

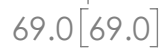
1

D

C

B

A



-3.00 [3"]

This diagram shows an exploded perspective view of a mechanical assembly. The components are identified by numbered callouts: 1 points to a vertical support post; 2 points to a vertical support post with a triangular base; 3 points to a vertical support post with a triangular base; 4 points to a horizontal support bar; 5 points to a horizontal support bar; 6 points to a rectangular base plate; 7 points to a small rectangular component; 8 points to a curved support arm; 9 points to a vertical support post with a triangular base; and 10 points to a small rectangular component. The assembly is shown in a disassembled state, with the components arranged to show their relative positions and how they fit together.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-25229	Cage Chain	1
2	TE-25201	Leg Assembly	2
3	TE-25206	Barge End	2
4	TE-25207	Horizontal	1
5	TE-25208	Conduit, Net	2
6	TE-25210	Cage Assembly, Team	1
7	TE-25214	AprilTag Holder	1
8	TE-25217	Net	1
9	3216T41_Carabiner	Carabiner, Locking Steel, .38 thick	2
10	9496T42	Screw, Eye .313 x 6"	1

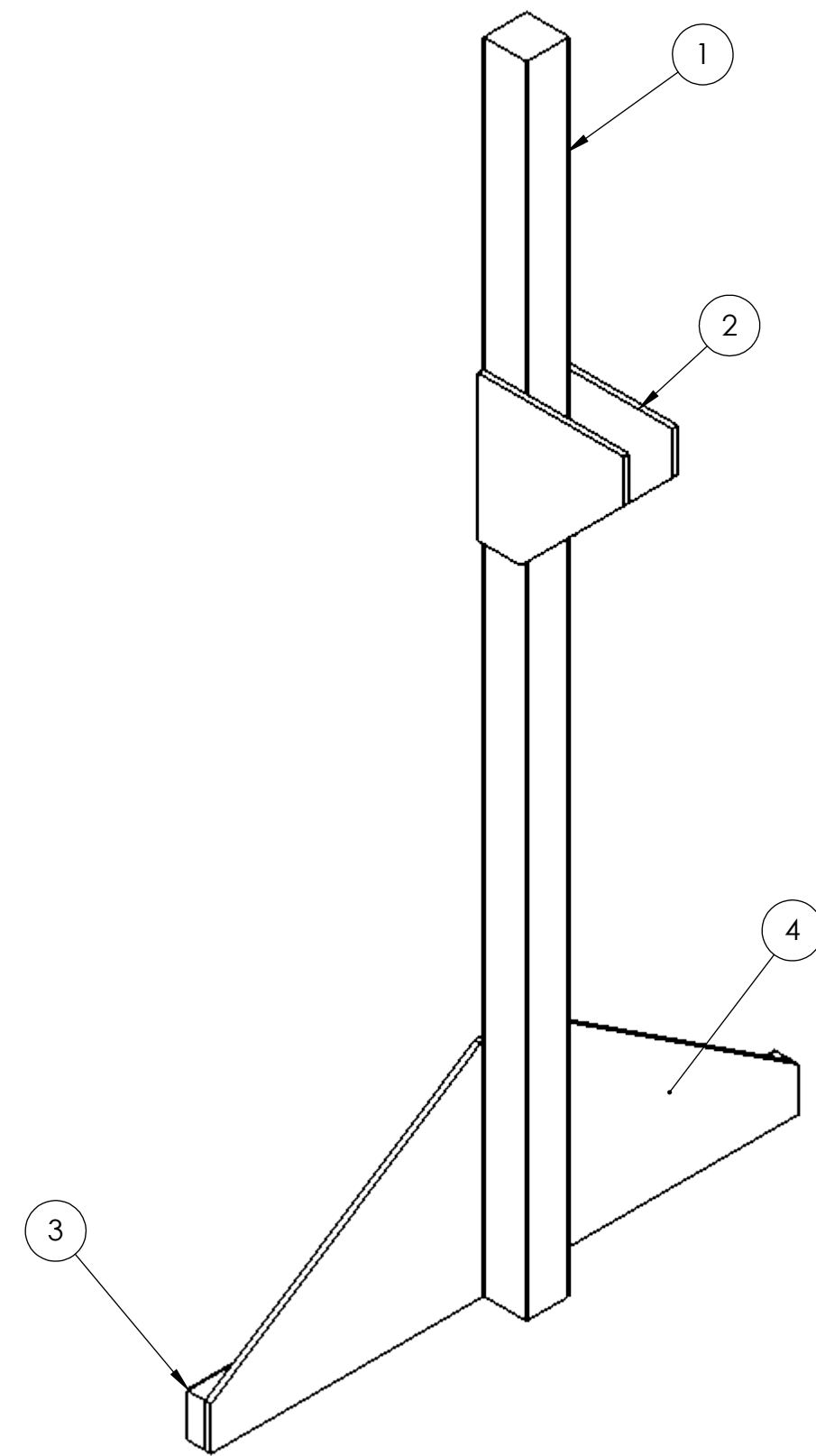
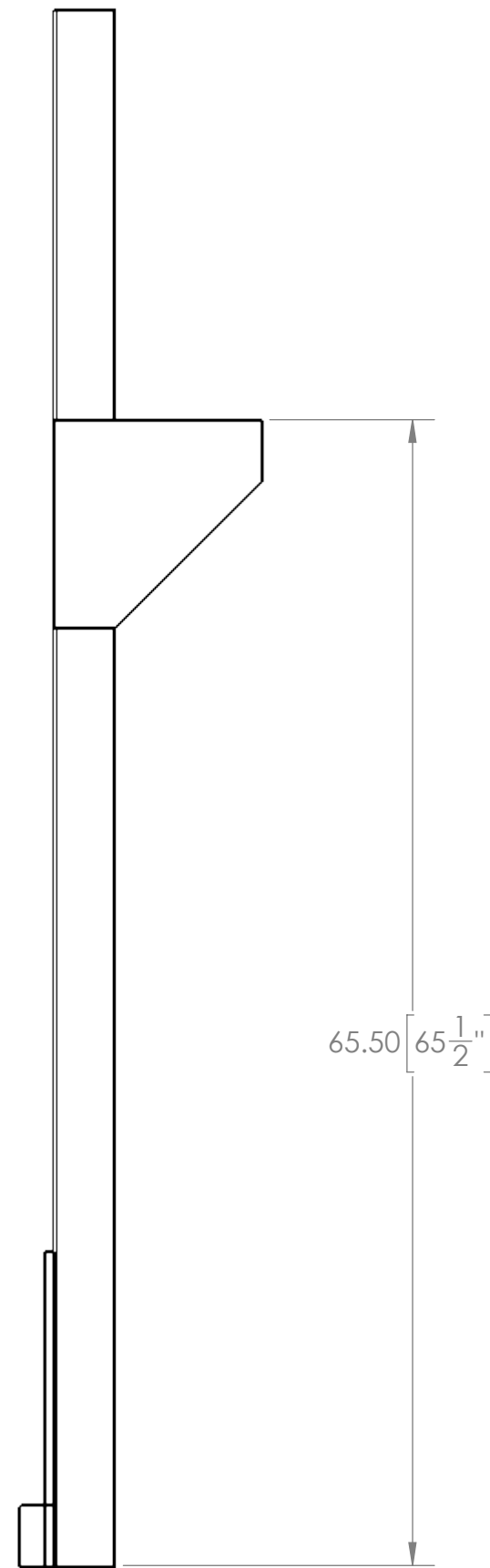
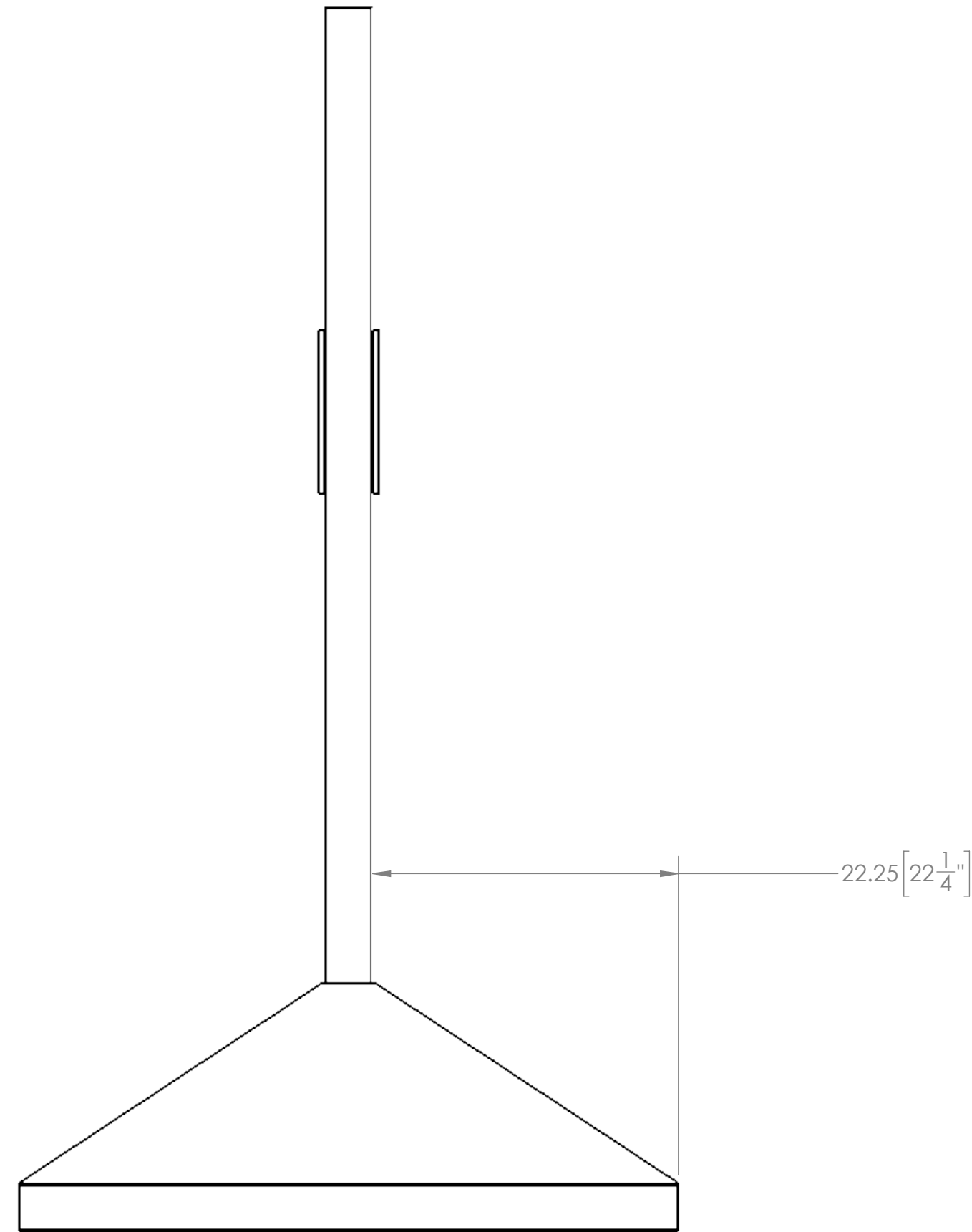



