



PROJECT

**AZ/Langstroth Hive**

TITLE

**33 Frame AZ Hive using  
Langstroth Deep Foundation**

Uses 3/4 Material for Hive Body

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

DRAWN

Ronald Ringel 11/19/2017

SCALE 1:16

WEIGHT

SHEET 1/30



PROJECT

**AZ/Langstroth Hive**

TITLE

**Hive Body  
Outer Front Removed**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

DRAWN

Ronald Ringel 11/19/2017

SCALE 1:20

WEIGHT

SHEET 2/30



PROJECT

**AZ/Langstroth Hive**

TITLE

**Hive Body Interior**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

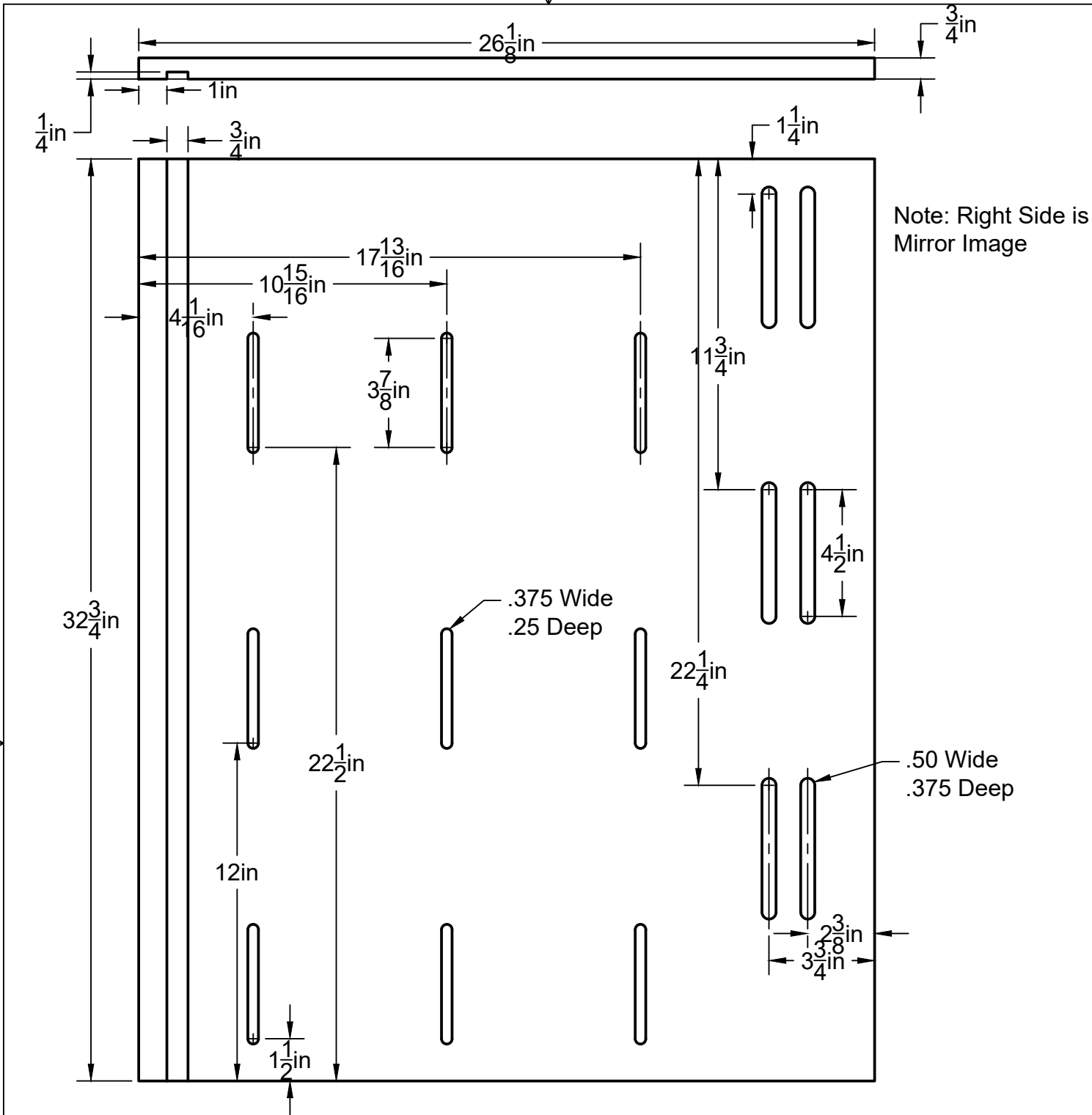
DRAWN

Ronald Ringel 11/19/2017

SCALE 1:5

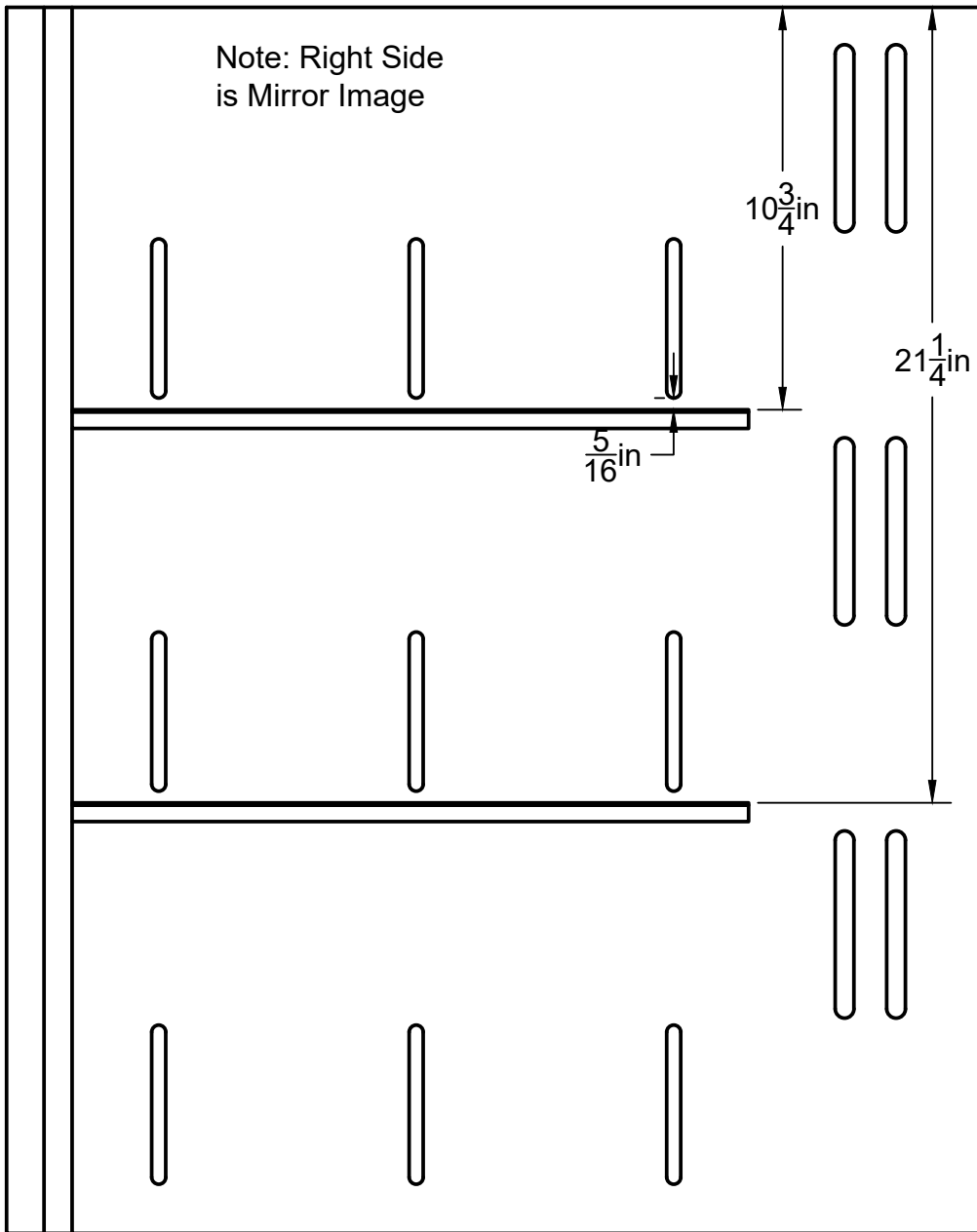
WEIGHT

SHEET 3/30



Note: Right Side is Mirror Image

		PROJECT		
		AZ/Langstroth Hive		
		TITLE		
		Left Side		
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:20	WEIGHT
			SHEET 4/30	



