

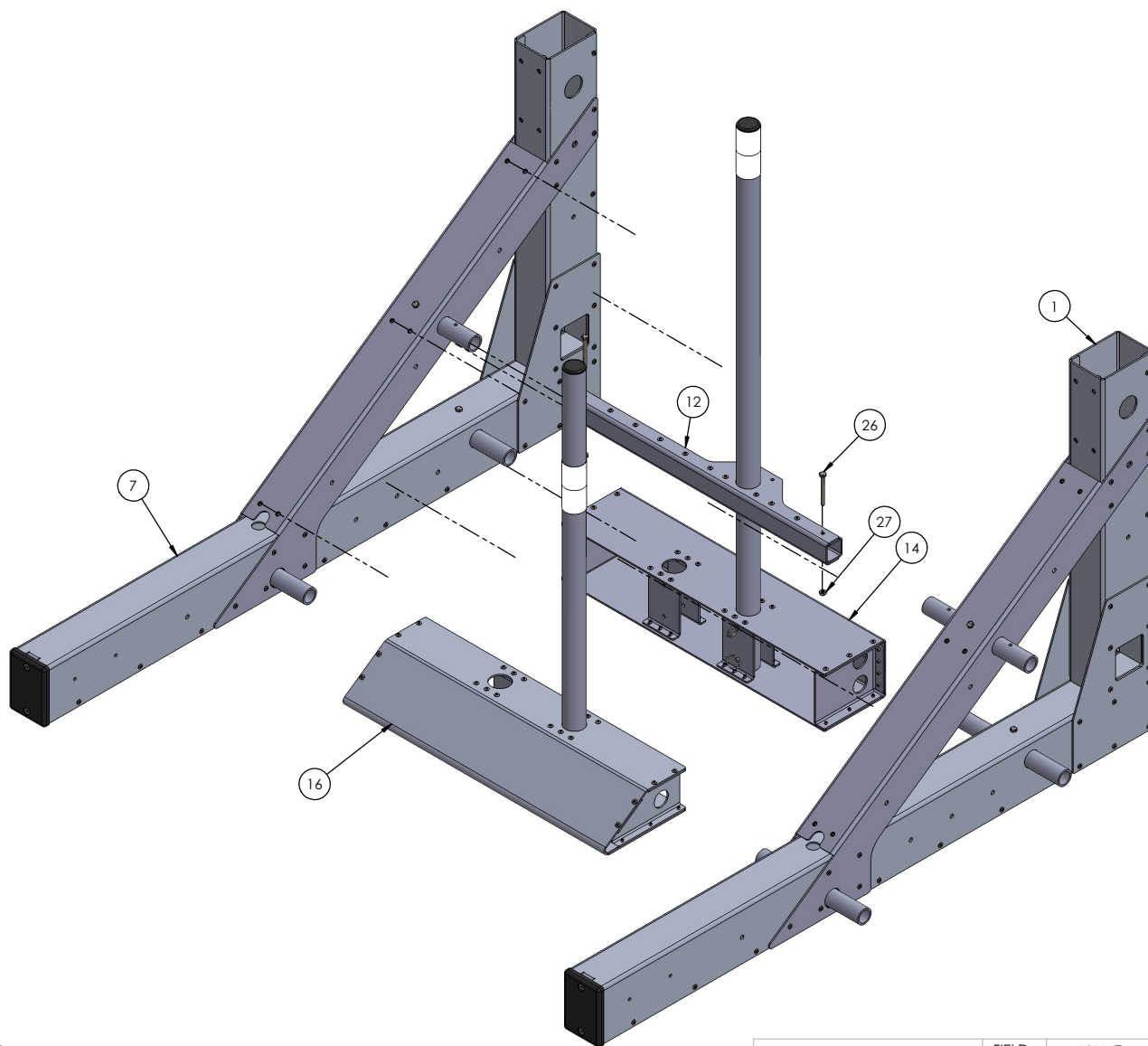


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23010	Middle Divider	8
2	GE-23020	Lower Pole Base	4
3	GE-23021-BLK	Black Middle Goal Cover	2
4	GE-23021-BLU	Blue Center Goal Cover	2
5	GE-23022-BLU	Blue End Goal Cover	2
6	GE-23025	Right End Divider	1
7	GE-23026	Left End Divider	1
8	GE-23030	Upper Pole Base	4
9	GE-23040	Upper Pole Crossbar	4
10	GE-23045	Upper Shelf Corner Light	1
11	GE-23045-ALT	Upper Shelf Corner Light	1
12	GE-23050	Upper Pole End Crossbar	2
13	GE-23055	Upper Shelf Middle Light	4
14	GE-23060	Upper Pole End Base (HP Station End)	1
15	GE-23060	Upper Pole End Base (Side Border End)	1
16	GE-23070	Lower Pole End Base (HP Station End)	1
17	GE-23070	Lower Pole End Base (Side Border End)	1
18	GE-23075	Upper Shelf Cube Light	3
19	GE-23080	Cube Shelf	3
20	GE-23091	Shark Fin Poly	6
21	GE-23097	Shark Fin Bracket with PEM Nuts installed	12
22	GE-23099	Goal Side Wall	1
23	FE-00081-ID6	AprilTag Target	1
24	FE-00081-ID7	AprilTag Target	1
25	FE-00081-ID8	AprilTag Target	1
26	hex_.25_20_2.5	Steel Hex Head Screw, 1/4"-20 x 2-1/2" long, fully threaded	12
27	90566A029	1/4-20 x 1" Hex Head Bolt	30
28	92865A542 and 250 Washer	1/4-20 x 1" Hex Head Bolt and Washer	96
29	92865A542	Medium-Strength Grade 5 Steel Hex Head Screw	18

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  MATERIAL/FINISH:   DO NOT SCALE DRAWING	FIELD	NAME	DATE	 	
	DRAWN	JO	12/23/2022		
	PROPRIETARY AND CONFIDENTIAL			TITLE:	
	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.			Set of 3 GRIDS	
COMMENTS:		REMOVE ALL BURRS AND SHARP EDGES.		SIZE	DWG. NO.
				C	GE-23000
				SCALE: 1:16	SHEET 1 OF 11





Step 1: Place (7) down.

Step 2: Slide (12), (14) and (16) over the connector pins and push them all the way on.

Step 3: Slide (1) into the connector pin holes on the other end.

Step 4: Use 2x (26) and (27) to fasten the assembly together.

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b>    <b>DO NOT SCALE DRAWING</b>	FIELD	NAME	DATE	 	
	DRAWN	JO	12/23/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>			TITLE:	
	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.			Set of 3 GRIDS	
<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		SIZE	DWG. NO.	REV	
		C	GE-23000		
		SCALE: 1:6		SHEET 2 OF 11	



4

3

2

1

D

D

C

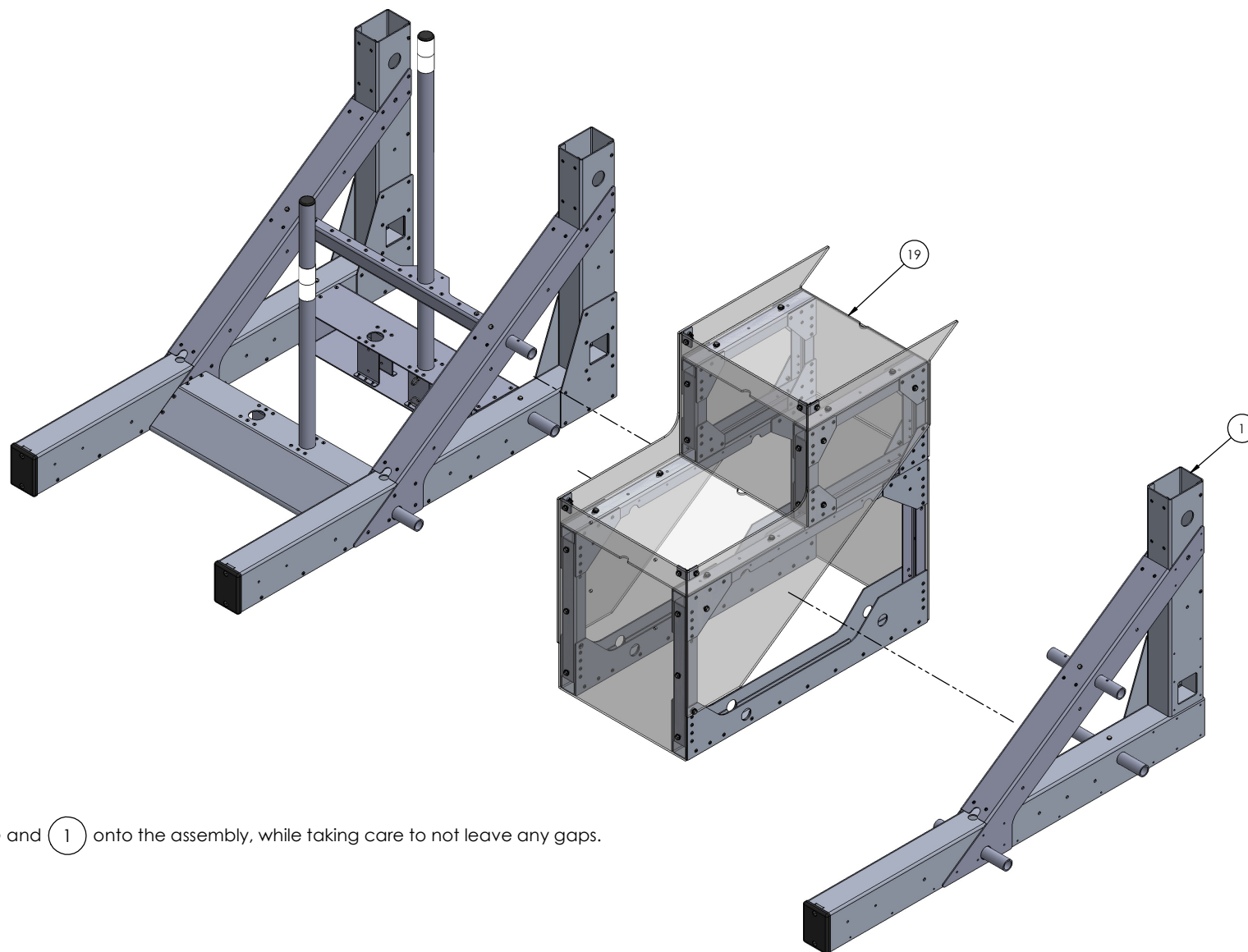
C

B



B

A

A



Slide (19) and (1) onto the assembly, while taking care to not leave any gaps.

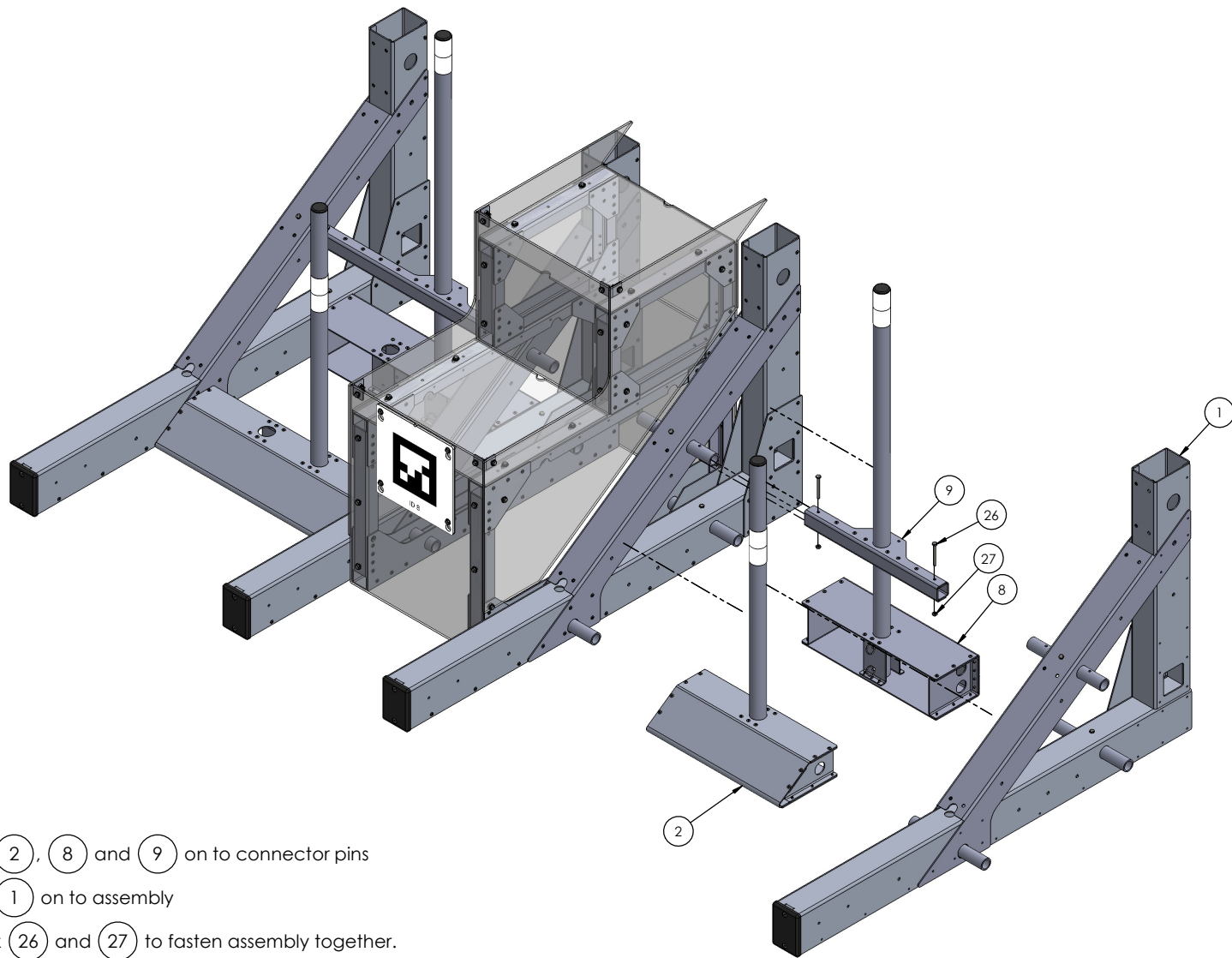
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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/2 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE:  Set of 3 GRIDS	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
MATERIAL/FINISH:	COMMENTS:			SIZE DWG. NO. REV	
	REMOVE ALL BURRS AND SHARP EDGES.			C GE-23000	
DO NOT SCALE DRAWING				SCALE: 1:8 SHEET 3 OF 11	

4




3

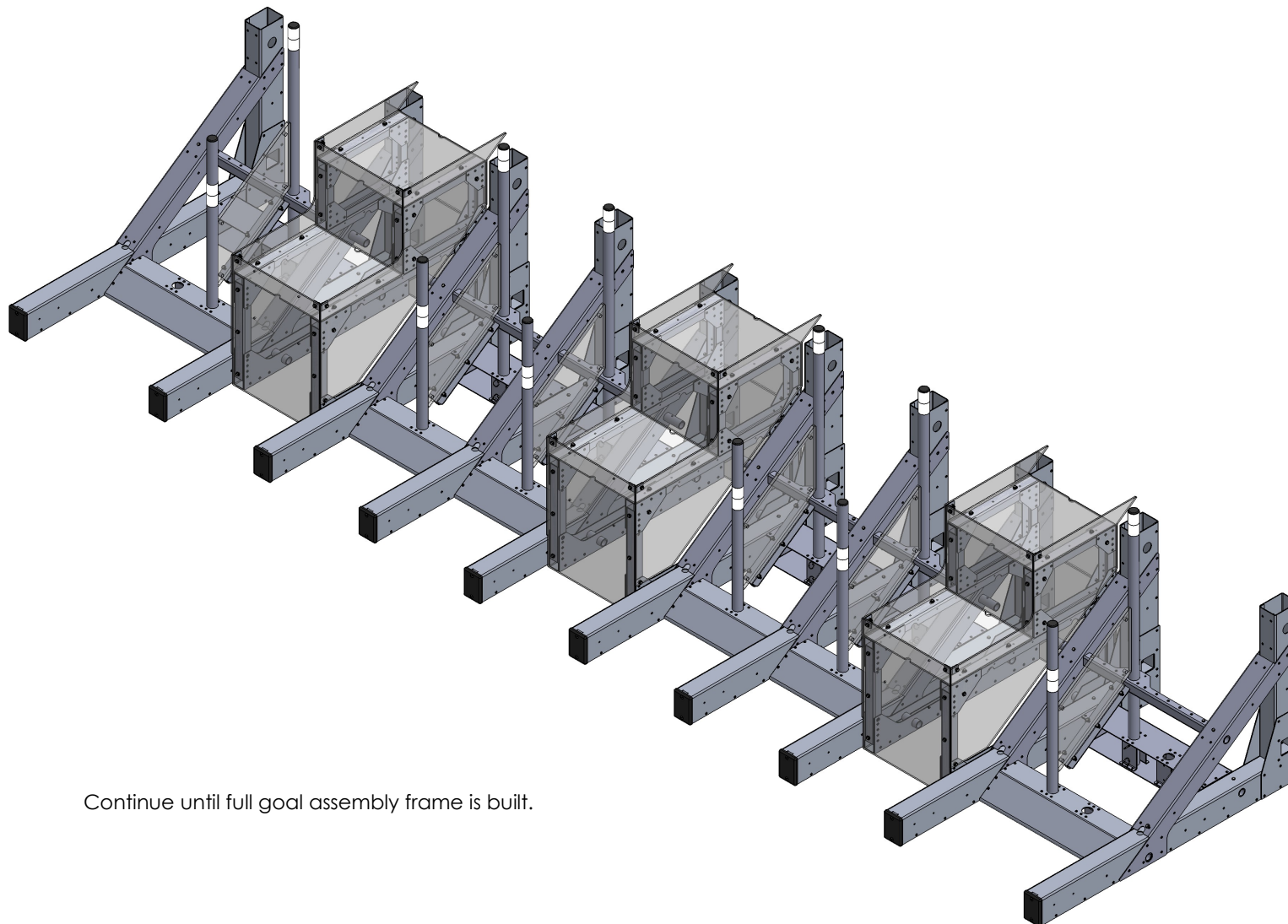
2

1





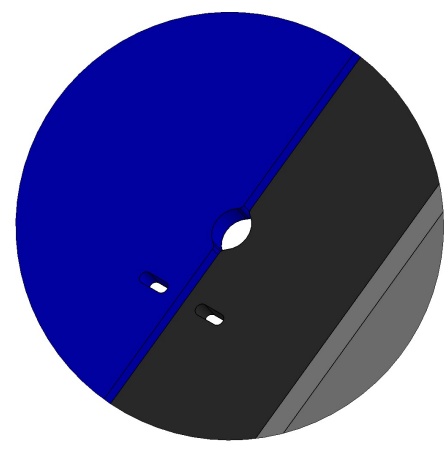
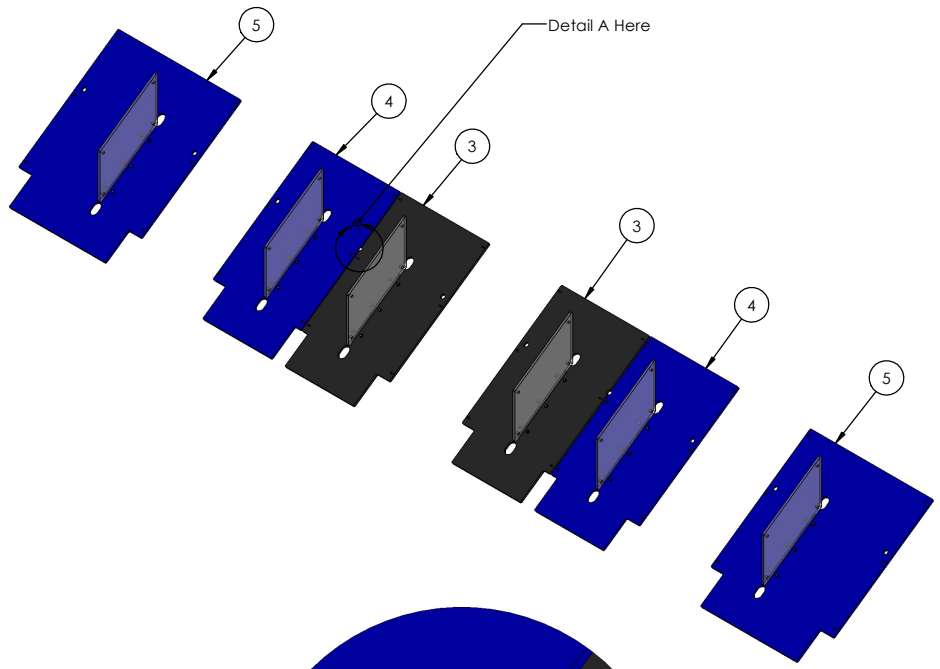
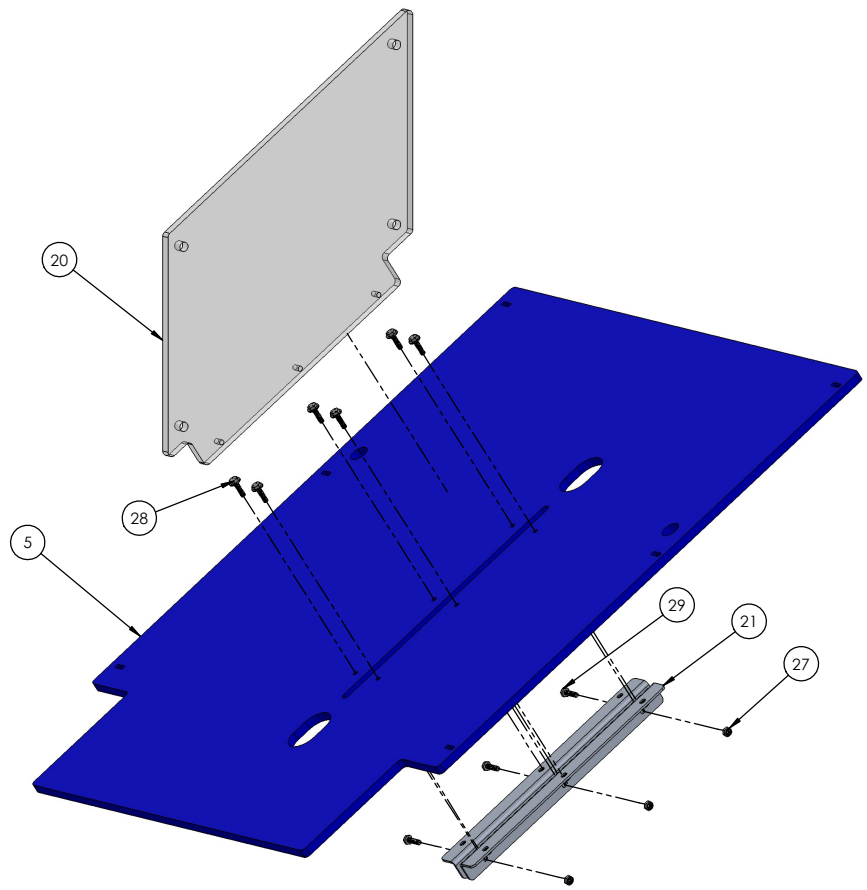
Slide (2), (8) and (9) on to connector pins  
 Slide (1) on to assembly  
 Use 2x (26) and (27) to fasten assembly together.

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/2 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.50  <b>MATERIAL/FINISH:</b>    <b>DO NOT SCALE DRAWING</b>	FIELD	NAME	DATE	  	
	DRAWN	JO	12/23/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>			TITLE:  Set of 3 GRIDS	
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	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
			C	GE-23000	
			SCALE: 1:8		SHEET 4 OF 11





Continue until full goal assembly frame is built.

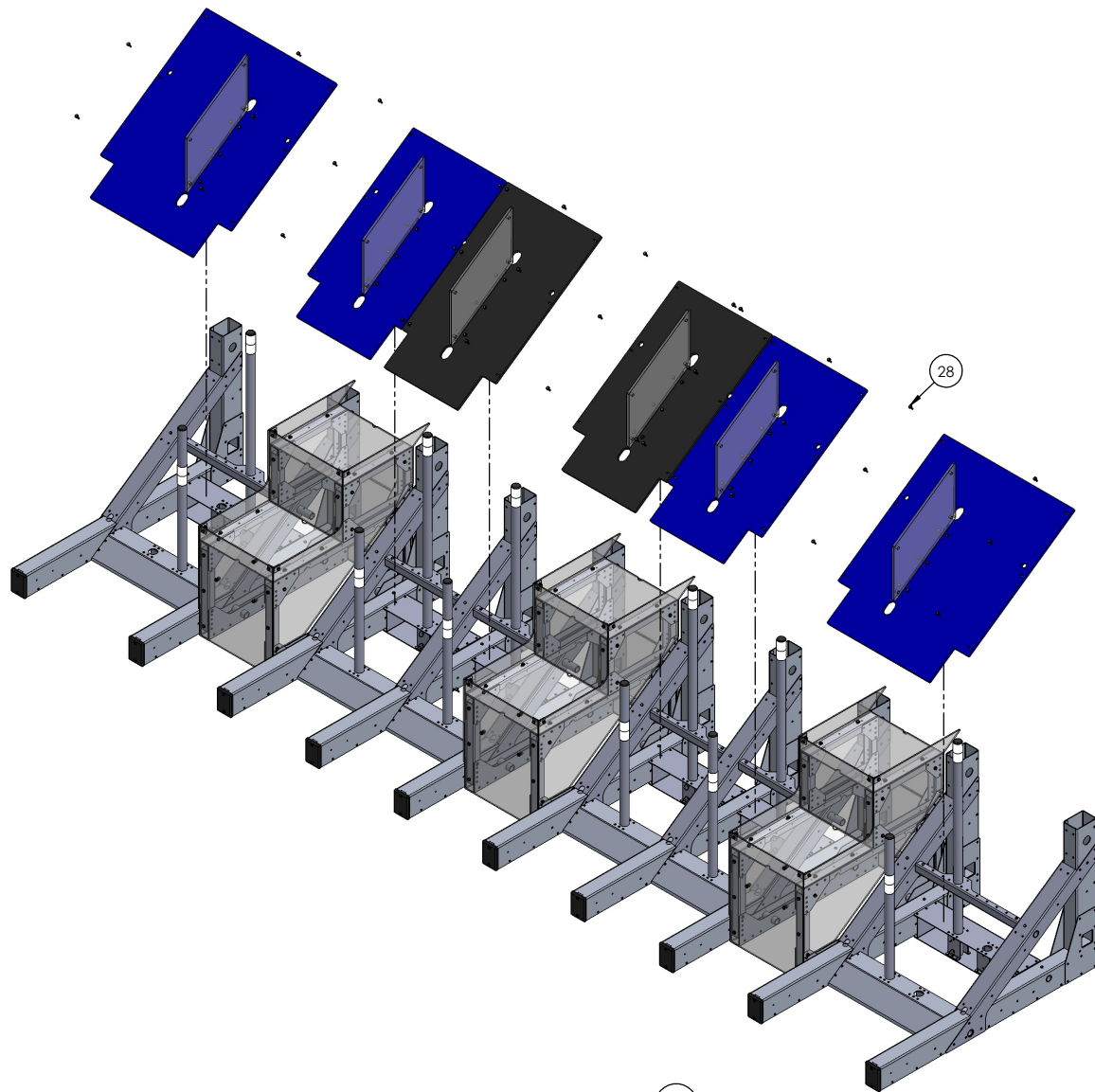
UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 
	DRAWN	JO	12/23/2022	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR; MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	PROPRIETARY AND CONFIDENTIAL			TITLE:  Set of 3 GRIDS
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MATERIAL/FINISH:	COMMENTS:			SIZE  C
	REMOVE ALL BURRS AND SHARP EDGES.			
DO NOT SCALE DRAWING	SCALE: 1:12		SHEET 5 OF 11	





DETAIL A  
SCALE 1 : 2

Shark Fin assembly shown above. Note that for each goal, there is a left hand and right hand version of each cover plastic. The semi-circular notch shown in Detail A can be used to determine left and right for middle covers.

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 		
	DRAWN	JO	12/23/2022			
	DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE:  Set of 3 GRIDS	
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MATERIAL/FINISH:		COMMENTS:			SIZE	
DO NOT SCALE DRAWING	REMOVE ALL BURRS AND SHARP EDGES.			DWG. NO.		
				REV		
				C		
				GE-23000		
				SCALE: 1:5		
				SHEET 6 OF 11		

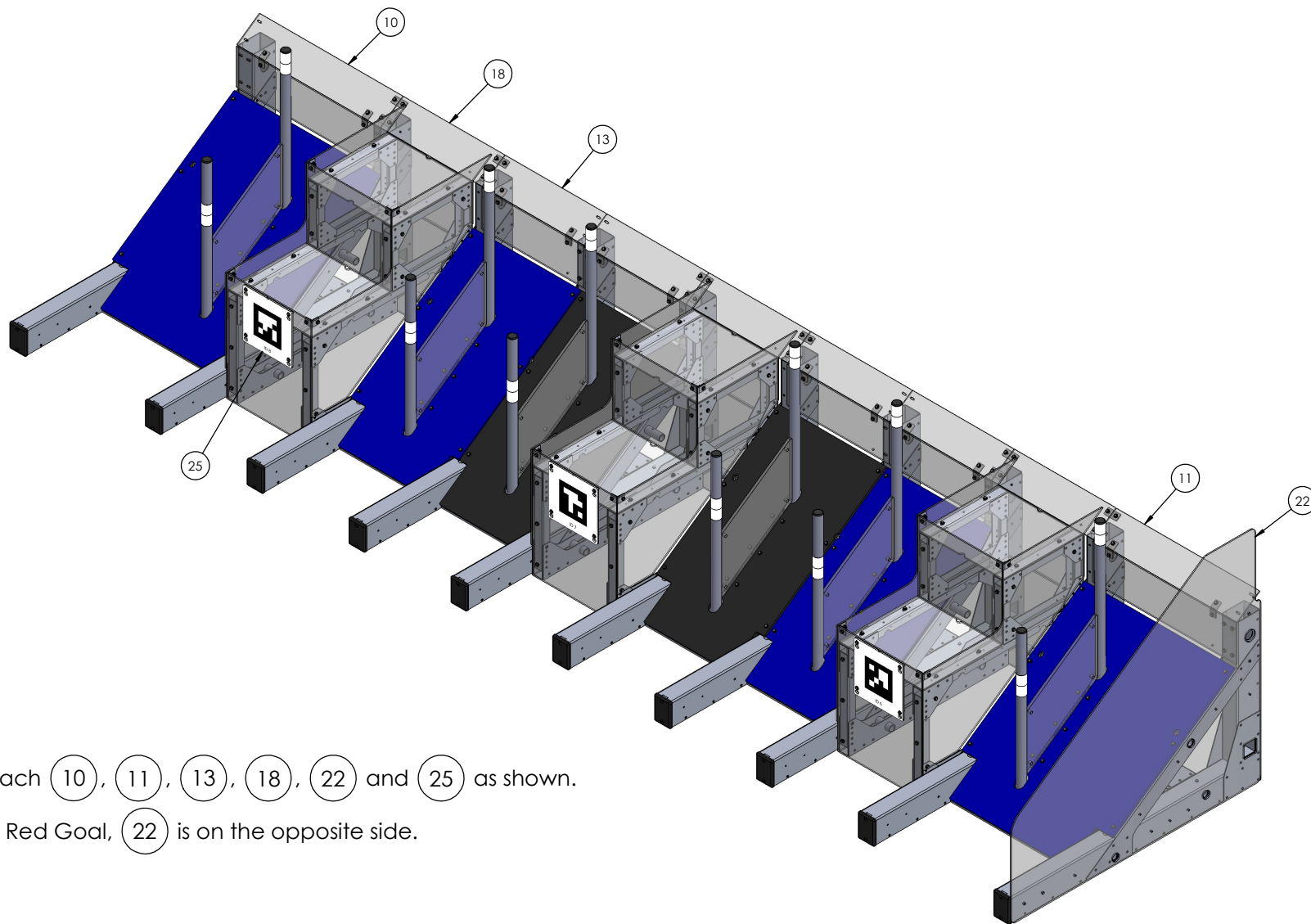


Slide Plastic Covers with Shark Fins over poles and onto frame, attach with 1/4-20 x 1" bolts and washers (28).

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	DRAWN	JO	12/23/2022		
	PROPRIETARY AND CONFIDENTIAL				TITLE:
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	COMMENTS:				
	REMOVE ALL BURRS AND SHARP EDGES.				
	SIZE	DWG. NO.		REV	
	C	GE-23000			
	SCALE: 1:16		SHEET 7 OF 11		







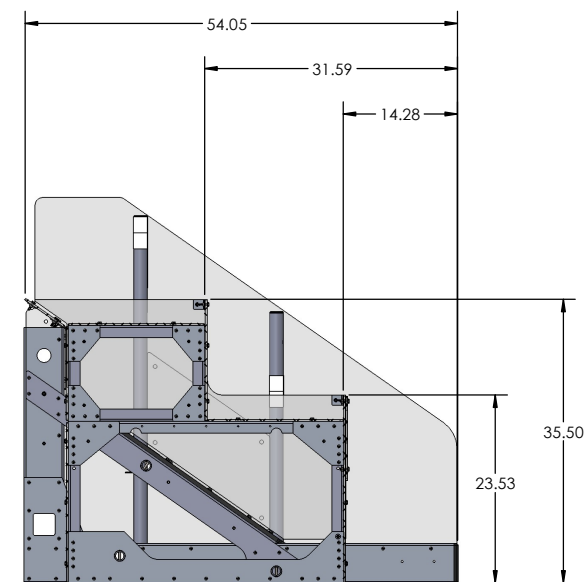
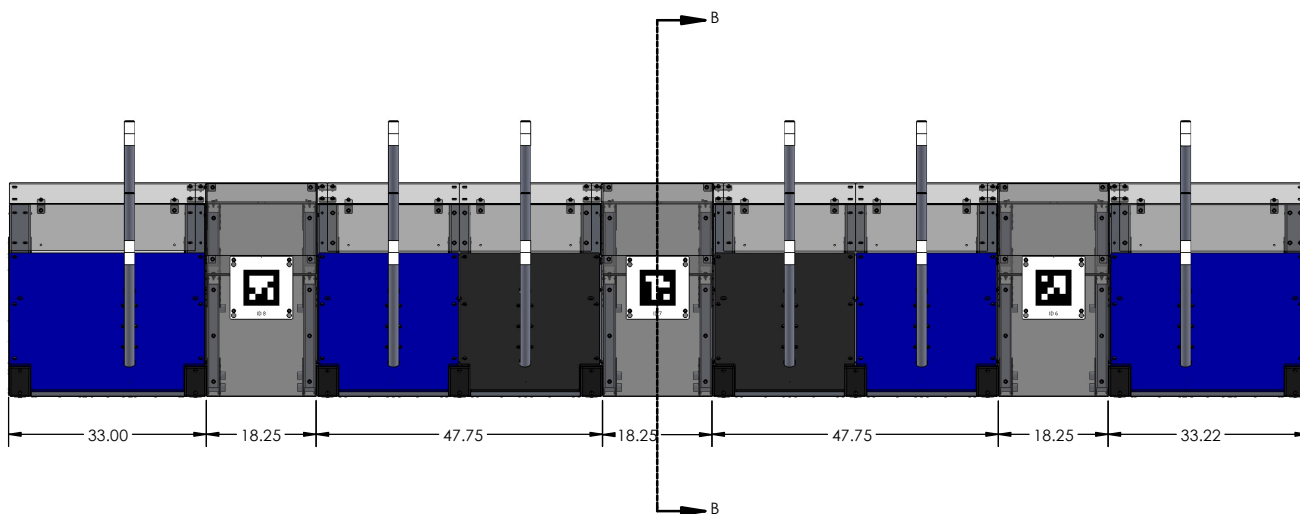


Attach (10), (11), (13), (18), (22) and (25) as shown.

For Red Goal, (22) is on the opposite side.



UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div><div>FIRST ROBOTICS COMPETITION</div></div> <div><div>SOLIDWORKS Modeling Solutions Partner</div></div>	
	DRAWN	JO	12/23/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	PROPRIETARY AND CONFIDENTIAL			TITLE:  Set of 3 GRIDS	
	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	
	REMOVE ALL BURRS AND SHARP EDGES.				
DO NOT SCALE DRAWING	C		GE-23000		SCALE: 1:12 SHEET 8 OF 11

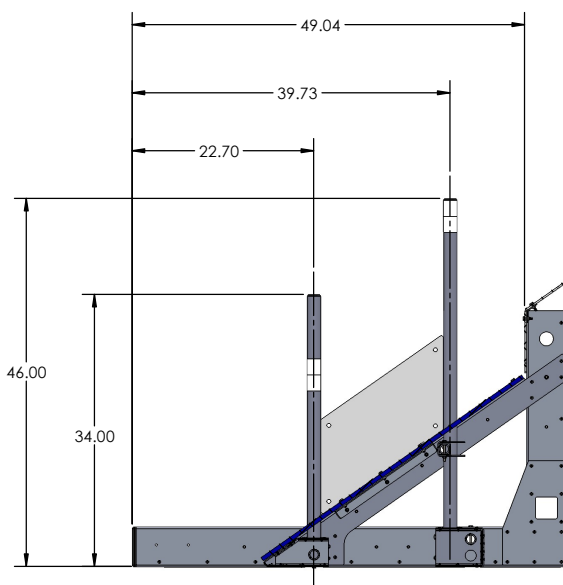




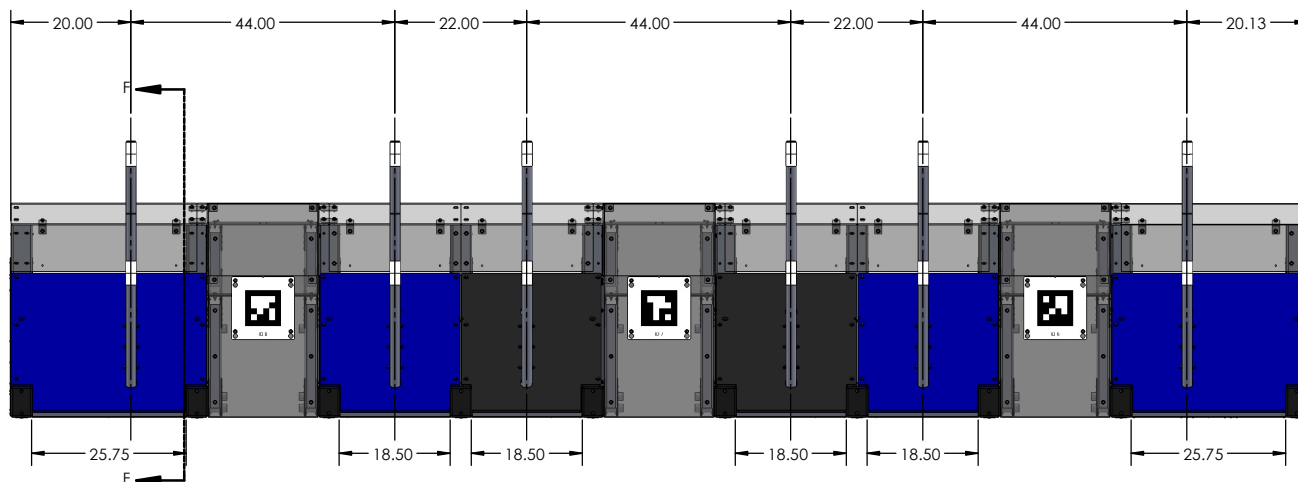
SECTION B-B  
SCALE 1 : 12

Cube Shelf Dimensions



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	DRAWN	JO	12/23/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>			TITLE:	
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<b>COMMENTS:</b>		REMOVE ALL BURRS AND SHARP EDGES.		SIZE	DWG. NO.
				C	GE-23000
				SCALE: 1:16	SHEET 9 OF 11

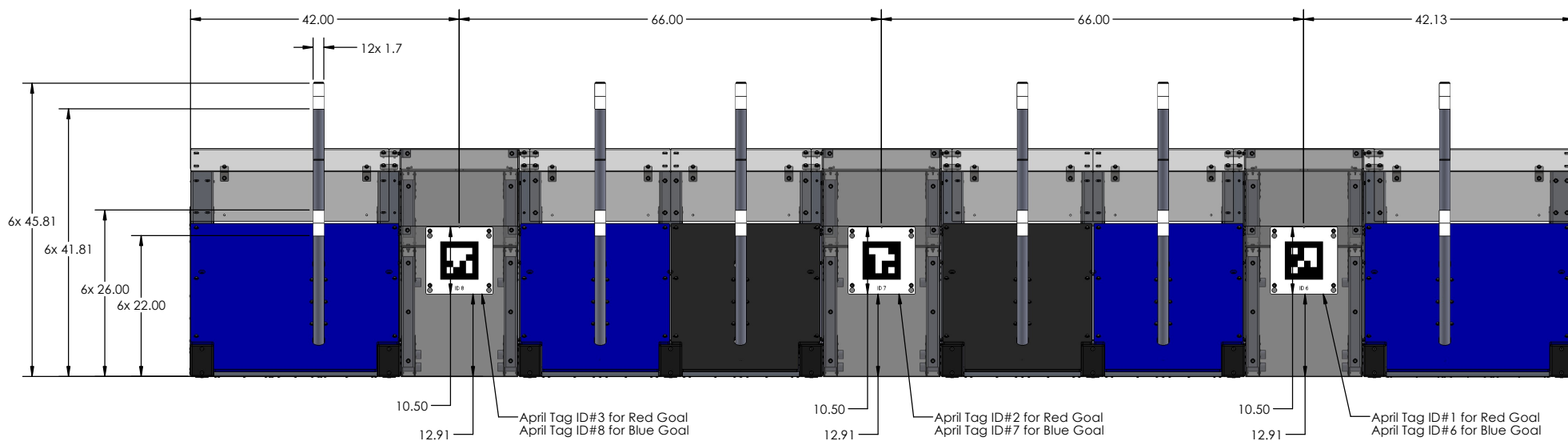


SECTION F-F  
SCALE 1 : 12





Cone Pole Dimensions

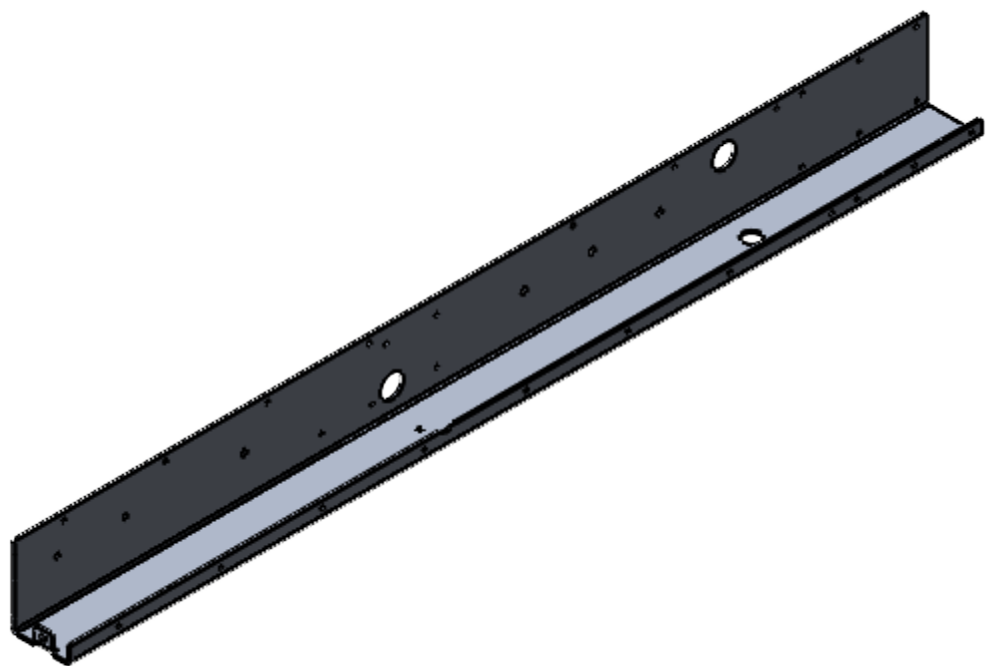
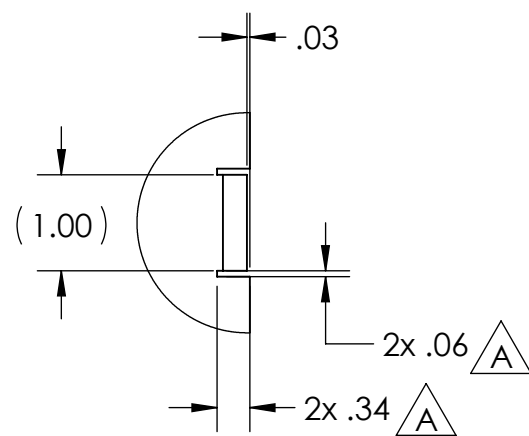
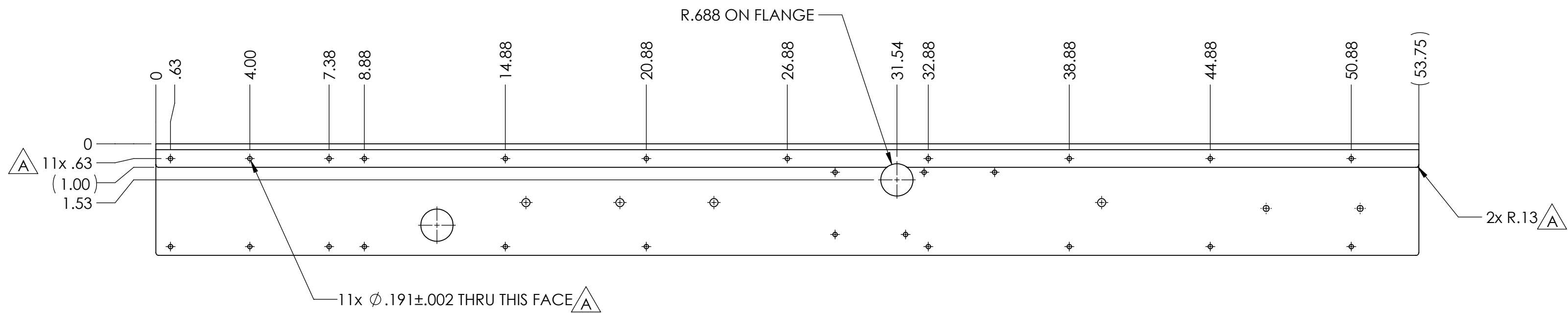
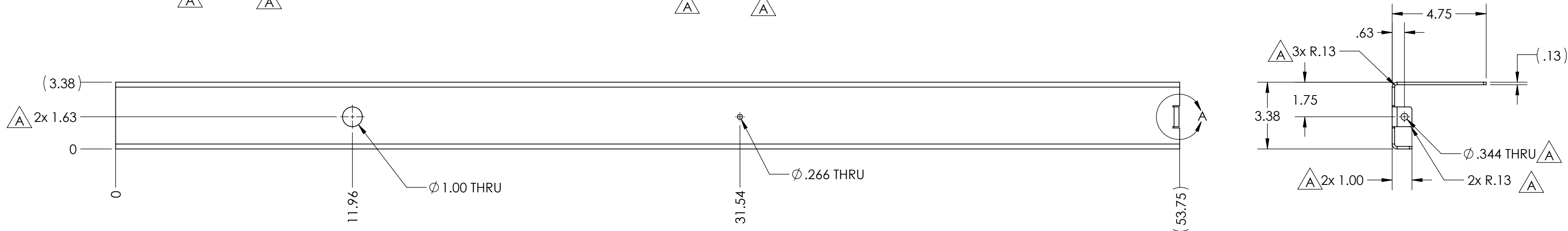
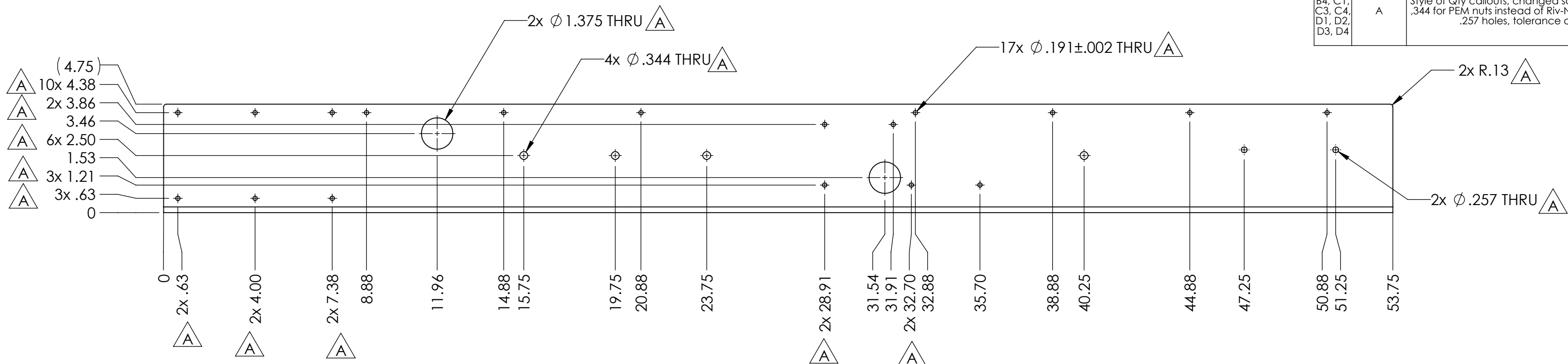
UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div><b>FIRST ROBOTICS COMPETITION</b></div> <div><b>SOLIDWORKS</b> Modeling Solutions Partner</div>		
	DRAWN	JO	12/23/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/2 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE: <div>Set of 3 GRIDS</div>		
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MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23000	
DO NOT SCALE DRAWING				SCALE: 1:16		SHEET 10 OF 1



Vision Target Dimensions

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 
	DRAWN	JO	12/23/2022	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	PROPRIETARY AND CONFIDENTIAL			TITLE:  Set of 3 GRIDS
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MATERIAL/FINISH:	COMMENTS:			SIZE <b>C</b>
	REMOVE ALL BURRS AND SHARP EDGES.			
DO NOT SCALE DRAWING				DWG. NO.  GE-23000
				REV
				SCALE: 1:12
				SHEET 11 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B1, B3, B4, C1, C3, C4, D1, D2, D3, D4	A	Style of Qty callouts, changed some holes from .391 to .344 for PEM nuts instead of Riv-Nuts, added callout for .257 holes, tolerance of rivet holes.	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL ±1/16  
ANGULAR: MACH ±1° BEND ±1°  
TWO PLACE DECIMAL ±.02  
THREE PLACE DECIMAL ±.010

**MATERIAL/FINISH:**  
8 GA 5052 Aluminum

DO NOT SCALE DRAWING

BEND	NAME	DATE
DRAWN	NAL	9/23/2022

**PROPRIETARY AND CONFIDENTIAL**

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**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE: Divider Base A

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

**C** GE-23001

SCALE: 1:4	SHEET 1 OF 1
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4

3

2

1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23001	Divider Base A	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	1

D

D

C

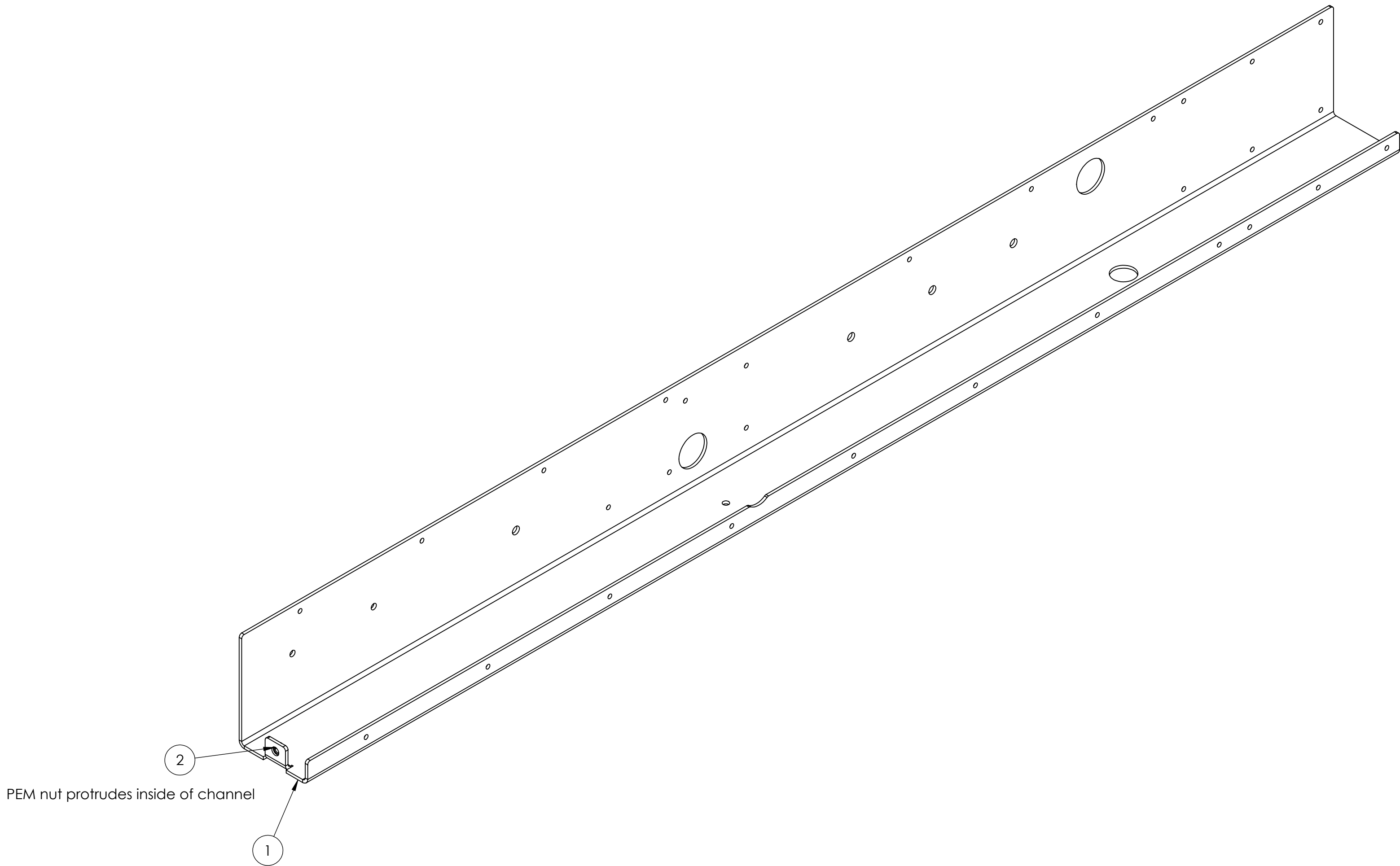
C

B



B

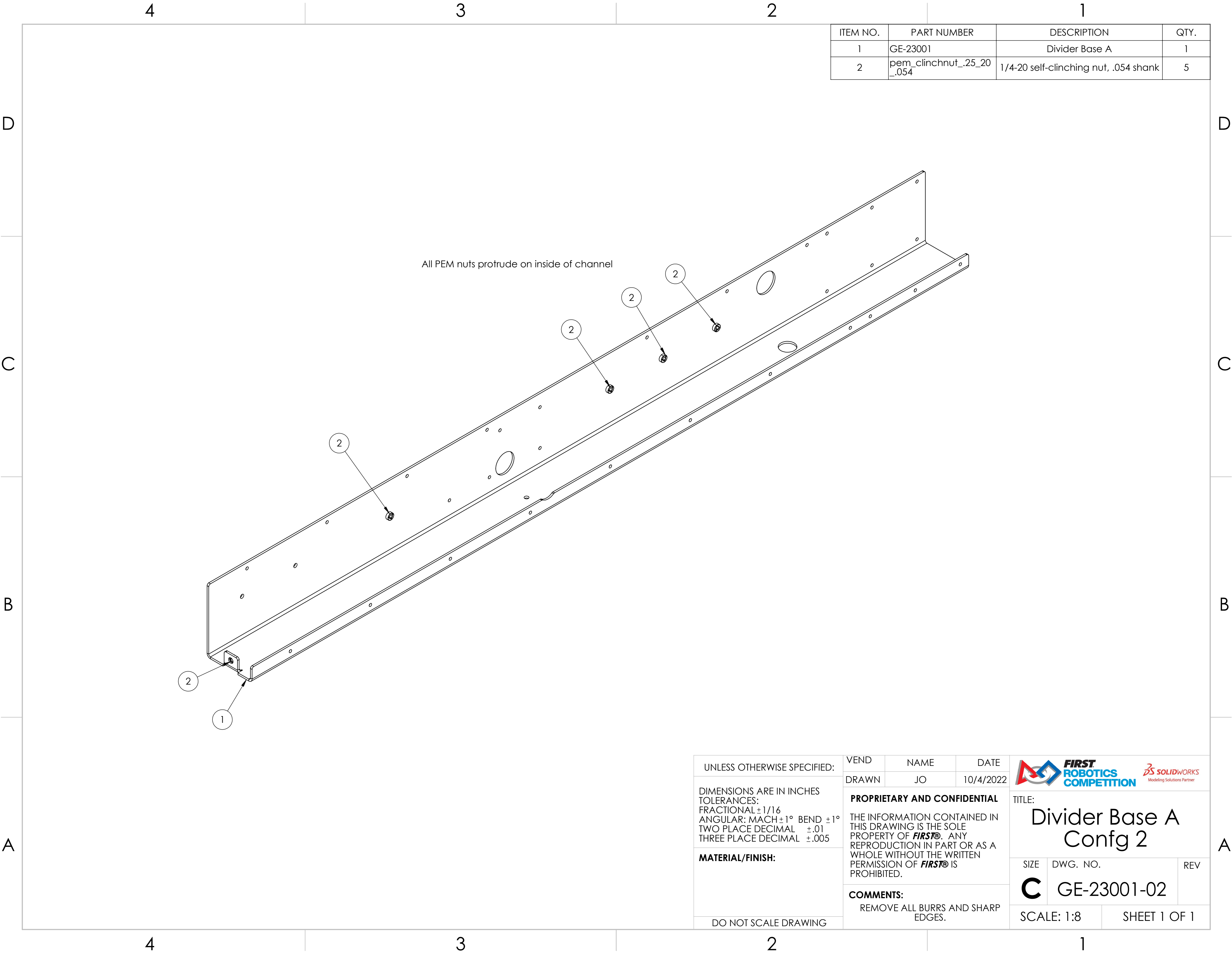
A

A





PEM nut protrudes inside of channel

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>    DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div>		
	DRAWN	JO	10/4/2022			
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				SIZE	DWG. NO.	REV
				C	GE-23001-01	
				SCALE: 1:8		SHEET 1 OF 1