TITLE: Barge, Team

SIZE	DWG. NO.	REV
------	----------	-----




SCALE: 1:16 SHEET 1 OF 1

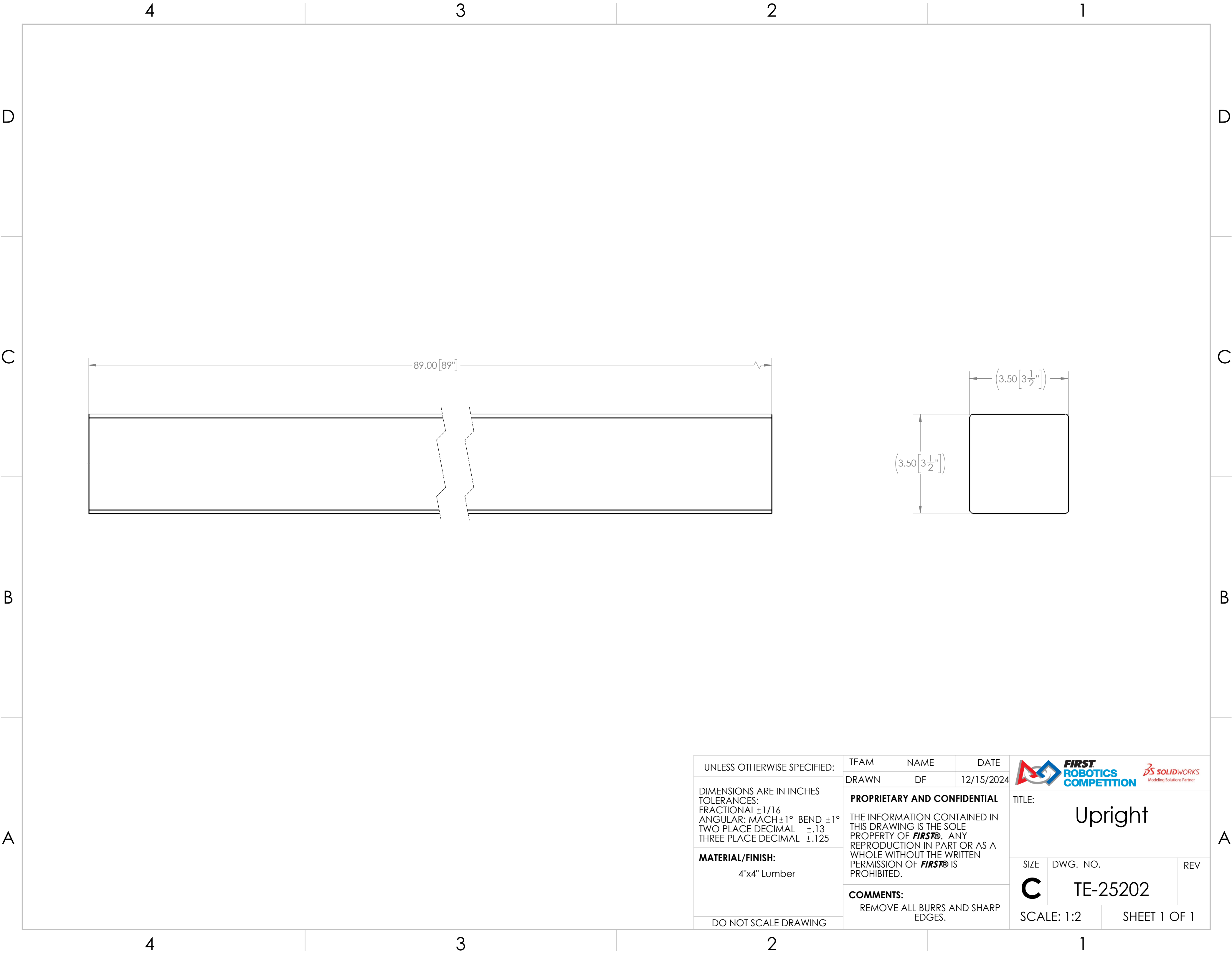
1. Attach all components using wood screws unless otherwise noted.
2. Cage hardware assemblies (chain, eyebolts, carabiners) will be sold at AndyMark.com





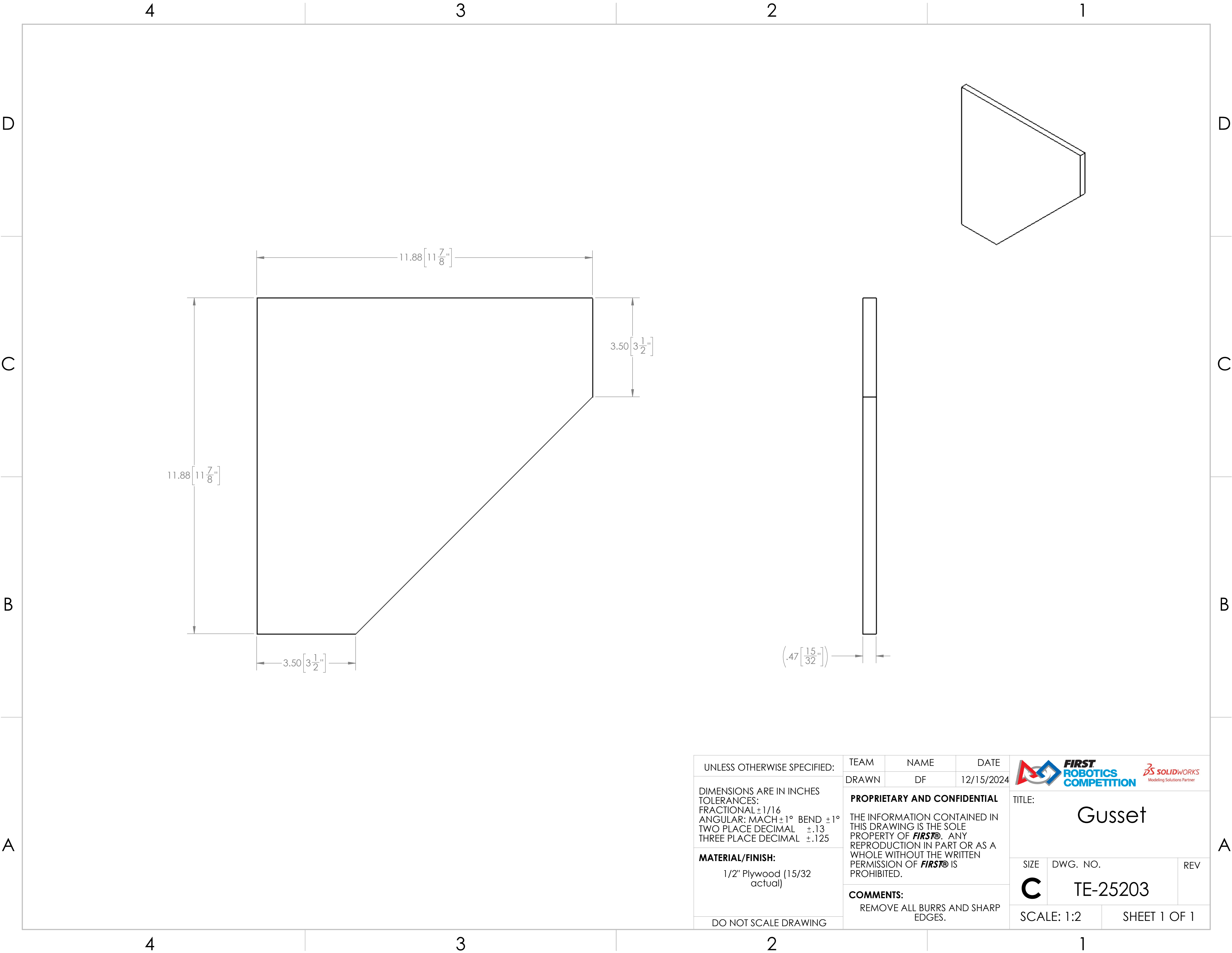
- Notes:
- 1. Fasten using 1-1/2" wood screws as needed.
 - 2. A total of two assemblies needed.



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-25202	Upright	1
2	TE-25203	Gusset	2
3	TE-25204	Stabilizer	1
4	TE-25205	Stabilizer Gusset	1

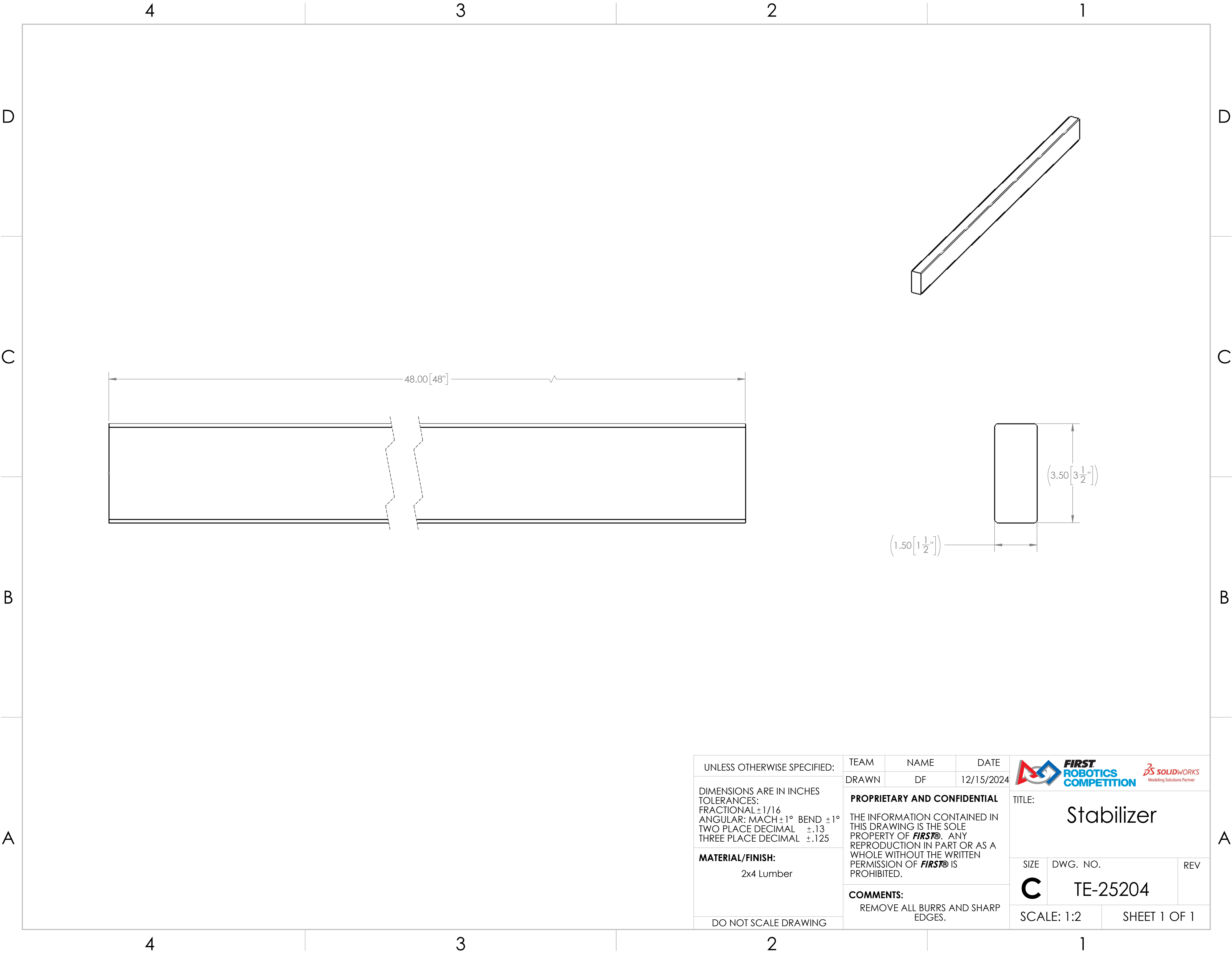
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH: DO NOT SCALE DRAWING	TEAM	NAME	DATE	  	
	DRAWN	DF	12/15/2024		
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED.			TITLE: Leg Assembly	
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
C				TE-25201	
			SCALE: 1:10		SHEET 1 OF 1