PROJECT

**AZ/Langstroth Hive**

TITLE

**Left Side Angle Location**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

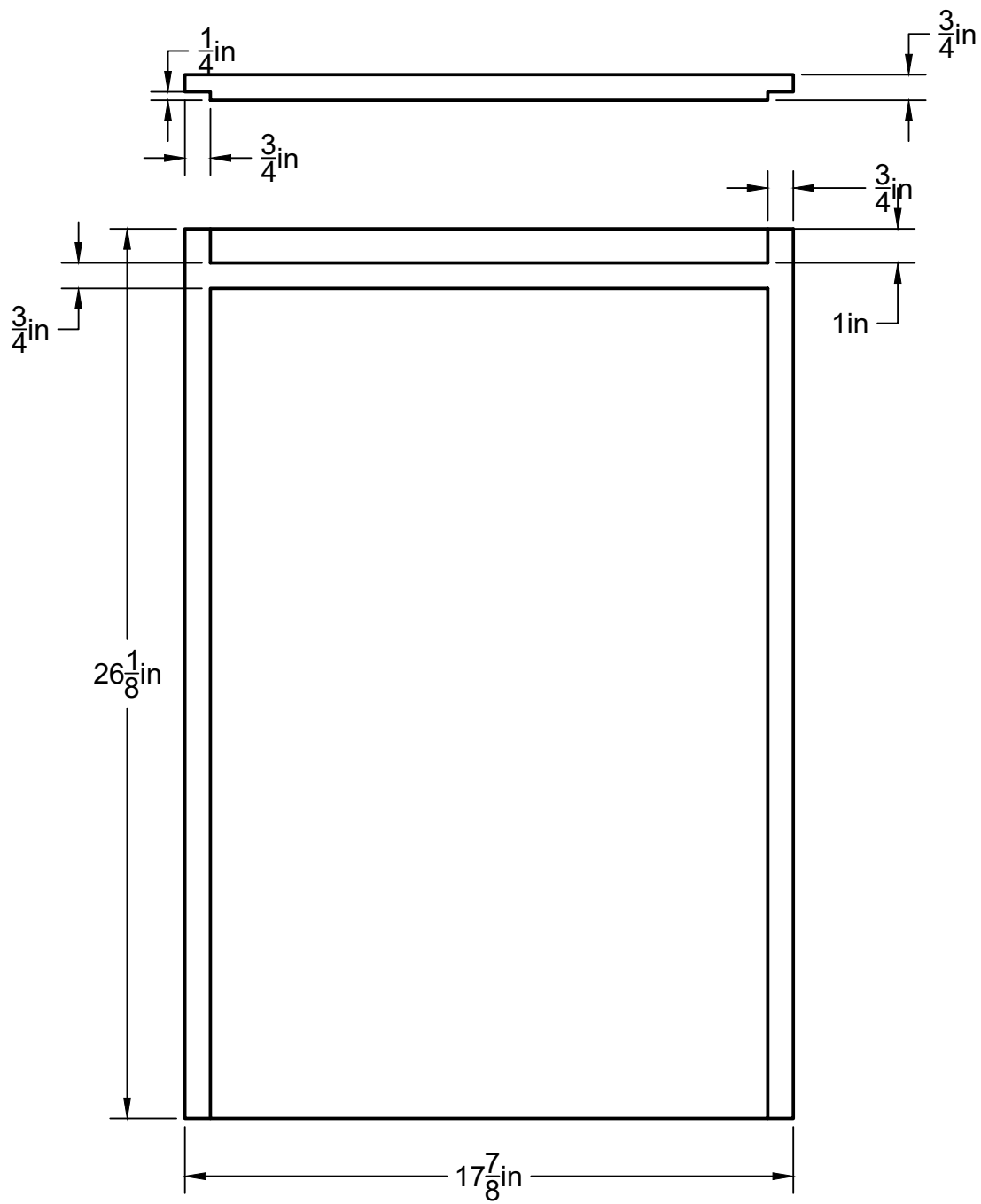
DRAWN

Ronald Ringel 11/19/2017

SCALE 1:5

WEIGHT

SHEET 5/30



PROJECT

**AZ/Langstroth Hive**

TITLE

**Top**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

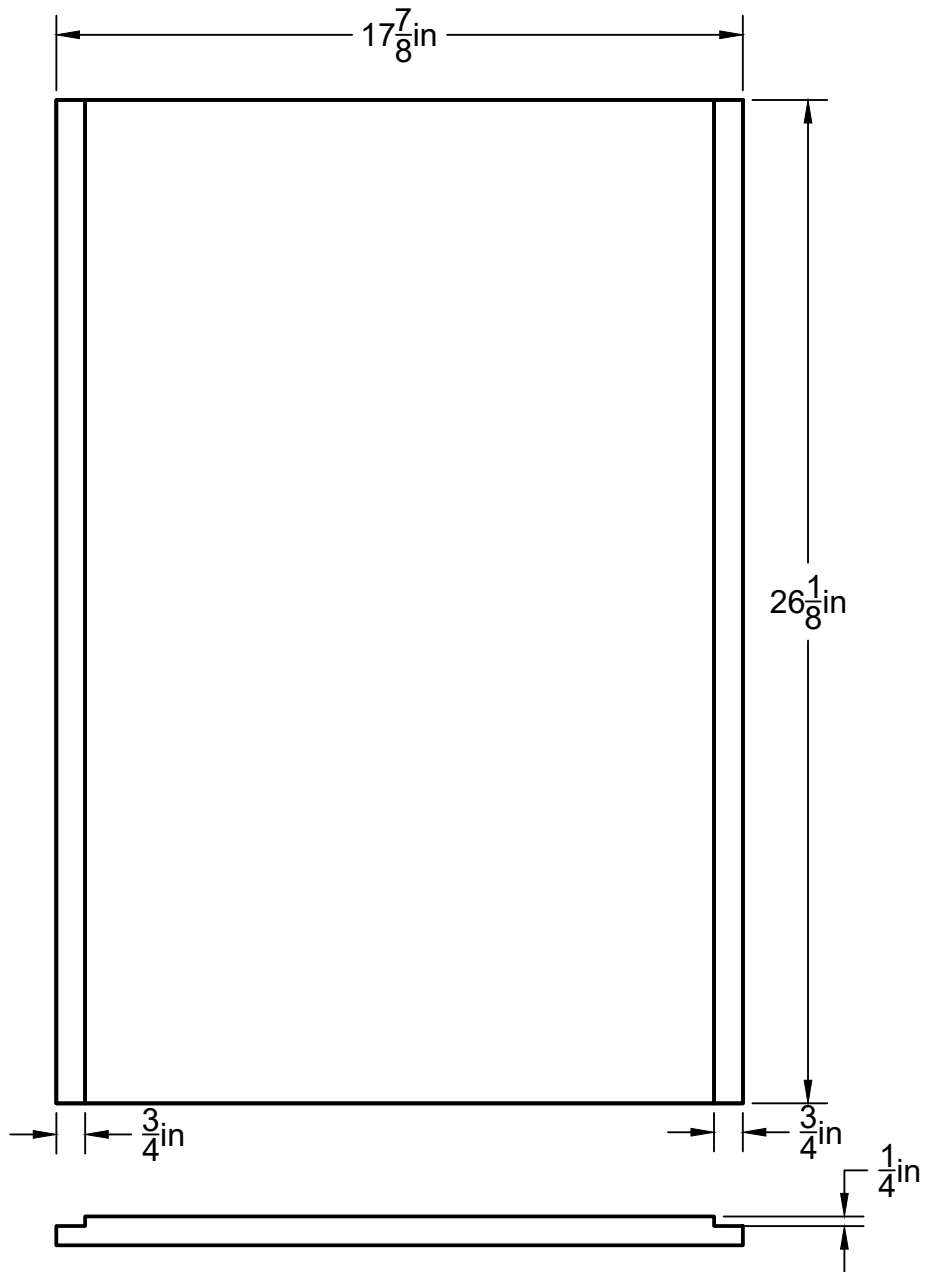
DRAWN

Ronald Ringel 11/19/2017

SCALE 1:16

WEIGHT

SHEET 6/30



PROJECT

**AZ/Langstroth Hive**

TITLE

**Bottom**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

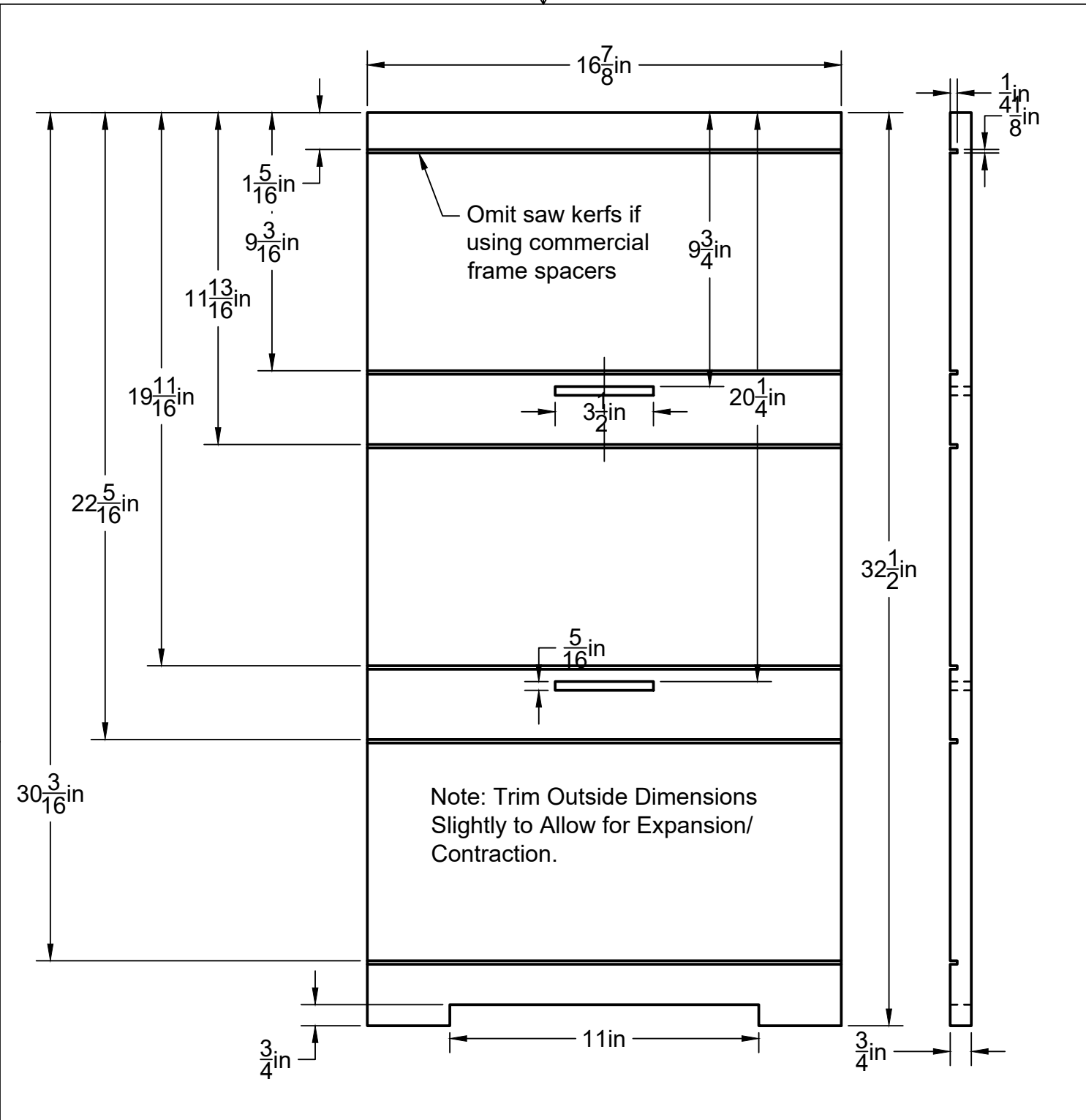
DRAWN

Ronald Ringel 11/19/2017

SCALE 1:8

WEIGHT

SHEET 7/30



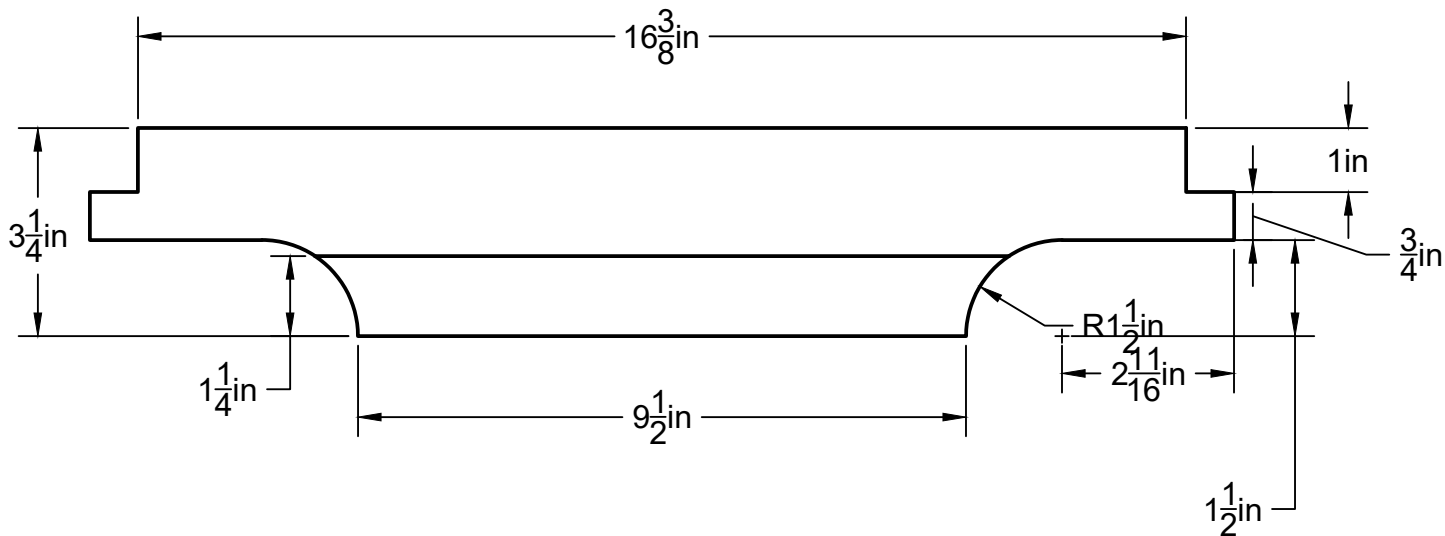
PROJECT  
**AZ/Langstroth Hive**

TITLE  
**Inner Front**

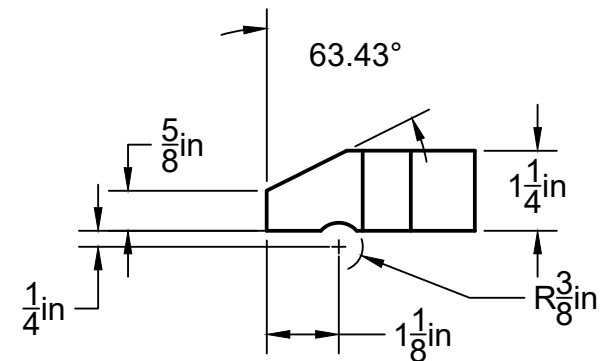
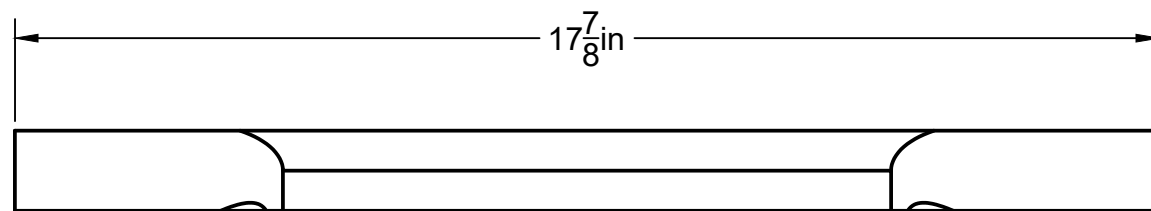
(Inside or Back of Inner Front Shown)

APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:5	WEIGHT
			SHEET	8/30

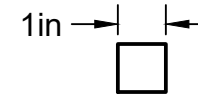
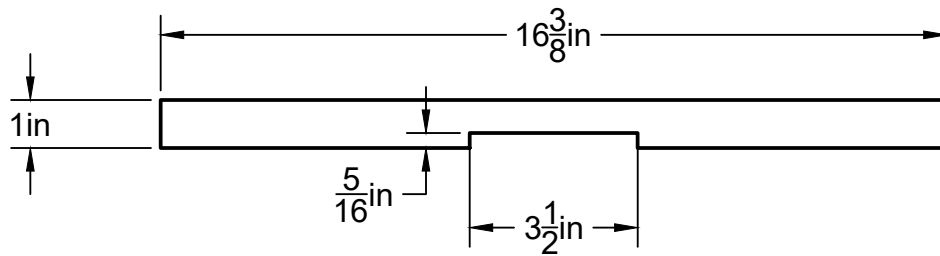




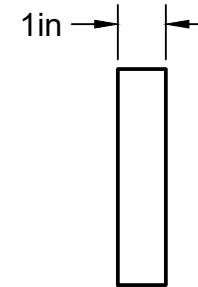
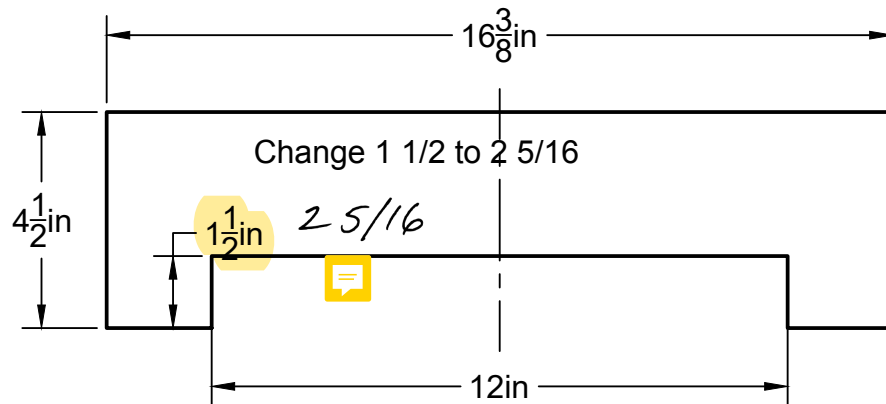
Upper & Middle Chins are Identical



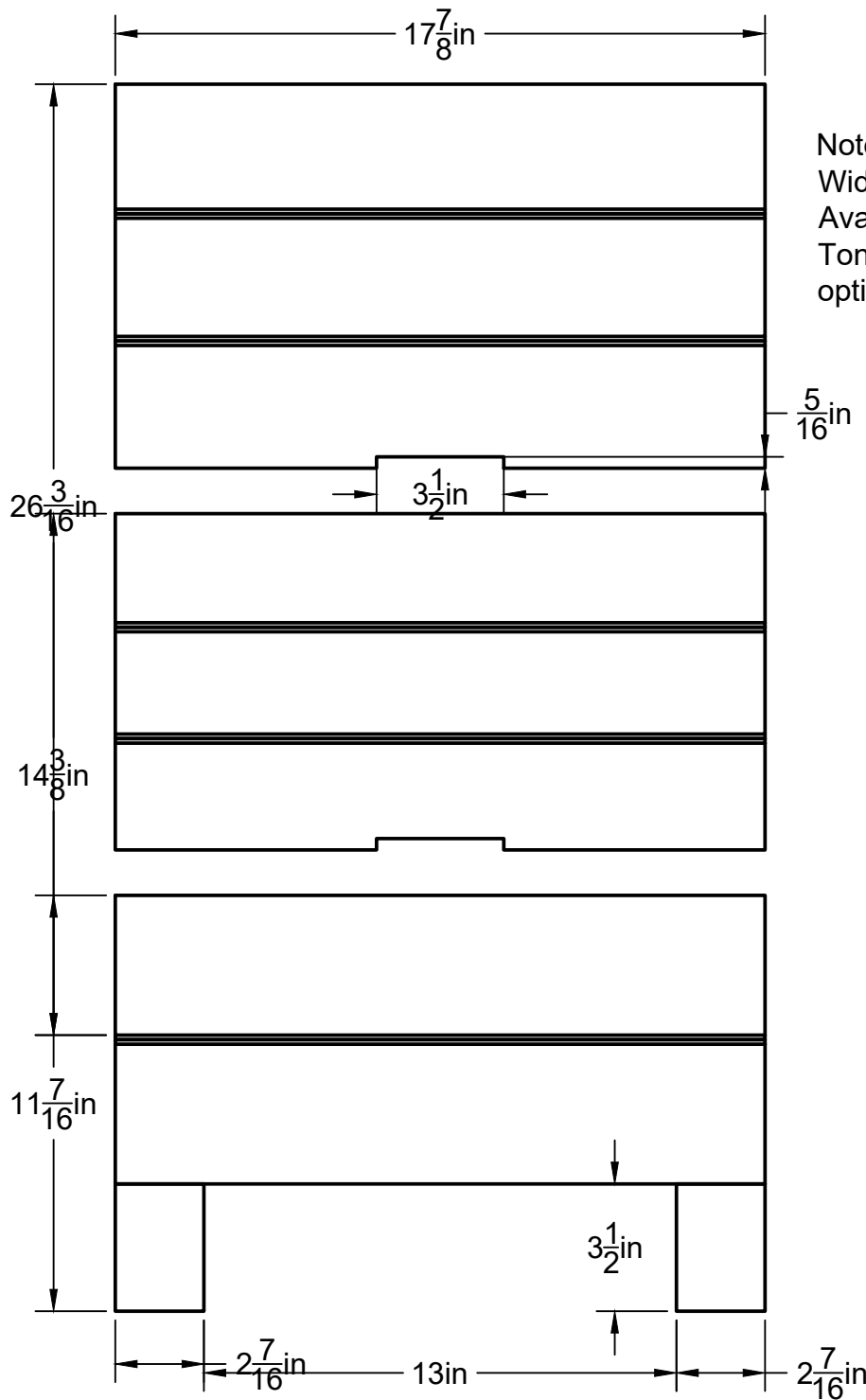
		PROJECT			
		AZ/Langstroth Hive			
		TITLE			
		Upper & Middle Chins			
APPROVED	SIZE	CODE	DWG NO	REV	
CHECKED	A				
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:5	WEIGHT	
				SHEET 9/30	



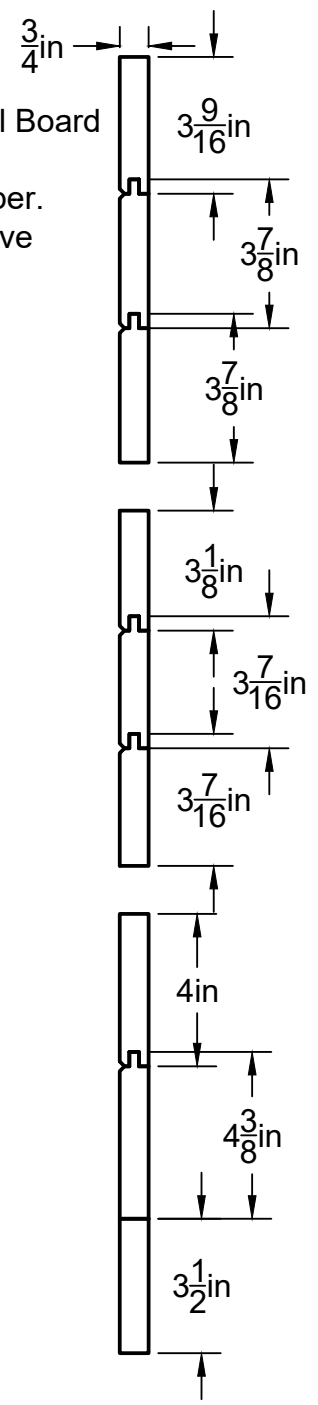
Upper & Middle  
Spacers are Identical



		PROJECT		
		AZ/Langstroth Hive		
		TITLE		
		Lower, Middle, & Upper Front Spacers		
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:16	WEIGHT
			SHEET 10/30	

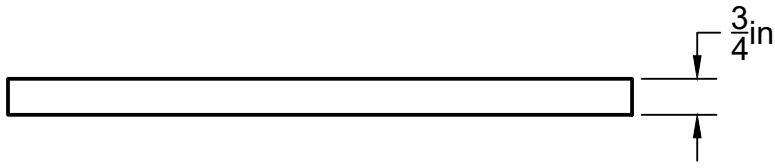


Note: Individual Board Widths to Suit Available Lumber. Tongue & groove optional

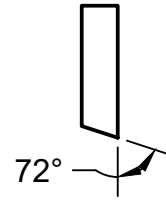
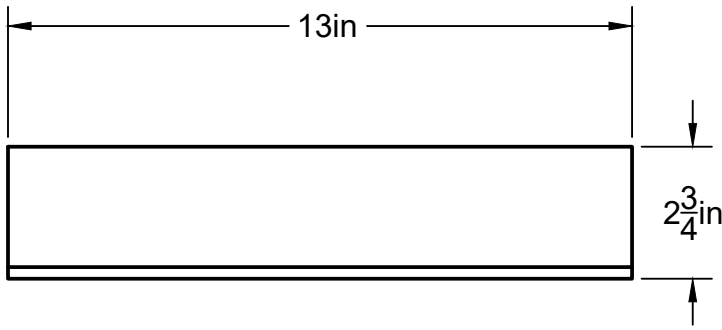


