

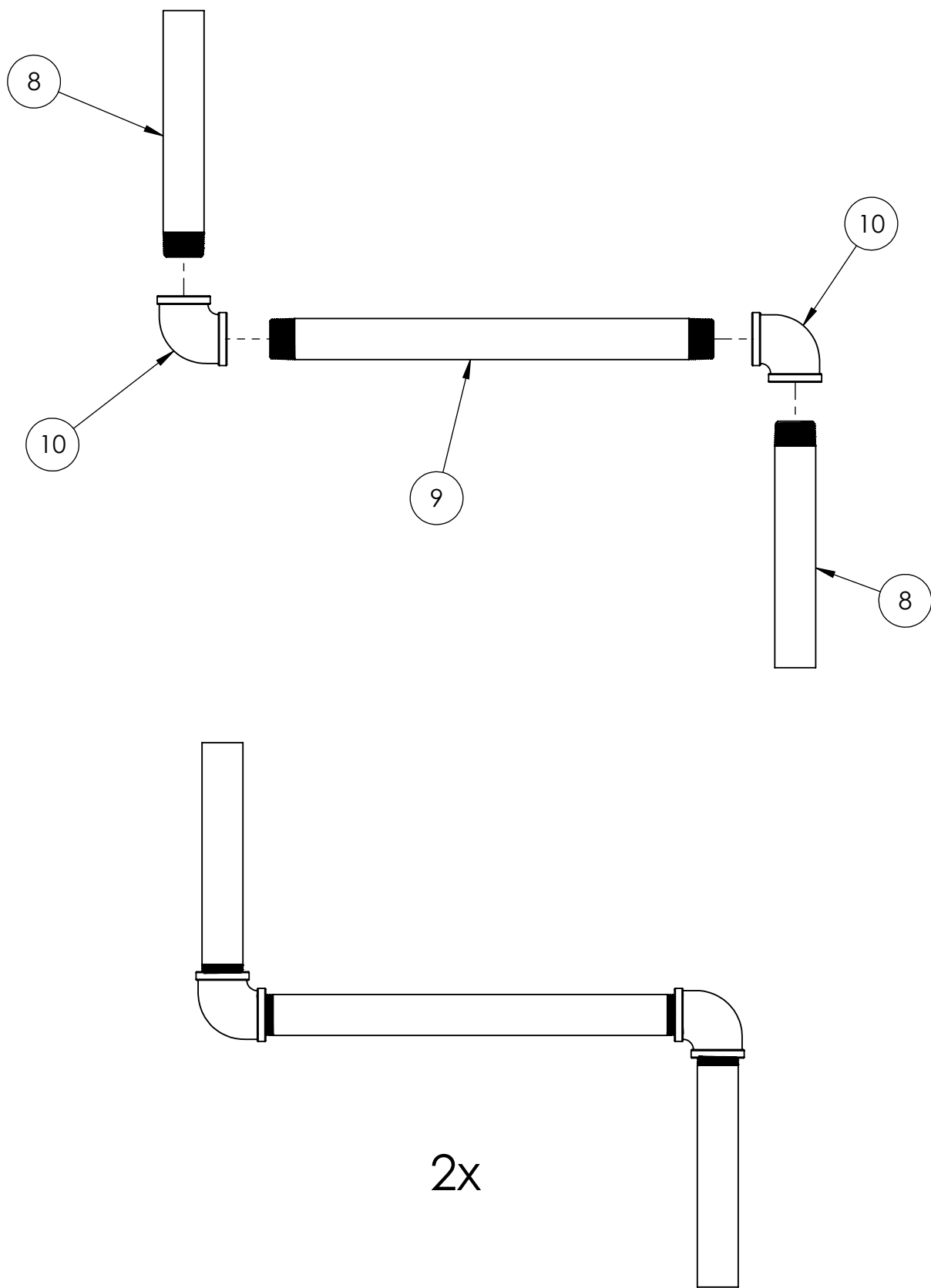
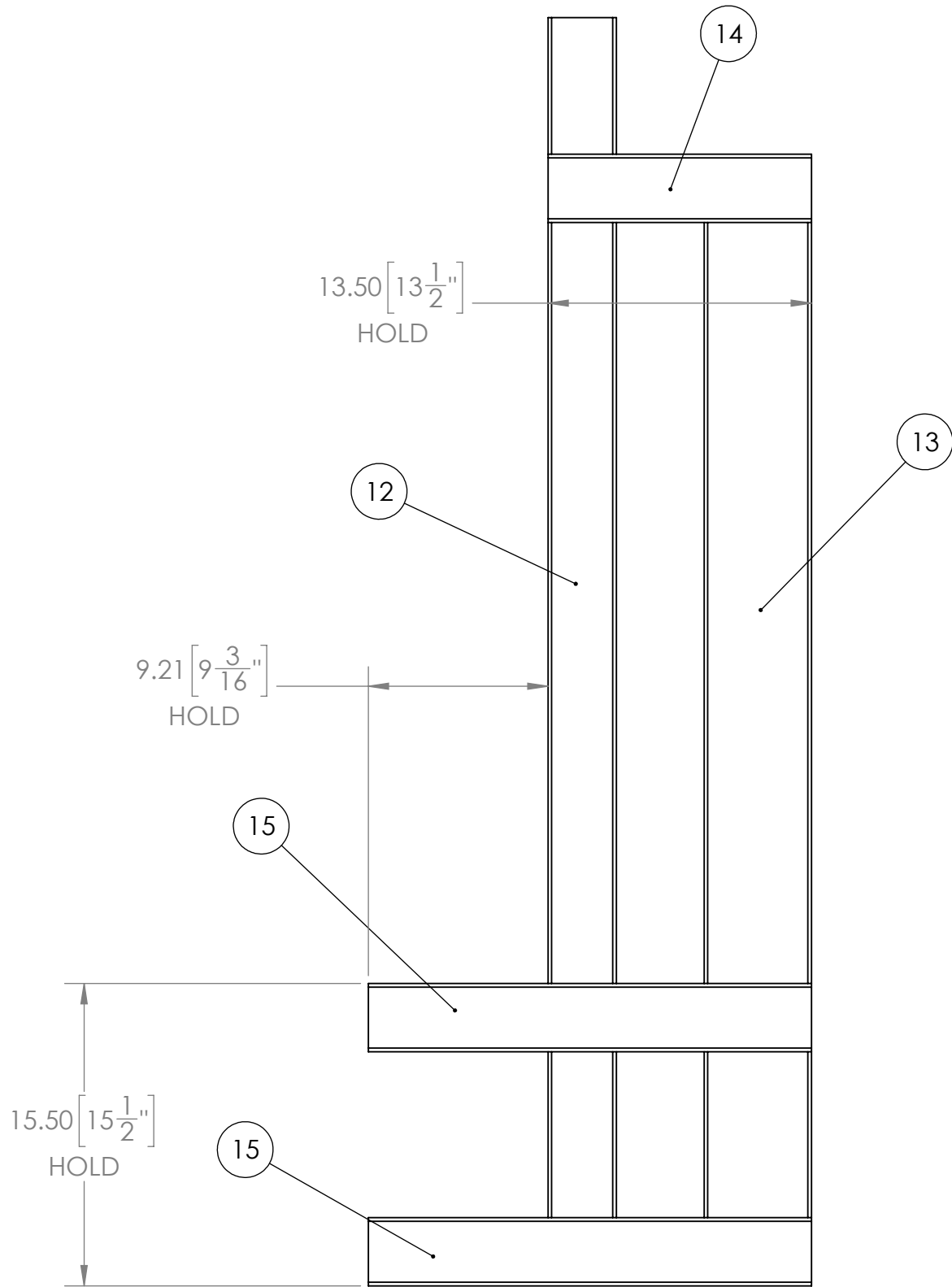


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-25301	TE Reef, Front Panel	1
2	TE-25302	TE Reef, Trough Panel	1
3	TE-25303	TE Reef, Front Stiffener	2
4	TE-25304	TE Reef, Trough Mount	1
5	TE-25305	TE Reef, Inside Crossmember	5
6	TE-25306	TE Reef, Rear Crossmember	3
7	TE-25312	TE Reef, Angled Pipe (See Cut Sheet)	4
8	TE-25313	TE Reef, Vertical Pipe (See Cut Sheet)	4
9	TE-25314	1-1/4in Steel/Iron Pipe, 18in Long, Threaded Both Ends	2
10	TE-25315	1-1/4in Steel/Iron Pipe Fitting, 90deg Elbow	4
11	TE-25316	1-1/4in Conduit Clamp, 2-Hole	12
12	TE-25321	TE Reef, Front Upright	2
13	TE-25322	TE Reef, Rear Upright	2
14	TE-25323	TE Reef, Top Brace	2
15	TE-25324	TE Reef, Bottom Brace	4



UNLESS OTHERWISE SPECIFIED:		TEAM	NAME	DATE	 	
<p>DIMENSIONS ARE IN INCHES</p> <p>TOLERANCES:</p> <p>FRACTIONAL $\pm 1/16$</p> <p>ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$</p> <p>TWO PLACE DECIMAL $\pm .13$</p> <p>THREE PLACE DECIMAL $\pm .125$</p>		DRAWN	OD	12/20/2024	TITLE: TE Reef	
		PROPRIETARY AND CONFIDENTIAL				
		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED.			SIZE C	
		COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.				
DO NOT SCALE DRAWING					REV	
					SCALE: 1:6	
					SHEET 1 OF 6	



Step 1: Thread pipe segments and fittings together into two (2) assemblies as shown. Ensure that the threads are clocked to the point where the assembly is flat (pipe centerlines all lie on a plane). Optionally add red loctite to the threads before assembly to improve rigidity.



Step 2: Assemble as shown with wood screws.

UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE	<div><div>FIRST ROBOTICS COMPETITION</div></div> <div></div>		
	DRAWN	OD	12/20/2024			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .13$ THREE PLACE DECIMAL $\pm .125$	PROPRIETARY AND CONFIDENTIAL			TITLE: TE Reef		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
DO NOT SCALE DRAWING	REMOVE ALL BURRS AND SHARP EDGES.			C	TE-25300	
				SCALE: 1:6		SHEET 2 OF 6