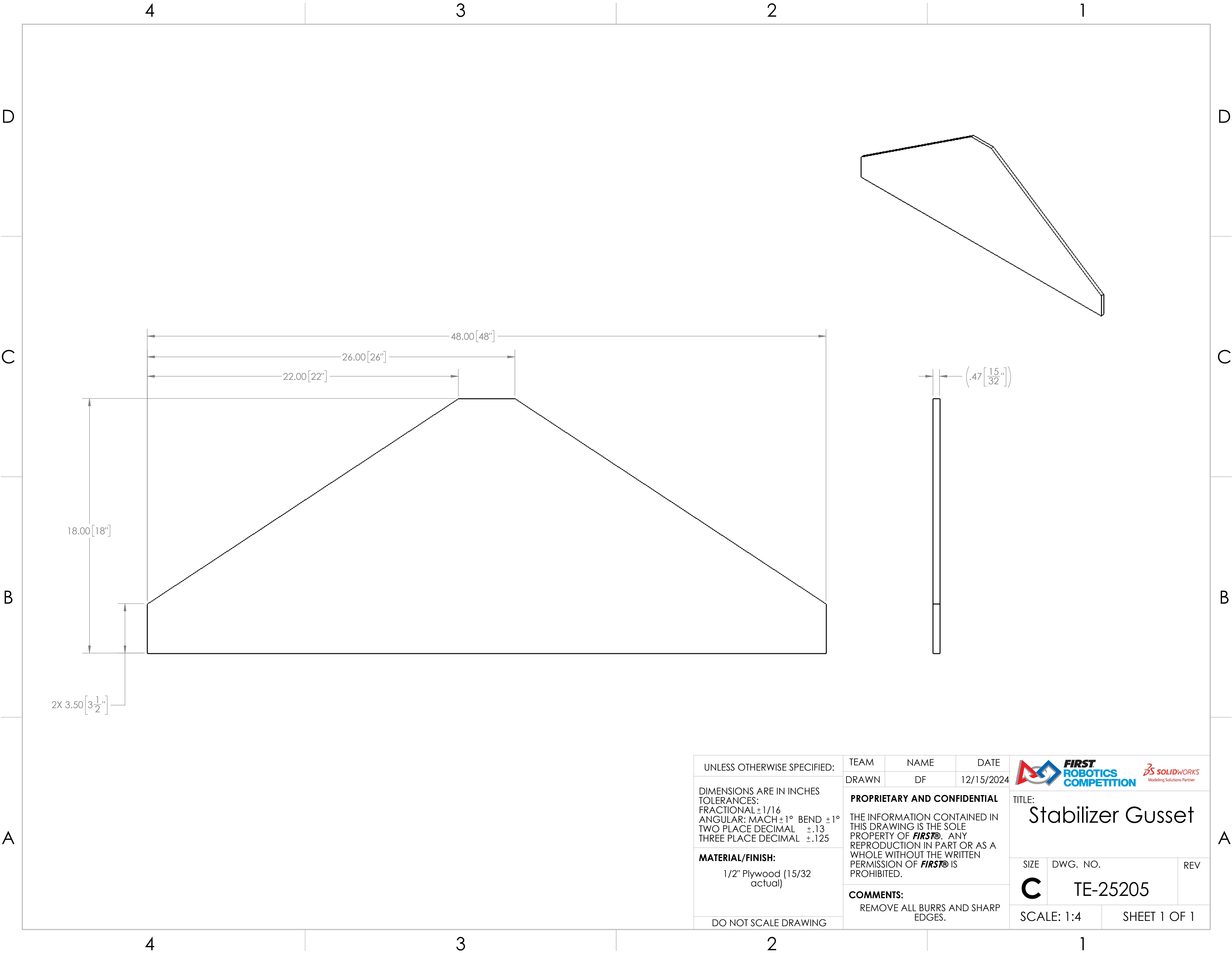
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .13$ THREE PLACE DECIMAL $\pm .125$ MATERIAL/FINISH: 4"x4" Lumber DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div> <div>TITLE: Upright</div>		
	DRAWN	DF	12/15/2024			
	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.			SIZE	DWG. NO.	REV
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			C	TE-25202	
SCALE: 1:2		SHEET 1 OF 1				





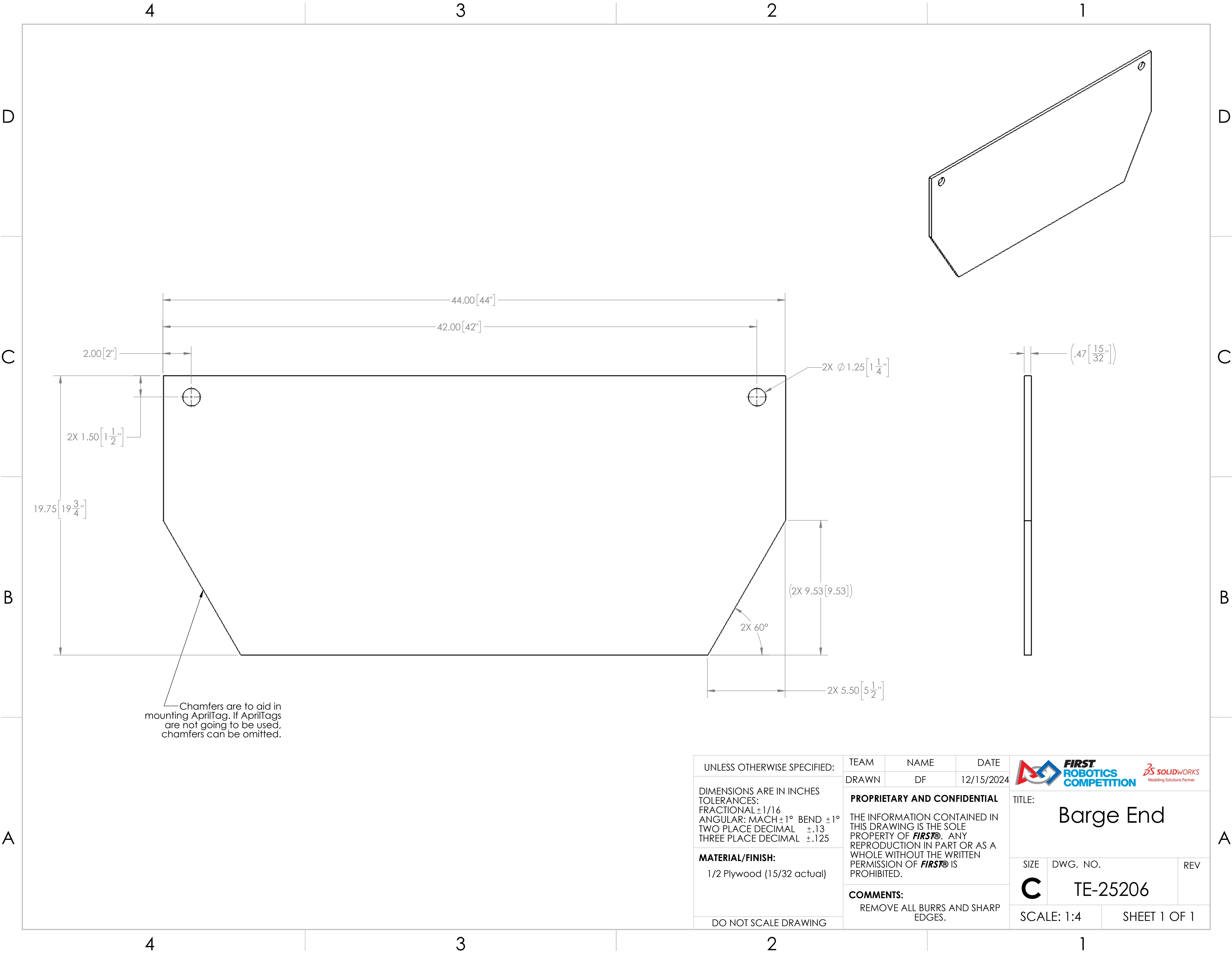
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE	<div></div> <div>TITLE: Gusset</div>		
	DRAWN	DF	12/15/2024			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FIRST® . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FIRST® IS PROHIBITED.			SIZE	DWG. NO.	REV
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			C	TE-25203	
				SCALE: 1:2		SHEET 1 OF 1
MATERIAL/FINISH: 1/2" Plywood (15/32 actual)						
DO NOT SCALE DRAWING						





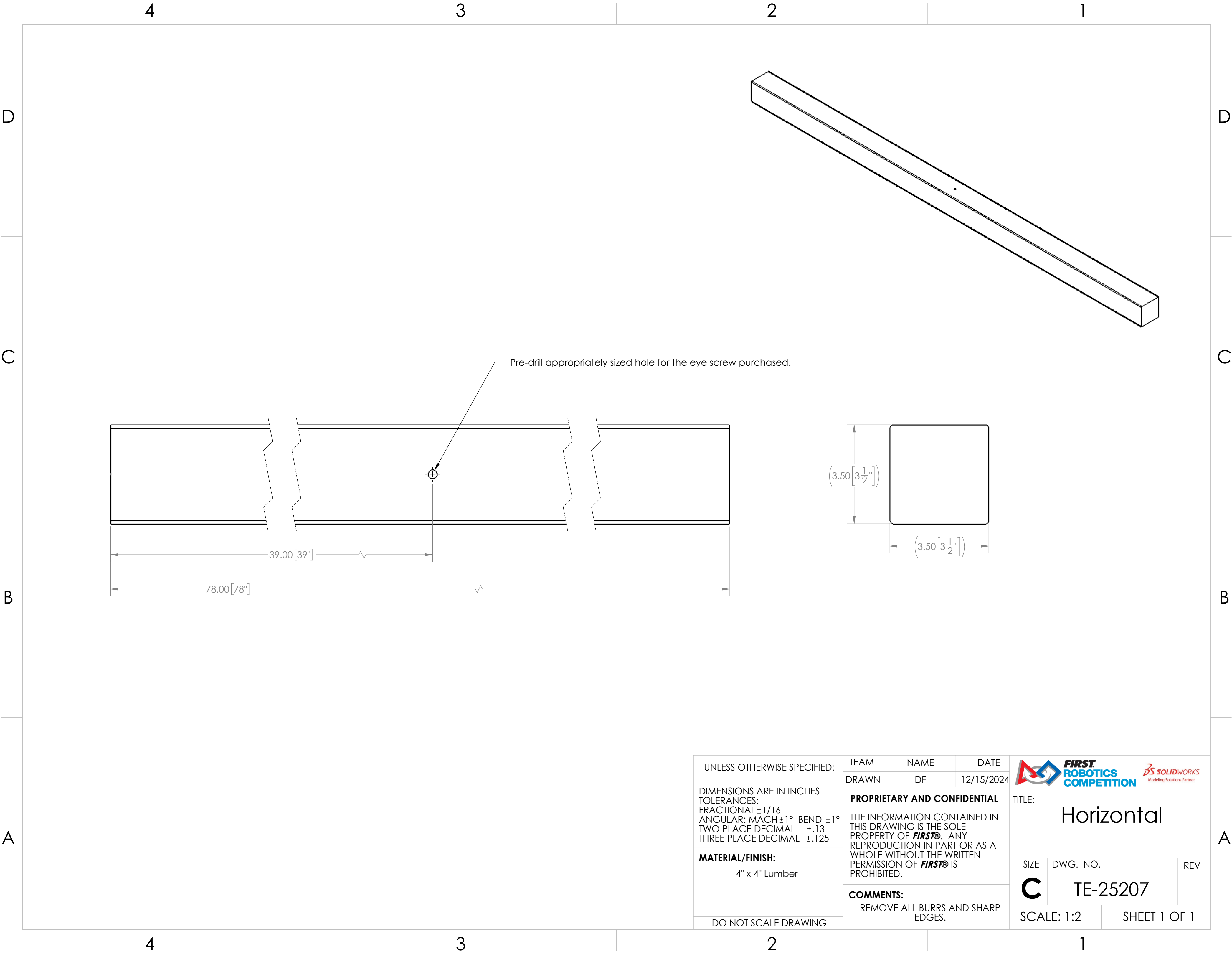
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .13$ THREE PLACE DECIMAL $\pm .125$ MATERIAL/FINISH: 2x4 Lumber DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div> <div>TITLE: Stabilizer</div>		
	DRAWN	DF	12/15/2024			
	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.			SIZE	DWG. NO.	REV
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			C	TE-25204	
SCALE: 1:2		SHEET 1 OF 1				