PROJECT  
**AZ/Langstroth Hive**  
 TITLE  
**Outer Front**

APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:16	WEIGHT
			SHEET 11/30	



Screened ventilation  
hole not shown



Note: Trim 13" Dimension  
to provide clearance

PROJECT

**AZ/Langstroth Hive**

TITLE

**Front Door**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

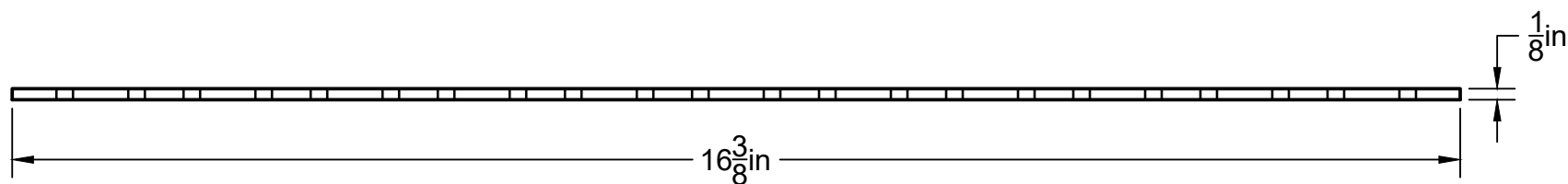
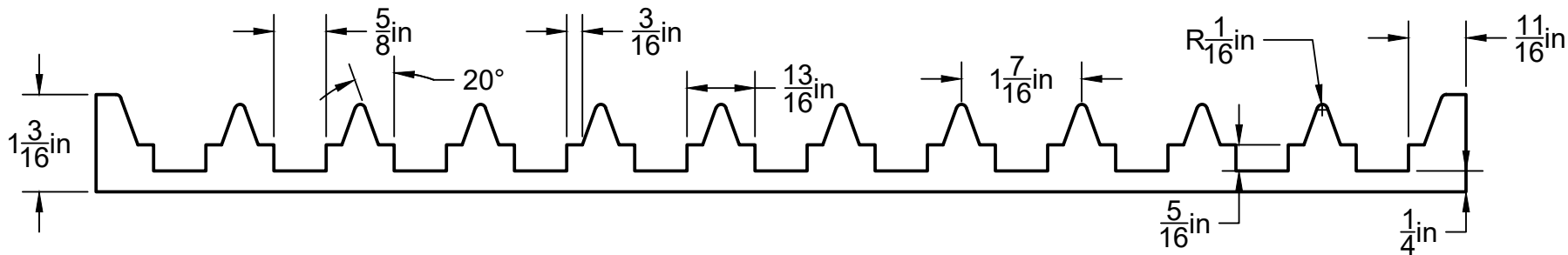
DRAWN

Ronald Ringel 11/19/2017

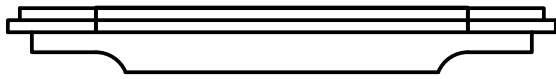
SCALE 1:4

WEIGHT

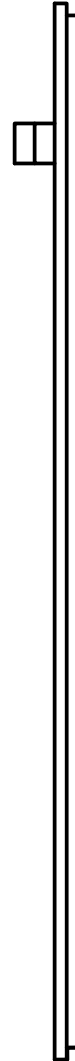
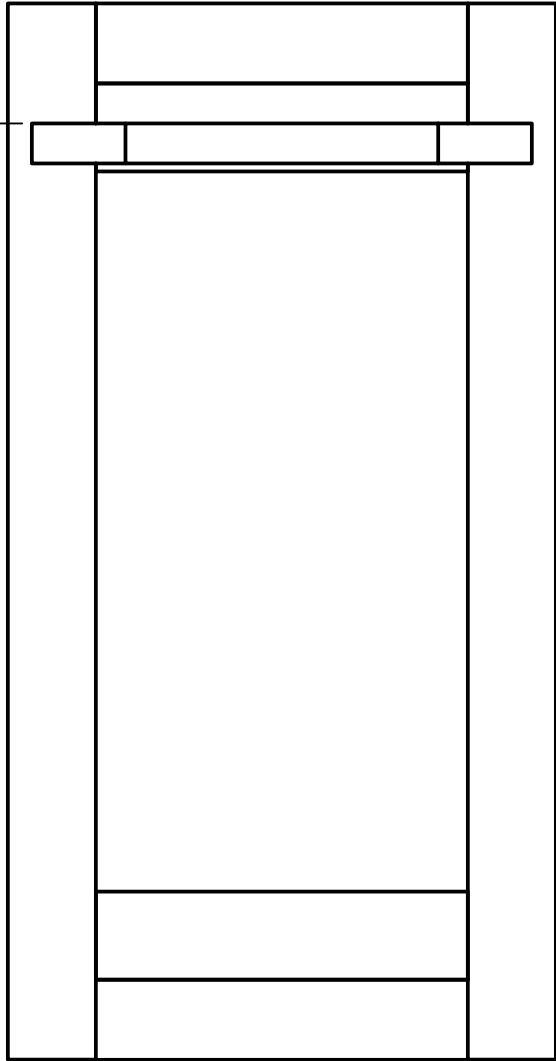
SHEET 12/30



	PROJECT			
	AZ/Langstroth Hive			
	TITLE			
	Frame Spacer			
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:5	WEIGHT
				SHEET 13/30



3 3/4 in



PROJECT

**AZ/Langstroth Hive**

TITLE

**Assembled Door**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

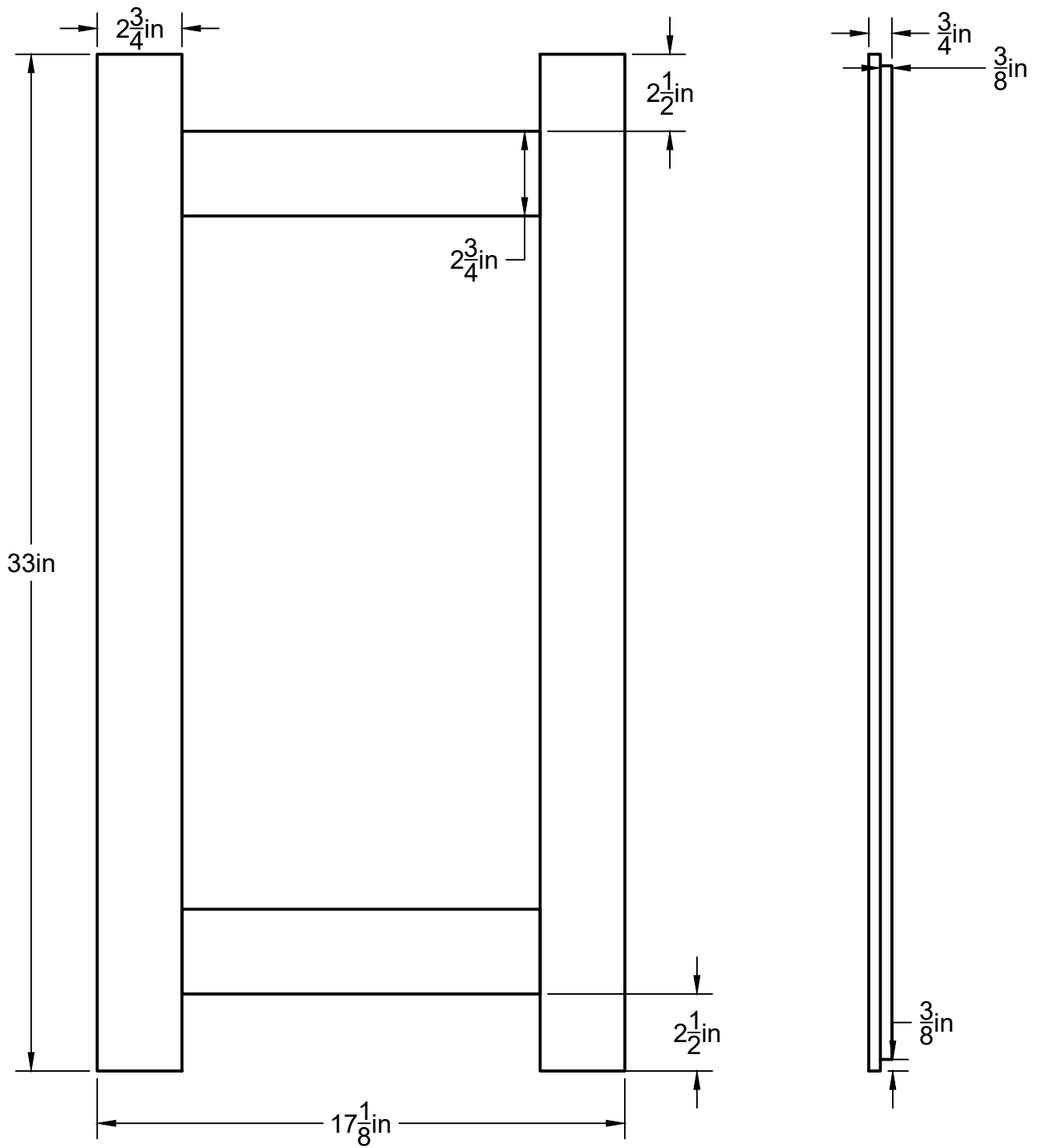
DRAWN

Ronald Ringel 11/19/2017

SCALE 1:10

WEIGHT

SHEET 14/30



PROJECT

**AZ/Langstroth Hive**

TITLE

**Door - Stiles & Rails**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

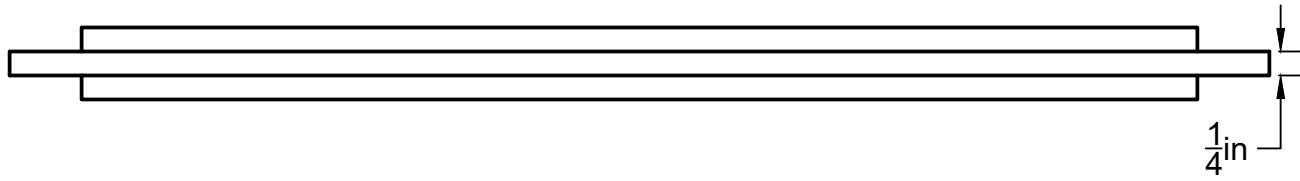
DRAWN

Ronald Ringel 11/19/2017

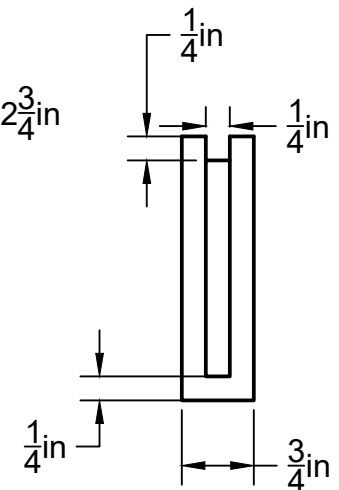
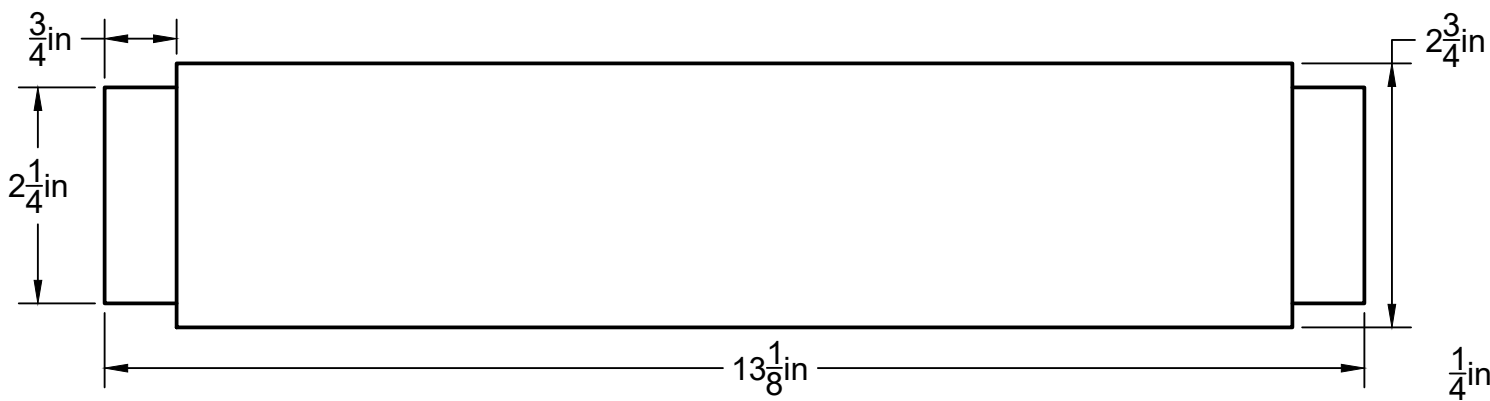
SCALE 1:16

