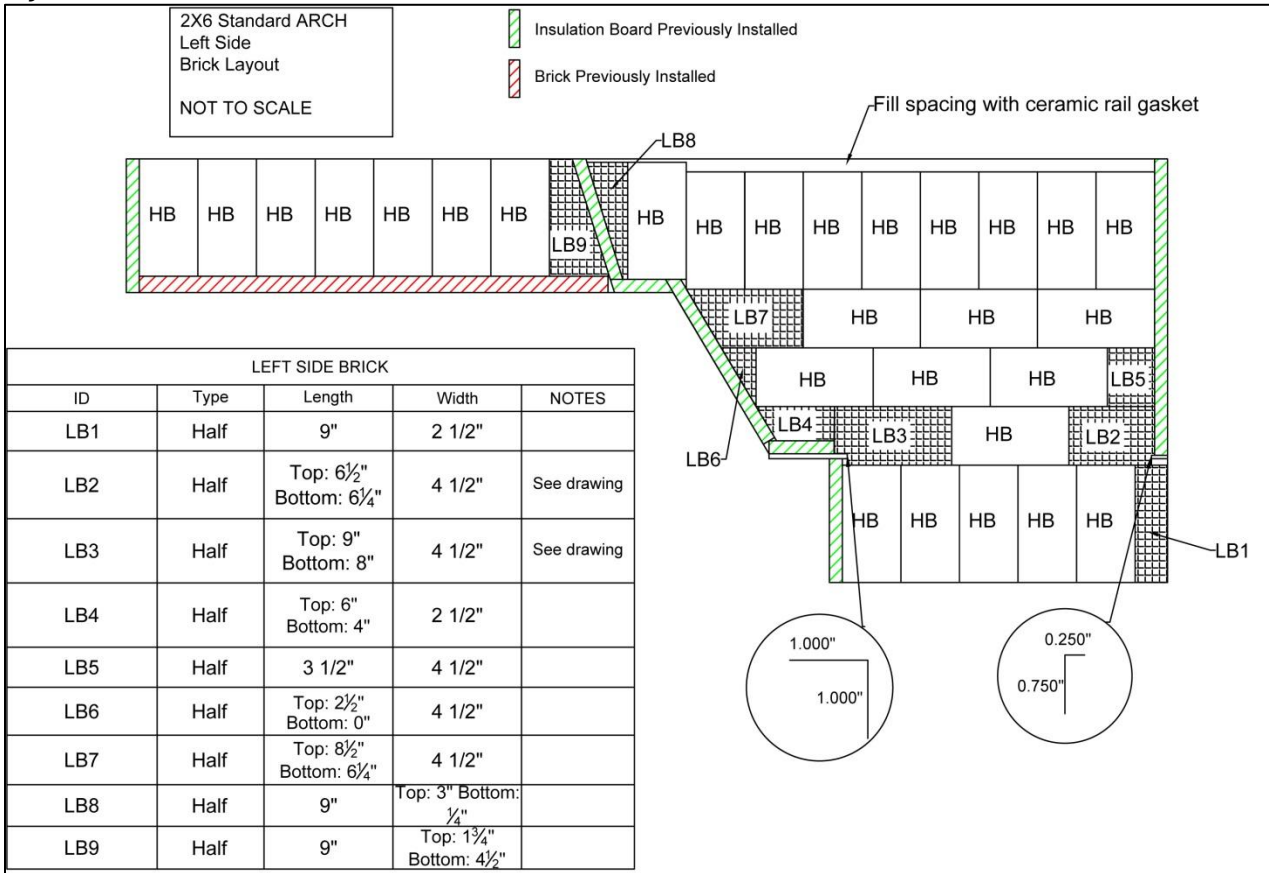
FLOOR BEHIND BAFFLE BRICK SPECS			
ID	TYPE	LENGTH	WIDTH
RF1	Half	3 1/4"	4 1/2"

FACTORY BAFFLE

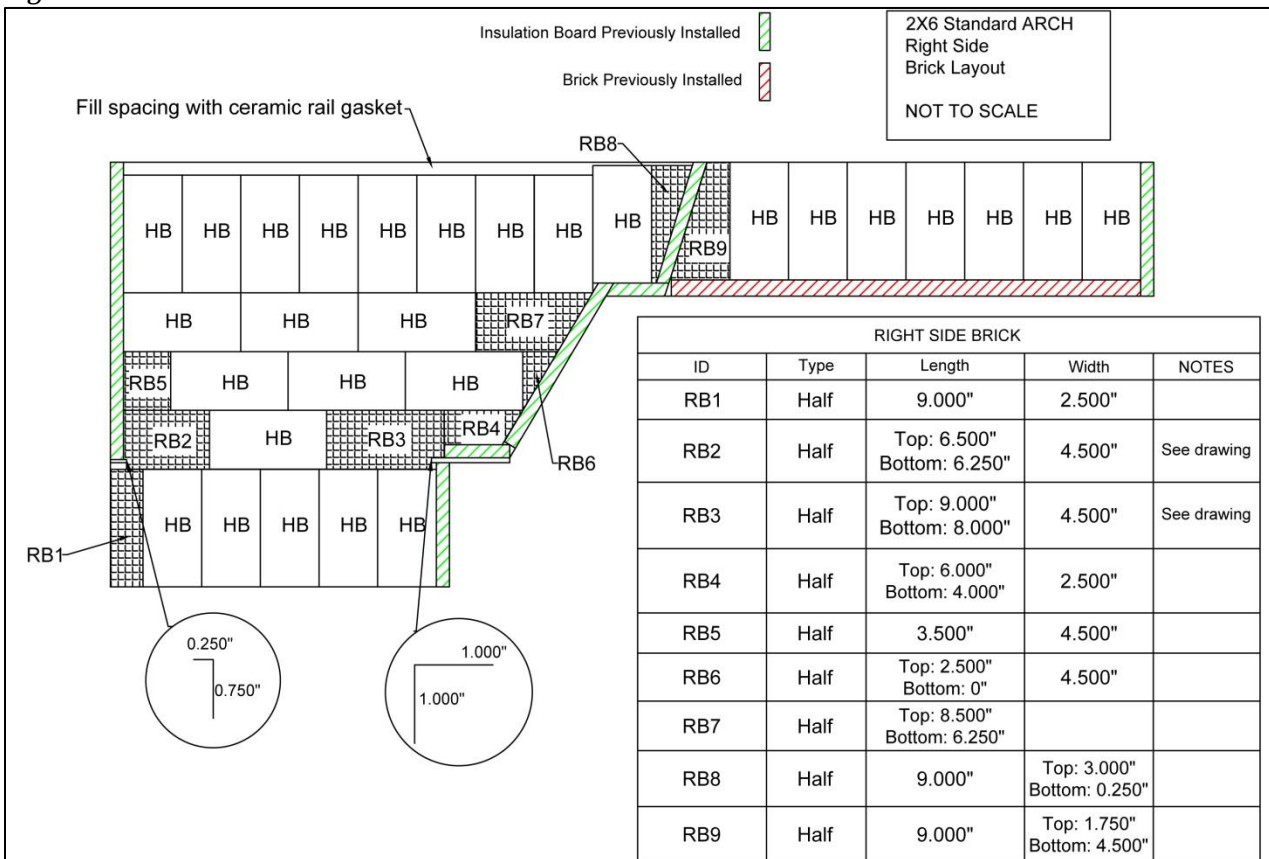
Shown as solid line at point
where floor brick will intersect
the upright portion of the baffle

FRONT OF ARCH

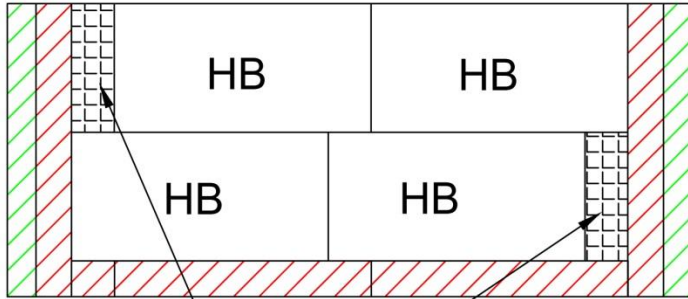
Left Side



Right Side



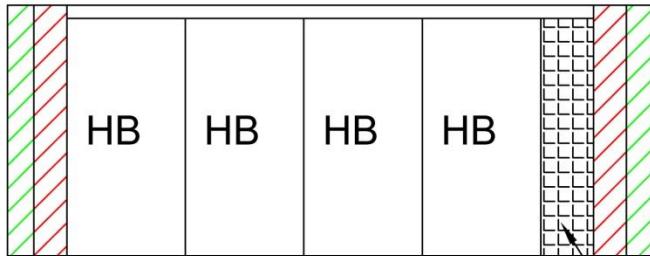
2X6 Standard ARCH
 Back Brick Layout
 NOT TO SCALE



- Insulation Previously Installed
- Brick Previously Installed

REAR BAFFLE BRICK SPECS			
ID	TYPE	LENGTH	WIDTH
Bc1	Half	1 1/2"	4 1/2"

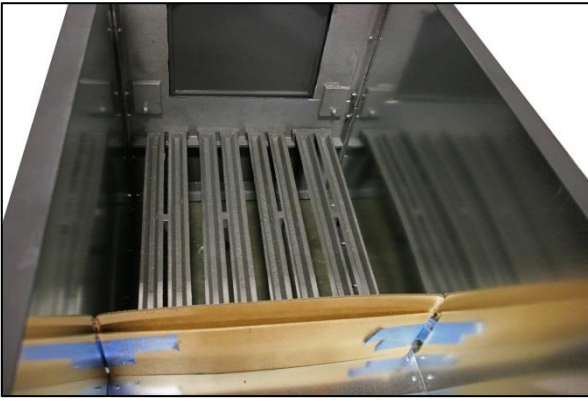
2X6 Standard ARCH
 Ash Pit Rear
 Brick Layout
 NOT TO SCALE



