



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

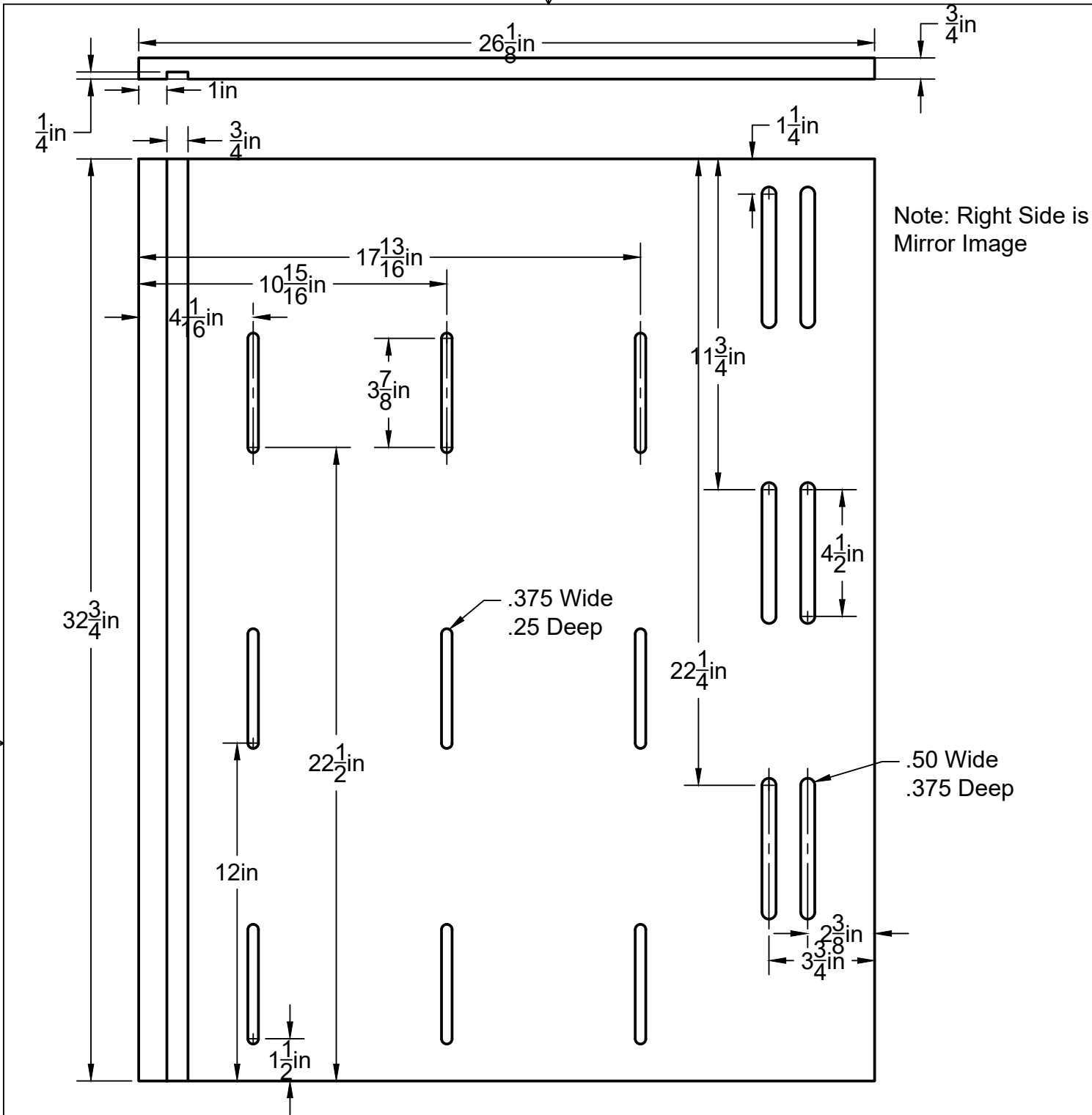
DRAWN

Ronald Ringel 11/19/2017

SCALE 1:5

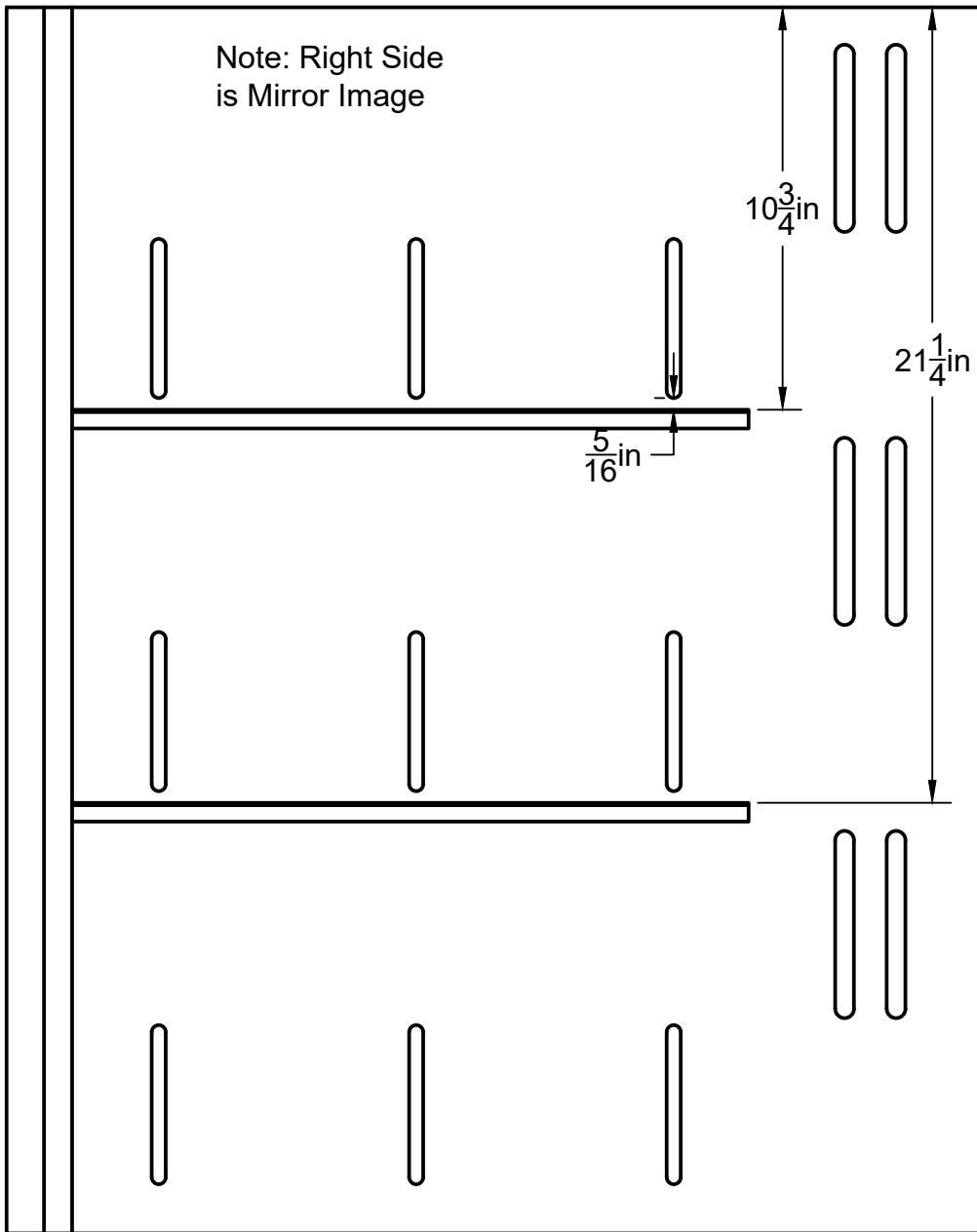
WEIGHT

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

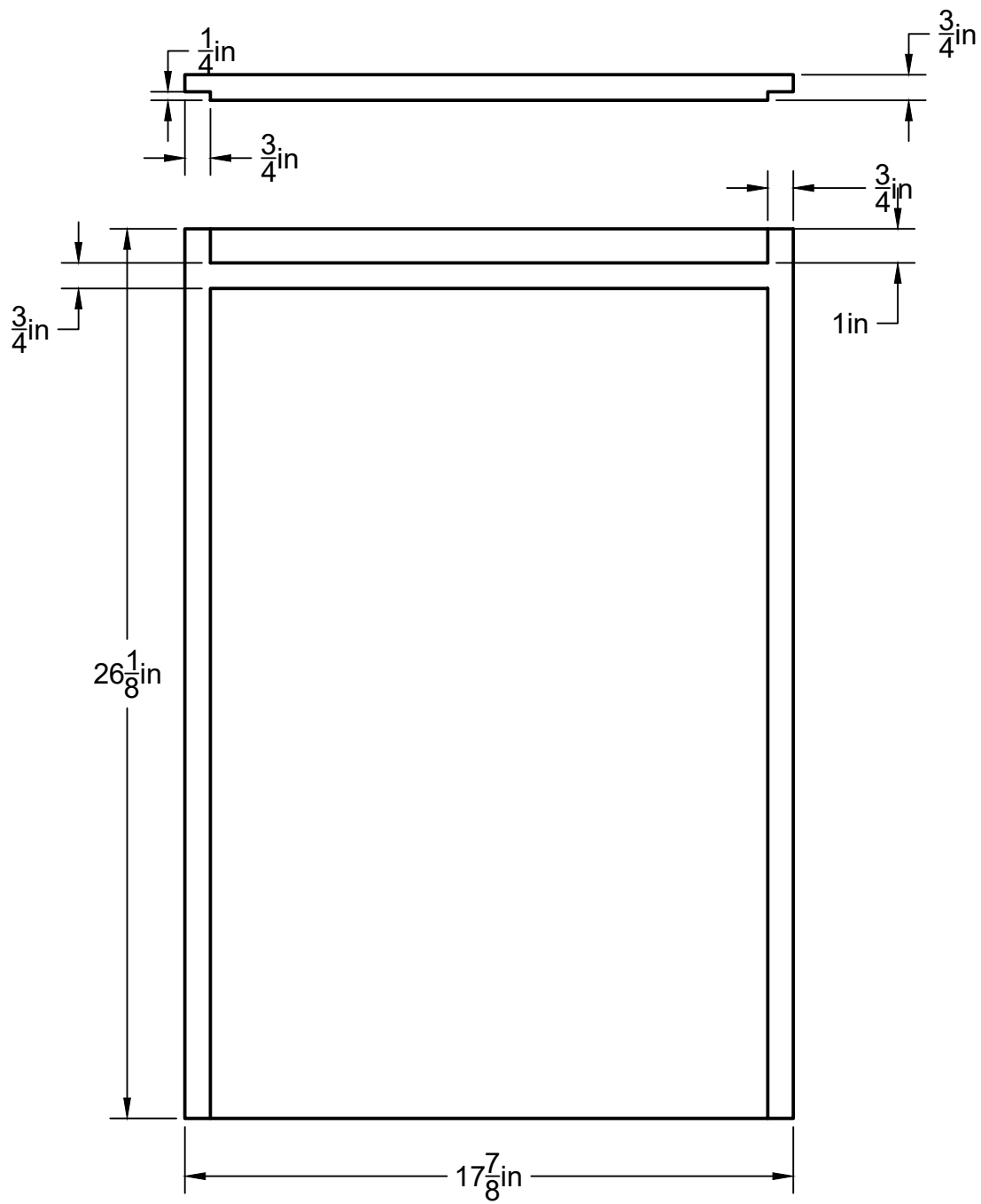
DRAWN

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