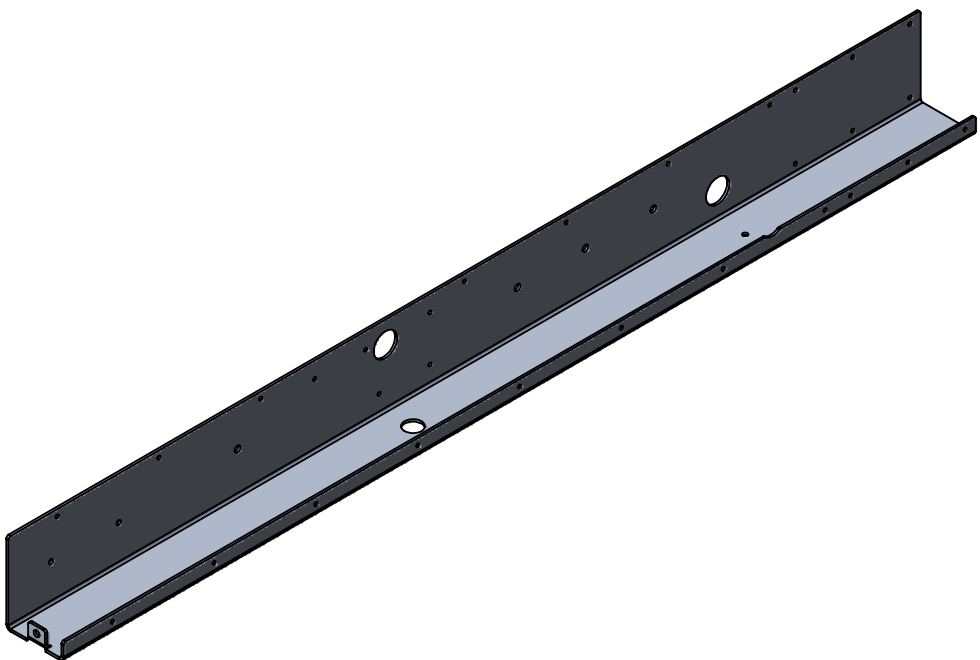
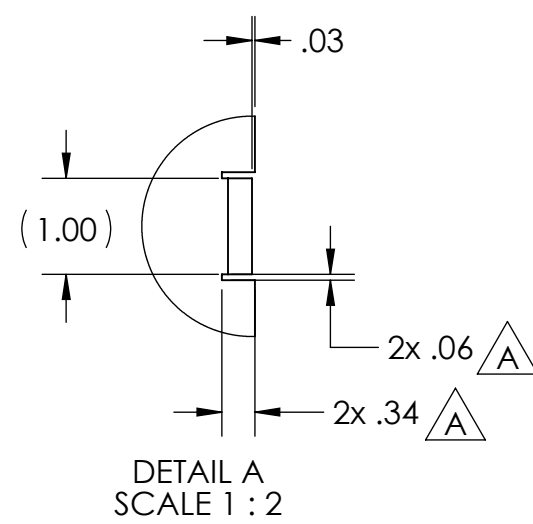
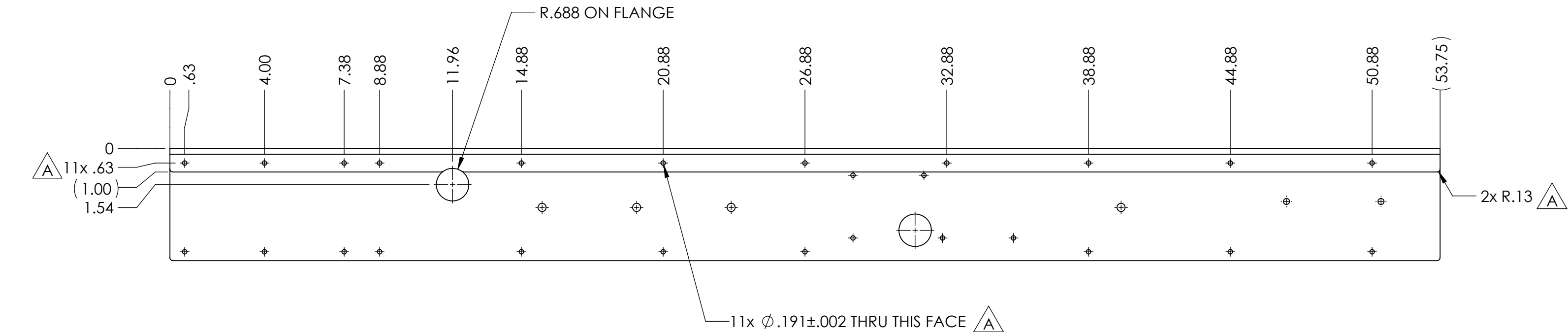
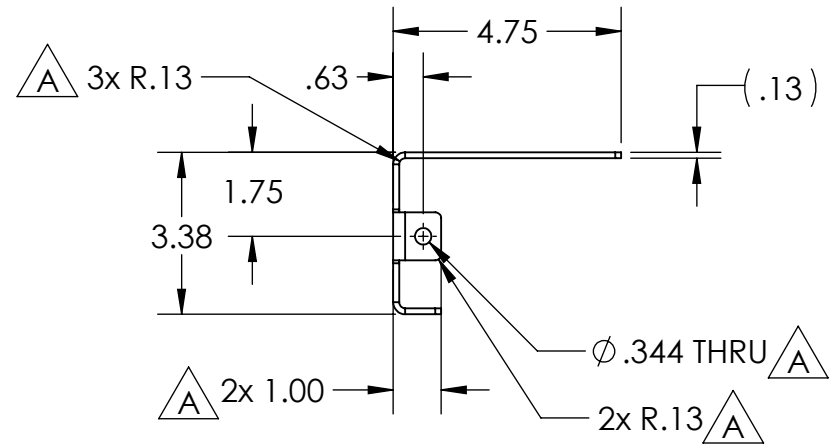
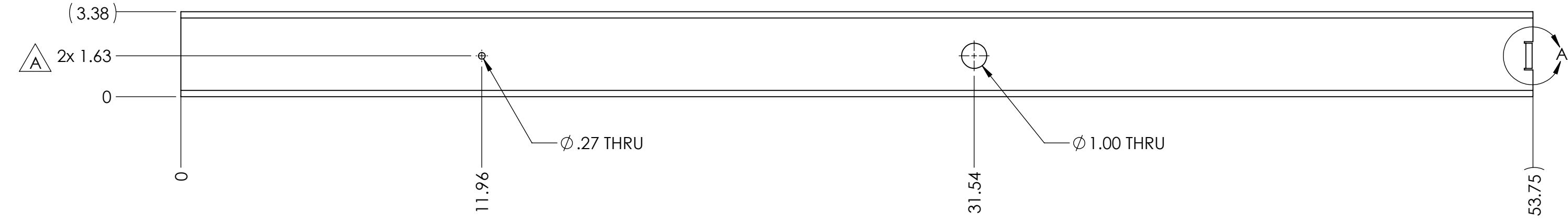
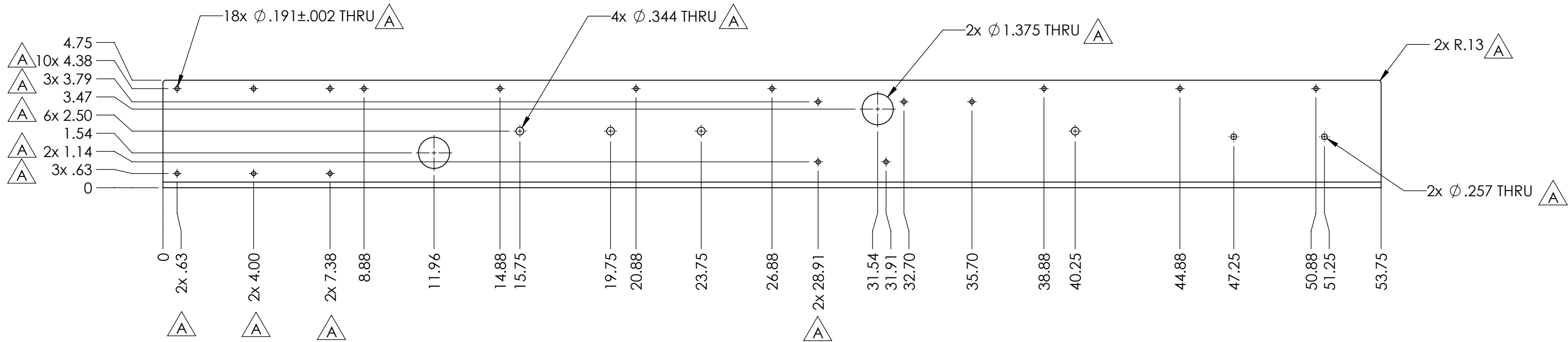




ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23001	Divider Base A	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	5

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  MATERIAL/FINISH:    DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div>		
	DRAWN	JO	10/4/2022			
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				SIZE	DWG. NO.	REV
				C	GE-23001-02	
				SCALE: 1:8		SHEET 1 OF 1

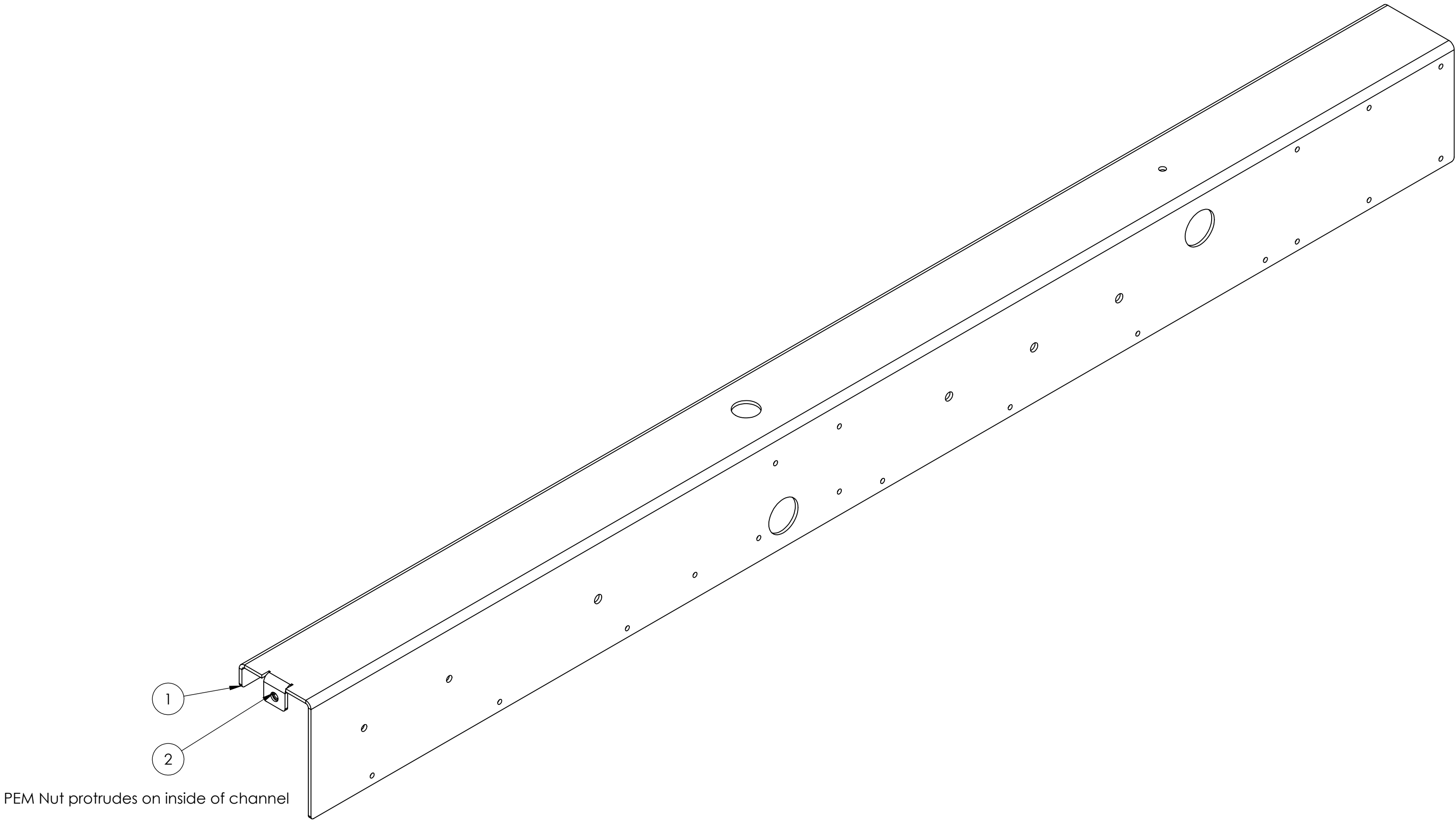




REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B1, B2, B4, C1, C3, C4, D1, D2, D3, D4	A	Style of Qty callouts, changed some holes from .391 to .344 for PEM nuts instead of Riv-Nuts, tolerance of rivet holes, added callout for .257 holes.	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:		BEND	NAME	DATE	 		
<p>DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL <math>\pm 1/16</math> ANGULAR: MACH <math>\pm 1^\circ</math> BEND <math>\pm 1^\circ</math> TWO PLACE DECIMAL <math>\pm .02</math> THREE PLACE DECIMAL <math>\pm .010</math></p> <p><b>MATERIAL/FINISH:</b>  8GA 5052 AL</p>		DRAWN	NAL	9/23/2022	TITLE:  Divider Base B		
		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
		<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE  C		DWG. NO.  GE-23002
DO NOT SCALE DRAWING					SCALE: 1:4		SHEET 1 OF 1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23002	Divider Base B	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	1



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	DRAWN	JO	10/4/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				TITLE:  Divider Base B Config 1	
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				C	GE-23002-01	
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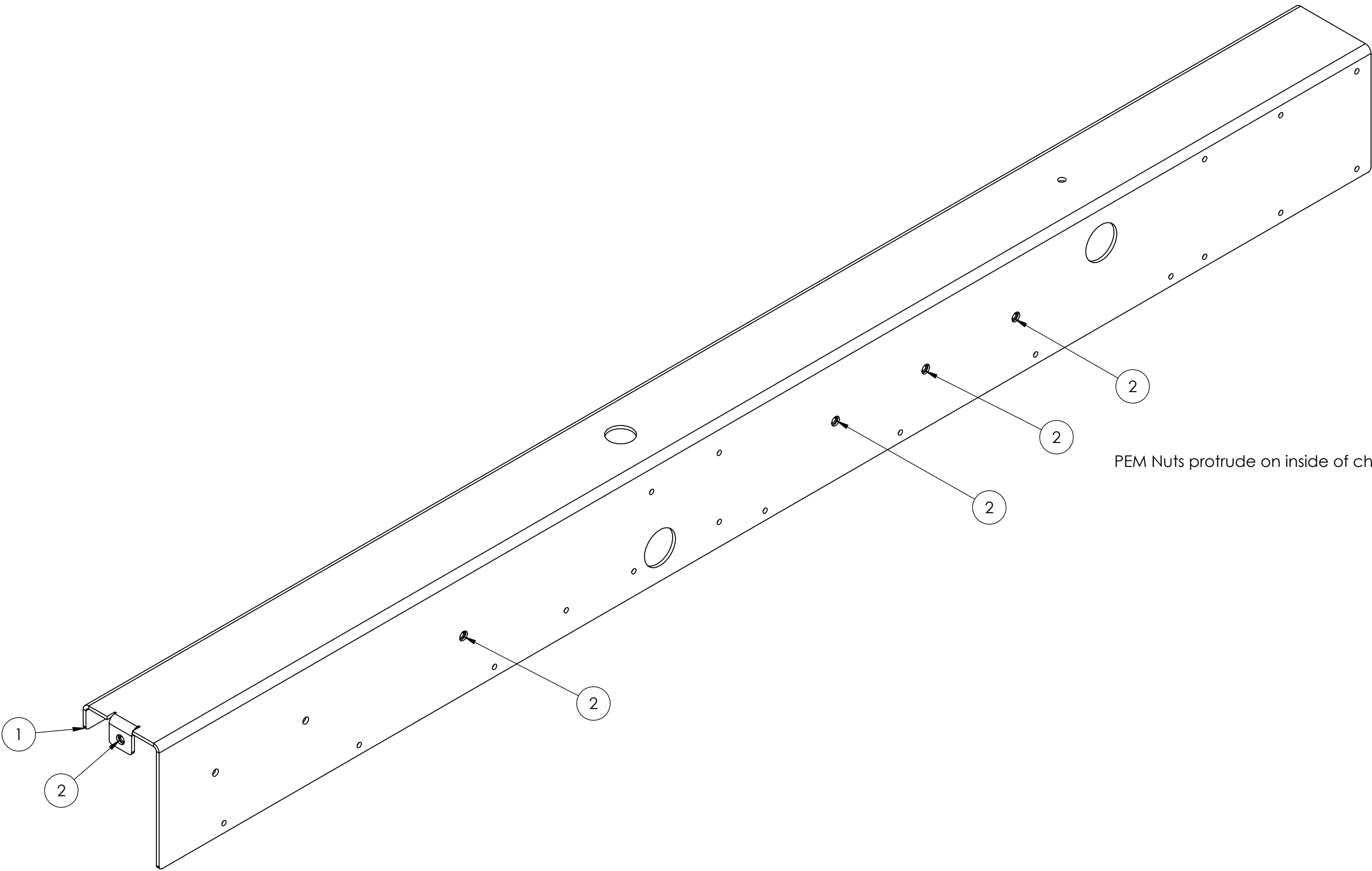
4

3

2

1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23002	Divider Base B	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	5



PEM Nuts protrude on inside of channel

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

VEND

NAME

DATE

DRAWN

JO

10/4/2022

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



Modeling Solutions Partner

TITLE:

Divider Base B  
Config 2

SIZE

DWG. NO.

REV

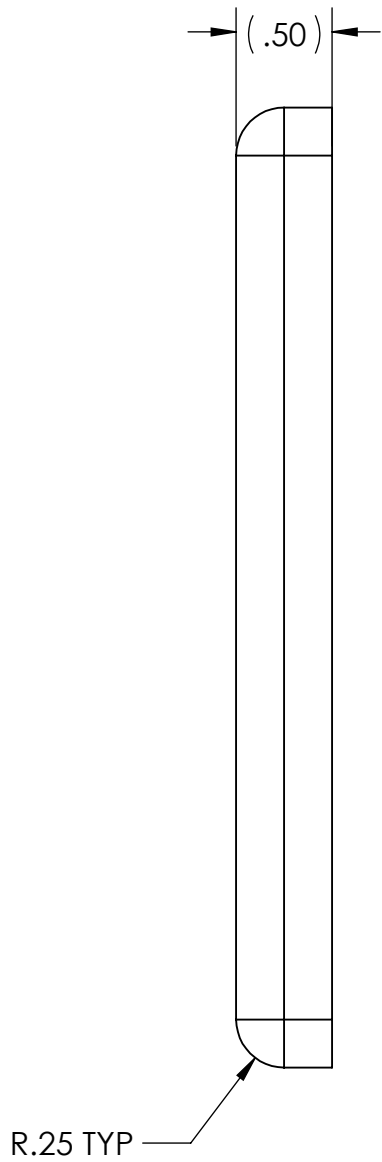
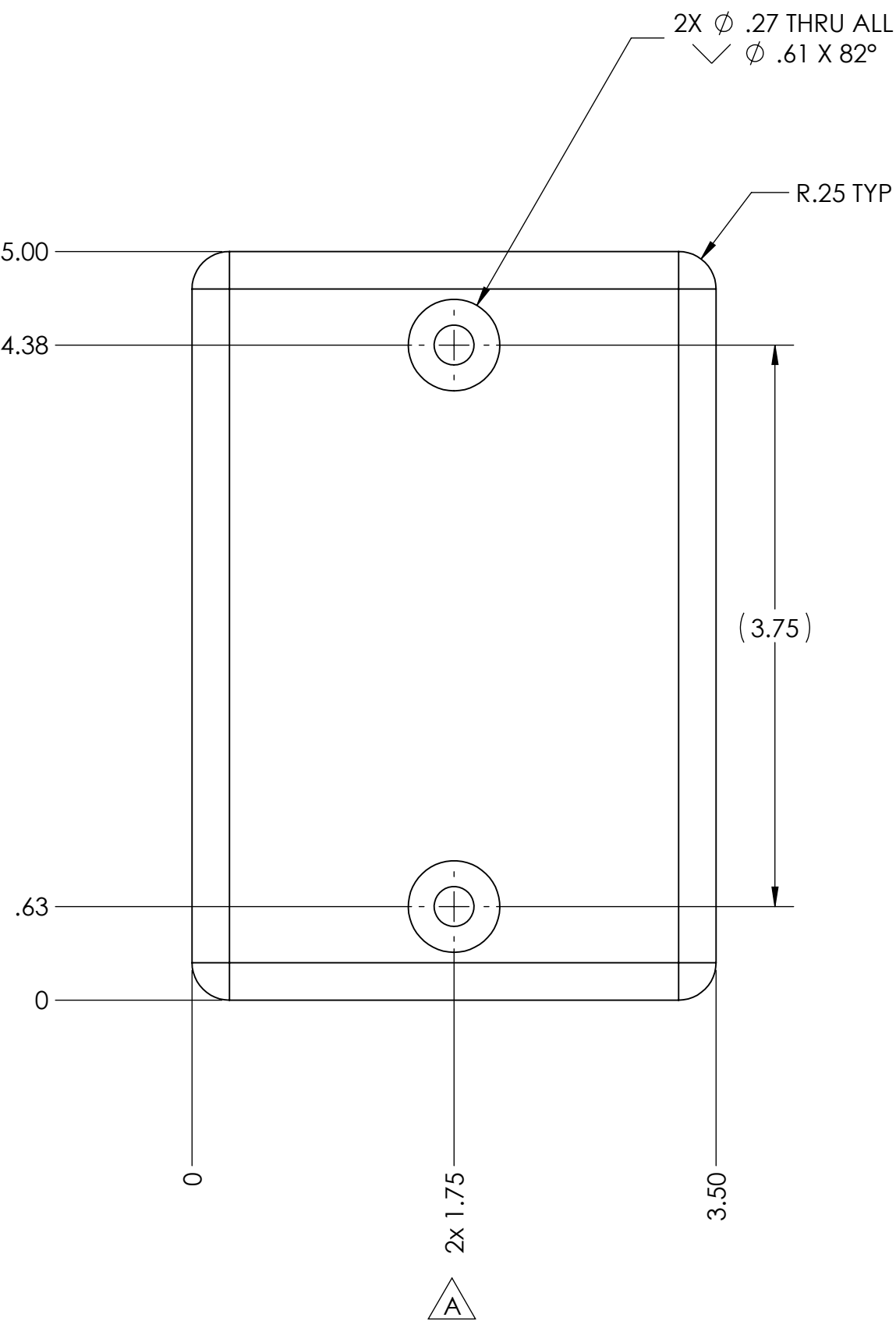
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GE-23002-02

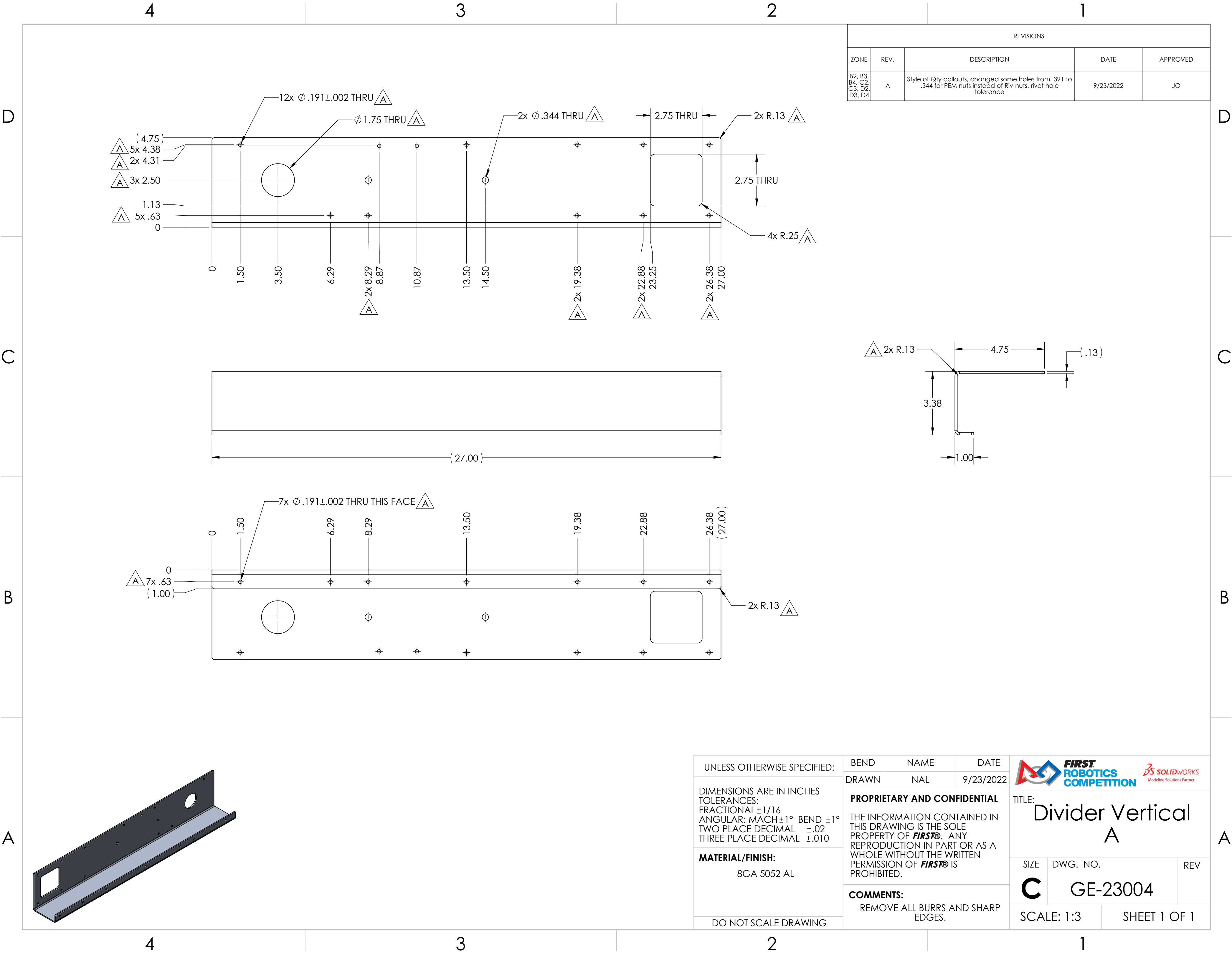
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SHEET 1 OF 1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3	A	Style of qty callouts	9/23/2022	JO

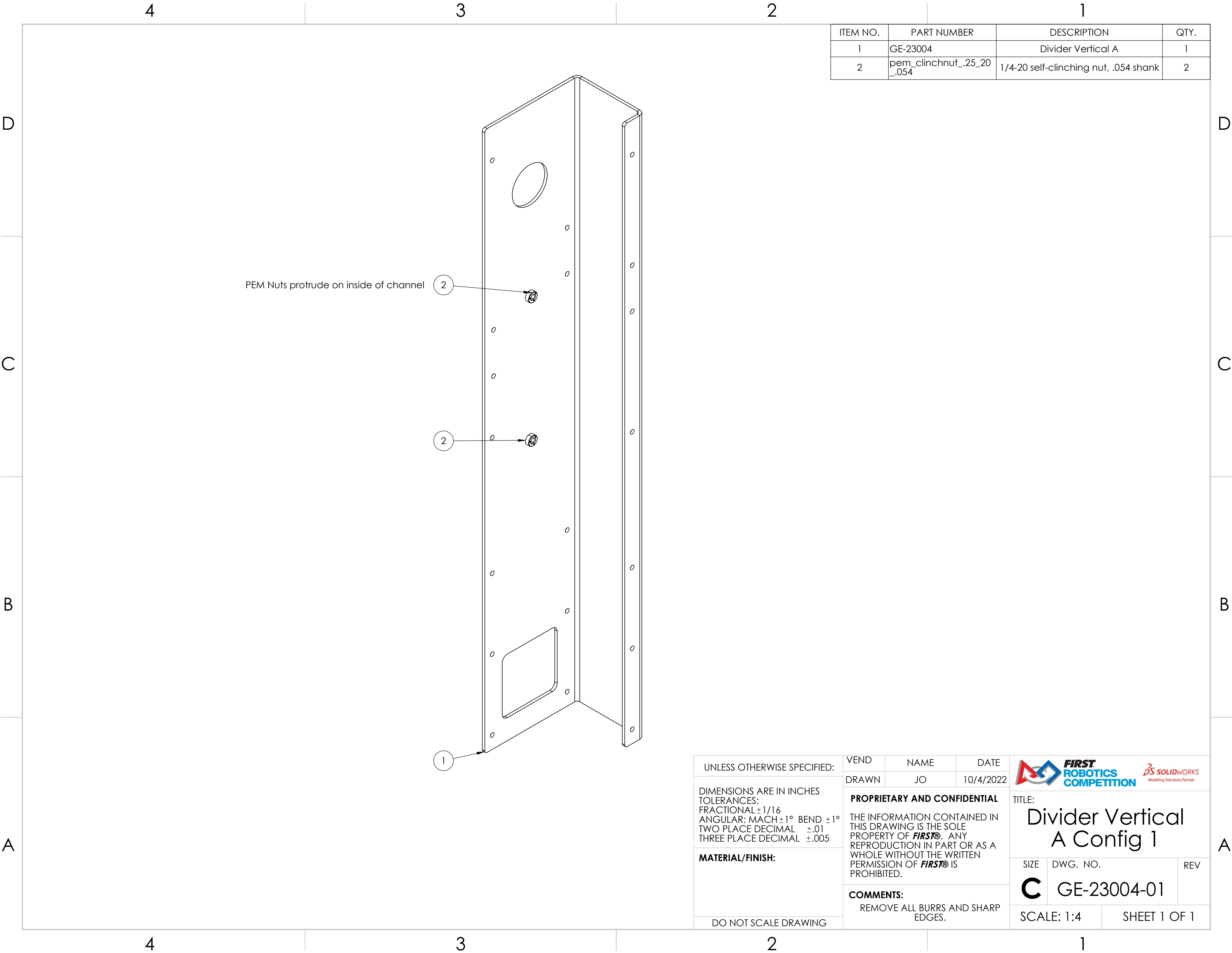


UNLESS OTHERWISE SPECIFIED:		VEND	NAME	DATE				
		DRAWN	NAL	9/23/2022				
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Divider End Cap			
<b>MATERIAL/FINISH:</b>  1/2" BLACK ORANGE PEEL HDPE		<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.		REV
					C	GE-23003		
DO NOT SCALE DRAWING					SCALE: 1:1		SHEET 1 OF 1	





REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, B4, C2, C3, D2, D3, D4	A	Style of Qty callouts, changed some holes from .391 to .344 for PEM nuts instead of Riv-nuts, rivet hole tolerance	9/23/2022	JO

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010  <b>MATERIAL/FINISH:</b>  8GA 5052 AL   DO NOT SCALE DRAWING	BEND	NAME	DATE	<div></div>	
	DRAWN	NAL	9/23/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				
TITLE:				Divider Vertical A	
SIZE		DWG. NO.		REV	
C		GE-23004			
SCALE: 1:3			SHEET 1 OF 1		



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23004	Divider Vertical A	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	2

UNLESS OTHERWISE SPECIFIED:	VEND		NAME		DATE		<div> <b>FIRST</b> <b>ROBOTICS</b> <b>COMPETTITION</b></div> <div> <b>SOLIDWORKS</b> Modeling Solutions Partner</div>		
	DRAWN		JO		10/4/2022				
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	<b>PROPRIETARY AND CONFIDENTIAL</b>						TITLE:		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.						Divider Vertical A Config 1		
<b>MATERIAL/FINISH:</b>	<b>COMMENTS:</b>						SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.						<b>C</b>	GE-23004-01	
DO NOT SCALE DRAWING							SCALE: 1:4		SHEET 1 OF 1



D

C

B

A

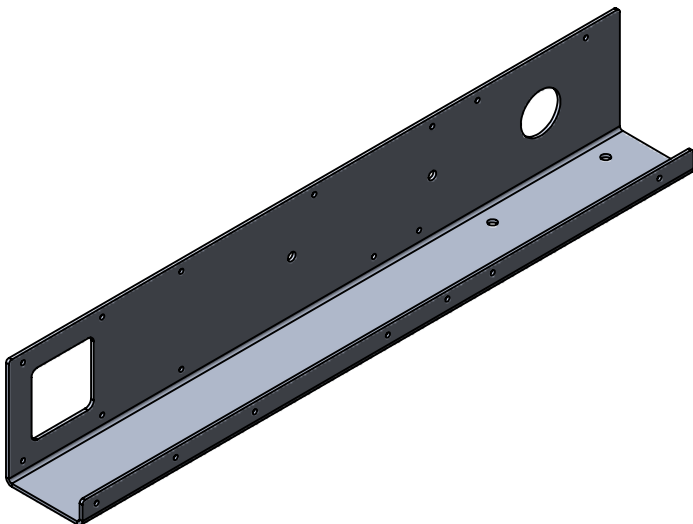
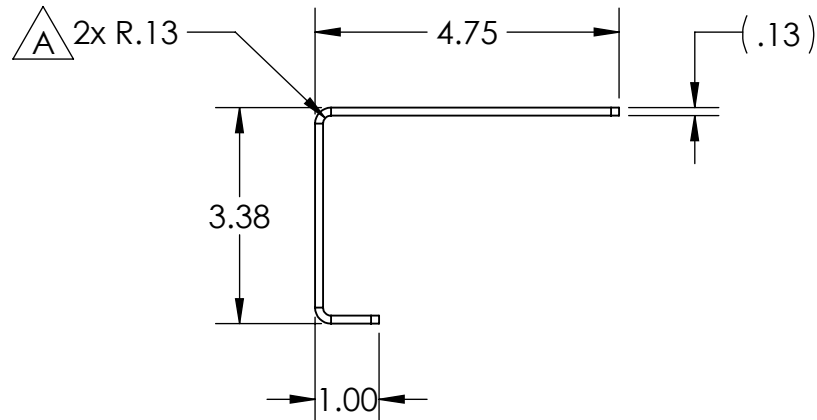
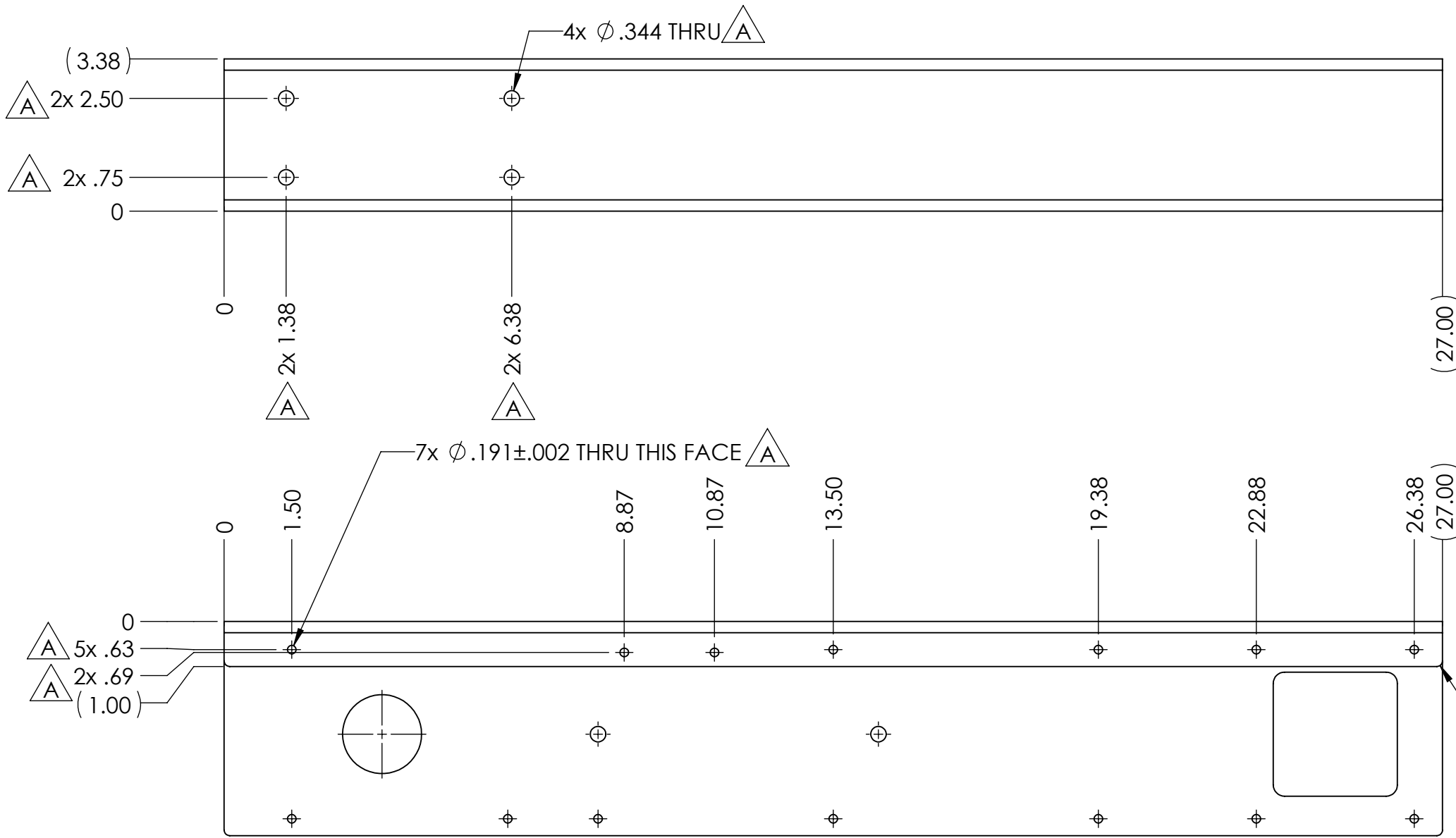
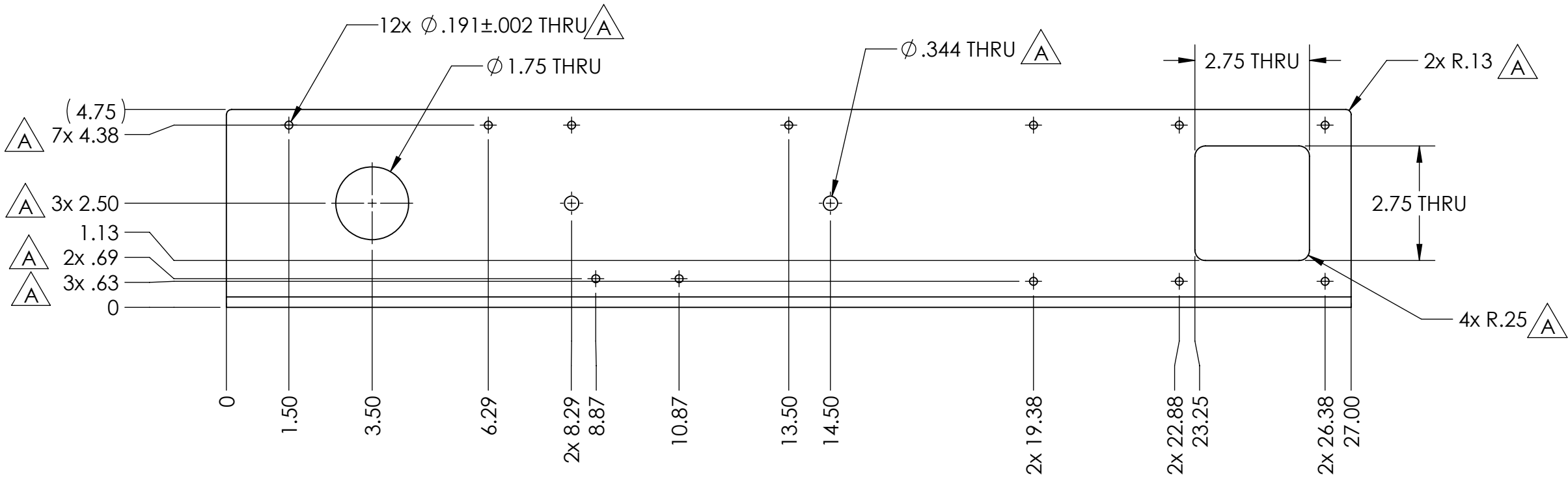
D



C

B

A

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, B4, C2, C3, C4, D2, D3, D4	A	Changed style of qty callouts, changed some holes from .391 to .344 for PEM nuts instead of Riv-nuts, Rivet Hole Tolerance	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b> 8GA 5052 AL  DO NOT SCALE DRAWING	BEND	NAME	DATE	 	
	DRAWN	NAL	9/23/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: <b>Divider Vertical B</b>	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. <b>GE-23005</b>
SCALE: 1:3		SHEET 1 OF 1			

4

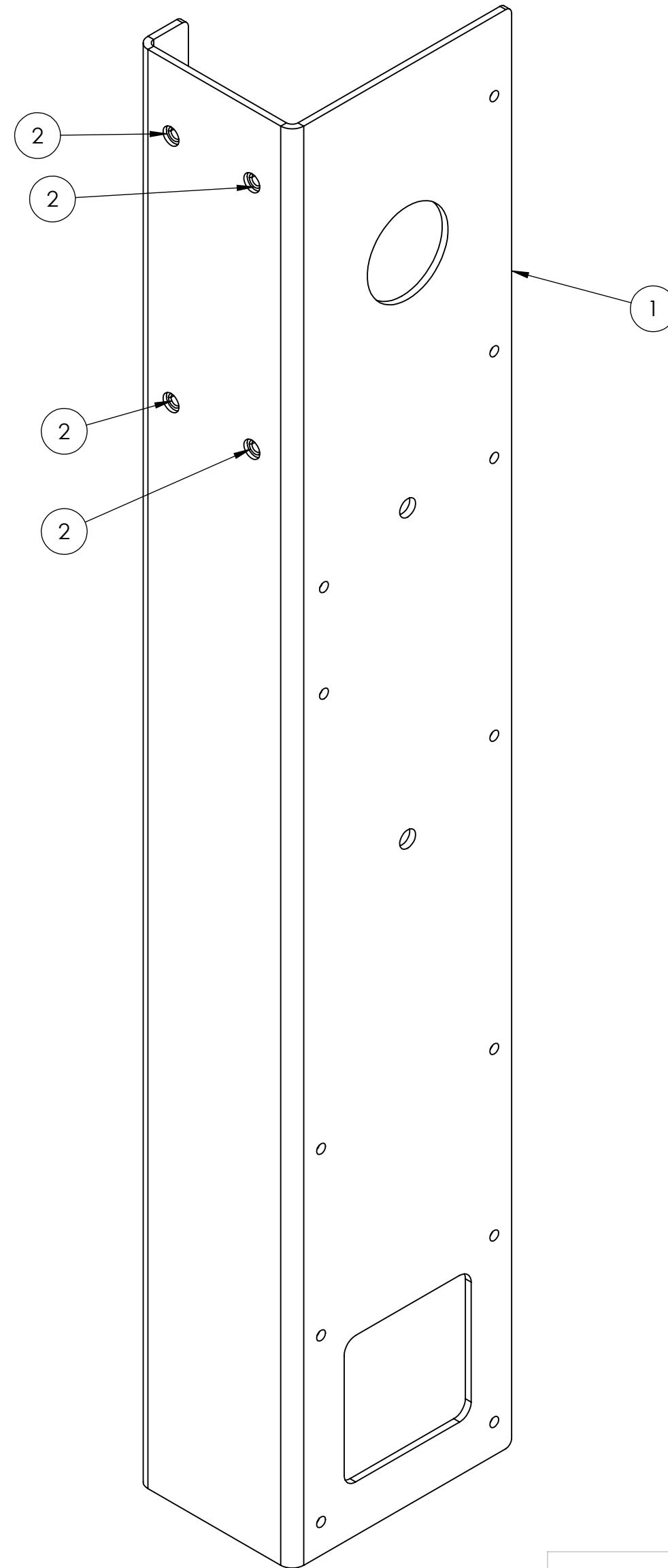
3

2

1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23005	Divider Vertical B	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	4

PEM Nuts protrude on inside of channel



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

**MATERIAL/FINISH:**

DO NOT SCALE DRAWING

VEND
------

NAME

DATE \_\_\_\_\_

DRAWN

JO

10/4/2022

**PROPRIETARY AND CONFIDENTIAL**

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**COMMENTS:**

REMOVE ALL BURRS AND SHARP EDGES.



TITLE:

Divider Vertical  
B Config 1

SIZE

DWG. NO.
----------

REV

C

GE-23005-01

SCALE: 1:4

SHEET 1 OF 1

D

D

C

C

B

**B**

A

A

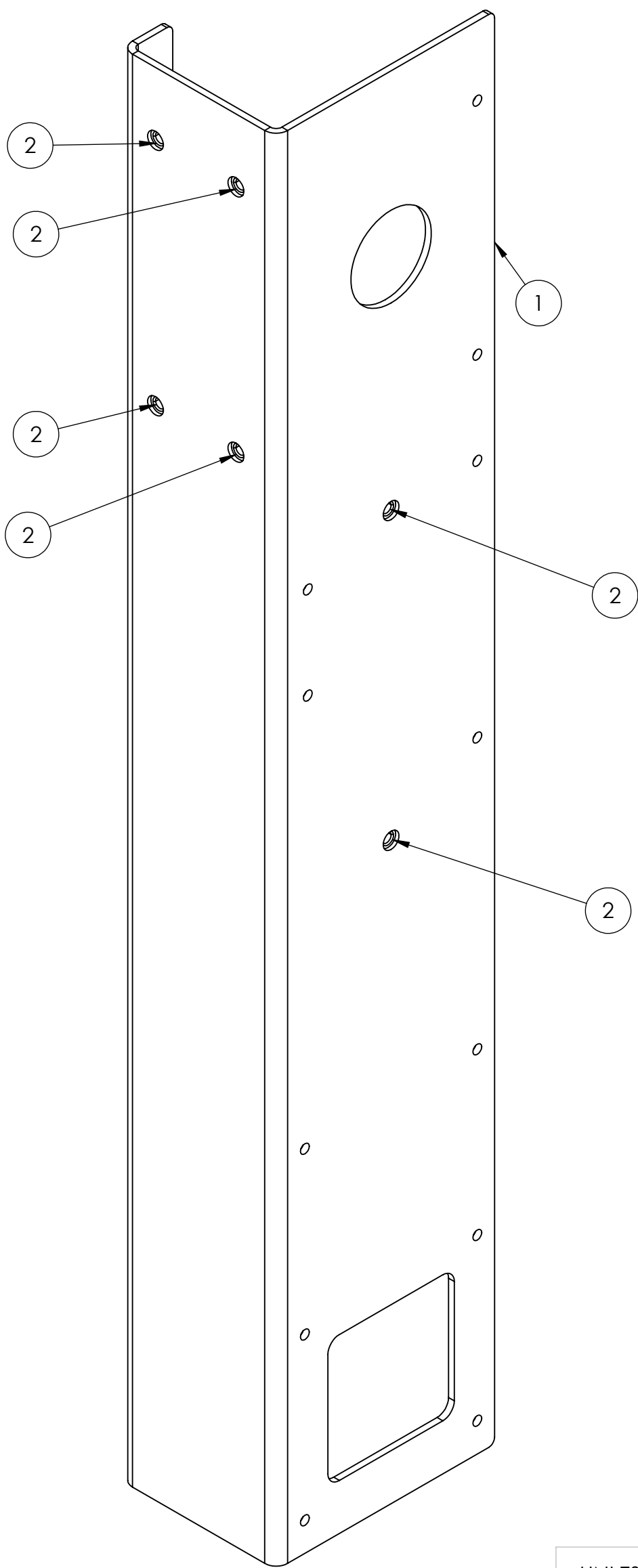
4

3



2

1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23005	Divider Vertical B	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	6



PEM Nuts protrude on inside of channel

UNLESS OTHERWISE SPECIFIED:		VEND	NAME	DATE	<div><div>FIRST ROBOTICS COMPETTITION</div></div> <div></div>		
		DRAWN	JO	10/4/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:		
<b>MATERIAL/FINISH:</b>					Divider Vertical B Config 2		
		<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
					C	GE-23005-02	
DO NOT SCALE DRAWING					SCALE: 1:4		SHEET 1 OF 1

4

3

2

1

D

D

C

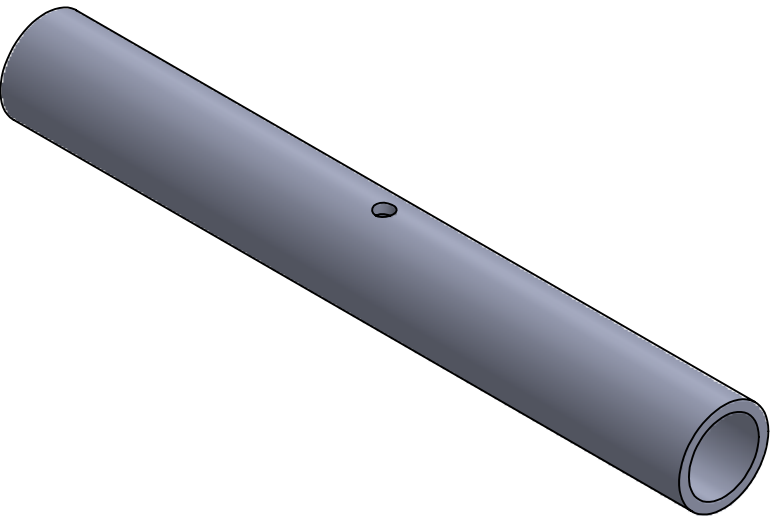
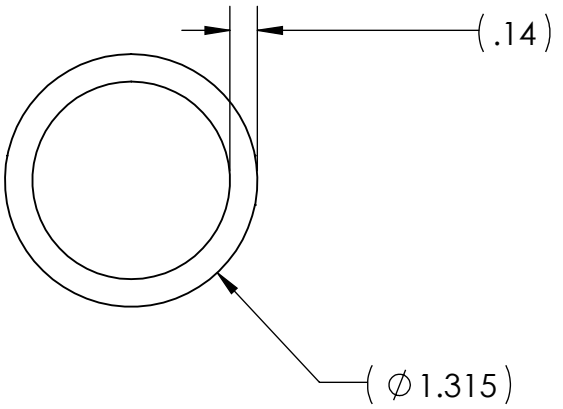
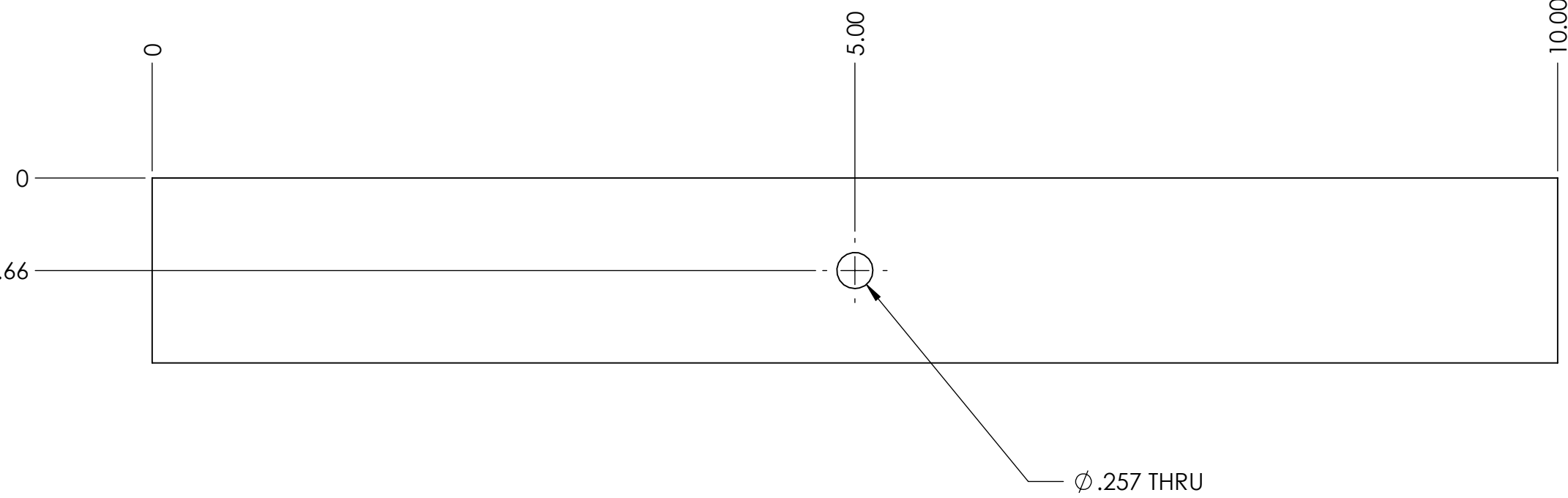
C

B

B

A

A





4

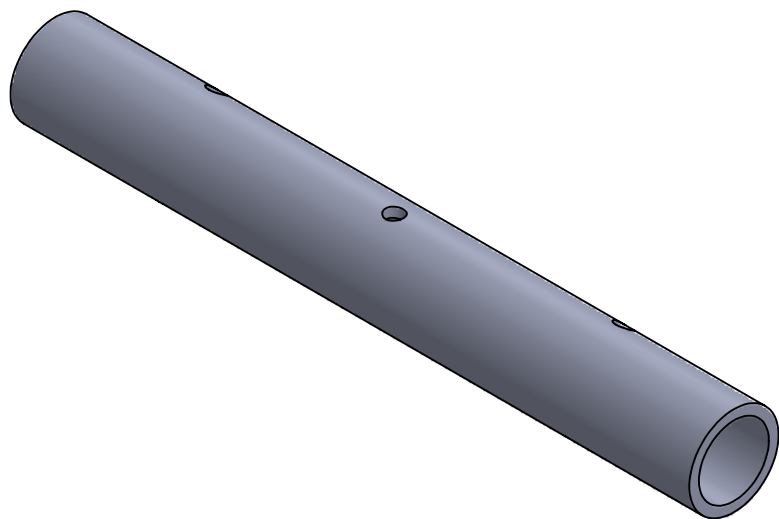
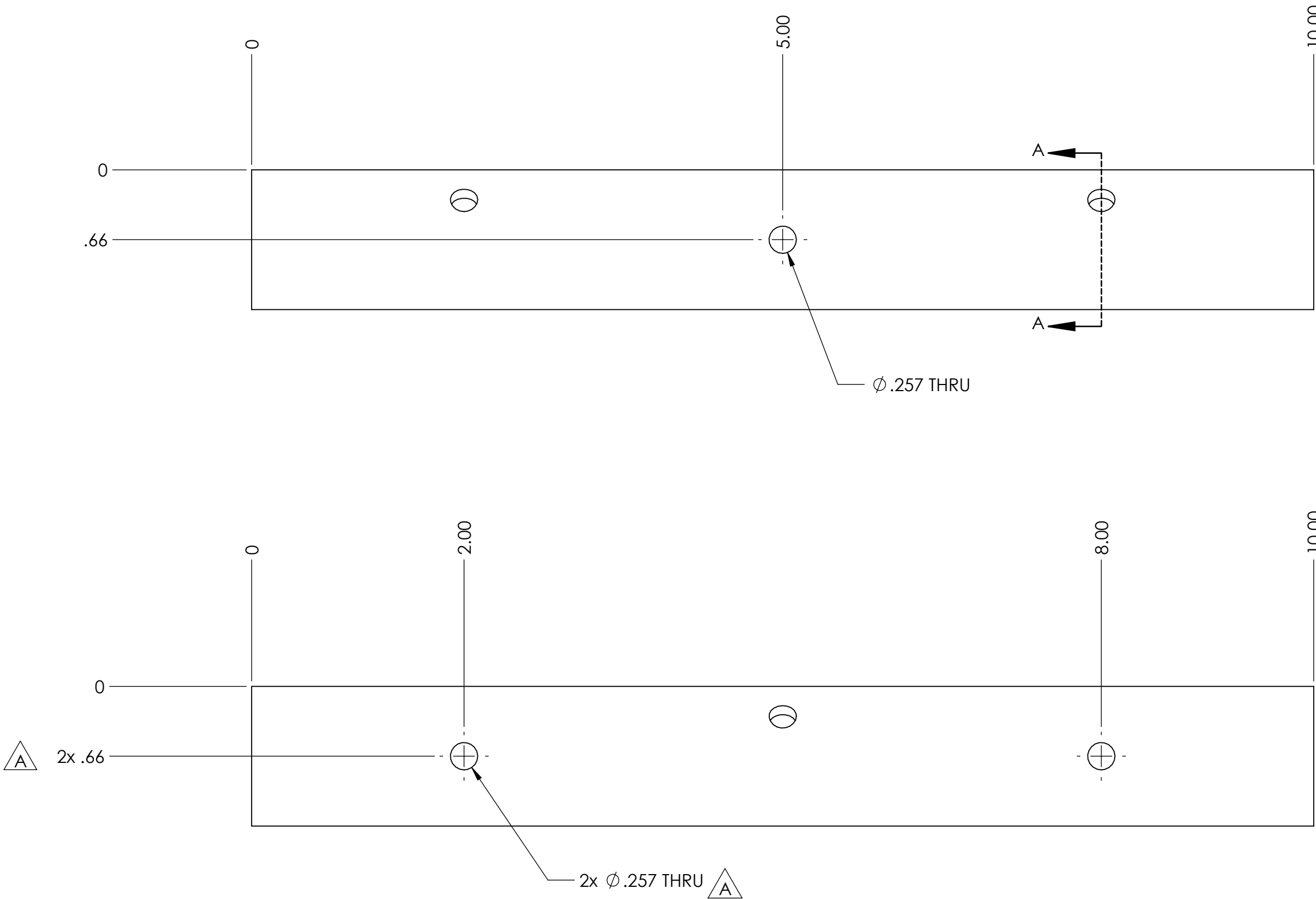
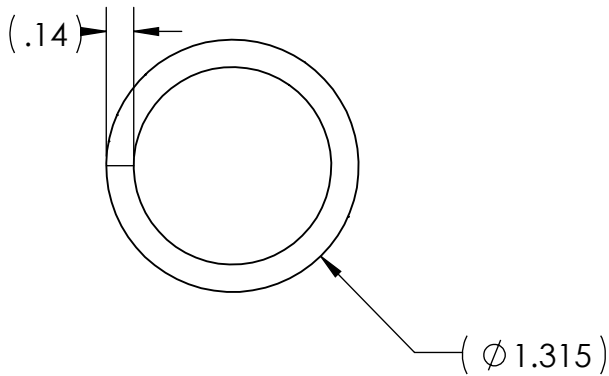
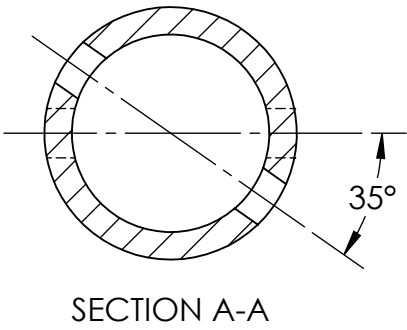
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2

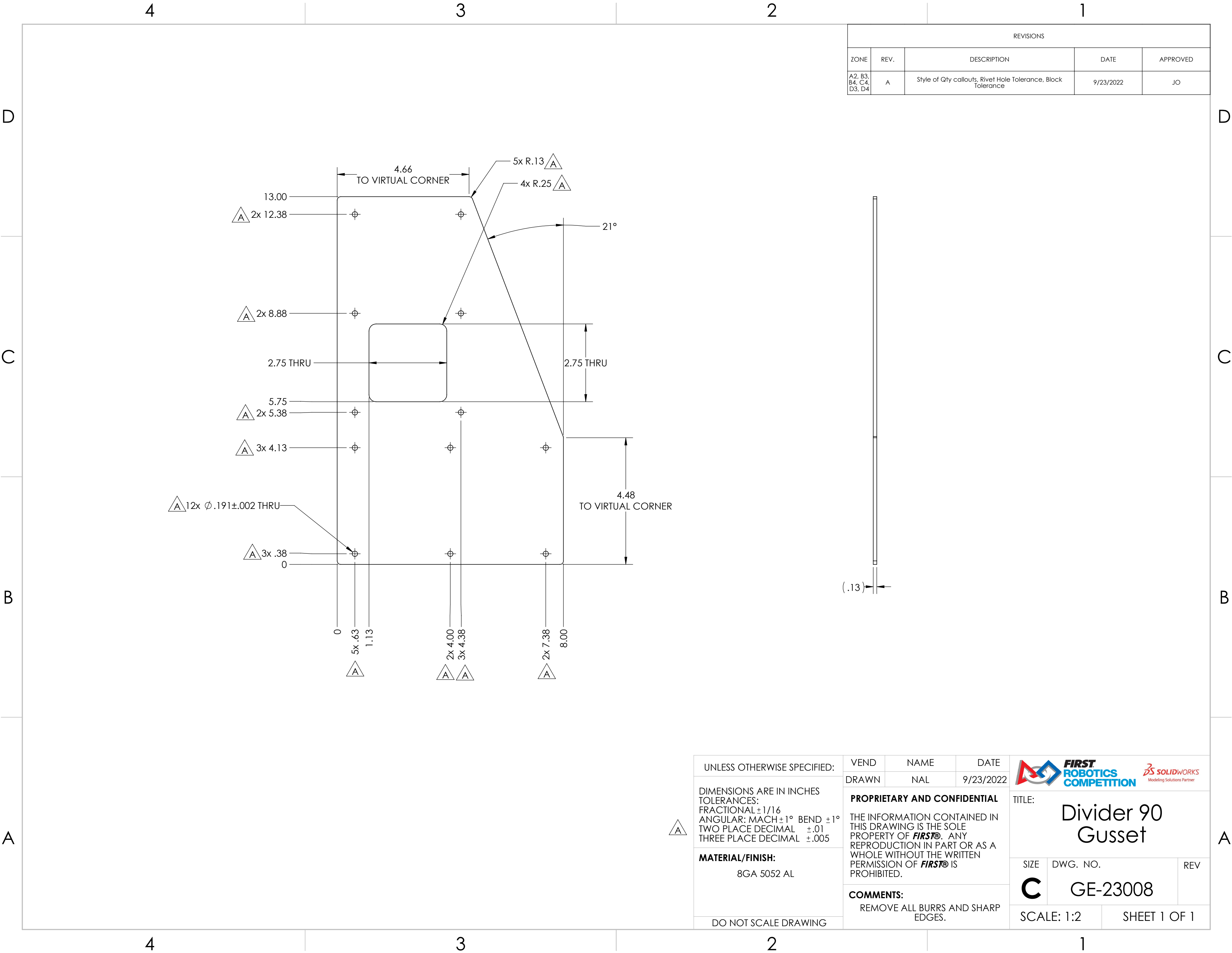
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UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>		
	DRAWN	NAL	9/23/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Divider Middle Bottom Connector Pin		
	<b>MATERIAL/FINISH:</b>  1" SCH40 Al Tube	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
DO NOT SCALE DRAWING	C				GE-23006	
	SCALE: 1:1		SHEET 1 OF 1			

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, B3, B4	A	Style of Qty callouts, Block Tolerance	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>  1in SCH40 AL Tube  DO NOT SCALE DRAWING		VEND	NAME	DATE	<div></div> <div>TITLE:  Divider Angle Brace Connector Pin</div> <div><div>SIZE</div><div>C</div></div> <div><div>DWG. NO.</div><div>GE-23007</div></div> <div><div>REV</div><div></div></div> <div>SCALE: 1:1</div> <div>SHEET 1 OF 1</div>		
		DRAWN	NAL	9/23/2022			
<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.							