- Insulation Board Previously Installed
- Brick Previously Installed

ASH PIT REAR BRICK			
ID	TYPE	LENGTH	WIDTH
AB1	Half	3 1/4"	4 1/2"

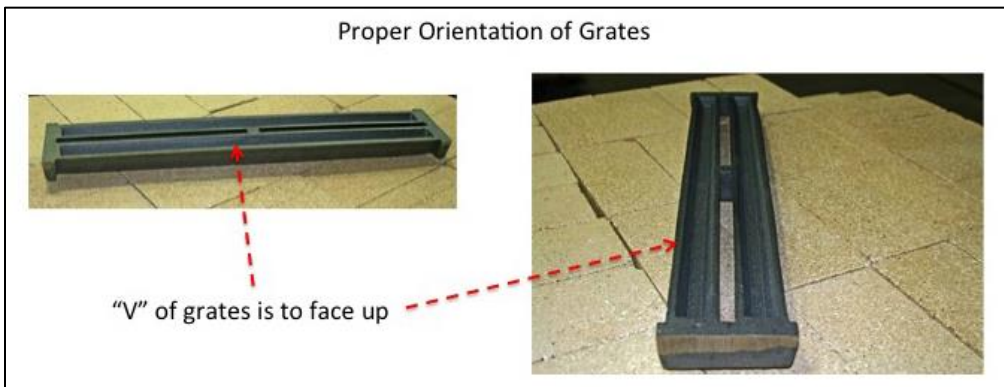
Install the Grates



Place the four arch grates evenly spaced into the arch with the grates touching the front of the arch. Obtain a piece of “C flute” cardboard (most common type of cardboard) approximately 20” x 18”. Fold it into thirds along the length and tape with a non-plastic tape (ex. masking tape). Place it behind the grates toward the rear of the arch. The cardboard will provide the spacing needed to remove the grates after the bricks have been fit in place. The cardboard can be left in place after installation of the insulation – it will burn out during firing.

NOTE: Arch insulation not shown.

PROPER ORIENTATION OF GRATES



Grates should be installed so the “V” groove is up. In other words the opening of the “V” will be in a position to catch and fill with ashes.

Front

**2X6 Standard ARCH
Front
Brick Layout**

NOT TO SCALE

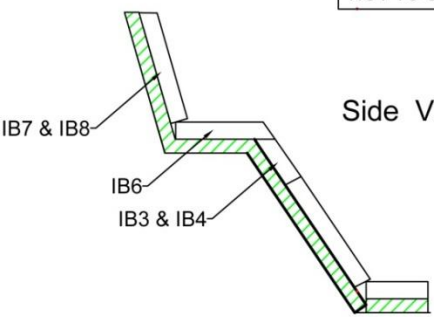
Insulation Board Previously Installed
 Brick Previously Installed

FRONT INSULATION BOARD			
ID	Type	Length	Width
F1	Full	9"	1 1/2"
F2	Full	9"	3 3/4"
F3	Full	7"	3 3/4"

DO NOT CEMENT THE BRICKS
THEY WILL NEED TO BE TAKEN
OUT IN ORDER TO REMOVE THE
GRATES.

Grate Shelf to Top of Factory Baffle

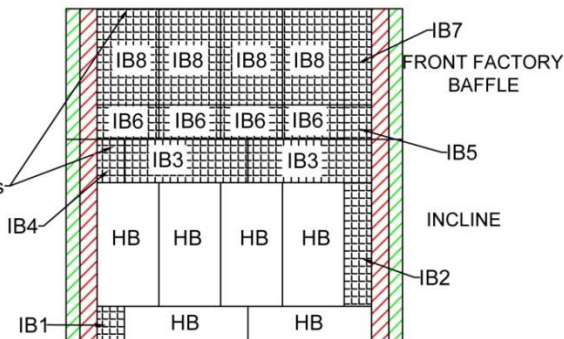
2X6 Standard ARCH
Grate Shelf to Top of Front Factory Baffle
Brick Layout
NOT TO SCALE



Side View

IB7 & IB8
IB6
IB3 & IB4

Pitch of INCLINE and BAFFLE flattened for illustration



Top View

IB7
FRONT FACTORY BAFFLE
IB5
INCLINE
IB2
IB1
HB
HB
HB
HB

Taper Top of Bricks as Shown in Side View

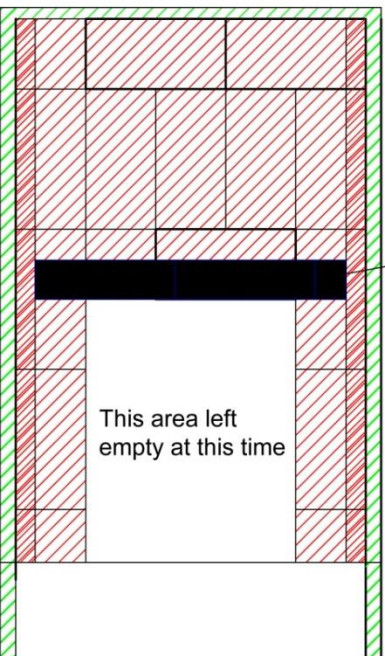
INCLINE TO FRONT BAFFLE BRICK SPECS			
ID	TYPE	LENGTH	WIDTH
IB1	Half	2"	2 1/2"
IB2	Half	9"	2"
IB3	Half	9"	Field Fit With Taper
IB4	Half	2"	Field Fit With Taper
IB5	Half	2"	Field Fit With Taper
IB6	Half	Field Fit with Taper	4 1/2"
IB7	Half	Field Fit with Taper	2"
IB8	Half	Field Fit With Taper	4 1/2"

Insulation Previously Installed

Brick Previously Installed

Rear Baffle

2X6 Standard ARCH
Rear Baffle Brick Layout
NOT TO SCALE



Top View

Insulation Previously Installed

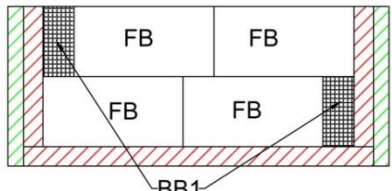
Brick Previously Installed

Brick Baffle

This area left empty at this time

FRONT OF ARCH

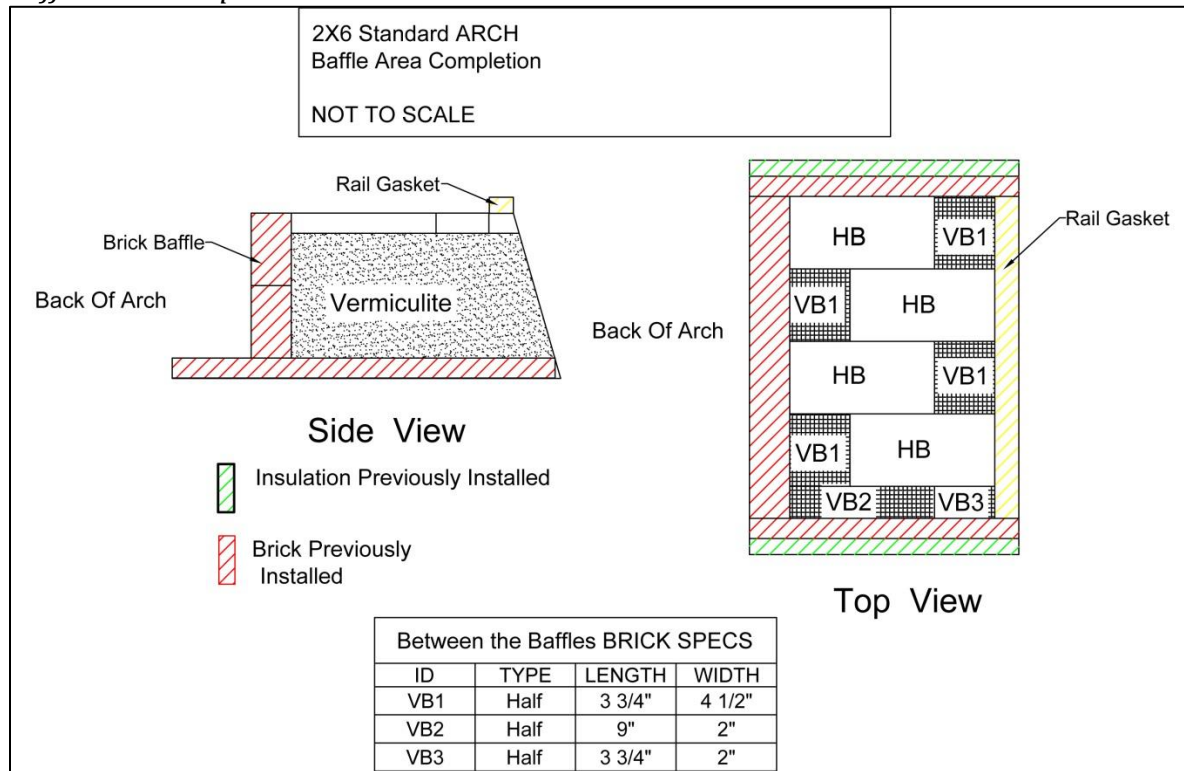
Face View



FB FB
FB FB
BB1

REAR BAFFLE BRICK SPECS			
ID	TYPE	LENGTH	WIDTH
BB1	Full	2"	4 1/2"

Baffle Area Completion



As an option insulation board can be used in place of the bricks over the Vermiculite. If insulation board is used, fill the Vermiculite area up to 1" below the arch rail. When purchasing materials, add one sheet of insulation board and reduce the half bricks by 5.