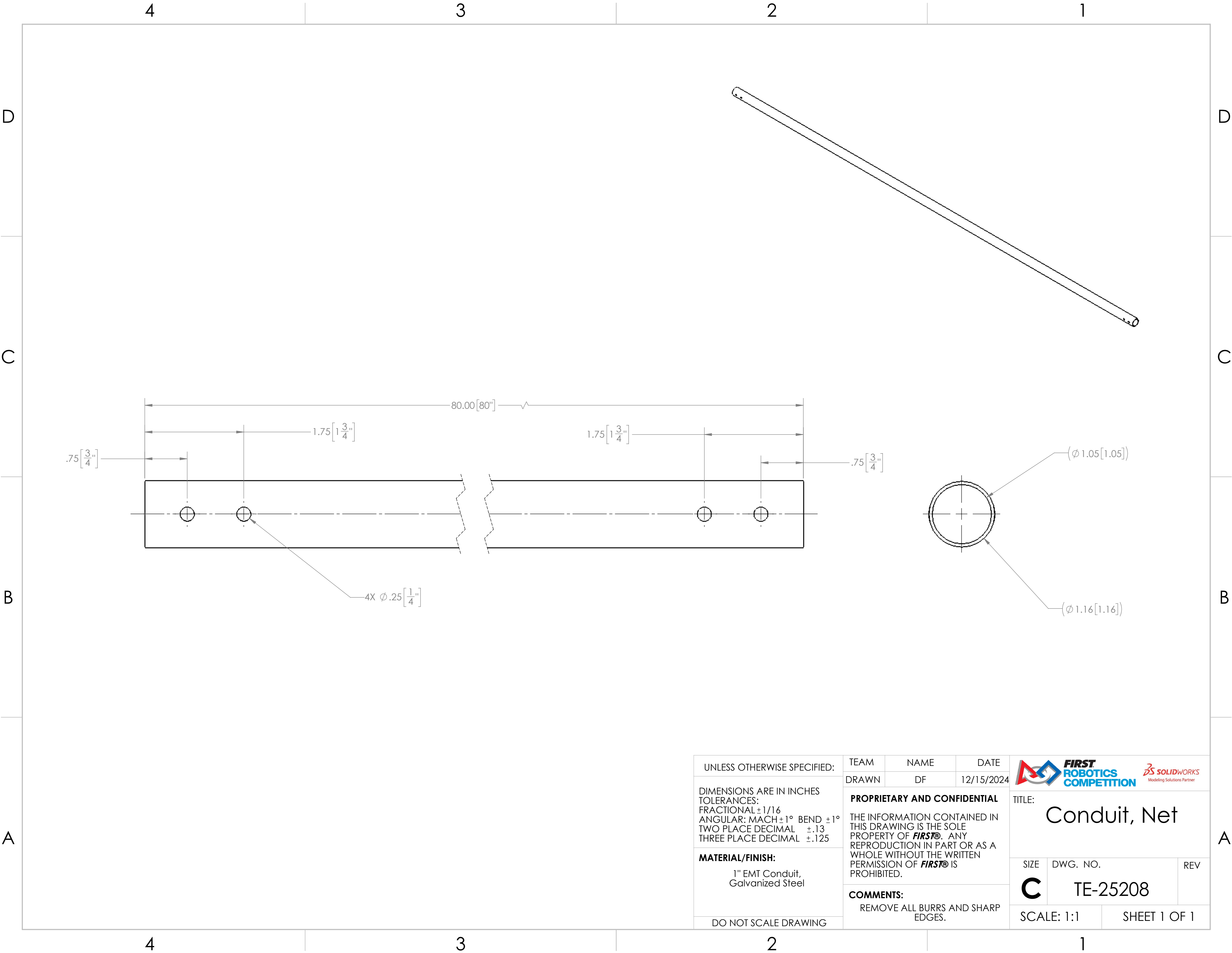
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .13$ THREE PLACE DECIMAL $\pm .125$ MATERIAL/FINISH: 1/2" Plywood (15/32 actual) DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div> <div>TITLE: Stabilizer Gusset</div>		
	DRAWN	DF	12/15/2024			
	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.			SIZE	DWG. NO.	REV
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			C	TE-25205	
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: 1/2 Plywood (15/32 actual) DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div>	
	DRAWN	DF	12/15/2024		
	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.				TITLE: Barge End
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.		SIZE C	DWG. NO. TE-25206	REV
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: 4" x 4" Lumber DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div> <div>TITLE: <h1>Horizontal</h1></div>		
	DRAWN	DF	12/15/2024			
	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-25207	REV
SCALE: 1:2		SHEET 1 OF 1				



UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE	<div></div>		
	DRAWN	DF	12/15/2024			
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: Conduit, Net		
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	TE-25208	
MATERIAL/FINISH: 1" EMT Conduit, Galvanized Steel				SCALE: 1:1		
DO NOT SCALE DRAWING				SHEET 1 OF 1		

D

D

C

C

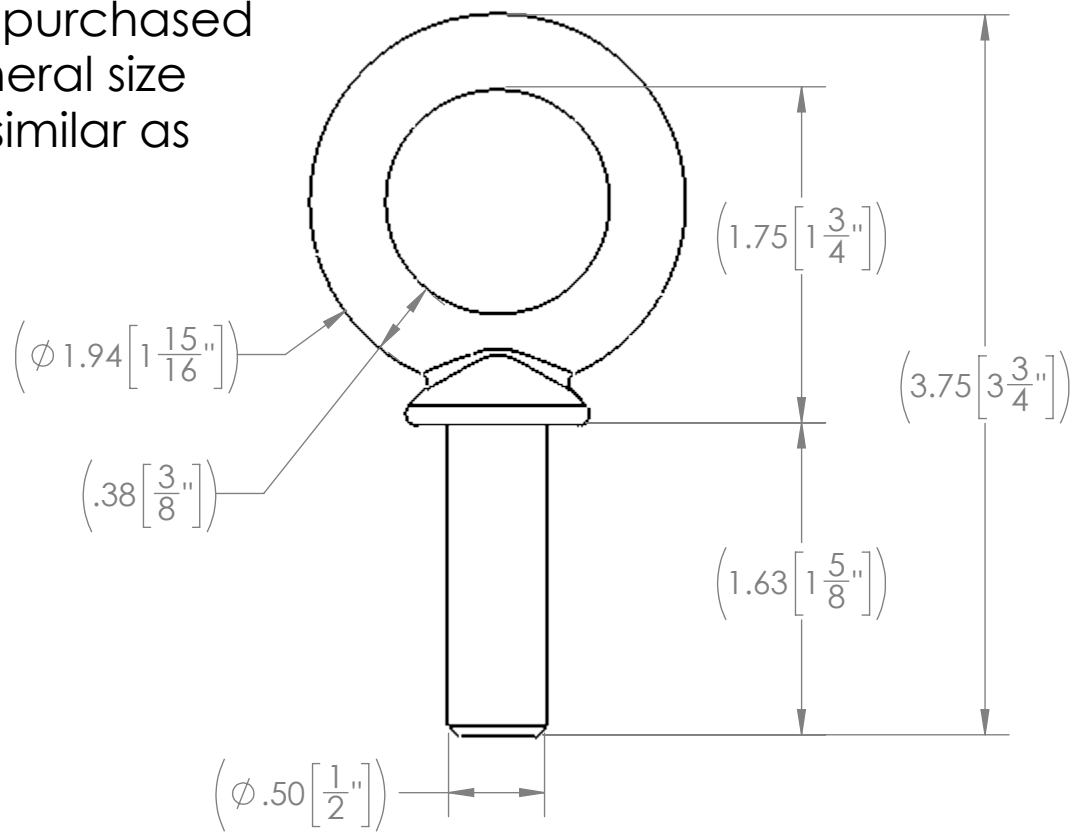
B

B

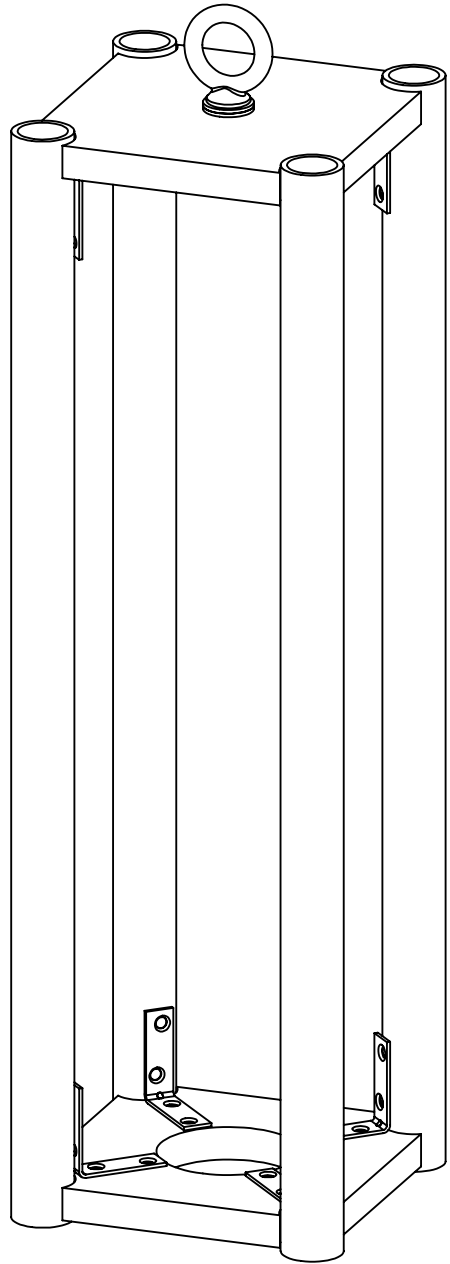
A

A

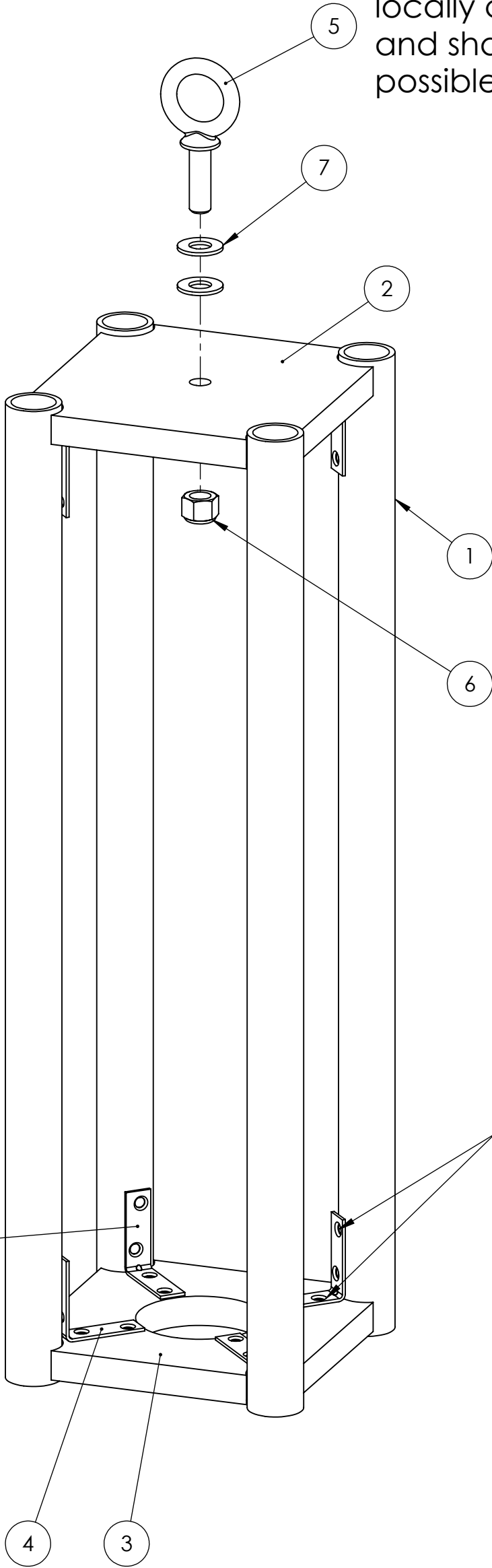
Eyebolt shown is part#:50CBMSI from KLJack.com. Other eyebolts purchased locally can be used, but general size and shape should be as similar as possible.