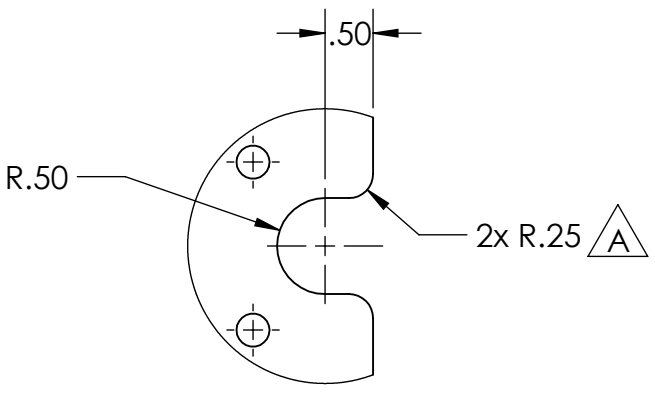
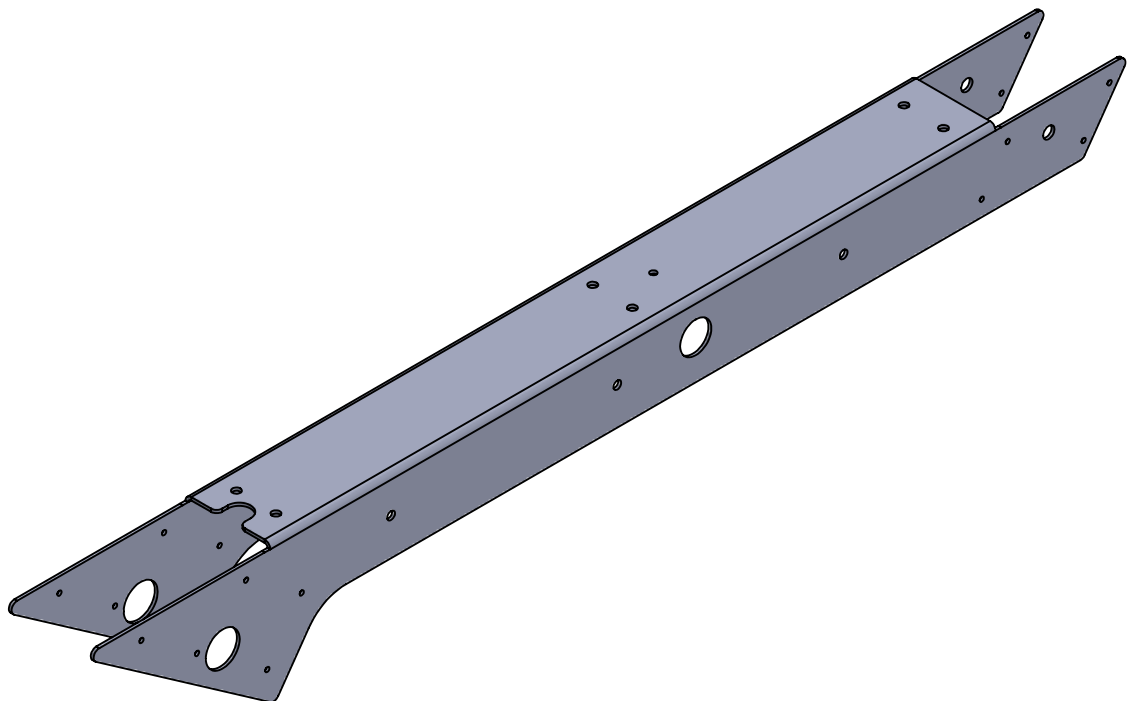
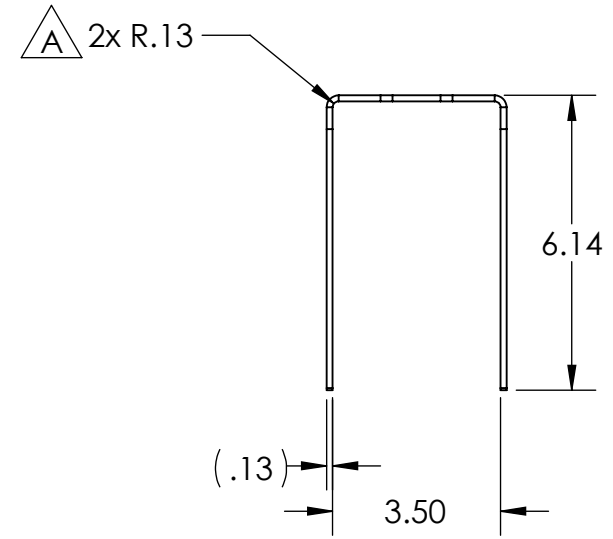
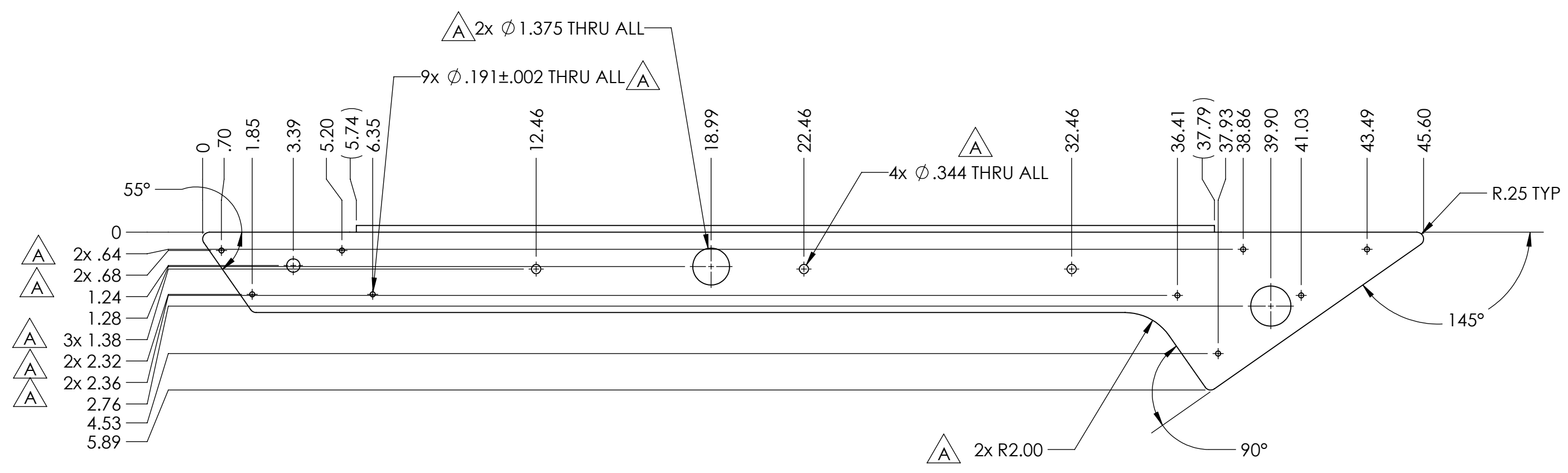
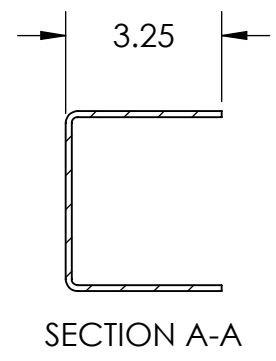
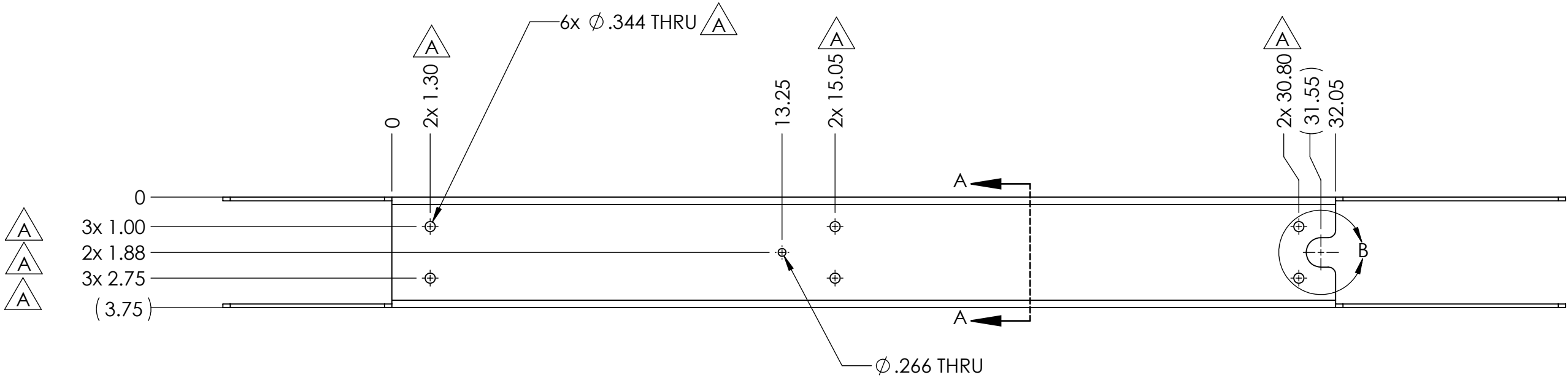


REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, B3, B4, C4, D3, D4	A	Style of Qty callouts, Rivet Hole Tolerance, Block Tolerance	9/23/2022	JO

<div><div></div><div>A</div></div>	UNLESS OTHERWISE SPECIFIED:			VEND		NAME		DATE		<div><div><div><div></div><div></div></div></div><div><div>FIRST</div><div>ROBOTICS</div><div>COMPETITION</div></div><div><div><div>SOLIDWORKS</div><div>Modeling Solutions Partner</div></div></div></div>		
				DRAWN		NAL		9/23/2022				
	<div>DIMENSIONS ARE IN INCHES</div> <div>TOLERANCES:</div> <div>FRACTIONAL ±1/16</div> <div>ANGULAR: MACH ±1° BEND ±1°</div> <div>TWO PLACE DECIMAL ±.01</div> <div>THREE PLACE DECIMAL ±.005</div>			PROPRIETARY AND CONFIDENTIAL						TITLE: <div>Divider 90 Gusset</div>		
				THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.								
				COMMENTS: <div>REMOVE ALL BURRS AND SHARP EDGES.</div>								
MATERIAL/FINISH: <div>8GA 5052 AL</div>									SIZE	DWG. NO.		REV
									C	GE-23008		
DO NOT SCALE DRAWING									SCALE: 1:2		SHEET 1 OF 1	





REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, B3, B4, C1, C3, C4, D2, D3, D4	A	Style of Qty callouts, changed some holes from .391 to .344 for PEM nuts instead of Riv-Nuts, Rivet Hole Tolerance	9/23/2022	JO



DETAIL B  
SCALE 1 : 2

UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .02$   
THREE PLACE DECIMAL  $\pm .010$   
**MATERIAL/FINISH:**  
8GA 5052 AL  
DO NOT SCALE DRAWING

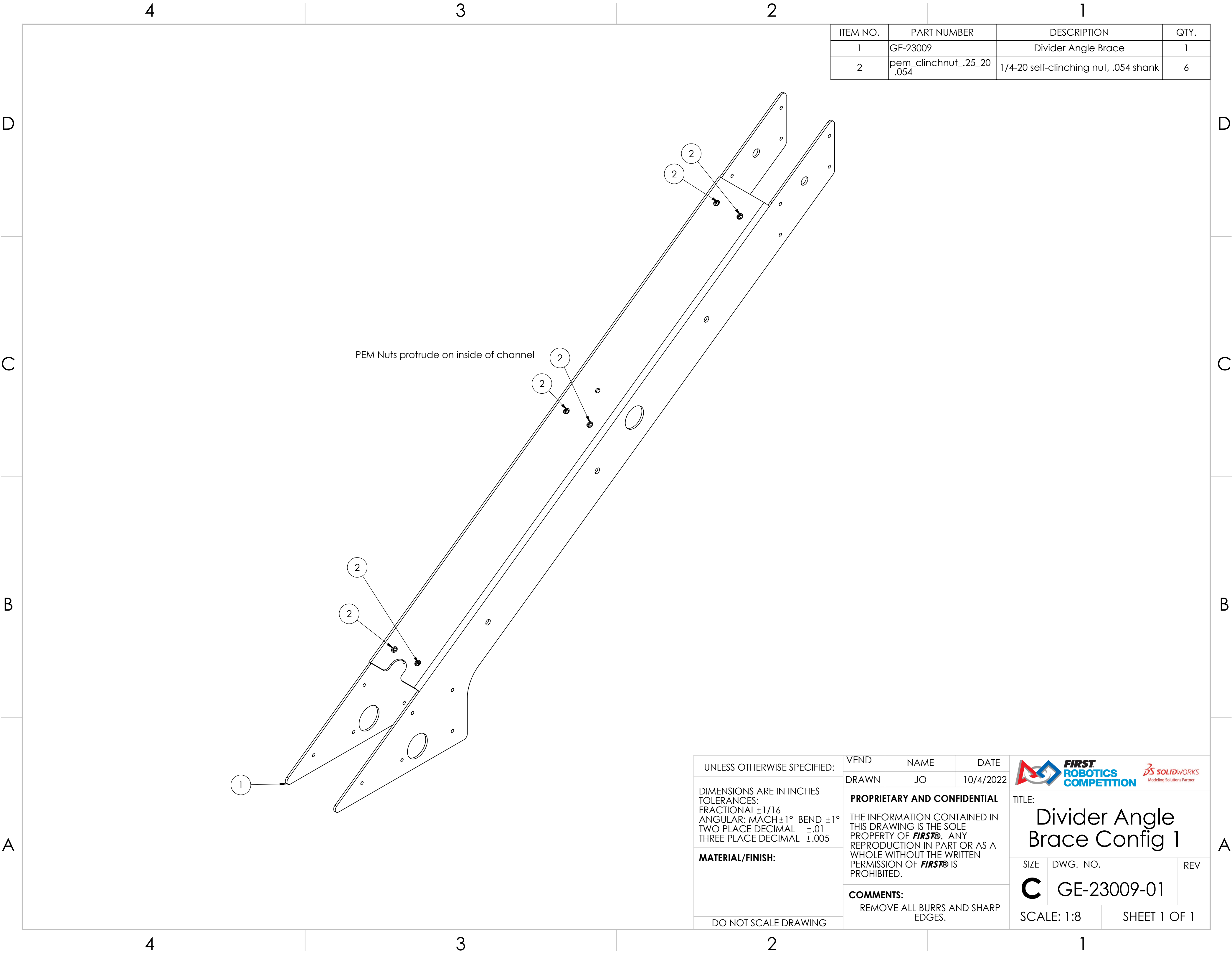
BEND	NAME	DATE
DRAWN	NAL	9/23/2022
<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		



TITLE: **Divider Angle Brace**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23009	



SCALE: 1:4      SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23009	Divider Angle Brace	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	6

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$
MATERIAL/FINISH:
DO NOT SCALE DRAWING

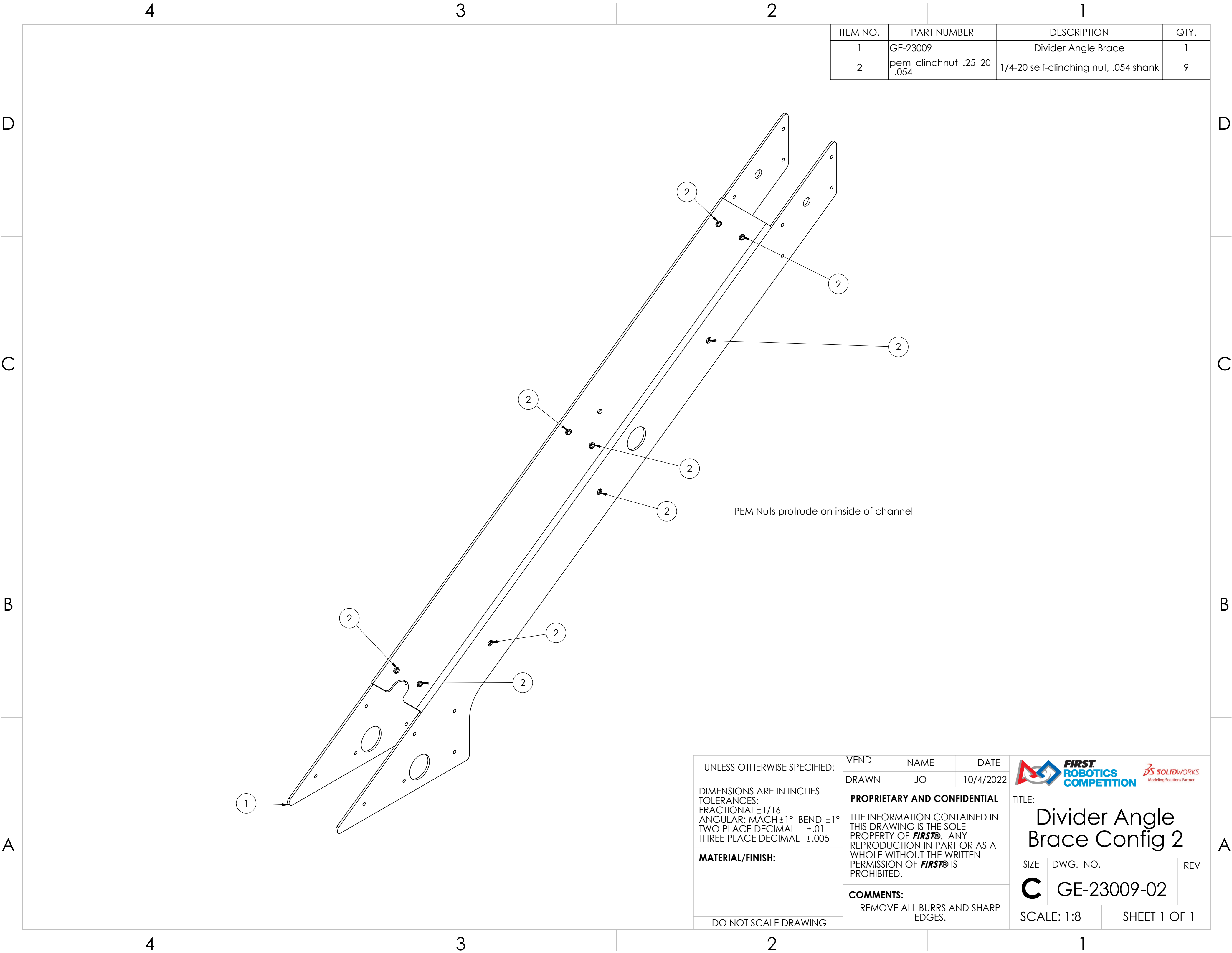
VEND	NAME	DATE
DRAWN	JO	10/4/2022
PROPRIETARY AND CONFIDENTIAL		
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST</b> IS PROHIBITED.		
COMMENTS:		
REMOVE ALL BURRS AND SHARP EDGES.		





TITLE:  
**Divider Angle  
Brace Config 1**

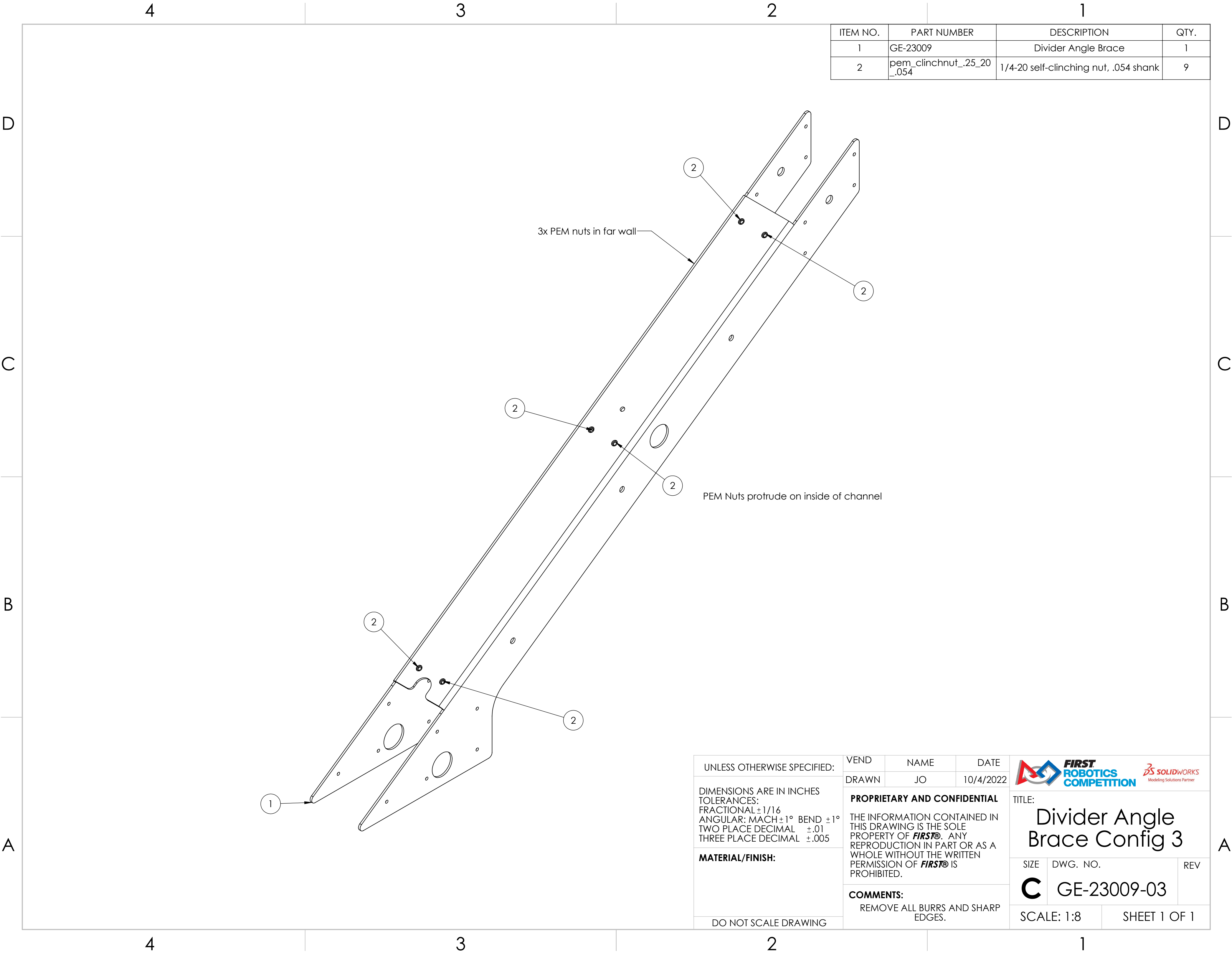
SIZE	DWG. NO.	REV
<b>C</b>	GE-23009-01	

SCALE: 1:8	SHEET 1 OF 1
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23009	Divider Angle Brace	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	9


UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>     DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div>	
	DRAWN	JO	10/4/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				
TITLE: <div>Divider Angle Brace Config 2</div>				REV	
SIZE		DWG. NO.		REV	
<b>C</b>		GE-23009-02			
SCALE: 1:8			SHEET 1 OF 1		



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23009	Divider Angle Brace	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	9

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$
MATERIAL/FINISH:
DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	JO	10/4/2022
PROPRIETARY AND CONFIDENTIAL		
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COMMENTS:		
REMOVE ALL BURRS AND SHARP EDGES.		



TITLE:  
**Divider Angle  
Brace Config 3**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23009-03	

SCALE: 1:8	SHEET 1 OF 1
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D

D

C

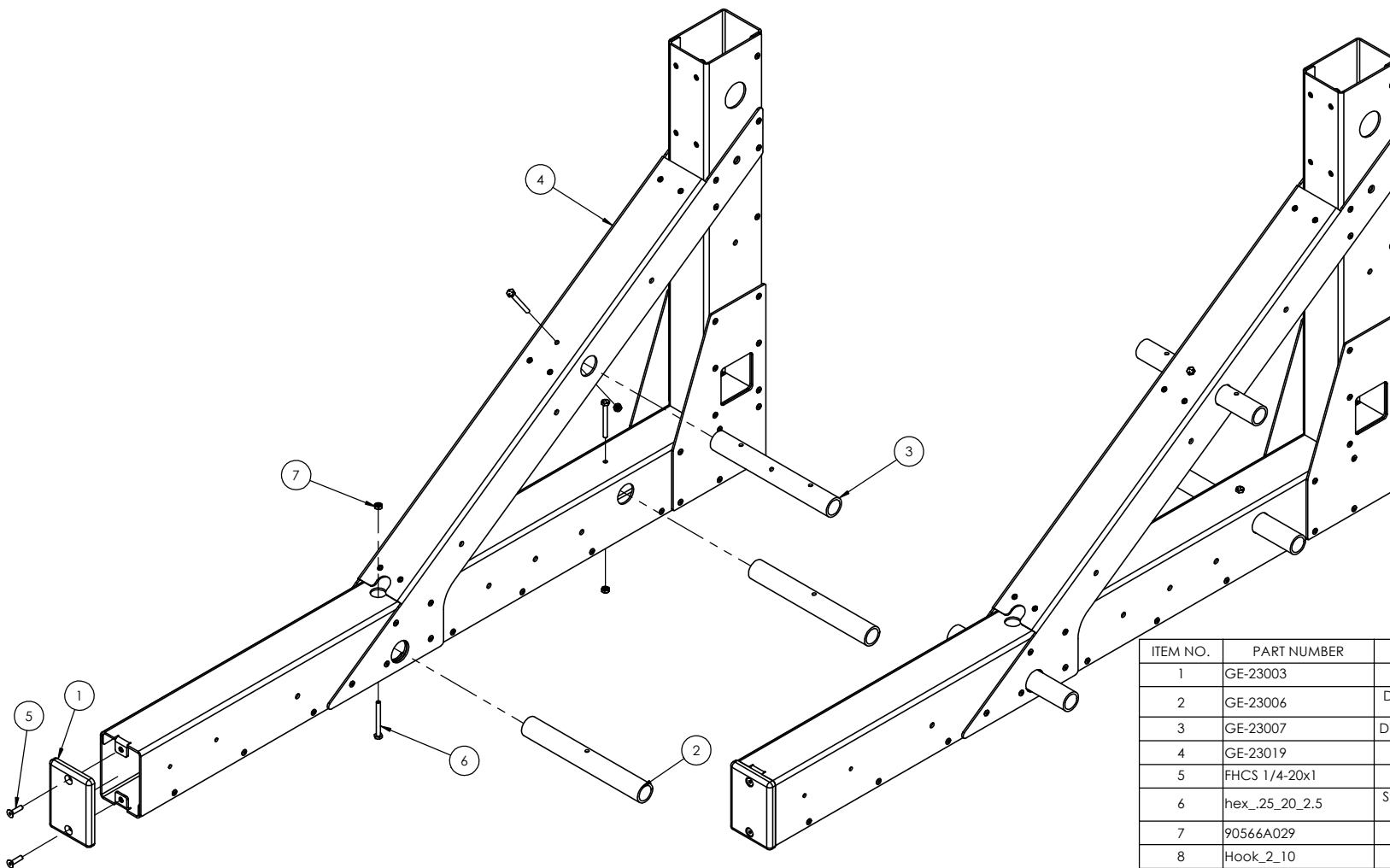
C

B

B

A

A



Assembly Notes:  
1. Ensure Unused Holes on (3) are vertical after installation

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23003	Divider End Cap	1
2	GE-23006	Divider Middle Bottom Connector Pin	2
3	GE-23007	Divider Angle Brace Connector Pin	1
4	GE-23019	Middle Divider Sheetmetal	1
5	FHCS 1/4-20x1	1/4-20 x 1" Flat Head Cap Screw	2
6	hex_.25_.20_2.5	Steel Hex Head Screw, 1/4"-20 x 2-1/2" long, fully threaded	3
7	90566A029	1/4-20 Locknut	3
8	Hook_2_10	2" x 10" Hook, Adhesive Backed	1
9	Hook_2_17.5	2" x 12.5" Hook, Adhesive Backed	2

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	JO	9/29/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE:  
Middle Divider

SIZE DWG. NO. REV

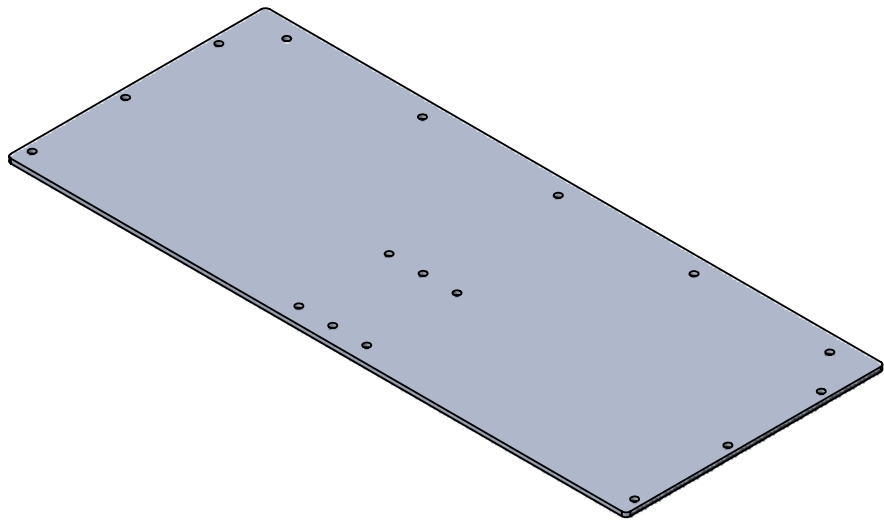
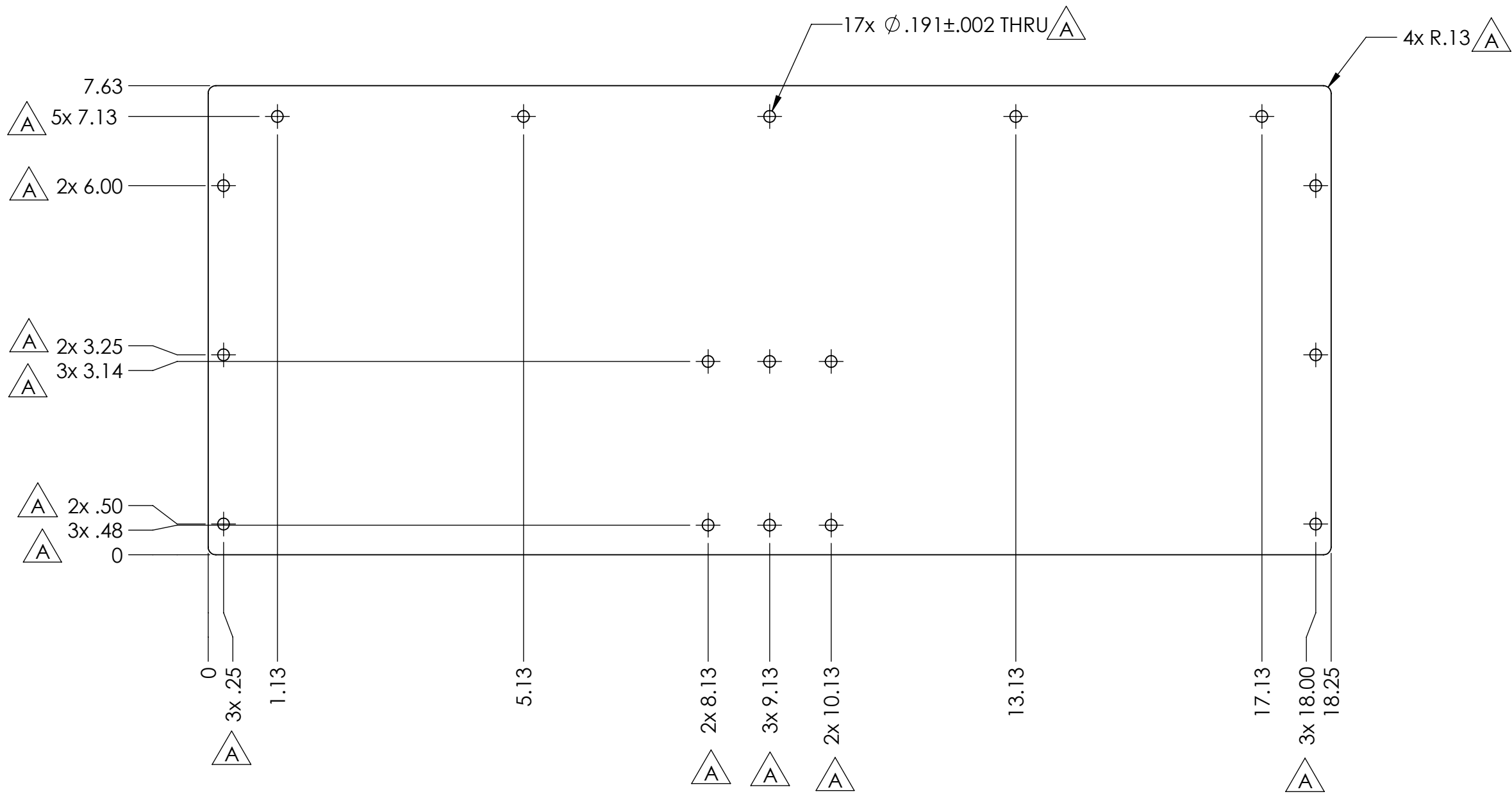
C GE-23010



SCALE: 1:5 SHEET 1 OF 1



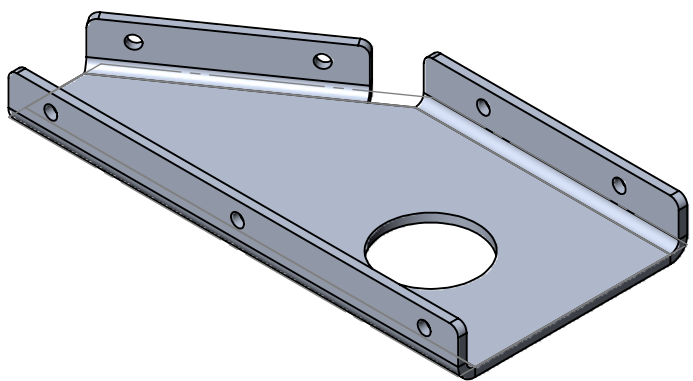
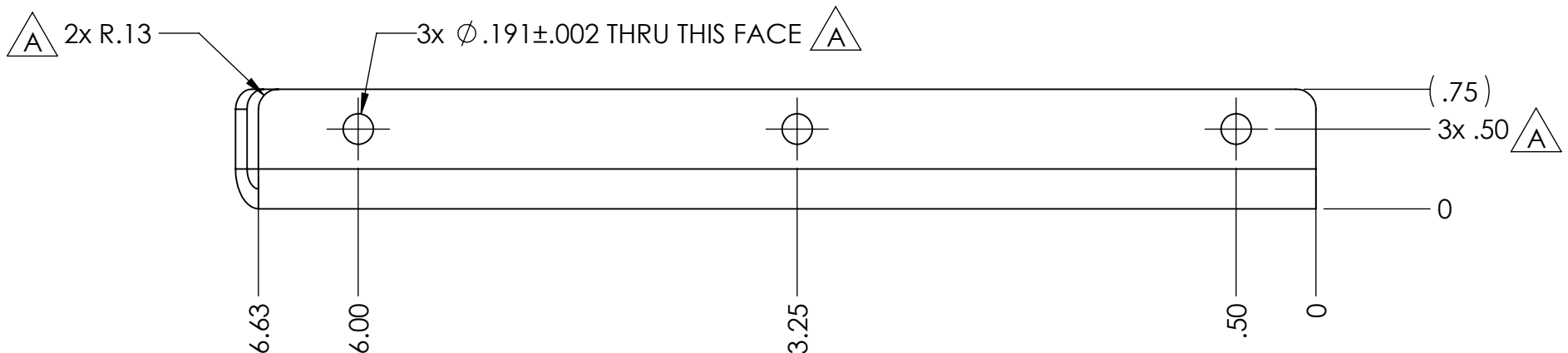
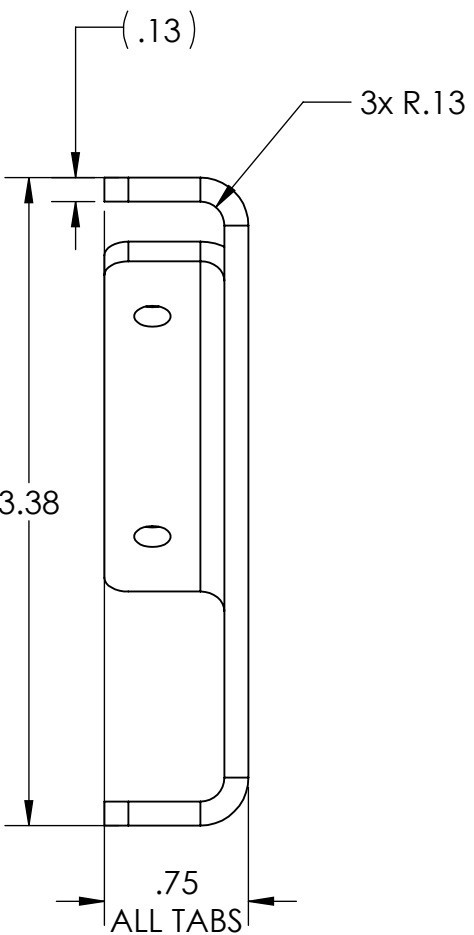
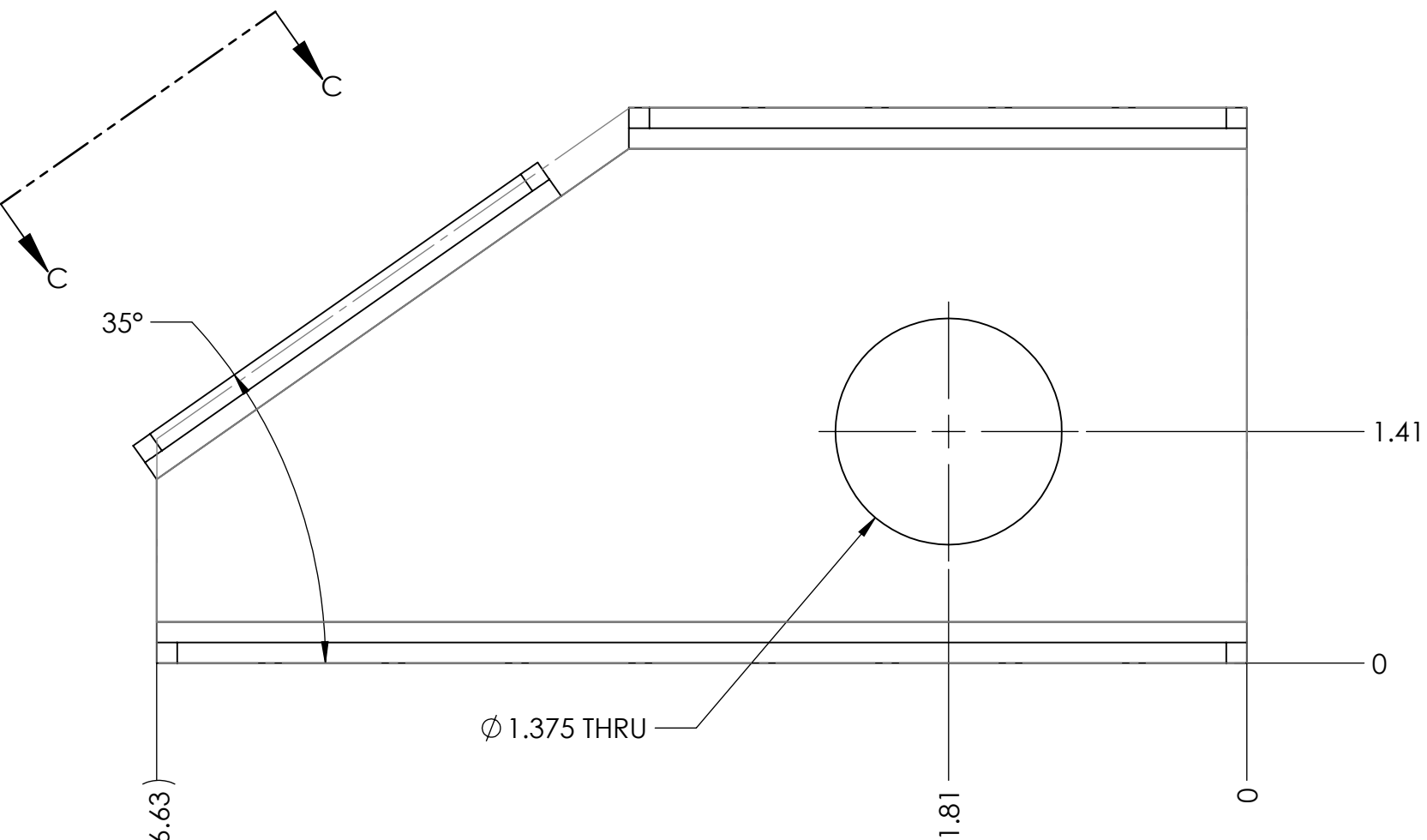
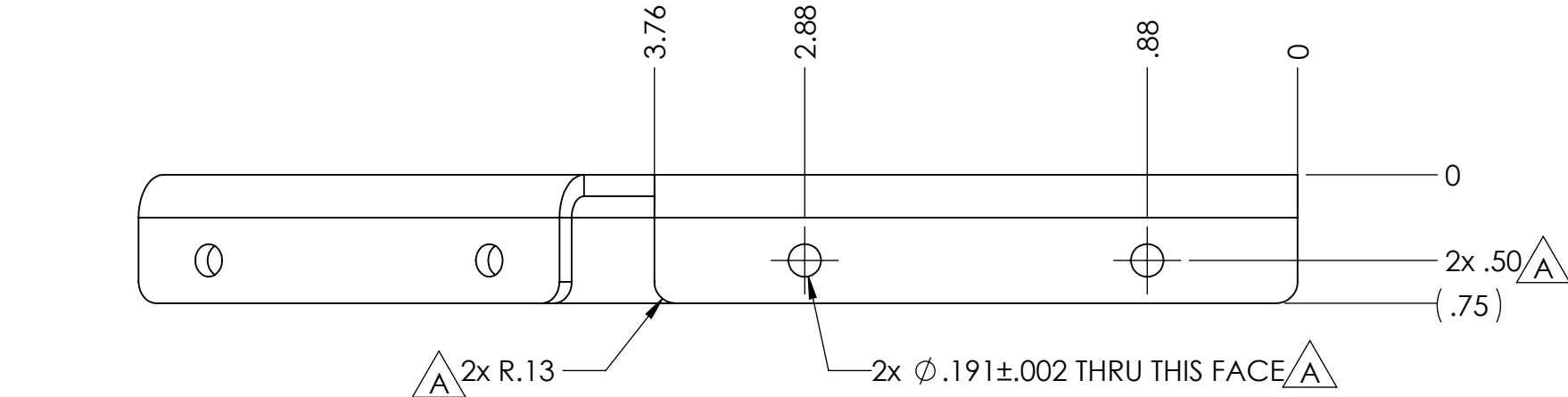
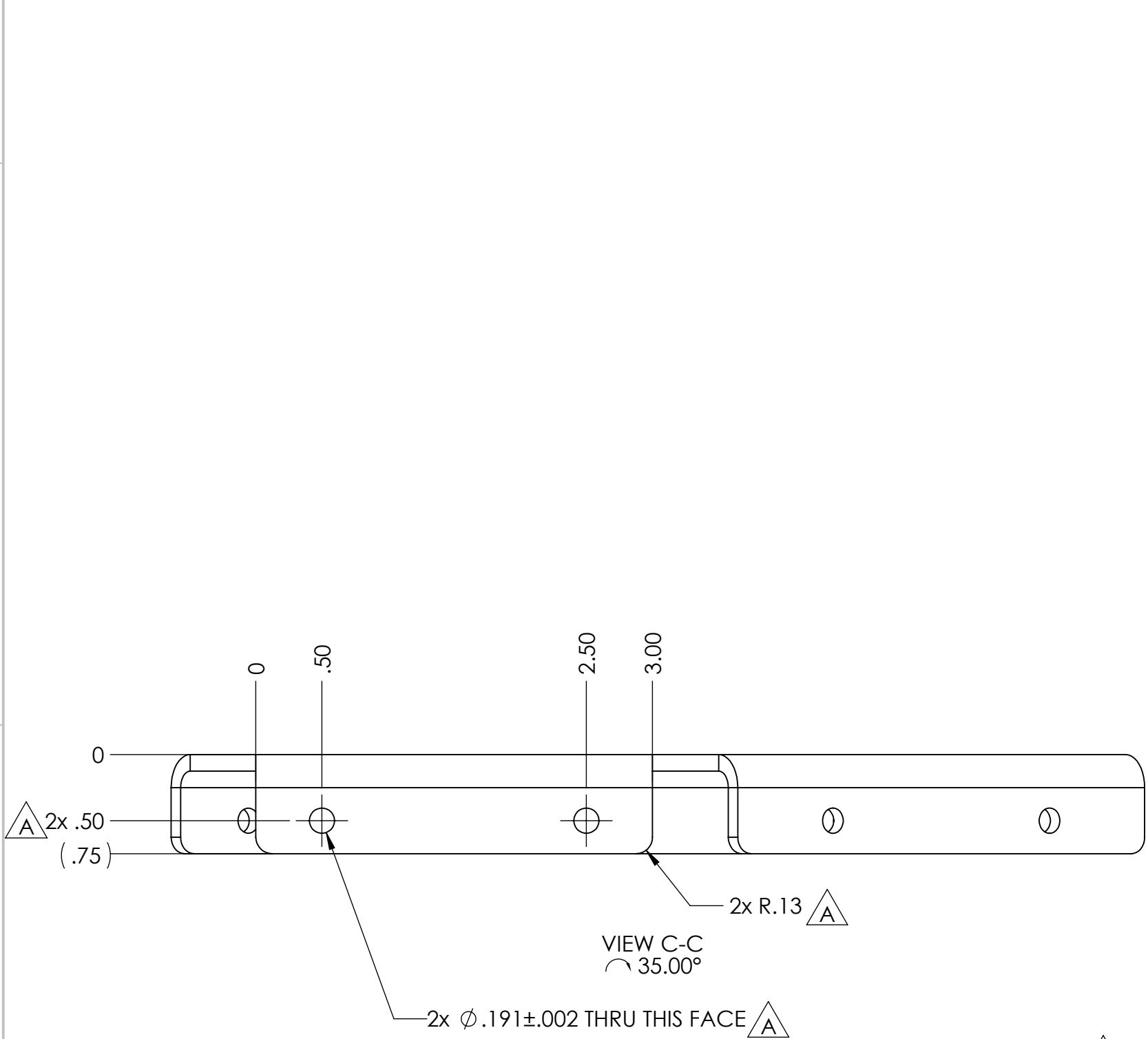


REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, B4, C2, C3, C4	A	Style of Qty callouts, Rivet Hole Tolerance	9/23/2022	JO





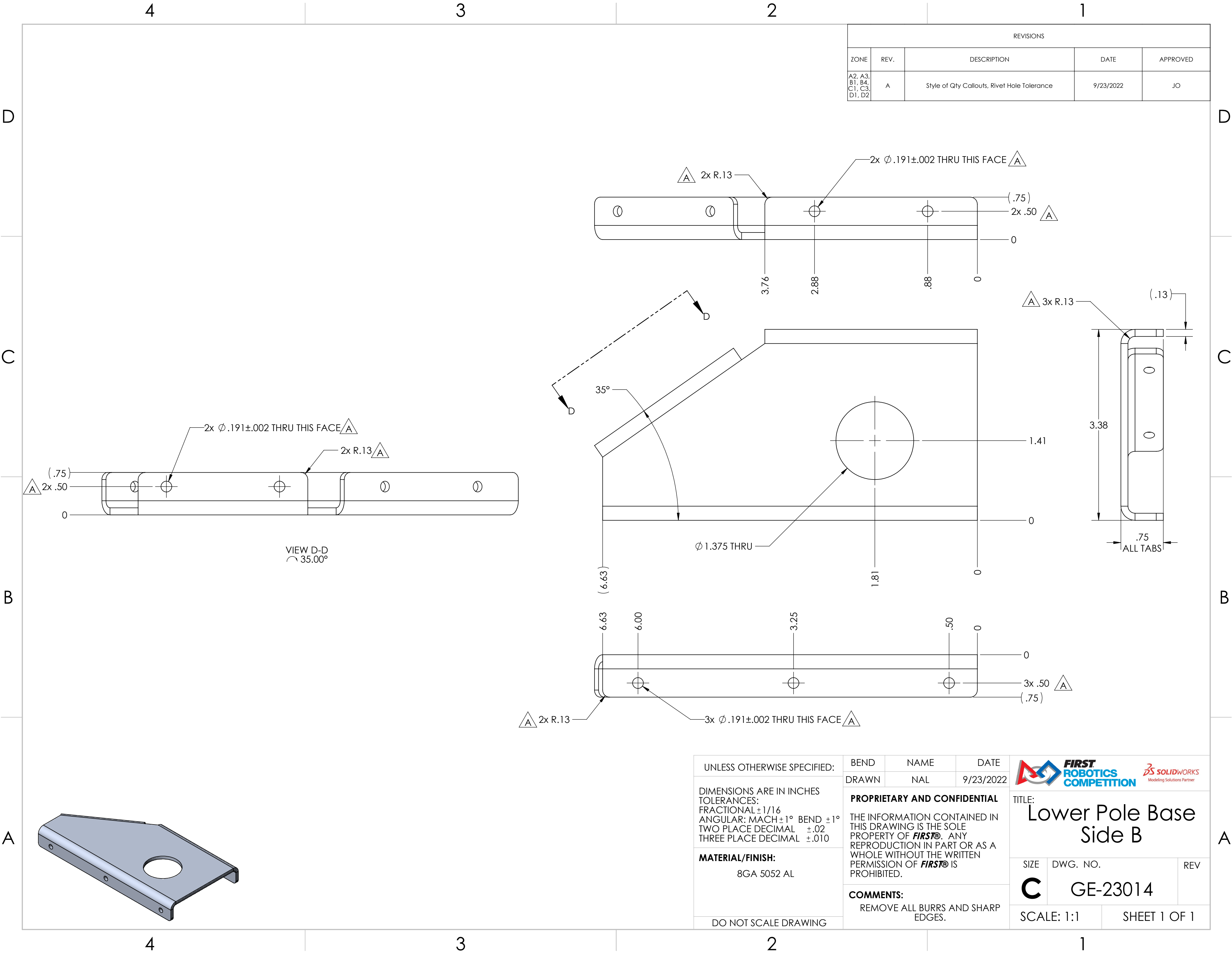
UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>		
	DRAWN	NAL	9/23/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Lower Pole Base Bottom		
<b>MATERIAL/FINISH:</b>  8GA 5052 AL	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23012	
DO NOT SCALE DRAWING				SCALE: 1:2		SHEET 1 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B1, B2, B3, B4, C1, C2	A	Style of Qty Callouts, Rivet Hole Tolerance	9/23/2022	JO





UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>  8GA 5052 AL  DO NOT SCALE DRAWING	BEND	NAME	DATE
	DRAWN	NAL	9/23/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		

 			
TITLE: <b>Lower Pole Base Side A</b>			
SIZE <b>C</b>	DWG. NO. <b>GE-23013</b>	REV	
SCALE: 1:1		SHEET 1 OF 1	

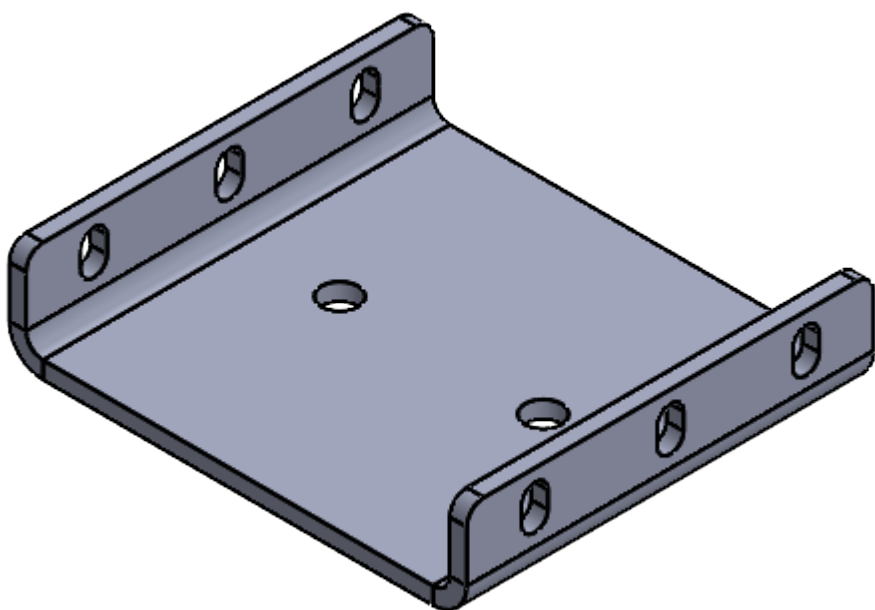
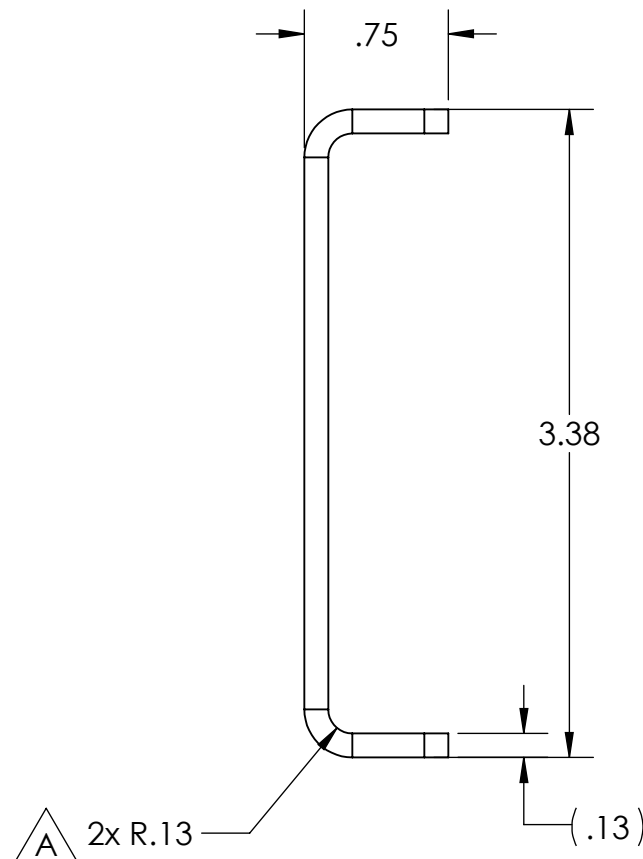
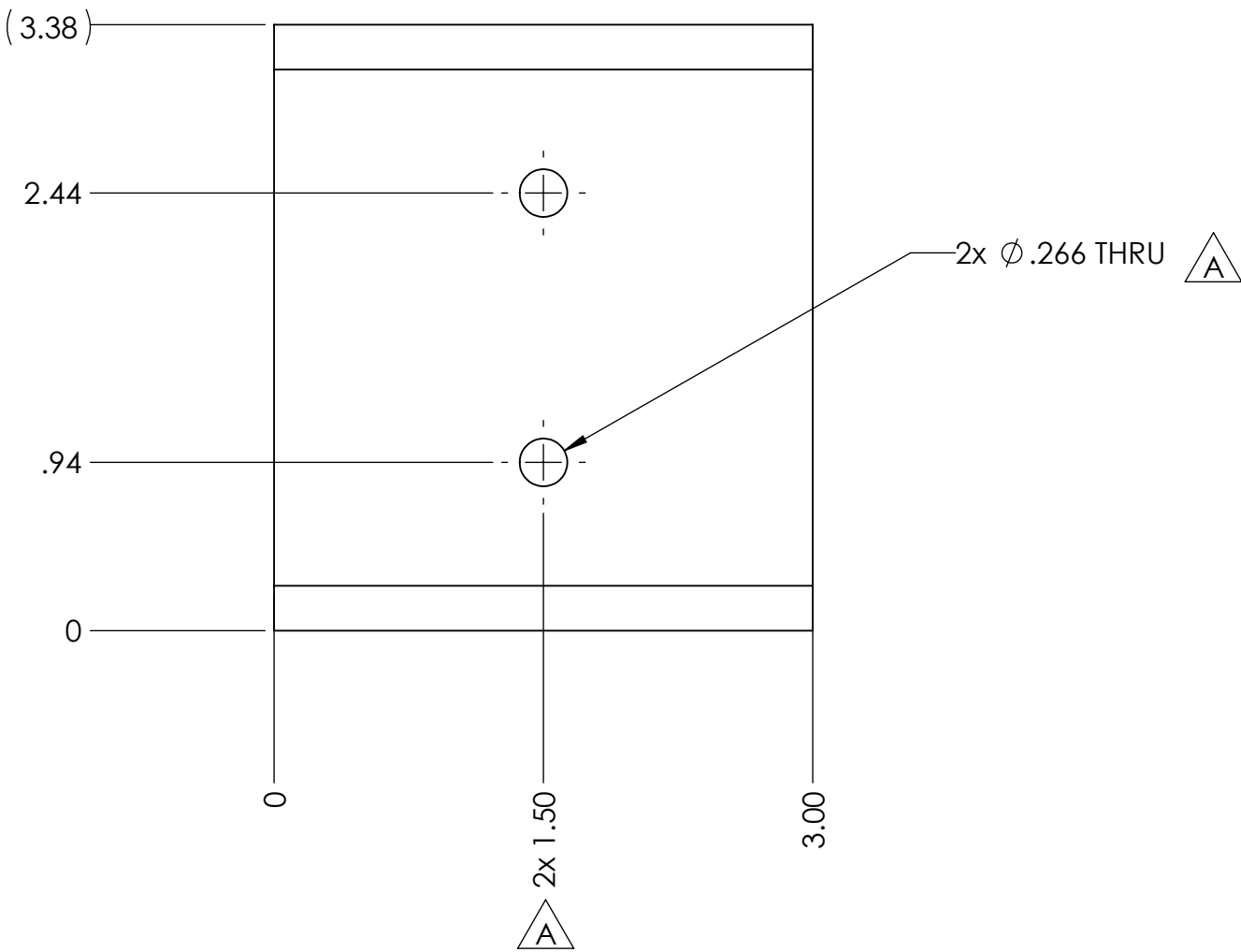
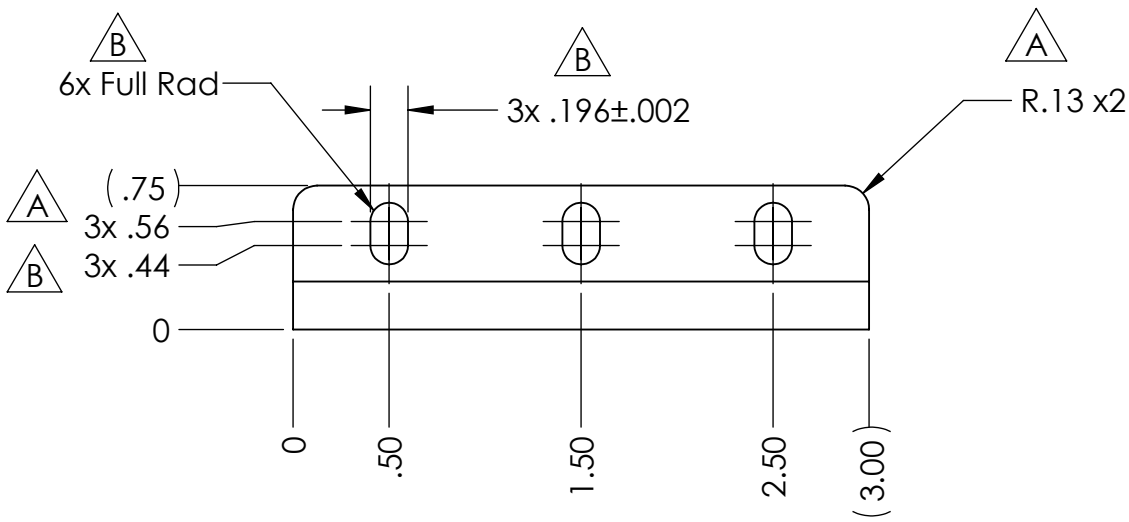




REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A3, B1, B4, C1, C3, D1, D2	A	Style of Qty Callouts, Rivet Hole Tolerance	9/23/2022	JO

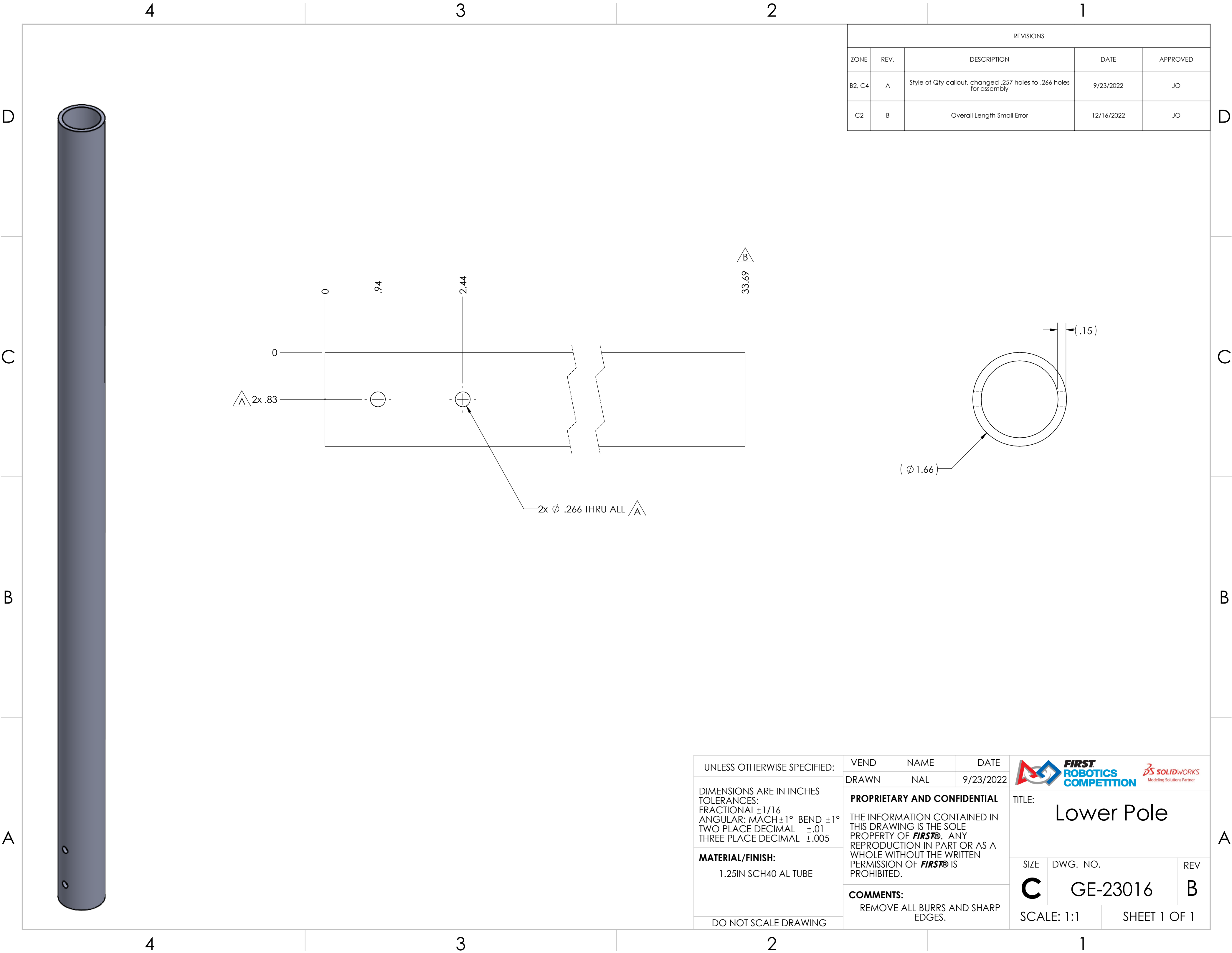
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>  8GA 5052 AL  DO NOT SCALE DRAWING	BEND	NAME	DATE
	DRAWN	NAL	9/23/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		

 		
TITLE: <b>Lower Pole Base Side B</b>		
SIZE <b>C</b>	DWG. NO. <b>GE-23014</b>	REV
SCALE: 1:1		SHEET 1 OF 1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, C2, D3, D4	A	Style of Qty callouts, Rivet Hole Tolerance	9/23/2022	JO
D3, D4	B	Changed Flange Holes to Slots	12/13/2022	JO



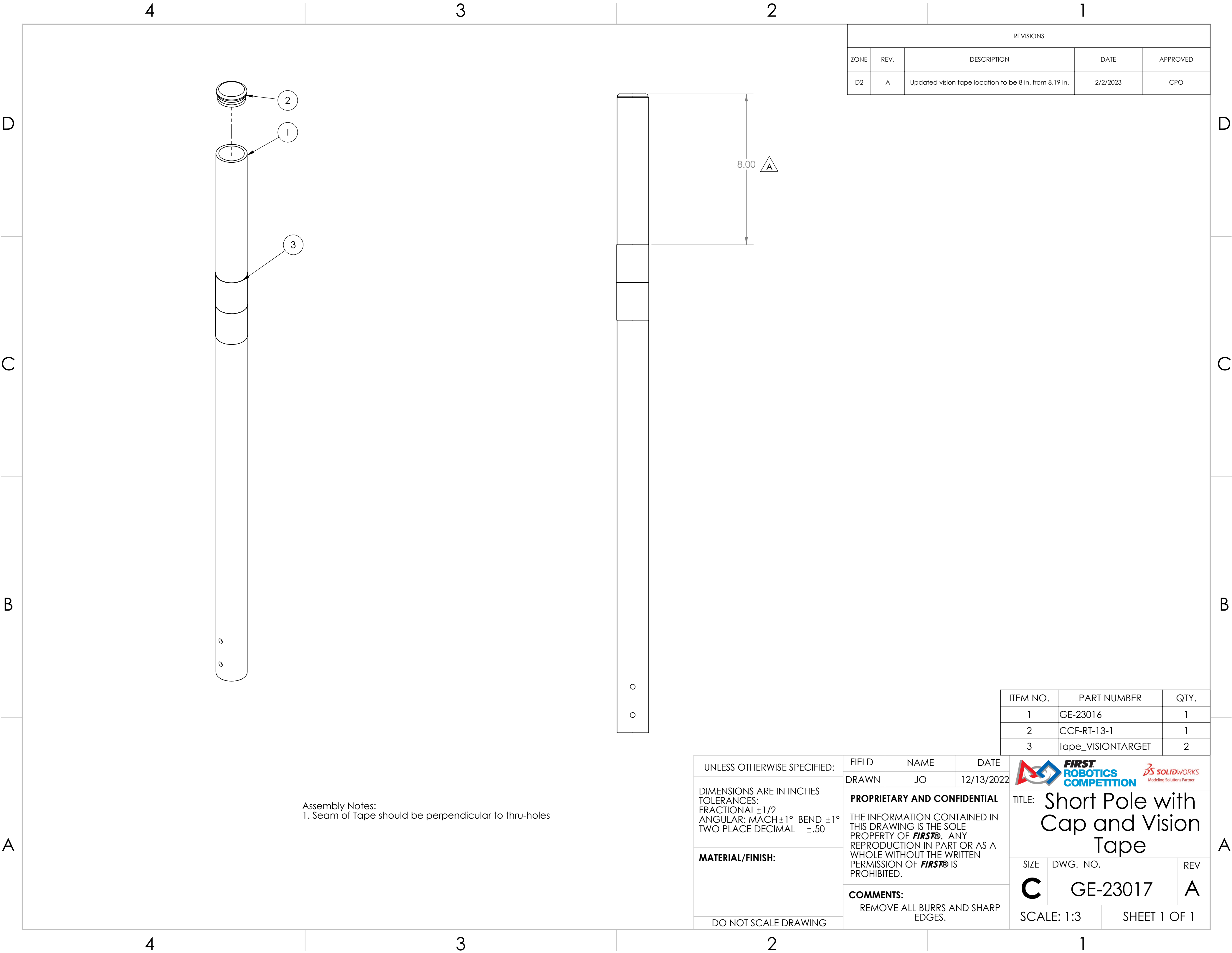
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>  8GA 5052 AL  DO NOT SCALE DRAWING	BEND	NAME	DATE	  TITLE: <b>Lower Pole Pipe Brace</b>		
	DRAWN	NAL	9/23/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23015	B
SCALE: 1:1		SHEET 1 OF 1				



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, C4	A	Style of Qty callout, changed .257 holes to .266 holes for assembly	9/23/2022	JO
C2	B	Overall Length Small Error	12/16/2022	JO

UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>		
	DRAWN	NAL	9/23/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Lower Pole		
	<b>MATERIAL/FINISH:</b>  1.25IN SCH40 AL TUBE				SIZE  C	DWG. NO.  GE-23016
DO NOT SCALE DRAWING	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SCALE: 1:1		
				SHEET 1 OF 1		





Assembly Notes:  
1. Seam of Tape should be perpendicular to thru-holes

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
D2	A	Updated vision tape location to be 8 in. from 8.19 in.	2/2/2023	CPO

ITEM NO.	PART NUMBER	QTY.
1	GE-23016	1
2	CCF-RT-13-1	1
3	tape_VISIONTARGET	2

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	FIELD	NAME	DATE
	DRAWN	JO	12/13/2022
MATERIAL/FINISH:	PROPRIETARY AND CONFIDENTIAL  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.		
DO NOT SCALE DRAWING		TITLE: Short Pole with Cap and Vision Tape	
SIZE		DWG. NO.	REV
C		GE-23017	A
SCALE: 1:3		SHEET 1 OF 1	

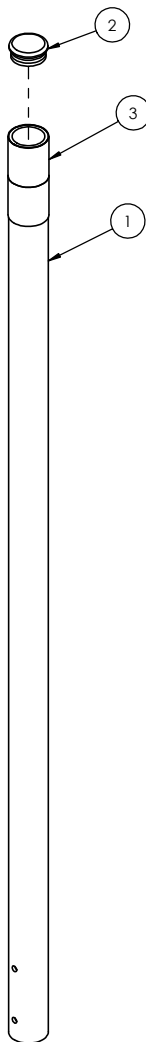


4

3



2

1



- Assembly Notes:
1. Start Tape from top edge of pipe.
  2. Seam of Tape should be Perpendicular to Thru-Holes

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE
	DRAWN	JO	12/13/2022
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/2 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.50	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.		
MATERIAL/FINISH:	COMMENTS:		
	REMOVE ALL BURRS AND SHARP EDGES.		
DO NOT SCALE DRAWING			

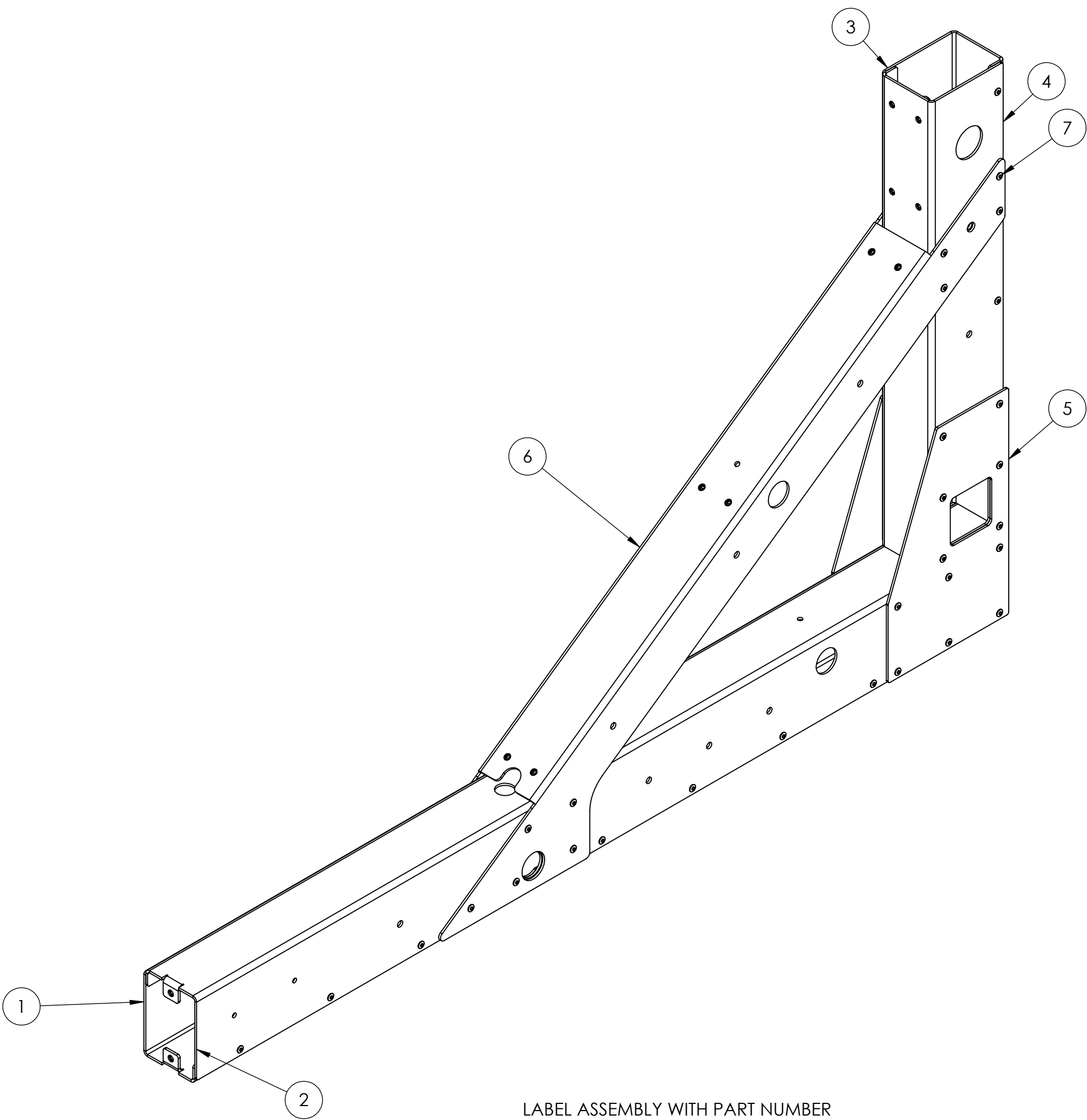
			
TITLE: Tall Pole with Cap and Vision Tape			
SIZE	DWG. NO.	REV	
C	GE-23018		
SCALE: 1:4		SHEET 1 OF 1	

4

3

2

1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23001-01	Divider Base A Config 1	1
2	GE-23002-01	Divider Base B Config 1	1
3	GE-23004	Divider Vertical A	1
4	GE-23005-01	Divider Vertical B Config 1	1
5	GE-23008	Divider 90 Gusset	2
6	GE-23009-01	Divider Angle Brace Config 1	1
7	187 pop rivet	3/16" Steel Rivet	60

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	JO	9/30/2022

**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: Middle Divider Sheetmetal		
SIZE <b>C</b>	DWG. NO. GE-23019	REV
SCALE: 1:24		SHEET 1 OF 3

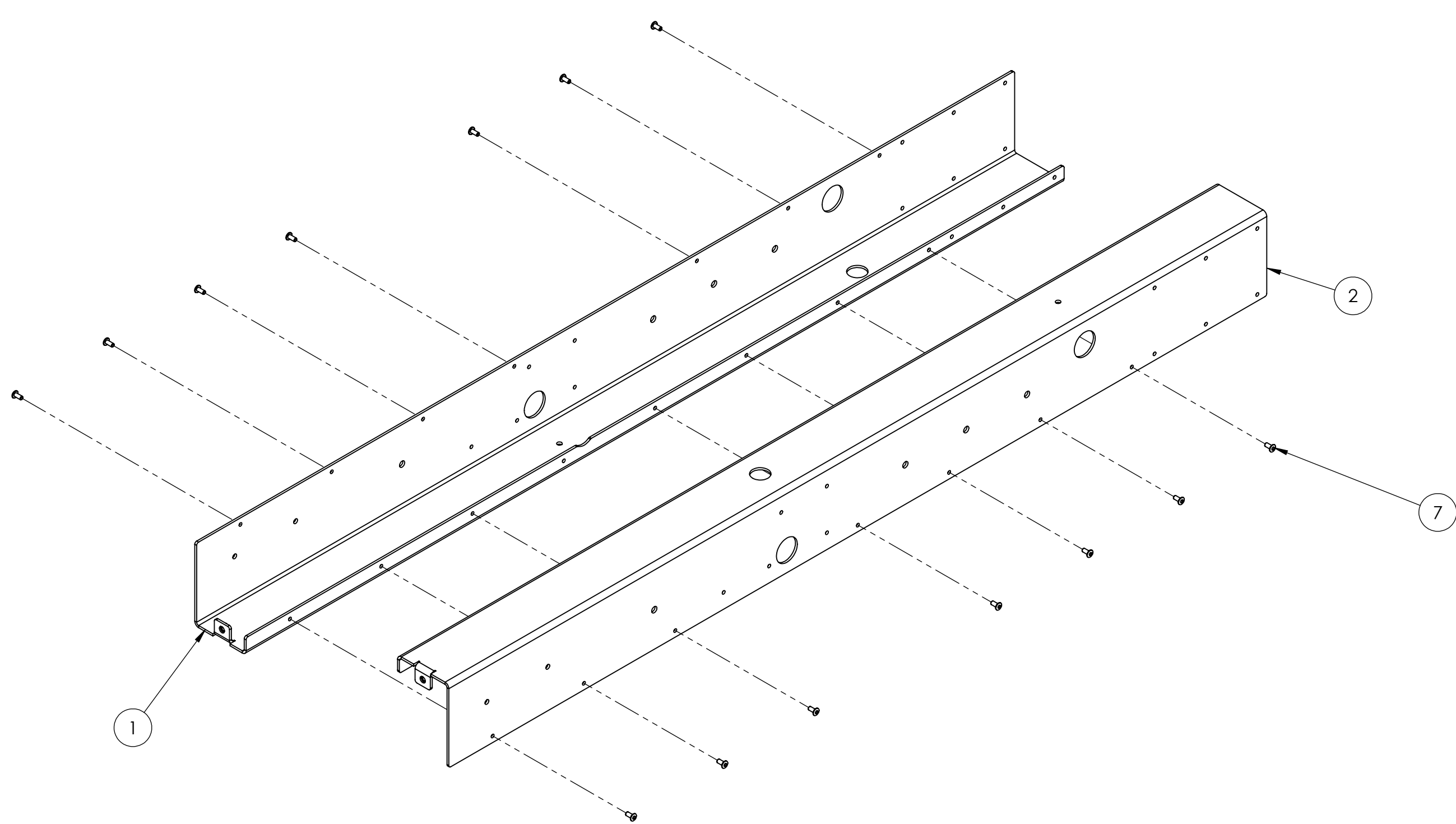
4 3 2 1

D D

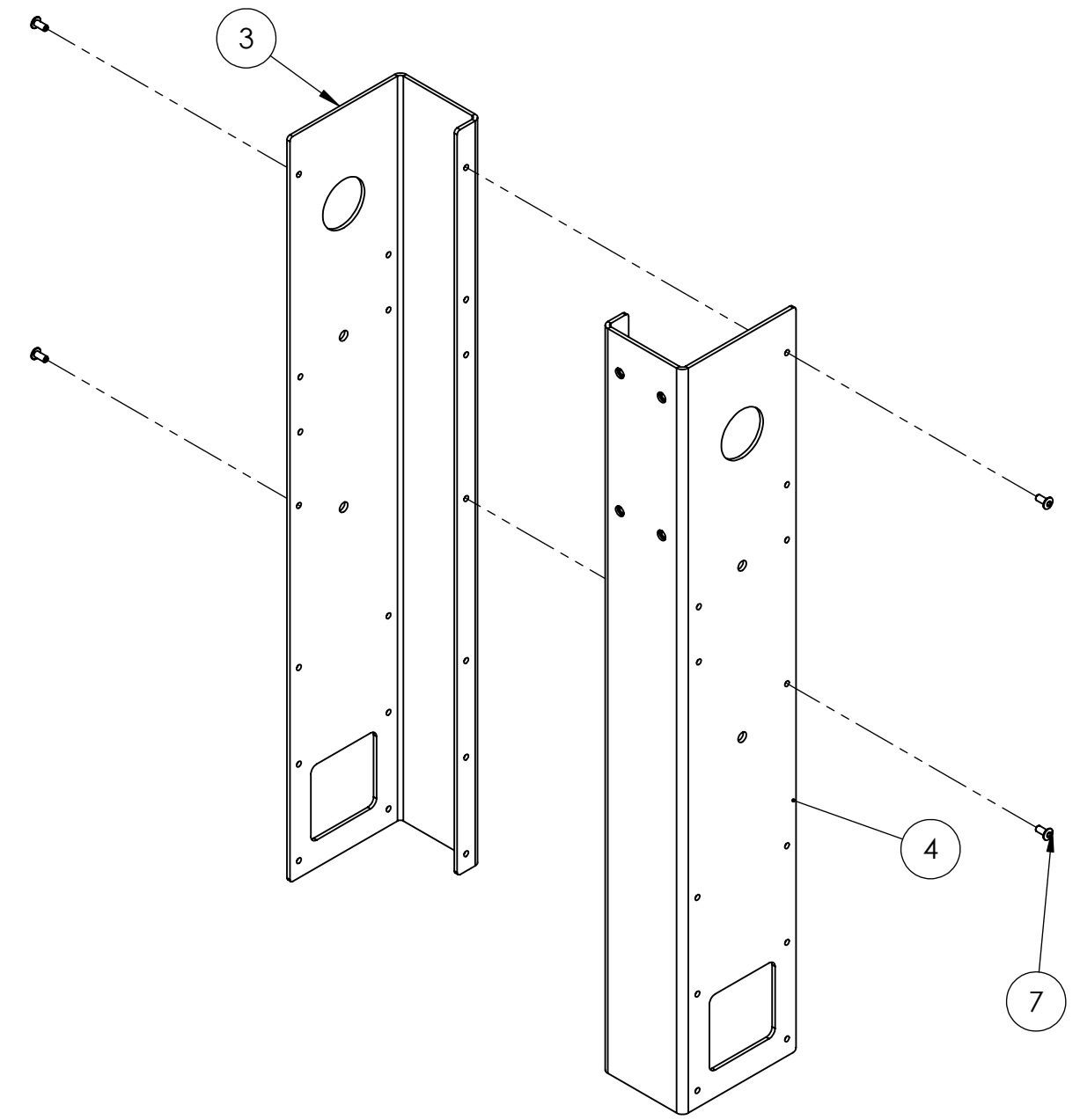
C C

B B



A A

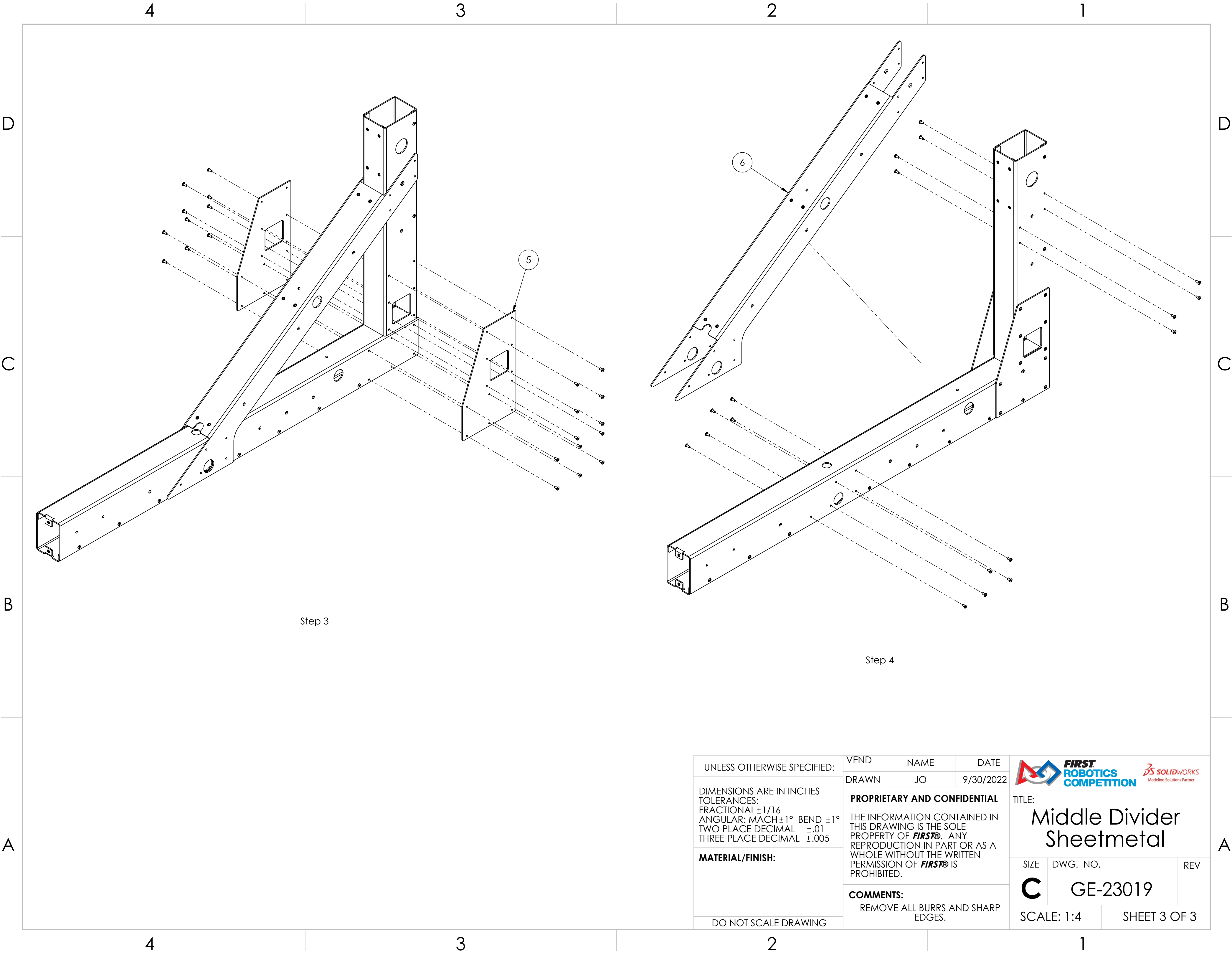


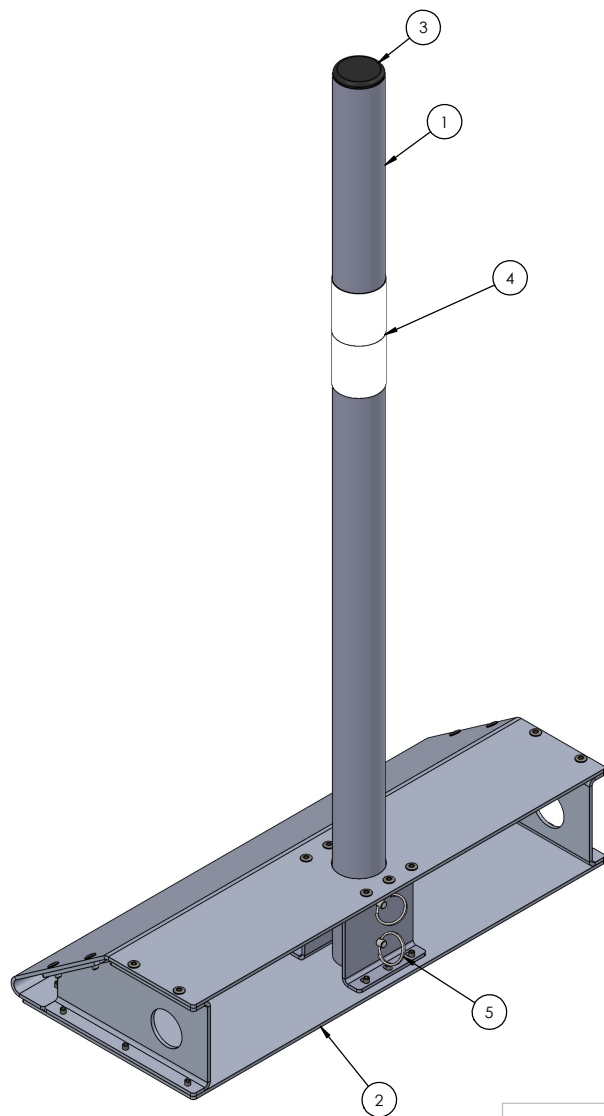
Step 1



Step 2

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>     DO NOT SCALE DRAWING	VEND	NAME	DATE	 		
	DRAWN	JO	9/30/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Middle Divider Sheetmetal		
	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				<b>C</b>	GE-23019	
				SCALE: 1:8		SHEET 2 OF 3





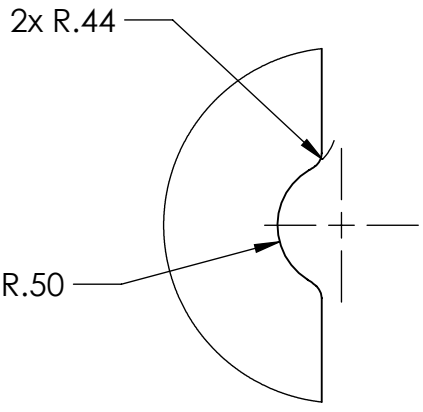
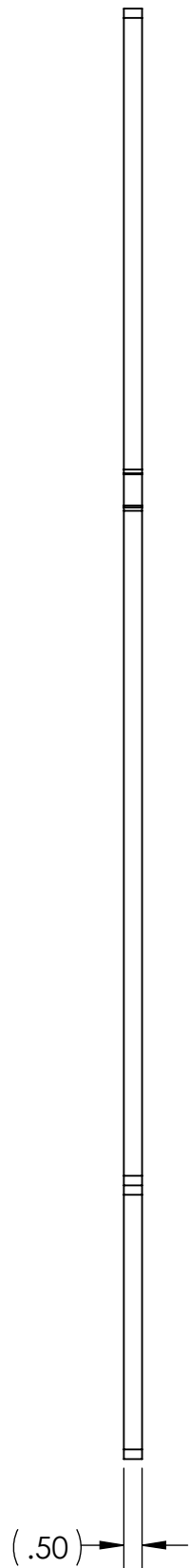
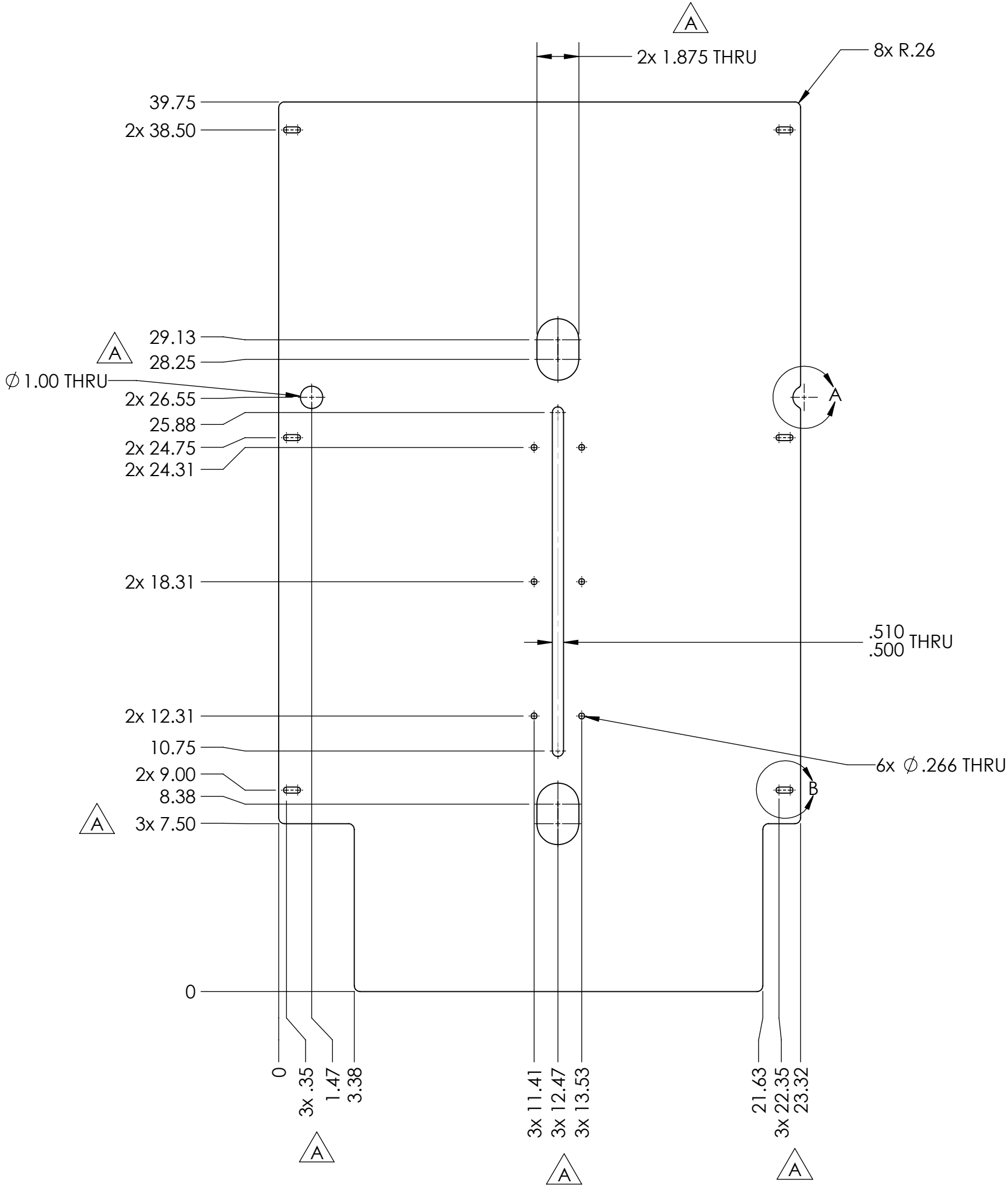
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23016	Lower Pole	1
2	GE-23029	Lower Pole Base Sheetmetal	1
3	CCF-RT-13-1	Pole Caps	1
4	tape_VISIONTARGET	tape_VISIONTARGET	2
5	pin_quick_ring_.25_2.5	Pin, Ring-Grip Quick-Release with SS Ring, 1/4" Diameter, 2.5" Usable Length	2

UNLESS OTHERWISE SPECIFIED:				BEND	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$				DRAWN	NAL	9/29/2022
MATERIAL/FINISH: Various				PROPRIETARY AND CONFIDENTIAL		
DO NOT SCALE DRAWING				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: Lower Pole Base		
				SIZE	DWG. NO.	REV
				C	GE-23020	
				SCALE: 1:3		SHEET 1 OF 1

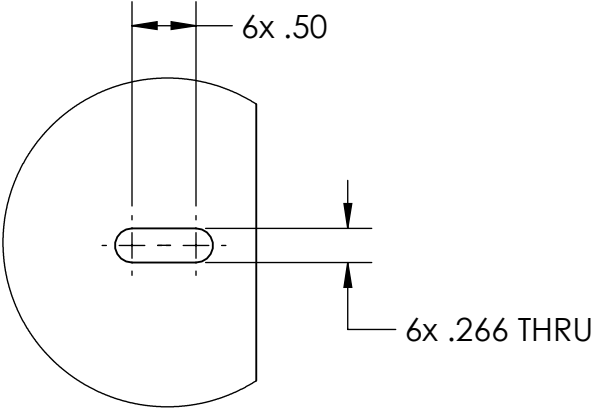




REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B3, B4, C4, D3	A	Cut 3/8" off left side and 1/8" off right side, adjusted all horizontal dimensions, opened up slots for poles	12/6/2022	JRO

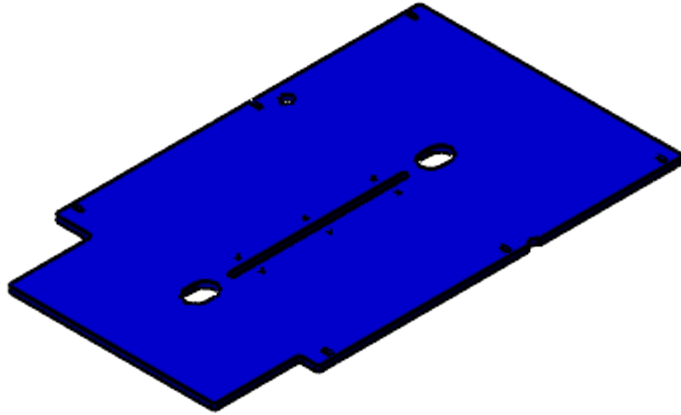


DETAIL A  
SCALE 2 : 3

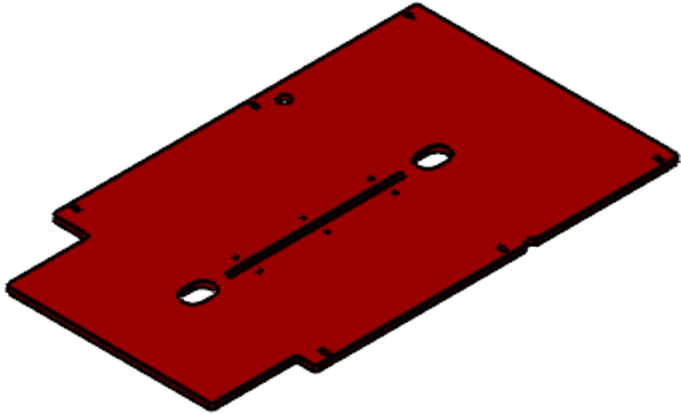


DETAIL B  
SCALE 2 : 3

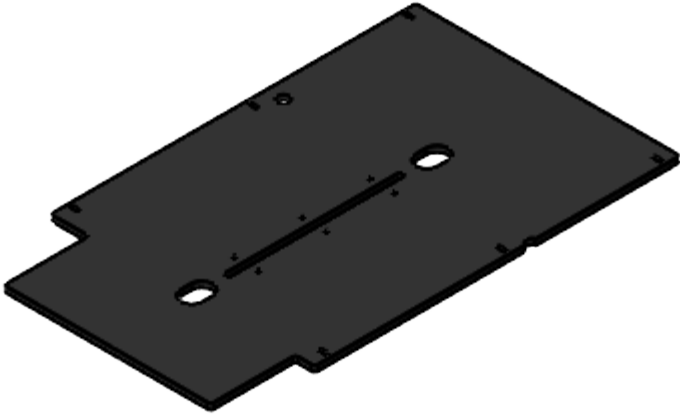
GE-23021-BLU  
BLUE



GE-23021-RED  
RED



GE-23021-BLK  
BLACK

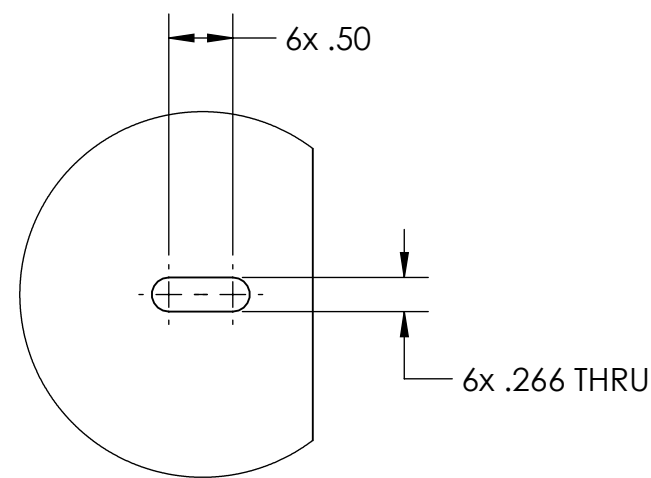
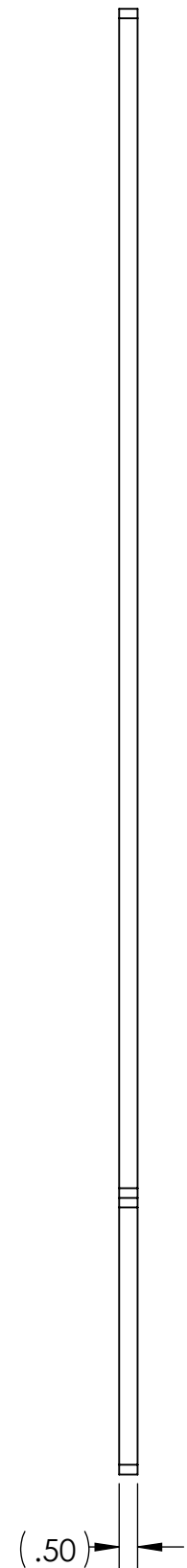
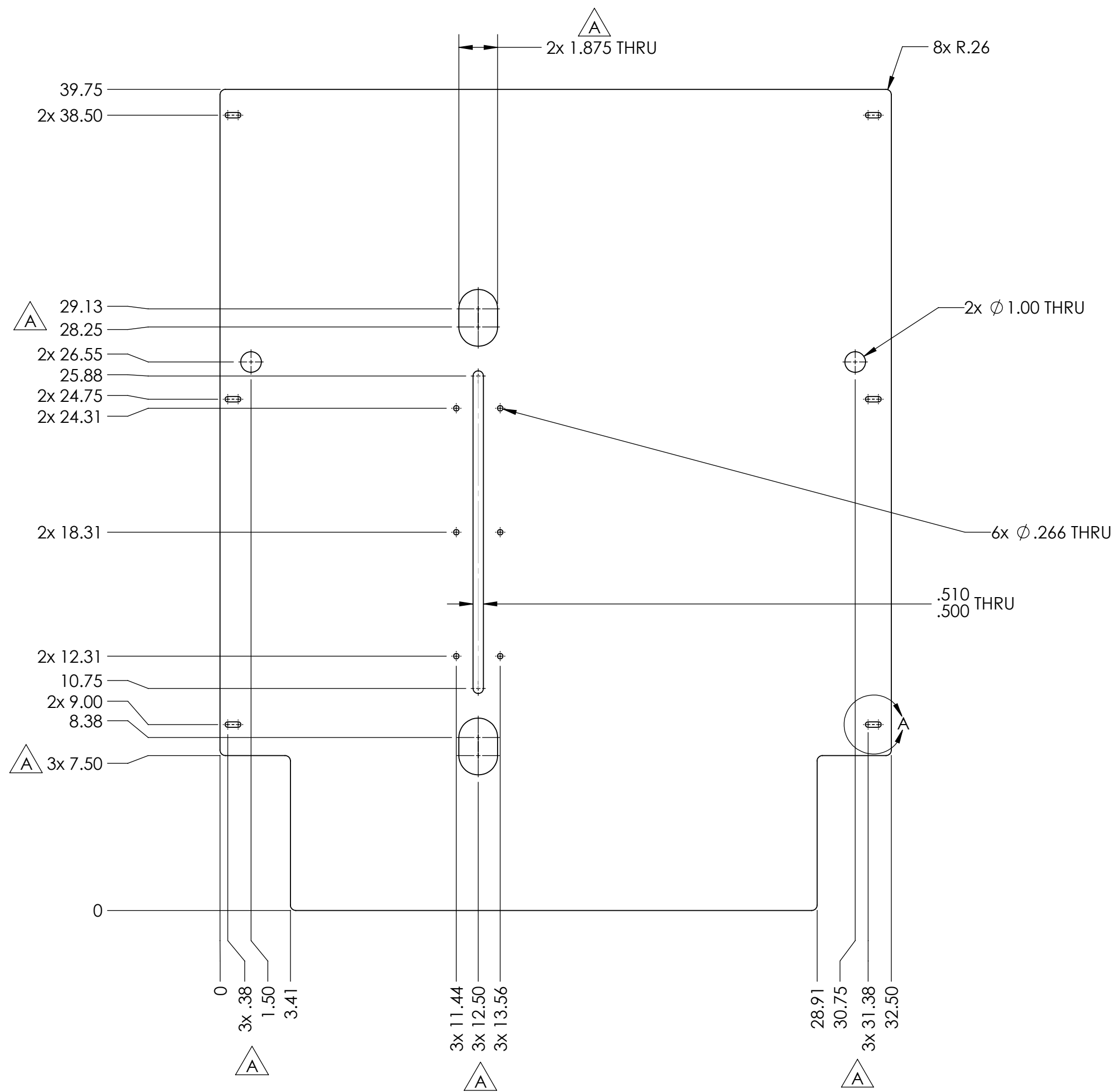


UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$
<b>MATERIAL/FINISH:</b> 1/2" HDPE ORANGE PEEL TEXTURE  SEE PART NUMBER FOR COLOUR DO NOT SCALE DRAWING

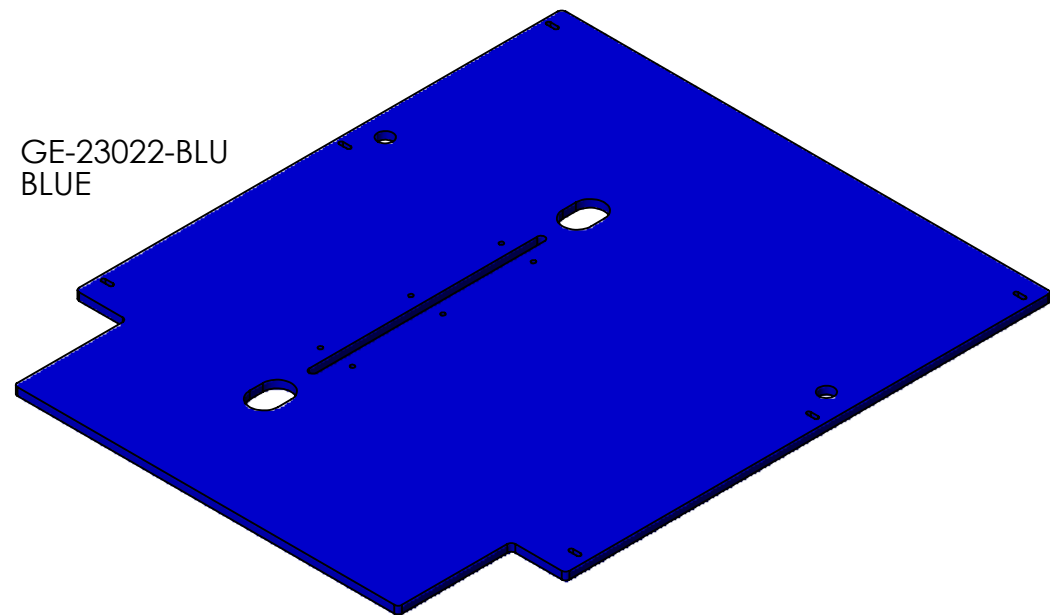
VEND	NAME	DATE
DRAWN	NAL	8/30/2022
<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		

 		
TITLE: <b>Middle Goal Covers</b>		
SIZE <b>C</b>	DWG. NO. <b>GE-23021</b>	REV <b>A</b>
SCALE: 1:5		SHEET 1 OF 1

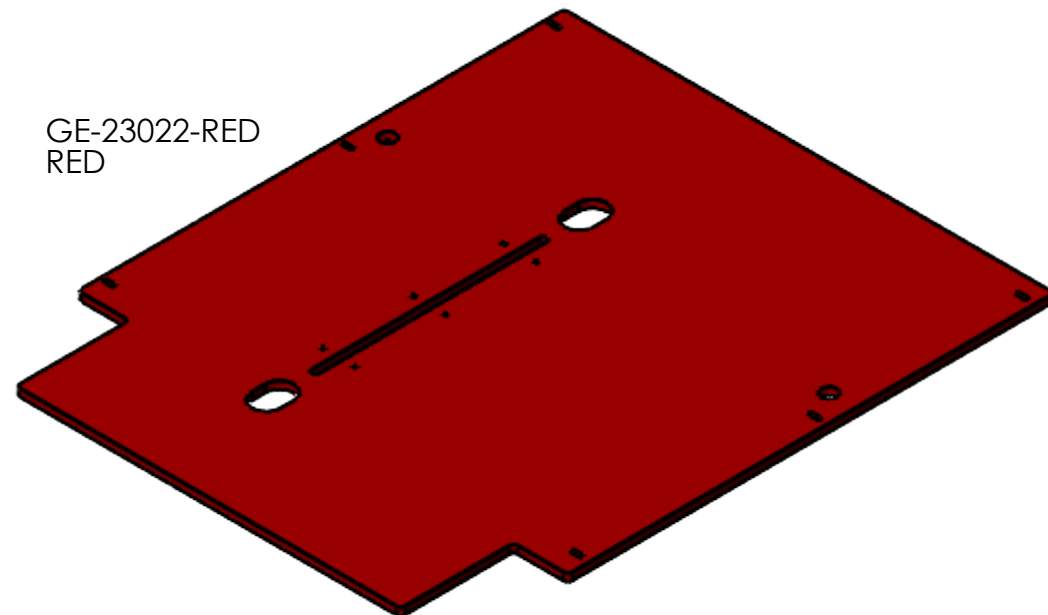
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, B4, C4, D3	A	Cut 3/8" off left side and 1/8" off right side, adjusted all horizontal dimensions, opened up slots for poles	12/6/2022	JRO