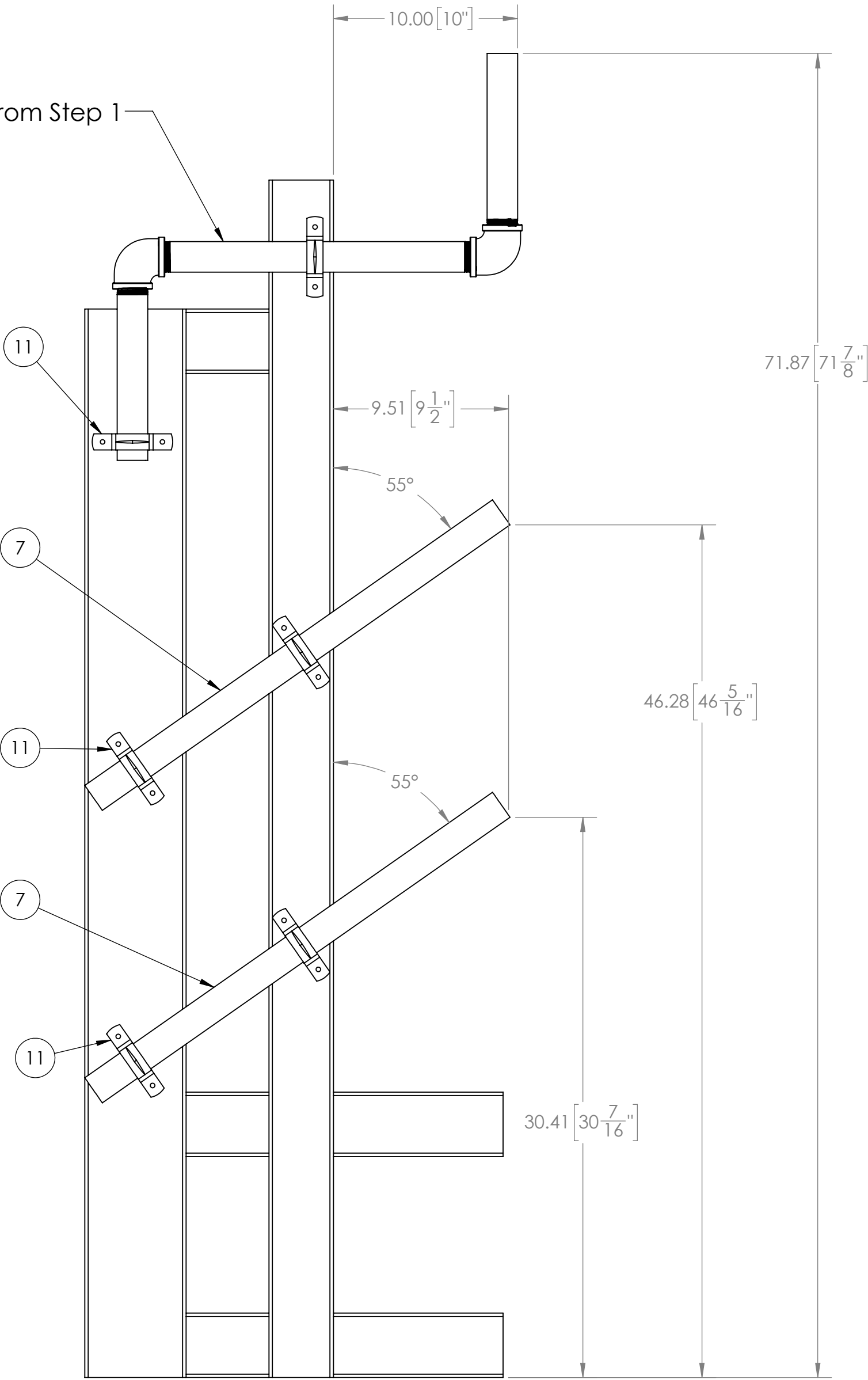
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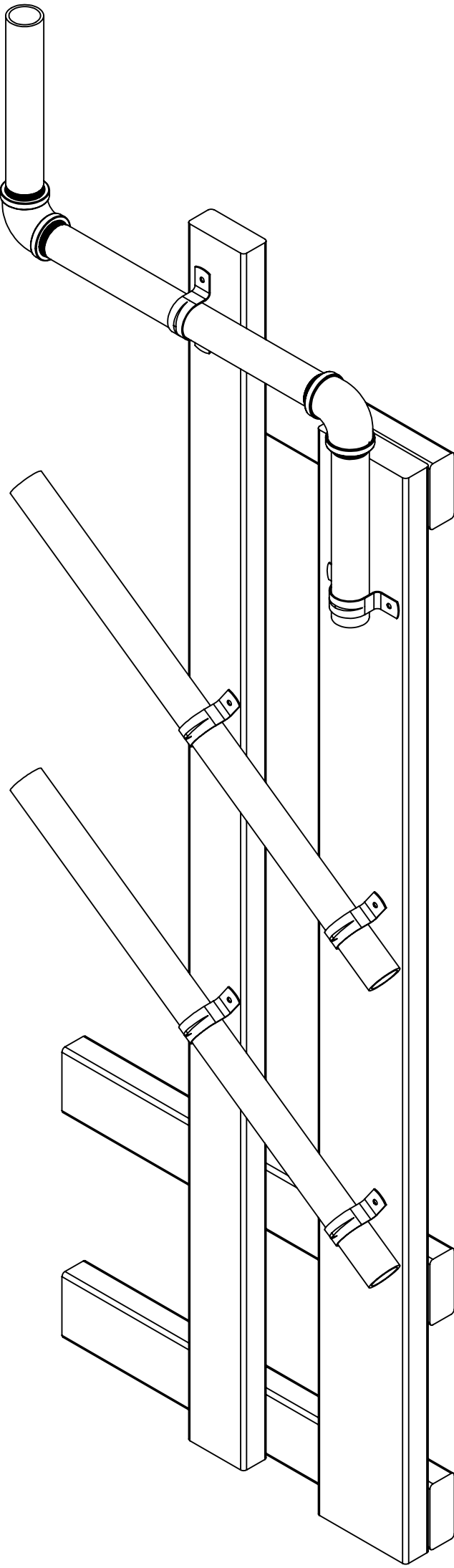
2

1



Assembly from Step 1



Step 3: Lay the assembly from Step 2 flat on the ground and position the pipes as shown. The dimensions used here are the most critical to ensure as accurate of robot interactions as possible. Use clamps or a helper to hold the pipes in position and fasten them in place with conduit clamps held on with wood screws. It is recommended to add a washer under the head of the wood screws to keep them from pulling through the conduit clamps.



Step 4: Repeat steps 2 & 3 except assemble the mirror image version of the assembly.

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH: DO NOT SCALE DRAWING	TEAM	NAME	DATE	 	
	DRAWN	OD	12/20/2024		
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED. COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			TITLE: TE Reef	
SIZE C		DWG. NO. TE-25300		REV	
SCALE: 1:12		SHEET 3 OF 6			

D

C

B

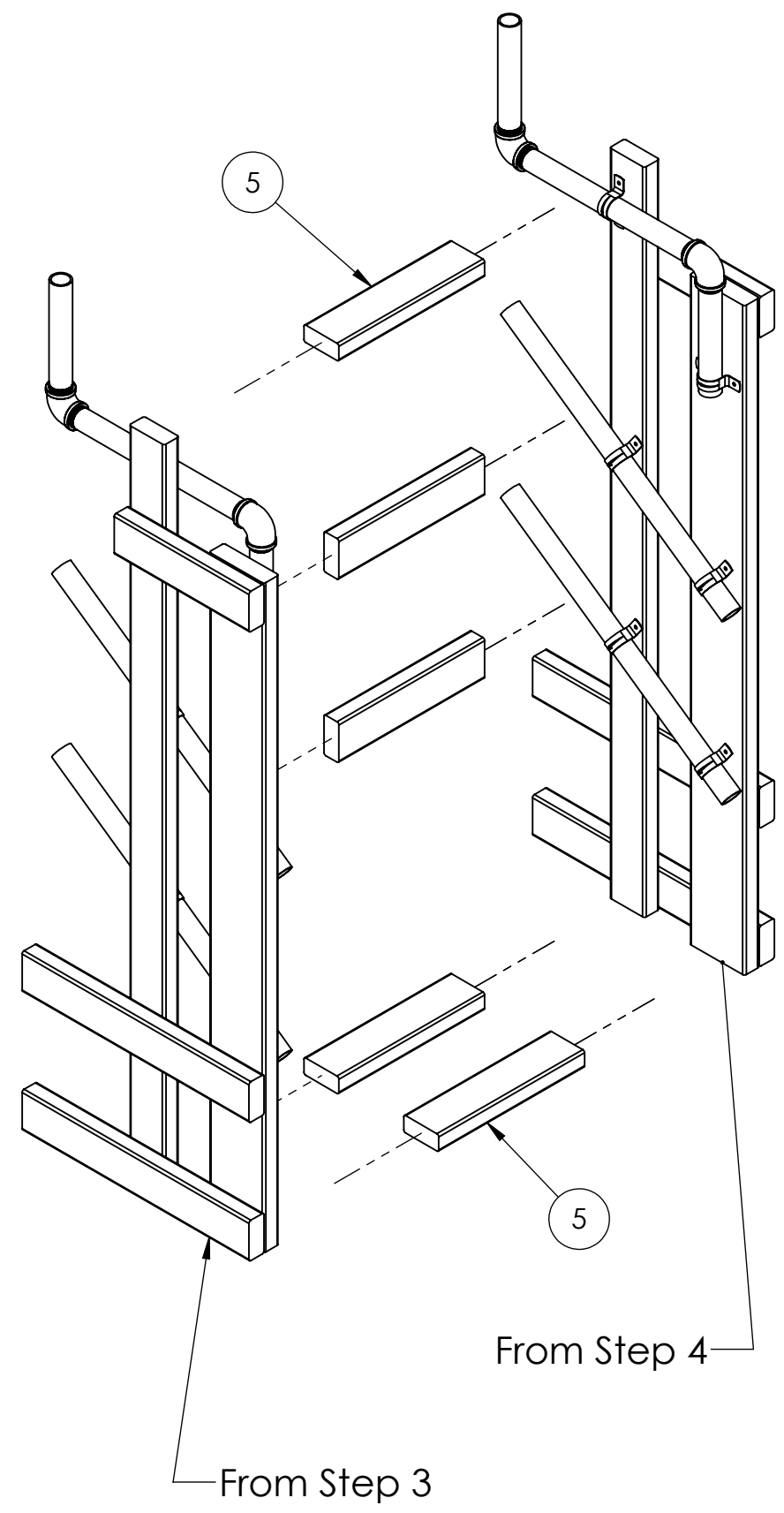
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D

C

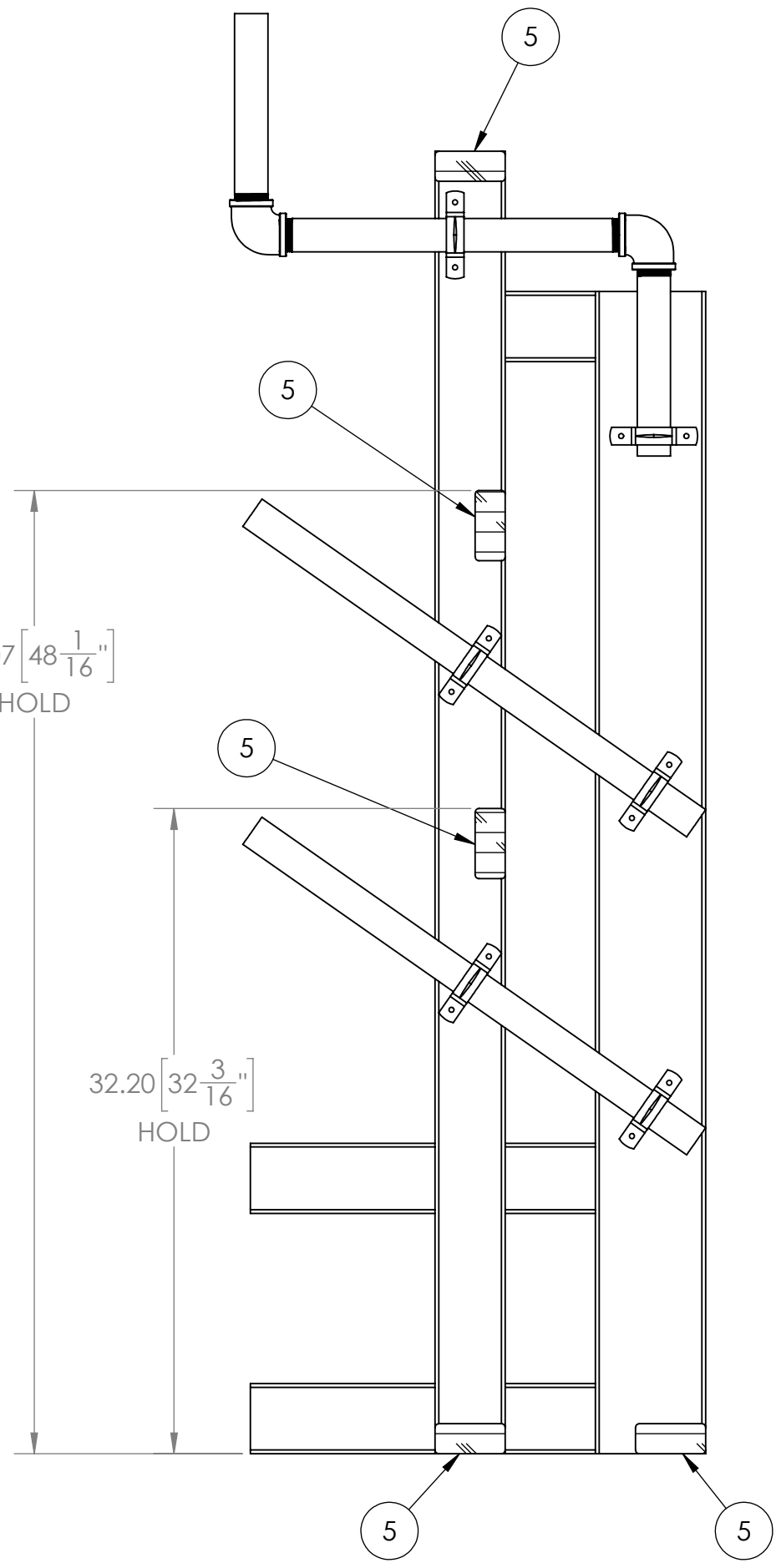
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A