Eyebolt Detail A



Angle brackets are 2" Steel, .07" thick. Home Depot items 202034088 and 300985586 are adequate, but any similarly sized brackets will work




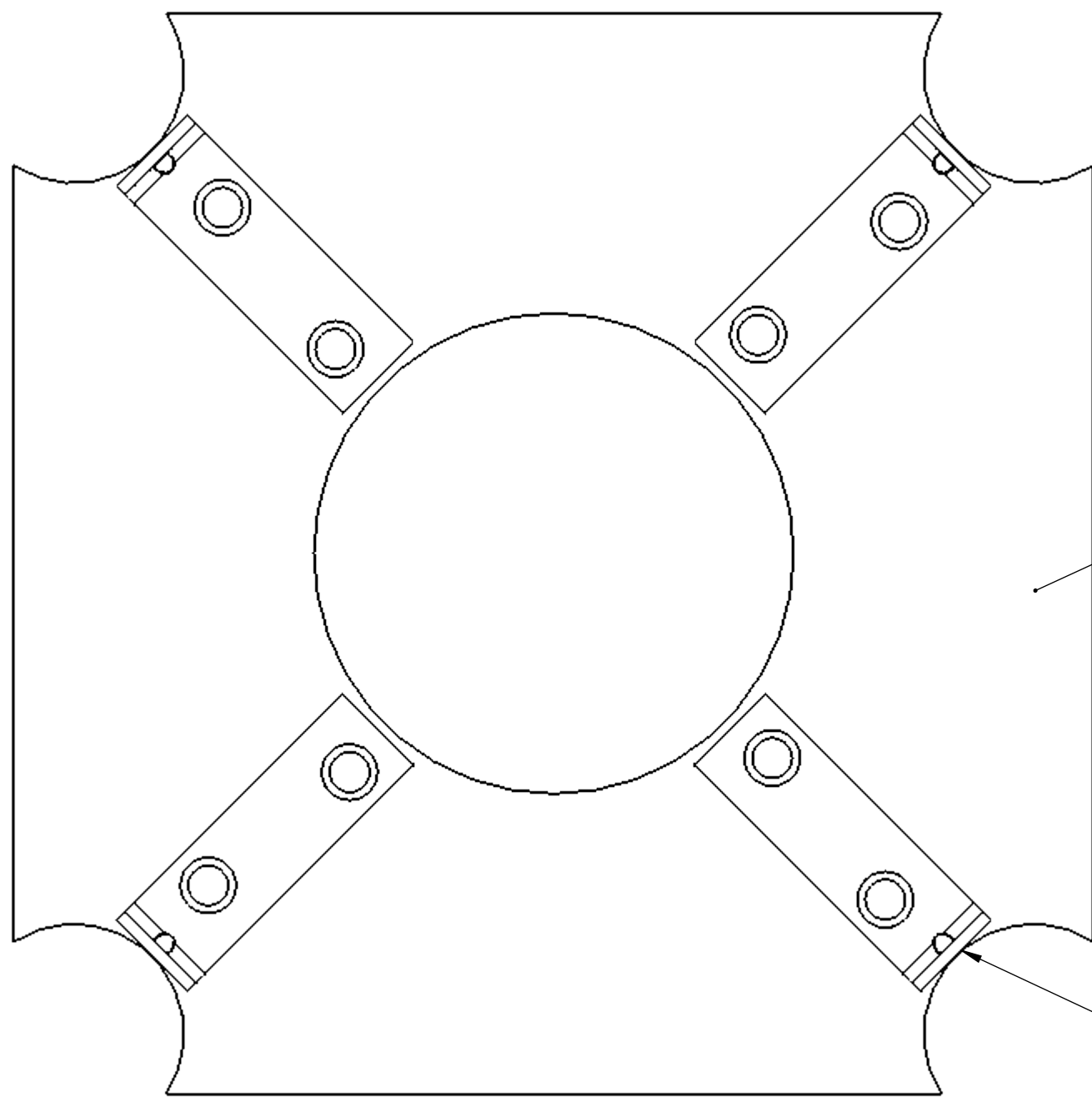
In addition to the BOM items, appropriate bolts (hex or pan head) will be needed to attach the brackets. Bolt diameter will vary by bracket purchased. Lengths and quantities needed:

- 8 - 1.75" long bolts
- 8 - 1.25" long bolts
- 16 - nylock nuts
- 8 - flat washers

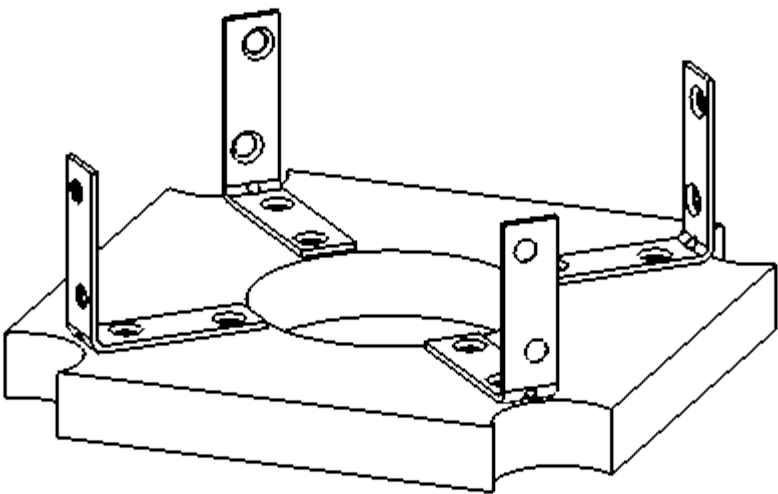
Note: Official field cages will be available for purchase at AndyMark.com

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-25211	Pipe, Team Cage	4
2	TE-25212	Cage Top, Team	1
3	TE-25213	Cage Bottom, Team	1
4	Angle_Bracket_2in	Angle Bracket, 2", Steel	8
5	eyebolt_shoulder_5_13_15	Steel Eyebolt with Shoulder, 1/2"-13 x 1.5" long, fully threaded	1
6	nylock_5_13	steel nylon-insert locknut, 1/2" - 13	1
7	washer_flat_5	Flat Washer for 1/2" Screw	2

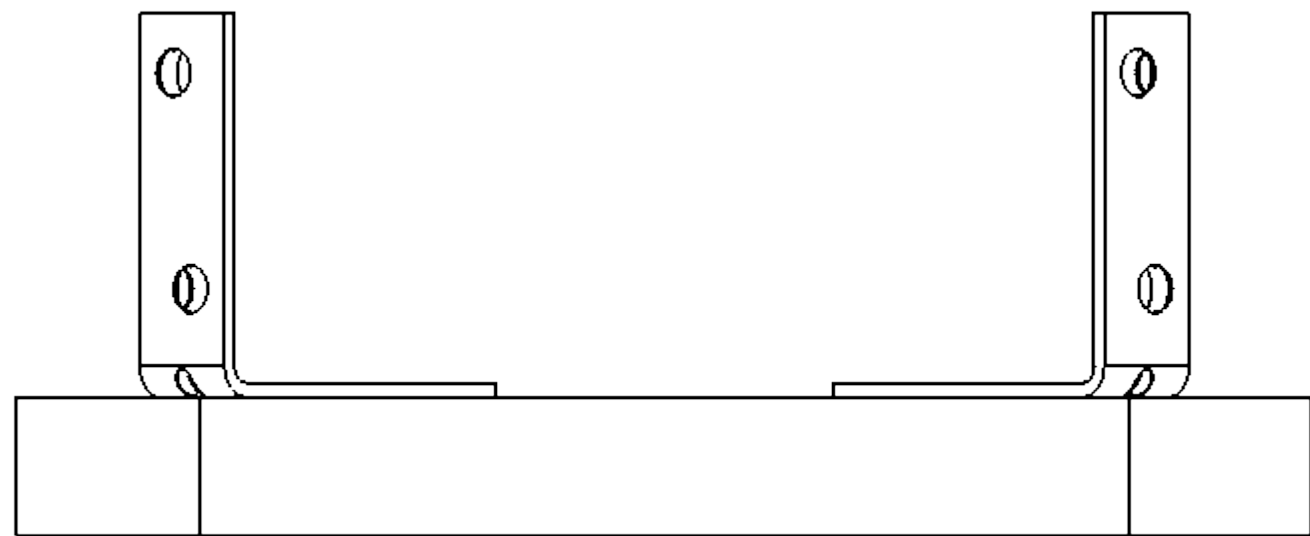
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH: DO NOT SCALE DRAWING	TEAM	NAME	DATE	 TITLE: <h1>Cage Assembly, Team</h1>	
	DRAWN	DF	12/18/2024		
	PROPRIETARY AND CONFIDENTIAL 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.			SIZE	DWG. NO.
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			C	TE-25210
SCALE: 1:3		SHEET 1 OF 3			



Cage Bottom



1. Position brackets so that they are tangent to the drilled holes.
2. Mark the holes in the brackets on to the plywood.
3. Drill out holes with appropriately sized drill.
4. Mount the brackets with 1.25" long bolts. A flat washer should be used on the wood side.
5. Repeat for cage top.