DETAIL A  
SCALE 2 : 3

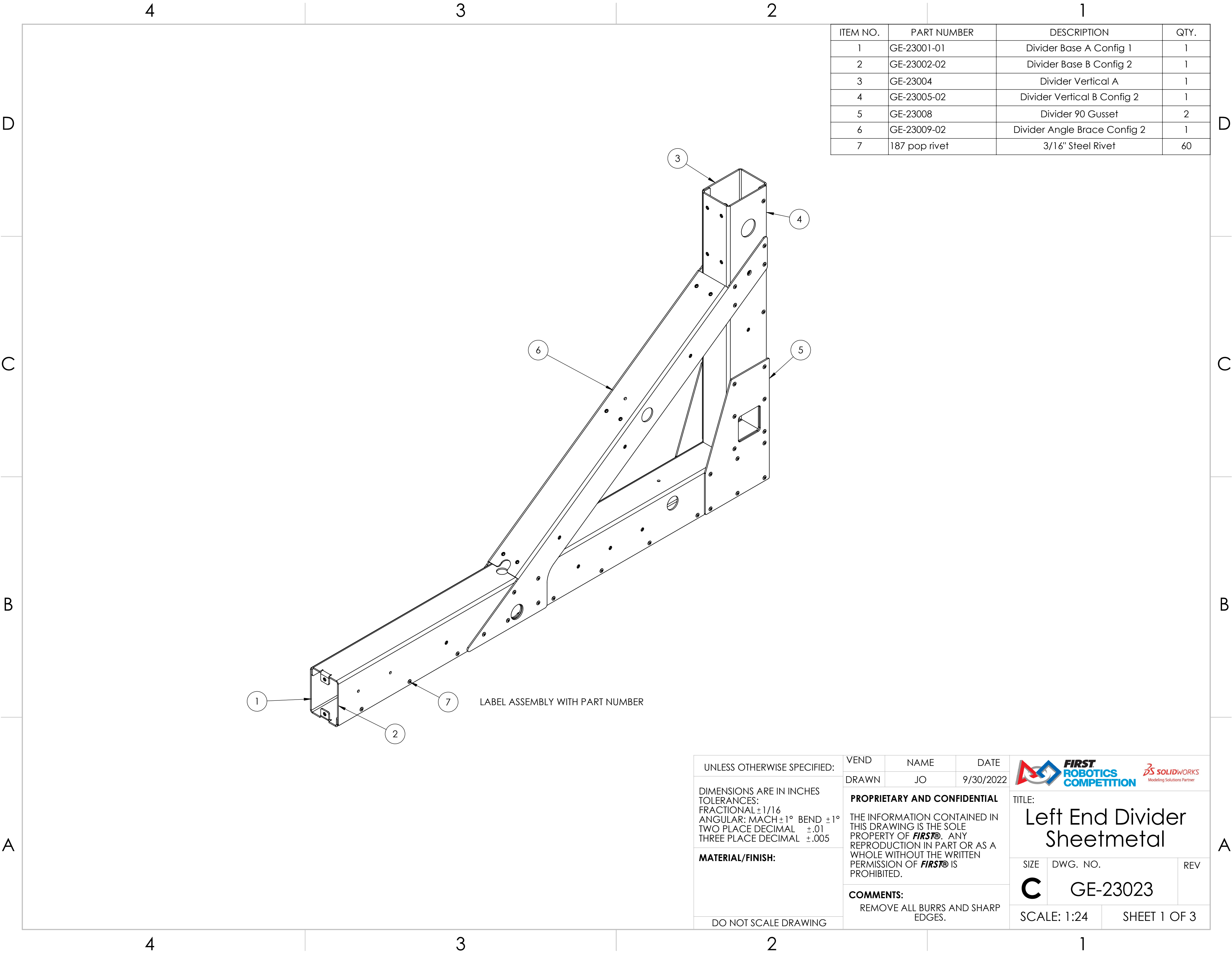


GE-23022-BLU  
BLUE





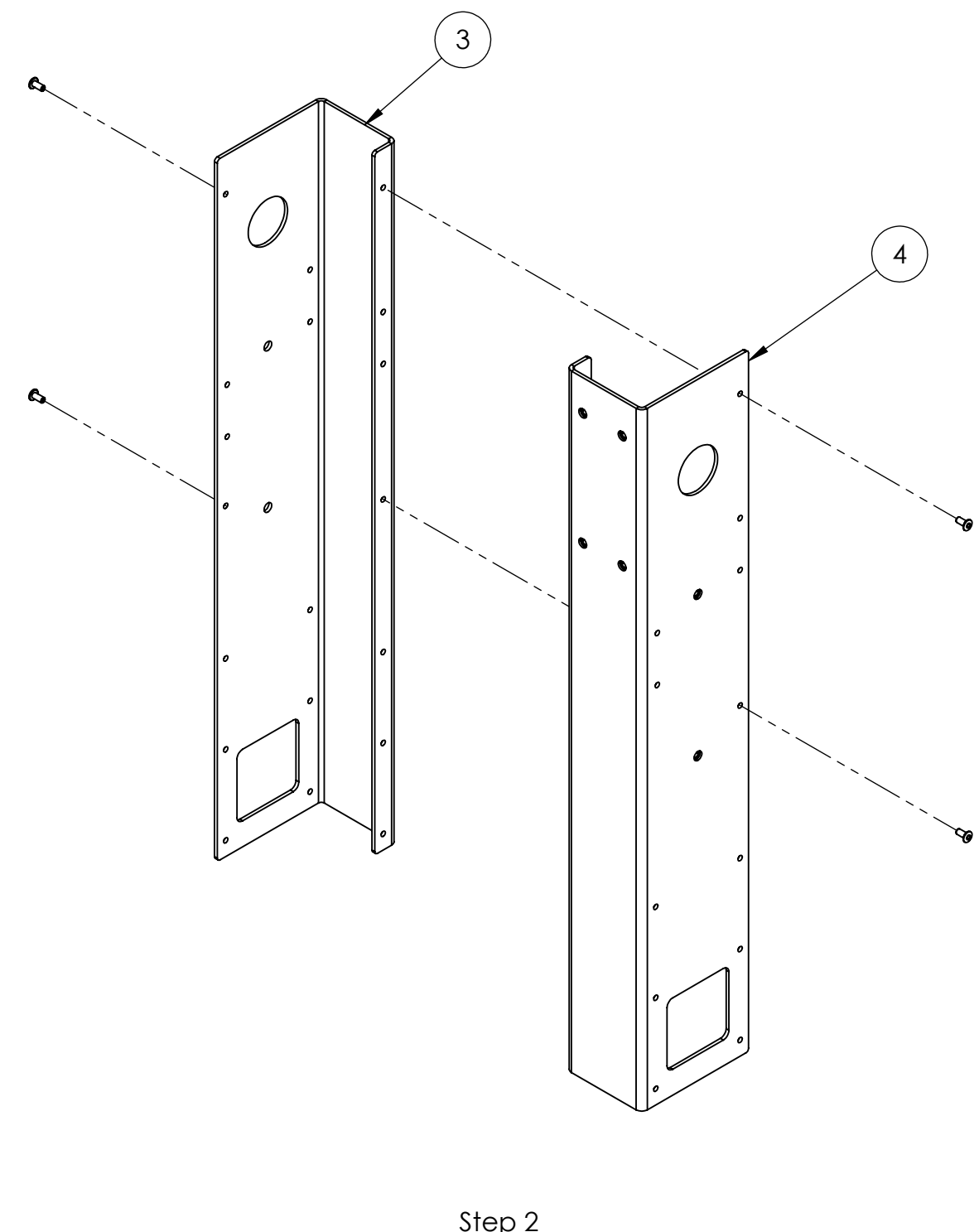
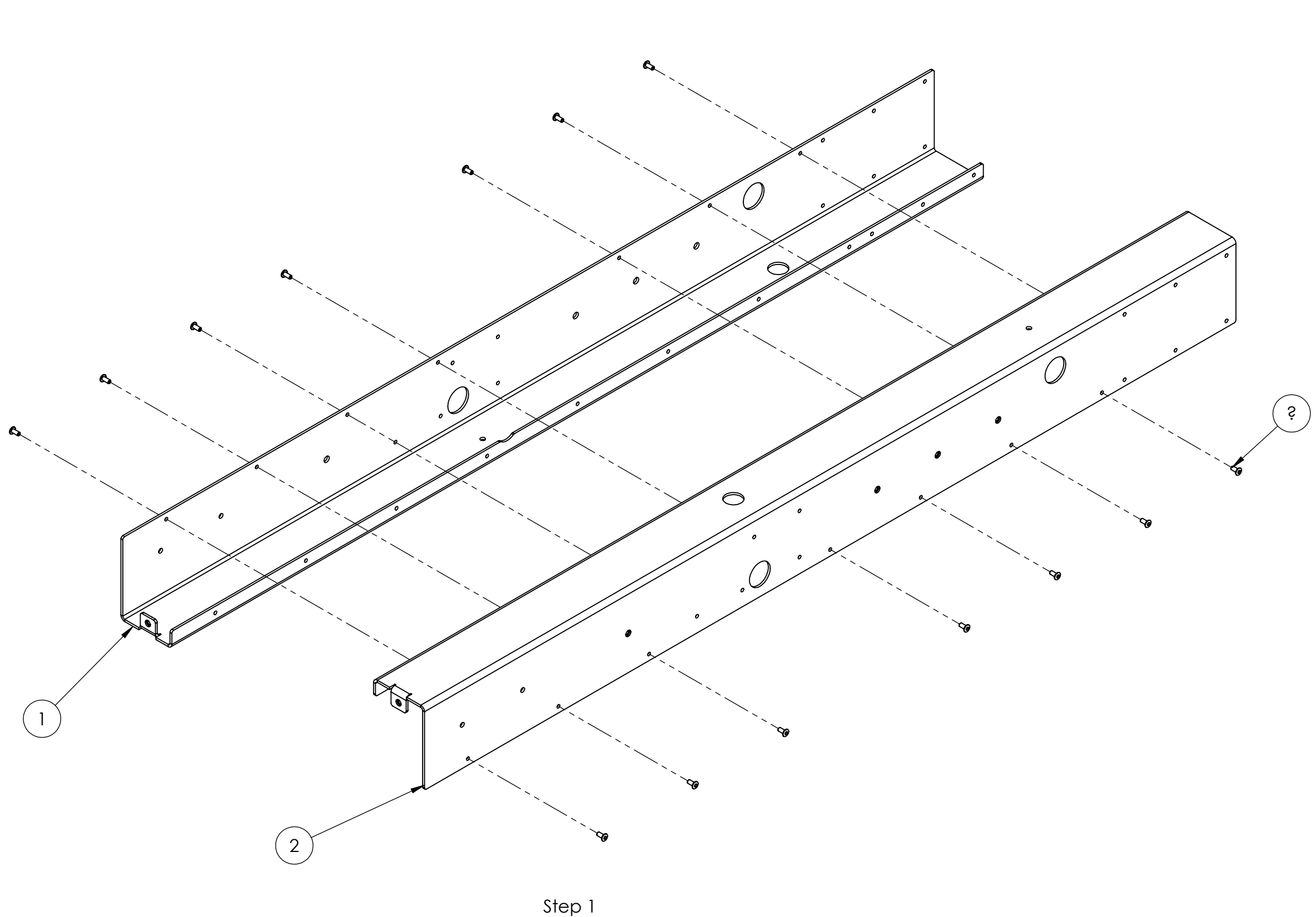
GE-23022-RED  
RED



UNLESS OTHERWISE SPECIFIED:		VEND	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$		DRAWN	NAL	8/30/2022
MATERIAL/FINISH: 1/2" HDPE ORANGE PEEL TEXTURE  SEE PART NUMBER FOR COLOUR DO NOT SCALE DRAWING		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
		<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		
		TITLE: <b>End Goal Covers</b>		
		SIZE <b>C</b>	DWG. NO. <b>GE-23022</b>	REV <b>A</b>
		SCALE: 1:5		SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23001-01	Divider Base A Config 1	1
2	GE-23002-02	Divider Base B Config 2	1
3	GE-23004	Divider Vertical A	1
4	GE-23005-02	Divider Vertical B Config 2	1
5	GE-23008	Divider 90 Gusset	2
6	GE-23009-02	Divider Angle Brace Config 2	1
7	187 pop rivet	3/16" Steel Rivet	60

UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>		
	DRAWN	JO	9/30/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	PROPRIETARY AND CONFIDENTIAL			TITLE:		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			Left End Divider Sheetmetal		
MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23023	
DO NOT SCALE DRAWING				SCALE: 1:24		SHEET 1 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 $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>     DO NOT SCALE DRAWING	VEND	NAME	DATE	<div><div></div><div>TITLE: Left End Divider Sheetmetal</div></div>	
	DRAWN	JO	9/30/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. GE-23023
SCALE: 1:8		SHEET 2 OF 3			

4 3 2 1

D

D

C

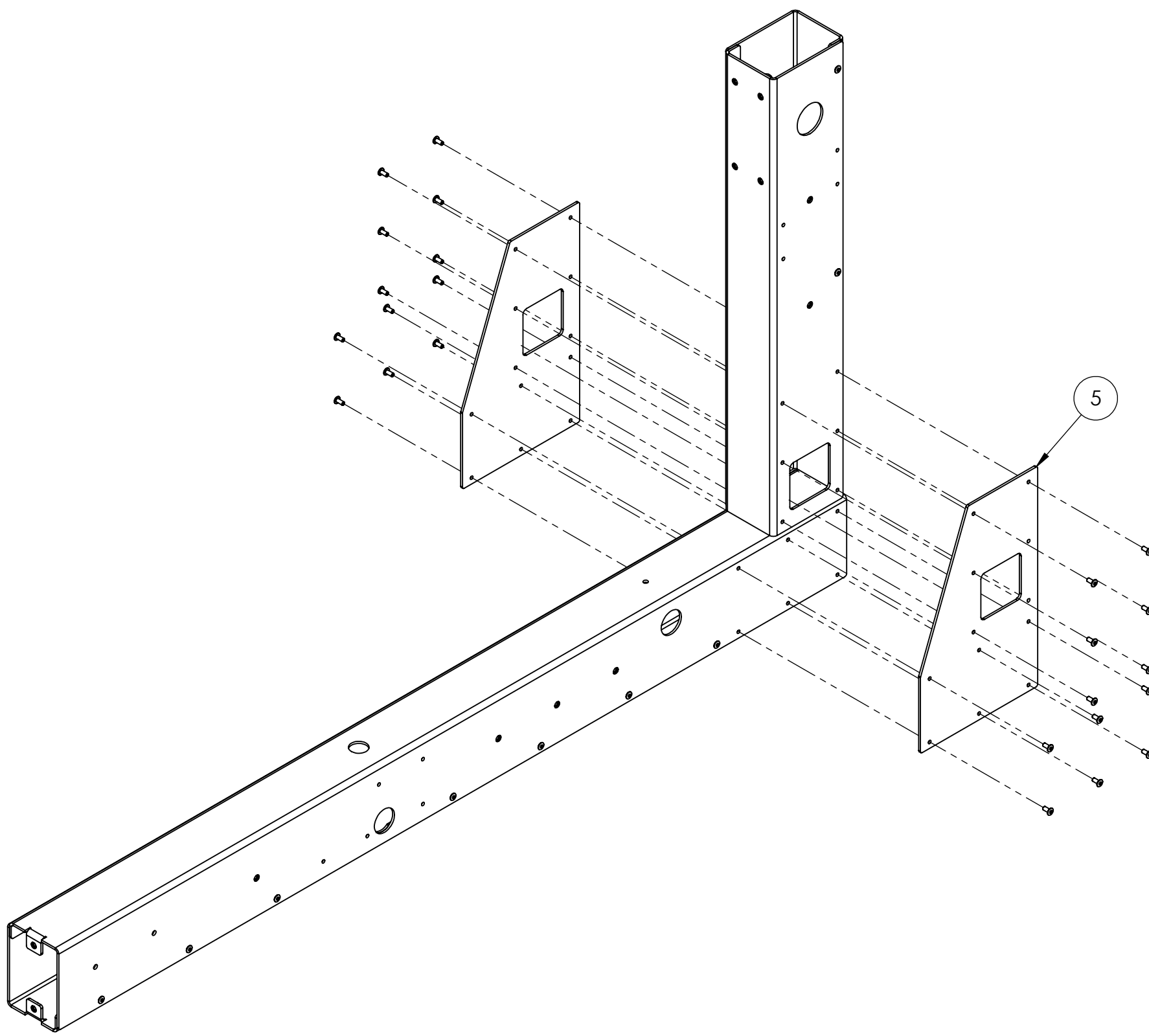
C

B

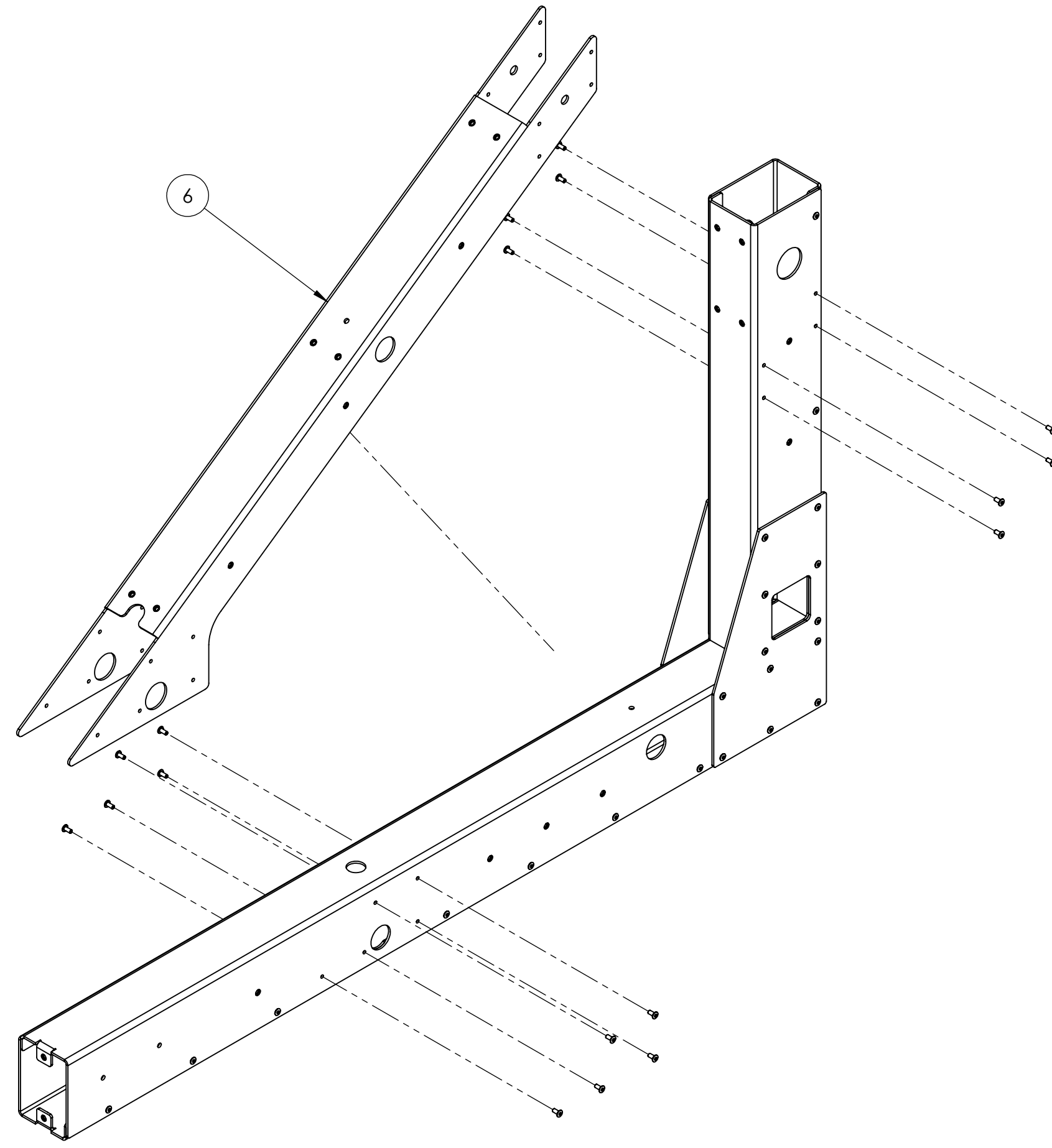
B

A

A



Step 3



Step 4

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

VEND

NAME

DATE

DRAWN

JO

9/30/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.



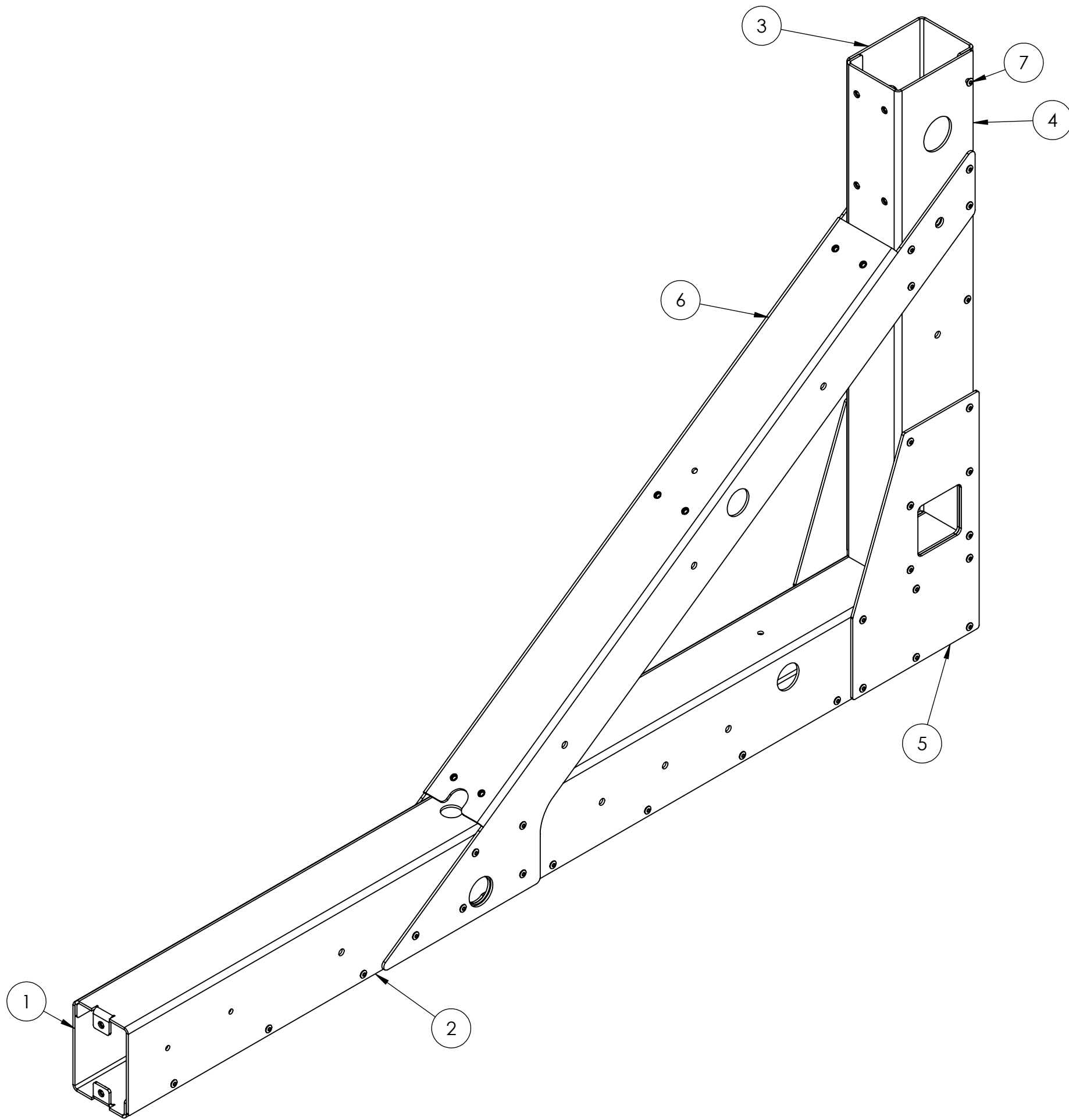
TITLE:  
**Left End Divider Sheetmetal**

SIZE DWG. NO. REV

**C** GE-23023

SCALE: 1:12 SHEET 3 OF 3







LABEL ASSEMBLY WITH PART NUMBER

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23001-02	Divider Base A Config 2	1
2	GE-23002-01	Divider Base B Config 1	1
3	GE-23004-01	Divider Vertical A Config 1	1
4	GE-23005-01	Divider Vertical B Config 1	1
5	GE-23008	Divider 90 Gusset	2
6	GE-23009-03	Divider Angle Brace Config 3	1
7	187 pop rivet	3/16" Steel Rivet	60

UNLESS OTHERWISE SPECIFIED:		VEND	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$		DRAWN	JO	9/30/2022
MATERIAL/FINISH:		PROPRIETARY AND CONFIDENTIAL		
DO NOT SCALE DRAWING		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST</b> IS PROHIBITED.		
		COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.		



TITLE: Right End Divider Sheetmetal

SIZE

DWG. NO.

REV

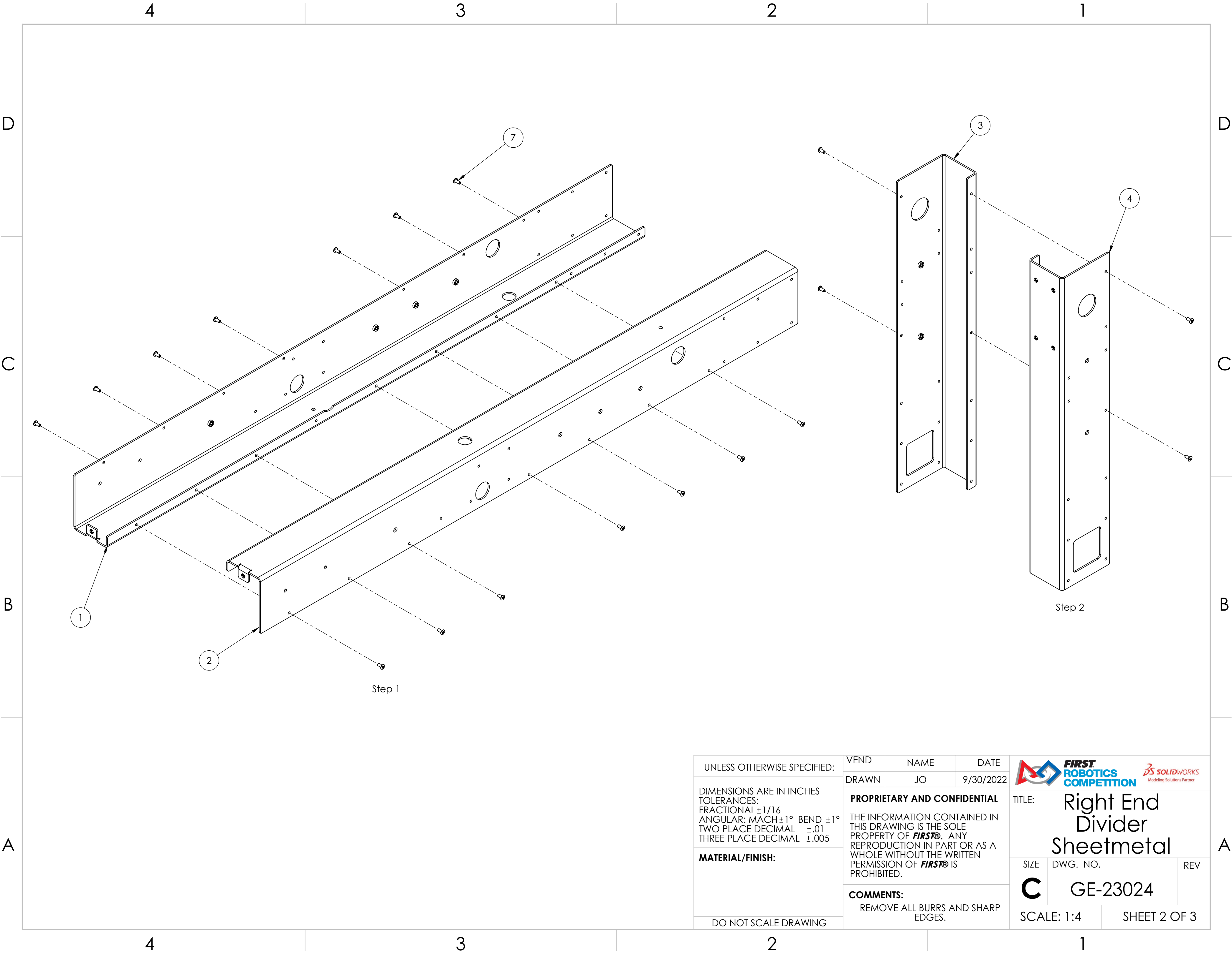
C

GE-23024

SCALE: 1:16

SHEET 1 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  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$



**MATERIAL/FINISH:**

DO NOT SCALE DRAWING

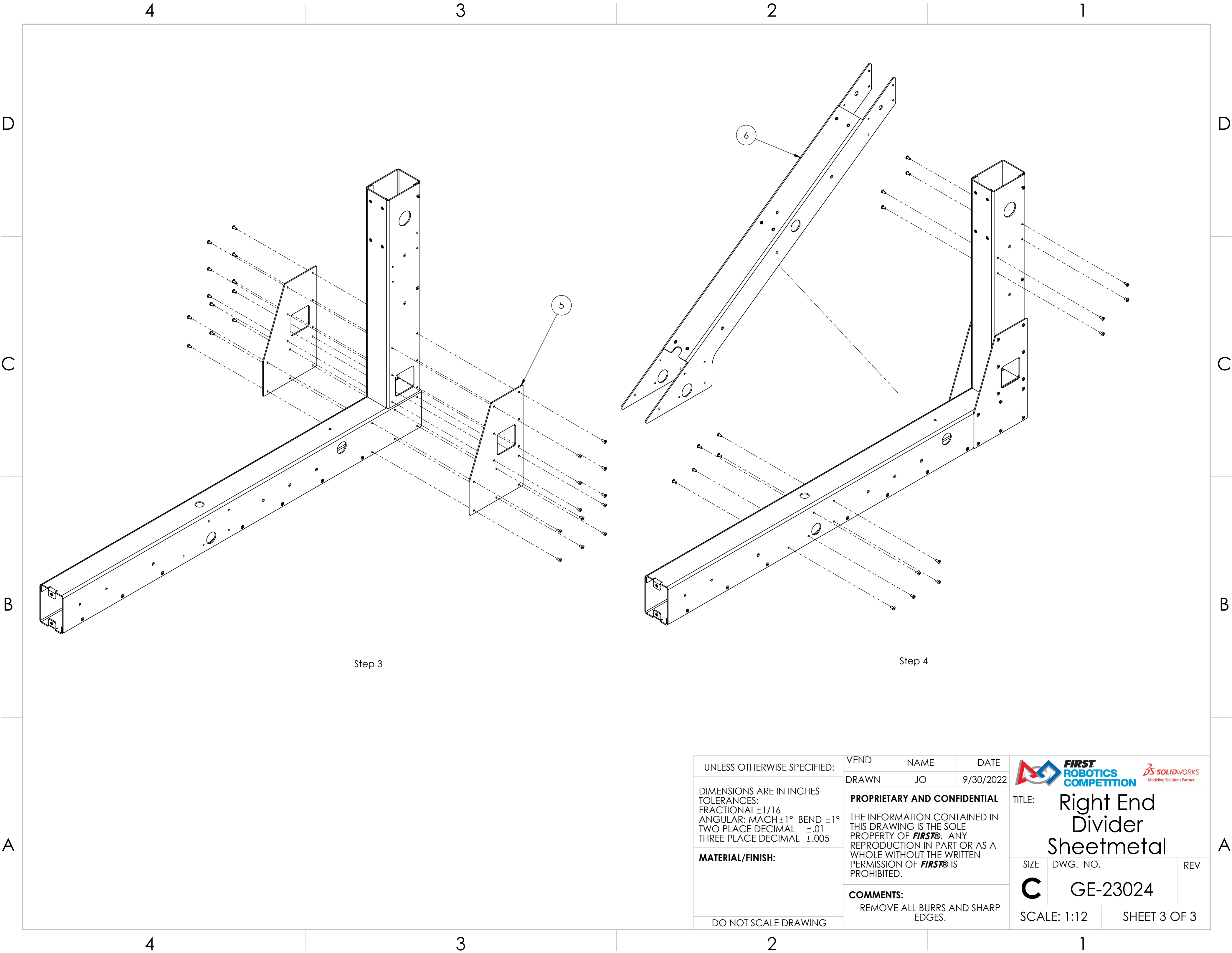
VEND	NAME	DATE
DRAWN	JO	9/30/2022

**PROPRIETARY AND CONFIDENTIAL**  
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**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.





TITLE: Right End Divider Sheetmetal		
SIZE <b>C</b>	DWG. NO. GE-23024	REV
SCALE: 1:4		SHEET 2 OF 3



Step 3

Step 4

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>     DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div>	
	DRAWN	JO	9/30/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: Right End Divider Sheetmetal	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				
SIZE		DWG. NO.		REV	
C		GE-23024			
SCALE: 1:12			SHEET 3 OF 3		

4

3

2

1

D

D

C

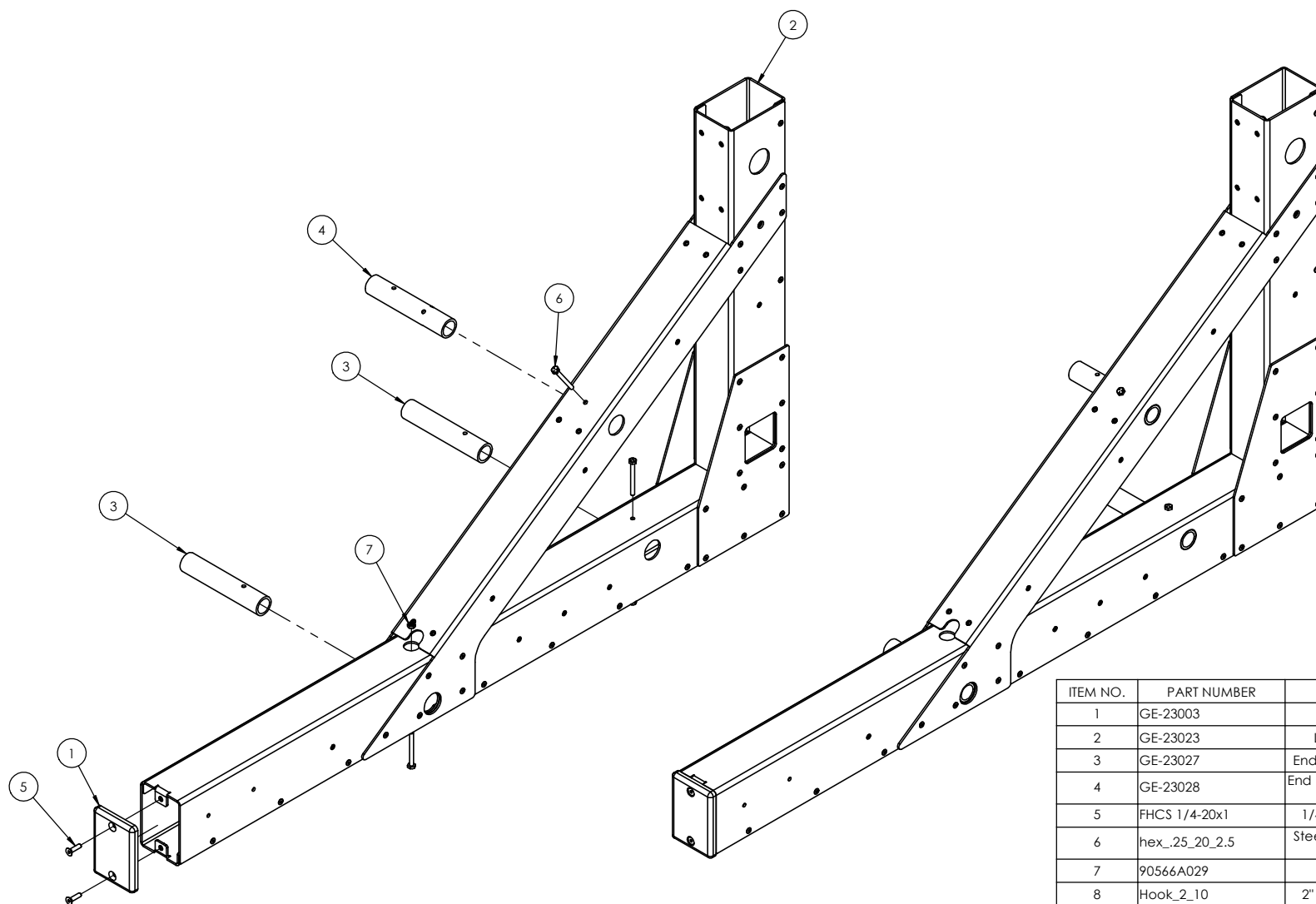
C

B

B

A



A

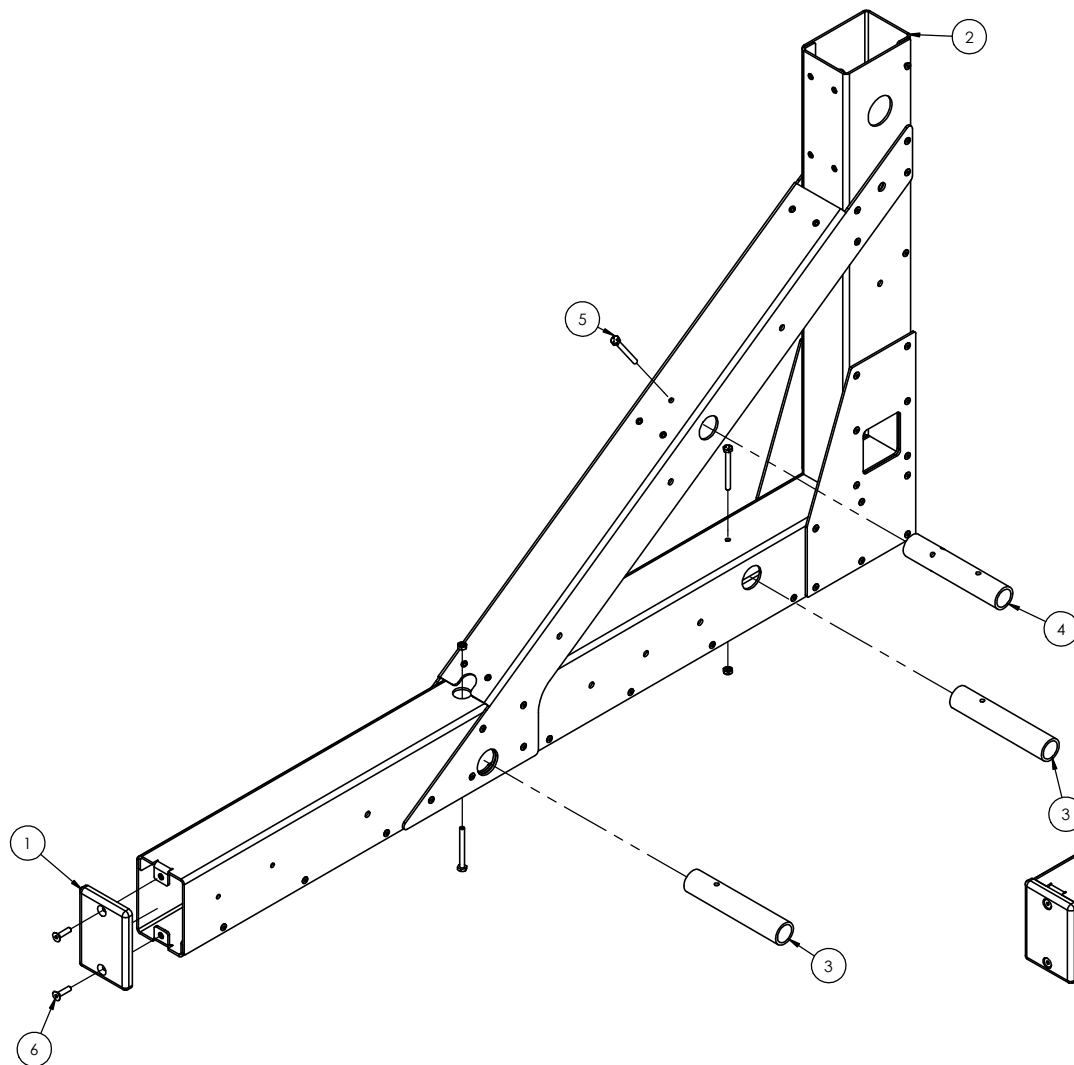


Assemble as shown. Note that 3 and 4 stick out the side opposite any PEM nuts.

Note the hole on the segment of 4 that is sticking out is vertical when assembled.



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23003	Divider End Cap	1
2	GE-23023	Left End Divider Sheetmetal	1
3	GE-23027	End Divider Bottom Connector Pin	2
4	GE-23028	End Divider Angle Brace Connector Pin	1
5	FHCS 1/4-20x1	1/4-20 x 1 Flat Head Cap Screw	2
6	hex_.25_20_2.5	Steel Hex Head Screw, 1/4"-20 x 2-1/2" long, fully threaded	3
7	90566A029	1/4-20 Locknut	3
8	Hook_2_10	2" x 10" Hook, Adhesive Backed	1
9	Hook_2_17.5	2" x 12.5" Hook, Adhesive Backed	2

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.50  MATERIAL/FINISH:    DO NOT SCALE DRAWING	FIELD	NAME	DATE	  TITLE:  Right End Divider  SIZE DWG. NO. REV  C GE-23025  SCALE: 1:5 SHEET 1 OF 1	
	DRAWN	JO	9/29/2022		
	PROPRIETARY AND CONFIDENTIAL				
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COMMENTS:					
REMOVE ALL BURRS AND SHARP EDGES.					

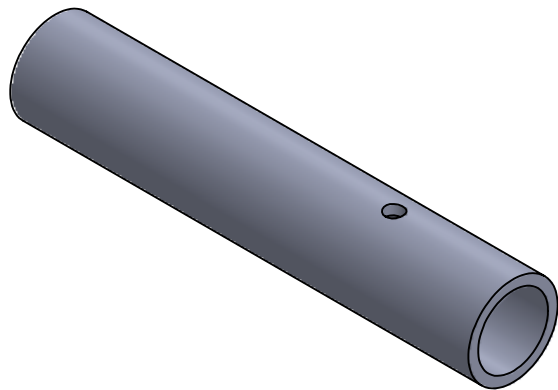
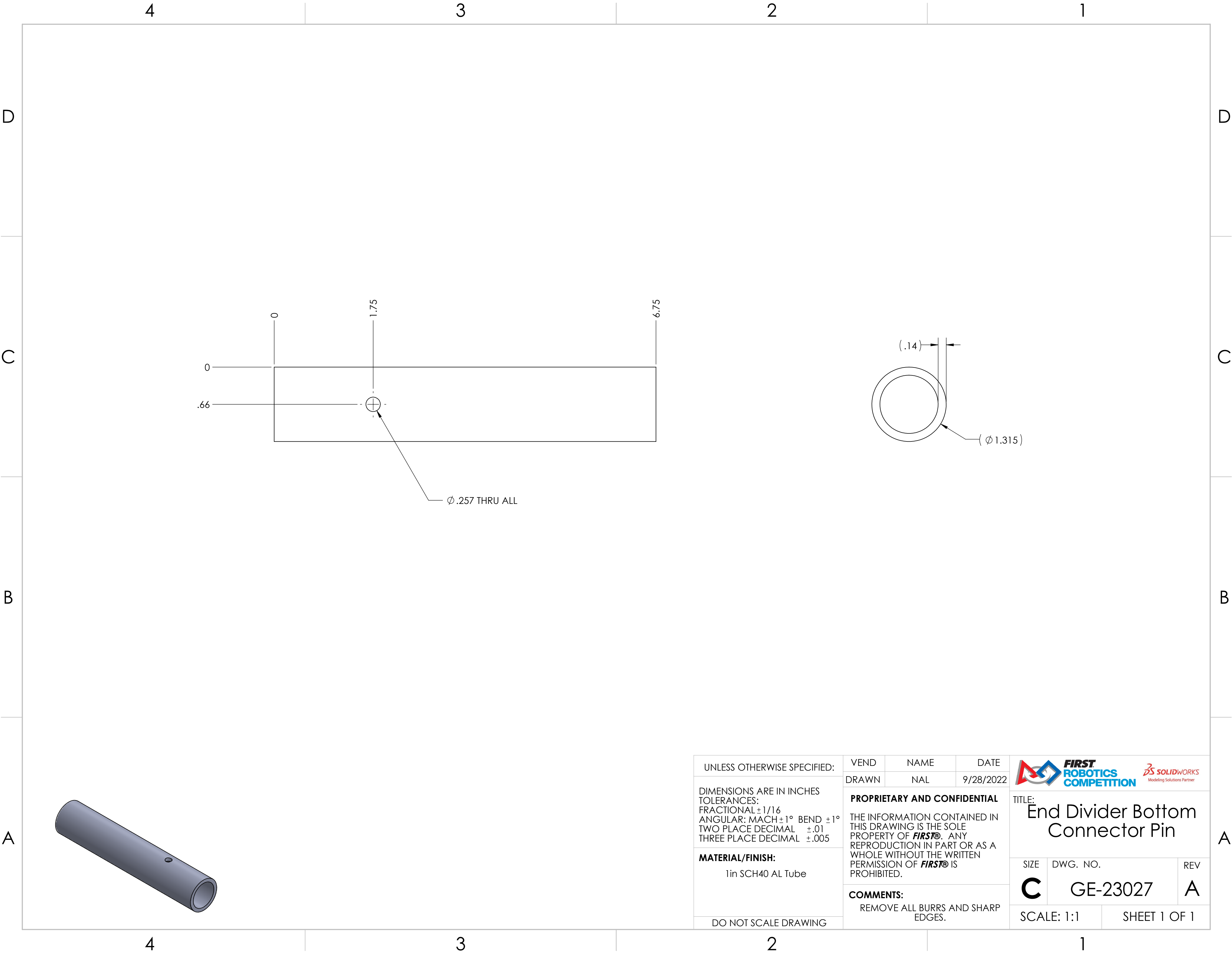




Assemble as shown. Note that (3) and (4) stick out the side opposite any PEM nuts.  
 Note the hole on the segment of (4) that is sticking out is vertical when assembled.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23003	Divider End Cap	1
2	GE-23024	Right End Divider Sheetmetal	1
3	GE-23027	End Divider Bottom Connector Pin	2
4	GE-23028	End Divider Angle Brace Connector Pin	1
5	hex_.25_20_2.5	Steel Hex Head Screw, 1/4"-20 x 2-1/2" long, fully threaded	3
6	FHCS 1/4-20x1	1/4-20 x 1" Flat Head Cap Screw	2
7	90566A029	1/4-20 Locknut	3
8	Hook_2_10	2" x 10" Hook, Adhesive Backed	1
9	Hook_2_17.5	2" x 12.5" Hook, Adhesive Backed	2

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.50  MATERIAL/FINISH:  DO NOT SCALE DRAWING	FIELD	NAME	DATE	 
	DRAWN	JO	9/29/2022	
	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:  Left End Divider				
SIZE		DWG. NO.		REV
C		GE-23026		
SCALE: 1:5			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 $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  1in SCH40 AL Tube  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: End Divider Bottom Connector Pin</div>		
	DRAWN	NAL	9/28/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. GE-23027	REV <b>A</b>
SCALE: 1:1		SHEET 1 OF 1				

D

C

B

A

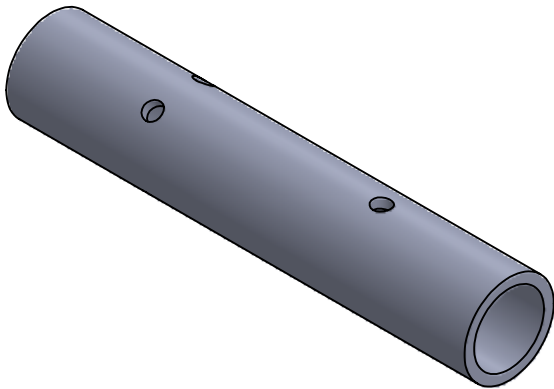
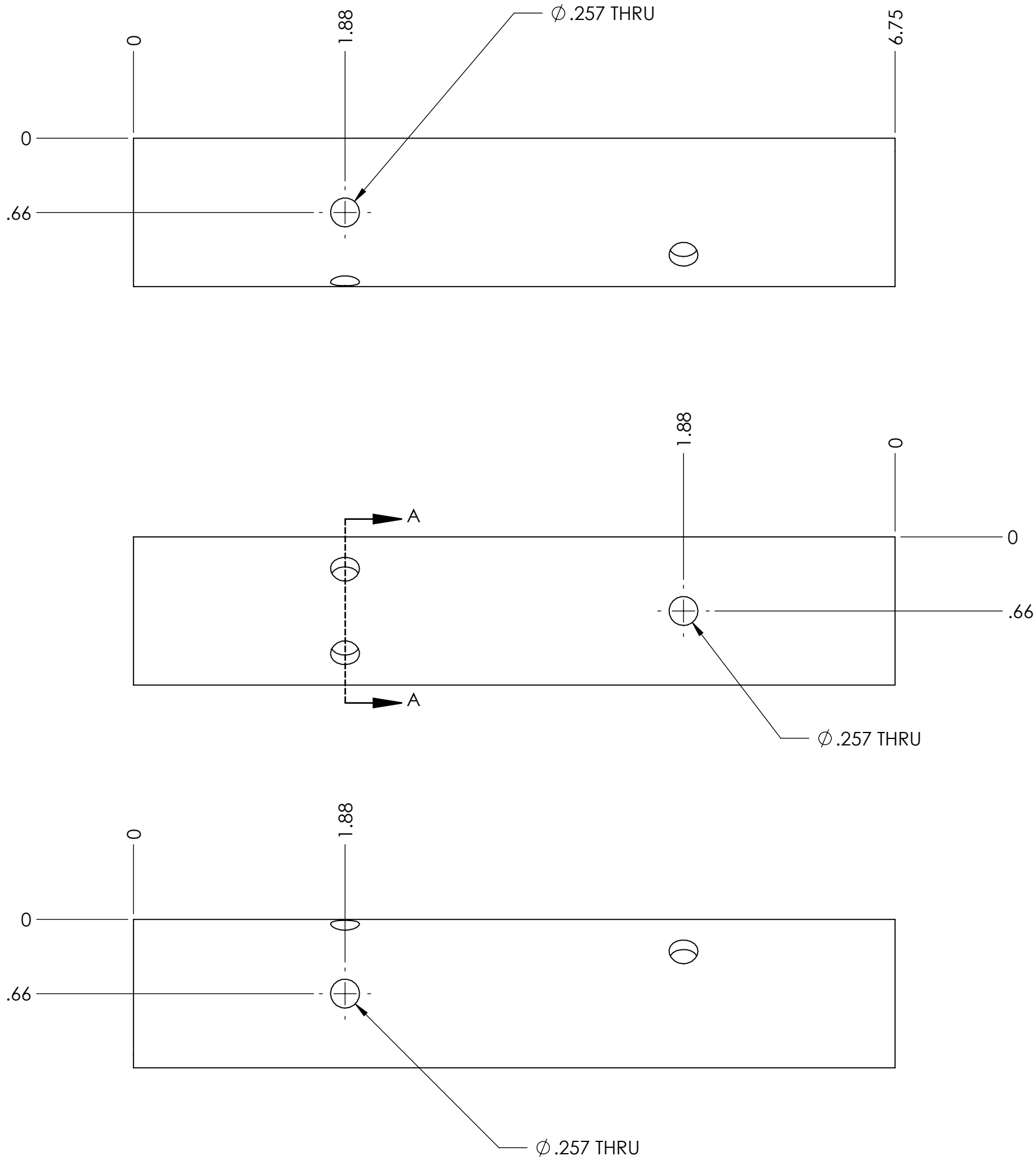
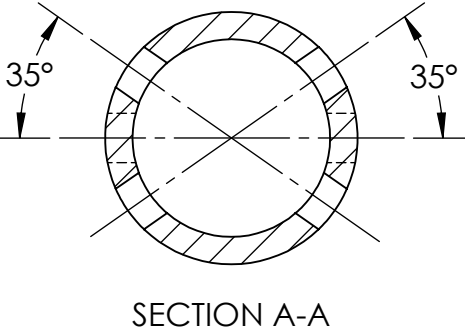
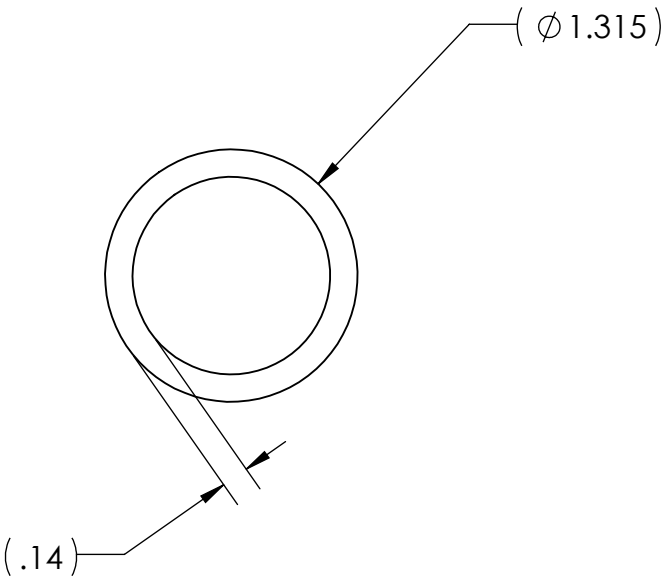
D



C

B

A

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2	A	Block Tolerance	9/30/2022	JO



UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>		
	DRAWN	NAL	9/28/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	PROPRIETARY AND CONFIDENTIAL			TITLE: <div>End Divider Angle Brace Connector Pin</div>		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH: <div>1IN SCH40 AL TUBE</div>	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23028	
DO NOT SCALE DRAWING				SCALE: 1:1		SHEET 1 OF 1