WEIGHT

SHEET 15/30



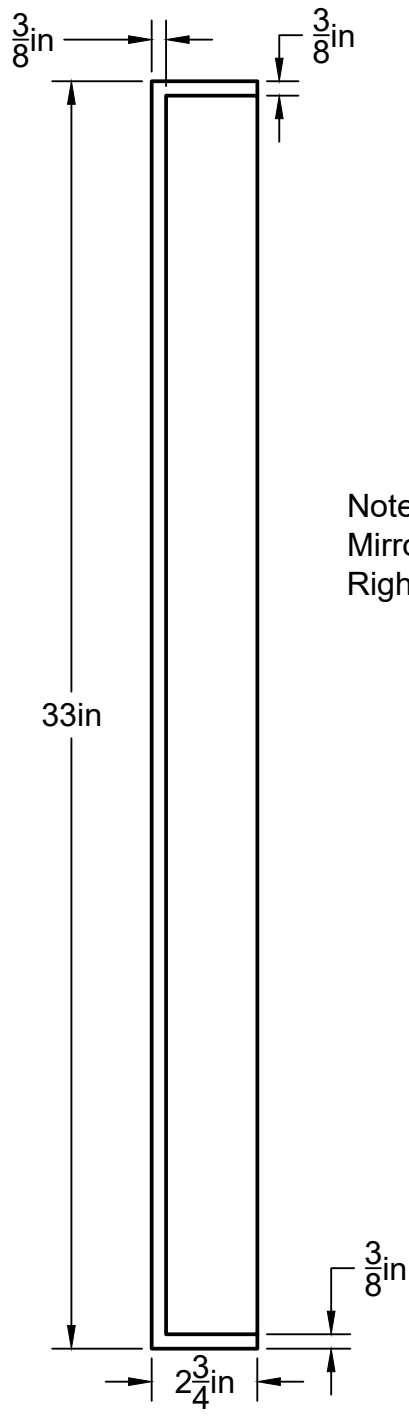
Note: Top Rail is Identical to Bottom Rail



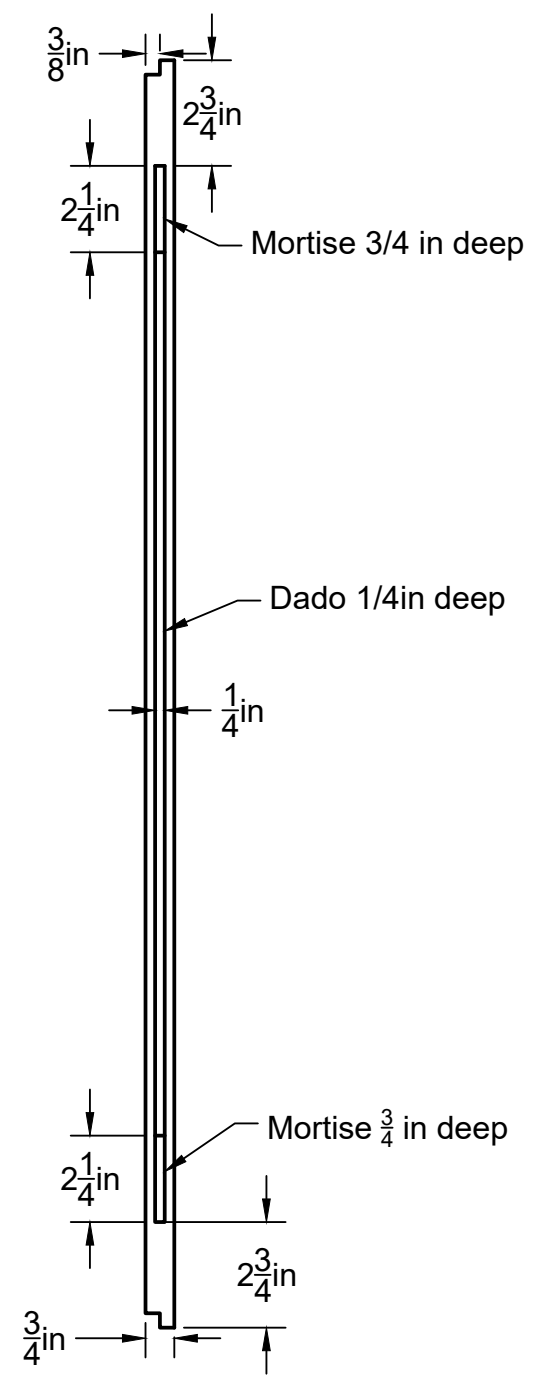
	PROJECT <b>AZ/Langstroth Hive</b>			
	TITLE <b>Door - Rails</b>			
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel 11/19/2017		SCALE 1:8	WEIGHT
			SHEET 16/30	







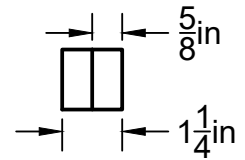
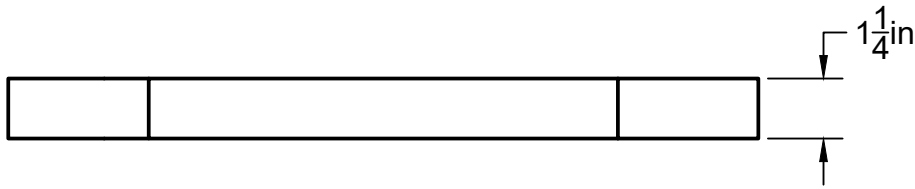
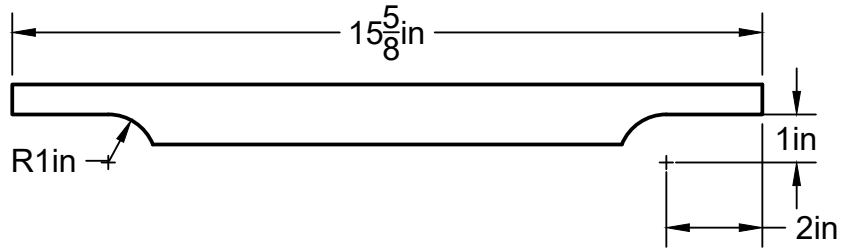
Note: Left Stile is  
Mirror Image of  
Right Stile



PROJECT  
**AZ/Langstroth Hive**

TITLE  
**Door - Stiles**

APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:5	WEIGHT
			SHEET 17/30	



PROJECT

**AZ/Langstroth Hive**

TITLE

**Door - Handle**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

DRAWN

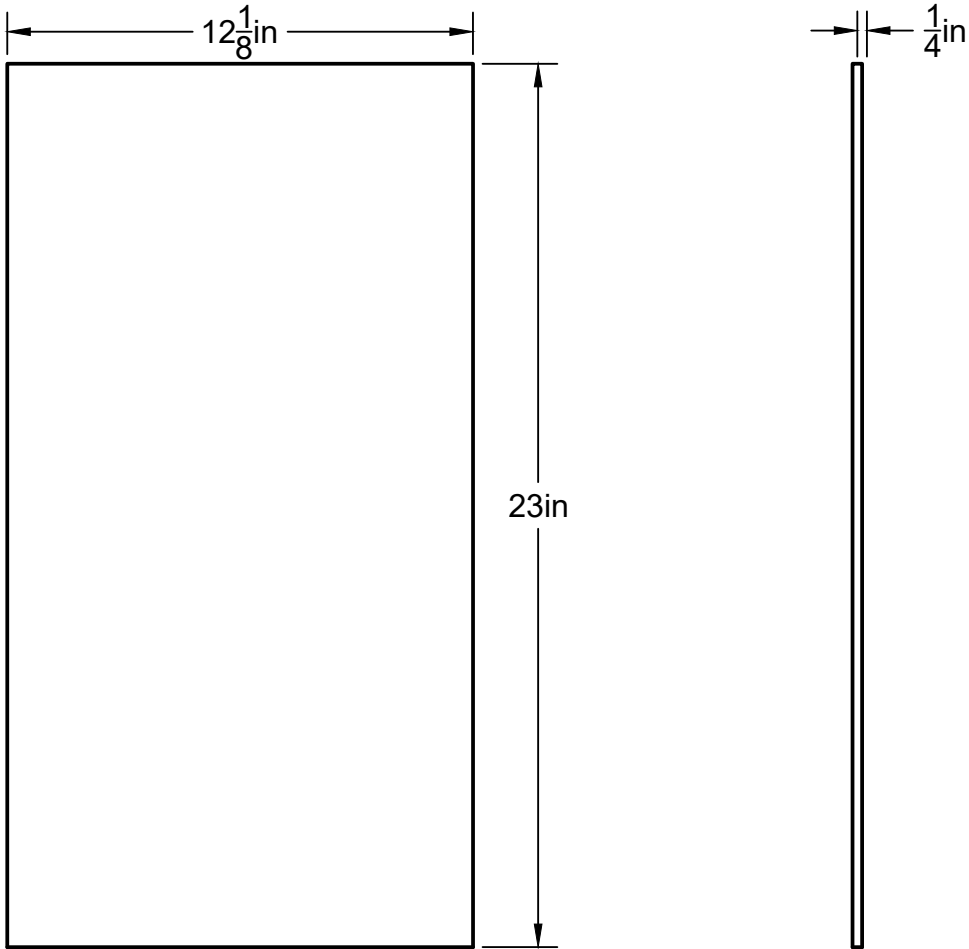
Ronald Ringel 11/19/2017

SCALE 1:10

WEIGHT

SHEET 18/30

Note: Trim door panel to allow for expansion/contraction.  
 Raised panel can be used.