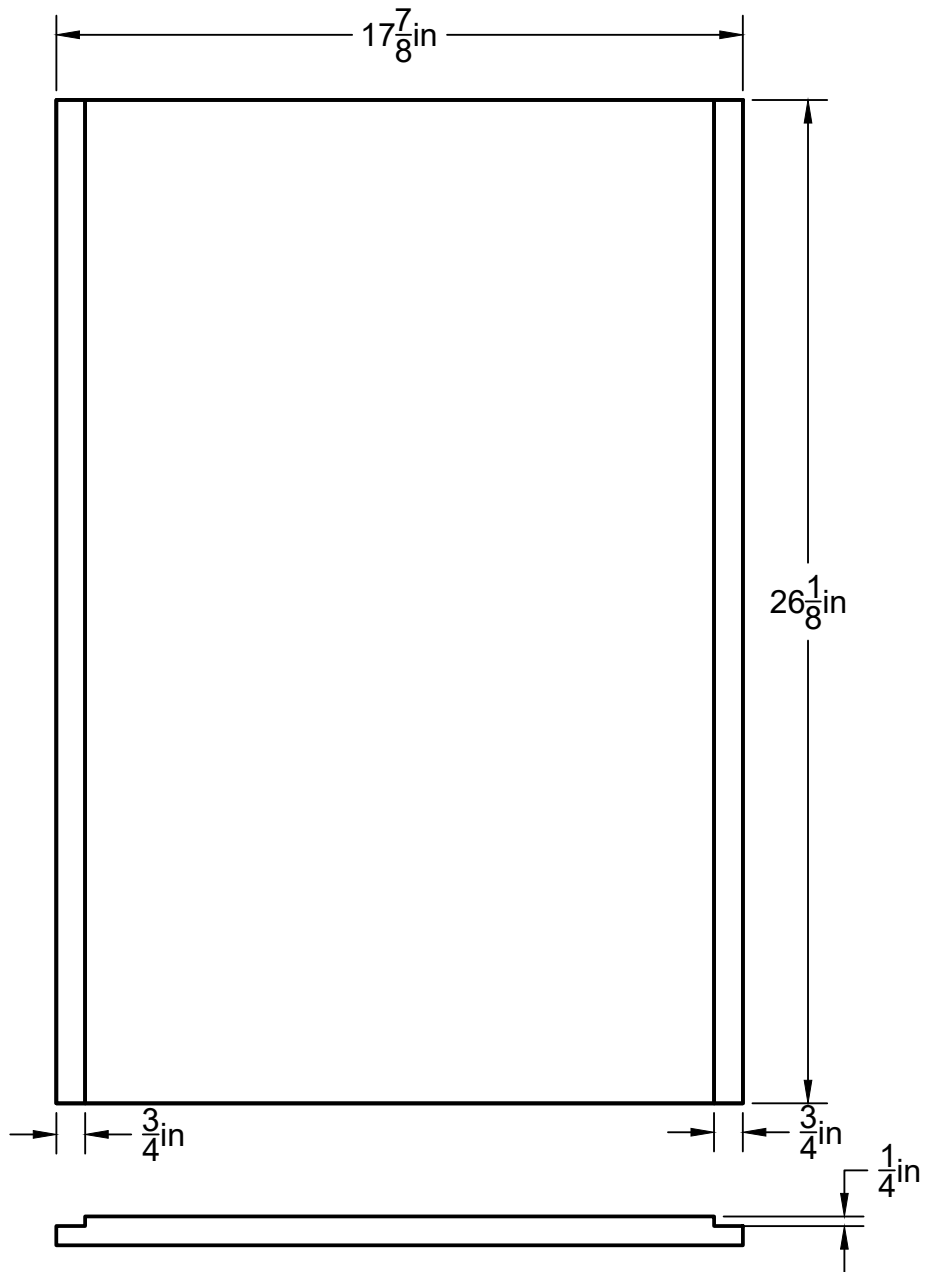
DRAWN

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

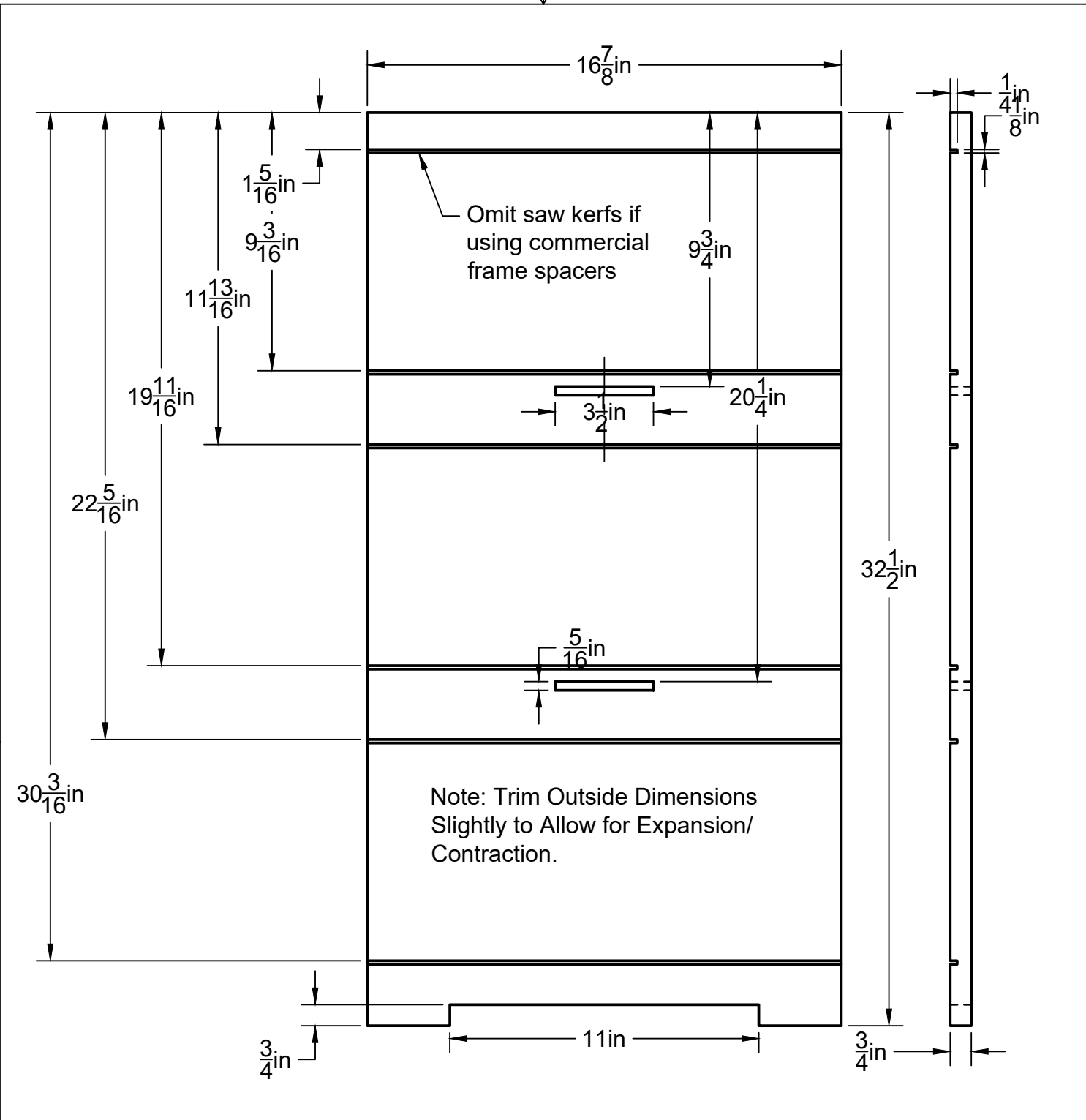
DRAWN

Ronald Ringel 11/19/2017

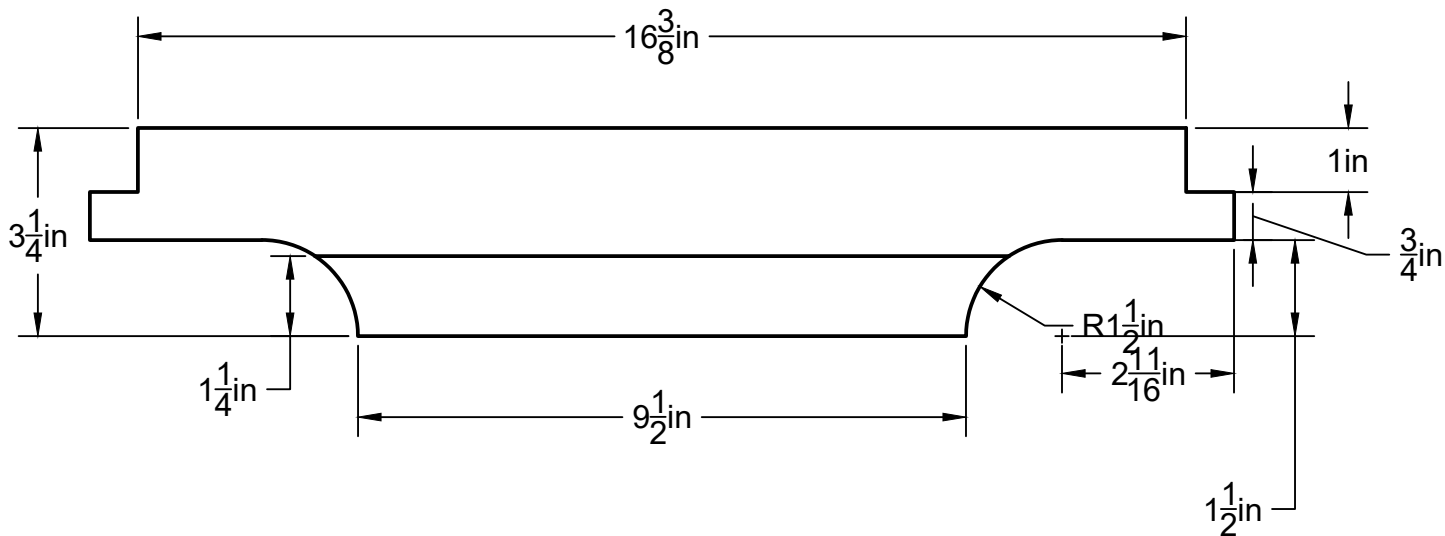
SCALE 1:8

WEIGHT

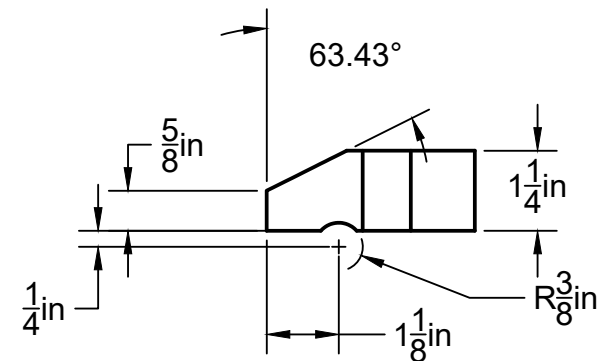
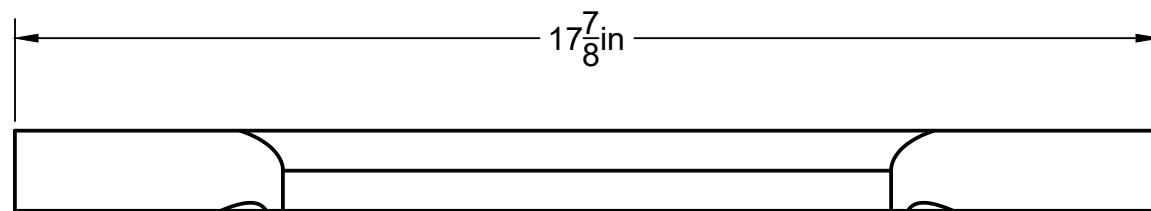
SHEET 7/30