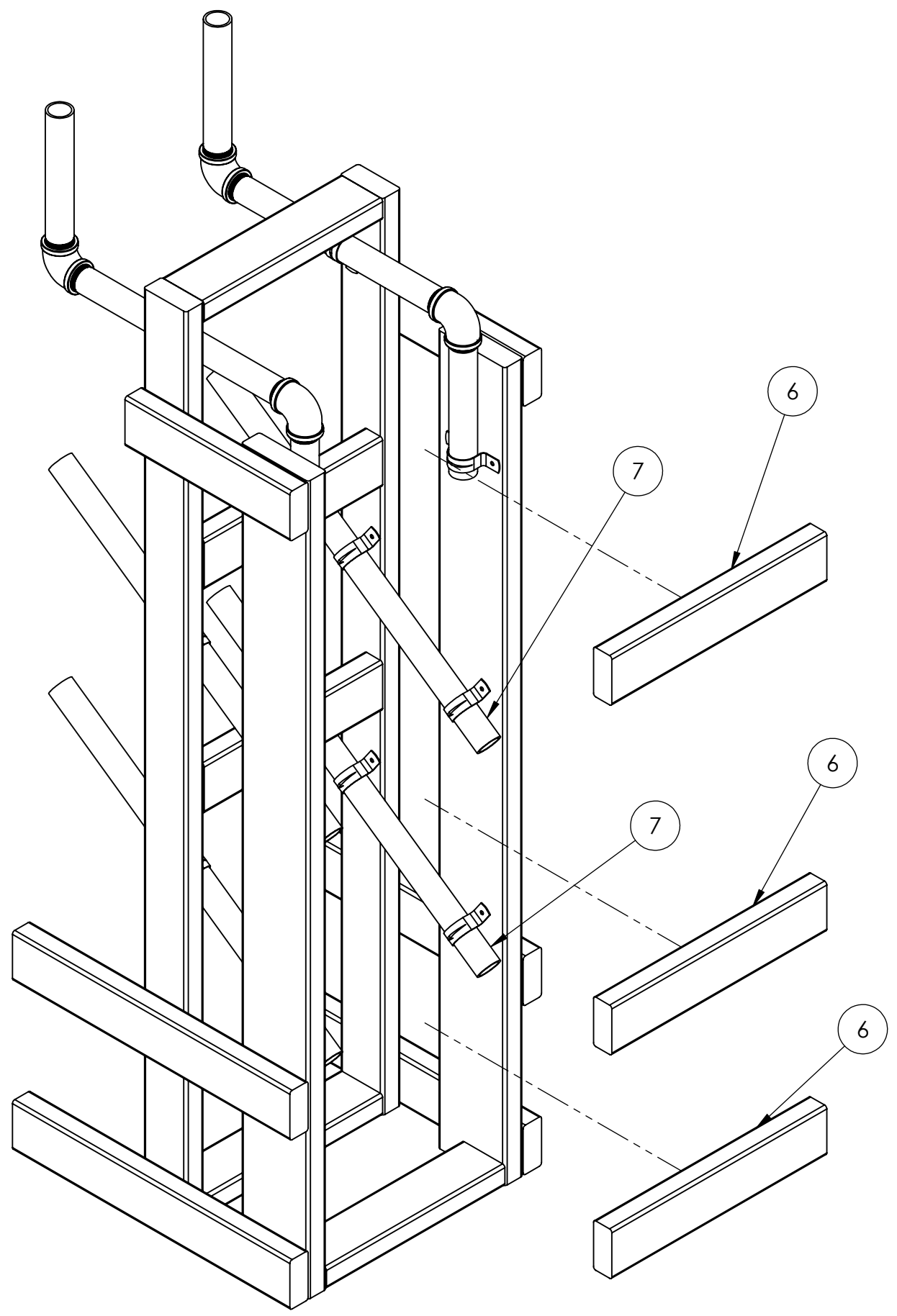
48.07 $\left[48\frac{1}{16}''\right]$
HOLD

32.20 $\left[32\frac{3}{16}''\right]$
HOLD

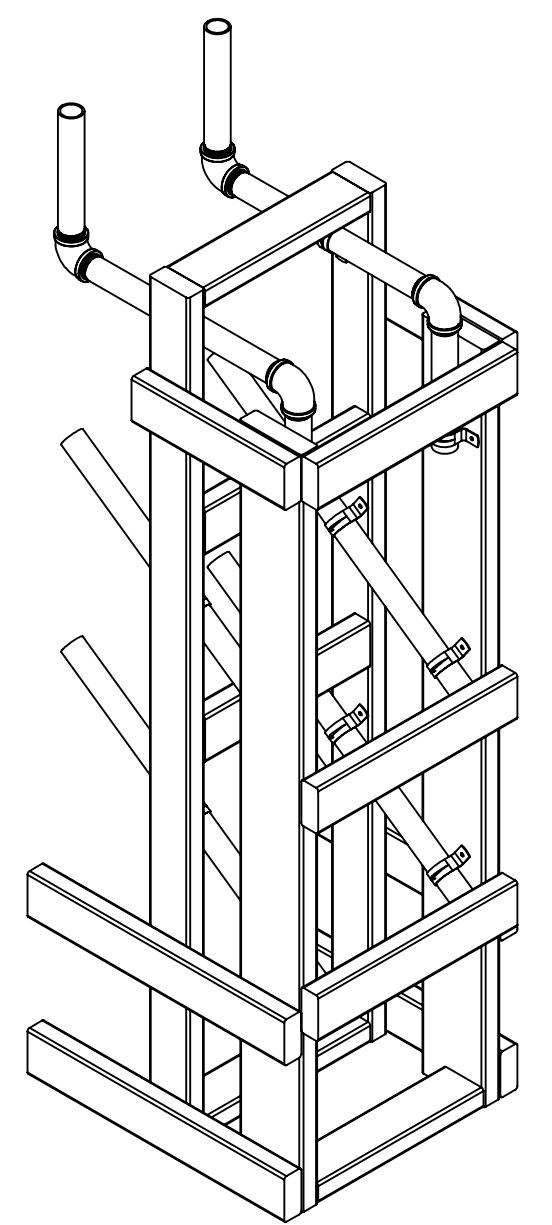



SECTION VIEW

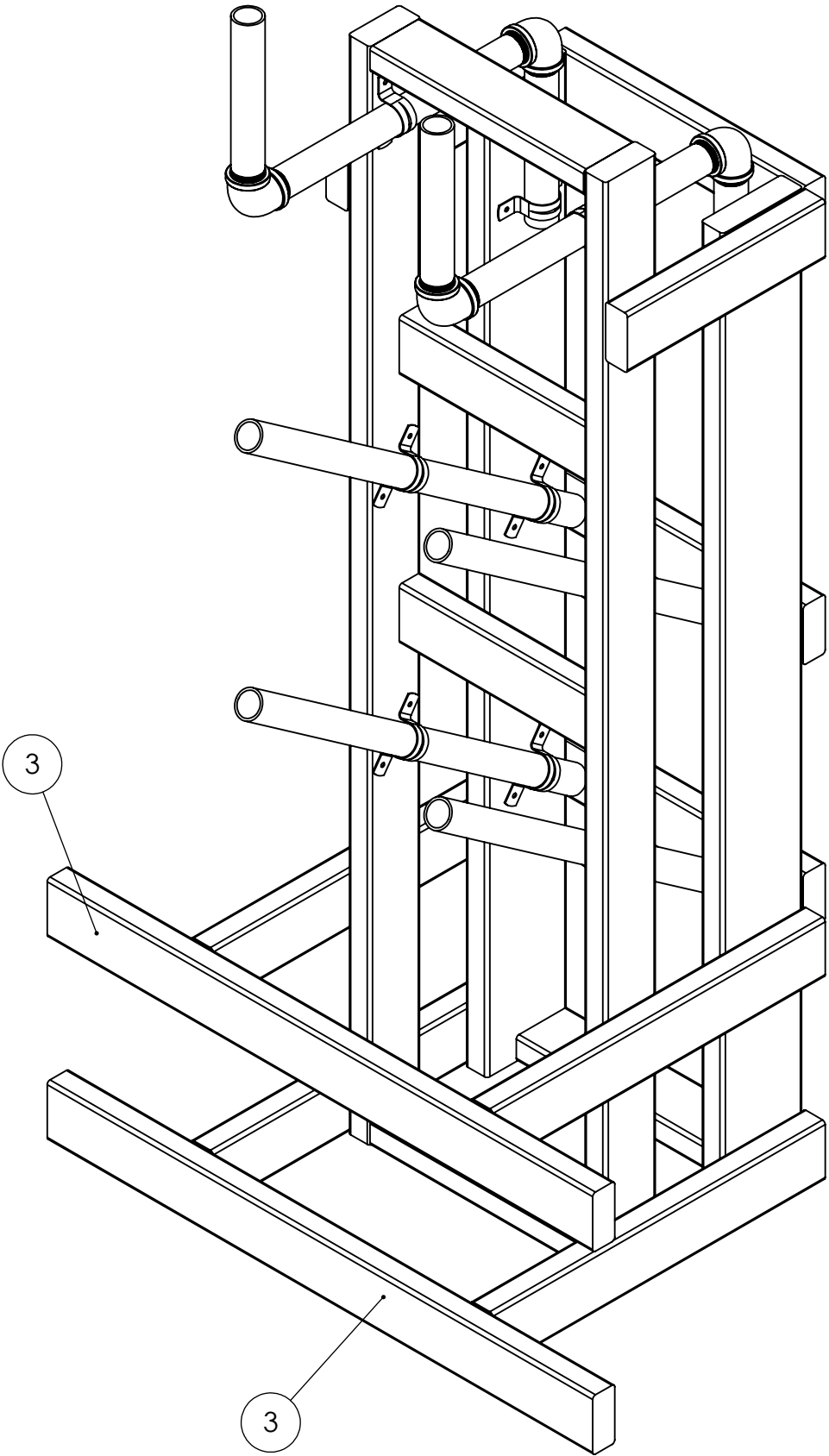
Step 5: Fasten the two side assemblies together with 5 between them using wood screws. Two (2) of the crossmembers must be positioned as dimensioned to hold ALGAE in the correct starting positions.