PROJECT

**AZ/Langstroth Hive**

TITLE

**Door - Panel**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

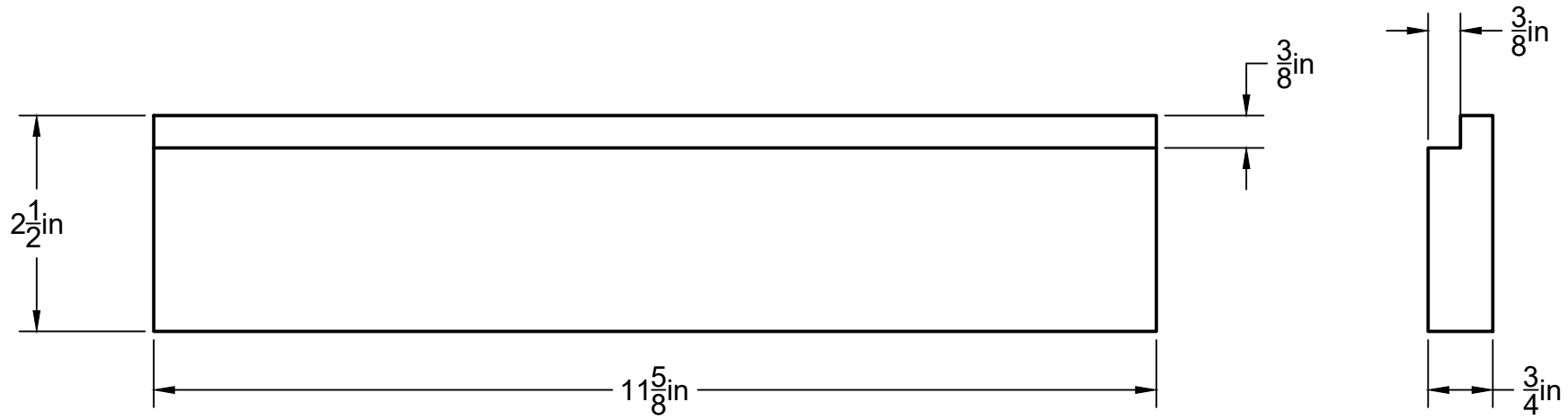
DRAWN

Ronald Ringel 11/19/2017

SCALE 1:5

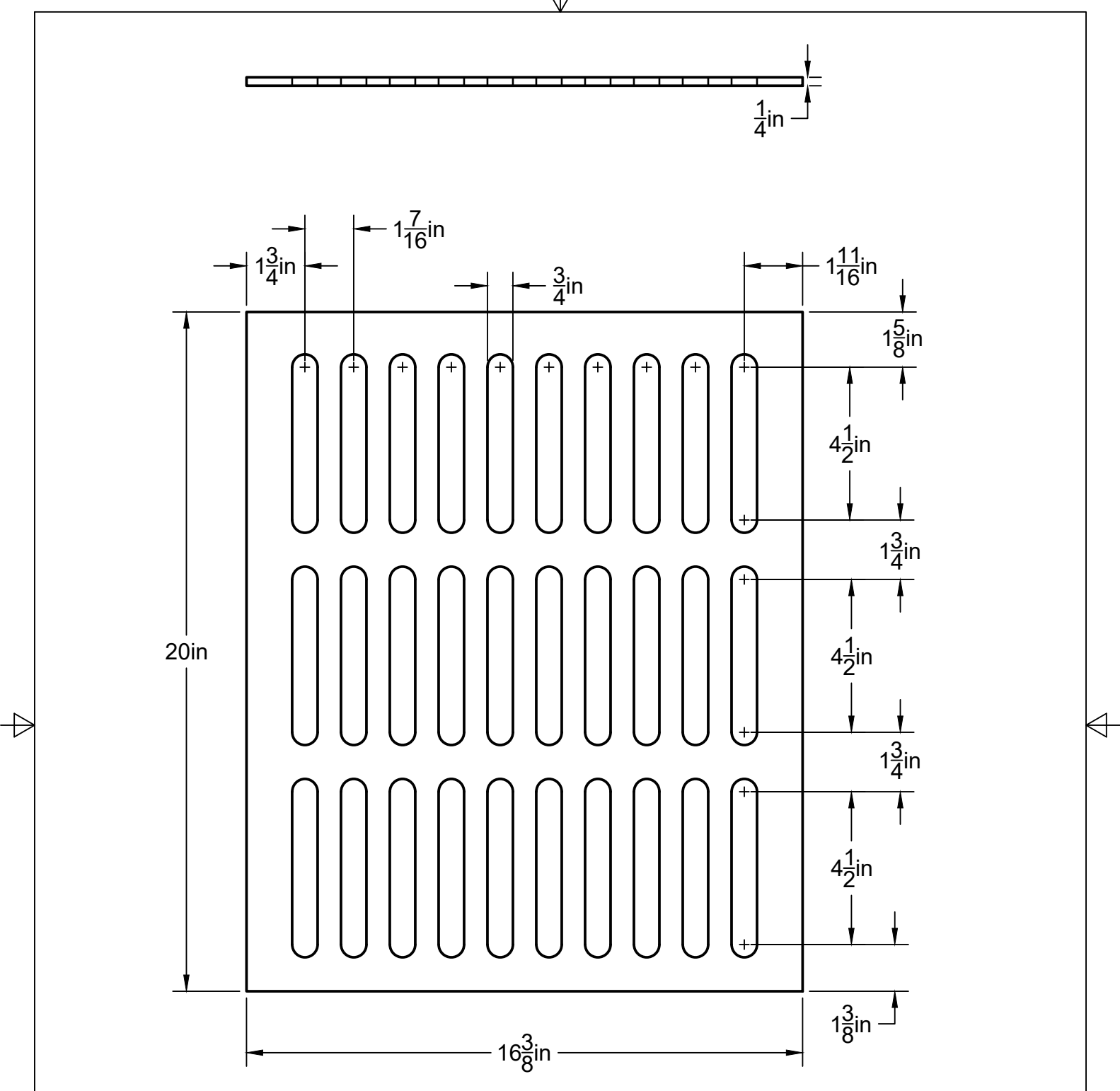
WEIGHT

SHEET 19/30



	PROJECT			
	AZ/Langstroth Hive			
	TITLE			
	Door - Vents			
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:4	WEIGHT
				SHEET 20/30

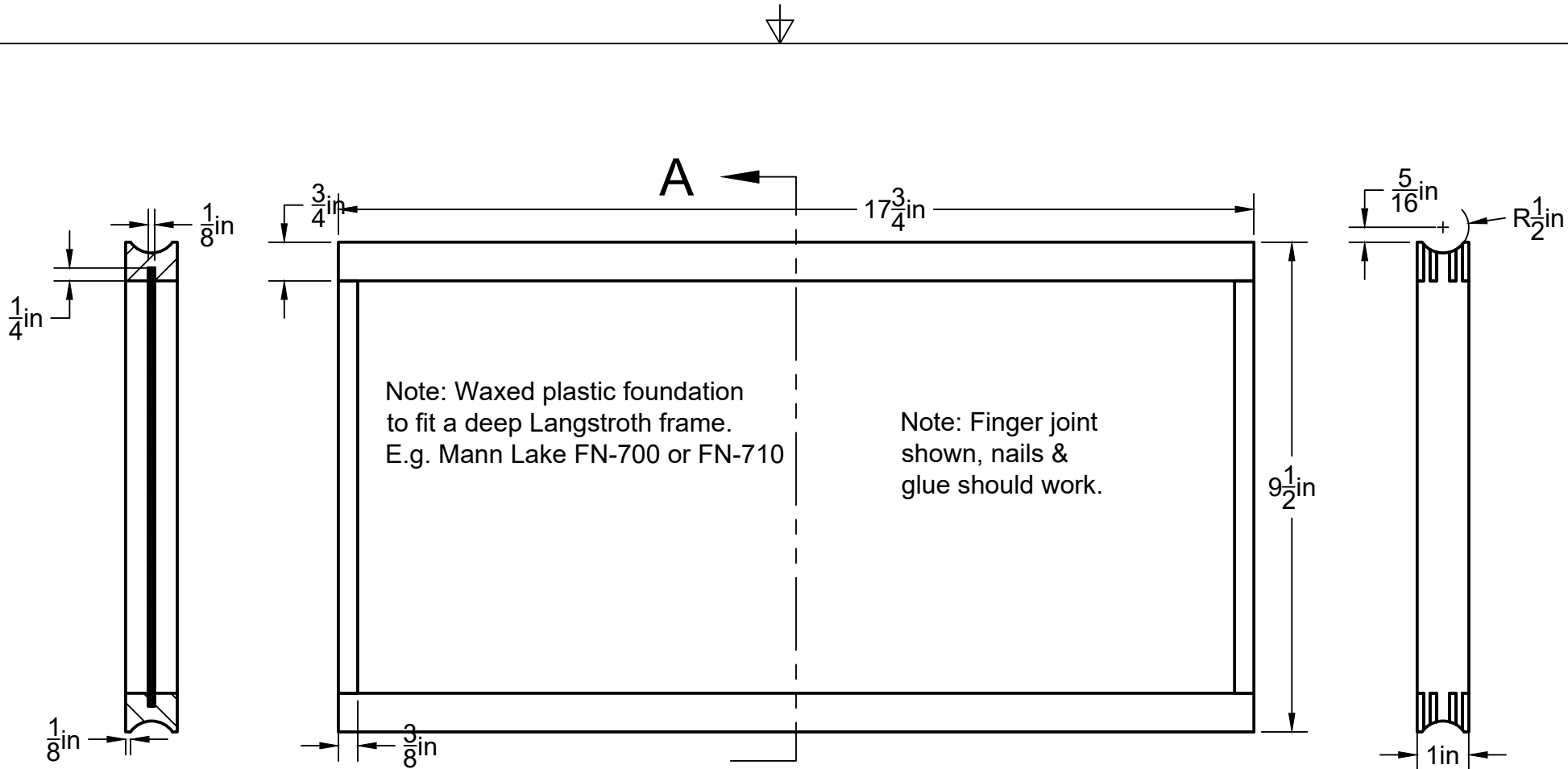




PROJECT  
**AZ/Langstroth Hive**

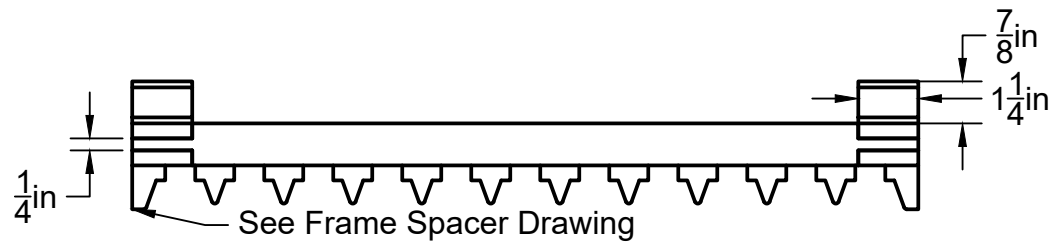
TITLE  
**Slat Divider**

APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:10	WEIGHT
			SHEET 21/30	

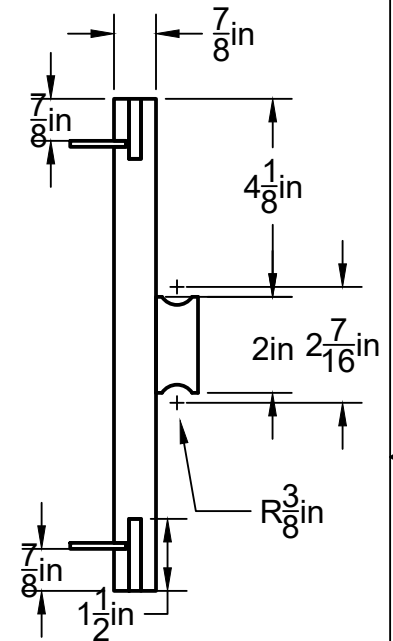
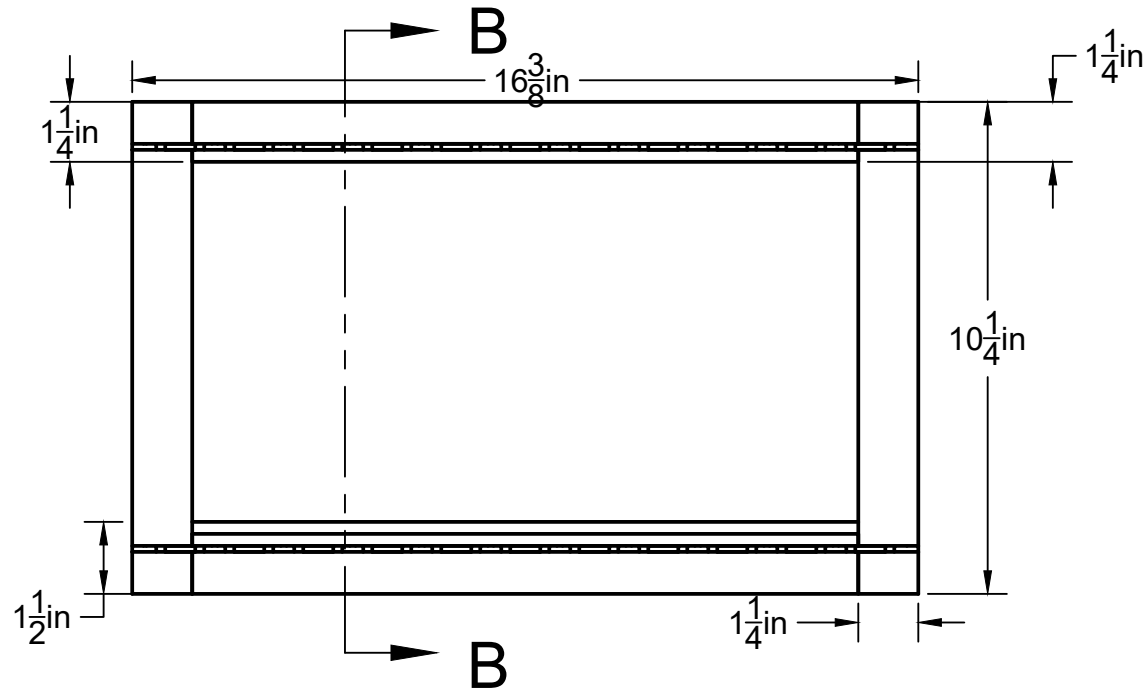
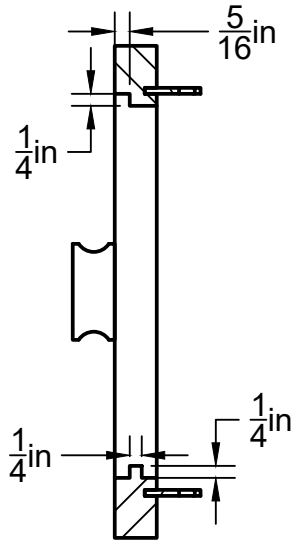


**SECTION A-A**  
**SCALE 1:3**

		PROJECT			
		<b>AZ/Langstroth Hive</b>			
		TITLE			
		<b>Frame</b>			
APPROVED	SIZE	CODE	DWG NO	REV	
CHECKED	A				
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:4	WEIGHT	
				SHEET 22/30	

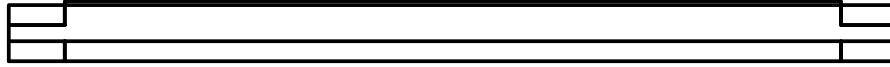


Note: Width is an exact fit.  
Trim slightly to allow  
installation/removal.