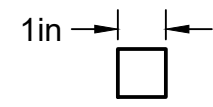
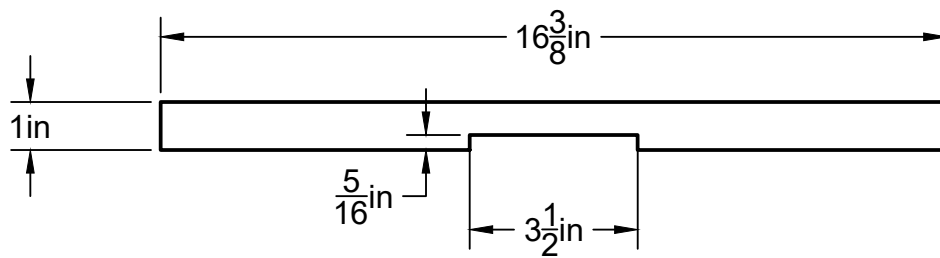
PROJECT		AZ/Langstroth Hive		
TITLE		Inner Front		
(Inside or Back of Inner Front Shown)				
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:5	WEIGHT
			SHEET 8/30	



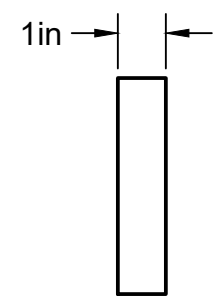
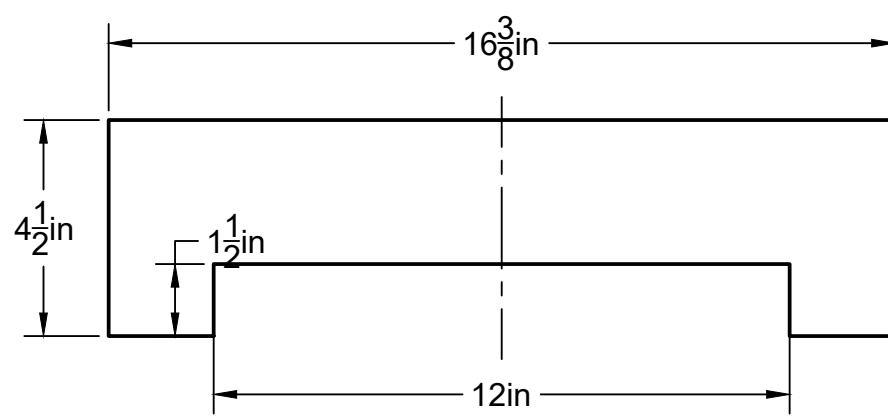
Upper & Middle Chins are Identical



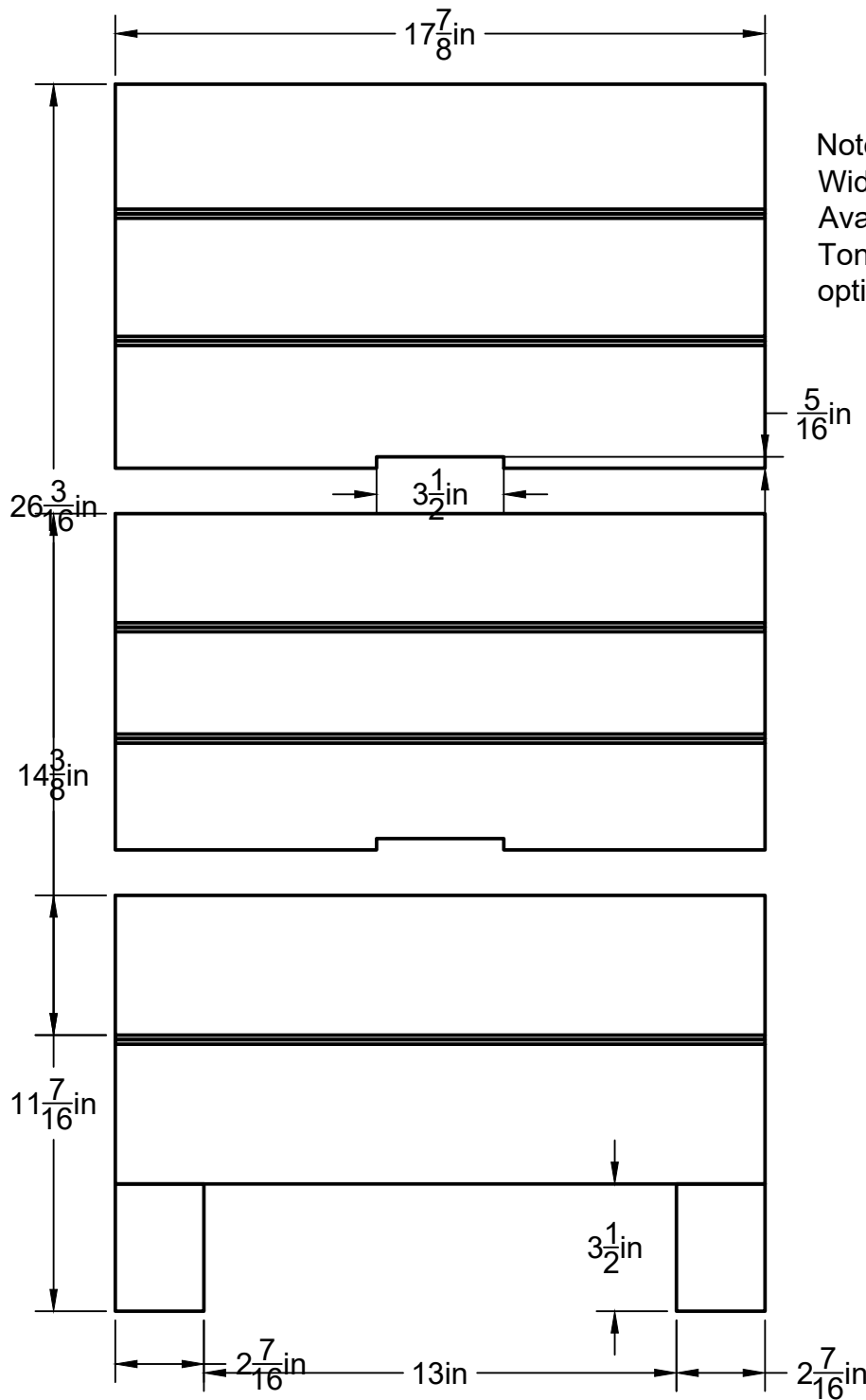
		PROJECT			
		AZ/Langstroth Hive			
		TITLE			
		Upper & Middle Chins			
APPROVED	SIZE	CODE	DWG NO	REV	
CHECKED	A				
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:5	WEIGHT	
				SHEET 9/30	



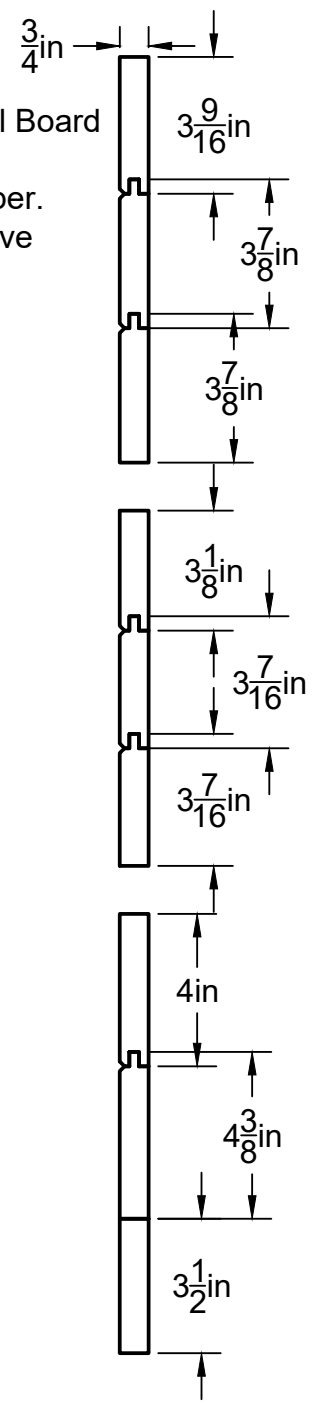
Upper & Middle
Spacers are Identical



	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

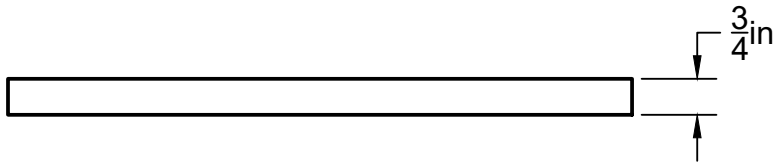


Note: Individual Board Widths to Suit Available Lumber. Tongue & groove optional

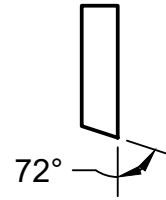
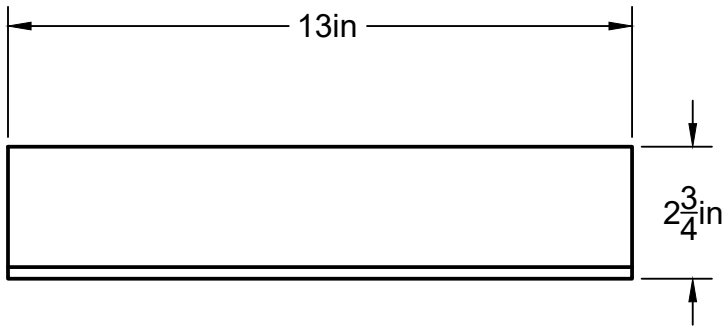