NOTE: Place rail gasket shown prior to installing the flue pan. Lay a 1/2" rail gasket along the top of the factory installed baffle from one side of the arch to the other (between the rail gasket on the arch rails).

Insulating a 2X8 Arch

The order of insulation is as follows:

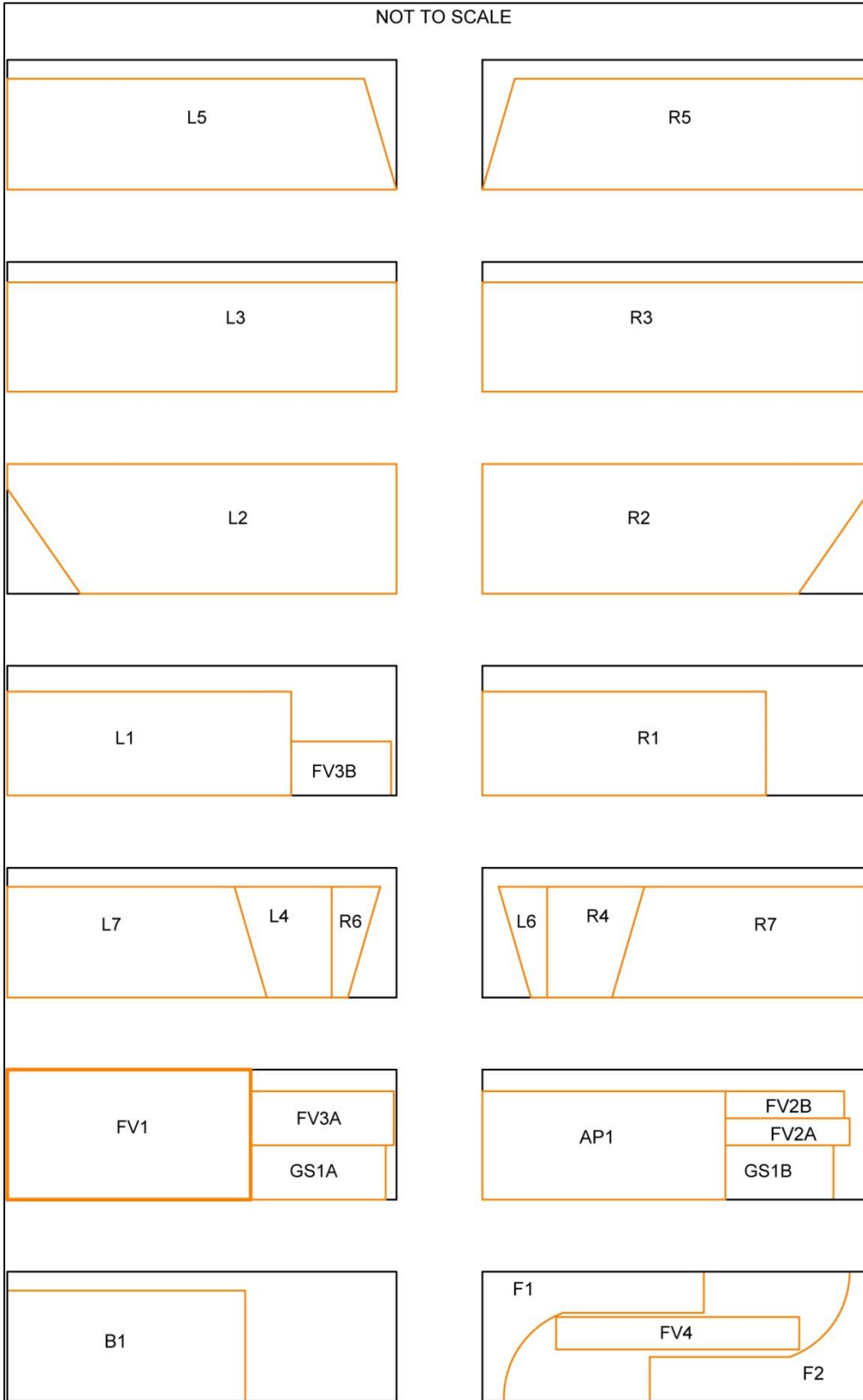
1. INSULATION BOARD
 - a. Front
 - b. Left Side
 - c. Right Side
 - d. Back
 - e. Ash Pit Rear
 - f. Rear Grate Shelf to Top of Factory Baffle

2. BRICKING
 - a. Rear Floor from Front Factory Baffle
 - b. Left Side
 - c. Right Side
 - d. Back
 - e. Ash Pit
 - f. Install Grates
 - g. Front
 - h. Rear Grate Shelf to Top of Front Factory Baffle
 - i. Behind Rear Factory Baffle
 - j. Baffle Area Completion

Insulation Board

Cut Out Diagram

The following are suggested cutout diagrams for use with the insulation board. The sizes for each piece can be found on the section diagrams of the arch.



Front

2X8 Standard ARCH
Front
Insulation Board Layout

NOT TO SCALE

FRONT INSULATION BOARD			
ID	Length	Width	NOTES
F1	20"	12"	Cut out door section as noted
F2	20"	12"	Cut out door section as noted

Grates shown for spacing purposes.
Grates will be installed in a later step.