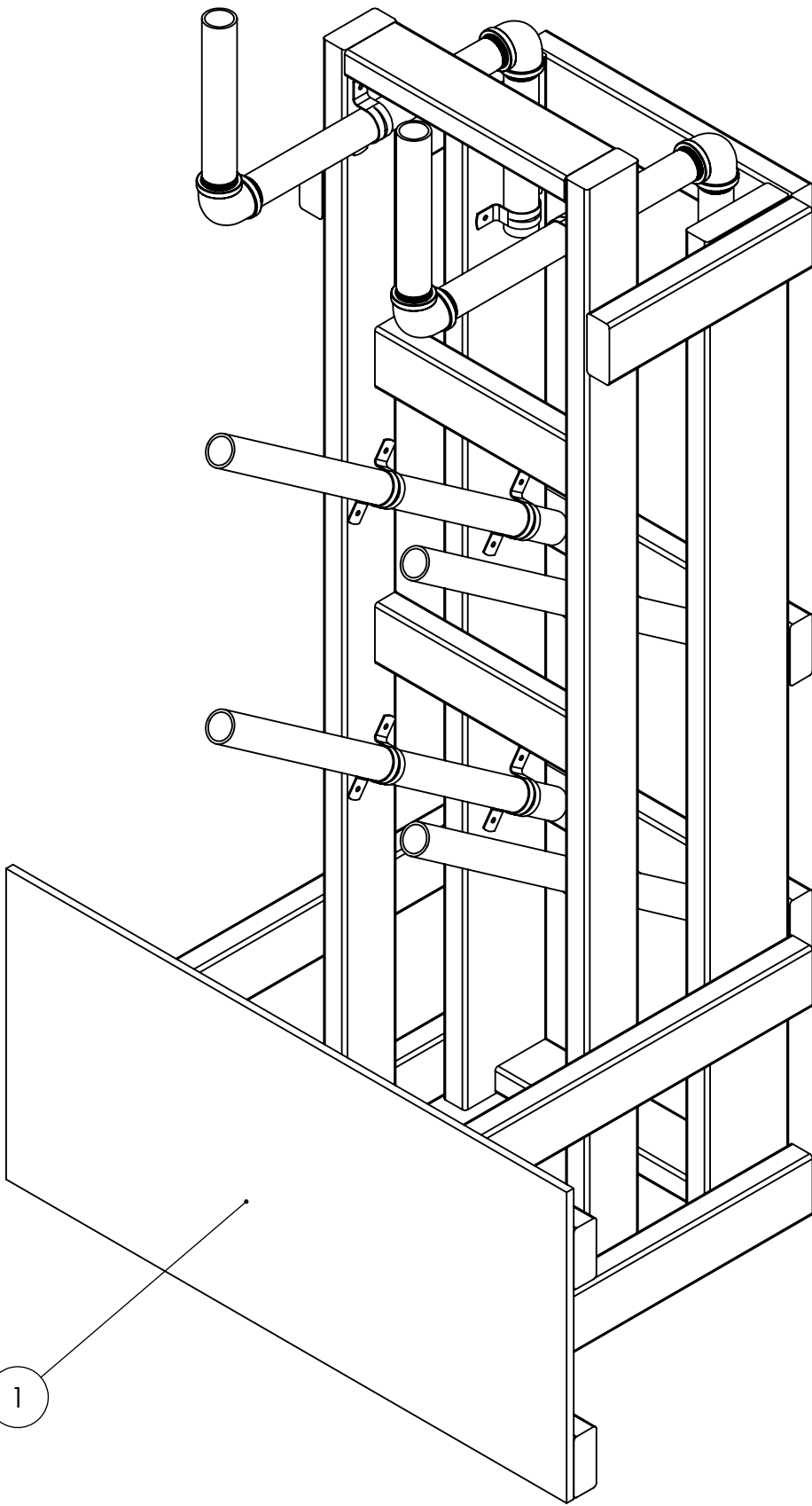
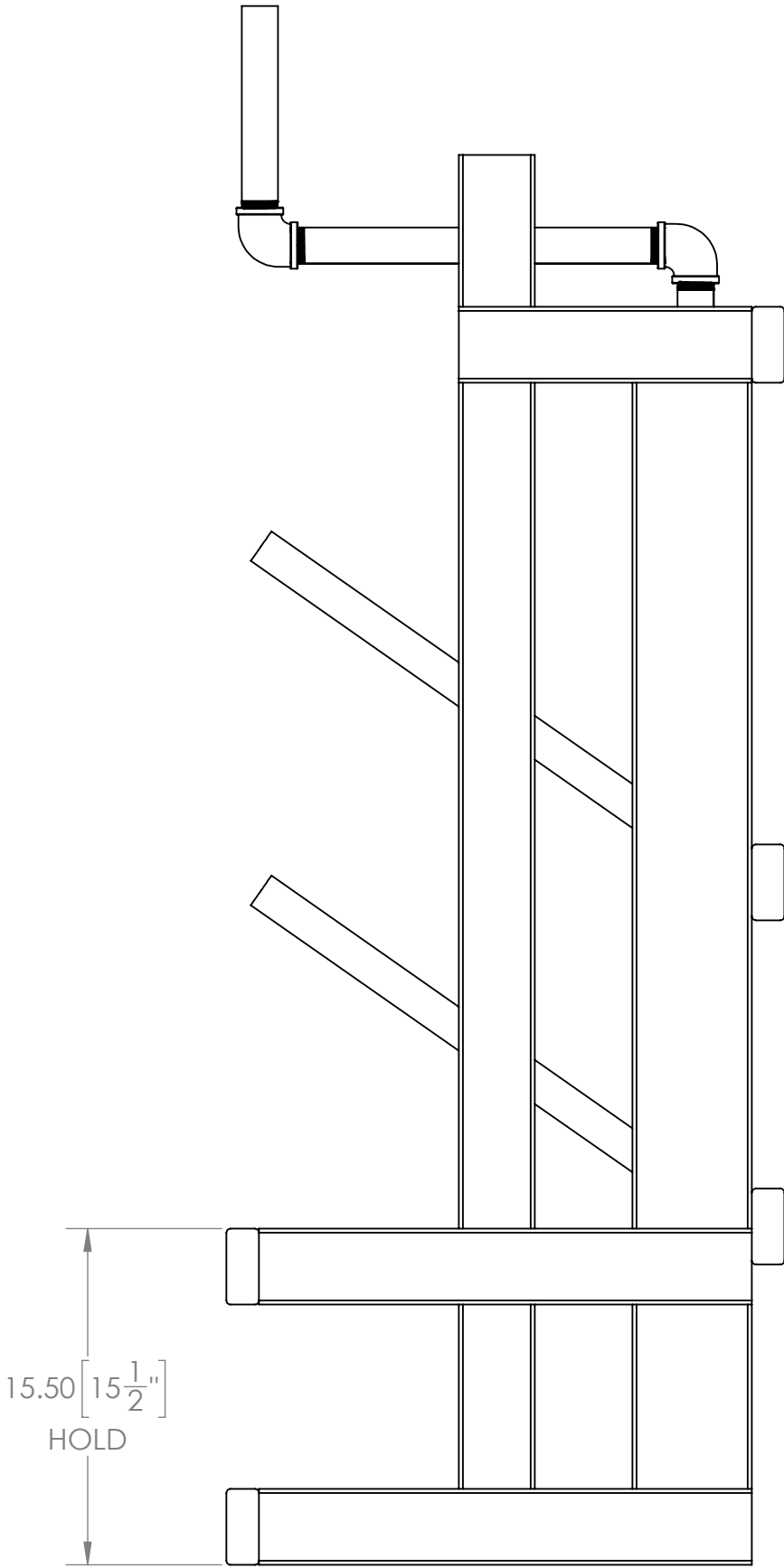
Step 6: Fasten 6 onto the rear of the assembly using wood screws.
The lower two (2) crossmembers should support the lower ends of 7.





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	DRAWN	OD	12/20/2024		
	PROPRIETARY AND CONFIDENTIAL			SIZE	DWG. NO.
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST IS PROHIBITED.			C	TE-25300
COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SCALE: 1:12		
			SHEET 4 OF 6		



Step 7: Install **3** onto the front of the assembly as shown with wood screws. Ensure that they are centered left to right.



Step 8: Install **1** onto the front of the assembly as shown with wood screws. Ensure that the bottom edge is flush.

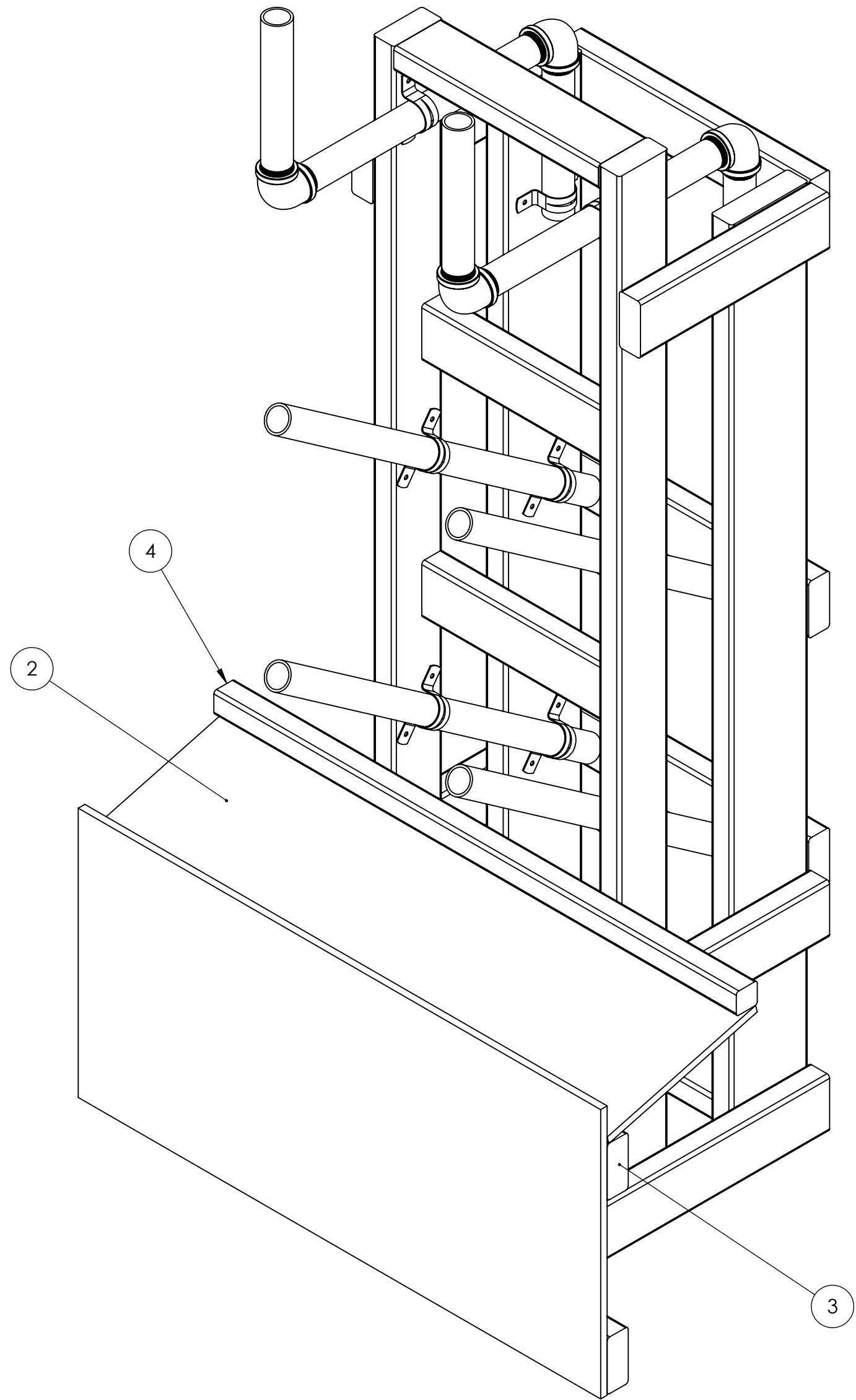
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE	 		
	DRAWN	OD	12/20/2024			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED.			TITLE: TE Reef		
	MATERIAL/FINISH:			SIZE C	DWG. NO. TE-25300	REV
DO NOT SCALE DRAWING	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SCALE: 1:8		SHEET 5 OF 6