PROJECT
AZ/Langstroth Hive
 TITLE
Outer Front

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

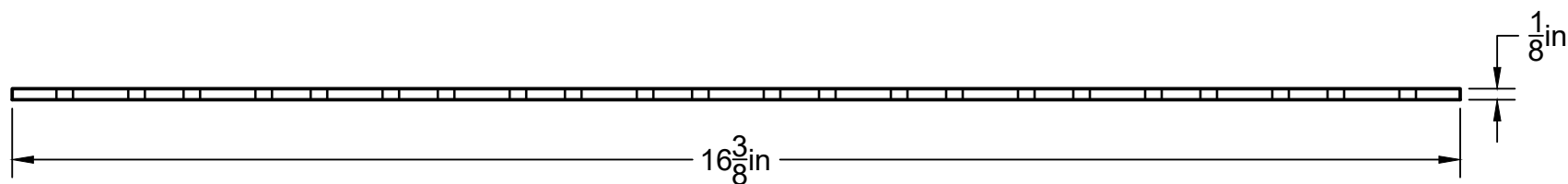
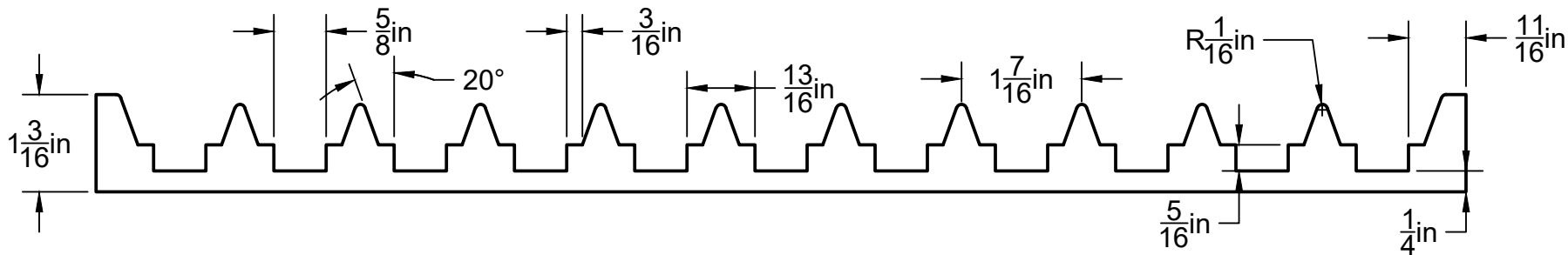
DRAWN

Ronald Ringel 11/19/2017

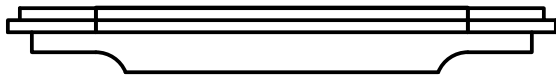
SCALE 1:4

WEIGHT

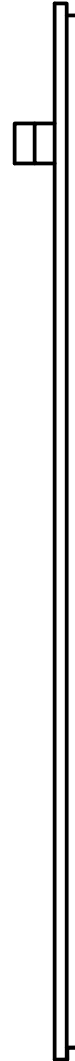
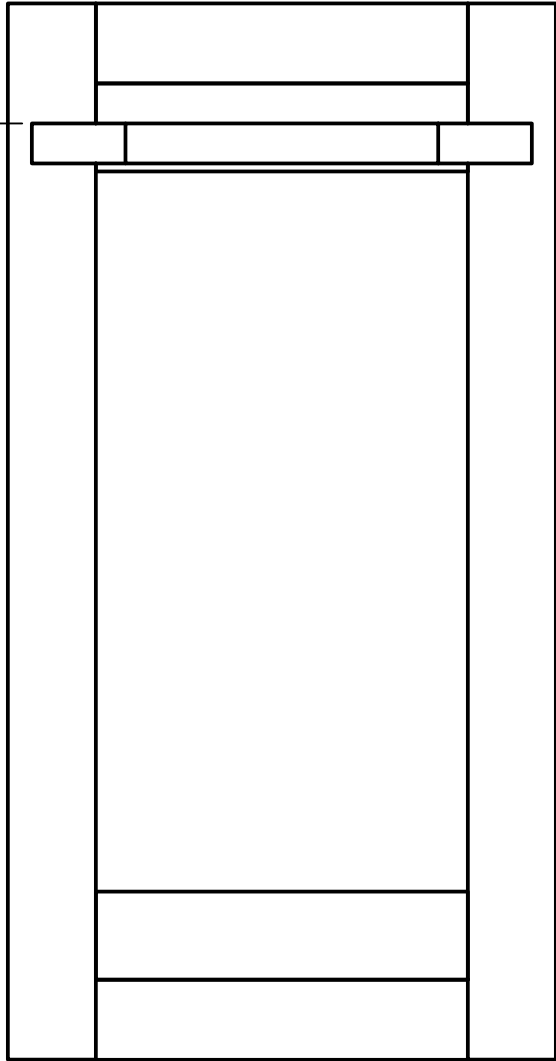
SHEET 12/30



	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

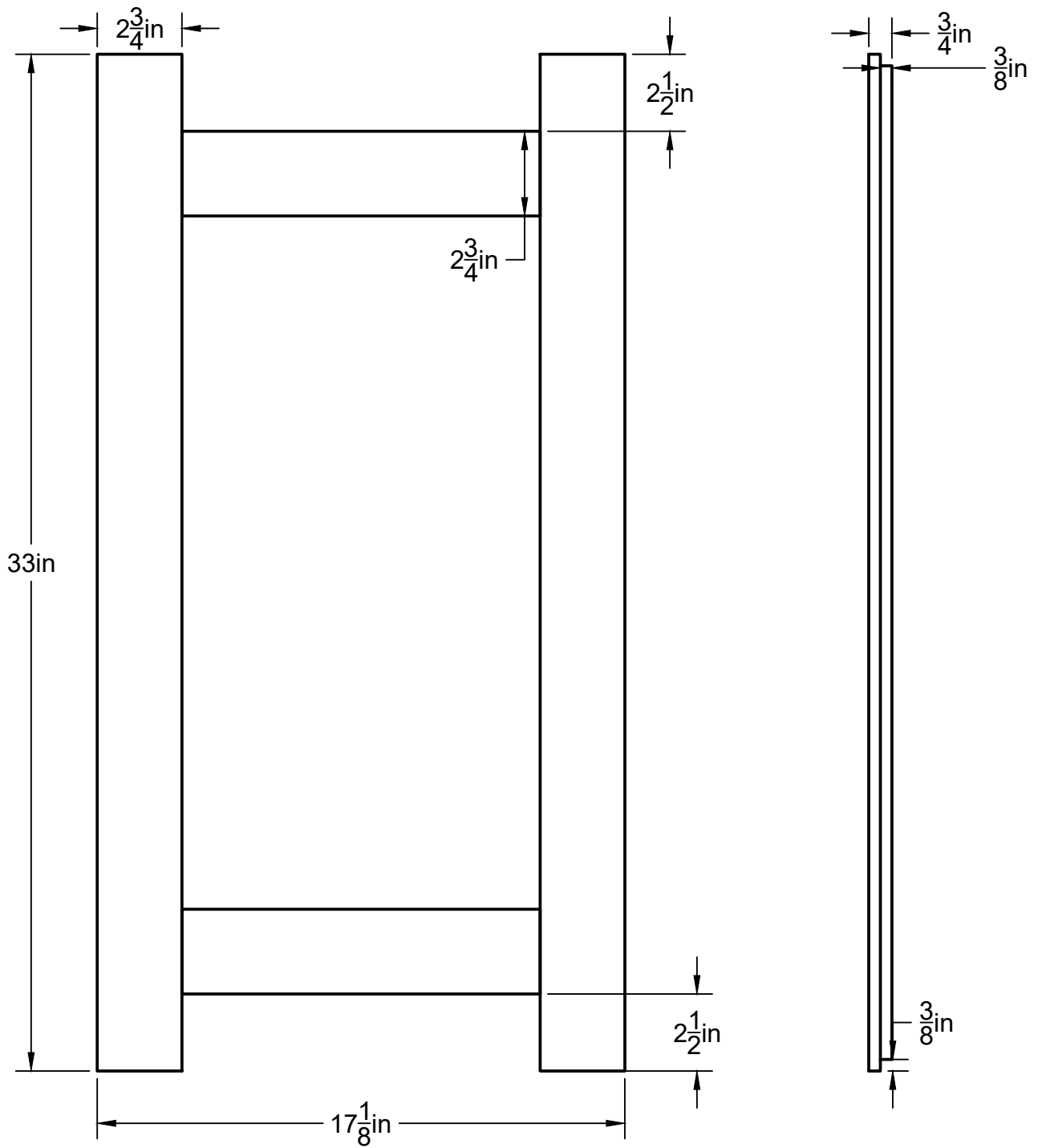
DRAWN

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

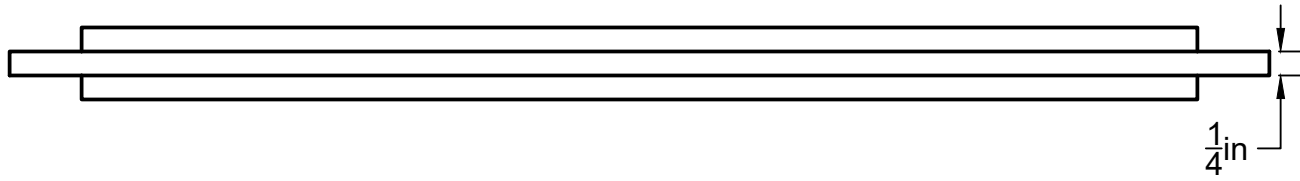
DRAWN

Ronald Ringel 11/19/2017

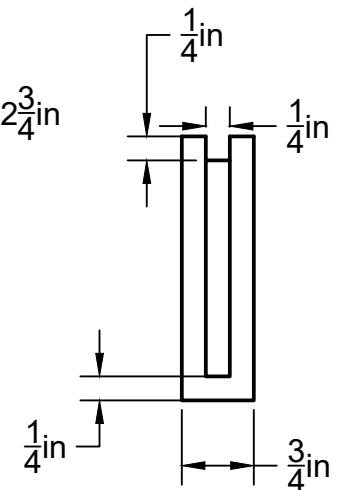
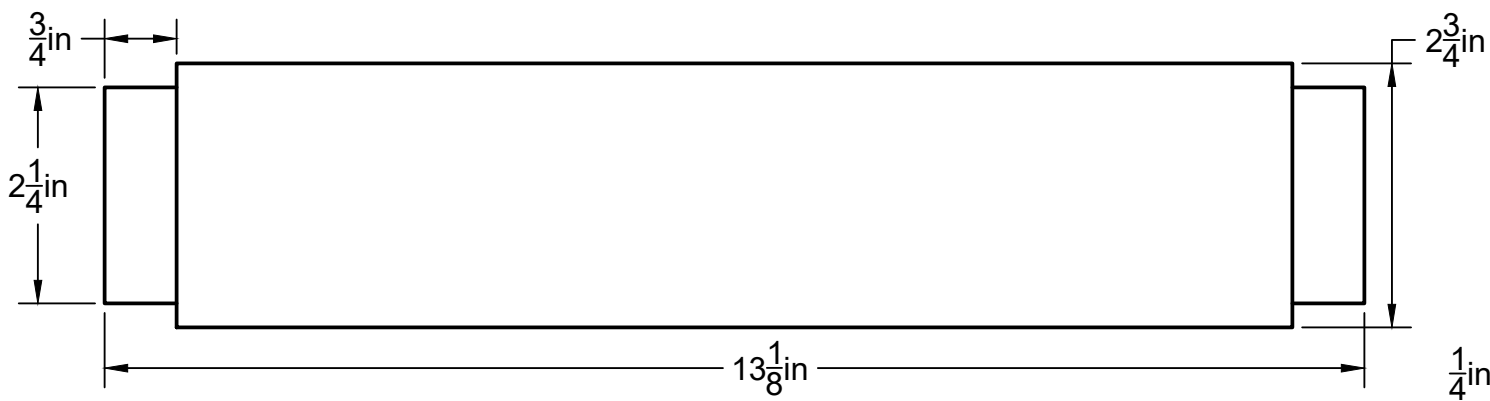
SCALE 1:16