Left Side

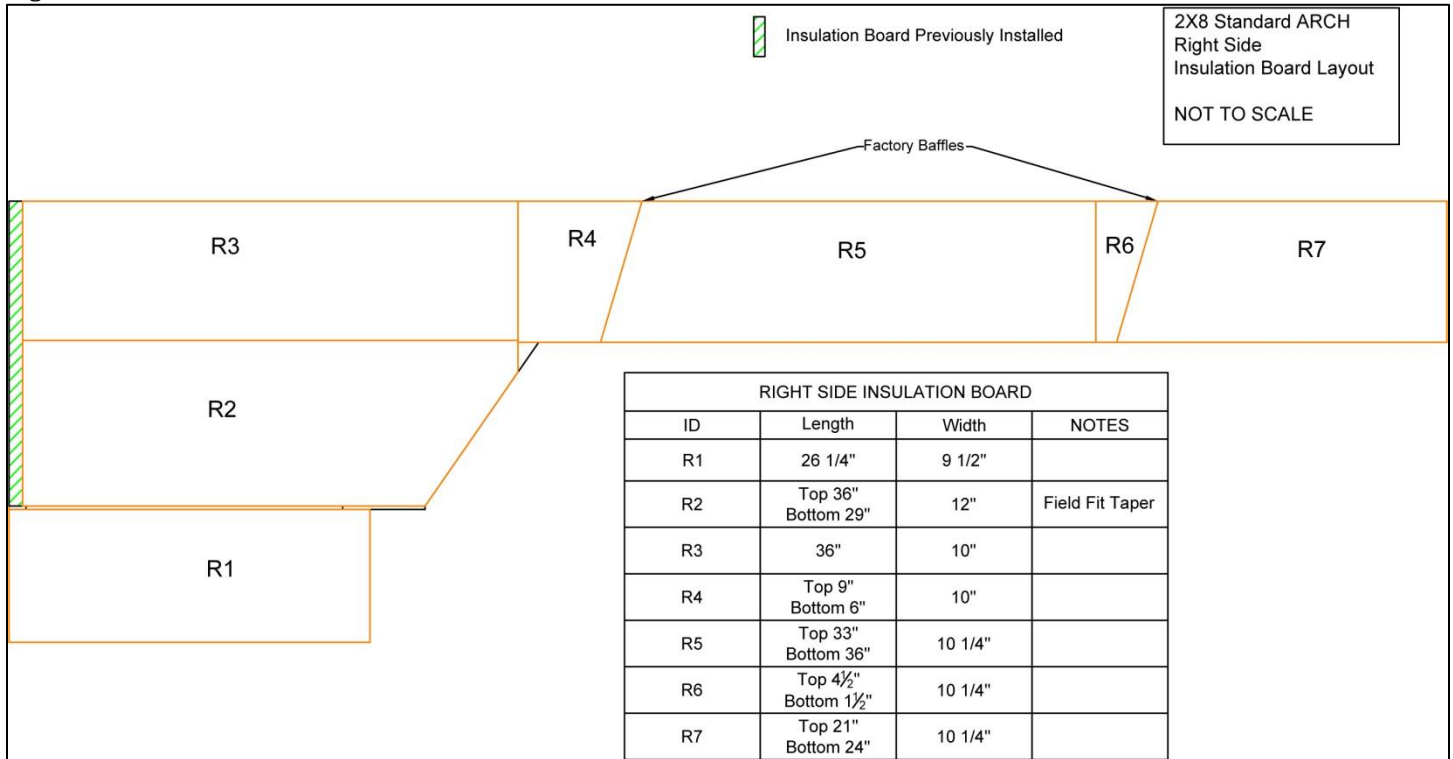
Insulation Board Previously Installed

2X8 Standard ARCH
Left Side
Insulation Board Layout

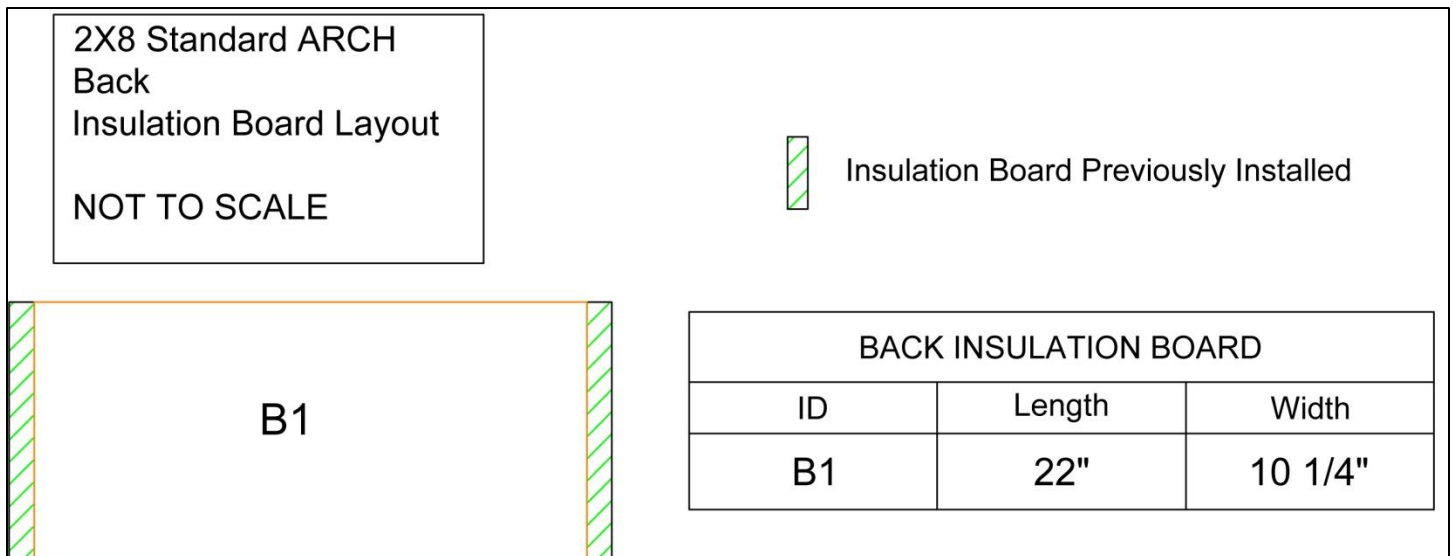
NOT TO SCALE

LEFT SIDE INSULATION BOARD			
ID	Length	Width	NOTES
L1	26 1/4"	9 1/2"	
L2	Top 36" Bottom 29"	12"	Field Fit Taper
L3	36"	10"	
L4	Top 9" Bottom 6"	10"	
L5	Top 33" Bottom 36"	10 1/4"	
L6	Top 4 1/2" Bottom 1 1/2"	10 1/4"	
L7	Top 21" Bottom 24"	10 1/4"	