4

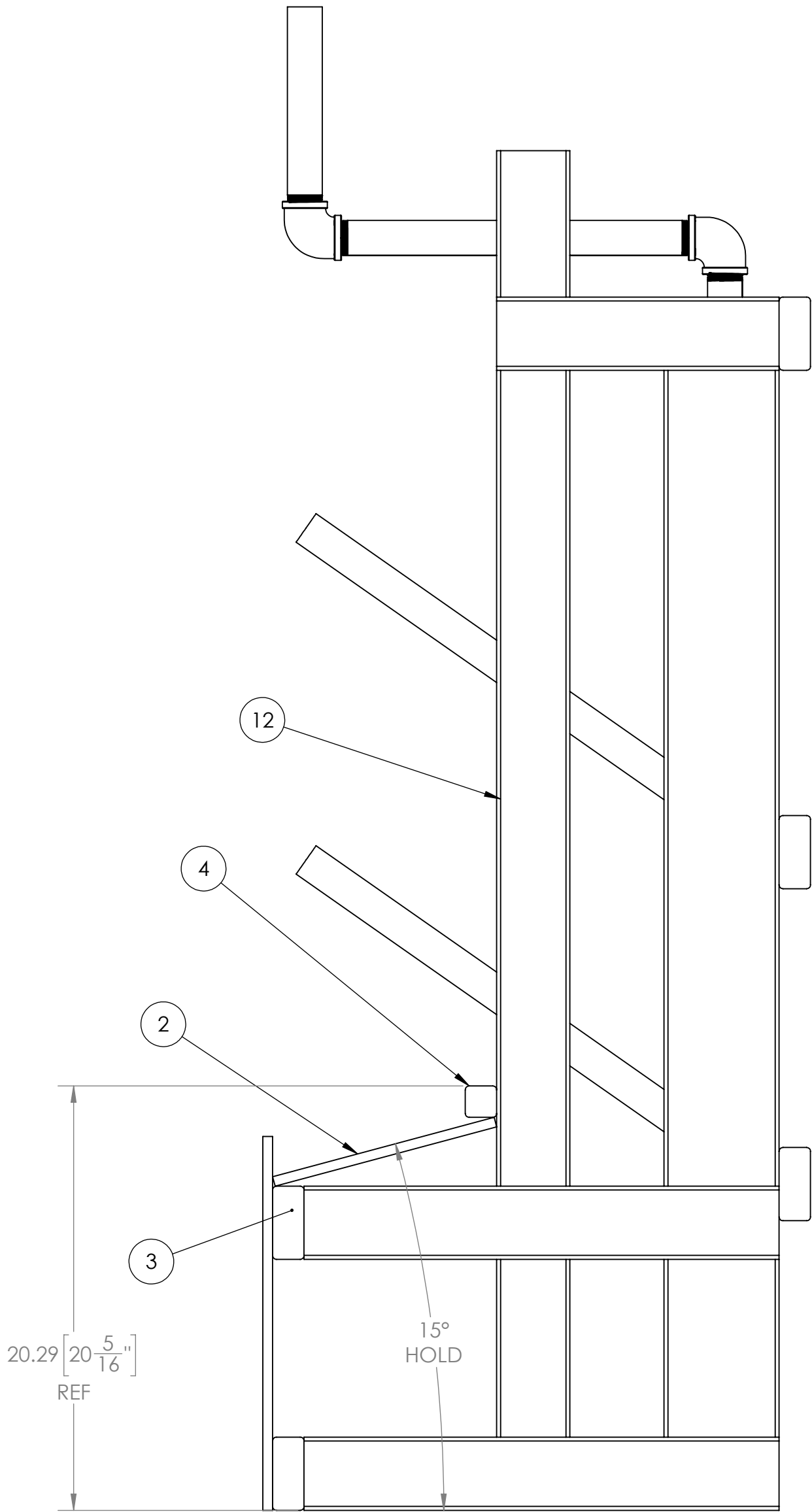
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2

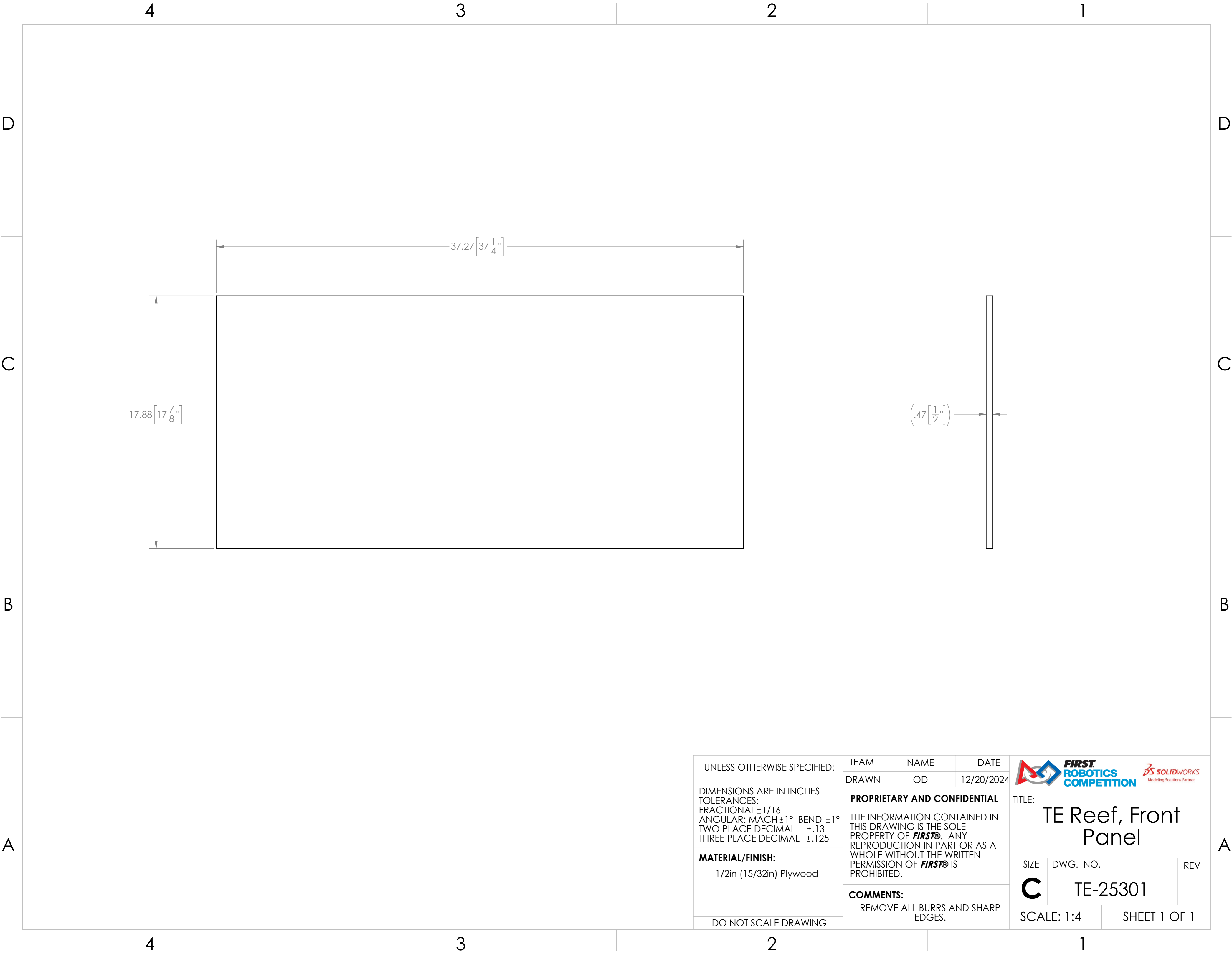
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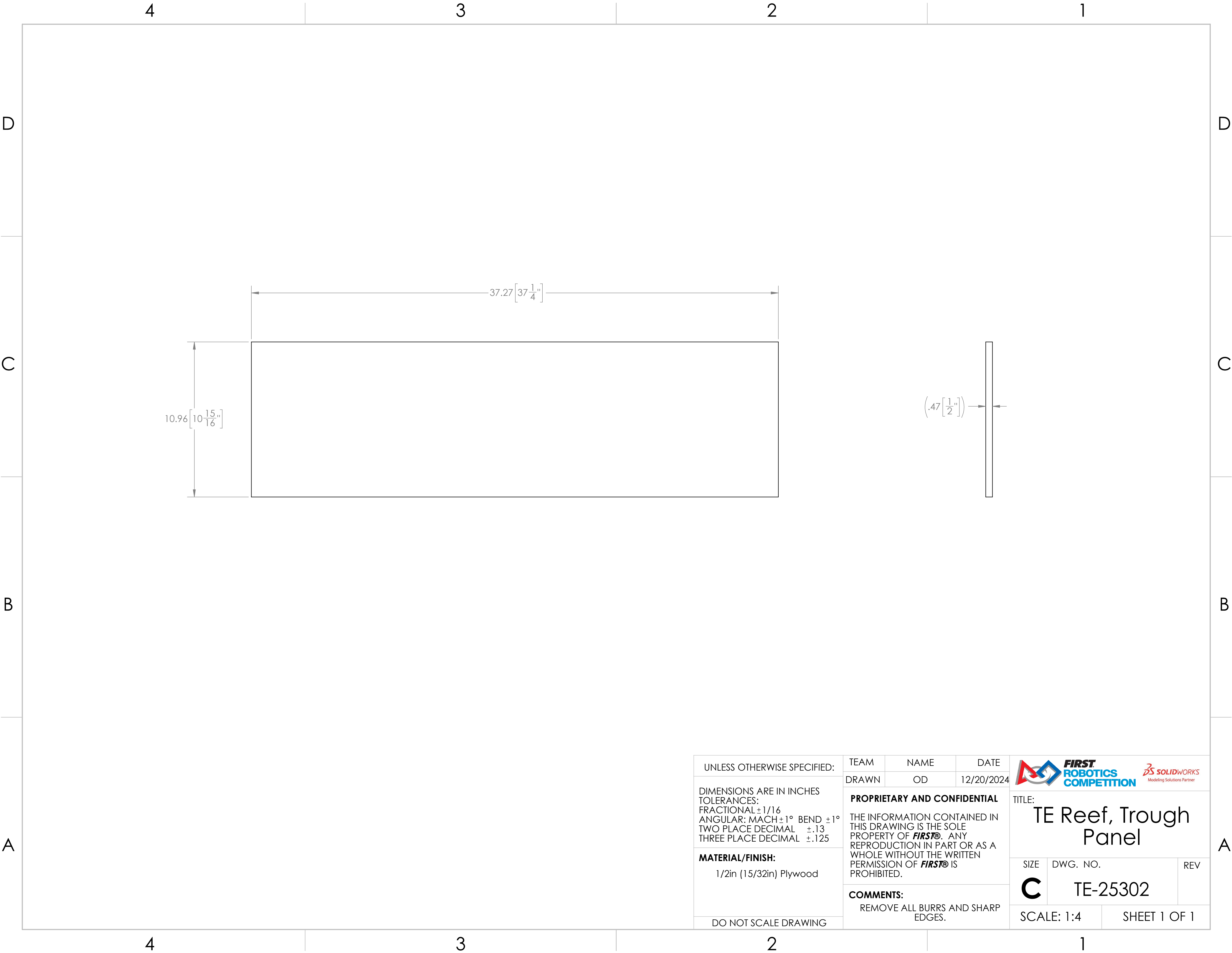
Step 9: Install (2) onto the top of (3) and set the angle as shown.
Install (4) above (2) to hold the appropriate angle. Fasten (4) to (12) first. Then fasten (2) into (3) and (4) .