WEIGHT

SHEET 15/30

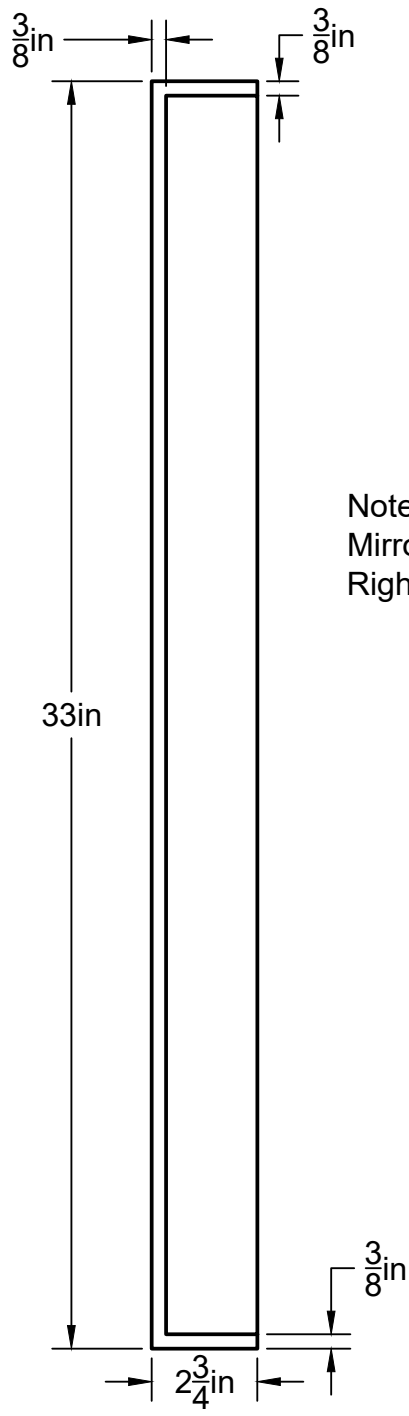


Note: Top Rail
is Identical to
Bottom Rail

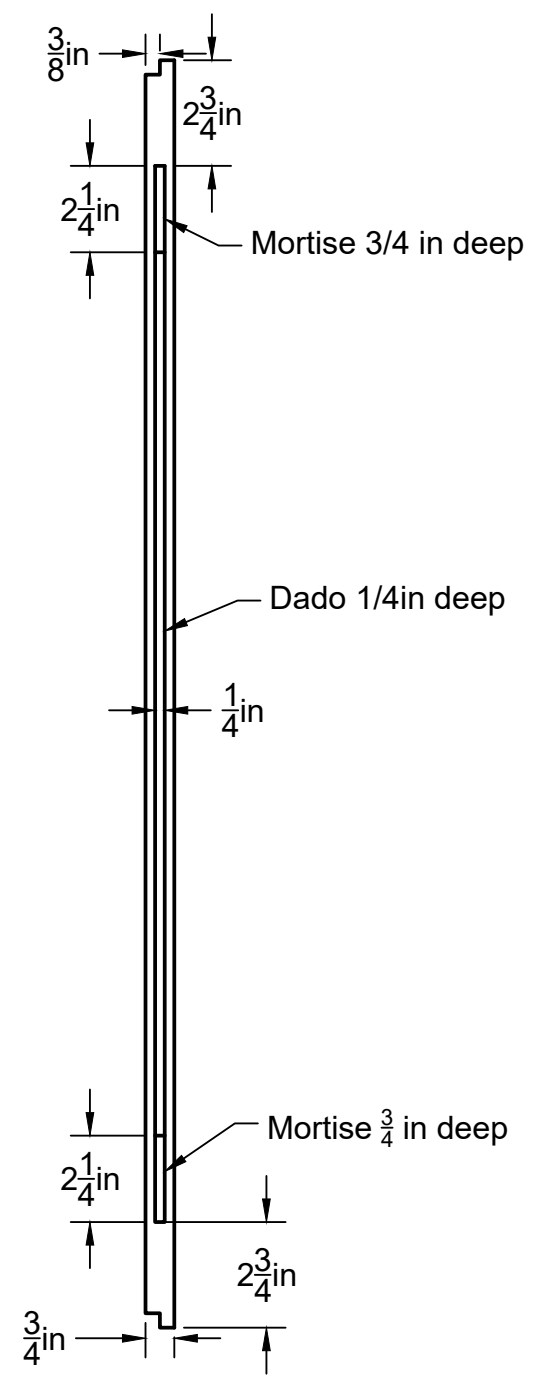


	PROJECT AZ/Langstroth Hive			
	TITLE Door - Rails			
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:8	WEIGHT
				SHEET 16/30





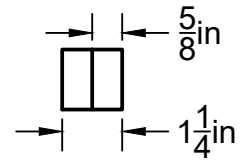
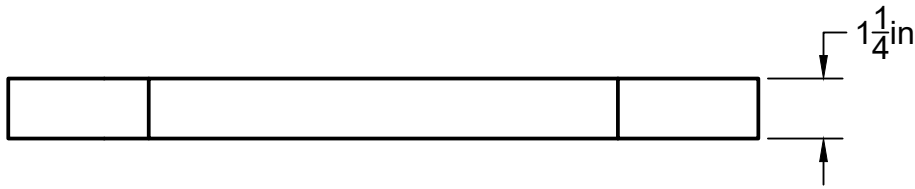
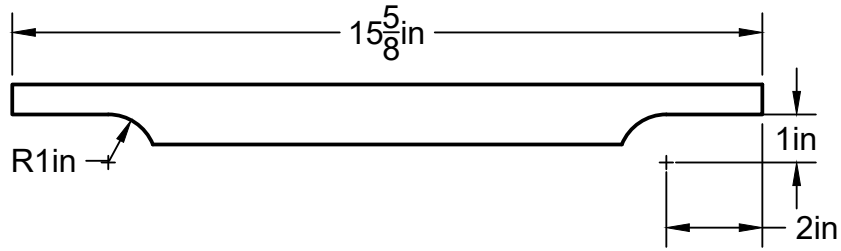
Note: Left Stile is
Mirror Image of
Right Stile