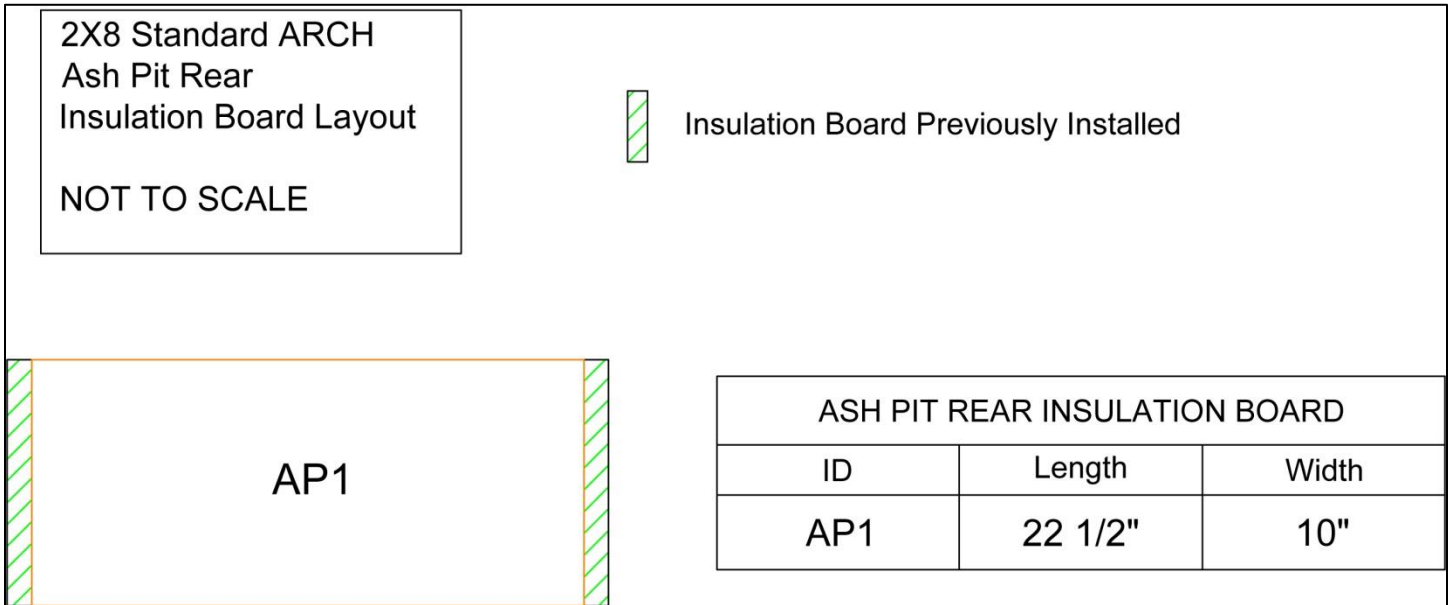
Right Side



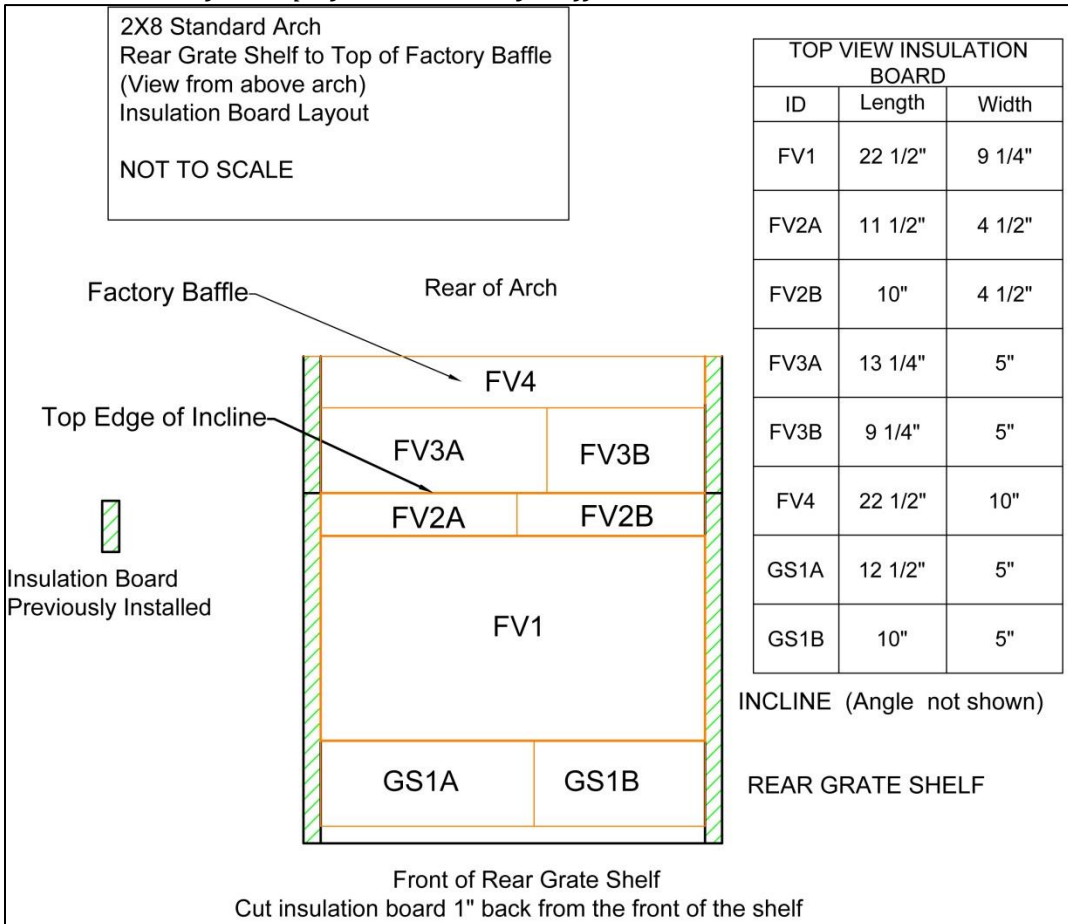
Back



Ash Pit Rear

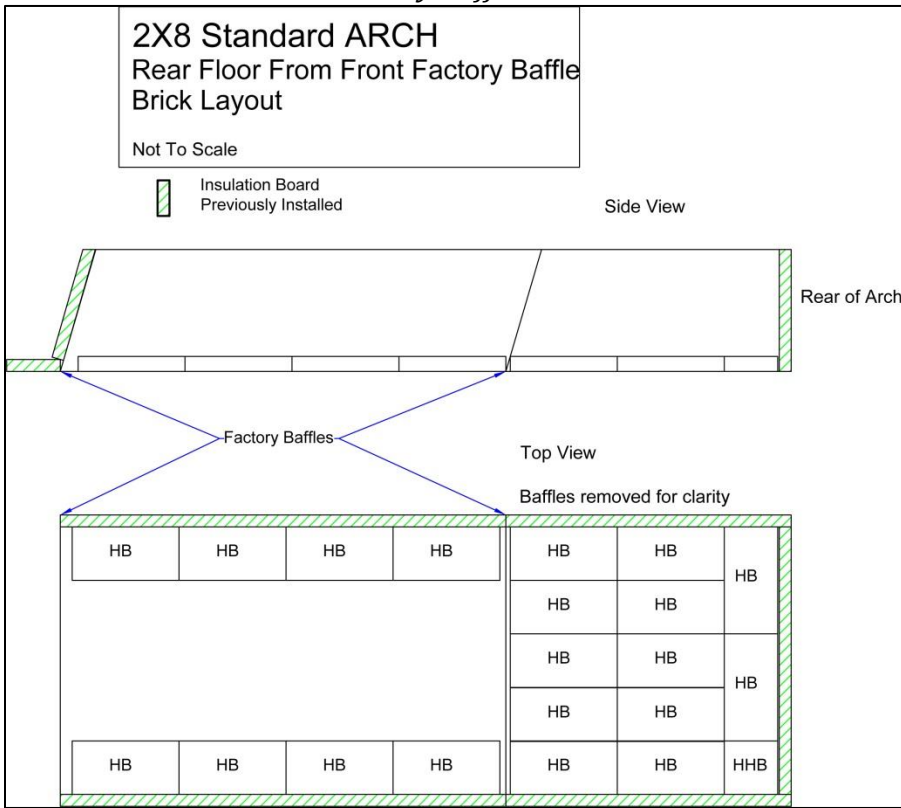


Rear Grate Shelf to Top of Front Factory Baffle

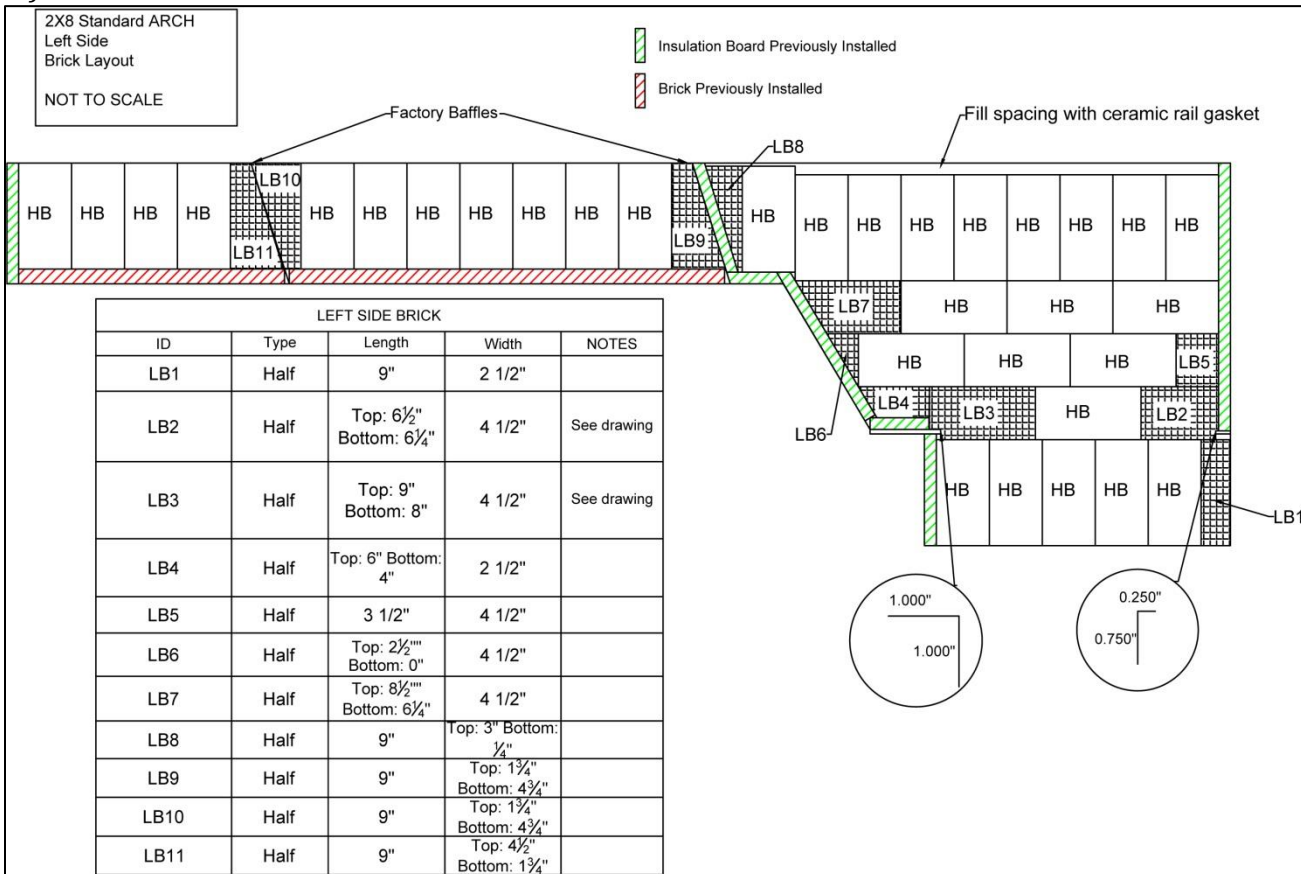


Bricking

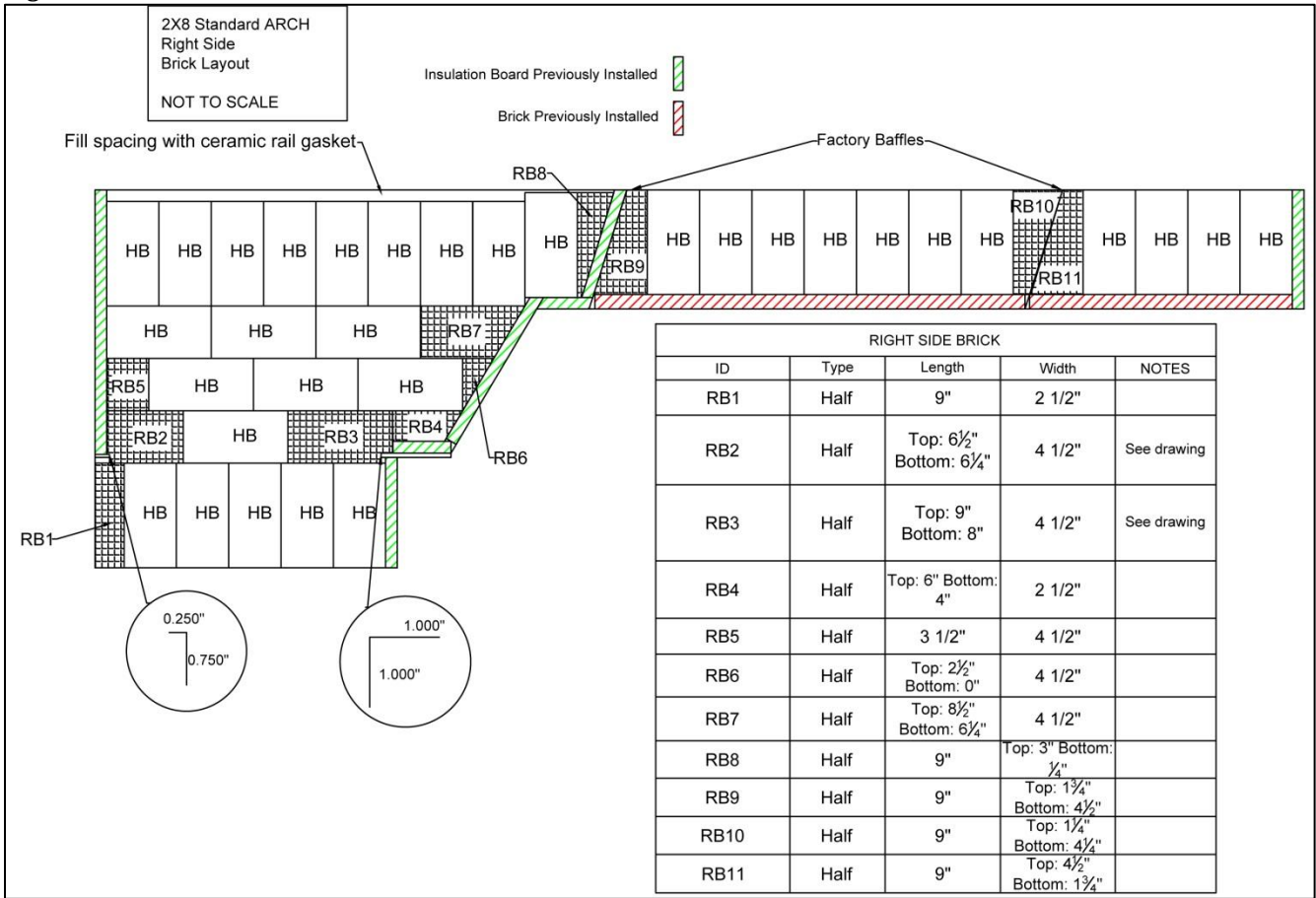
Rear Floor Behind Front Factory Baffle



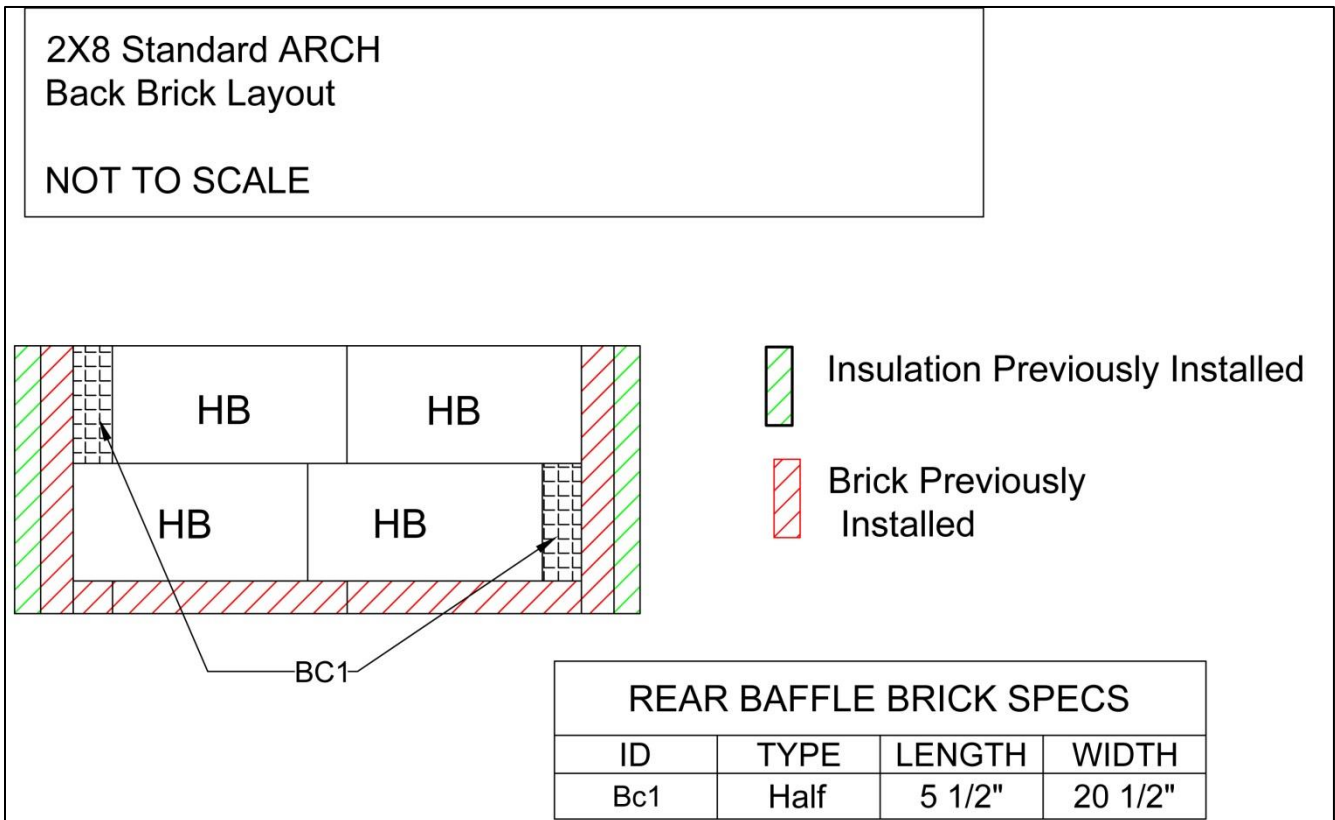
Left Side



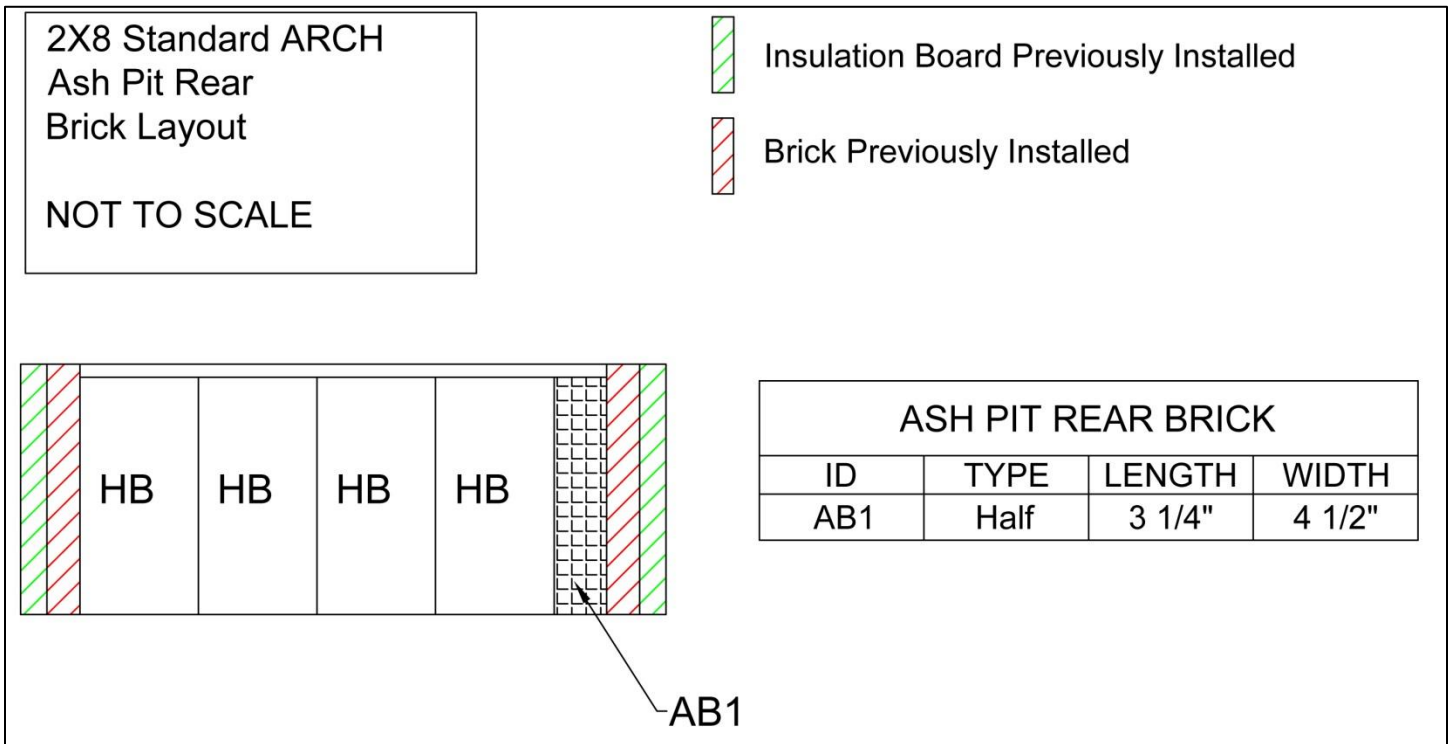