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:

DO NOT SCALE DRAWING

TEAM	NAME	DATE
DRAWN	DF	12/18/2024

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:
Cage Assembly, Team

SIZE	DWG. NO.	REV
C	TE-25210	

SCALE: 1:1 SHEET 2 OF 3

D

C

B

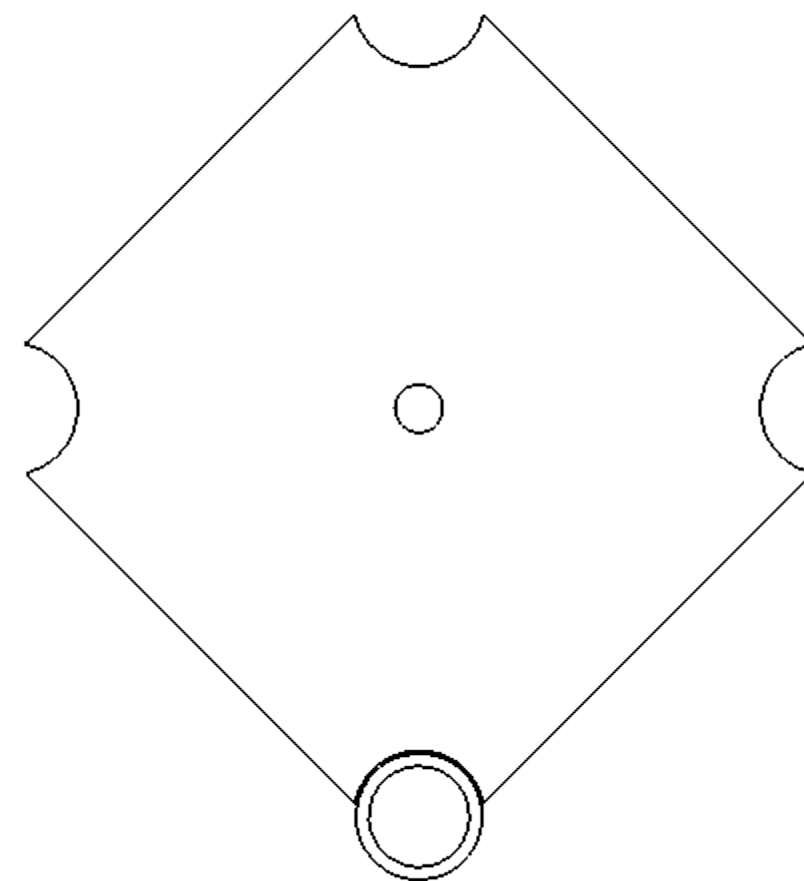
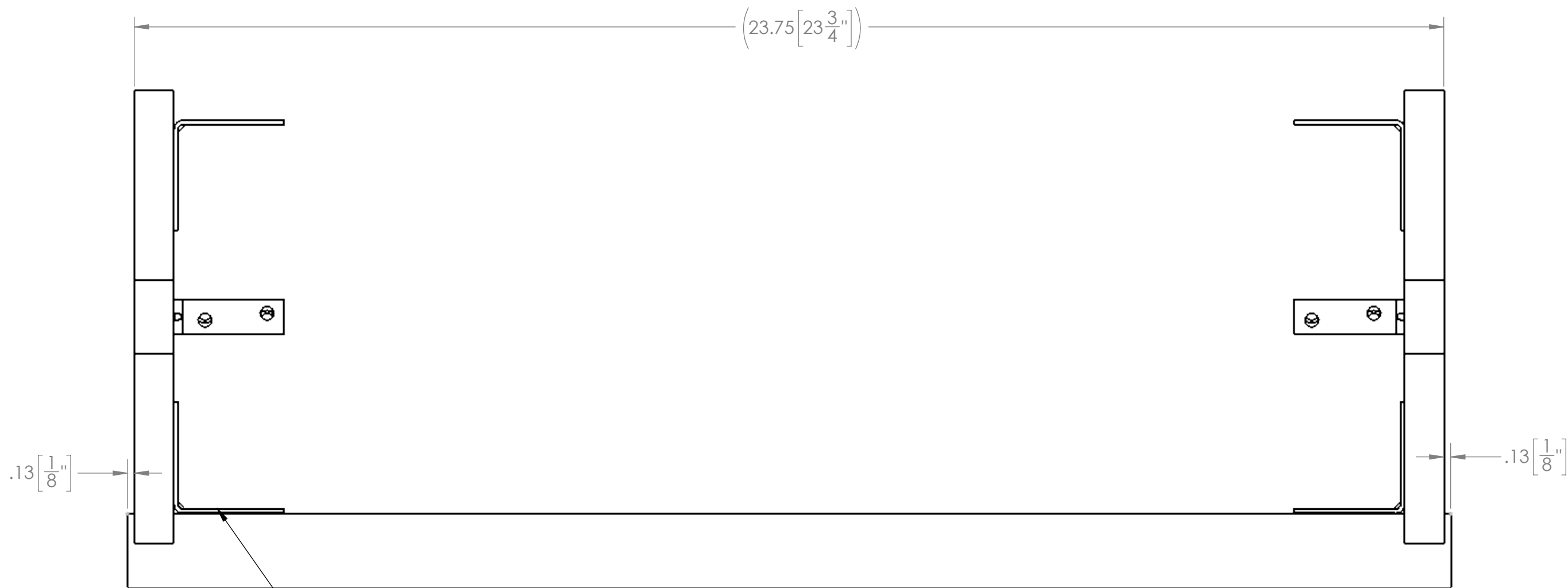
A

D

C

B

A



1. Position pipes so they extend 1/8" from the plywood.
2. Mark the holes in the brackets on to the pipes for both Cage Bottom and Cage Top.
3. Drill out holes with appropriately sized drill.
4. Mount the pipes with 1.75" long bolts.
5. Repeat for all pipes.

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:

DO NOT SCALE DRAWING

TEAM

NAME

DATE

DRAWN

DF

12/18/2024

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.



FIRST
ROBOTICS
COMPETITION

SOLIDWORKS
Modeling Solutions Partner

TITLE:

Cage
Assembly, Team

SIZE

DWG. NO.

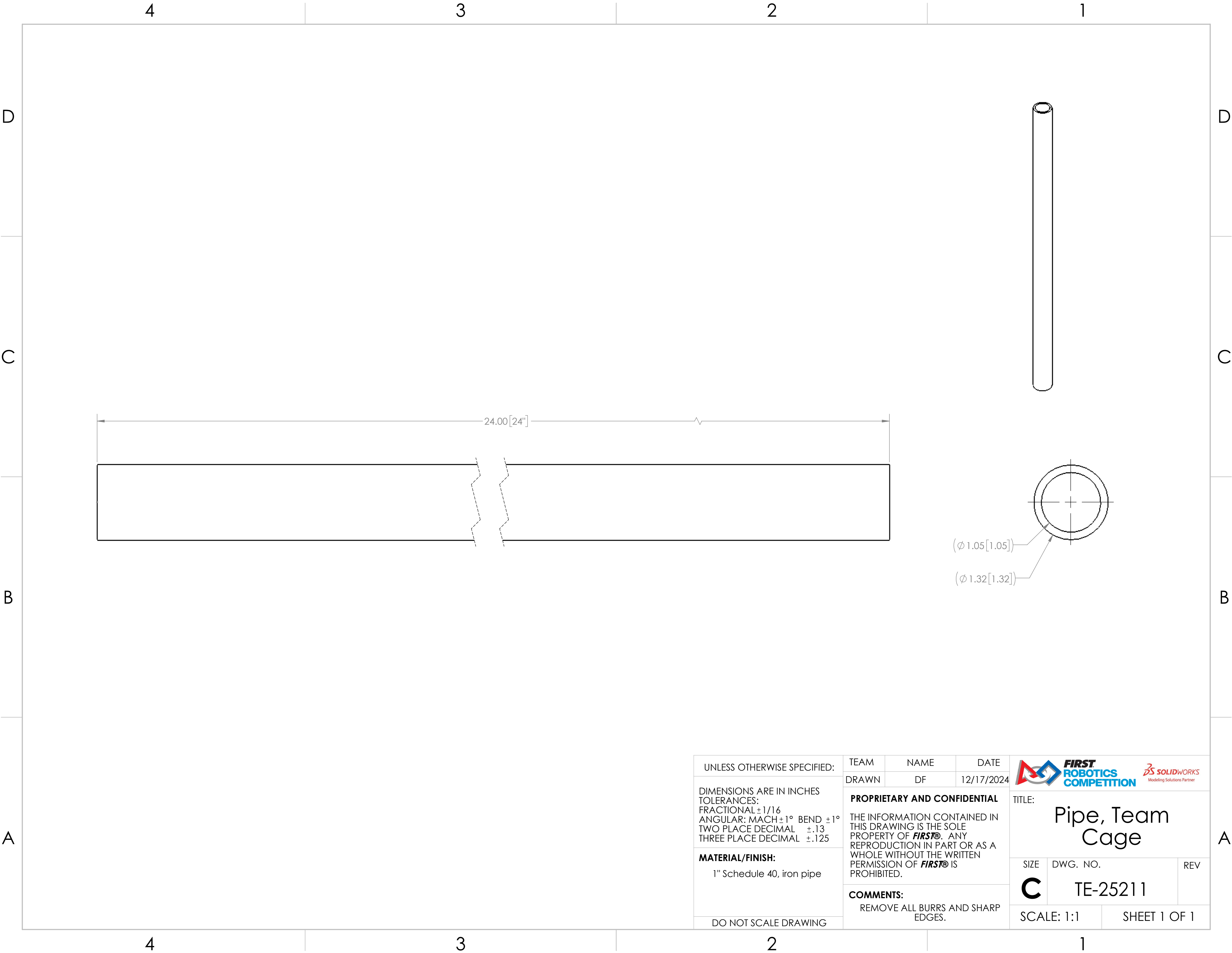
REV



C

TE-25210

SCALE: 1:2

SHEET 3 OF 3



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: 1" Schedule 40, iron pipe DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div> <div>TITLE: Pipe, Team Cage</div>		
	DRAWN	DF	12/17/2024			
	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.			SIZE	DWG. NO.	REV
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			C	TE-25211	
SCALE: 1:1		SHEET 1 OF 1				