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

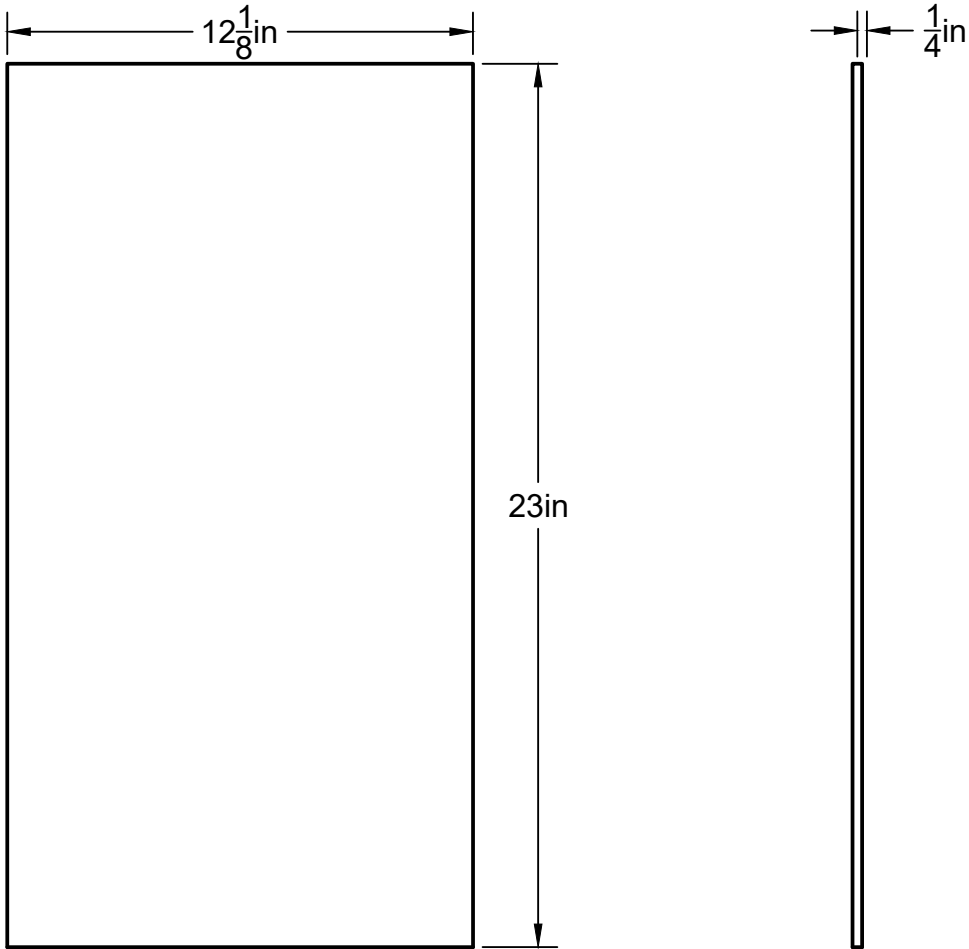
Ronald Ringel 11/19/2017

SCALE 1:10

WEIGHT

SHEET 18/30

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



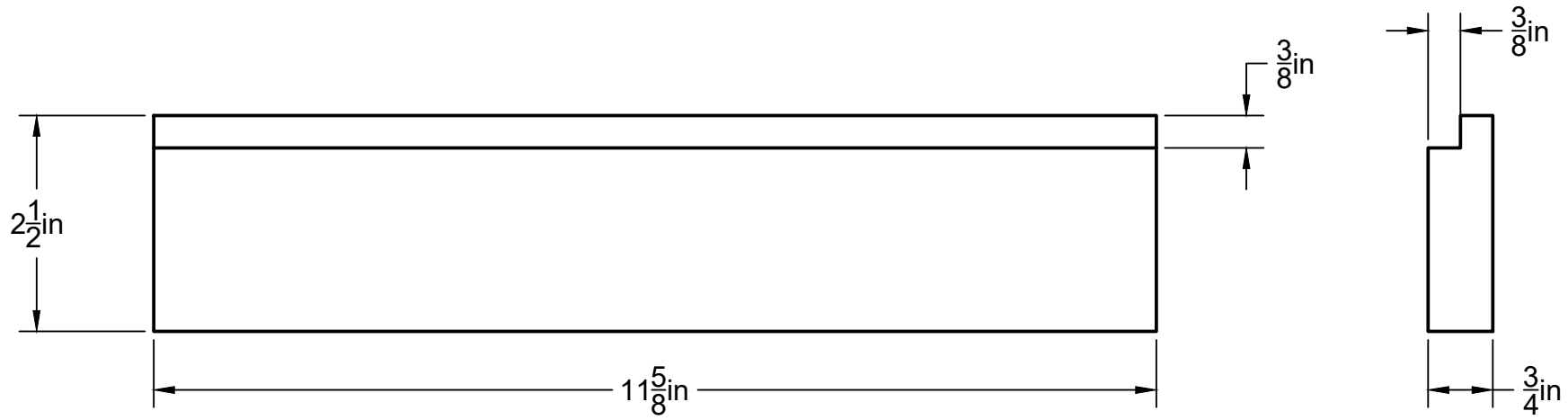
PROJECT

AZ/Langstroth Hive

TITLE

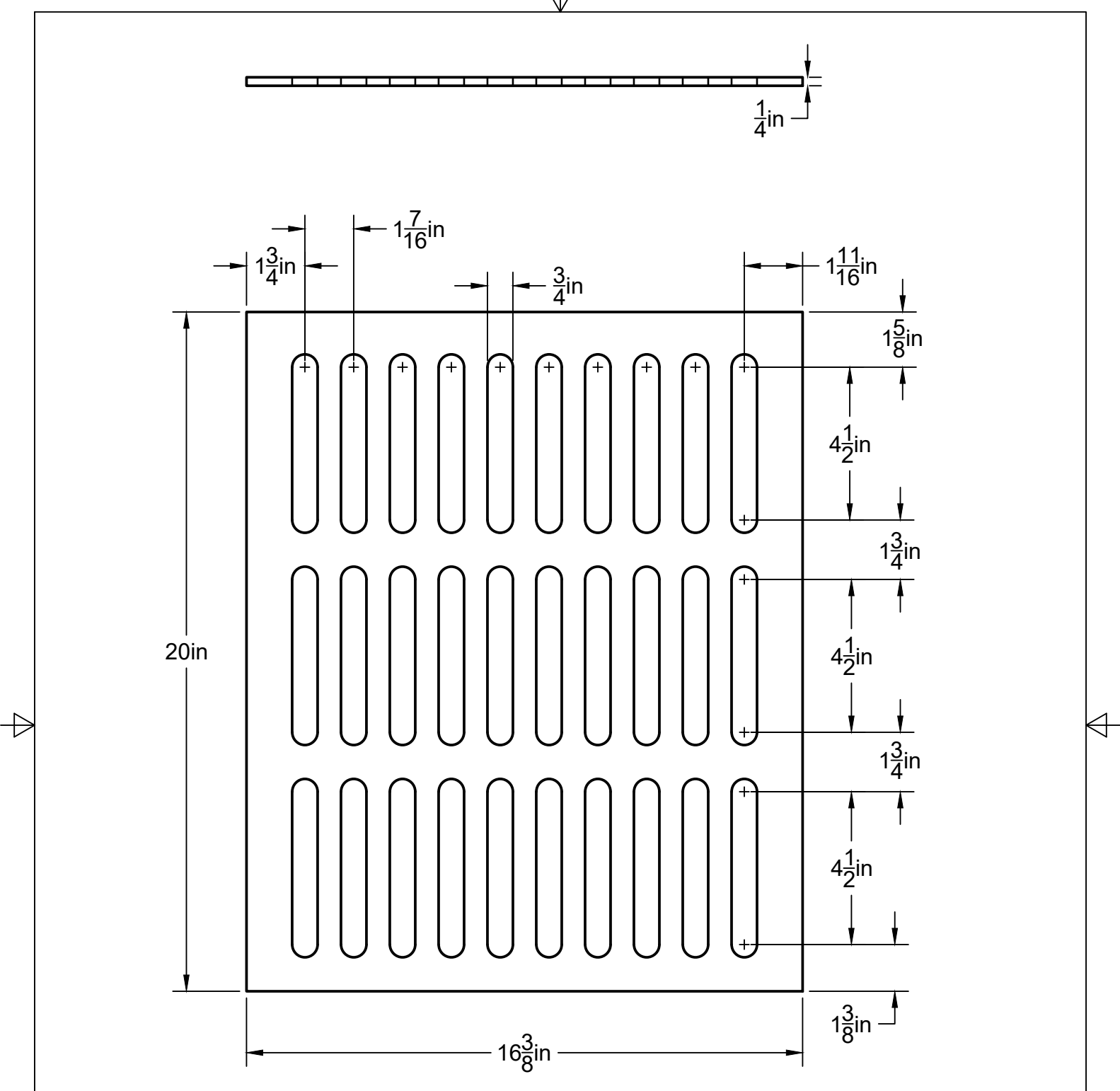
Door - Panel

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

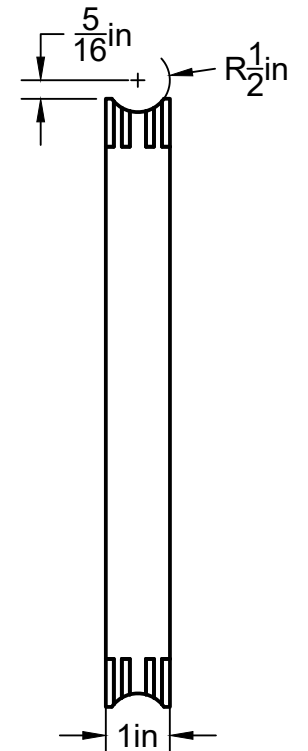
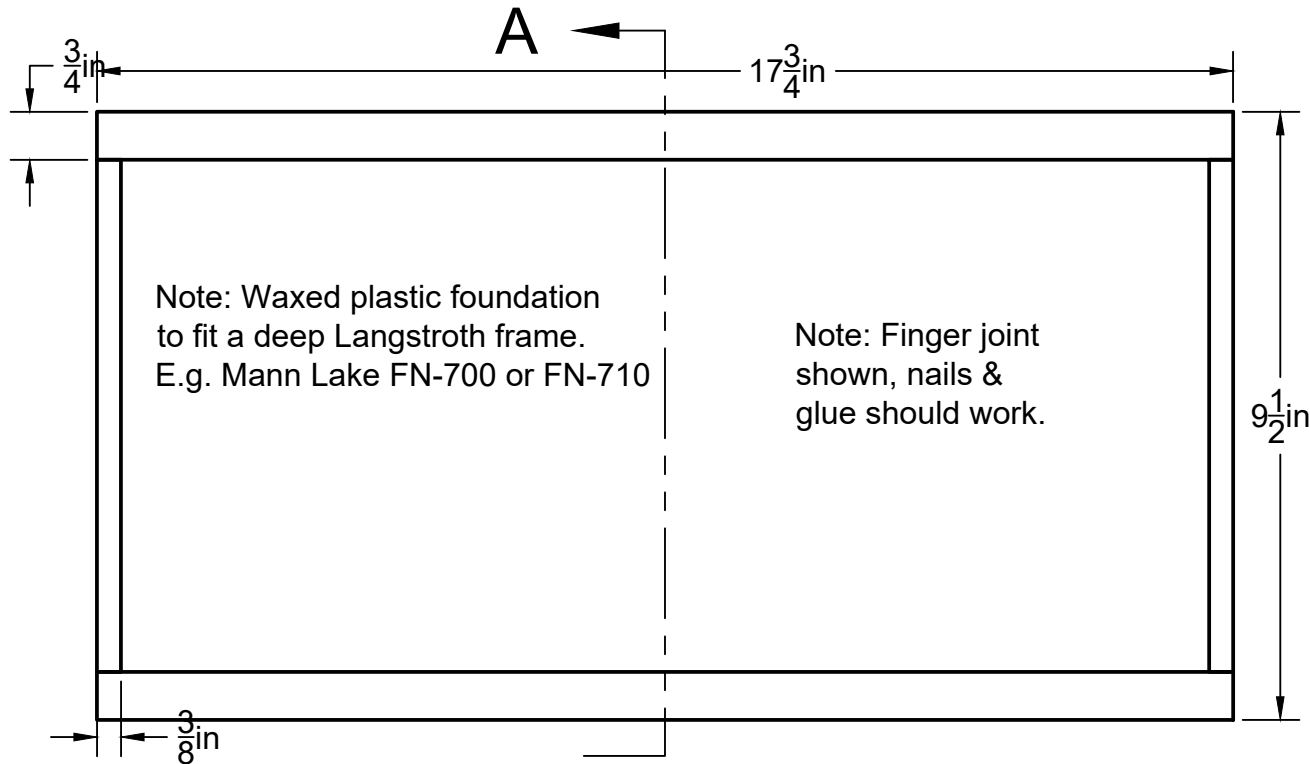
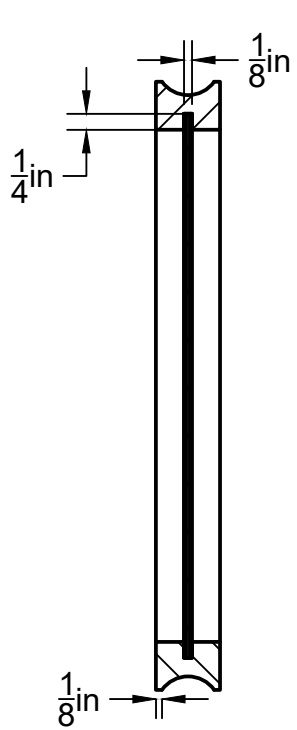




PROJECT
AZ/Langstroth Hive

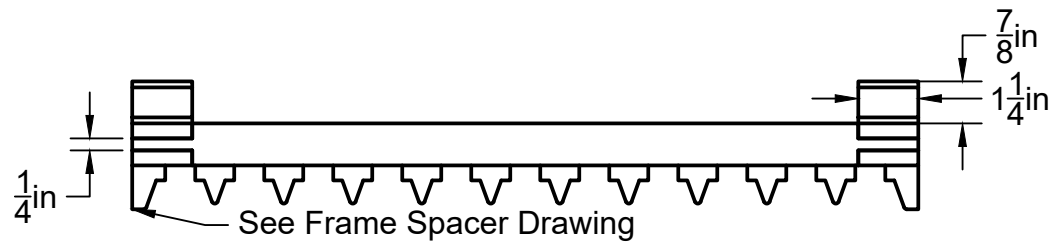
TITLE
Slat Divider

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

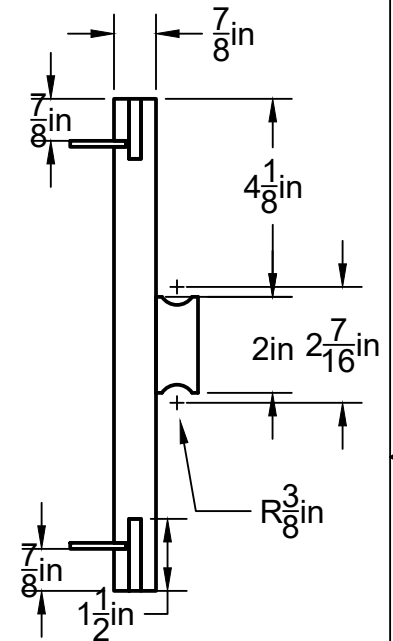
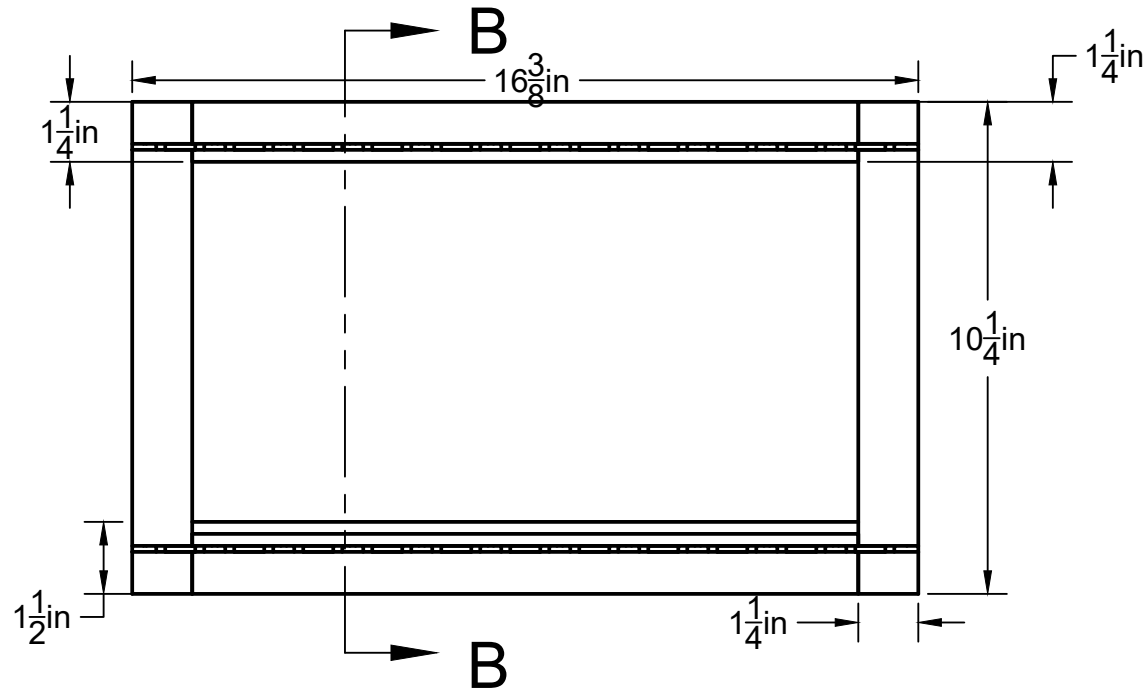
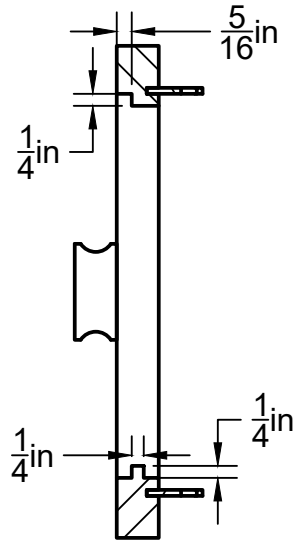