4

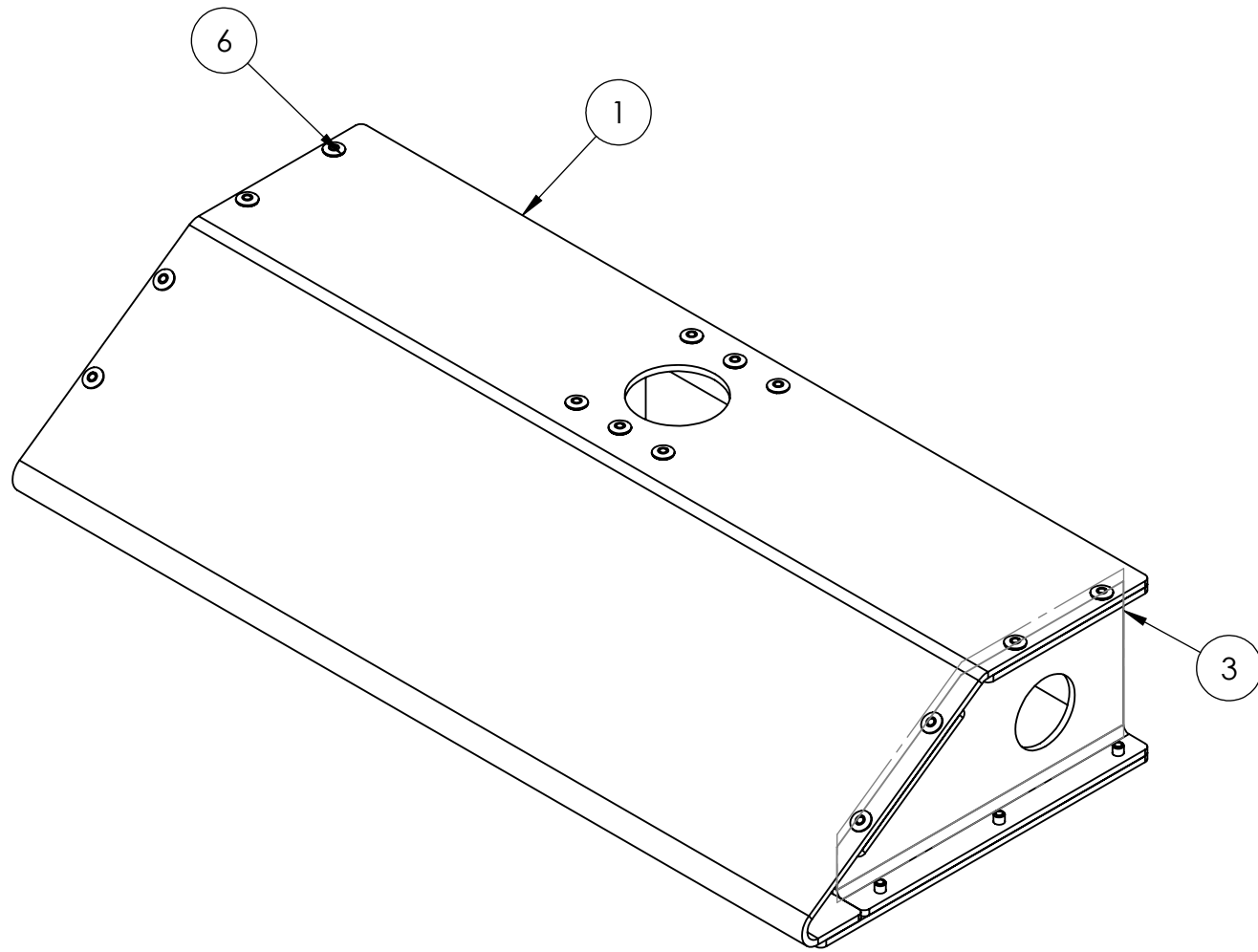
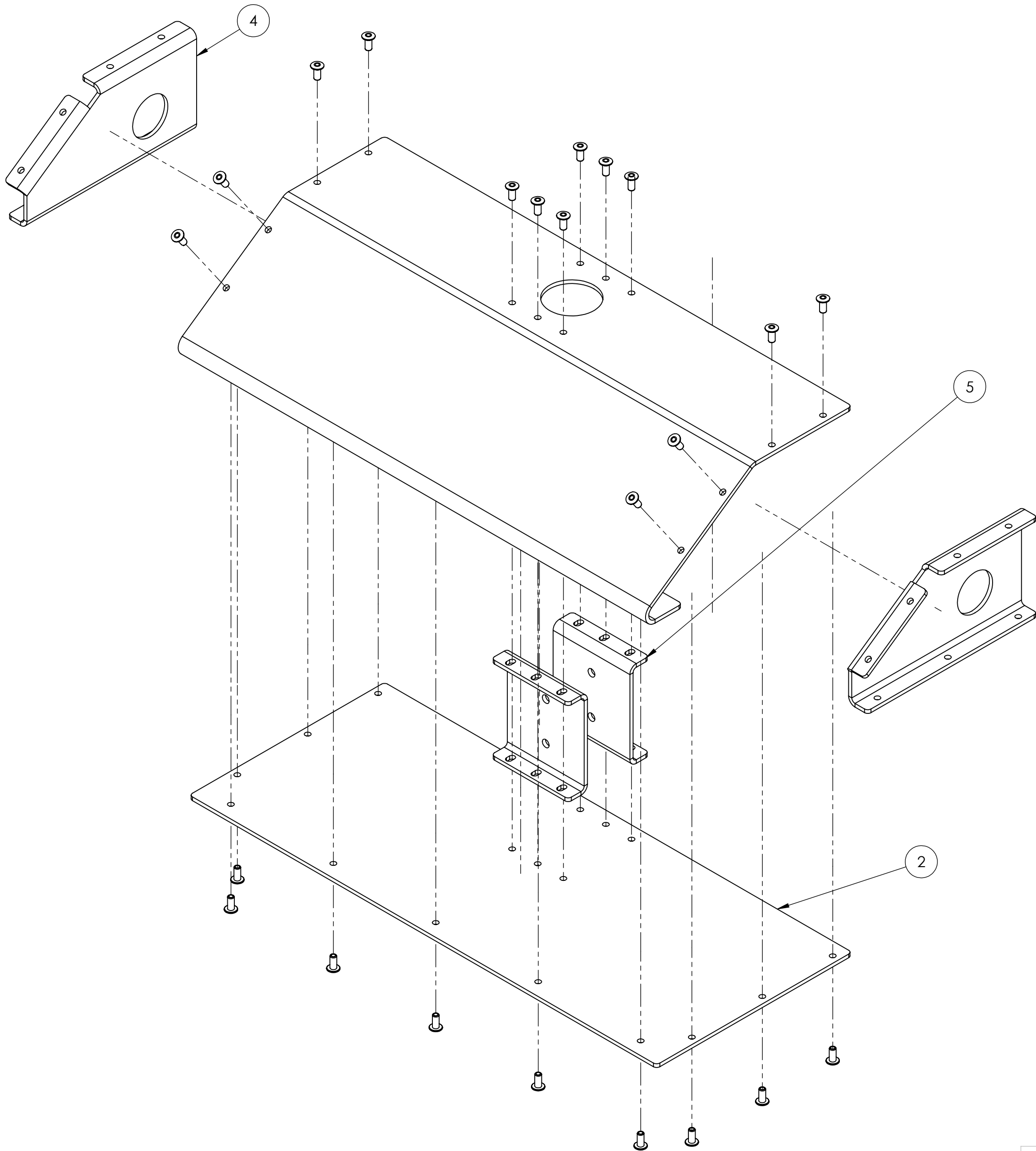
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2

1





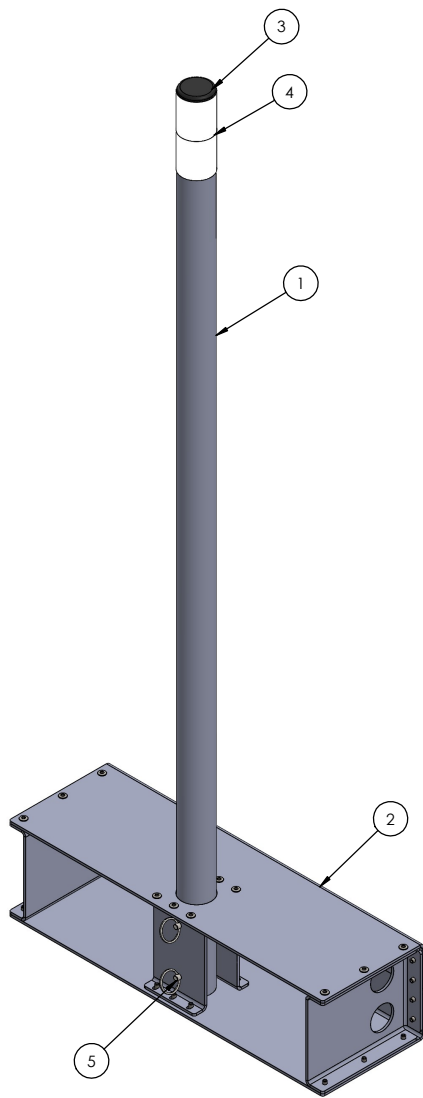
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B2	A	Moved BOM Table, added assembly note	12/13/2022	JO





- Notes:
1. Label Assembly with Part Number
2. 1-1/4" SCH 40 Pipe (1.66" OD) Fits between the two (5) brackets.  
Use a Pipe during assembly to get a slip fit between the brackets.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23011	Lower Base Pole Top	1
2	GE-23012	Lower Pole Base Bottom	1
3	GE-23013	Lower Pole Base Side A	1
4	GE-23014	Lower Pole Base Side B	1
5	GE-23015	Lower Pole Pipe Brace	2
6	187 pop rivet	3/16" Steel Rivet	31

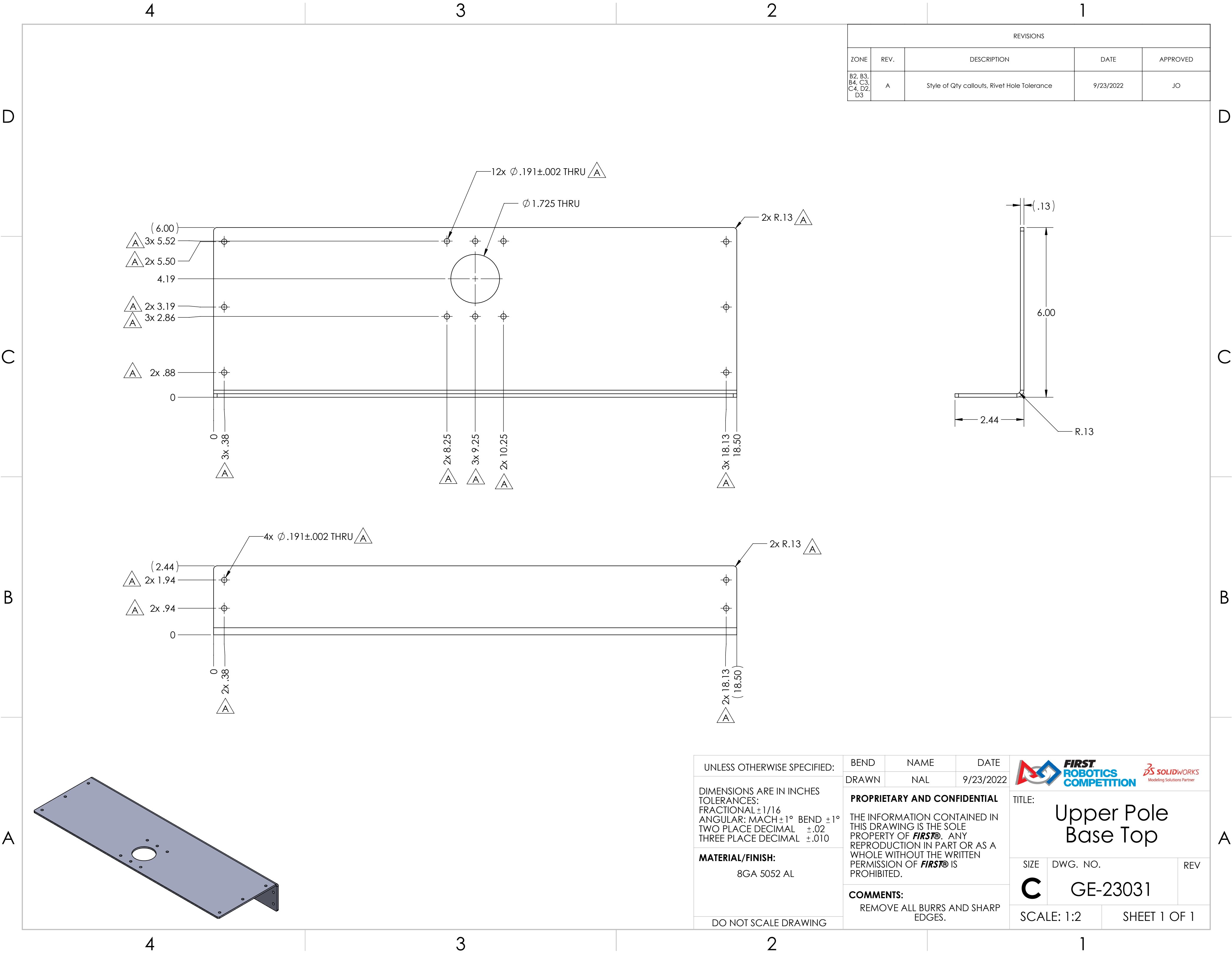
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>   DO NOT SCALE DRAWING	VEND	NAME	DATE
	DRAWN	JO	9/30/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		
<div><div><div><b>FIRST</b> ROBOTICS COMPETITION</div></div><div><div><b>SOLIDWORKS</b> Modeling Solutions Partner</div></div></div> <div>TITLE:  Lower Pole Base Sheetmetal</div> <div><div>SIZE</div><div>DWG. NO.</div><div>REV</div><div>C</div><div>GE-23029</div><div>A</div></div> <div>SCALE: 1:4</div> <div>SHEET 1 OF 1</div>			



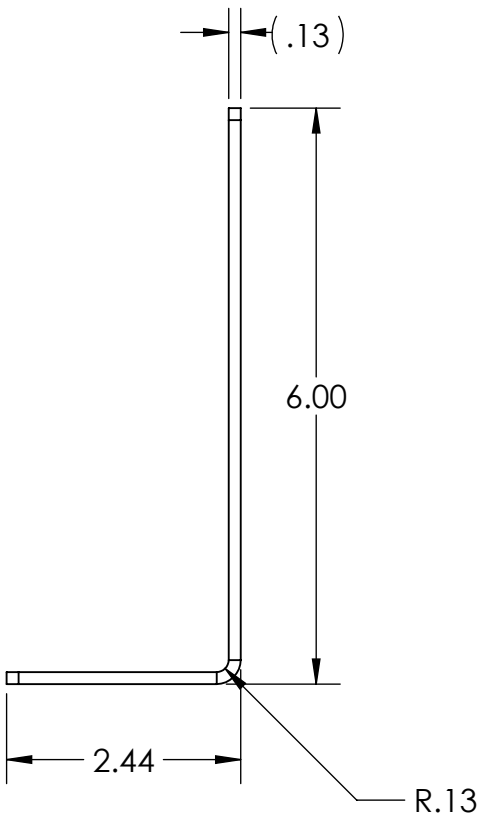
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23035	Upper Pole	1
2	GE-23043	Upper Pole Base Sheetmetal	1
3	CCF-RT-13-1	Pole Cap	1
4	tape_VISIONTARGET	tape_VISIONTARGET	2
5	pin_quick_ring_.25_2.5	Pin, Ring-Grip Quick-Release with SS Ring, 1/4" Diameter, 2.5" Usable Length	2



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010  <b>MATERIAL/FINISH:</b>  Various  <b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.  DO NOT SCALE DRAWING	BEND	NAME	DATE	 
	DRAWN	NAL	9/29/2022	
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Upper Pole Base
	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			
SIZE		DWG. NO.		REV
C		GE-23030		
SCALE: 1:4			SHEET 1 OF 1	



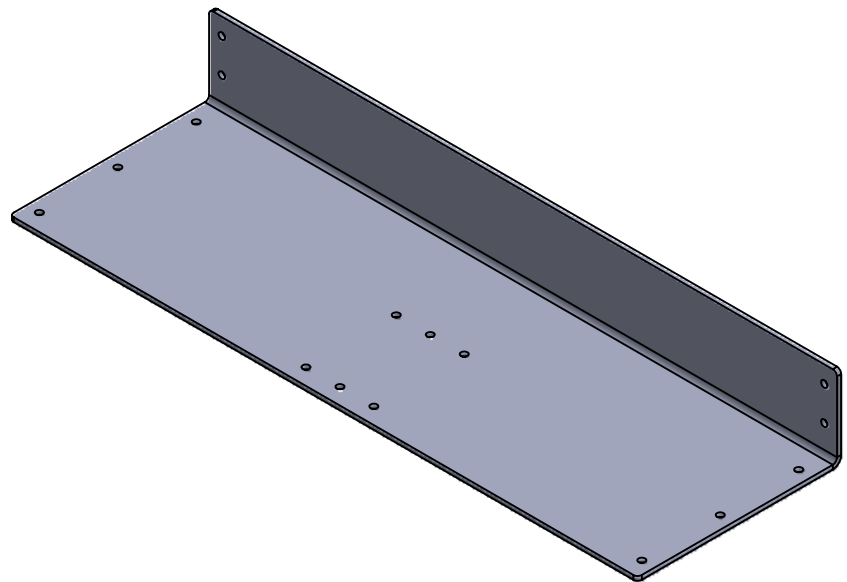
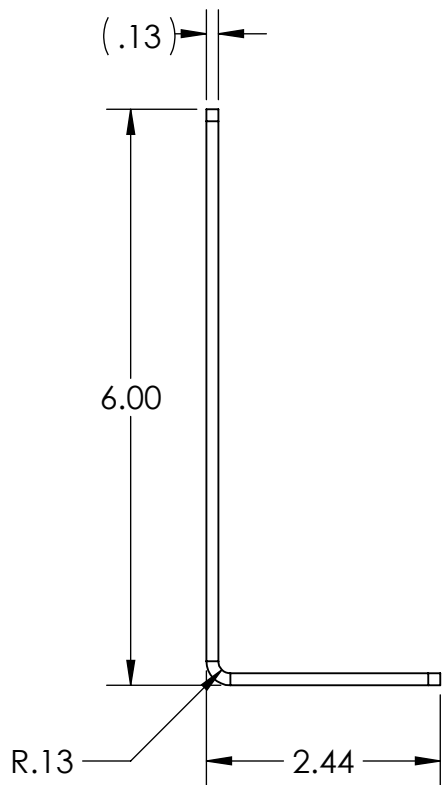
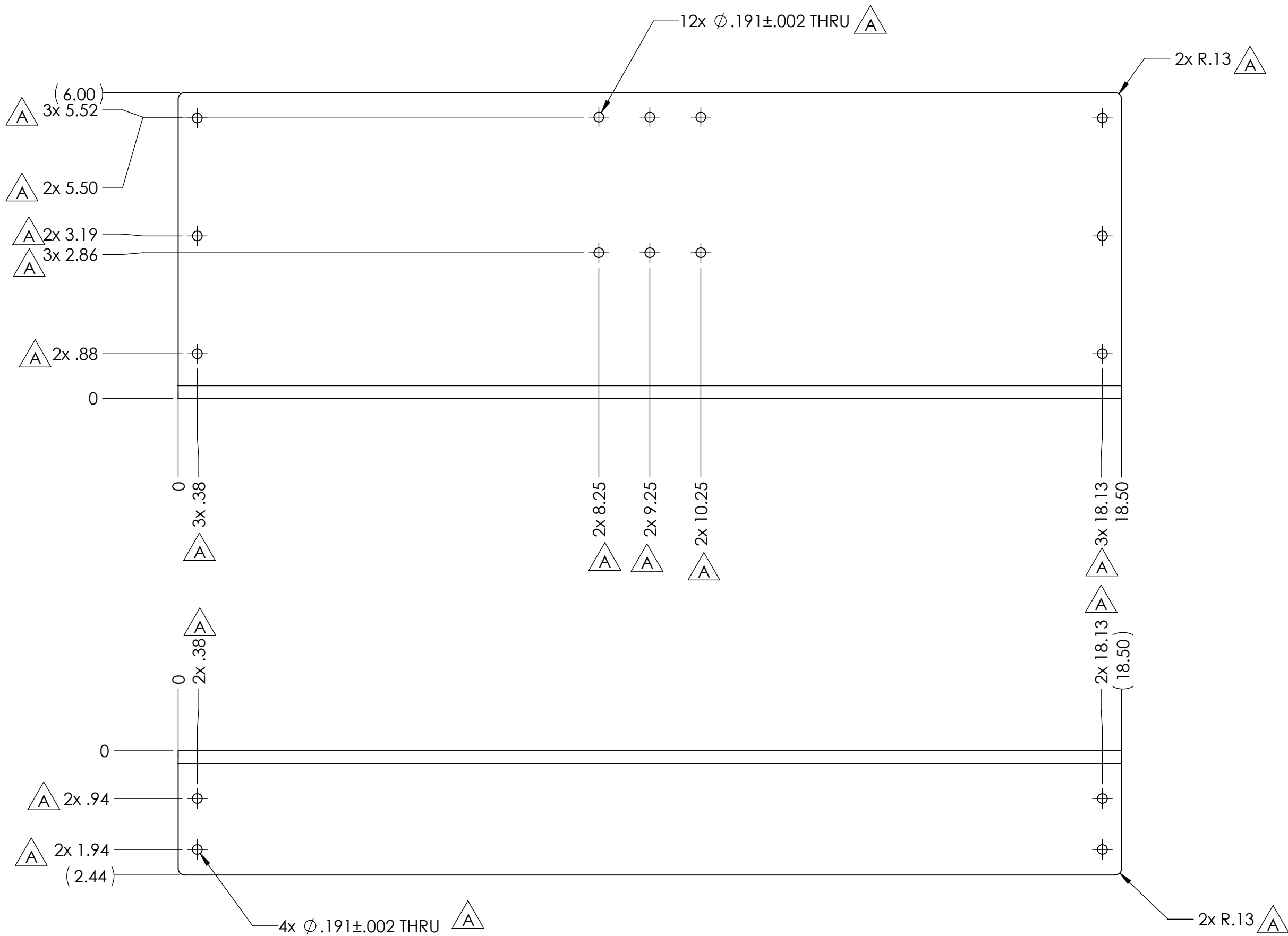


REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, B4, C3, C4, D2, D3	A	Style of Qty callouts, Rivet Hole Tolerance	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010  <b>MATERIAL/FINISH:</b>  8GA 5052 AL  DO NOT SCALE DRAWING	BEND	NAME	DATE	<div></div>	
	DRAWN	NAL	9/23/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				
TITLE:				Upper Pole Base Top	
SIZE		DWG. NO.		REV	
C		GE-23031			
SCALE: 1:2			SHEET 1 OF 1		

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, B4, C4, D2, D3	A	Style of Qty callouts, Rivet Hole Tolerance	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .02$   
THREE PLACE DECIMAL  $\pm .010$

**MATERIAL/FINISH:**  
8GA 5052 AL

DO NOT SCALE DRAWING

BEND	NAME	DATE
DRAWN	NAL	9/23/2022

**PROPRIETARY AND CONFIDENTIAL**

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**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE:  
**Upper Pole Base Bottom**

SIZE	DWG. NO.	REV
<b>C</b>	<b>GE-23032</b>	

SCALE: 1:2 SHEET 1 OF 1

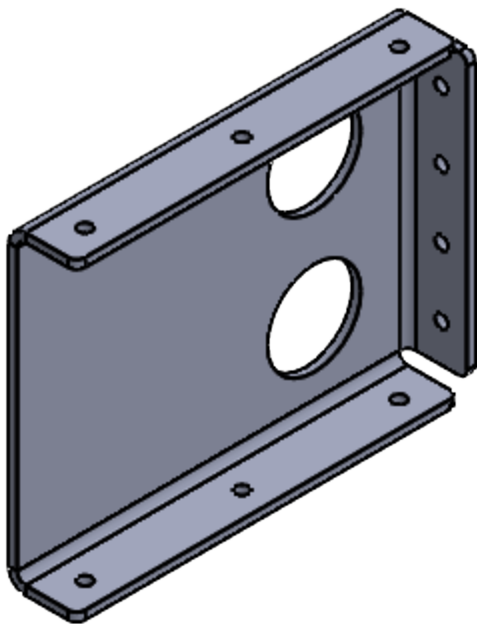
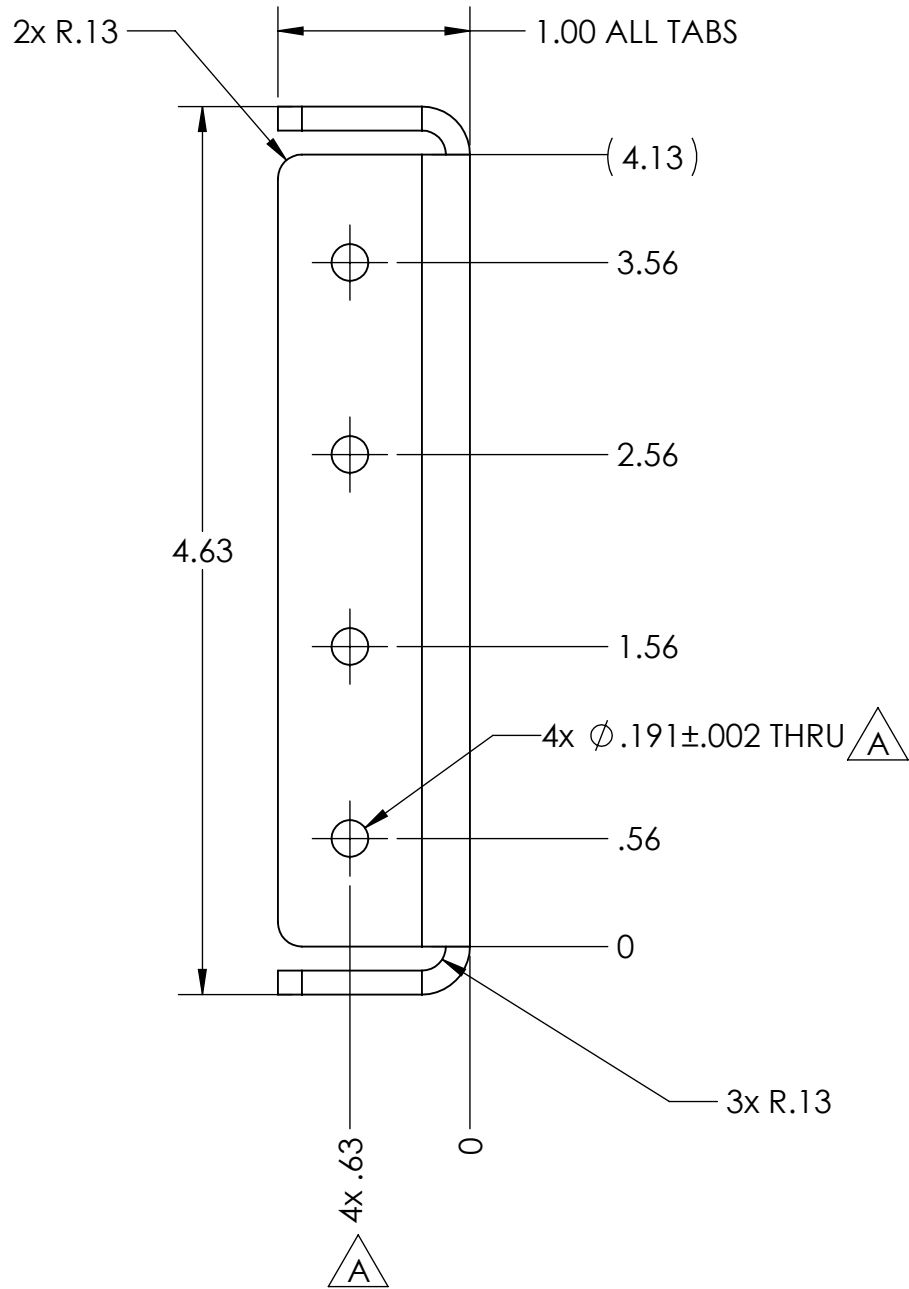
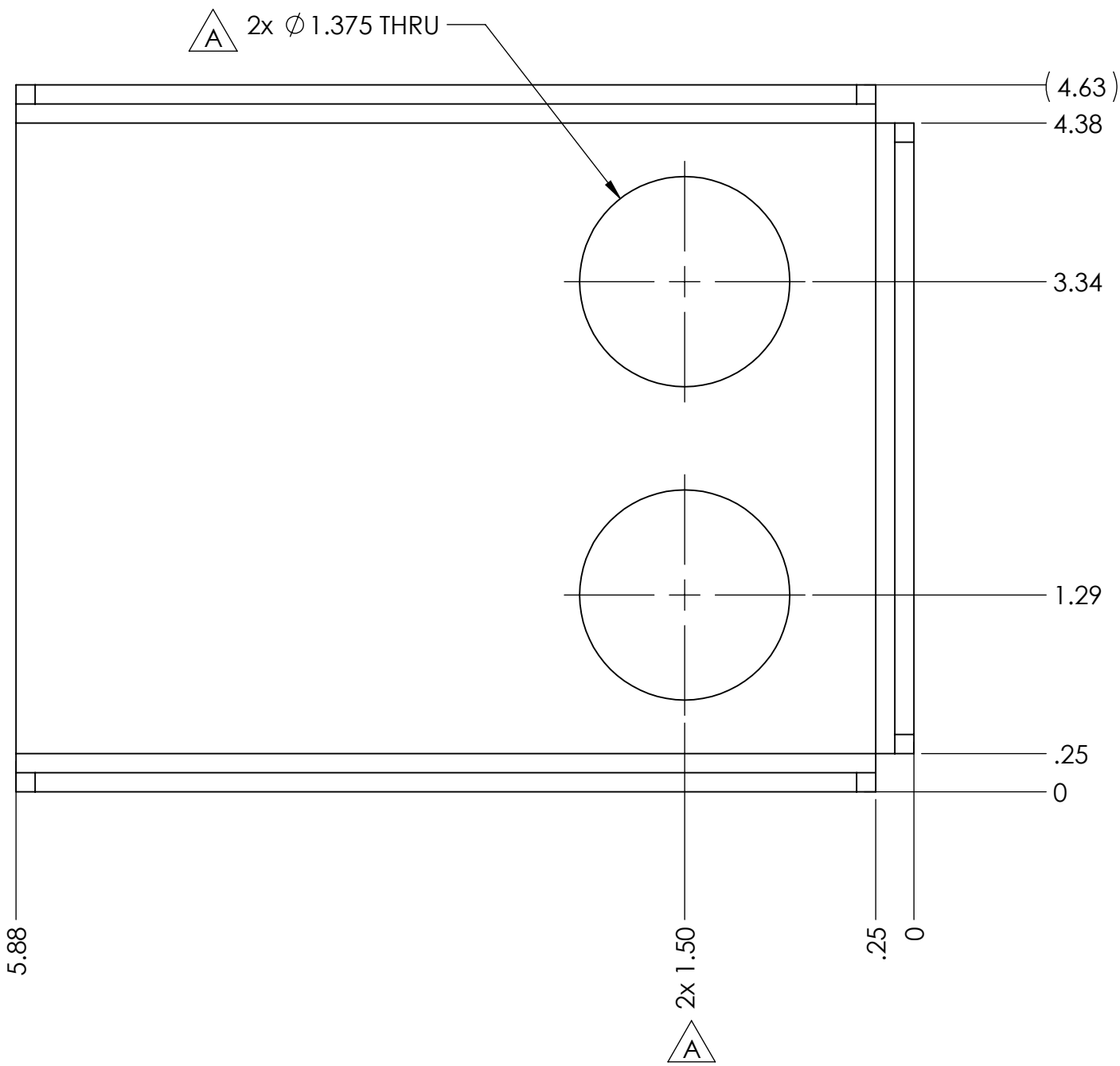
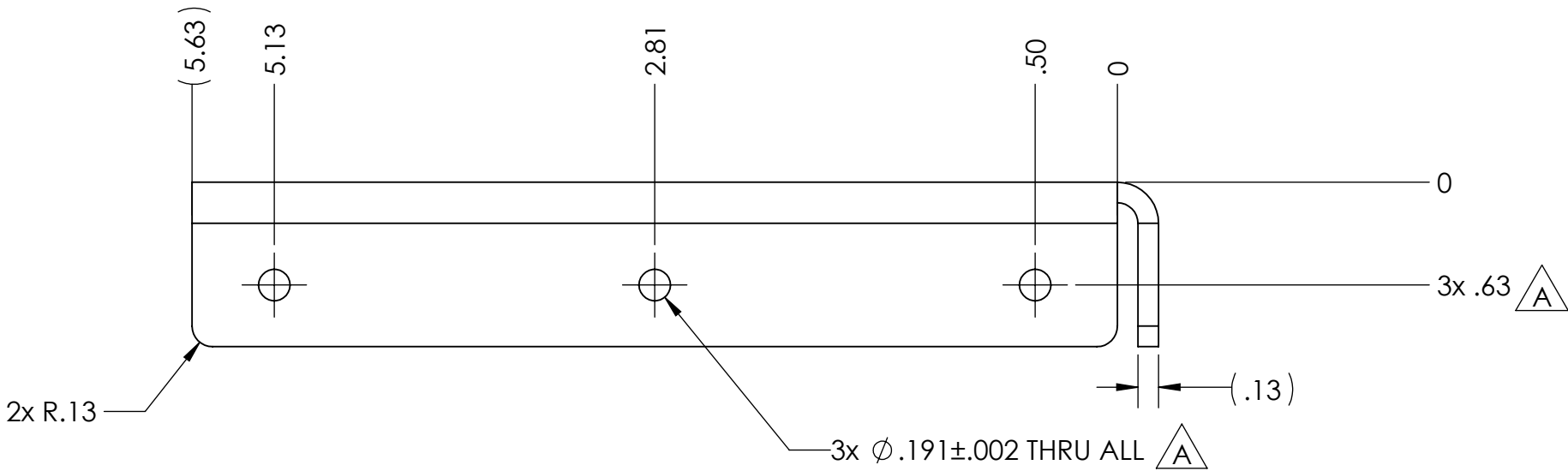
4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B1, B3, C3, D2	A	Style of Qty callouts, Rivet Hole Tolerance	9/23/2022	JO





4

3

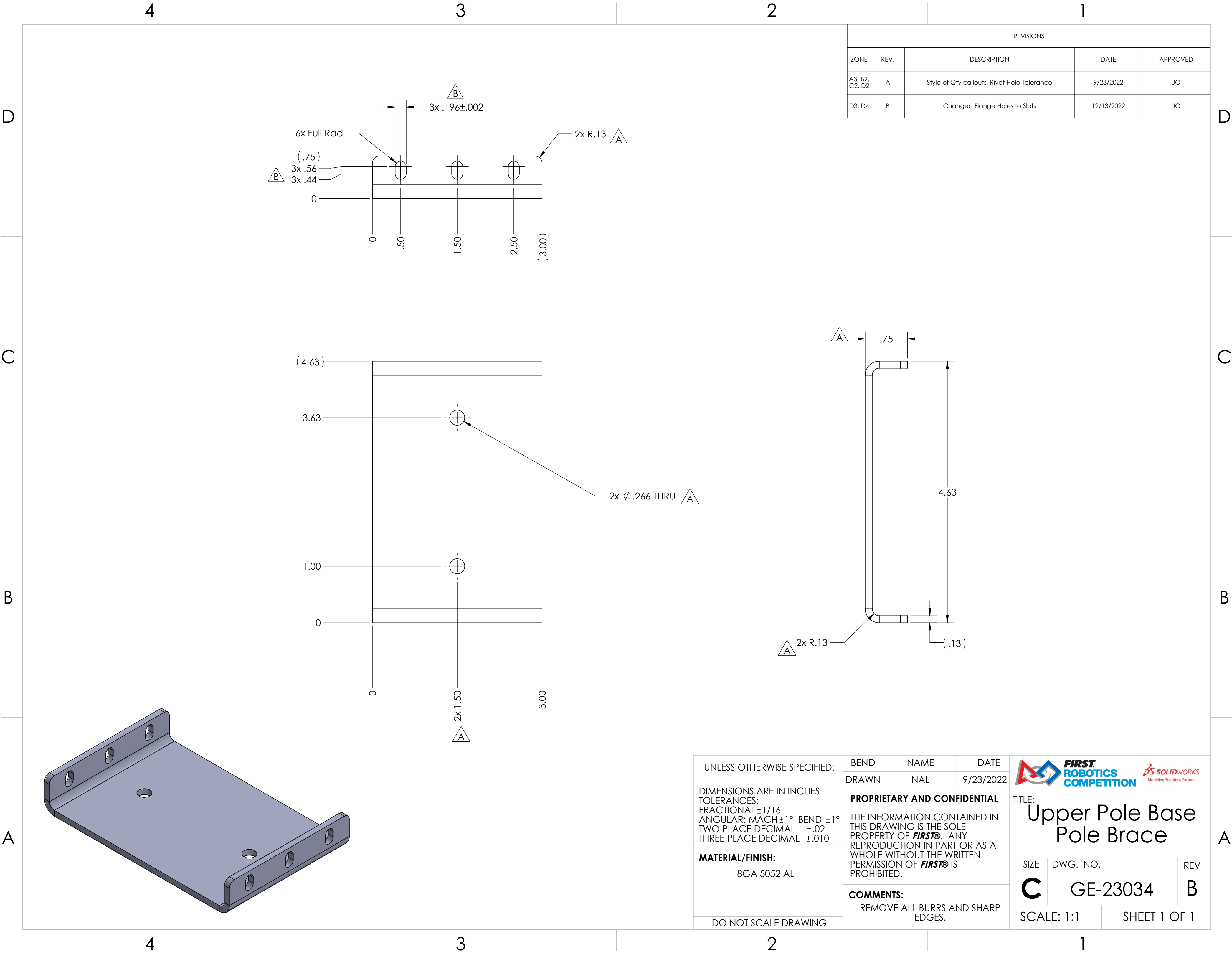
2

1

UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	DRAWN	NAL	9/23/2022
	PROPRIETARY AND CONFIDENTIAL		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
MATERIAL/FINISH:  8GA 5052 AL	COMMENTS:		
	REMOVE ALL BURRS AND SHARP EDGES.		
DO NOT SCALE DRAWING			



 		
TITLE: <b>Upper Pole Base Side</b>		
SIZE <b>C</b>	DWG. NO. <b>GE-23033</b>	REV
SCALE: 1:1		SHEET 1 OF 1

A

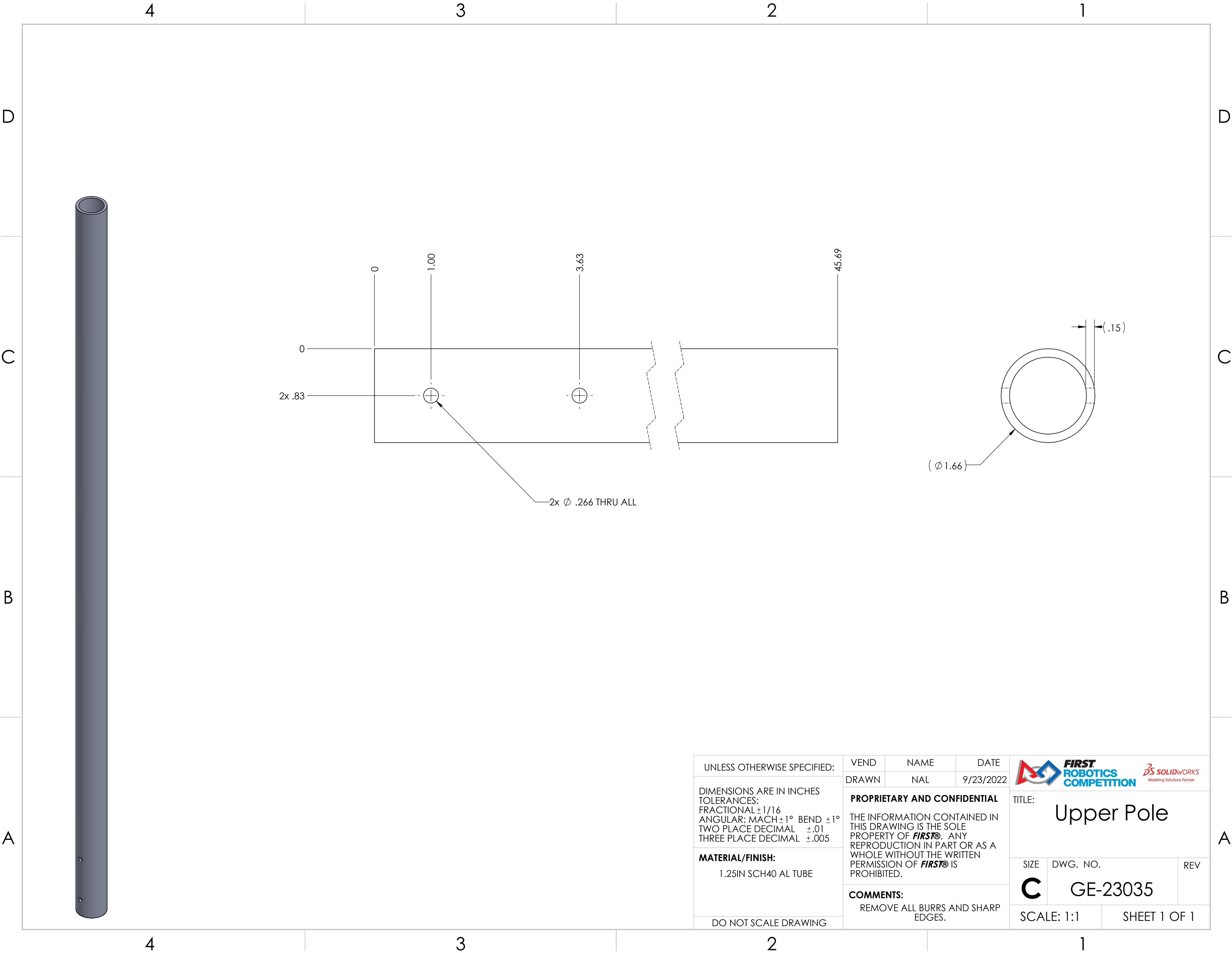


REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B2, C2, D2	A	Style of Qty callouts, Rivet Hole Tolerance	9/23/2022	JO
D3, D4	B	Changed Flange Holes to Slots	12/13/2022	JO

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>  8GA 5052 AL  DO NOT SCALE DRAWING	BEND	NAME	DATE
	DRAWN	NAL	9/23/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		

 			TITLE: Upper Pole Base Pole Brace	
SIZE <b>C</b>	DWG. NO. GE-23034		REV B	
SCALE: 1:1			SHEET 1 OF 1	





UNLESS OTHERWISE SPECIFIED:		VEND	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$		DRAWN	NAL	9/23/2022
<b>MATERIAL/FINISH:</b> 1.25IN SCH40 AL TUBE		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
DO NOT SCALE DRAWING		<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		
		TITLE: Upper Pole		
		SIZE <b>C</b>	DWG. NO. GE-23035	REV
		SCALE: 1:1		SHEET 1 OF 1

D

D

C

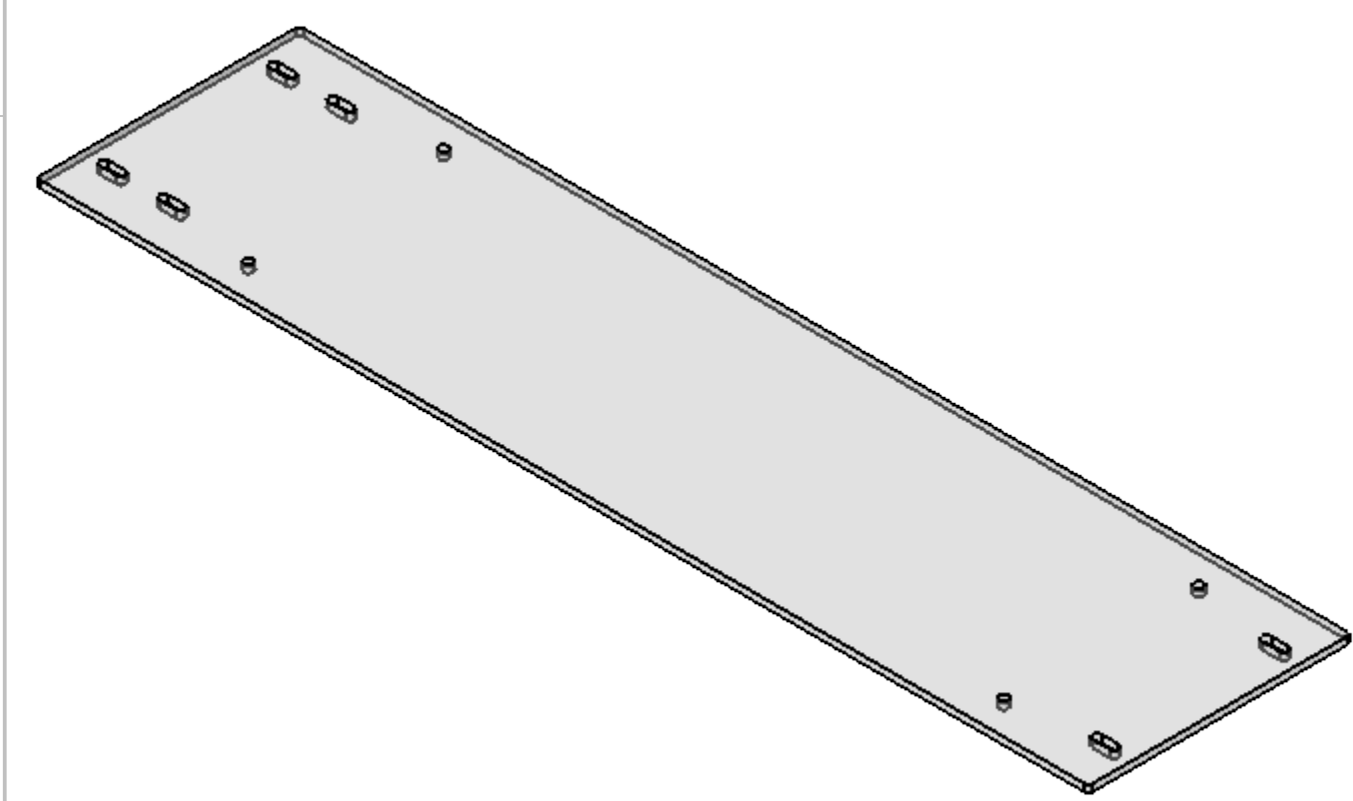
C



B

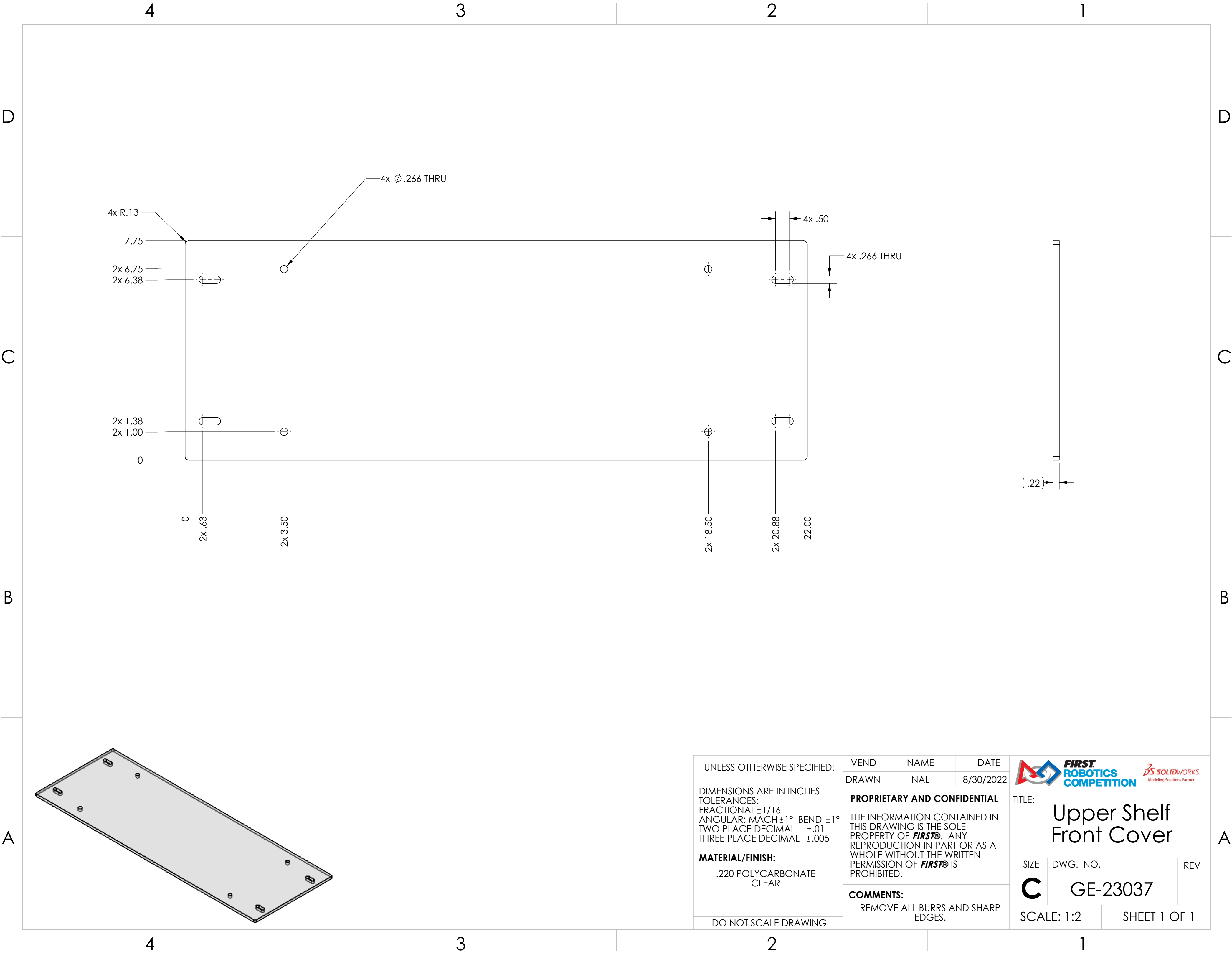
B

A

A



UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div><div>FIRST ROBOTICS COMPETITION</div><div><div>SOLIDWORKS Modeling Solutions Partner</div></div></div>		
	DRAWN	NAL	8/30/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: Upper Shelf Corner Front Cover		
	<b>MATERIAL/FINISH:</b>  .220 POLYCARBONATE CLEAR				SIZE	DWG. NO.
DO NOT SCALE DRAWING				C	GE-23036	
				SCALE: 1:2		SHEET 1 OF 1
<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.						



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

**MATERIAL/FINISH:**  
.220 POLYCARBONATE  
CLEAR

DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	NAL	8/30/2022

**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.

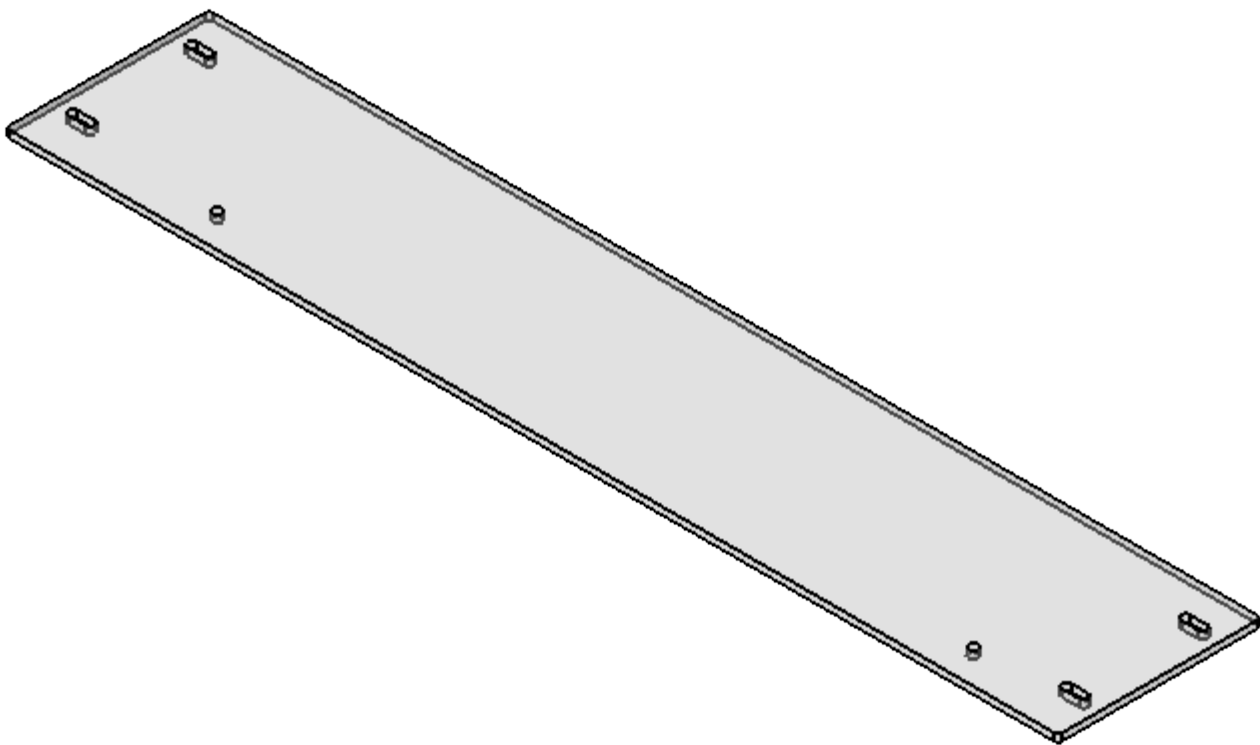
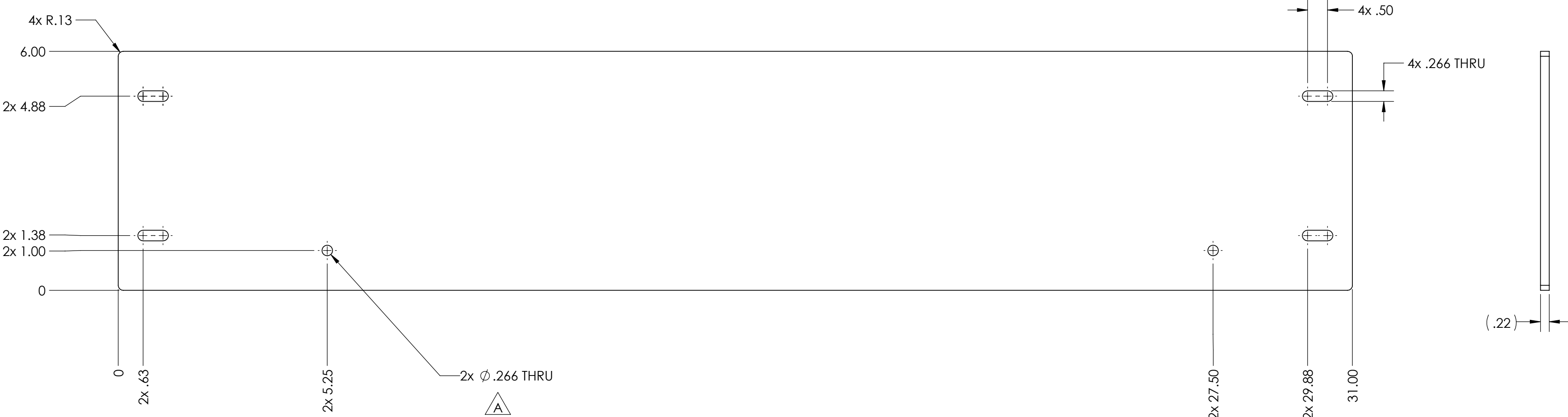




TITLE:  
**Upper Shelf  
Front Cover**

SIZE <b>C</b>	DWG. NO. <b>GE-23037</b>	REV
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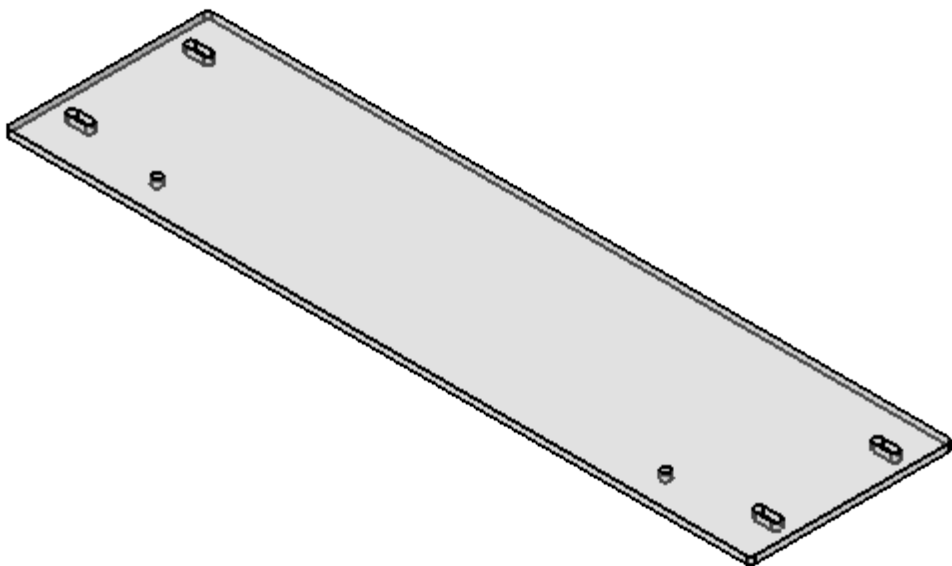
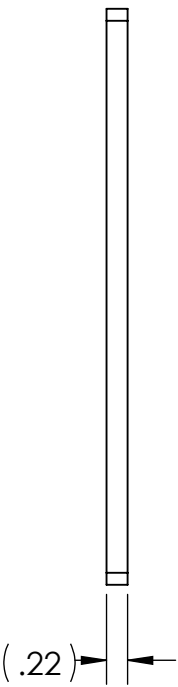
SCALE: 1:2	SHEET 1 OF 1
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3	A	Removed two holes from part	12/6/2022	JRO

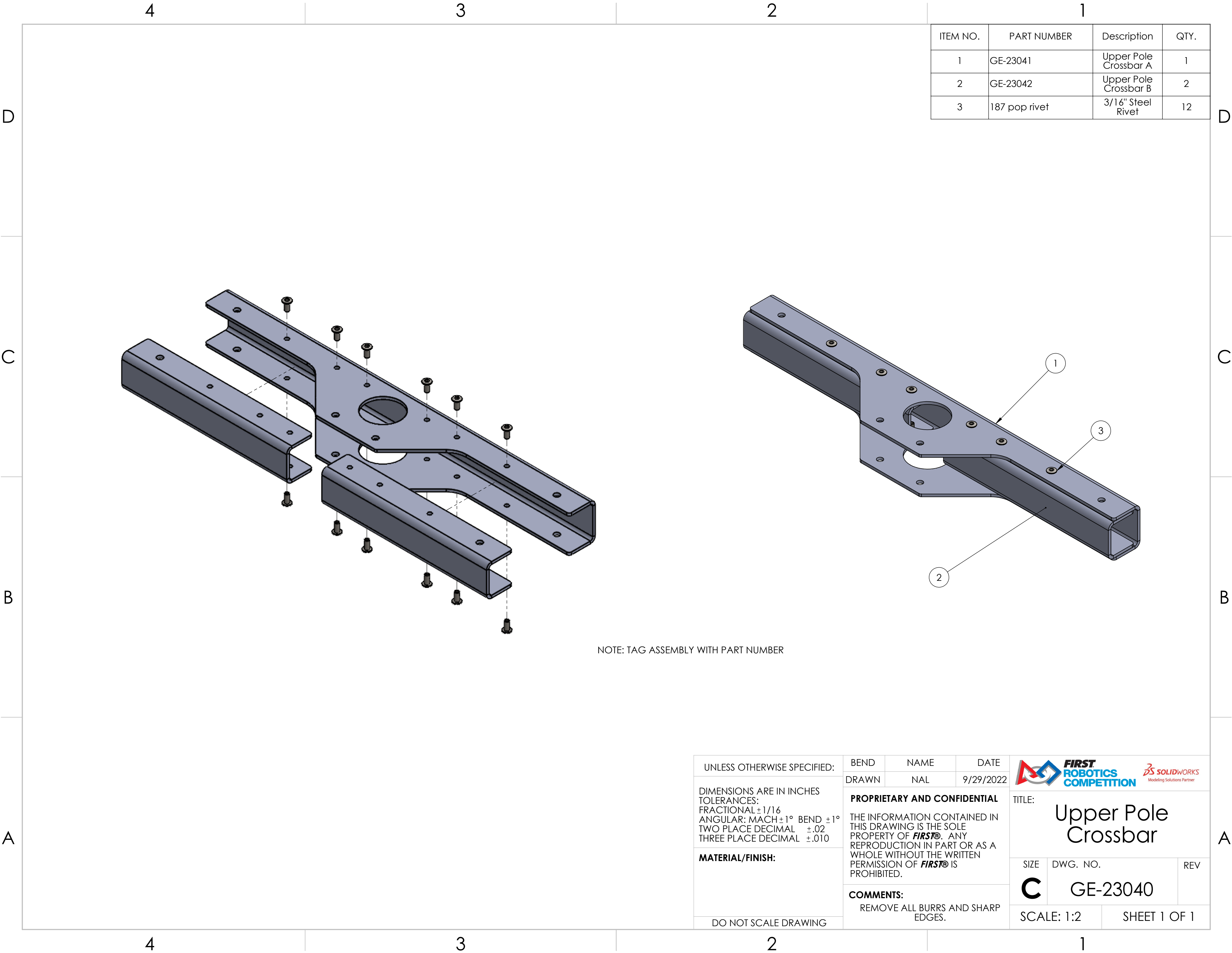


UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>			
	DRAWN	NAL	8/30/2022				
PROPRIETARY AND CONFIDENTIAL			TITLE:				
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			Upper Shelf Corner Top Cover				
			SIZE			DWG. NO.	REV
			C			GE-23038	A
COMMENTS:			SCALE: 1:2			SHEET 1 OF 1	
REMOVE ALL BURRS AND SHARP EDGES.							
DO NOT SCALE DRAWING							