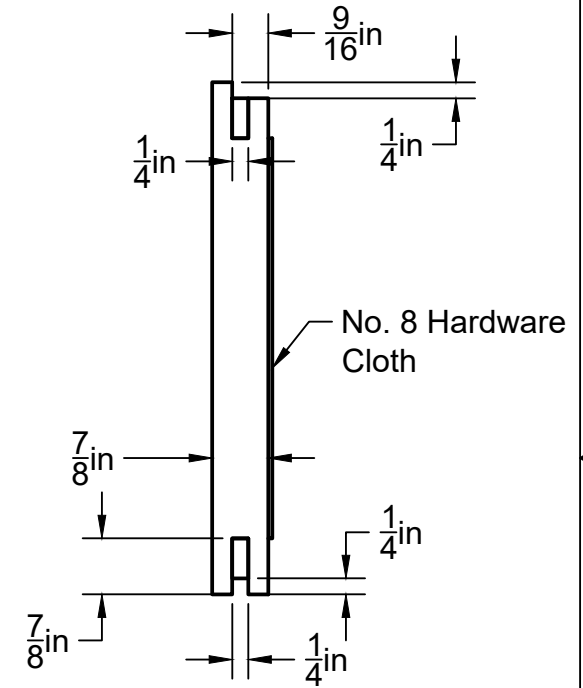
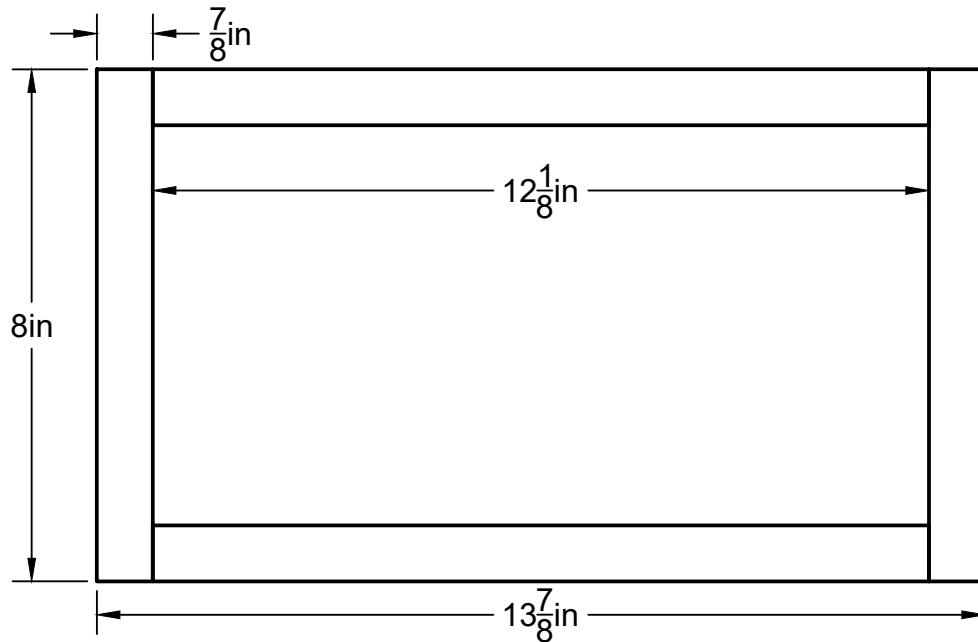


**SECTION B-B**  
**SCALE 1:4**

		PROJECT <b>AZ/Langstroth Hive</b>			
		TITLE <b>Back Screen/Feeder Frame</b>			
APPROVED	SIZE	CODE	DWG NO	REV	
CHECKED	A				
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:5	WEIGHT	
			SHEET 23/30		

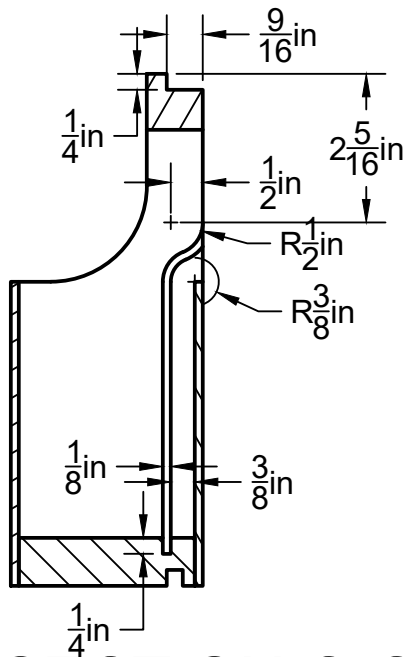


I found it easier to cut the bottom dado and the top rabbet after the frame was assembled.



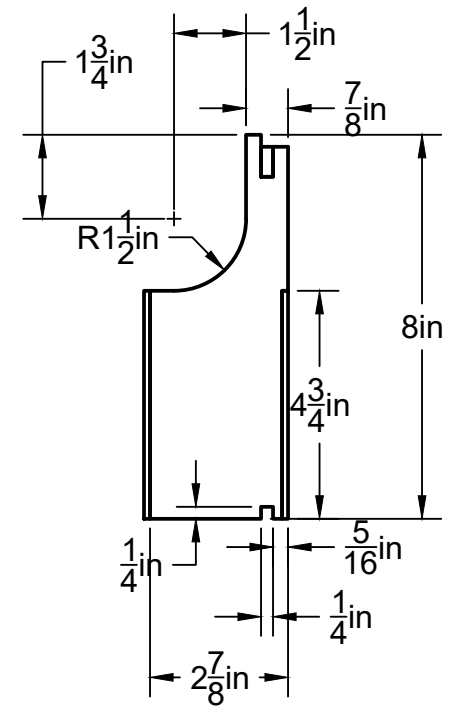
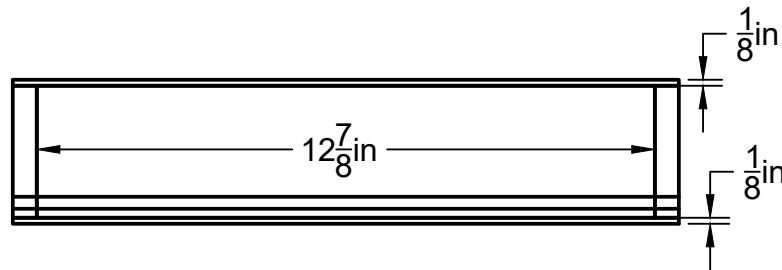
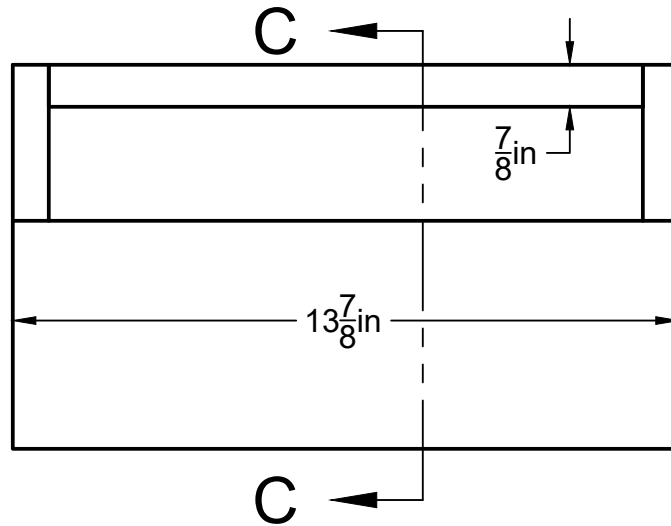
	PROJECT			
	AZ/Langstroth Hive			
	TITLE			
	Back Screen Inserts			
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:5	WEIGHT
				SHEET 24/30



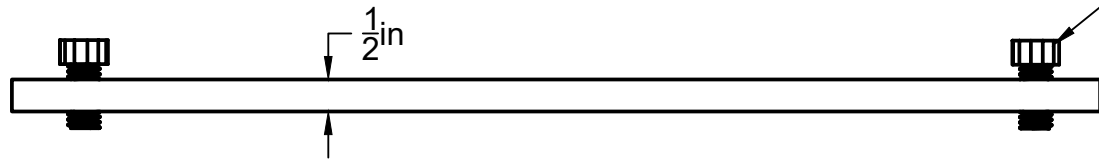


**SECTION C-C**  
**SCALE 1:3**

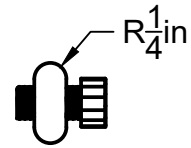
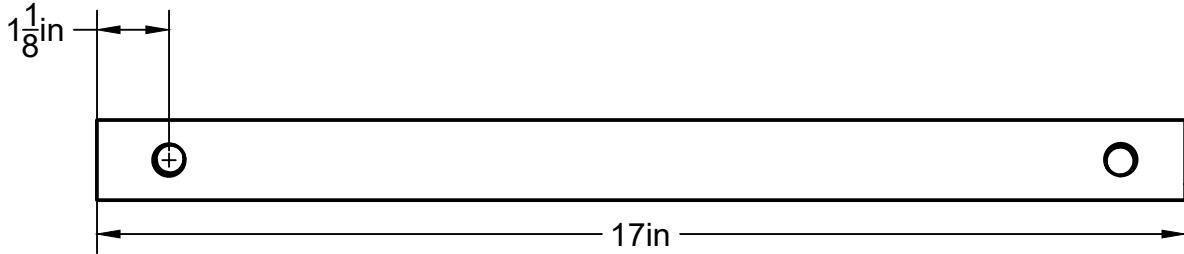
I used a  $\frac{1}{4}$  mdf template to route the groove for the screen.