Right Side



Back



Ash Pit



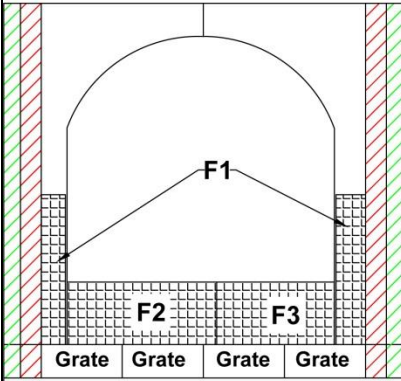
Front

2X8 Standard ARCH
Front
Brick Layout

NOT TO SCALE

Insulation Board Previously Installed

Brick Previously Installed



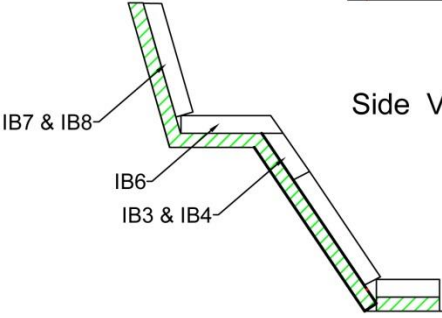
FRONT INSULATION BOARD			
ID	Type	Length	Width
F1	Full	9"	1 1/2"
F2	Full	9"	3 3/4"
F3	Full	7"	3 3/4"

DO NOT CEMENT THE BRICKS
THEY WILL NEED TO BE TAKEN
OUT IN ORDER TO REMOVE THE
GRATES.