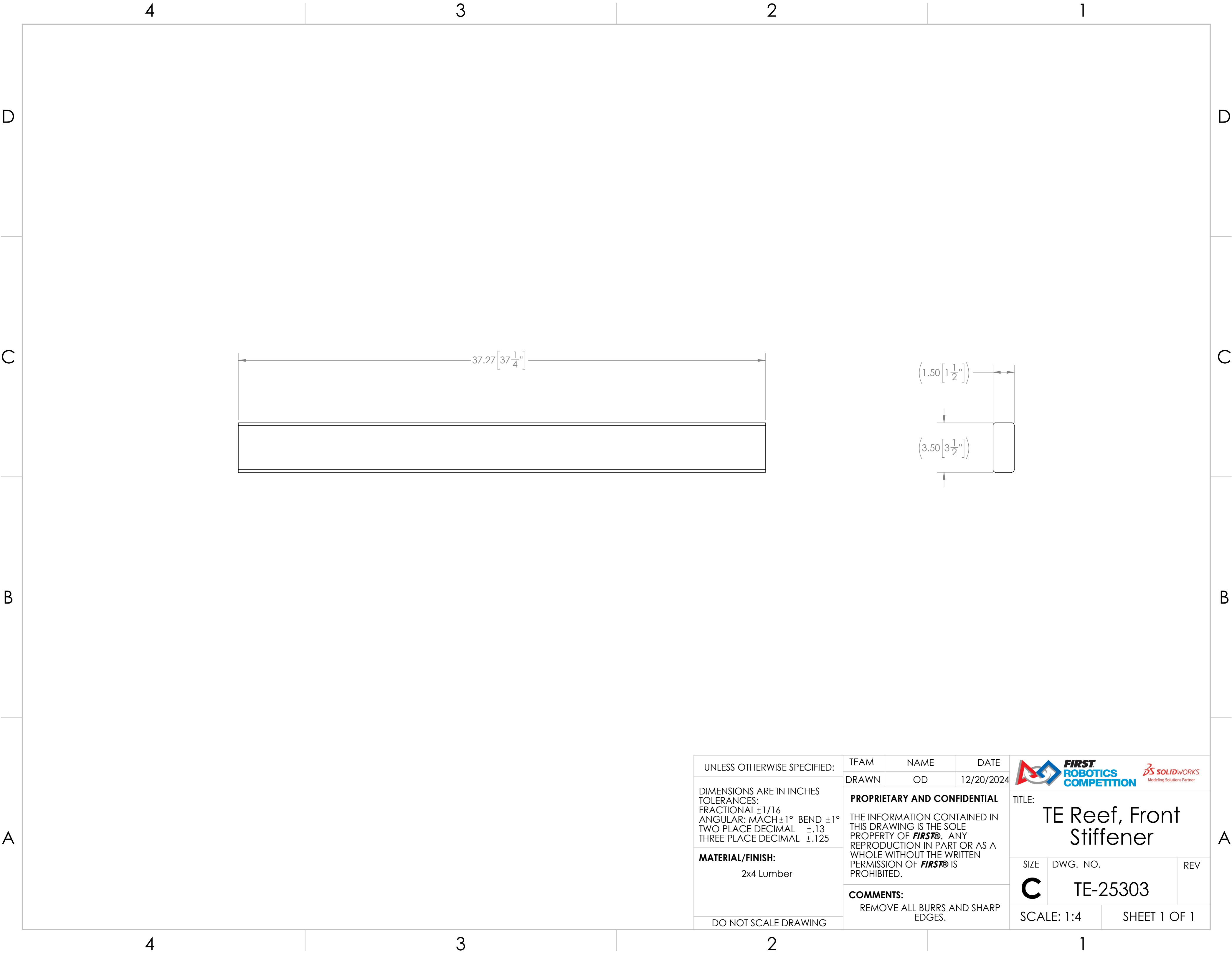
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	DRAWN	OD	12/20/2024			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED.			TITLE: TE Reef		
	MATERIAL/FINISH:			SIZE	DWG. NO.	REV
DO NOT SCALE DRAWING	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			C	TE-25300	
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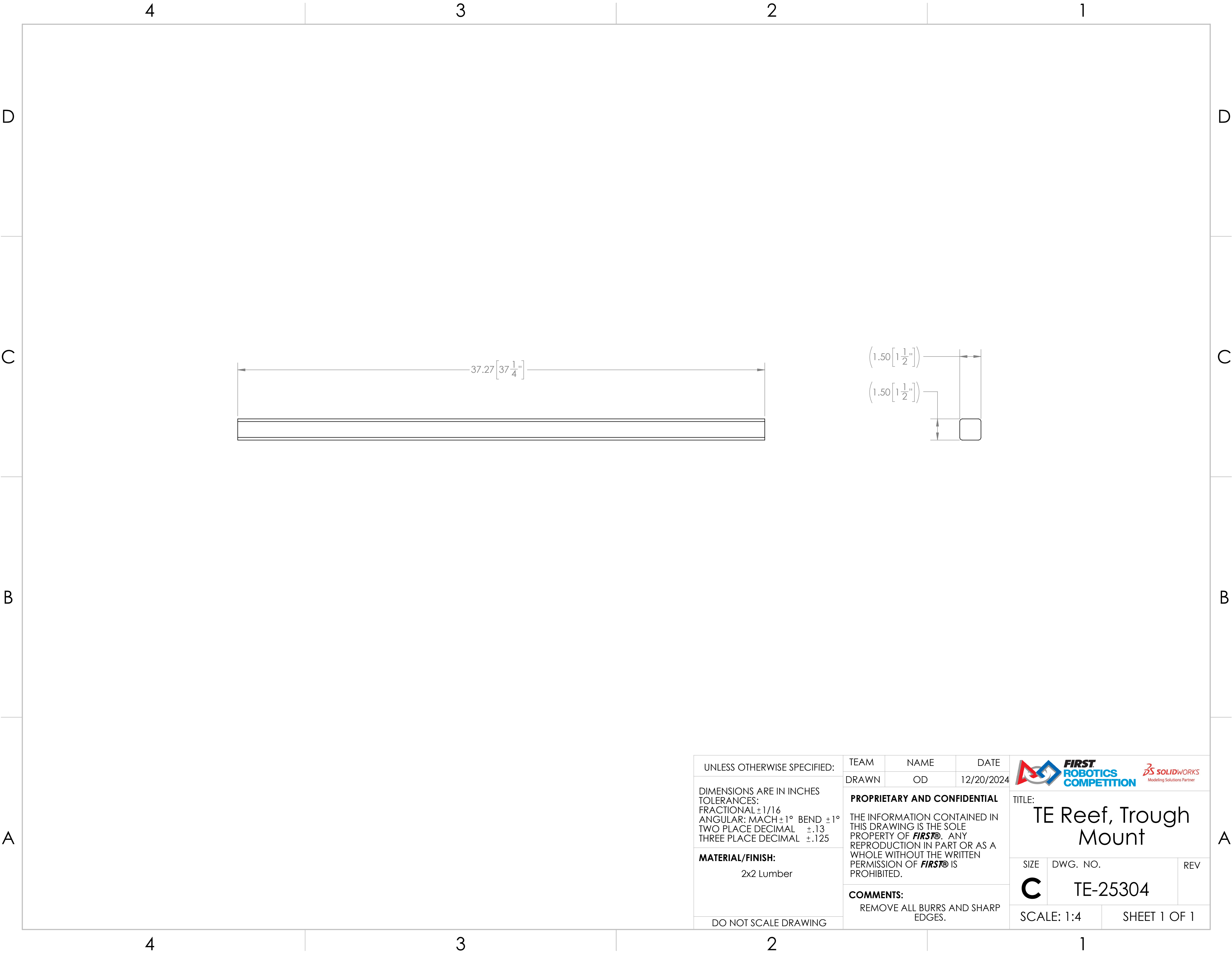
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	DRAWN	OD	12/20/2024			
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED. COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.					
SIZE		DWG. NO.		REV		
C		TE-25301				
SCALE: 1:4			SHEET 1 OF 1			





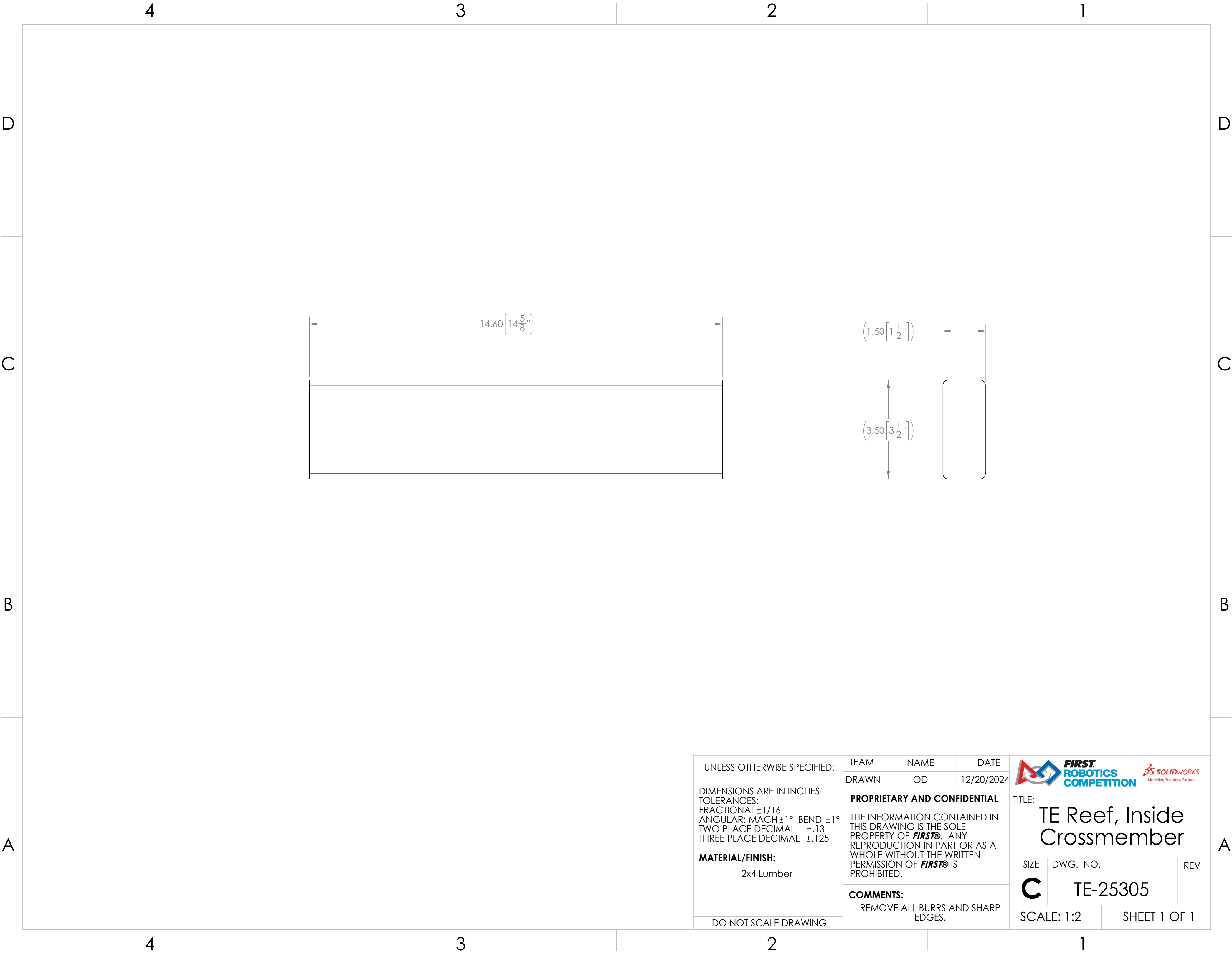
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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .13$ THREE PLACE DECIMAL $\pm .125$	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED.			TITLE: TE Reef, Trough Panel		
	MATERIAL/FINISH: 1/2in (15/32in) Plywood	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
	C				TE-25302	
DO NOT SCALE DRAWING				SCALE: 1:4		SHEET 1 OF 1