D

C

B

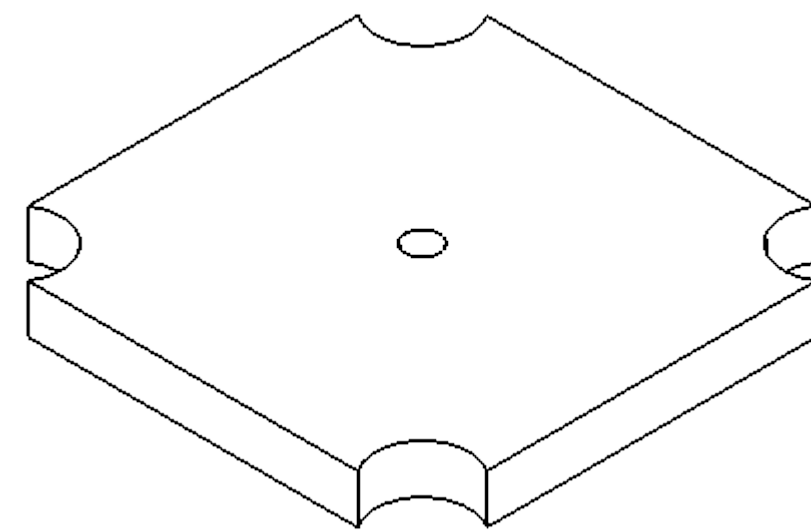
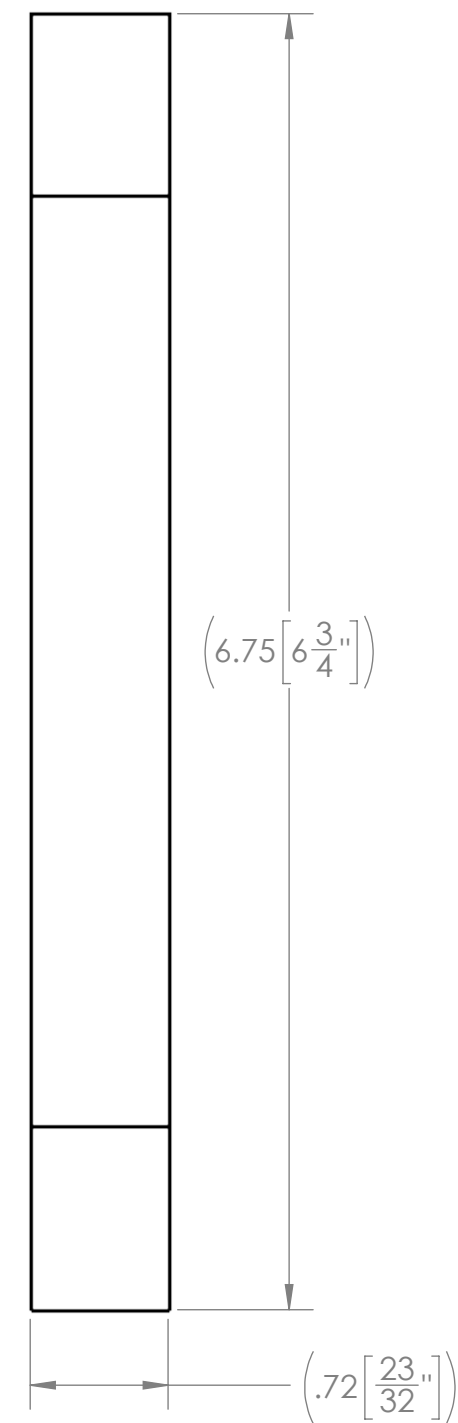
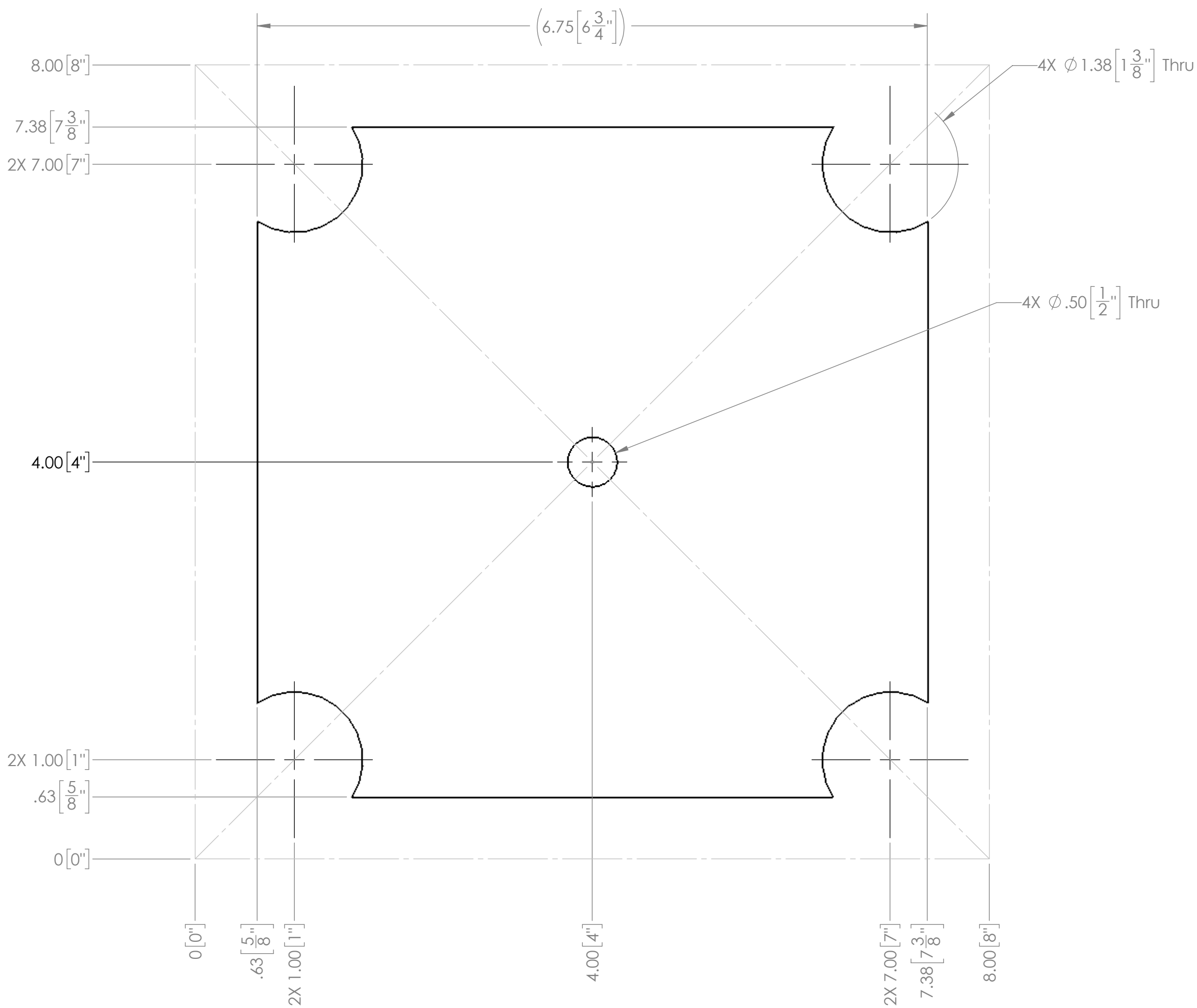
A

D

C



B

A



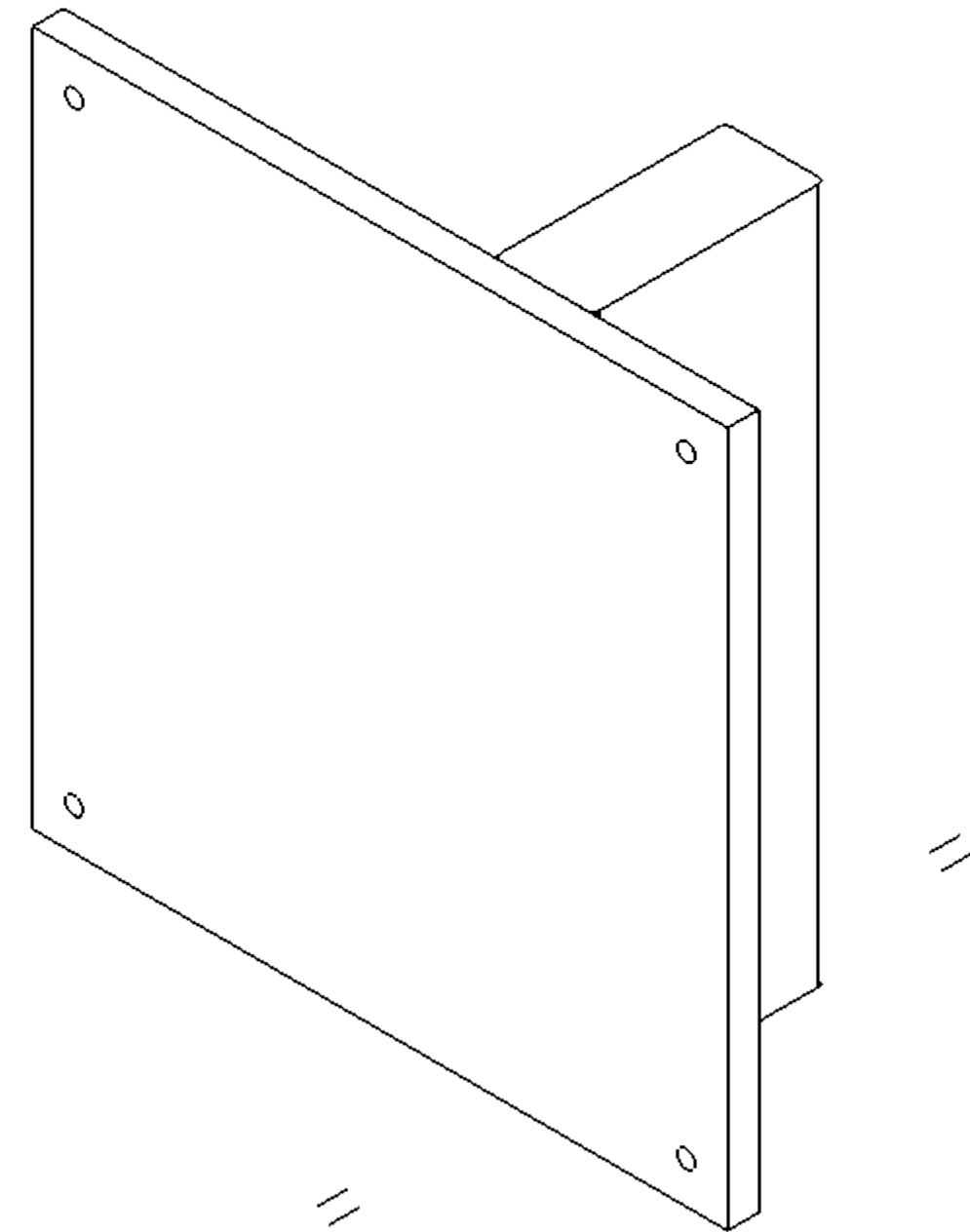
Build Instructions

- Step 1 - Cut an 8" x 8" square out of 3/4" plywood.
- Step 2 - Measure and mark the sides of the final part as well as the centerpoints for the holes. Final part should be centered on the 8" square.
- Step 3 - Drill the 1-3/8" holes using a spade bit, forstner bit or hole saw.
- Step 4 - Drill the 1/2" hole.
- Step 5 - Using a table saw, or jig saw, cut the the square down to it's final dimensions.

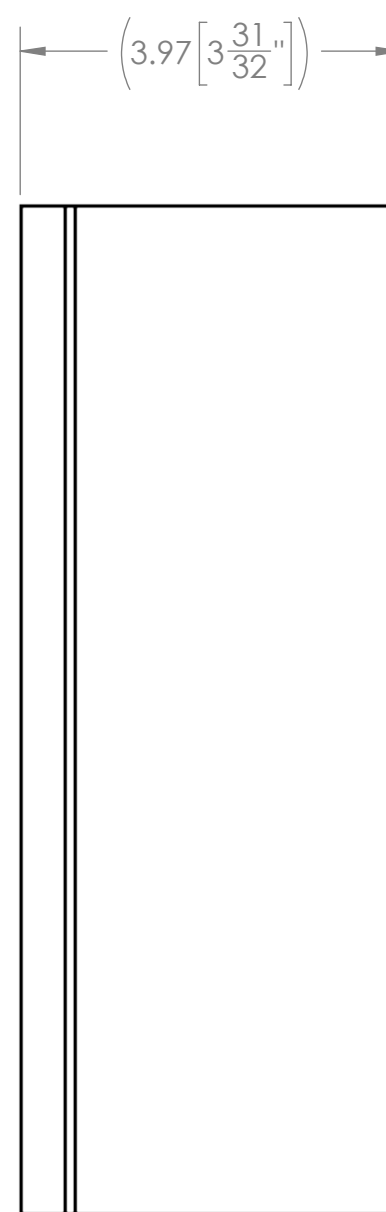
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH: 3/4" Plywood (23/32 actual) DO NOT SCALE DRAWING	TEAM	NAME	DATE	 	
	DRAWN	DF	12/17/2024		
	PROPRIETARY AND CONFIDENTIAL THE INFORMATION 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.			TITLE: Cage Top, Team	
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
C				TE-25212	
			SCALE: 1:1		SHEET 1 OF 1