Rear Grate Shelf to Top of Front Factory Baffle

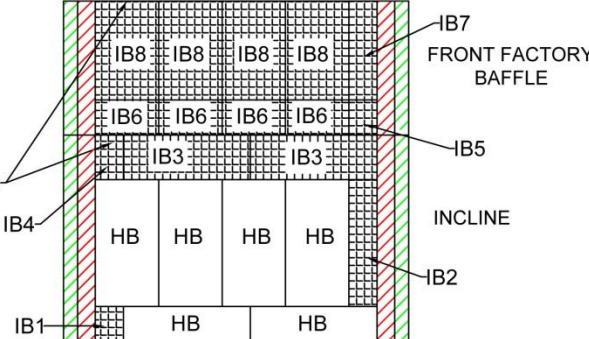
2X8 Standard ARCH
Grate Shelf to Top of Front Factory Baffle
Brick Layout

NOT TO SCALE



Side View

Pitch of INCLINE and BAFFLE
flattened for illustration



Top View

Insulation Previously Installed

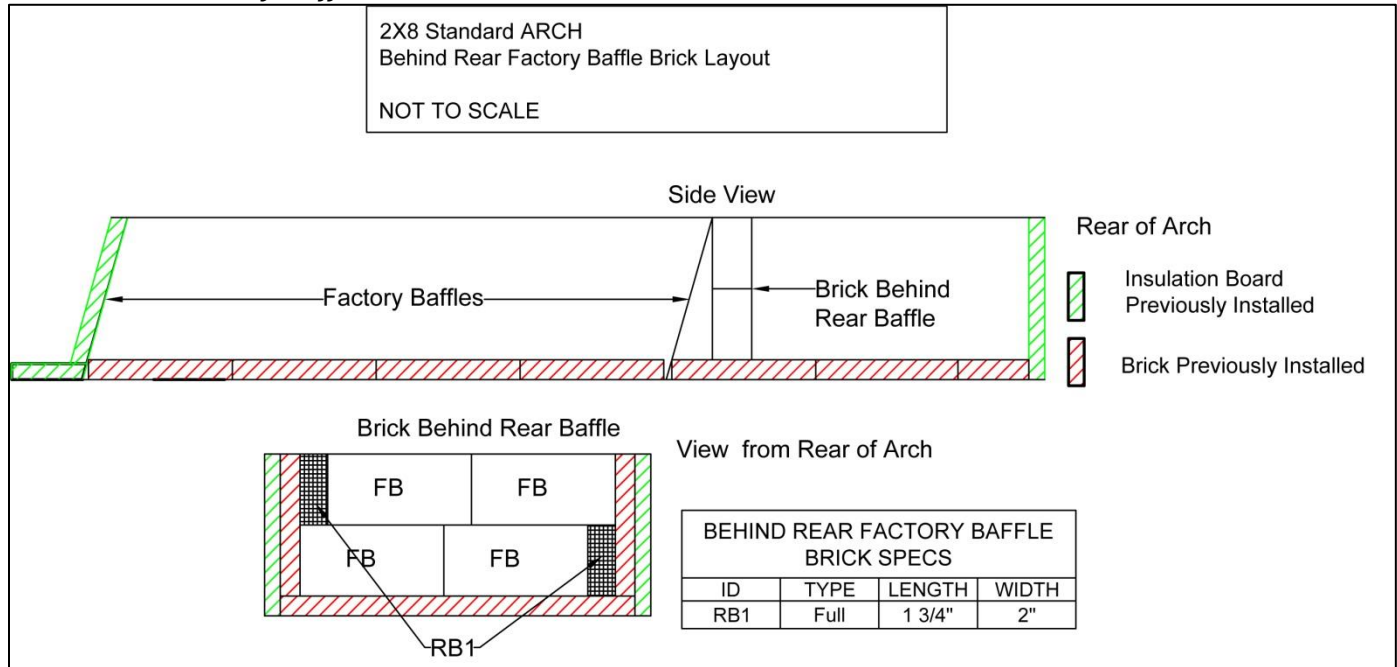
Brick Previously Installed

INCLINE TO FRONT BAFFLE BRICK SPECS			
ID	TYPE	LENGTH	WIDTH
IB1	Half	2"	2 1/2"
IB2	Half	9"	2"
IB3	Half	9"	Field Fit With Taper
IB4	Half	2"	Field Fit With Taper
IB5	Half	2"	Field Fit With Taper
IB6	Half	Field Fit with Taper	4 1/2"
IB7	Half	Field Fit with Taper	2"
IB8	Half	Field Fit With Taper	4 1/2"

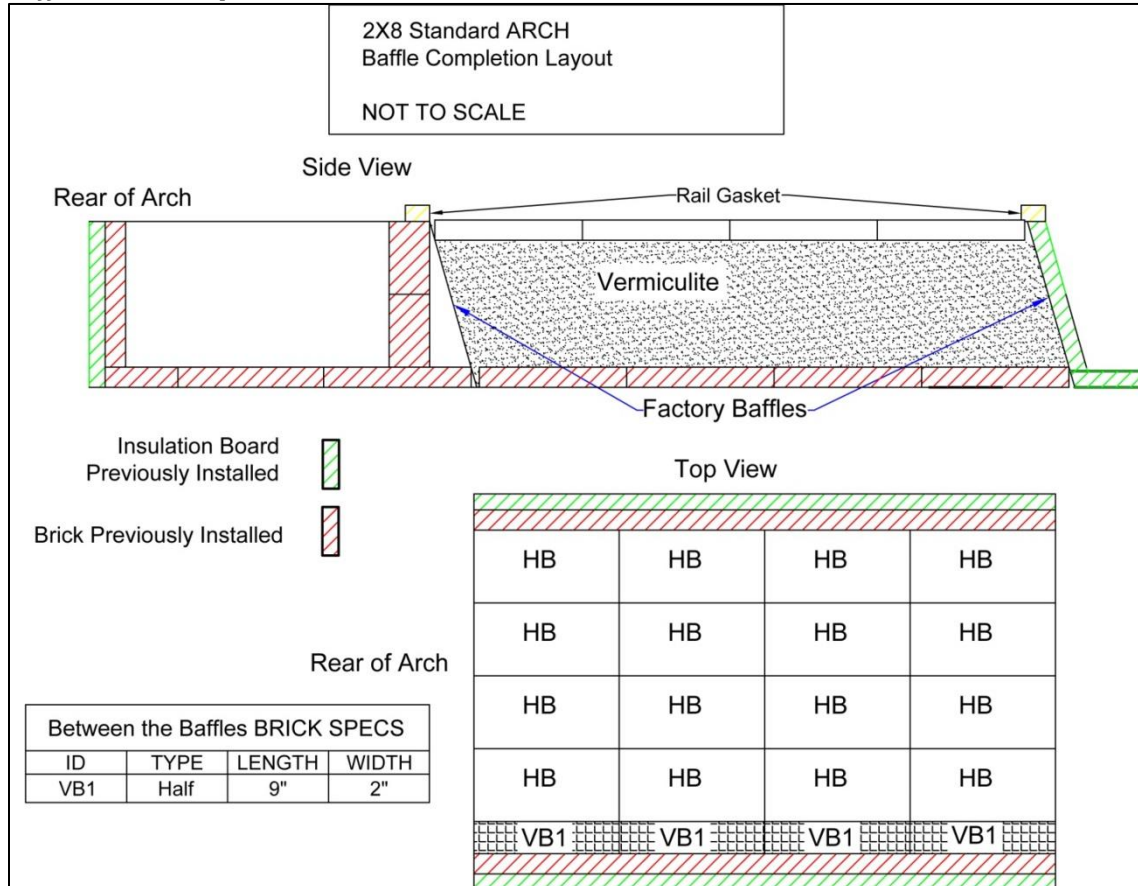
Standard Wood Fired Arch - Two Foot In Width 2018

Page: 50

Behind Rear Factory Baffle



Baffle Area Completion



As an option insulation board can be used in place of the bricks over the Vermiculite. If insulation board is used, fill the Vermiculite area up to 1" below the arch rail. When purchasing materials, add two sheets of insulation board and reduce the half bricks by 16.

NOTE: Place rail gasket shown prior to installing the flue pan. Lay a 1/2" rail gasket along the top of the factory installed baffles from one side of the arch to the other (between the rail gasket on the arch rails).

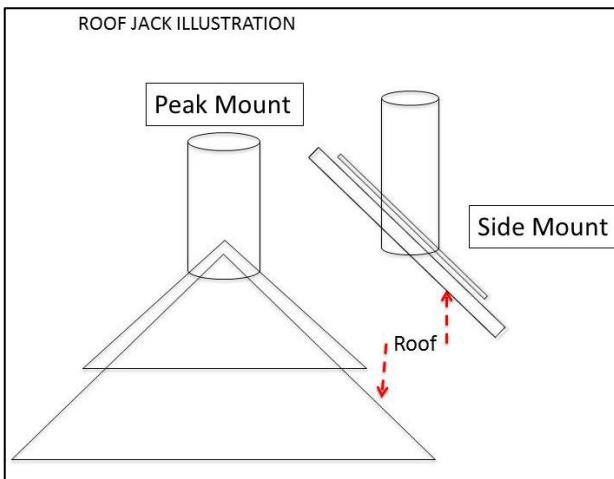
INSTALL TAPER AND STACK

A roof jack should be installed prior to setting up your taper and stack. Leader Evaporator recommends a water tight roof jack for the evaporator. Leader Evaporator offers two styles of roof jack; water tight or with collar in either a peak or side mount.

In order to determine your requirements you will need to know where you will penetrate the roof with the stack and the pitch of your roof.

Roof Penetration and the Type of Roof Jack:

- a. Obtain a plumb bob with sufficient line to reach from the roof to the stack collar of the arch.
- b. Run the plumb bob from the center of the stack collar to the roof, moving the roof point until the plumb bob is properly positioned. Ensure there are no bends in the line caused by other items.



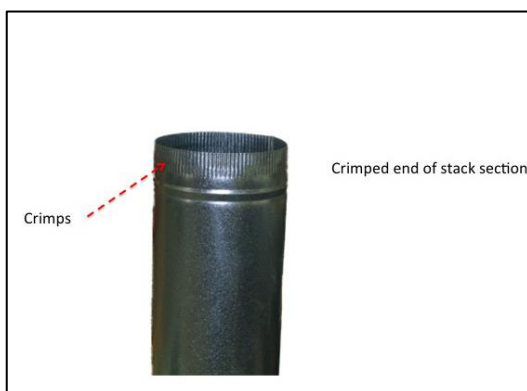
- c. If the plumb bob line end is at the peak of the roof - order a Leader peak mount roof jack. If the plumb bob line end is at the side of the roof - order a Leader side mount roof jack.
- d. Prior to taking down the plumb bob, mark the inside of the roof, as this will be used when making the roof penetration for the stack or installation of the roof jack.
- e. Roof penetration:
 - i. When installing a roof jack refer to the [LEADER CUSTOMIZED ROOF JACK](#) document. If not using a roof jack, make a hole at the point marked on the inside of the roof in the previous step. Mark the roof a minimum of 2" out from and around the template. Refer to the applicable governmental regulations as to minimum clearances required dependent on materials of roof construction.