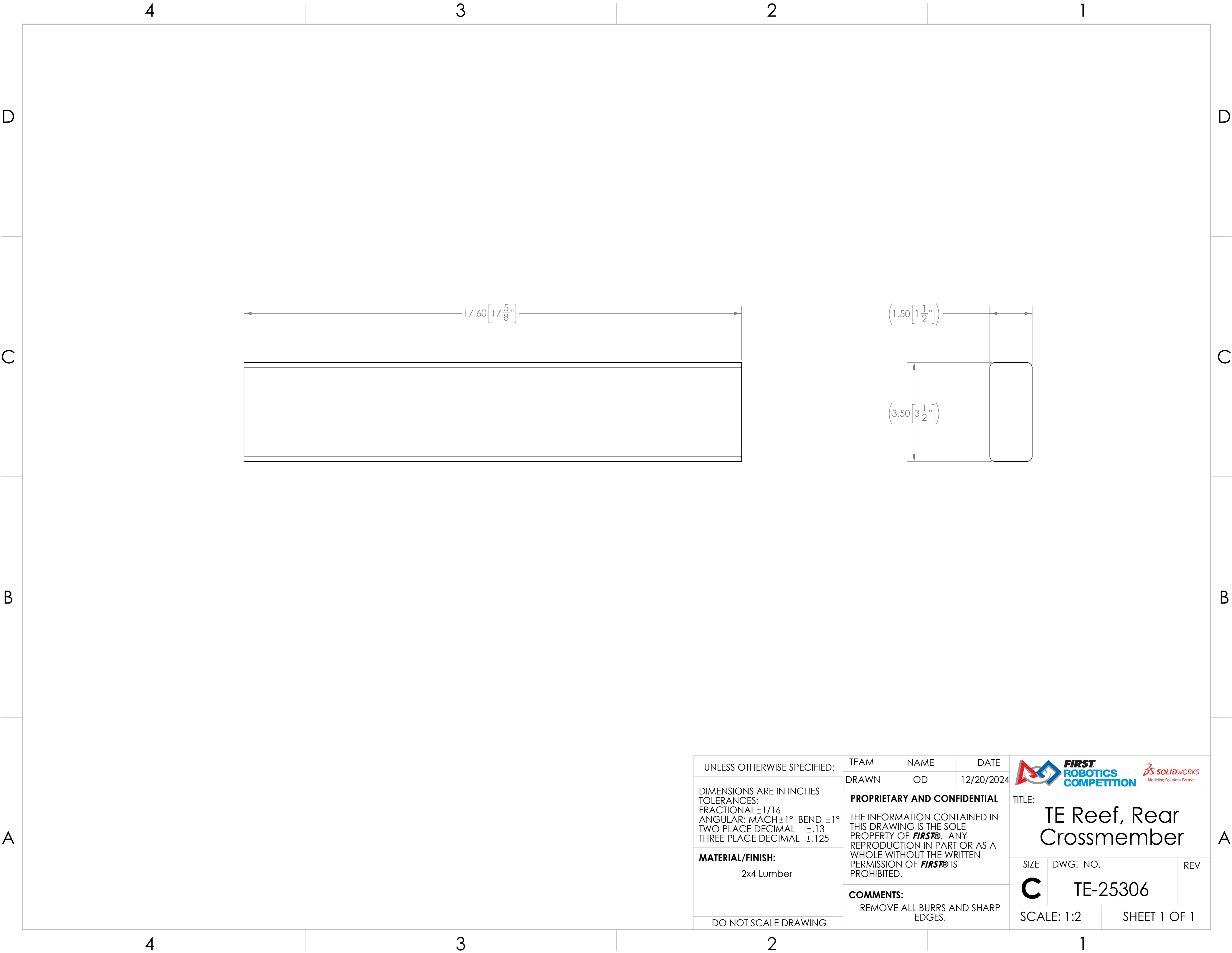
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	DRAWN	OD	12/20/2024			
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED. COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE C	DWG. NO. TE-25303	REV
SCALE: 1:4		SHEET 1 OF 1				





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	DRAWN	OD	12/20/2024			
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED. COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
C				TE-25304		
SCALE: 1:4				SHEET 1 OF 1		



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .13$ THREE PLACE DECIMAL $\pm .125$ MATERIAL/FINISH: 2x4 Lumber DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div> <div>TITLE: TE Reef, Inside Crossmember</div>		
	DRAWN	OD	12/20/2024			
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED. COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE C	DWG. NO. TE-25305	REV
SCALE: 1:2		SHEET 1 OF 1				



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH: 2x4 Lumber DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div> <div>TITLE: TE Reef, Rear Crossmember</div>		
	DRAWN	OD	12/20/2024			
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED. COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.					
SIZE		DWG. NO.		REV		
C		TE-25306				
SCALE: 1:2			SHEET 1 OF 1			

4

3

2

1

D

D

C

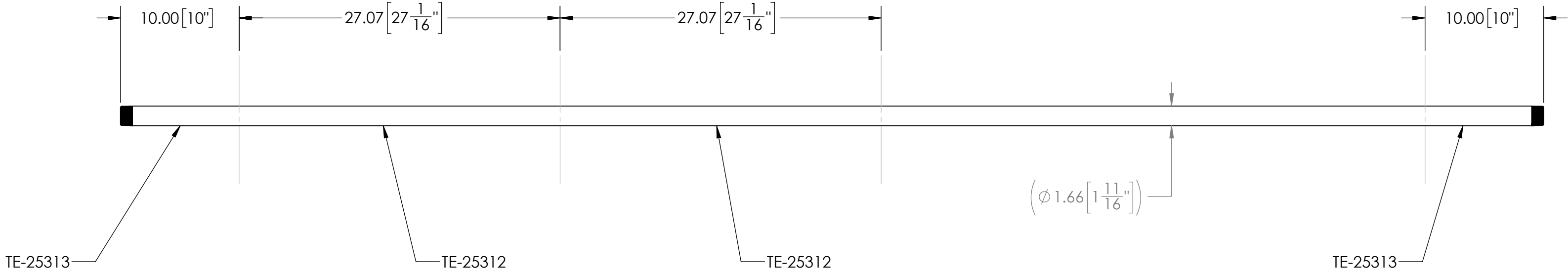
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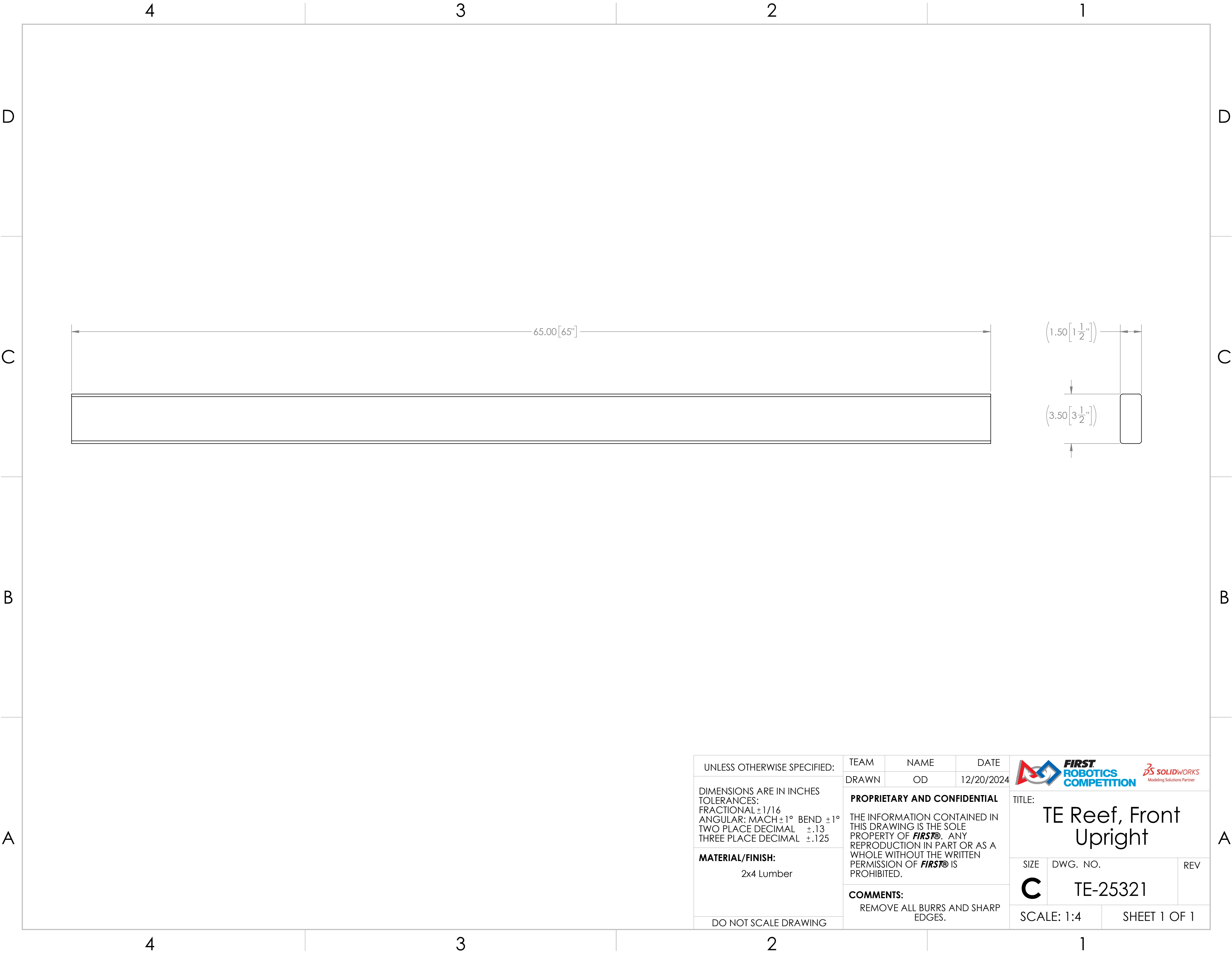
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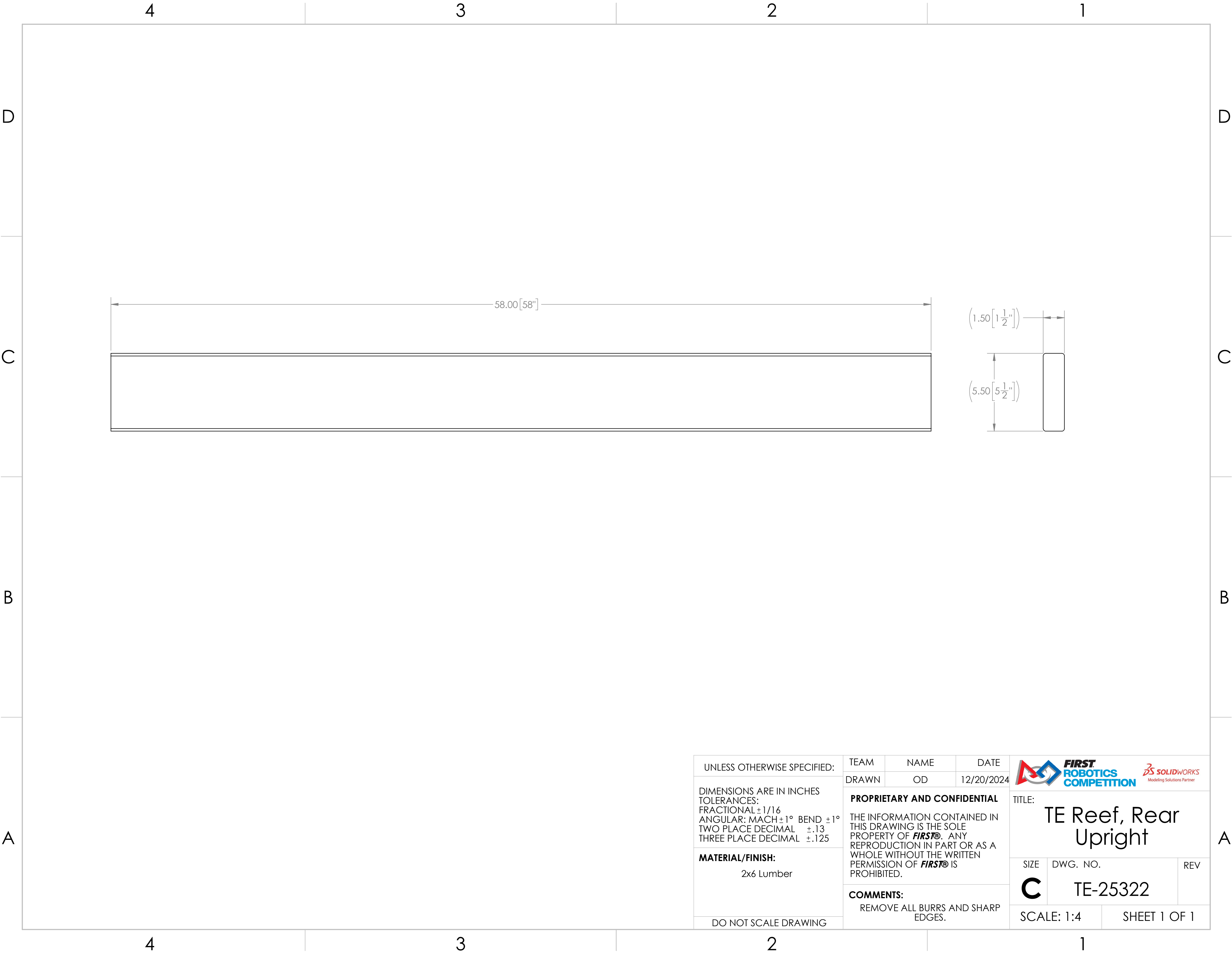