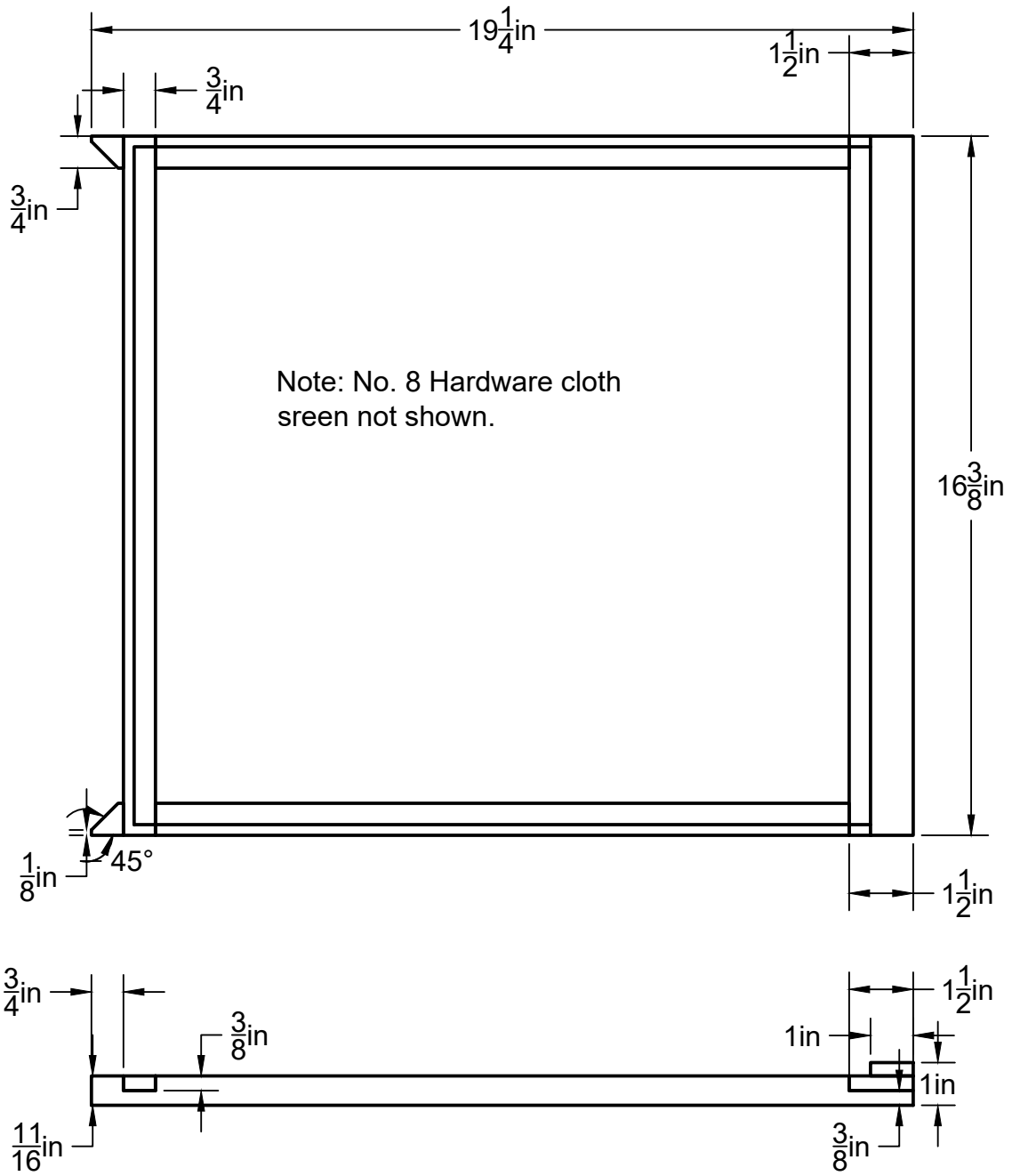
		PROJECT <b>AZ/Langstroth Hive</b>			
		TITLE <b>Back Screen/Feeder</b>			
APPROVED	SIZE	CODE	DWG NO	REV	
CHECKED	A				
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:3	WEIGHT	
			SHEET 25/30		



Make or buy thumbscrews to suit.



		PROJECT		
		AZ/Langstroth Hive		
		TITLE		
		Back Locking Bars		
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:3	WEIGHT
			SHEET 26/30	



PROJECT

**AZ/Langstroth Hive**

TITLE

**Varroa Screen P1**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

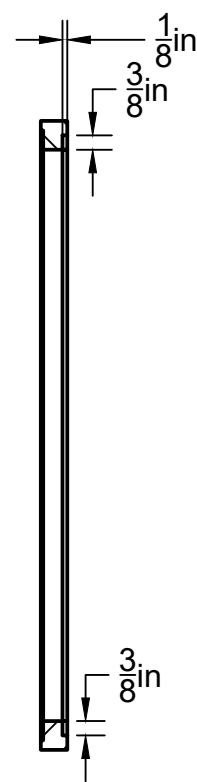
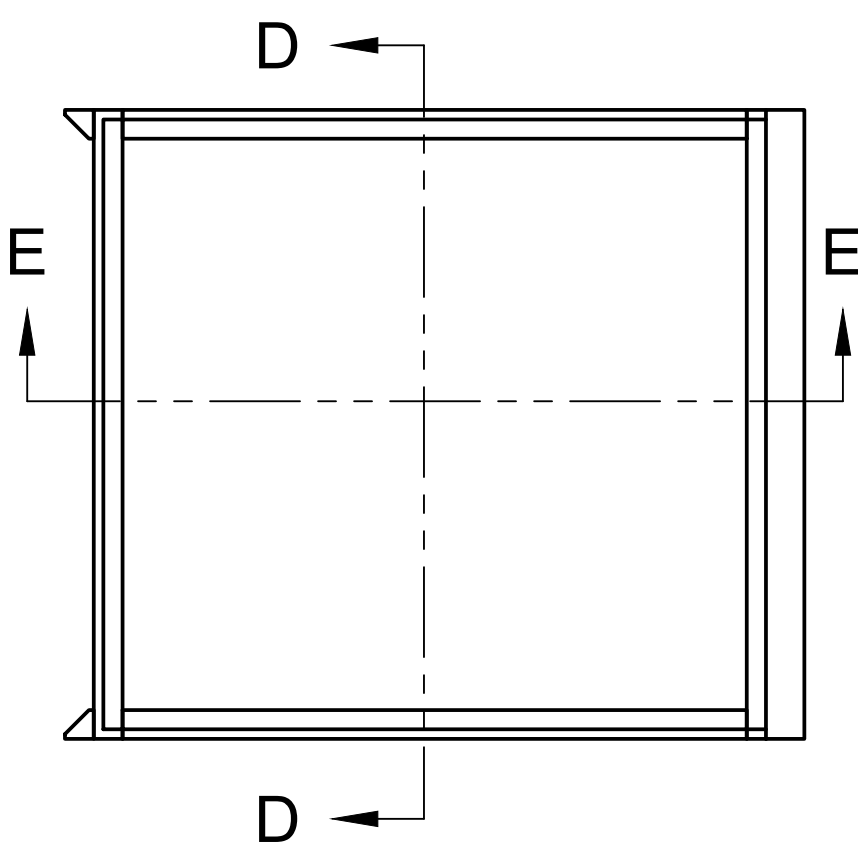
DRAWN

Ronald Ringel 11/19/2017

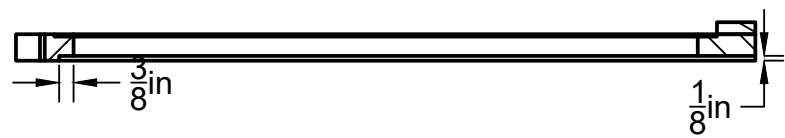
SCALE 1:5

WEIGHT

SHEET 27/30



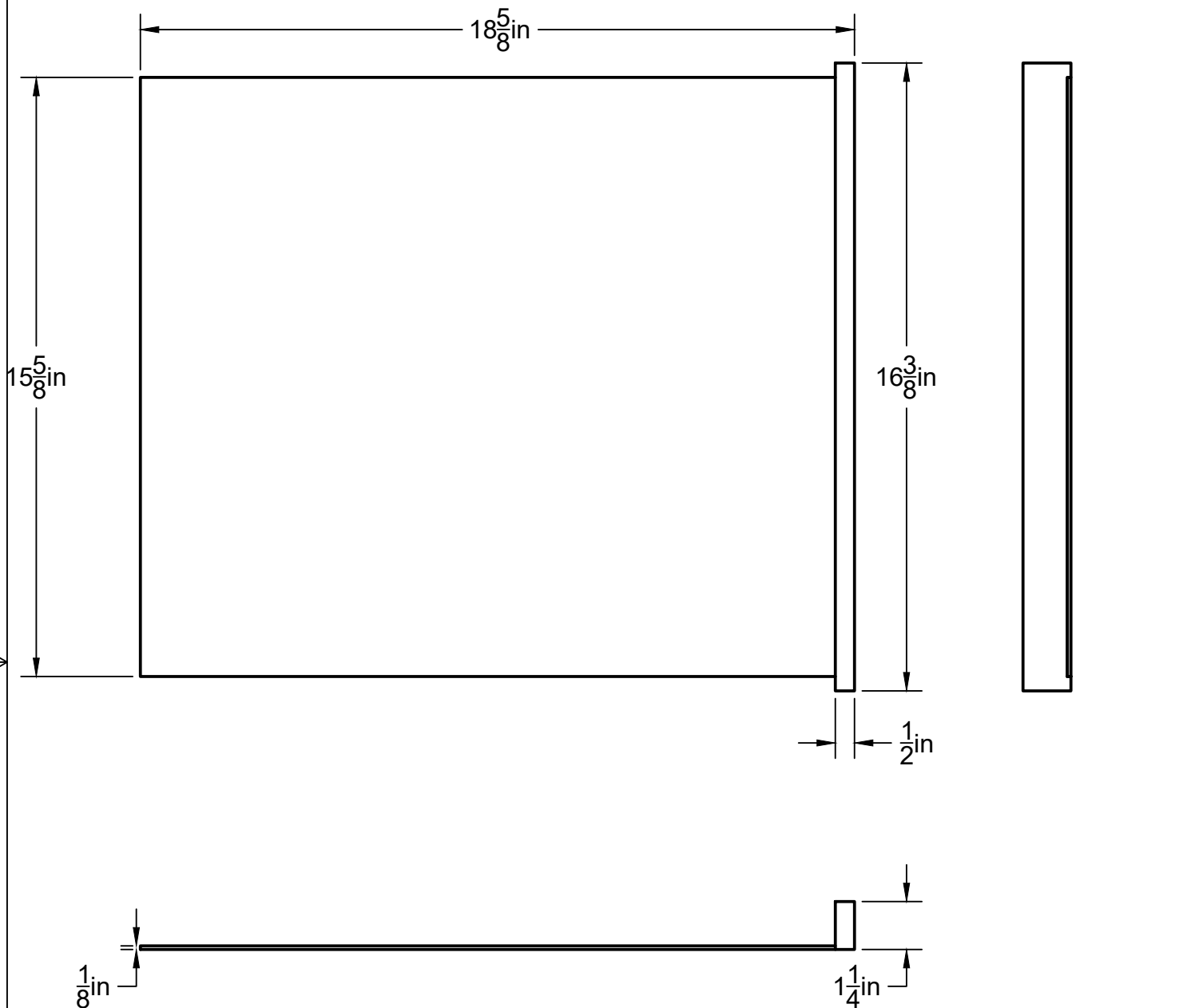
SECTION D-D  
SCALE 1:5



SECTION E-E  
SCALE 1:5

	PROJECT			
	AZ/Langstroth Hive			
	TITLE			
	Varroa Screen P2			

APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:5	WEIGHT
			SHEET	28/30



PROJECT

**AZ/Langstroth Hive**

TITLE

**Varroa Tray**

APPROVED

SIZE

CODE

DWG NO

REV

CHECKED

A

DRAWN

Ronald Ringel 11/19/2017

SCALE 1:4

WEIGHT

SHEET 29/30

**Queen Excluder:**

Metal bound 10 Frame Langstroth queen excluder. E.g. Mann Lake HD-120.

**Queen Excluder/Divider Supports:**

Aluminum angle -  $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{16}$ .

Plans show length of  $18 \frac{1}{16}$ , but a 3 foot section cut in half should work.

**Frame Support Rods:**

Steel  $\frac{3}{8} \times 16 \frac{7}{8}$ .

	PROJECT			
	<b>AZ/Langstroth Hive</b>			
	TITLE			
	<b>Miscellaneous Parts</b>			
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE	WEIGHT
				SHEET 30/30