Install the Taper and Stack

NOTE: It is recommended you install all supplied exhaust stack, as a minimum. Additional stack may be required to ensure proper draft.

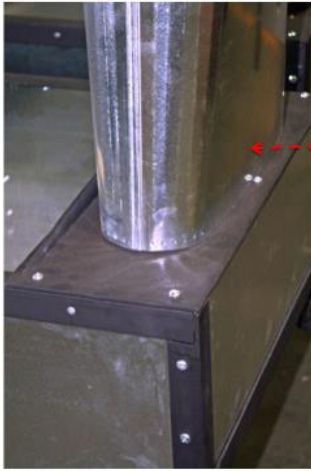
Draft is correct when:

- The boil is the same in the syrup pan front-to-back and side-to-side
- The fire door is open the flame, sparks, etc. are drawn toward the rear of the arch.



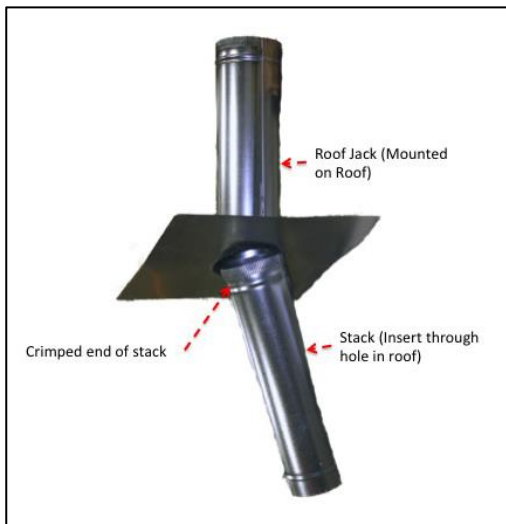
NOTE: When working with stack sections, recognize that the crimped end of the stack section is the upper / top section.

Base Taper Over Arch Stack Collar



To install, press here on both sides of taper to squeeze the taper. Place the taper over the arch stack collar.

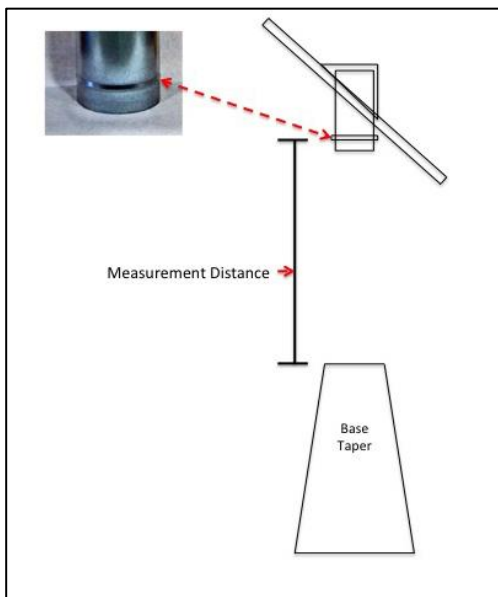
1. Place the base taper on the arch stack collar. If you have difficulty placing the base taper onto the collar, squeeze the base taper by pressing on the long sides at the base.



2. If a roof jack is used,

- a. Insert one piece of stack into the roof jack until it is a lightly wedged. The Leader style roof jack is tapered from larger to smaller. The end to be inserted into the roof jack is the crimped end. NOTE: You will be moving the piece of stack back down by approximately 2 1/2" when you connect to the next stack section so ensure it will be able to move.

- b. Measure from the top of the taper to the bead at the bottom of the stack section in the roof jack.
- c. Determine the number of lengths of stack required by dividing the measurement taken in inches by 34".
 - i. For example if the measurement was 68", then $68" \div 34" = 2$ so 2 lengths of stack are required.
 - ii. For example if the measurement was 60", then $60" \div 34" = 1.76$ lengths of stack are required. This would mean one full length and a length measuring 26" would be required. To obtain the 26" length you can either
 - iii. Special order a piece of stack the length required
 - iv. Cut a standard length of stack to fit. If you cut a length of stack to fit, measure the length from the bead of the stack and cut off the top crimped end.



3. Install the stack sections starting from the base taper. Ensure you place the crimped end up when connecting the stack sections.
4. When you put the last indoor section in place, lower the stack section from the roof jack (if used) approximately 2 ½" down onto the top piece of stack, or lower a stack section through the penetration in the roof.
5. If a roof jack is used, use all remaining sections of stack by placing the beaded / bottom end over the top of the roof jack.
6. Continue installing stack until all pieces have been installed. Ensure you have a good overlap for each stack joint. Overlap will be 2 to 2 ½". It is recommended you screw all sections together using self tapping stainless steel screws.
7. Stack above the roof should be guide wired in at least three directions (tripod configuration) to minimize the effects of wind.
 - a. It is recommended you install a stack cover on the last / top section of stack. A closed stack cover will minimize the rain and moisture entering the stack and arch. When installing a stack cover refer to the [LEADER STACK COVER](#) document.

THE FIRST BOIL

The first boil is done to remove any residual materials from the pans and to “season” the bricking and insulation.

1. Fill the flue pan and syrup pan with a baking soda : water mix (1 pound:200 gallons) to a level of 2 to 3 inches.
2. Check all fittings for leakage. If there is no leakage, insulate around the flue drain with rail gasket material.
3. To season the bricking, start by building a small fire in the fire box and very gradually build to a normal fire.
4. Boil the solution for approximately 30 minutes. Watch the boil carefully and replenish the solution as needed to ensure the solution in the pans remains at the 2 to 3 inch level.
5. Check all equipment:
 - a. No leaks at connections and valves
 - b. Pans are boiling evenly
 - c. Valves work properly
 - d. Draft is correct

Draft is correct when:

- The boil is the same in the syrup pan front-to-back and side-to-side
 - The fire door is open the flame, sparks, etc. are drawn toward the rear of the arch.
6. Drain the solution after the evaporator has cooled. CAUTION – ensure the equipment is cool enough to be safely handled for draining.
 7. Check the interior of the arch to ensure insulation and bricking are in place.
 8. Refill the pans to the 2 to 3 inch level with clean unsoftened, non chlorinated well or spring water.
 9. Boil for 30 minutes then after the evaporator has cooled, drain the pans. CAUTION – ensure the equipment is cool enough to be safely handled for draining.

OPERATING THE EVAPORATOR

NOTE: When operating the evaporator be cautious of hazards such as hot surfaces, hot liquids, sparks, and exposed flames.

NOTE: You must be aware at all times of the level of sap in all compartments of the pans. If the level drops too low you can and will damage your pans. If there is too much foam you risk damaging your pans.

NOTE: If you have purchased a scoop or skimmer, do NOT use them to push sap through the evaporator. Doing so will change the gradient in the evaporator.

1. Check the evaporator
 - a. Make sure all sap sources are flowing freely i.e. not frozen.
 - b. Open hood thimbles and drains, cupolas and stack covers.
 - c. Ensure defoamer is usable.
 - d. Ensure all fittings are tight.
 - e. Make sure all valves are working properly and the float is properly positioned.
 - f. Clean the flues with the flue brush every 8 to 12 hours of boiling. NOTE: The rod supplied with the arch has a threaded end. The flue brush can be screwed onto the rod to clean the flues.
 - g. Ensure the open area in the grates is clean and free of material. Do not remove ashes from the “V” grooves of the grates.
 - h. Remove the ashes from below the grates.

DAILY SHUTDOWN

1. There are two factors influencing the shutdown of the evaporator; time and sap volume.
 - a. It will require approximately 30 minutes to 1 hour from the last firing to bring the fire down to embers (coals on the grates) in a wood fired arch.
 - b. It will require a volume of sap from the last firing to embers and to flood the arch so ensure there is adequate volume left prior to the last firing.
2. Continue to monitor the arch as done for normal operations.
3. When there is no more boil in either the flue or the syrup pans and the fire is down to coals on the grates (in a wood fired arch), add sap until the pans are at a depth of 2". This is done by holding the float down or by adjusting the float handles and lowering it. If the sap remaining does not cover the pans to the 2" depth then add clean, unsoftened, non-chlorinated well or spring water until the depth is reached.

NOTE: The extra sap depth is required as the insulation of the arch (ex. bricks) will hold heat and continue the evaporation process until the heat has been dissipated.

MAINTENANCE

Daily – prior to performing maintenance make sure the surfaces have been cooled.

1. Remove spills and splashes from the pans by wiping with hot water.
2. Clean out the ash chamber and the slots in the grates NOT the "V" grooves of the grates.
3. Check all fittings for leakage. Repair / replace as necessary.

Periodic

1. Using the supplied brush and rod, brush the underside of the flue pan to remove accumulated material. Cleaning will allow the heat to better reach the sap in the pan.
2. Inspect the rail gasket and pan gasket for areas where heat and smoke maybe escaping. Replace if necessary.

Beginning Of Season Startup

1. Ensure all ashes or embers have been cleaned out.
2. Open stack cover.
3. Inspect bricks and mortar joints and repair as necessary.
4. Inspect smoke stack for any holes or other issues and replace as necessary.

FEEDBACK

Please use the following e-mail address (feedback@leaderevaporator.com) to suggest improvements or enter comments on this document. Reference the document title in your note. You may also contact LEADER Customer Service.

NOTES