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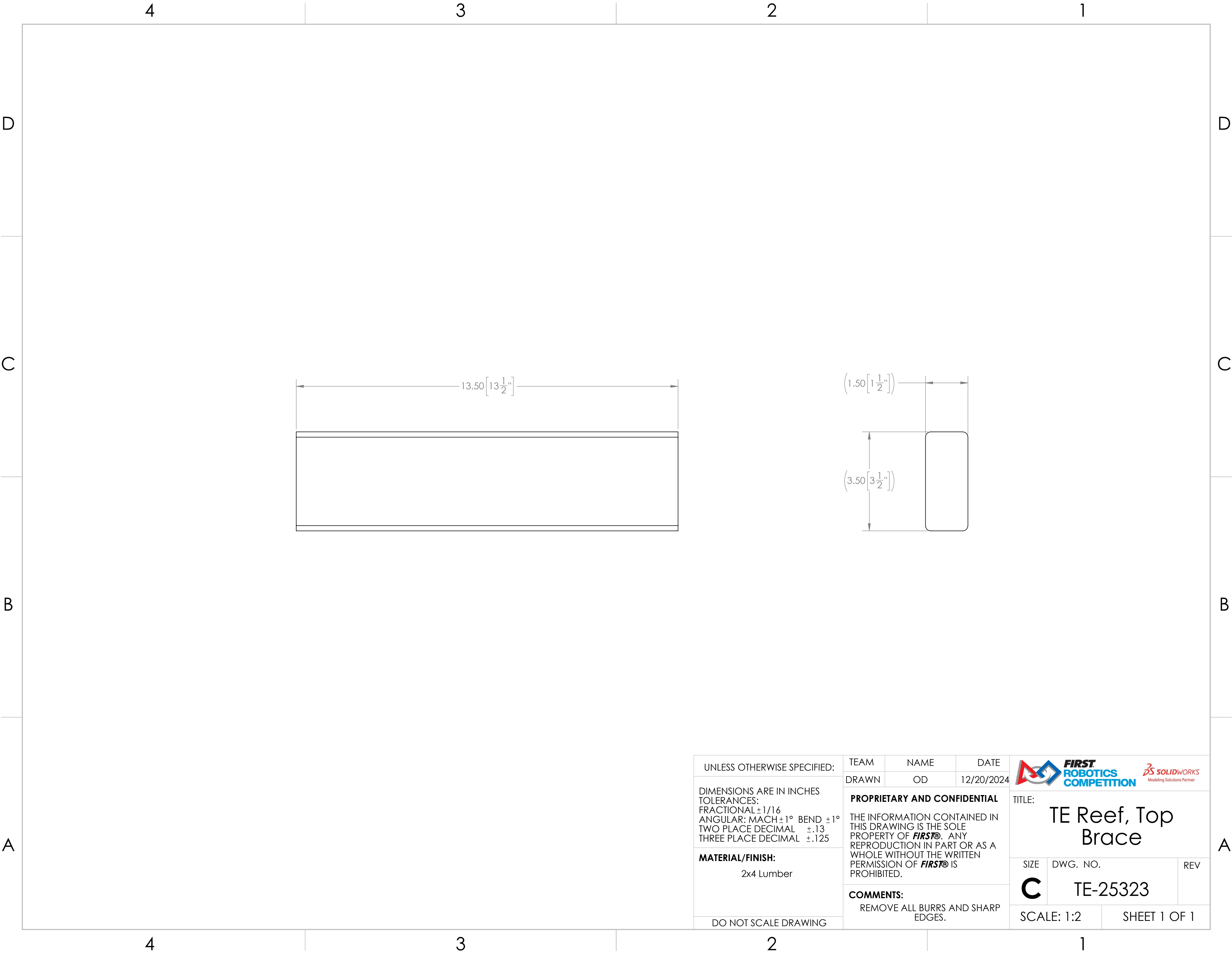
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE	<div><div>FIRST ROBOTICS COMPETITION</div><div>SOLIDWORKS Modeling Solutions Partner</div></div>		
	DRAWN	OD	12/19/2024			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	PROPRIETARY AND CONFIDENTIAL			TITLE: 10ft Pipe Cut Sheet		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED.					
MATERIAL/FINISH: 1-1/4in Steel/Iron Pipe, 10ft Long, Threaded Both Ends	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	TE-25312 & TE-25313 Cut Sheet	
DO NOT SCALE DRAWING				SCALE: 1:8		SHEET 1 OF 1





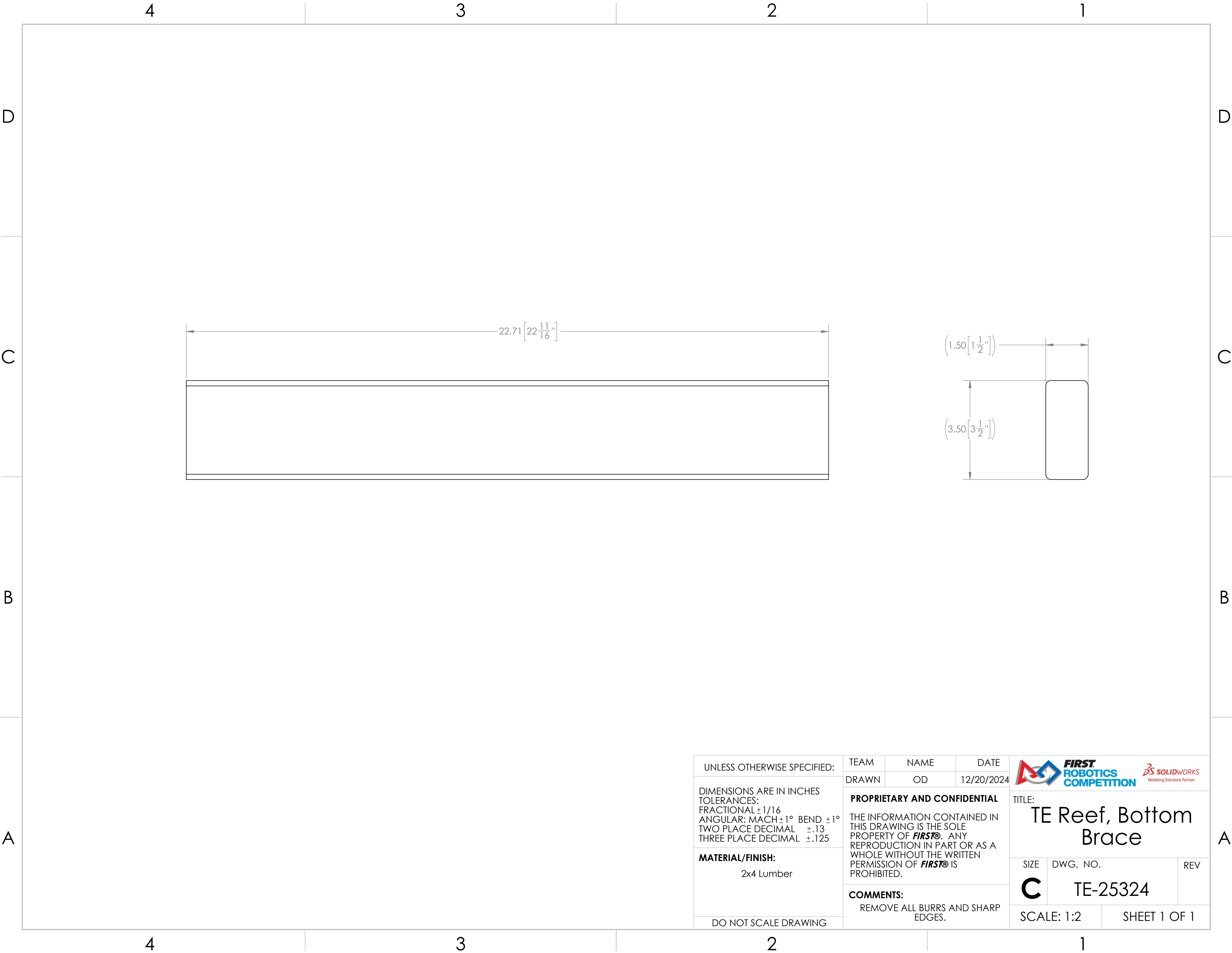
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	DRAWN	OD	12/20/2024			
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED. COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
C				TE-25321		
SCALE: 1:4				SHEET 1 OF 1		





UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .13$ THREE PLACE DECIMAL $\pm .125$ MATERIAL/FINISH: 2x6 Lumber DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div> <div>TITLE: TE Reef, Rear Upright</div>		
	DRAWN	OD	12/20/2024			
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED. COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE C	DWG. NO. TE-25322	REV
SCALE: 1:4		SHEET 1 OF 1				



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	DRAWN	OD	12/20/2024			
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED. COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE C	DWG. NO. TE-25323	REV
SCALE: 1:2		SHEET 1 OF 1				



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH: 2x4 Lumber DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div> <div>TITLE: TE Reef, Bottom Brace</div>		
	DRAWN	OD	12/20/2024			
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED. COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.					
				SIZE	DWG. NO.	REV
				C	TE-25324	
				SCALE: 1:2		SHEET 1 OF 1