SECTION A-A
SCALE 1:3

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

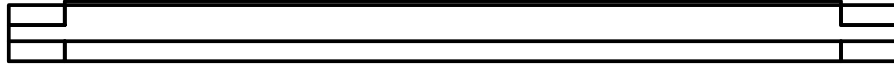


Note: Width is an exact fit.
Trim slightly to allow
installation/removal.

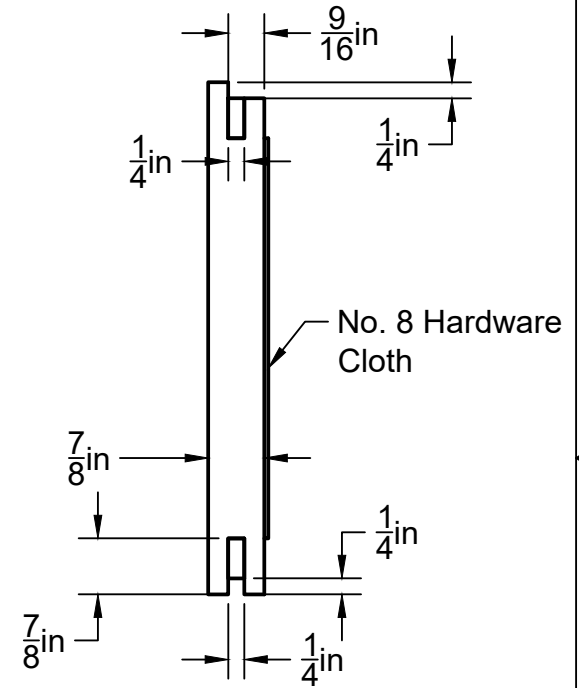
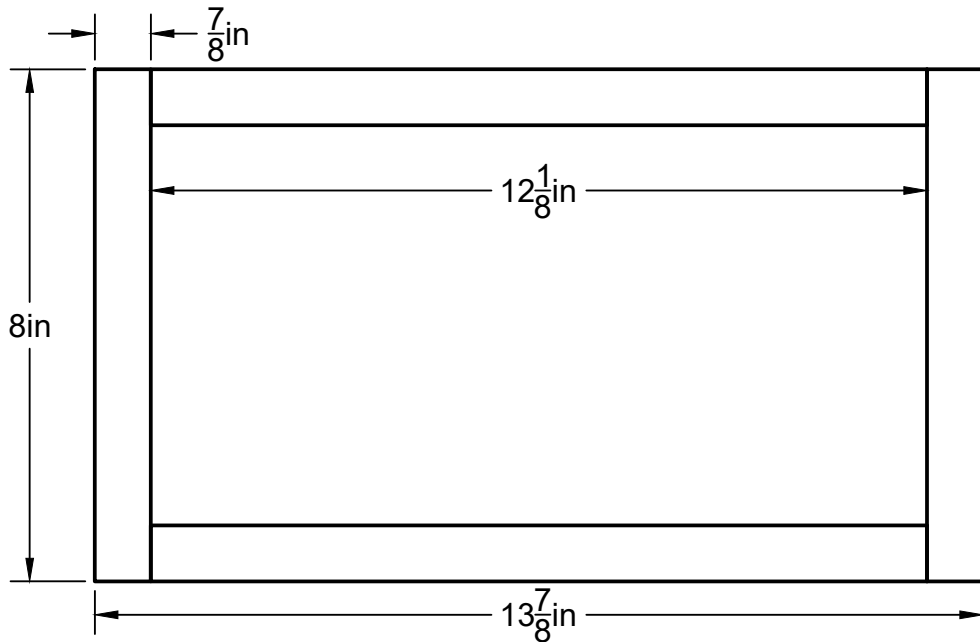


SECTION B-B
SCALE 1:4

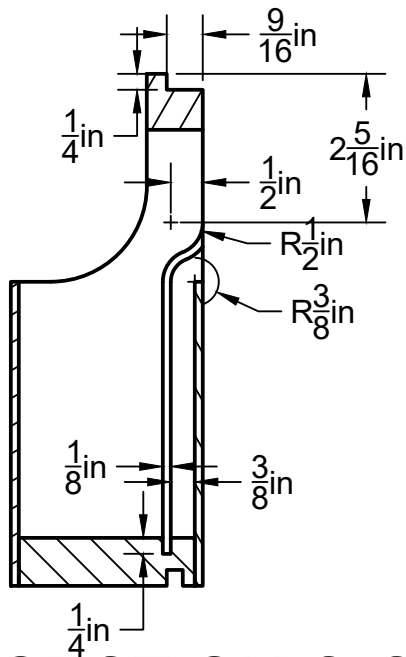
		PROJECT AZ/Langstroth Hive			
		TITLE Back Screen/Feeder Frame			
APPROVED	SIZE	CODE	DWG NO	REV	
CHECKED	A				
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:5	WEIGHT	
			SHEET 23/30		



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

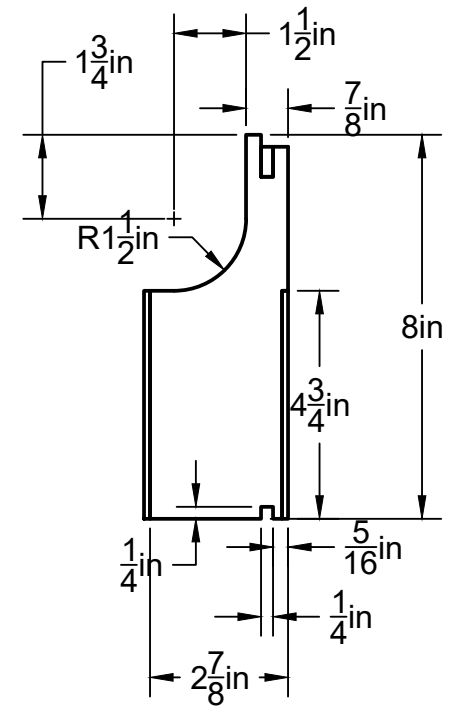
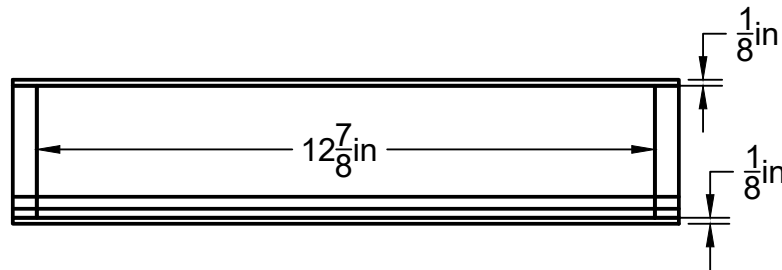
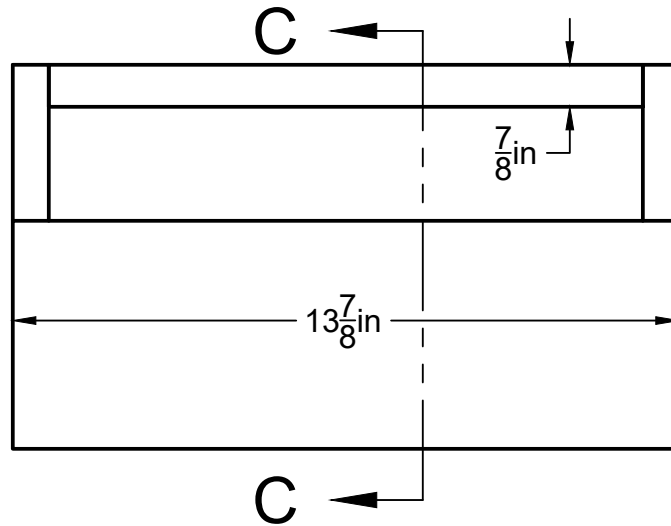


	PROJECT			
	AZ/Langstroth Hive			
	TITLE			
	Back Screen Inserts			
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:5	WEIGHT
				SHEET 24/30

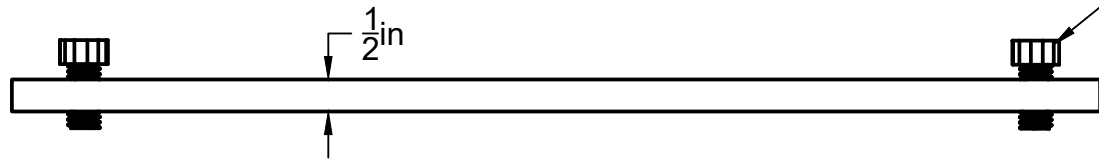


SECTION C-C
SCALE 1:3

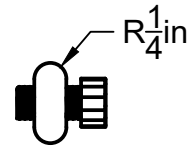
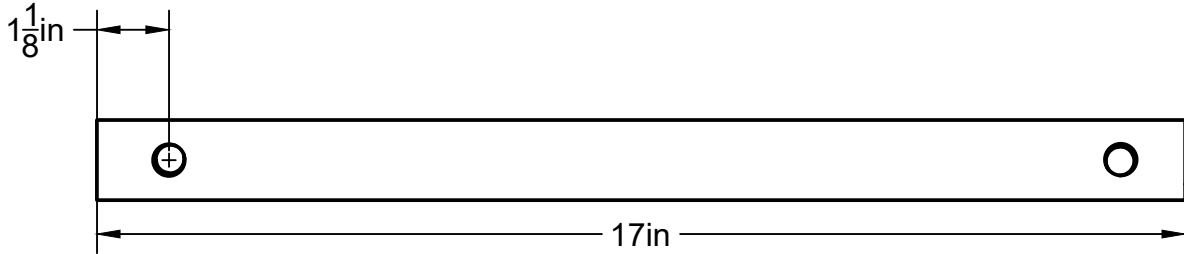
I used a $\frac{1}{4}$ mdf template to route the groove for the screen.