1

D





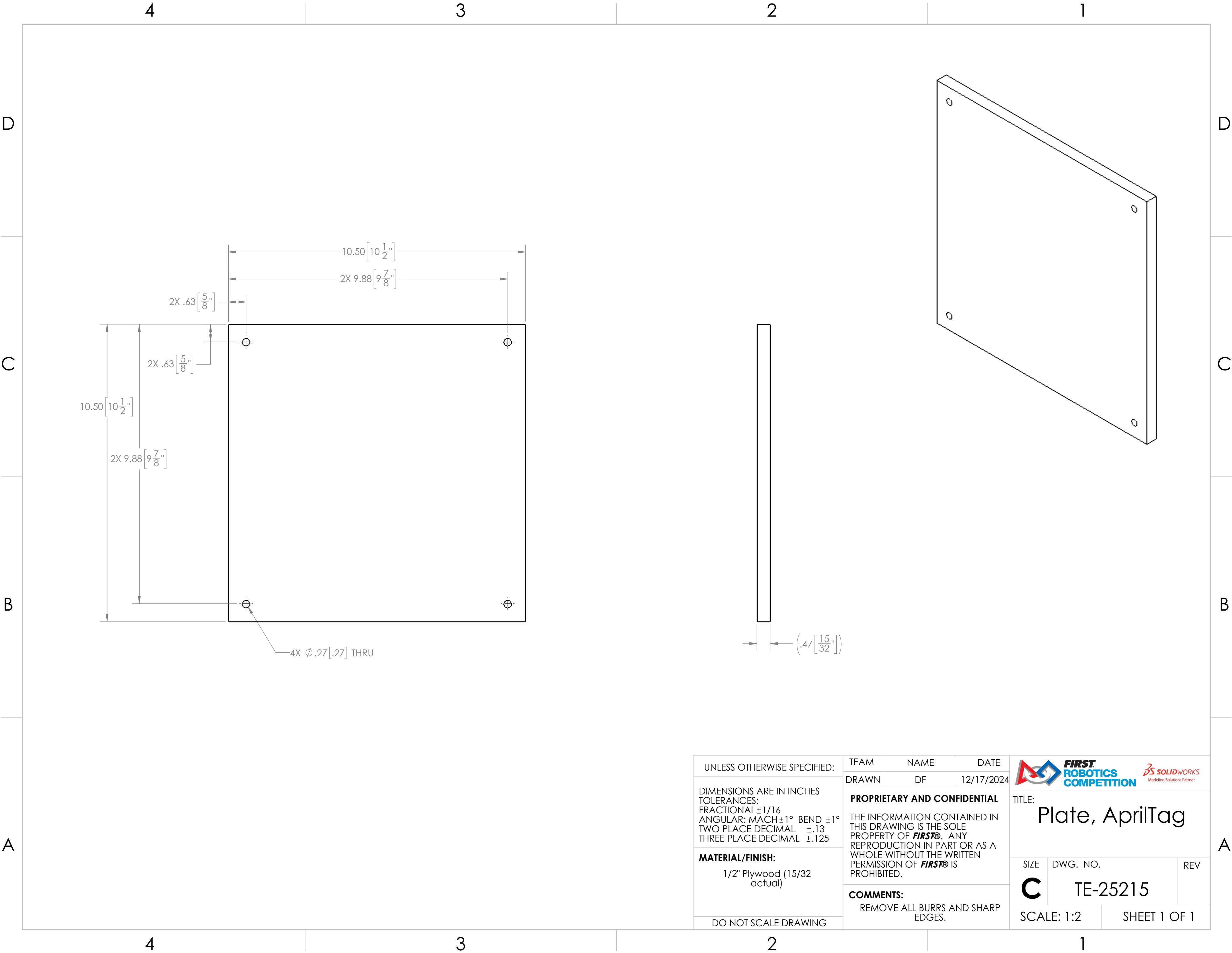
C





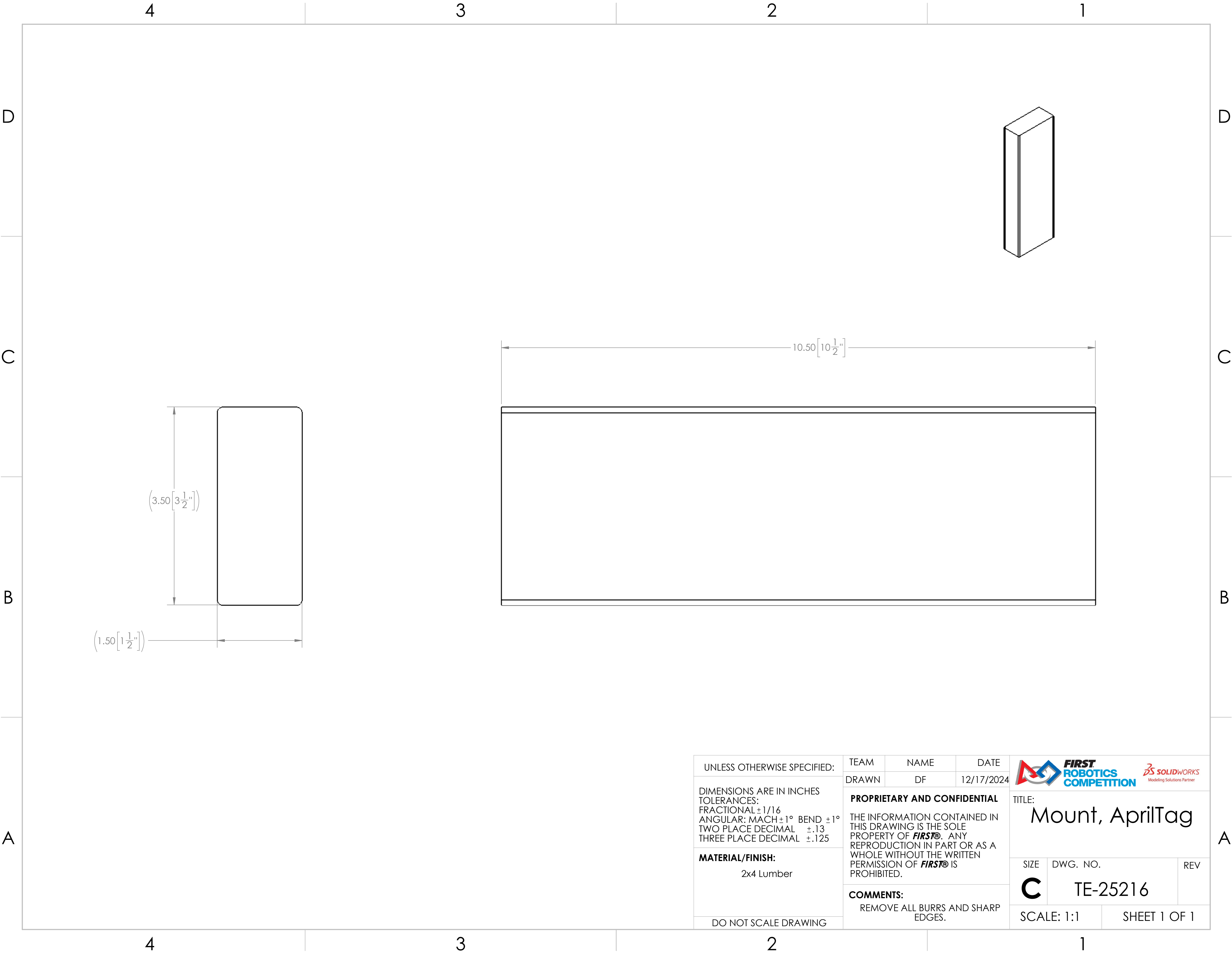
B



A

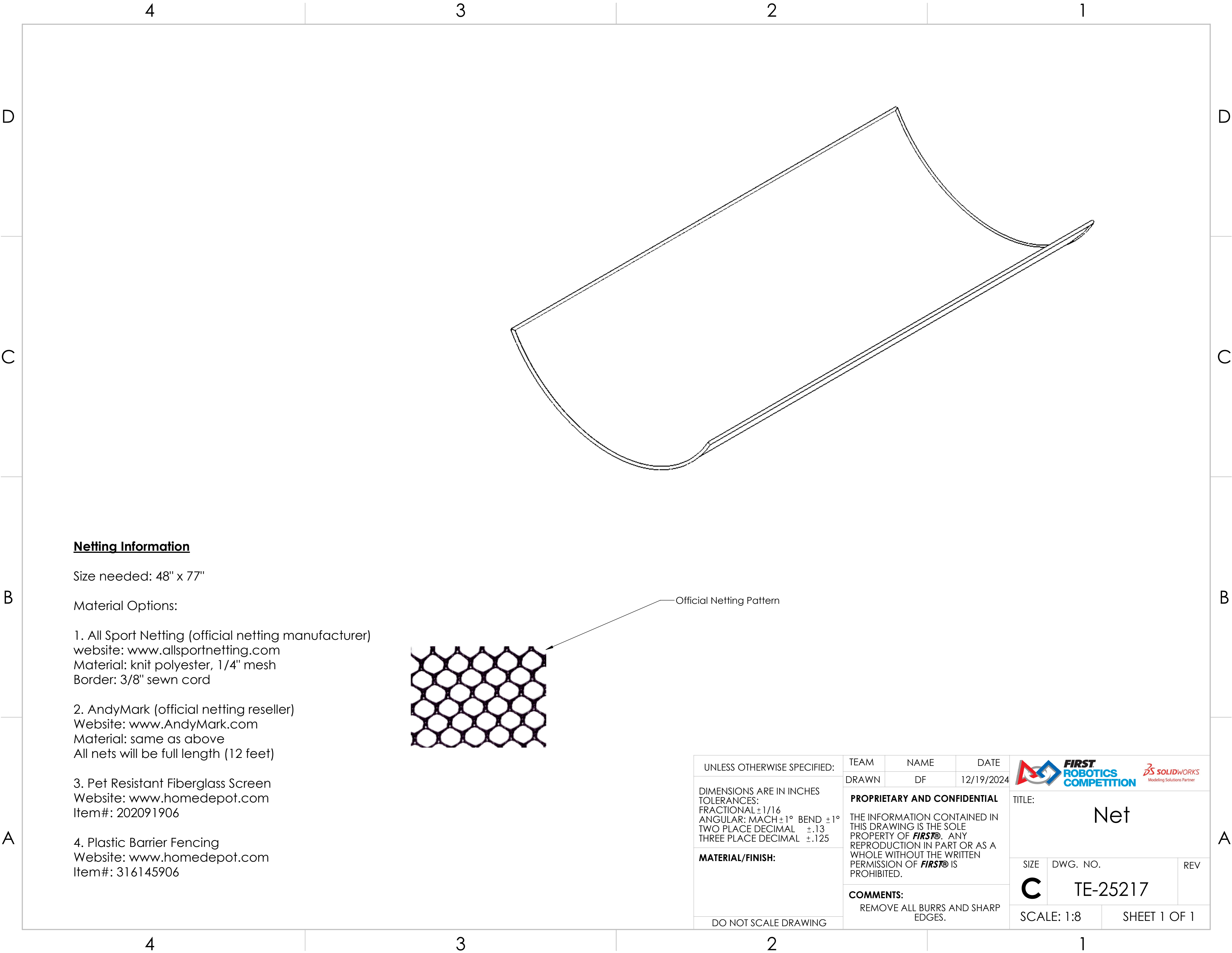
UNLESS OTHERWISE SPECIFIED:		TEAM		NAME		DATE	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .13$ THREE PLACE DECIMAL $\pm .125$		DRAWN		DF		12/17/2024	
		PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS 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.					
MATERIAL/FINISH:		 FIRST ROBOTICS COMPETITION  SOLIDWORKS Modeling Solutions Partner					
DO NOT SCALE DRAWING							
		TITLE: AprilTag Holder					
		SIZE		DWG. NO.		REV	
		C		TE-25214			
		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: 1/2" Plywood (15/32 actual) DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div> <div>TITLE: Plate, AprilTag</div>		
	DRAWN	DF	12/17/2024			
	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.			SIZE	DWG. NO.	REV
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			C	TE-25215	
SCALE: 1:2		SHEET 1 OF 1				



UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE	<div></div>		
	DRAWN	DF	12/17/2024			
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: Mount, AprilTag		
	MATERIAL/FINISH: 2x4 Lumber	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
C					TE-25216	
DO NOT SCALE DRAWING				SCALE: 1:1		SHEET 1 OF 1



Netting Information



Size needed: 48" x 77"

Material Options:

- 1. All Sport Netting (official netting manufacturer)
website: www.allsportnetting.com
Material: knit polyester, 1/4" mesh
Border: 3/8" sewn cord
- 2. AndyMark (official netting reseller)
Website: www.AndyMark.com
Material: same as above
All nets will be full length (12 feet)

3. Pet Resistant Fiberglass Screen
Website: www.homedepot.com
Item#: 202091906

4. Plastic Barrier Fencing
Website: www.homedepot.com
Item#: 316145906

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	DF	12/19/2024		
	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: Net	
			SIZE	DWG. NO.	REV
			C	TE-25217	
			SCALE: 1:8		SHEET 1 OF 1