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3	A	Removed two holes from part	12/6/2022	JRO





UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>  .220 POLYCARBONATE CLEAR  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div>	
	DRAWN	NAL	8/30/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				
TITLE:				Upper Shelf Top Cover	
SIZE		DWG. NO.		REV	
C		GE-23039		A	
SCALE: 1:2			SHEET 1 OF 1		



ITEM NO.	PART NUMBER	Description	QTY.
1	GE-23041	Upper Pole Crossbar A	1
2	GE-23042	Upper Pole Crossbar B	2
3	187 pop rivet	3/16" Steel Rivet	12

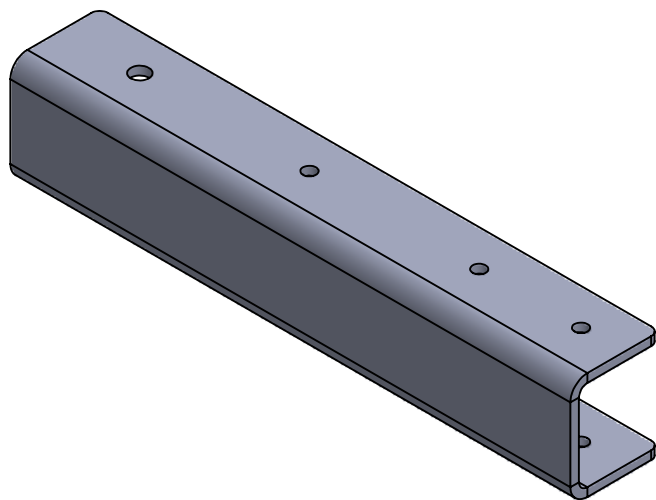
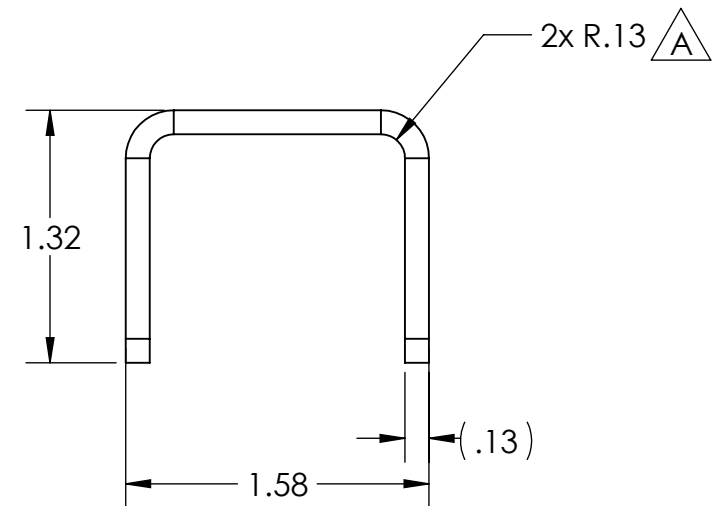
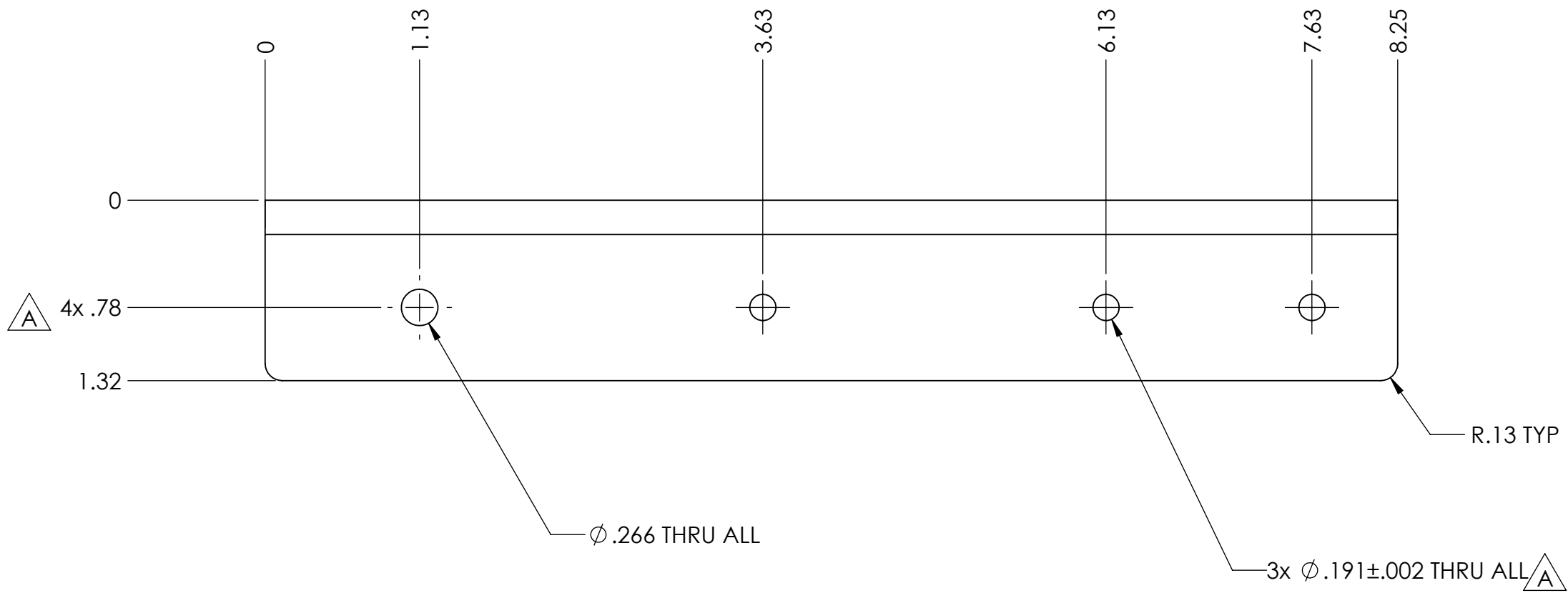
NOTE: TAG ASSEMBLY WITH PART NUMBER



UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>	
	DRAWN	NAL	9/29/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			TITLE:	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			Upper Pole Crossbar	
	COMMENTS:			SIZE	
MATERIAL/FINISH:	REMOVE ALL BURRS AND SHARP EDGES.			DWG. NO.	
	DO NOT SCALE DRAWING			REV	
			C		GE-23040
			SCALE: 1:2		SHEET 1 OF 1





REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, C1, C4	A	Style of Qty callouts, Rivet Hole Tolerance	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010  <b>MATERIAL/FINISH:</b>  8GA 5052 AL  DO NOT SCALE DRAWING	BEND	NAME	DATE	<div></div> <div>TITLE:  Upper Pole Crossbar B</div>		
	DRAWN	NAL	9/23/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				SIZE	DWG. NO.
				C	GE-23042	
				SCALE: 1:1		SHEET 1 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B2	A	Moved BOM Table, added note for assembly	12/13/2022	JO

D

D

C

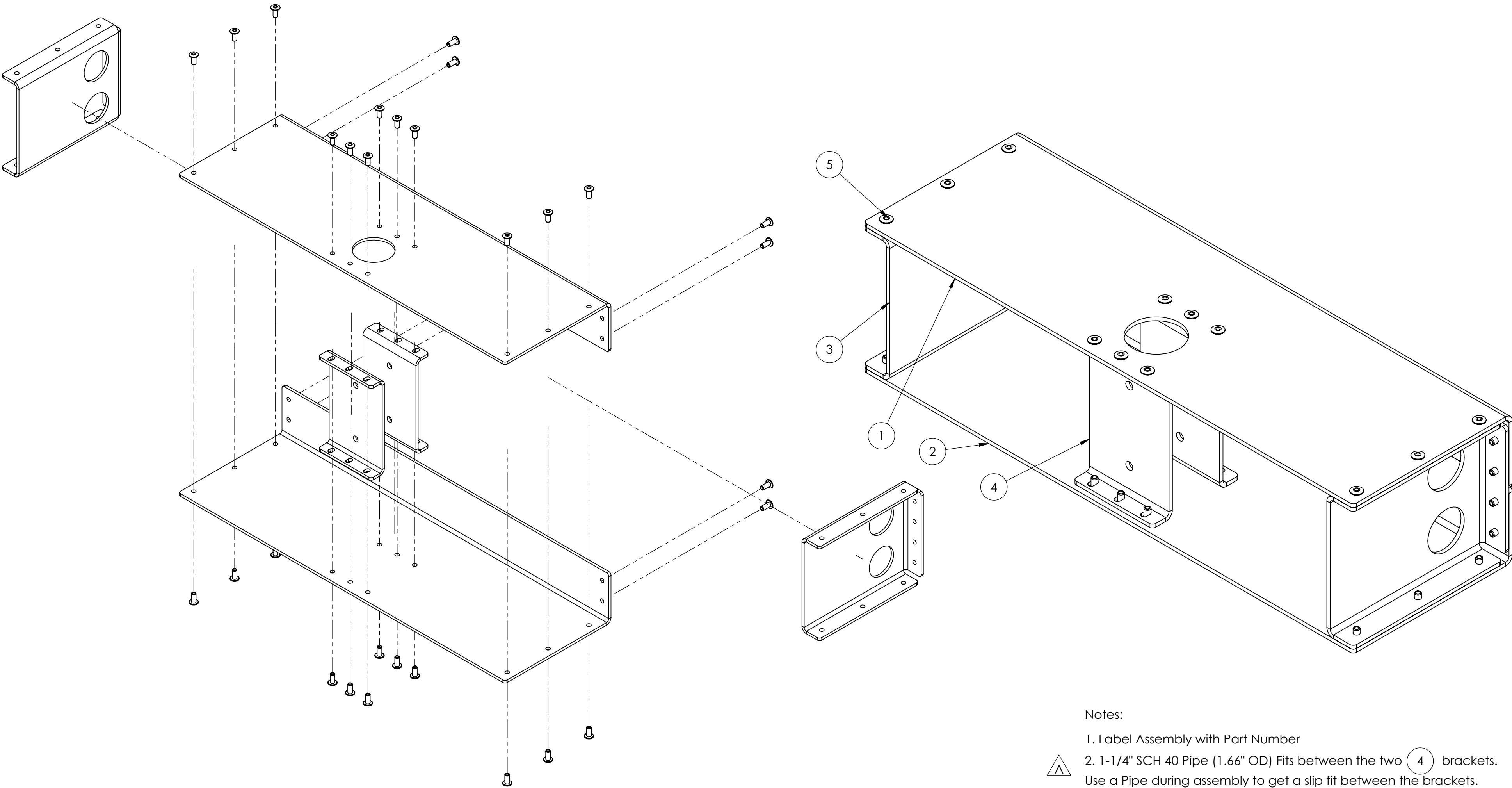
C

B

B

A

A





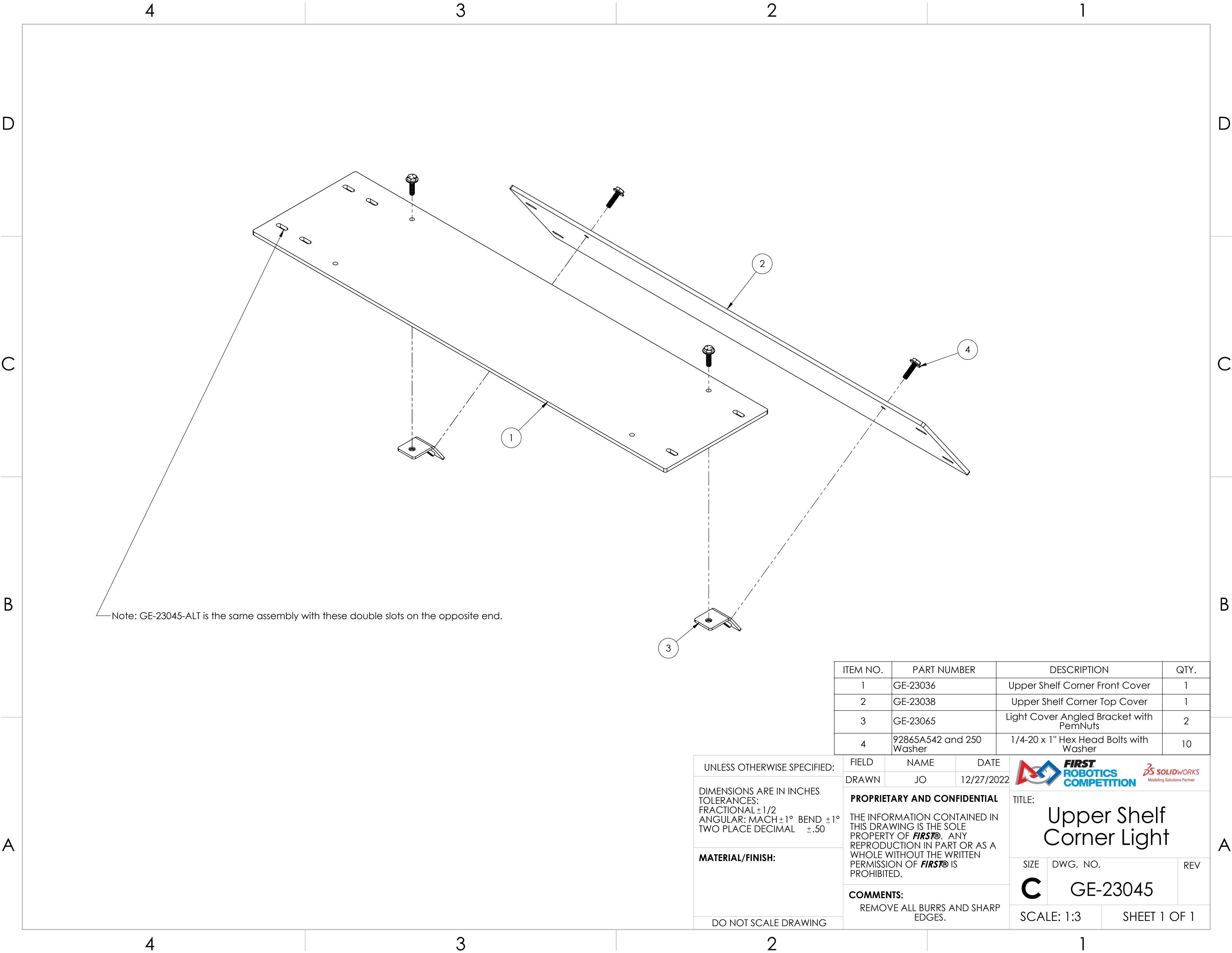
Notes:

1. Label Assembly with Part Number

2. 1-1/4" SCH 40 Pipe (1.66" OD) Fits between the two (4) brackets.  
Use a Pipe during assembly to get a slip fit between the brackets.



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23031	Upper Pole Base Top	1
2	GE-23032	Upper Pole Base Bottom	1
3	GE-23033	Upper Pole Base Side	2
4	GE-23034	Upper Pole Base Pole Brace	2
5	187 pop rivet	3/16" Steel Rivet	32

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>   DO NOT SCALE DRAWING	VEND	NAME	DATE
	DRAWN	JO	9/30/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		
<div><div></div><div>TITLE: Upper Pole Base Sheetmetal</div></div>			
<div><div>SIZE</div><div>DWG. NO.</div><div>REV</div></div> <div><div>C</div><div>GE-23043</div><div>A</div></div>			
<div><div>SCALE: 1:8</div><div>SHEET 1 OF 1</div></div>			



Note: GE-23045-ALT is the same assembly with these double slots on the opposite end.

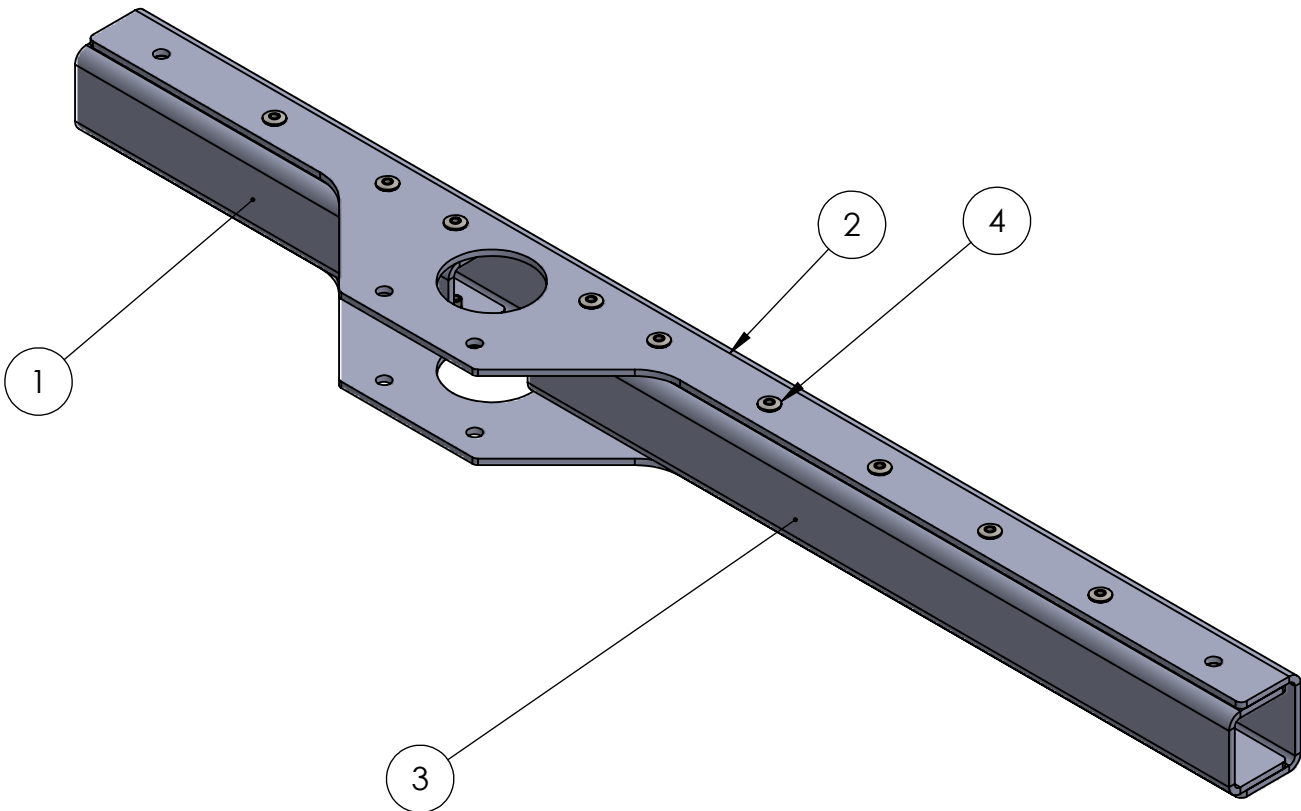
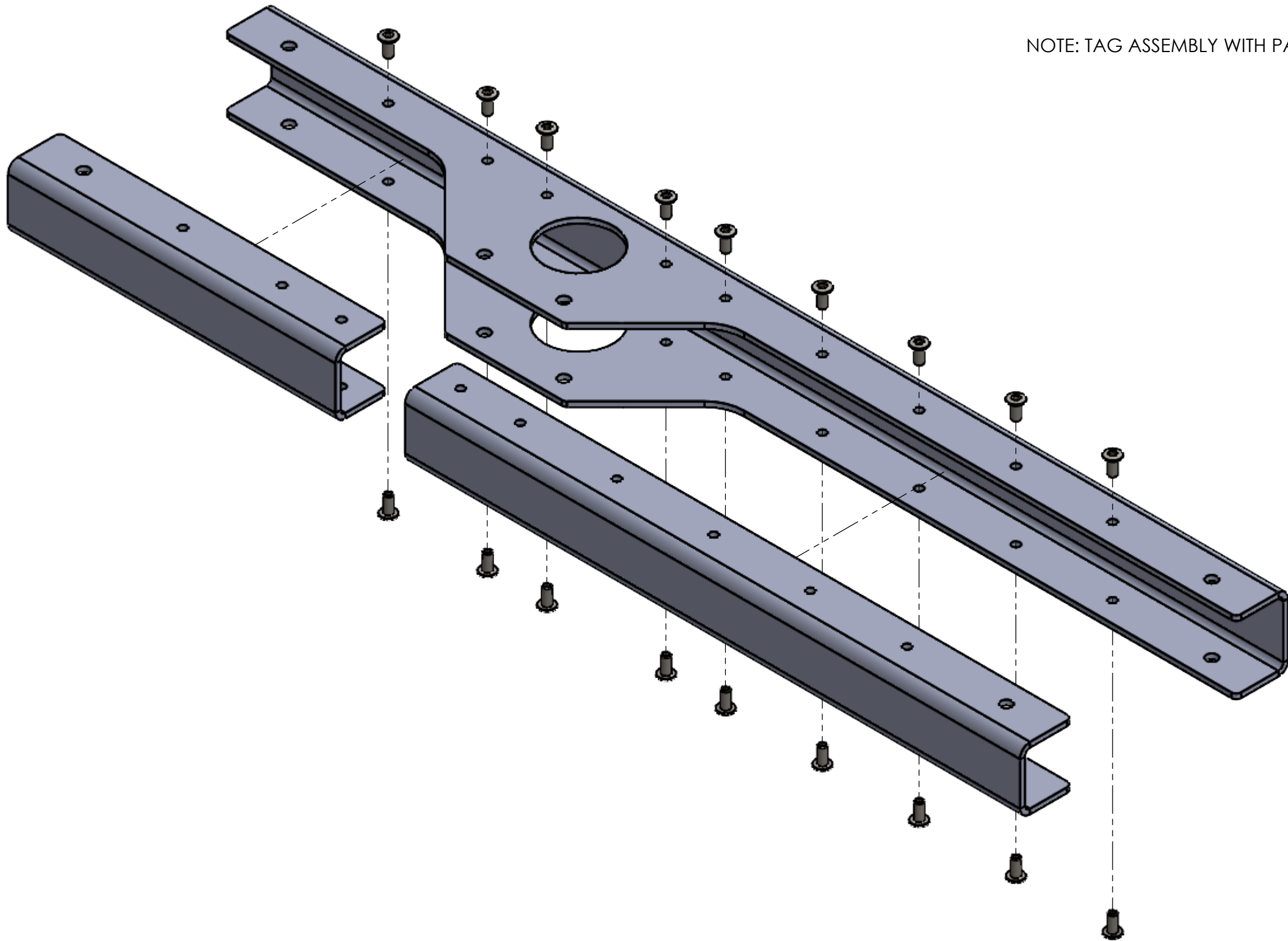
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23036	Upper Shelf Corner Front Cover	1
2	GE-23038	Upper Shelf Corner Top Cover	1
3	GE-23065	Light Cover Angled Bracket with PemNuts	2
4	92865A542 and 250 Washer	1/4-20 x 1" Hex Head Bolts with Washer	10



UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div>		
	DRAWN	JO	12/27/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE:  Upper Shelf Corner Light		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23045	
DO NOT SCALE DRAWING				SCALE: 1:3		SHEET 1 OF 1



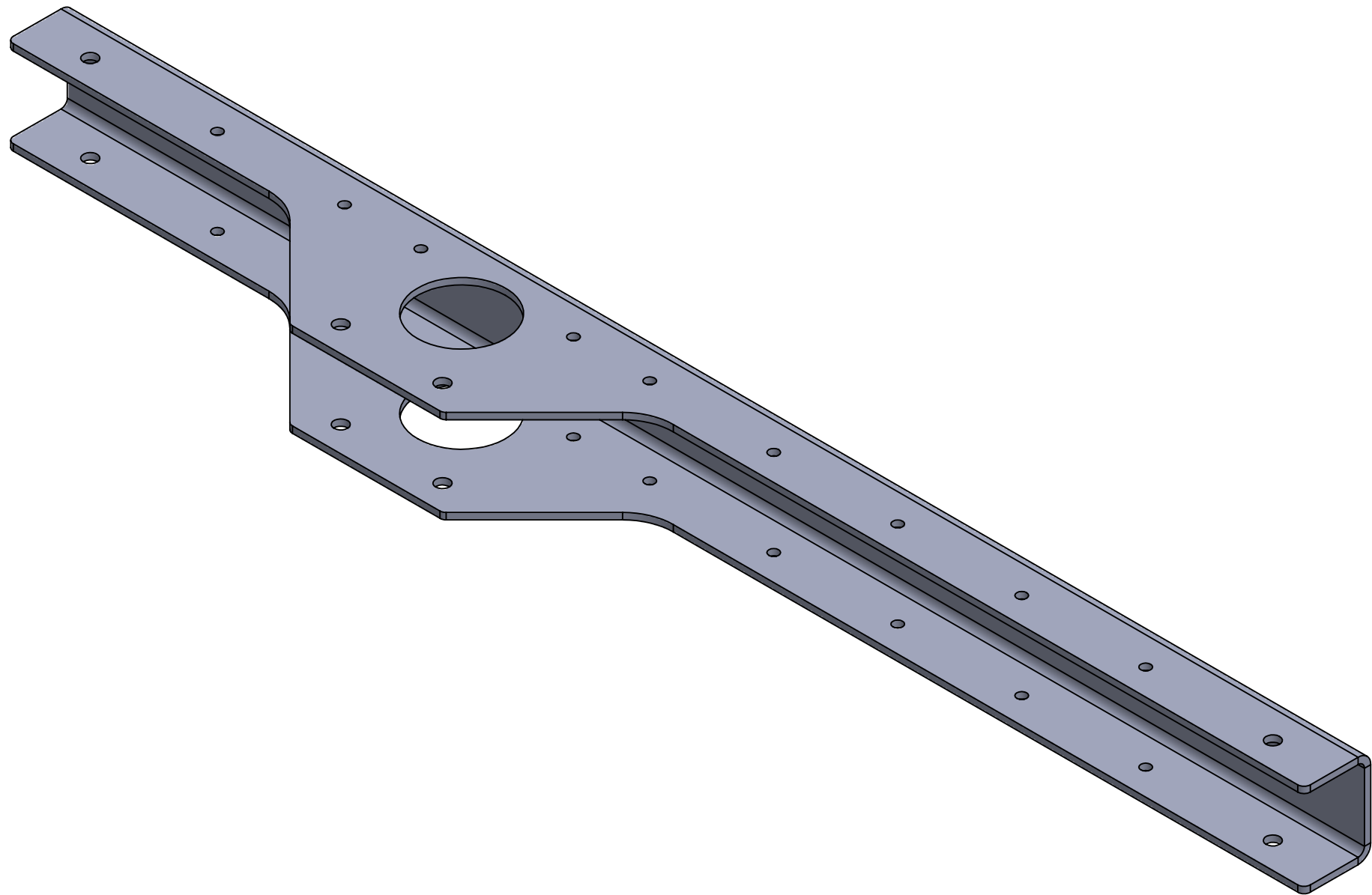
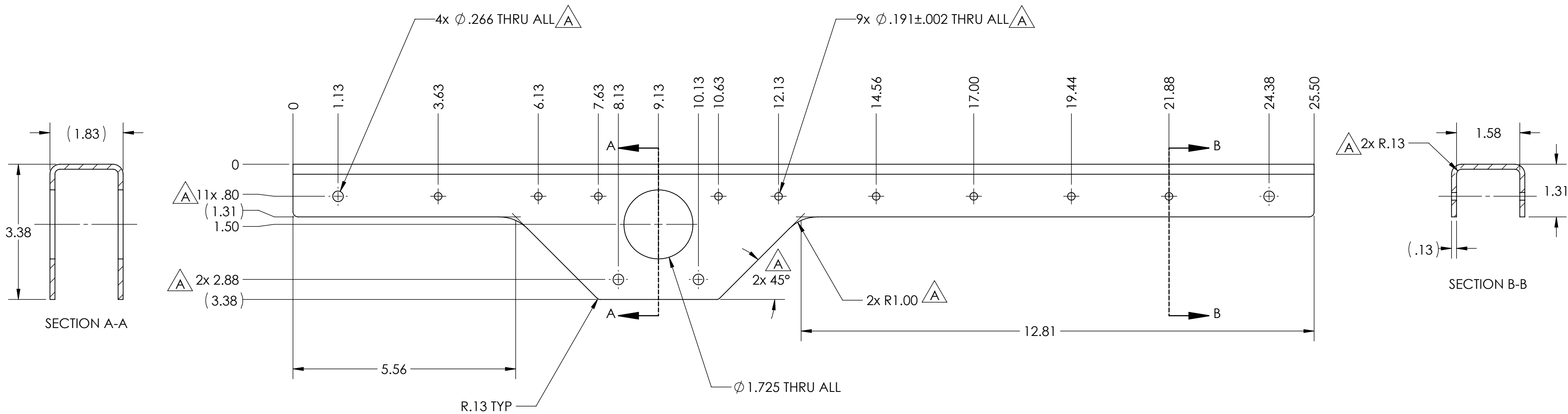
ITEM NO.	PART NUMBER	Description	QTY.
1	GE-23042	Upper Pole Crossbar B	1
2	GE-23051	Upper Pole End Crossbar A	1
3	GE-23053	Upper Pole Crossbar C	1
4	187 pop rivet	3/16" Steel Rivet	18

NOTE: TAG ASSEMBLY WITH PART NUMBER



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>     DO NOT SCALE DRAWING	BEND	NAME	DATE	<div></div> <div>TITLE: <b>Upper Pole End Crossbar</b></div>	
	DRAWN	NAL	9/29/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23050
SCALE: 1:2		SHEET 1 OF 1			

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C1, C2, C3, C4	A	Style of Qty callouts, Rivet Hole Tolerance	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL ±1/16  
ANGULAR: MACH ±1° BEND ±1°  
TWO PLACE DECIMAL ±.02  
THREE PLACE DECIMAL ±.010

**MATERIAL/FINISH:**  
8GA 5052 AL

DO NOT SCALE DRAWING

BEND	NAME	DATE
DRAWN	NAL	9/23/2022

**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.



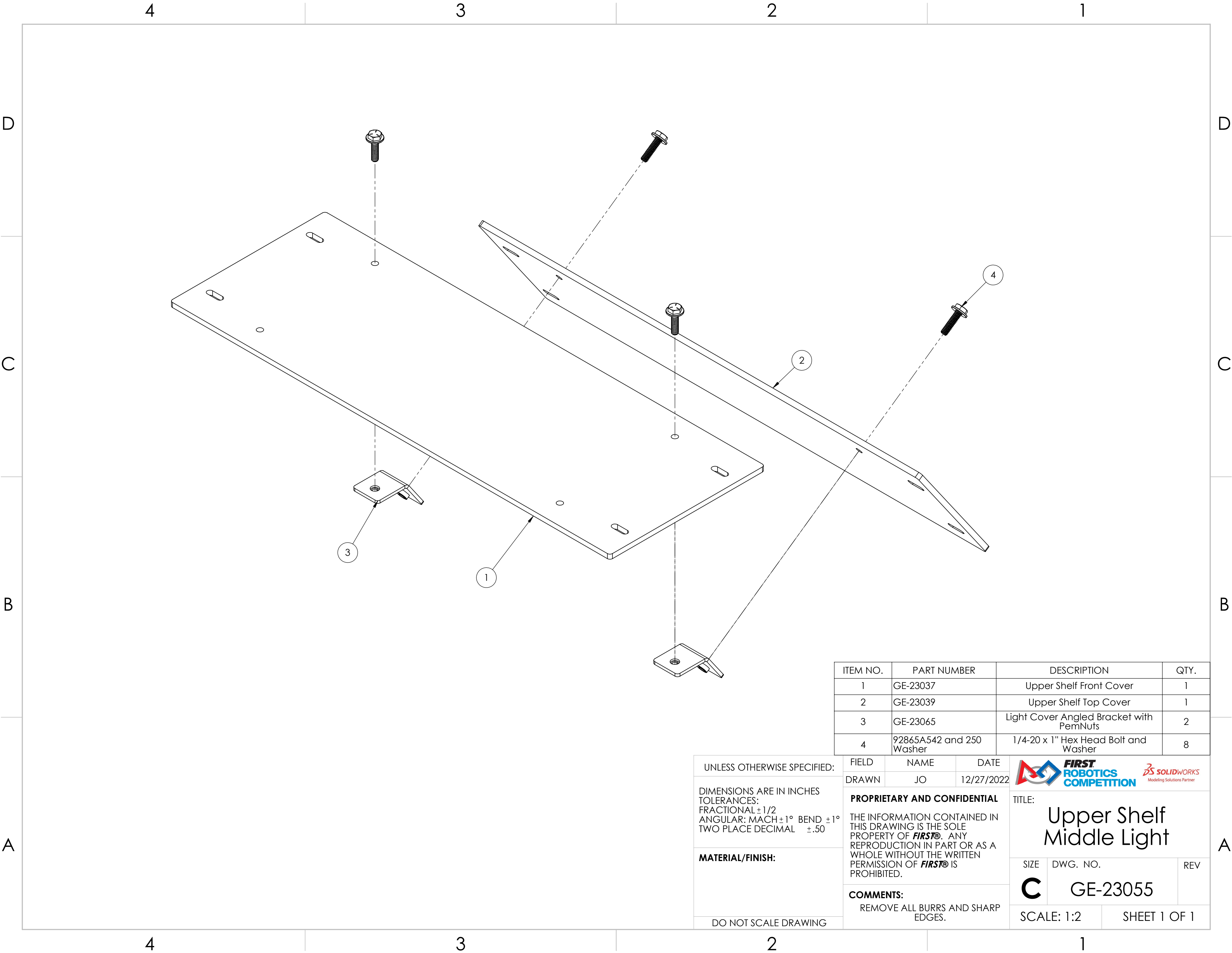
TITLE: Upper Pole End Crossbar A

SIZE	DWG. NO.	REV
C	GE-23051	



SCALE: 1:2 SHEET 1 OF 1

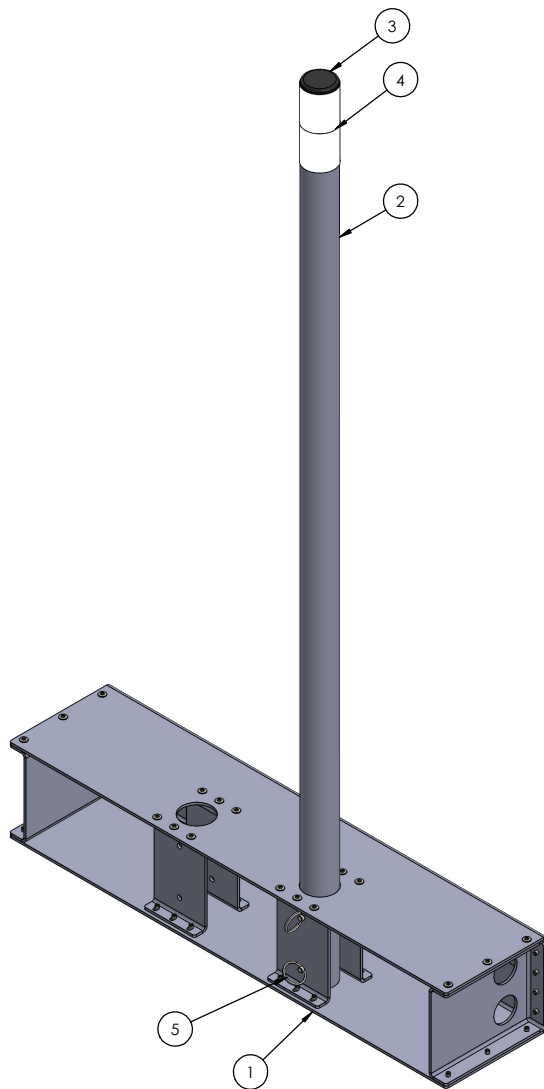








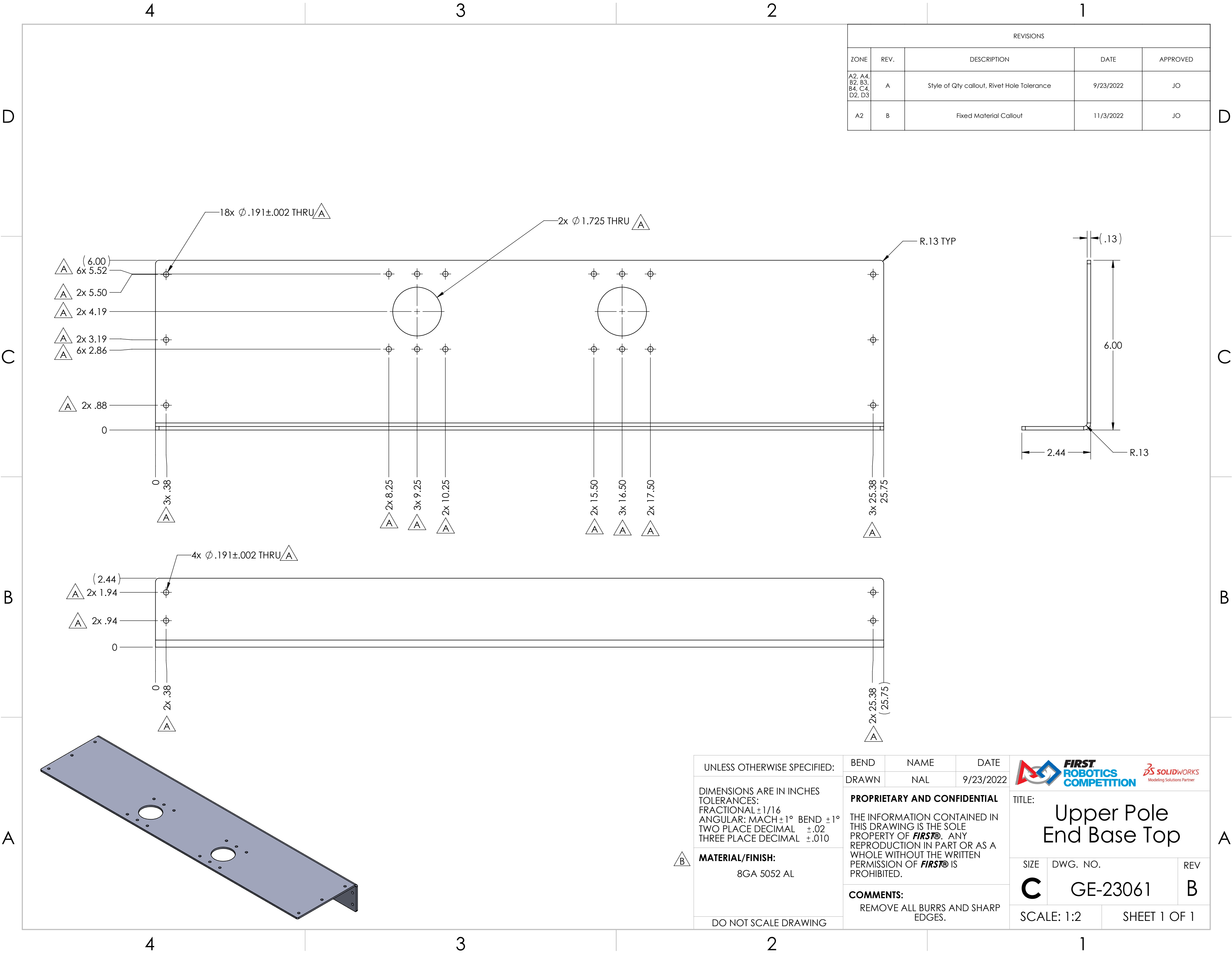
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23037	Upper Shelf Front Cover	1
2	GE-23039	Upper Shelf Top Cover	1
3	GE-23065	Light Cover Angled Bracket with PemNuts	2
4	92865A542 and 250 Washer	1/4-20 x 1" Hex Head Bolt and Washer	8

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	DRAWN	JO	12/27/2022	TITLE:	
	PROPRIETARY AND CONFIDENTIAL			Upper Shelf Middle Light	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE DWG. NO. REV	
MATERIAL/FINISH:	COMMENTS:			C GE-23055	
DO NOT SCALE DRAWING	REMOVE ALL BURRS AND SHARP EDGES.			SCALE: 1:2 SHEET 1 OF 1	





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23063	Upper Pole End Base Sheetmetal	1
2	GE-23035	Upper Pole	1
3	CCF-RT-13-1	Pole Cap	1
4	tape_VISIONTARGET	tape_VISIONTARGET	2
5	pin_quick_ring_.25_2.5	Pin, Ring-Grip Quick-Release with SS Ring, 1/4" Diameter, 2.5" Usable Length	2

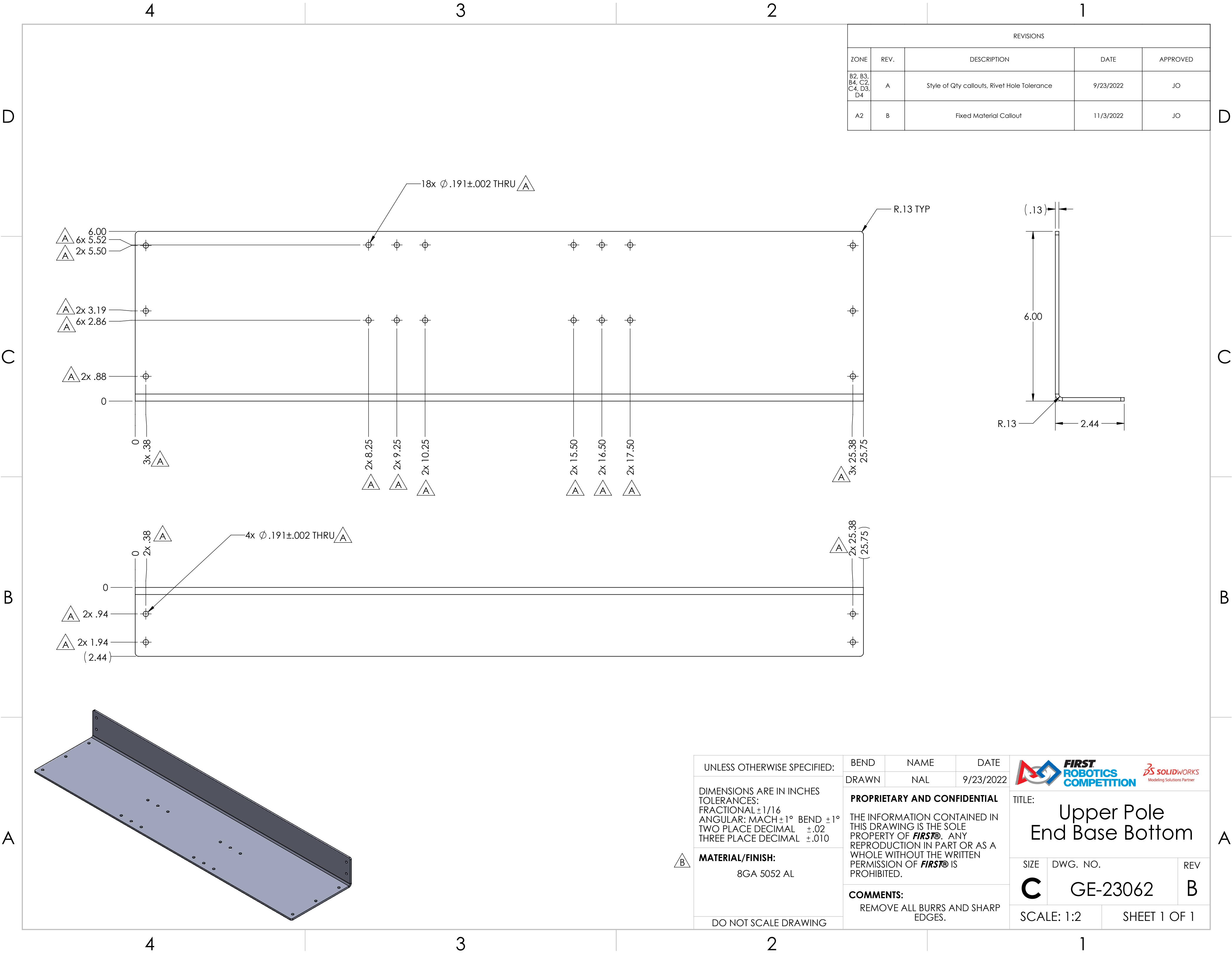
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010  <b>MATERIAL/FINISH:</b>  Various  <b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.  DO NOT SCALE DRAWING	BEND	NAME	DATE	 <b>FIRST ROBOTICS COMPETITION</b>   <b>SOLIDWORKS</b> Modeling Solutions Partner
	DRAWN	NAL	9/29/2022	
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			
				<b>TITLE:</b>  Upper Pole End Base  SIZE DWG. NO. REV <b>C</b> GE-23060  SCALE: 1:4 SHEET 1 OF 1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A4, B2, B3, B4, C4, D2, D3	A	Style of Qty callout, Rivet Hole Tolerance	9/23/2022	JO
A2	B	Fixed Material Callout	11/3/2022	JO

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>  8GA 5052 AL  DO NOT SCALE DRAWING	BEND	NAME	DATE
	DRAWN	NAL	9/23/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		



 		TITLE:	
Upper Pole End Base Top			
SIZE	DWG. NO.		REV
C	GE-23061		B
SCALE: 1:2		SHEET 1 OF 1	



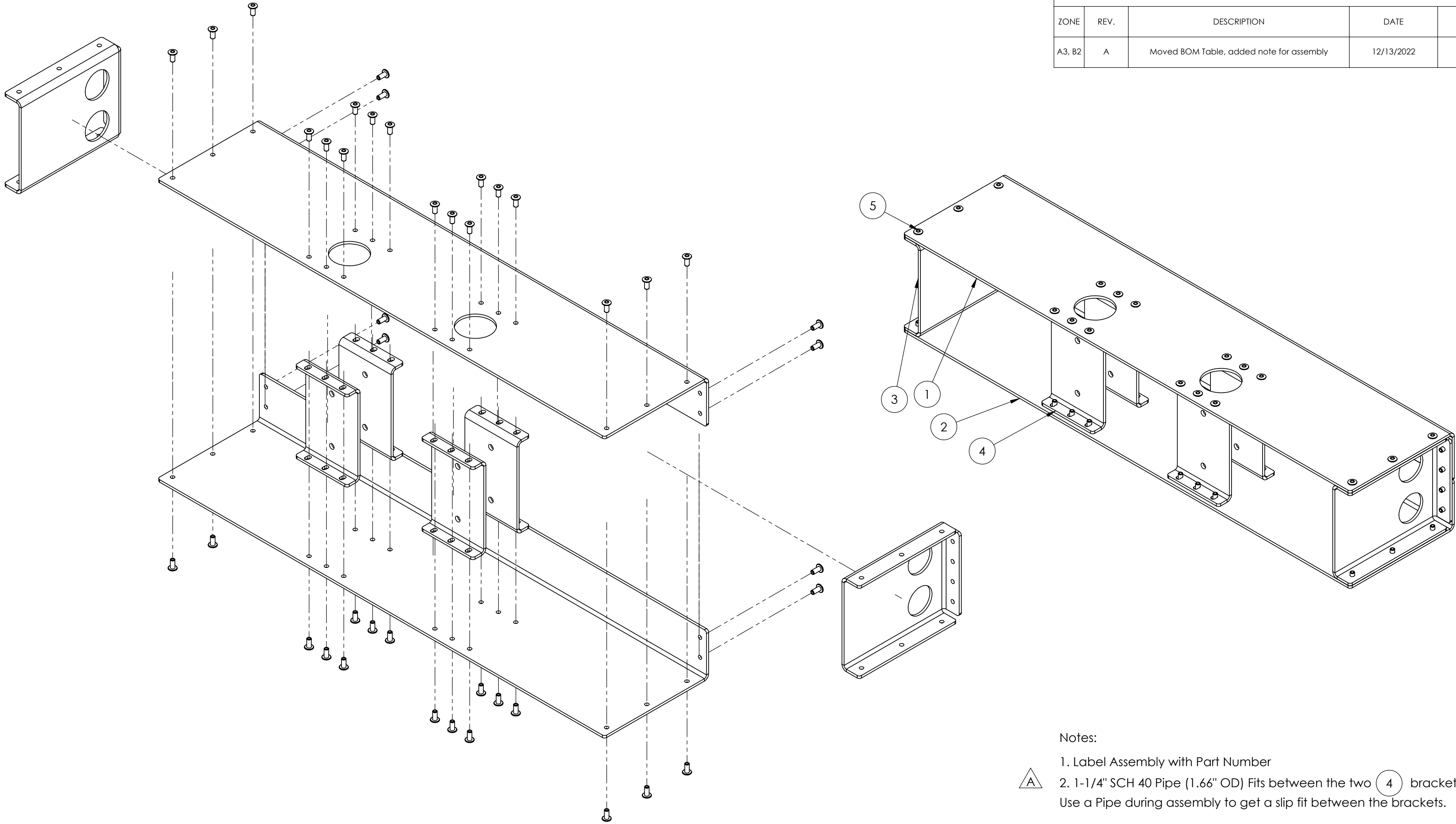
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, B4, C2, C4, D3, D4	A	Style of Qty callouts, Rivet Hole Tolerance	9/23/2022	JO
A2	B	Fixed Material Callout	11/3/2022	JO

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$
<b>MATERIAL/FINISH:</b> 8GA 5052 AL
DO NOT SCALE DRAWING

BEND	NAME	DATE
DRAWN	NAL	9/23/2022
<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		



 		
TITLE: <b>Upper Pole End Base Bottom</b>		
SIZE <b>C</b>	DWG. NO. <b>GE-23062</b>	REV <b>B</b>
SCALE: 1:2		SHEET 1 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B2	A	Moved BOM Table, added note for assembly	12/13/2022	JO



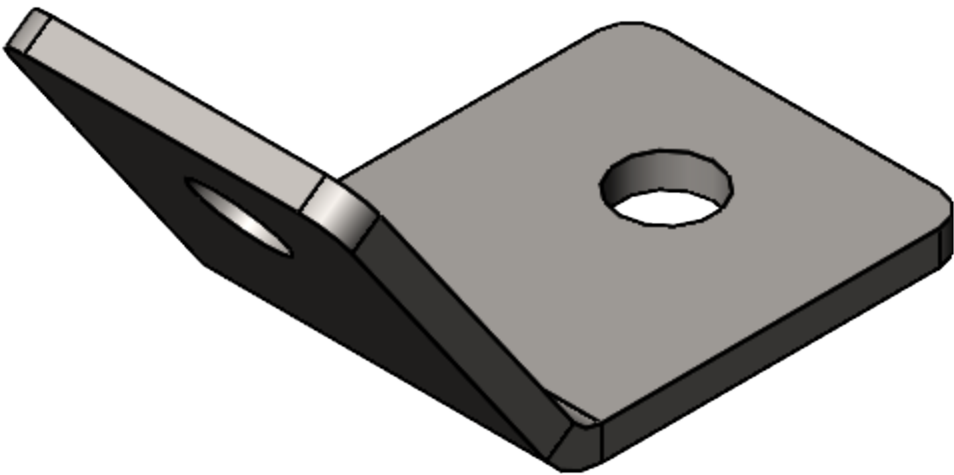
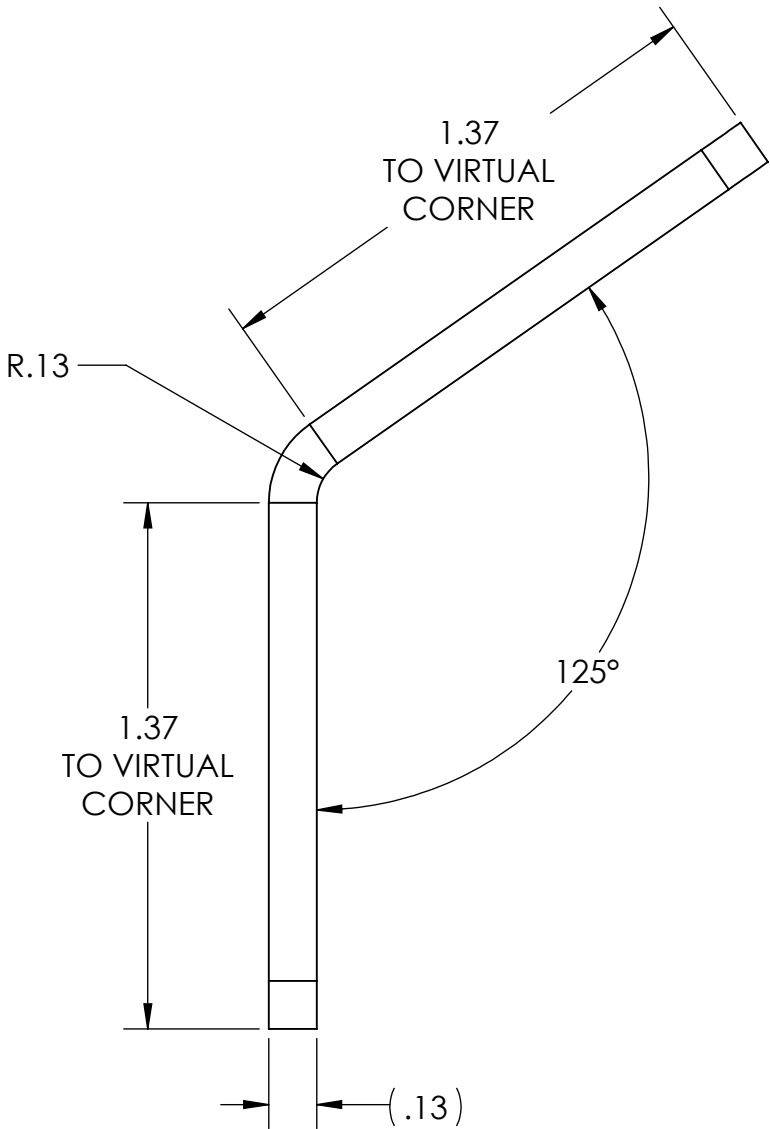
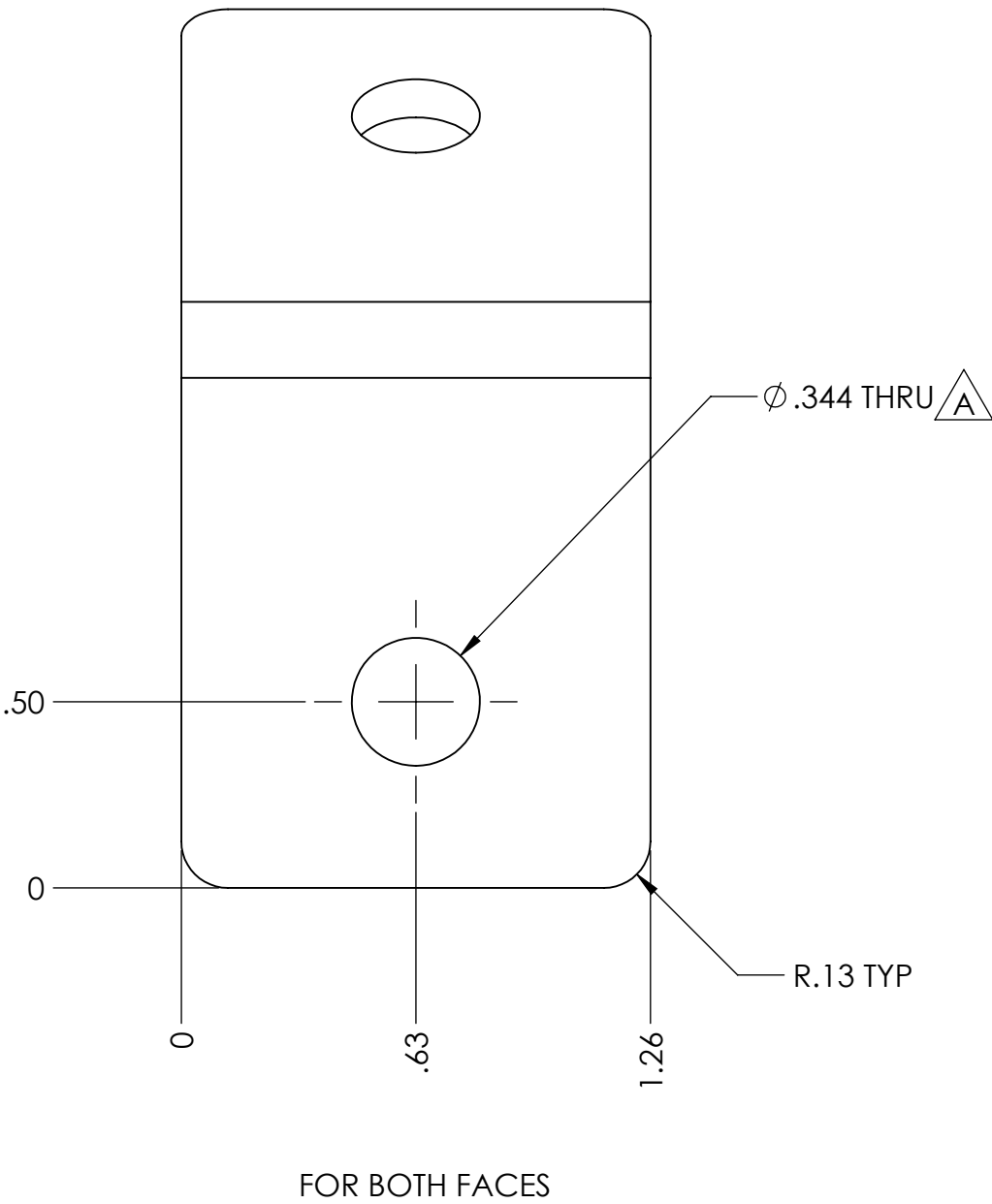
- Notes:
- 1. Label Assembly with Part Number
  - 2. 1-1/4" SCH 40 Pipe (1.66" OD) Fits between the two (4) brackets. Use a Pipe during assembly to get a slip fit between the brackets.