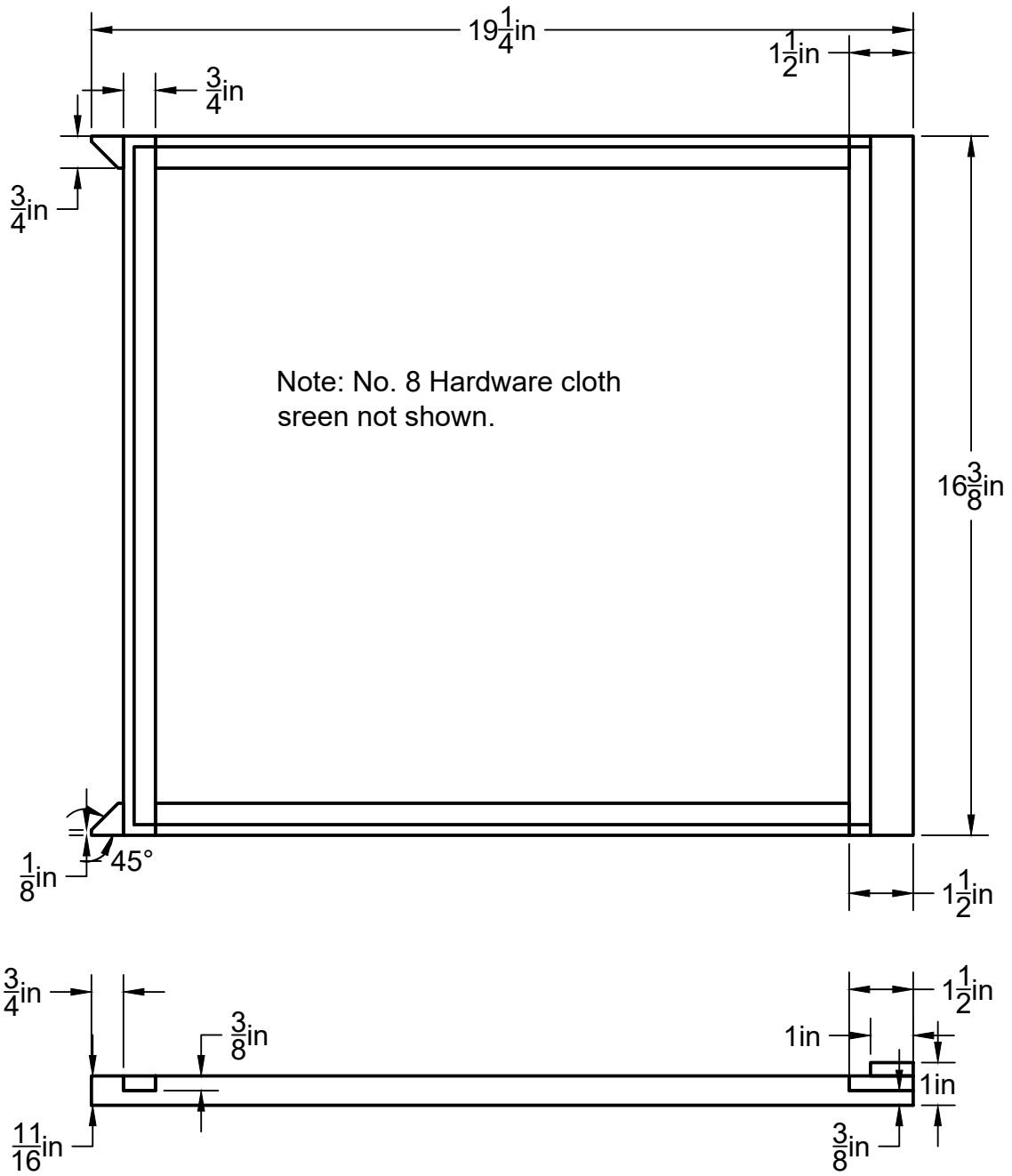
		PROJECT AZ/Langstroth Hive			
		TITLE Back Screen/Feeder			
APPROVED	SIZE	CODE	DWG NO	REV	
CHECKED	A				
DRAWN	Ronald Ringel	11/19/2017	SCALE 1:3	WEIGHT	
			SHEET 25/30		



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

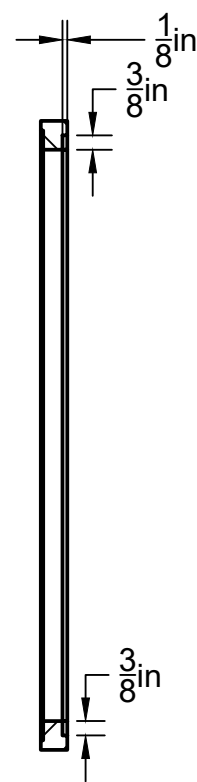
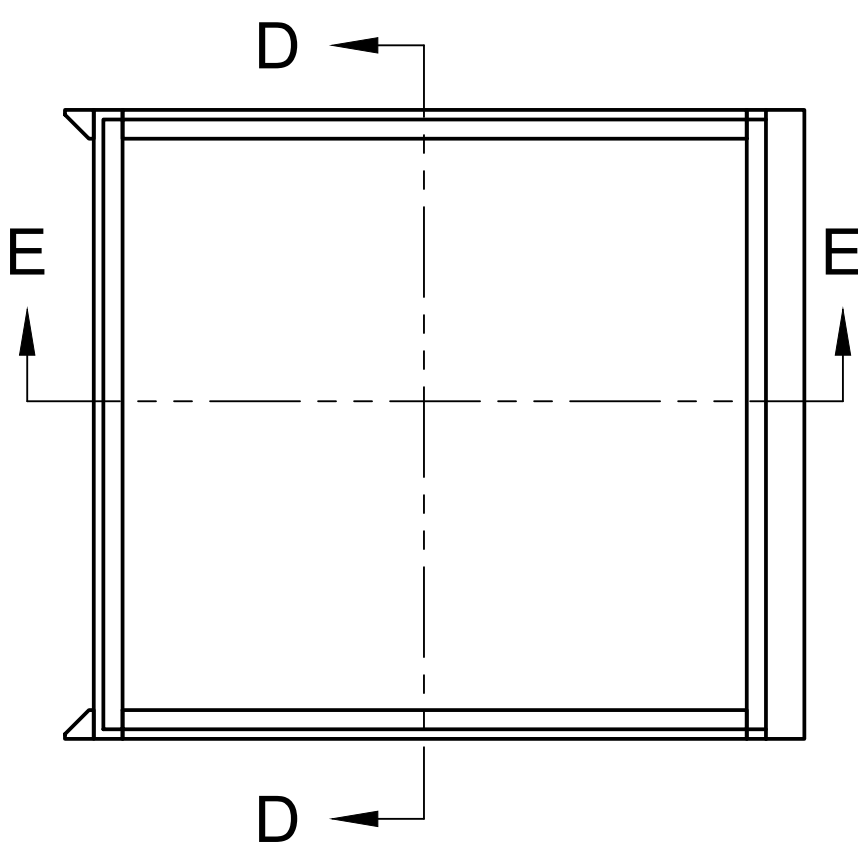
DRAWN

Ronald Ringel 11/19/2017

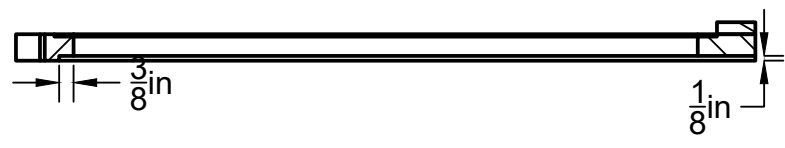
SCALE 1:5

WEIGHT

SHEET 27/30



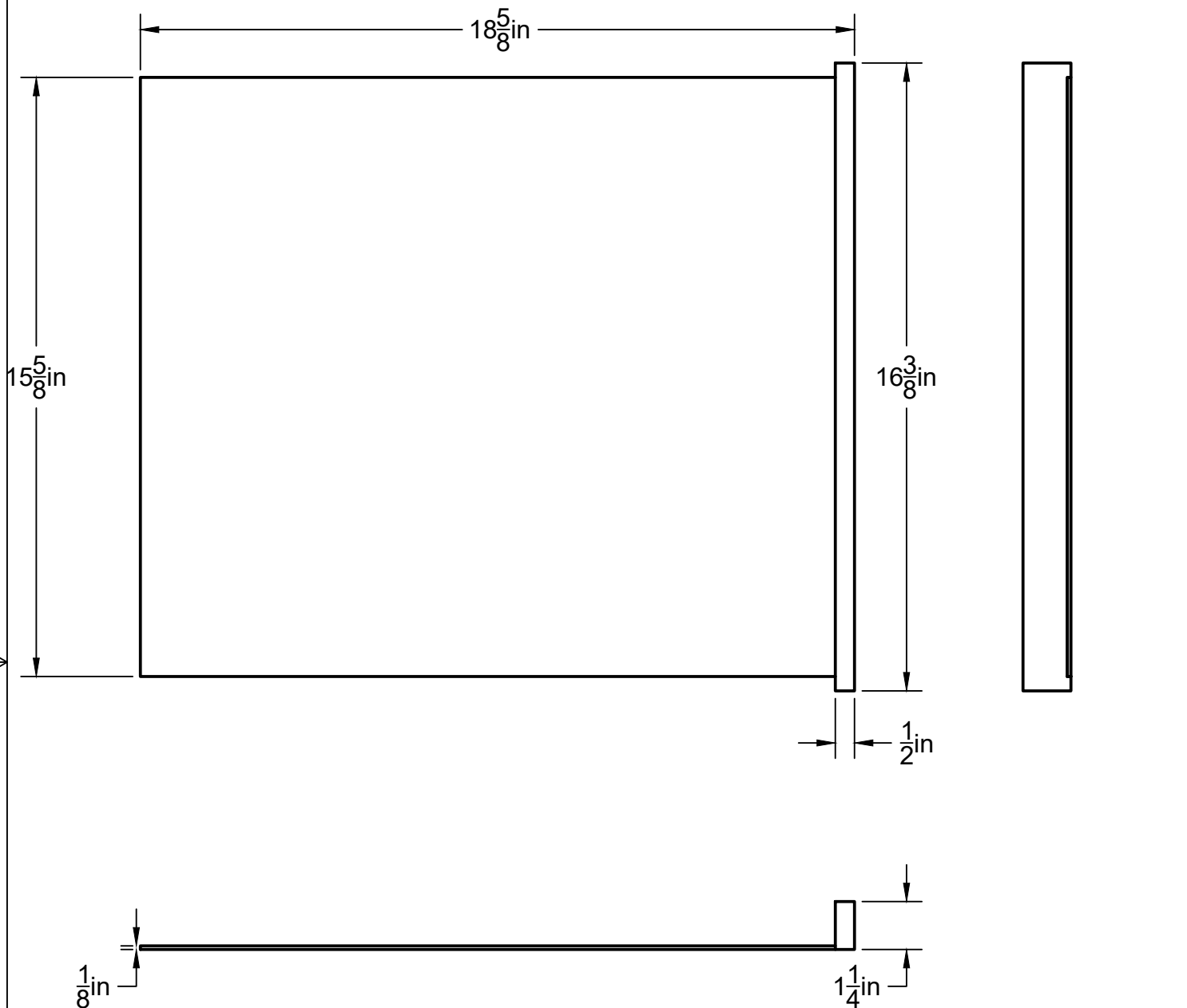
SECTION D-D
SCALE 1:5



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