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23061	Upper Pole End Base Top	1
2	GE-23062	Upper Pole End Base Bottom	1
3	GE-23033	Upper Pole Base Side	2
4	GE-23034	Upper Pole Base Pole Brace	4
5	187 pop rivet	3/16 Steel Rivet	44

UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>
	DRAWN	JO	9/30/2022	
	PROPRIETARY AND CONFIDENTIAL			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: Upper Pole End Base Sheetmetal
MATERIAL/FINISH:	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			
DO NOT SCALE DRAWING	SCALE: 1:8			REV A SHEET 1 OF 1

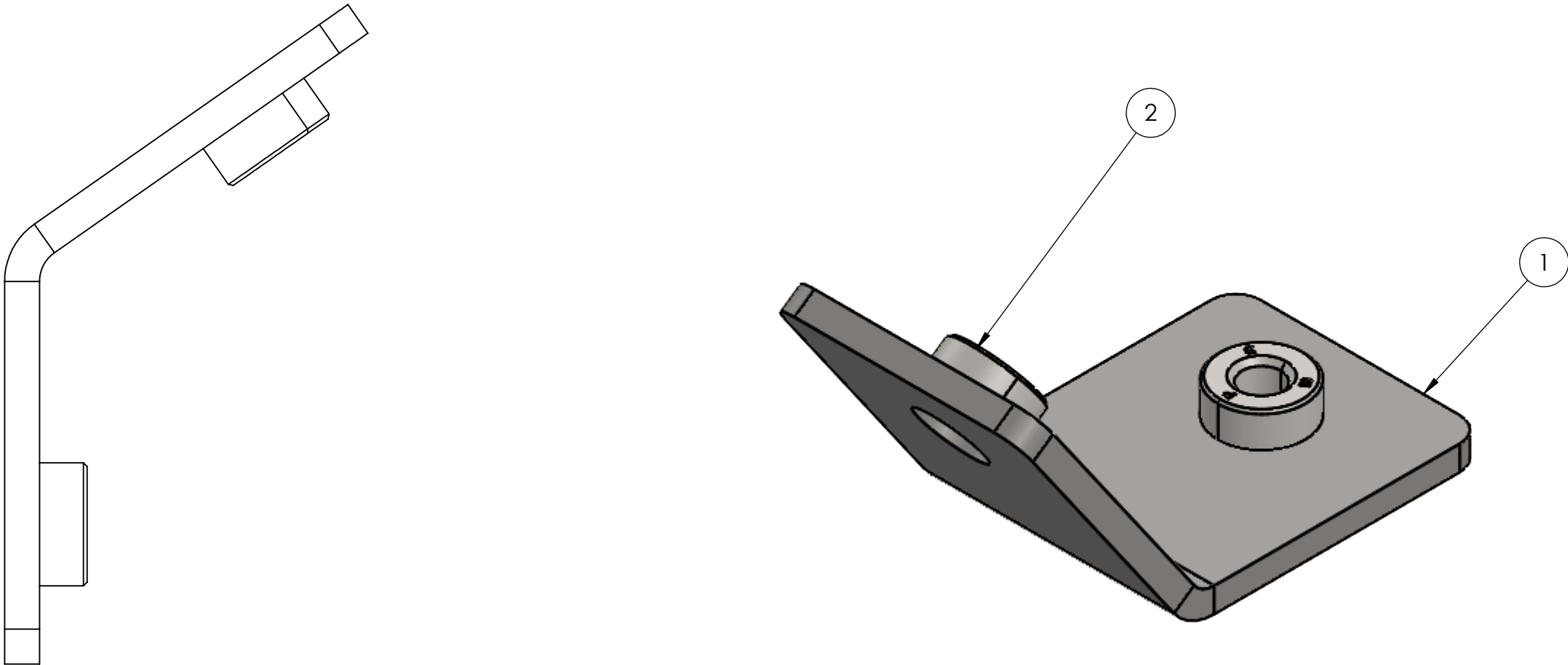




REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C3	A	Changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts	9/28/2022	JO

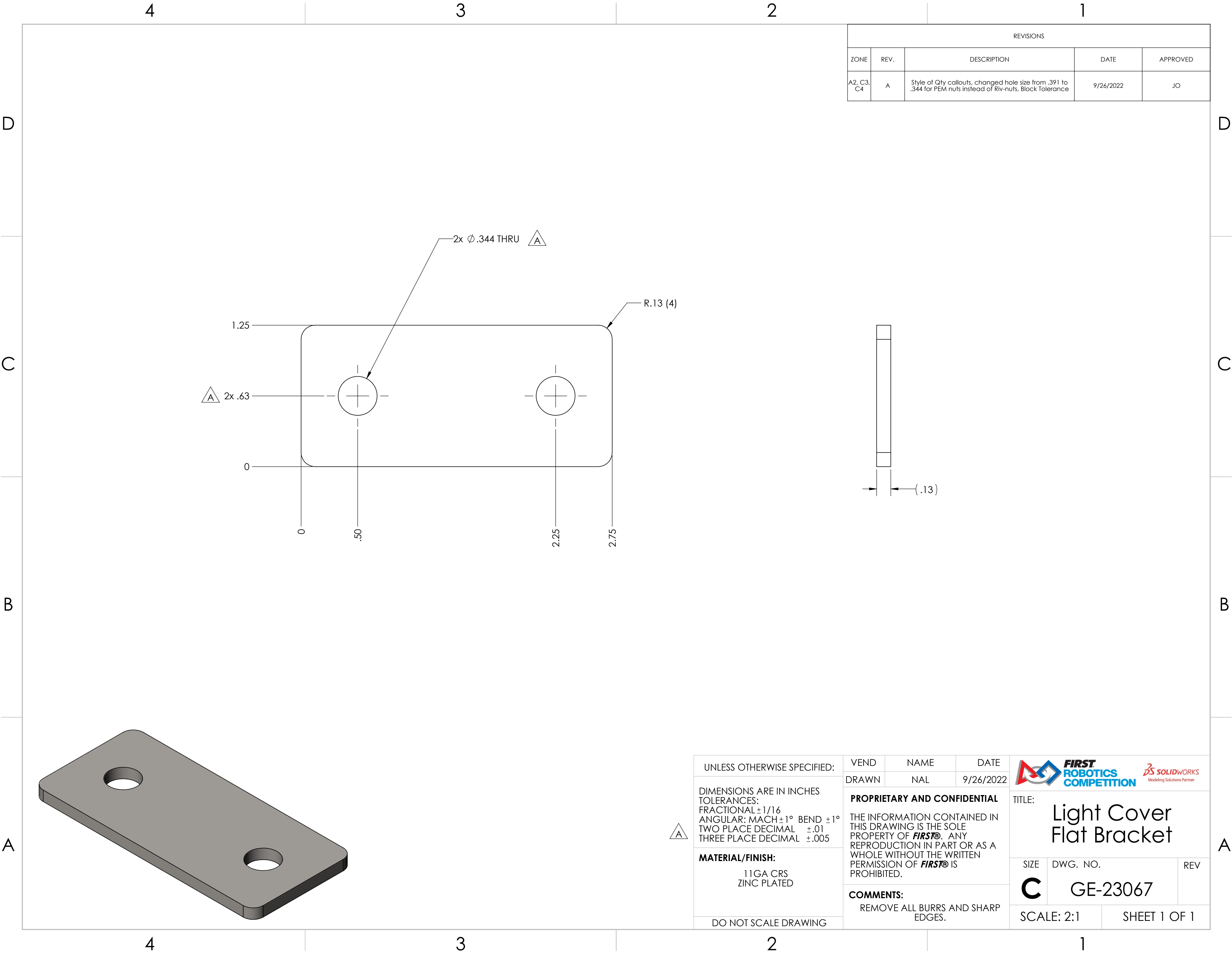


UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div><div>FIRST ROBOTICS COMPETITION</div><div>SOLIDWORKS Modeling Solutions Partner</div></div>		
	DRAWN	NAL	9/26/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			TITLE:  Light Cover Angled Bracket		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:  11GA CRS ZINC PLATED	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23064	
DO NOT SCALE DRAWING				SCALE: 2:1		SHEET 1 OF 1

ITEM NO.	PART NUMBER	Description	QTY.
1	GE-23064	Light Cover Angled Bracket	1
2	pem_clinchnut_.25_20_.054	1/4-20 PEM nut	2



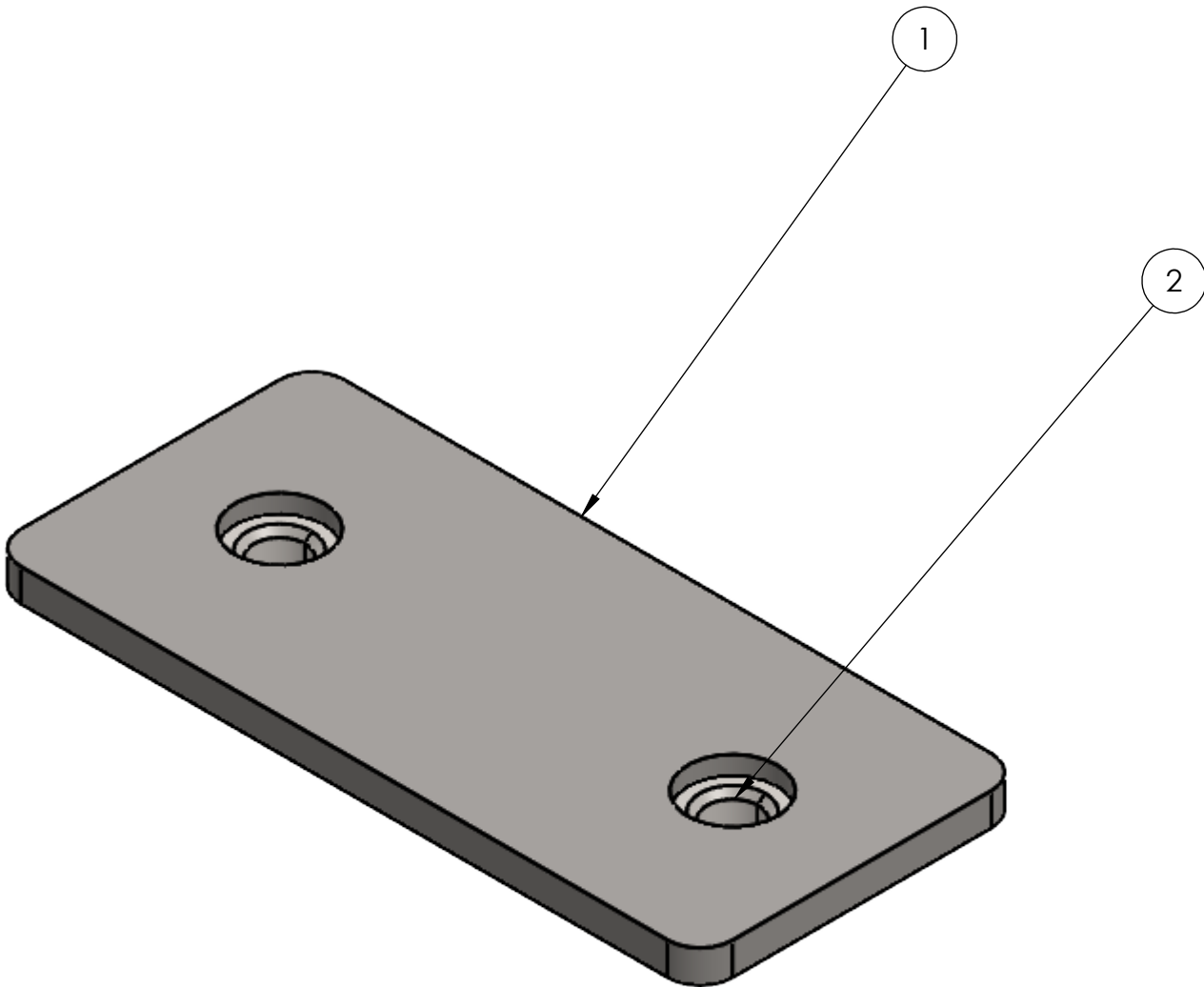
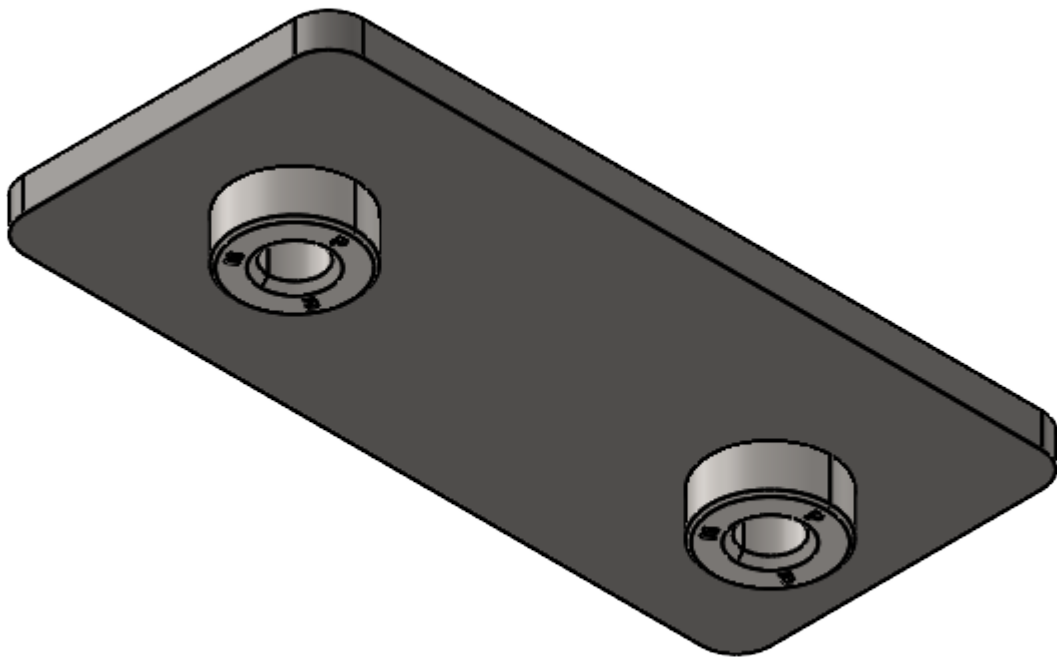
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010  <b>MATERIAL/FINISH:</b>          DO NOT SCALE DRAWING	BEND	NAME	DATE	<div><div></div><div>TITLE: Light Cover Angled Bracket With PEM Nuts</div><div><div>SIZE</div><div>DWG. NO.</div><div>REV</div></div><div><div>C</div><div>GE-23065</div></div><div><div>SCALE: 2:1</div><div>SHEET 1 OF 1</div></div></div>		
	DRAWN	NAL	9/29/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.					





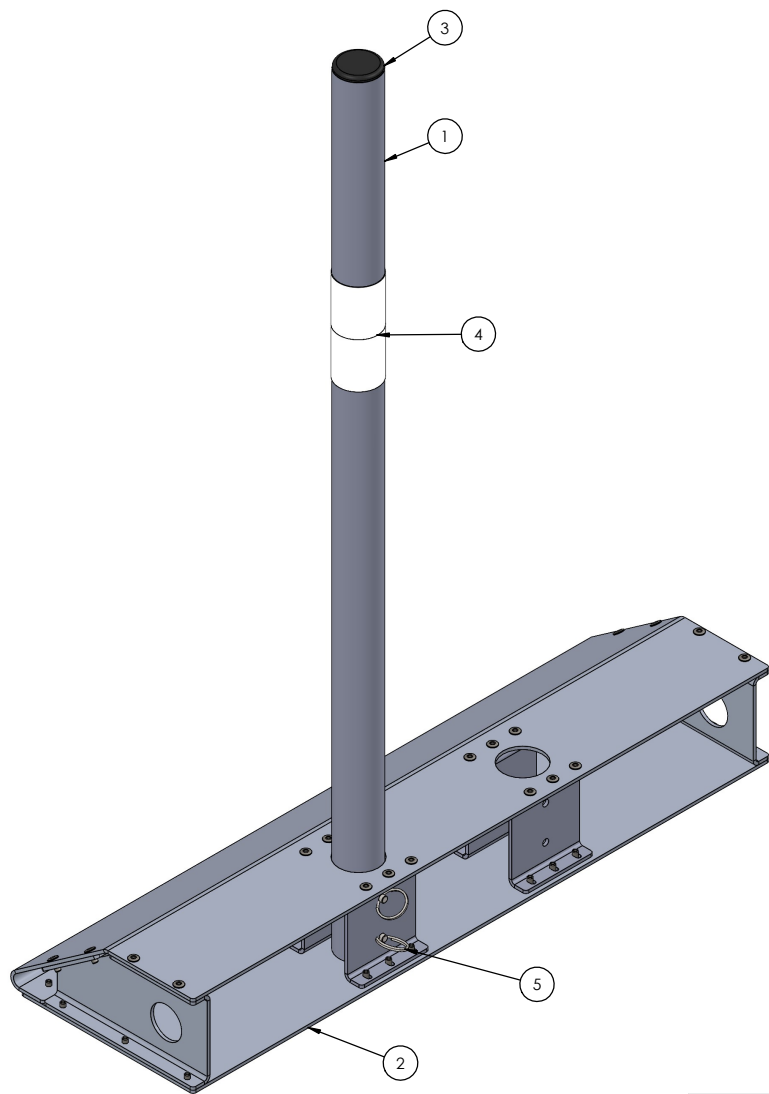
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, C3, C4	A	Style of Qty callouts, changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts, Block Tolerance	9/26/2022	JO

UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div><div><div><div></div><div>FIRST</div></div><div>ROBOTICS</div><div>COMPETITION</div></div><div><div><div>3S</div><div>SOLIDWORKS</div></div><div>Modeling Solutions Partner</div></div></div>		
	DRAWN	NAL	9/26/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	PROPRIETARY AND CONFIDENTIAL			TITLE:  Light Cover Flat Bracket		
	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:  11GA CRS ZINC PLATED				SIZE  C	DWG. NO.  GE-23067	REV
DO NOT SCALE DRAWING				SCALE: 2:1		SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23067	Light Mount Flat Bracket	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	2



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>          DO NOT SCALE DRAWING	VEND	NAME	DATE	<div><div></div><div>TITLE: Light Cover Flat Bracket with PemNuts</div></div>	
	DRAWN	JO	9/29/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23068
SCALE: 2:1		SHEET 1 OF 1			



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23016	Lower Pole	1
2	GE-23073	Lower Pole End Base Sheetmetal	1
3	CCF-RT-13-1	Pole Cap	1
4	tape_VISIONTARGET	tape_VISIONTARGET	2
5	pin_quick_ring_.25_2.5	Pin, Ring-Grip Quick-Release with SS Ring, 1/4" Diameter, 2.5" Usable Length	2

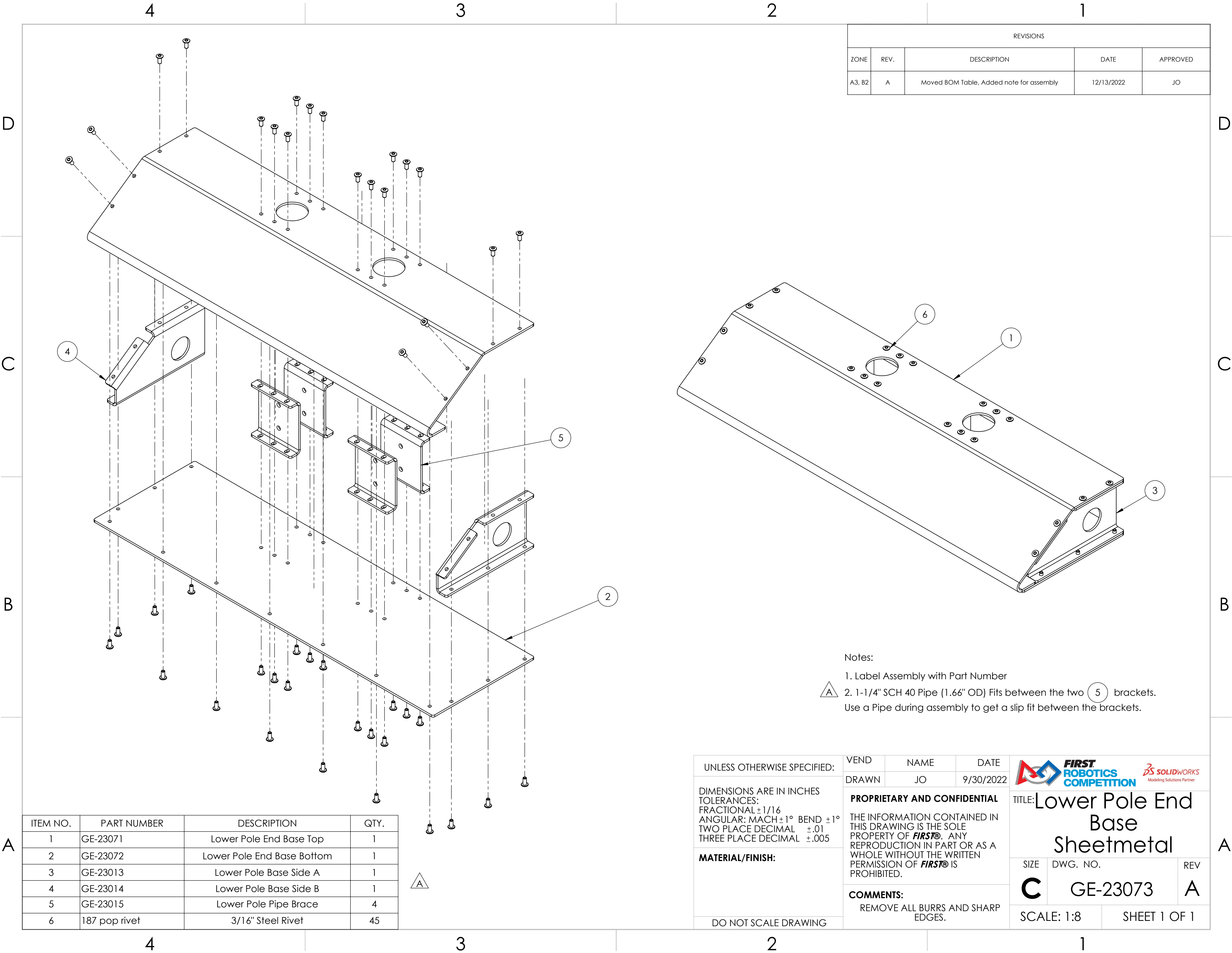
UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	 		
	DRAWN	NAL	9/29/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$	PROPRIETARY AND CONFIDENTIAL			TITLE:  Lower Pole End Base		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:  Various	COMMENTS:  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23070	
DO NOT SCALE DRAWING				SCALE: 1:3		SHEET 1 OF 1









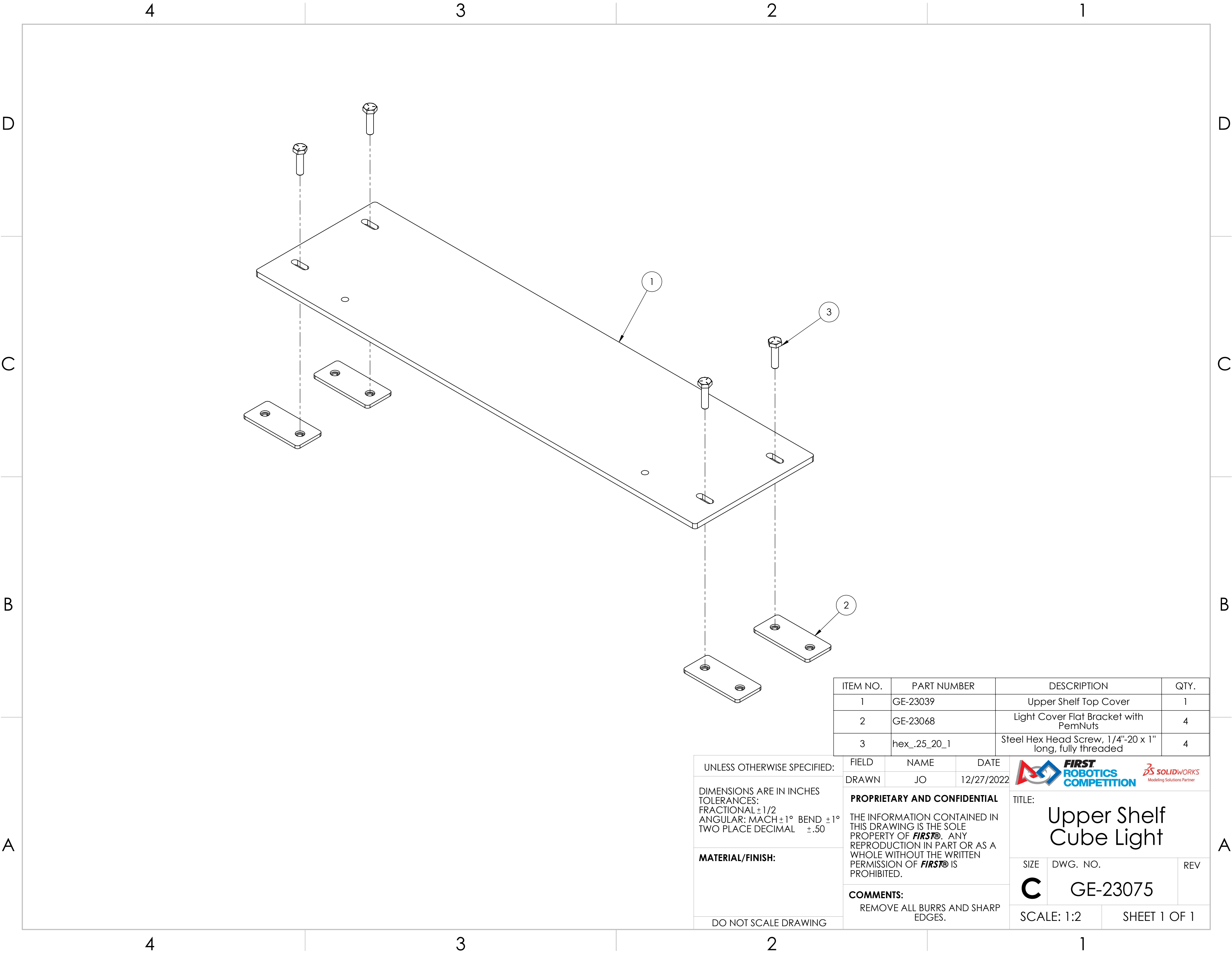




REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B2	A	Moved BOM Table, Added note for assembly	12/13/2022	JO

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23071	Lower Pole End Base Top	1
2	GE-23072	Lower Pole End Base Bottom	1
3	GE-23013	Lower Pole Base Side A	1
4	GE-23014	Lower Pole Base Side B	1
5	GE-23015	Lower Pole Pipe Brace	4
6	187 pop rivet	3/16" Steel Rivet	45

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>   DO NOT SCALE DRAWING	VEND	NAME	DATE
	DRAWN	JO	9/30/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		
<div><div></div><div>TITLE: Lower Pole End Base Sheetmetal</div></div>			
<div><div>SIZE</div><div>DWG. NO.</div><div>REV</div></div> <div><div>C</div><div>GE-23073</div><div>A</div></div>			
<div><div>SCALE: 1:8</div><div>SHEET 1 OF 1</div></div>			



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23039	Upper Shelf Top Cover	1
2	GE-23068	Light Cover Flat Bracket with PermNuts	4
3	hex_.25_20_1	Steel Hex Head Screw, 1/4"-20 x 1" long, fully threaded	4

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD  
DRAWN



NAME  
JO

DATE  
12/27/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE:  
**Upper Shelf  
Cube Light**

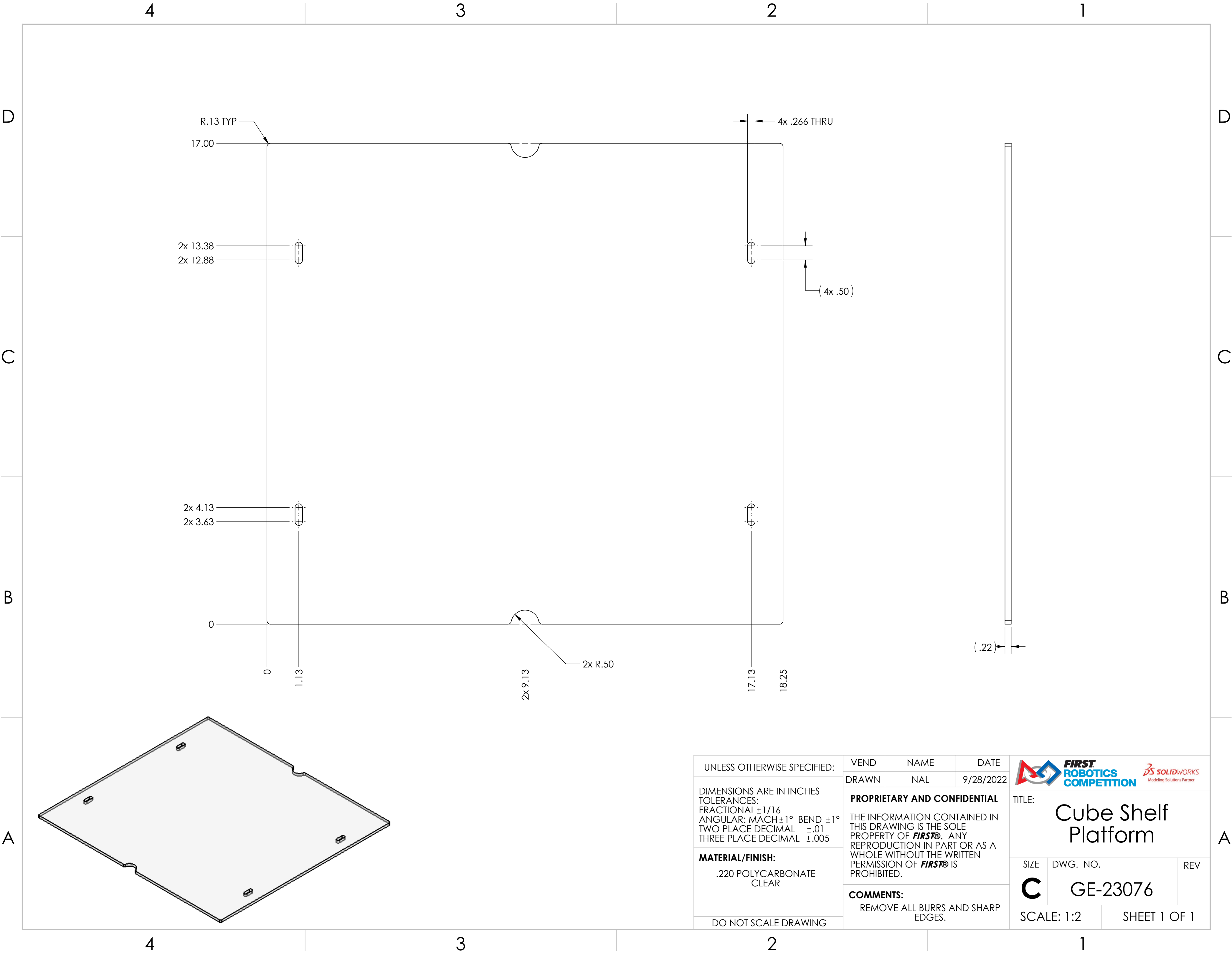
SIZE  
**C**



DWG. NO.  
**GE-23075**

REV

SCALE: 1:2

SHEET 1 OF 1



UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>				
	DRAWN	NAL	9/28/2022					
PROPRIETARY AND CONFIDENTIAL			TITLE:					
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			Cube Shelf Platform					
			SIZE			DWG. NO.	REV	
			C			GE-23076		
COMMENTS:			SCALE: 1:2			SHEET 1 OF 1		
REMOVE ALL BURRS AND SHARP EDGES.								
DO NOT SCALE DRAWING								

DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005		
MATERIAL/FINISH:  .220 POLYCARBONATE CLEAR		

D

C

B

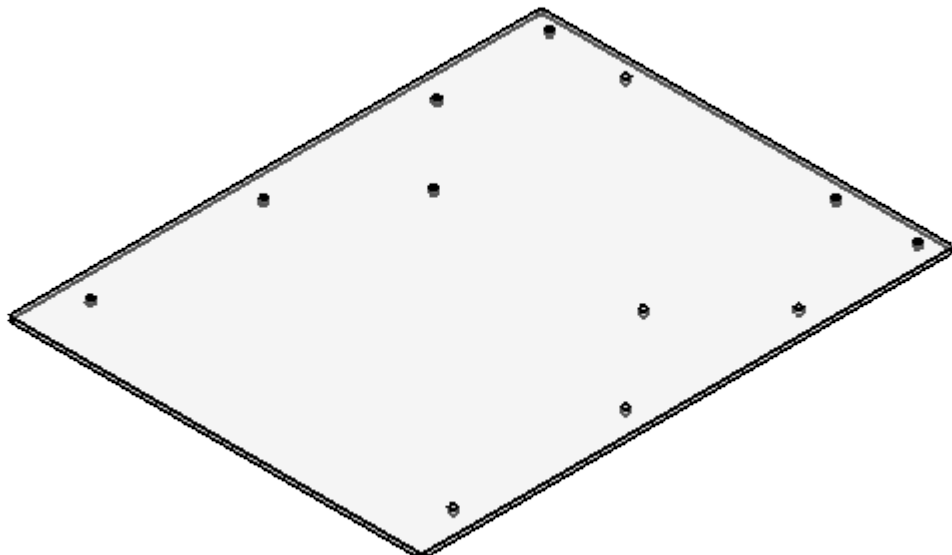
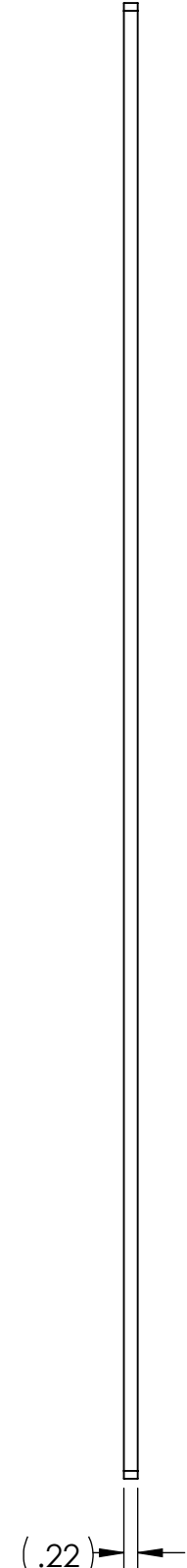
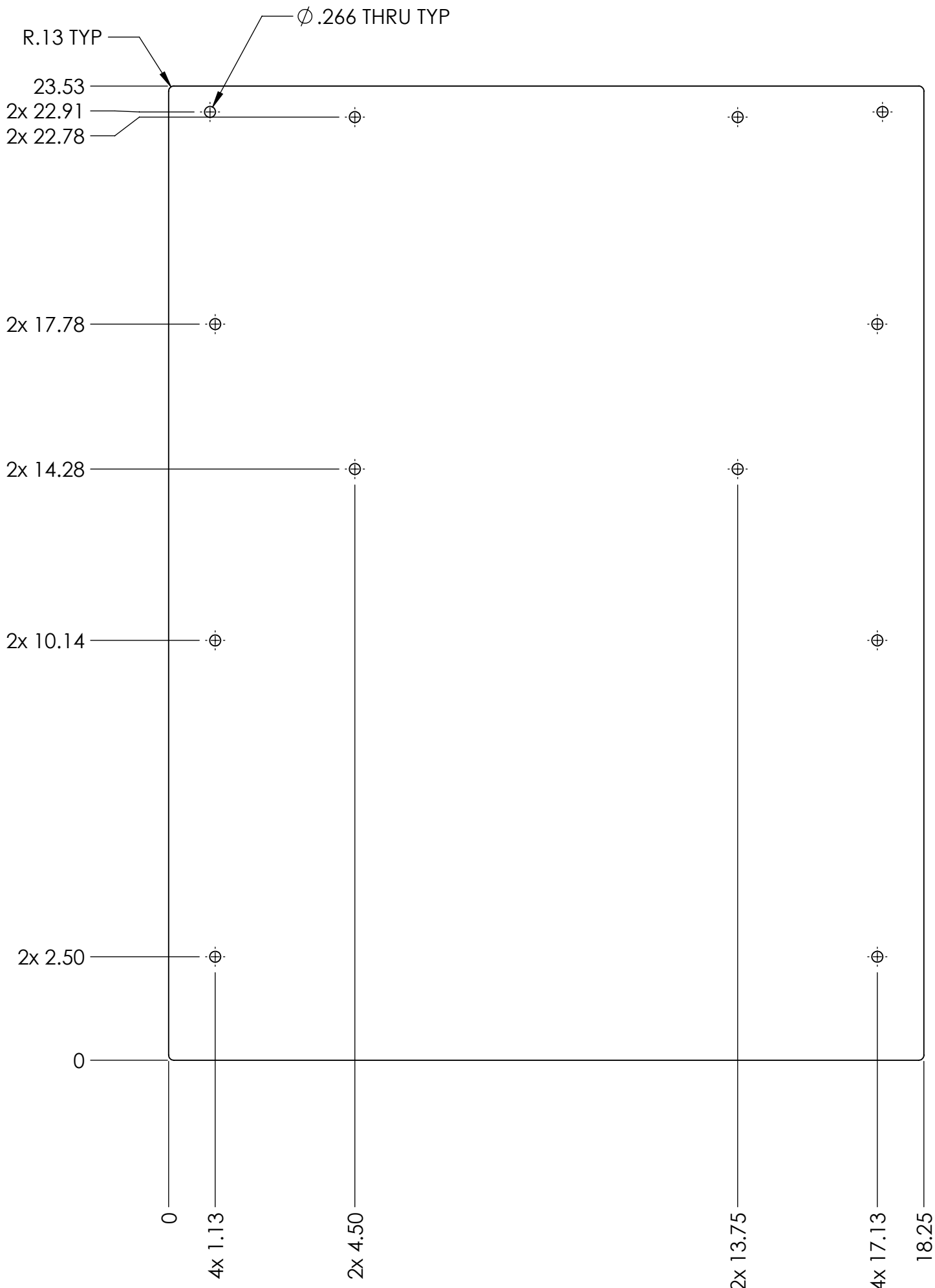
A

D

C

B

A



UNLESS OTHERWISE SPECIFIED:		VEND	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$		DRAWN	NAL	9/28/2022
MATERIAL/FINISH: .220 POLYCARBONATE CLEAR		<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST</b> IS PROHIBITED.		
DO NOT SCALE DRAWING		<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		
TITLE:		Cube Shelf Lower Front Panel		
SIZE	DWG. NO.	REV		
C	GE-23077			
SCALE: 1:3		SHEET 1 OF 1		

D

C

B

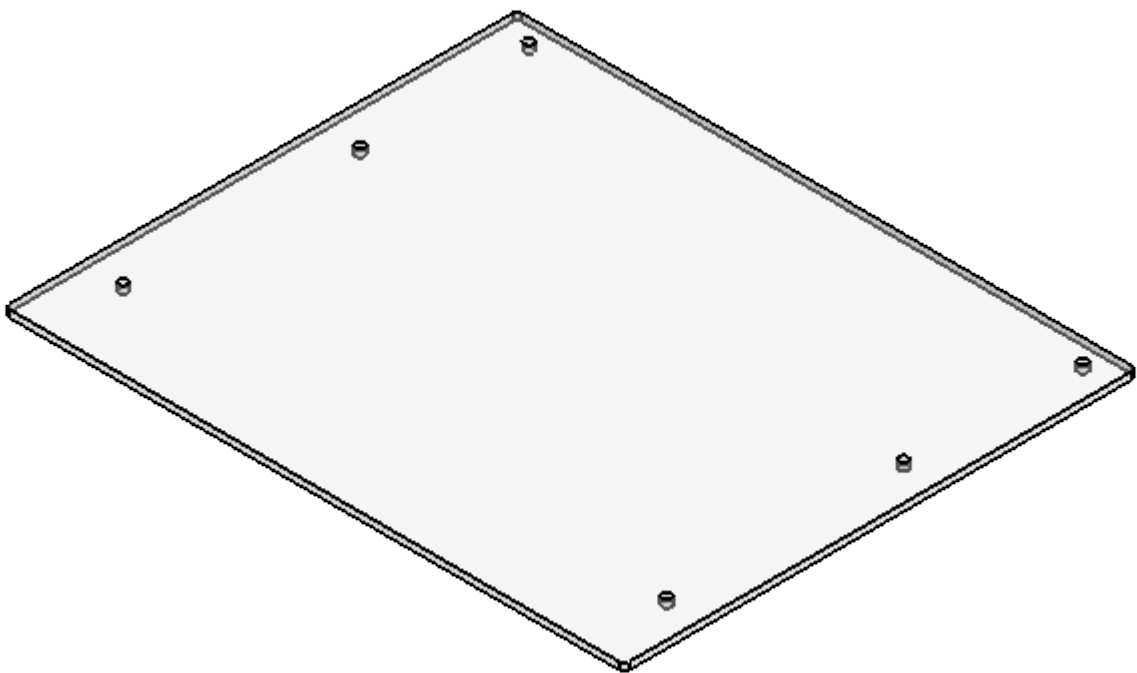
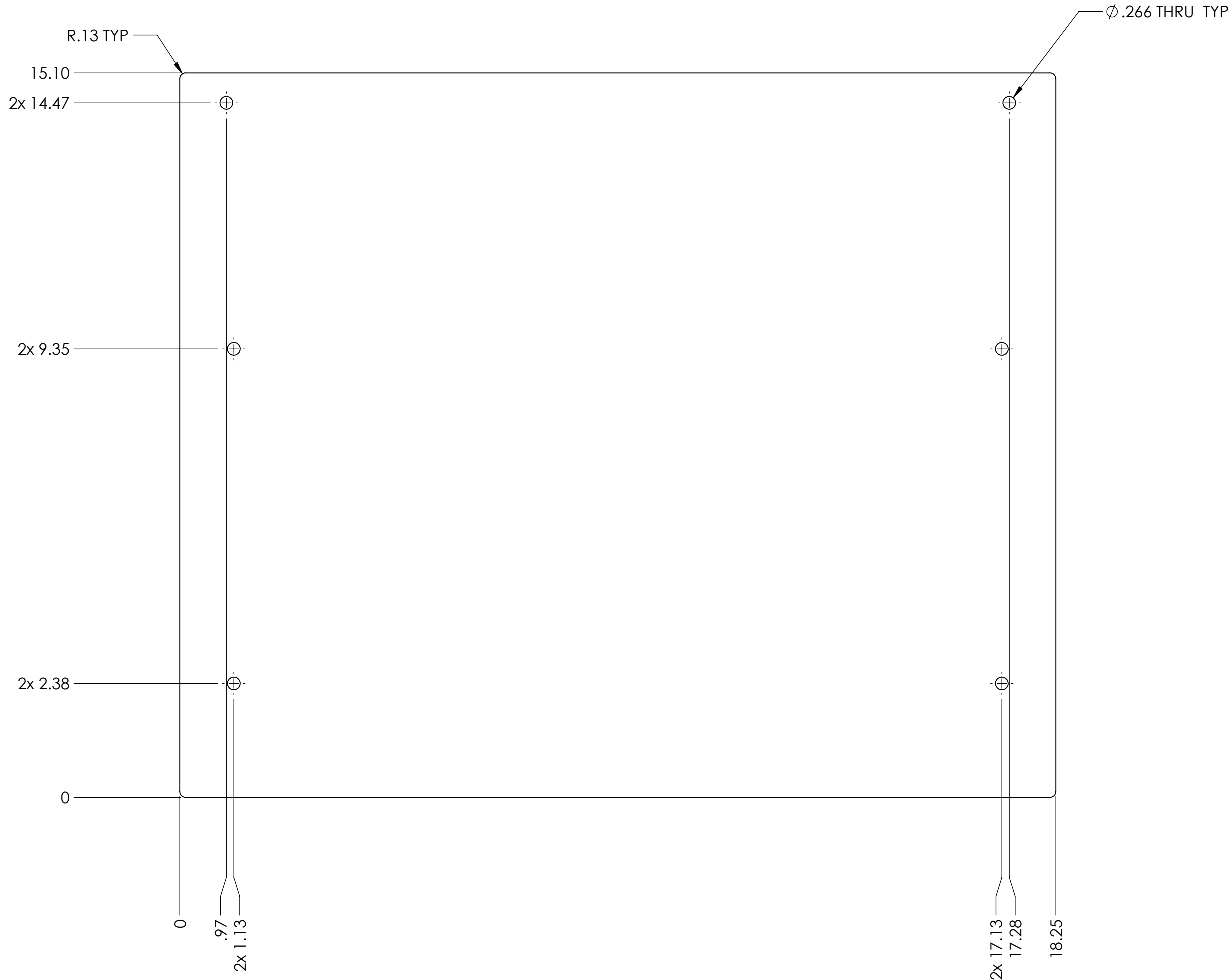
A



D

C

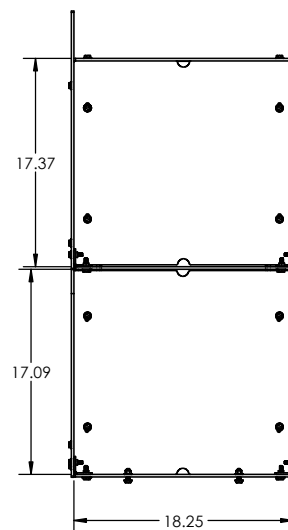
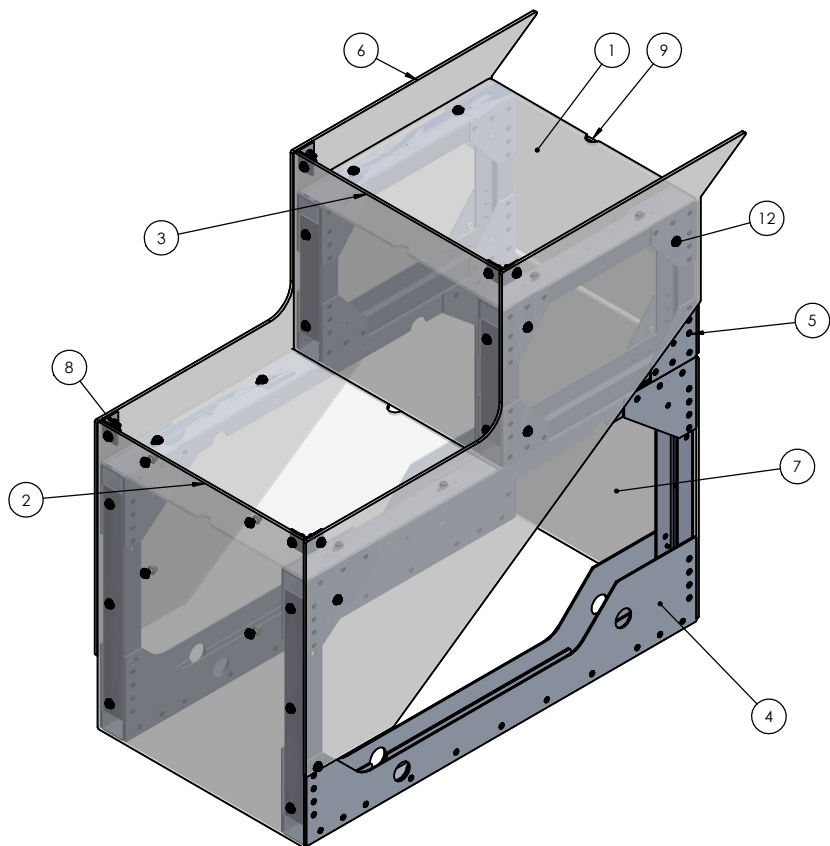
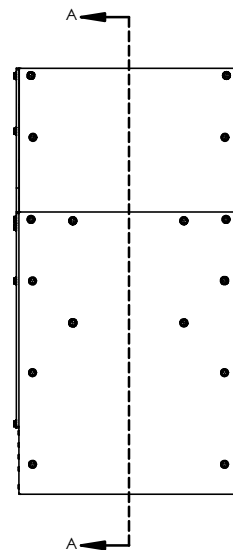
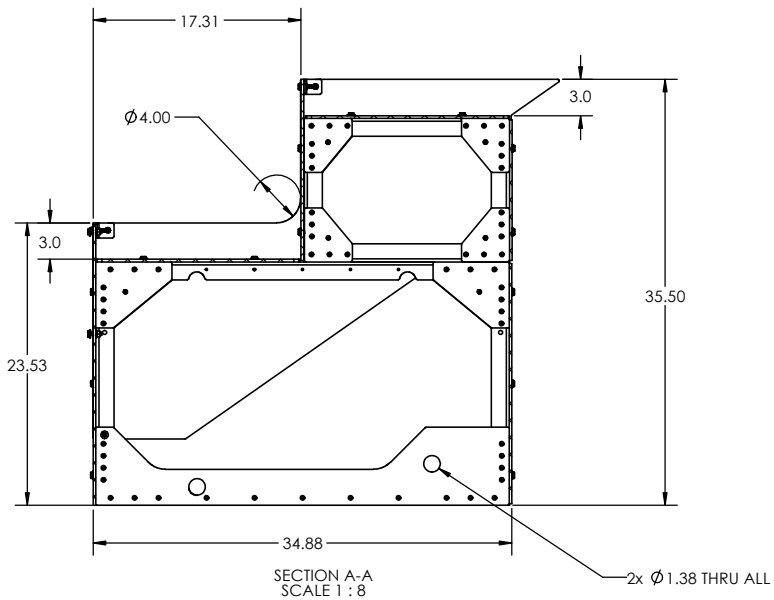
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A



UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div><div>FIRST ROBOTICS COMPETITION</div><div>SOLIDWORKS Modeling Solutions Partner</div></div>		
	DRAWN	NAL	9/28/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	PROPRIETARY AND CONFIDENTIAL			TITLE:  Cube Shelf Upper Front Panel		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:  .220 POLYCARBONATE CLEAR	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23079	
DO NOT SCALE DRAWING				SCALE: 1:2		SHEET 1 OF 1





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23076	Cube Shelf Platform	2
2	GE-23077	Cube Shelf Lower Front Panel	1
3	GE-23079	Cube Shelf Upper Front Panel	1
4	GE-23087	Cube Shelf Lower Hoop	2
5	GE-23088	Cube Shelf Upper Hoop	2
6	GE-23089	Cube Shelf Side Poly	2
7	GE-23094	Cube Shelf Lower Rear Panel	1
8	GE-23095	Cube Shelf Inside Corner with PemNuts	4
9	GE-23098	Cube Shelf Upper Back Panel	1
10	1/4-20 NyLock Nut	1/4-20 Nylock	8
11	250 Washer	1/4" Washer	8
12	92865A542 and 250 Washer	1/4-20 x 1" Hex Head Bolt with Washer	54

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL:  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .05$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	JO	9/29/2022

**PROPRIETARY AND CONFIDENTIAL**

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**COMMENTS:**

REMOVE ALL BURRS AND SHARP EDGES.



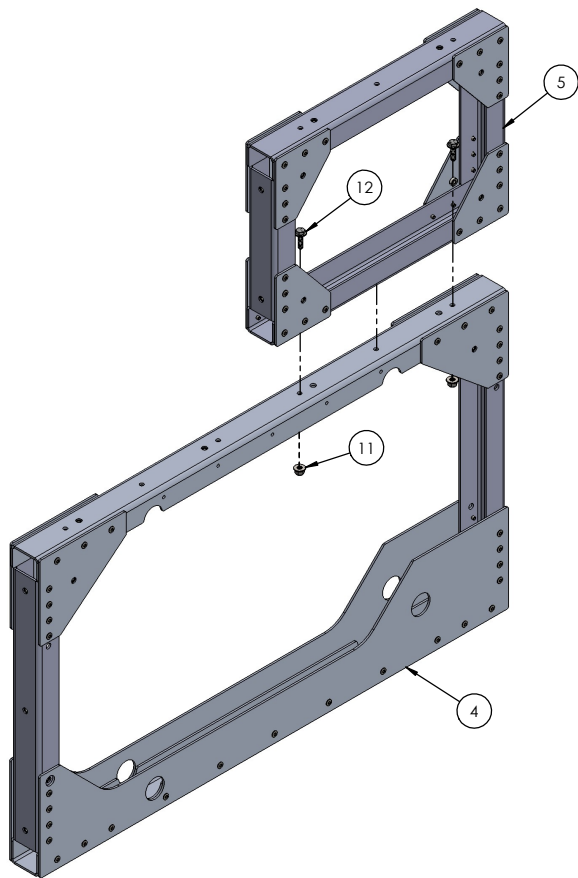
TITLE:

Cube Shelf

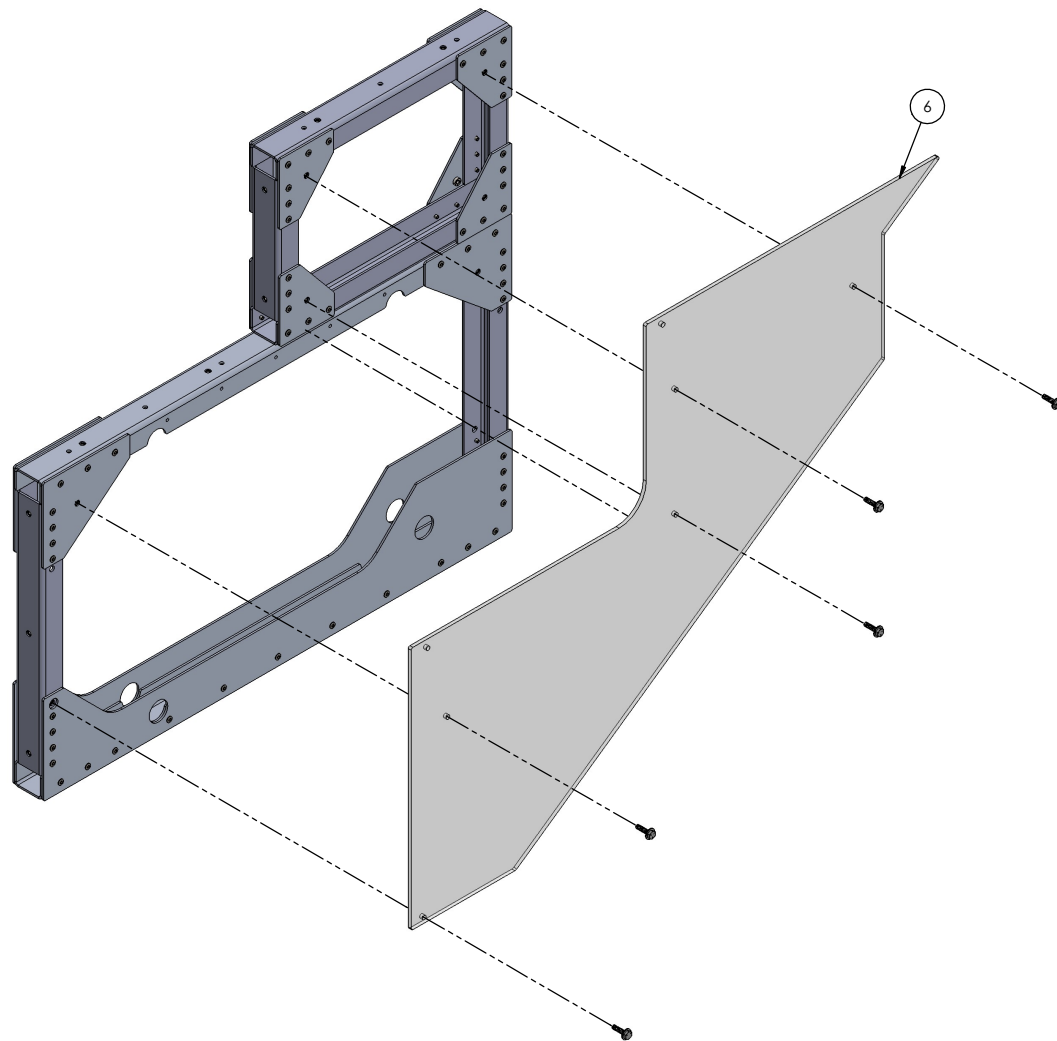
SIZE DWG. NO. REV

**C** GE-23080 **A**



SCALE: 1:6 SHEET 1 OF 4



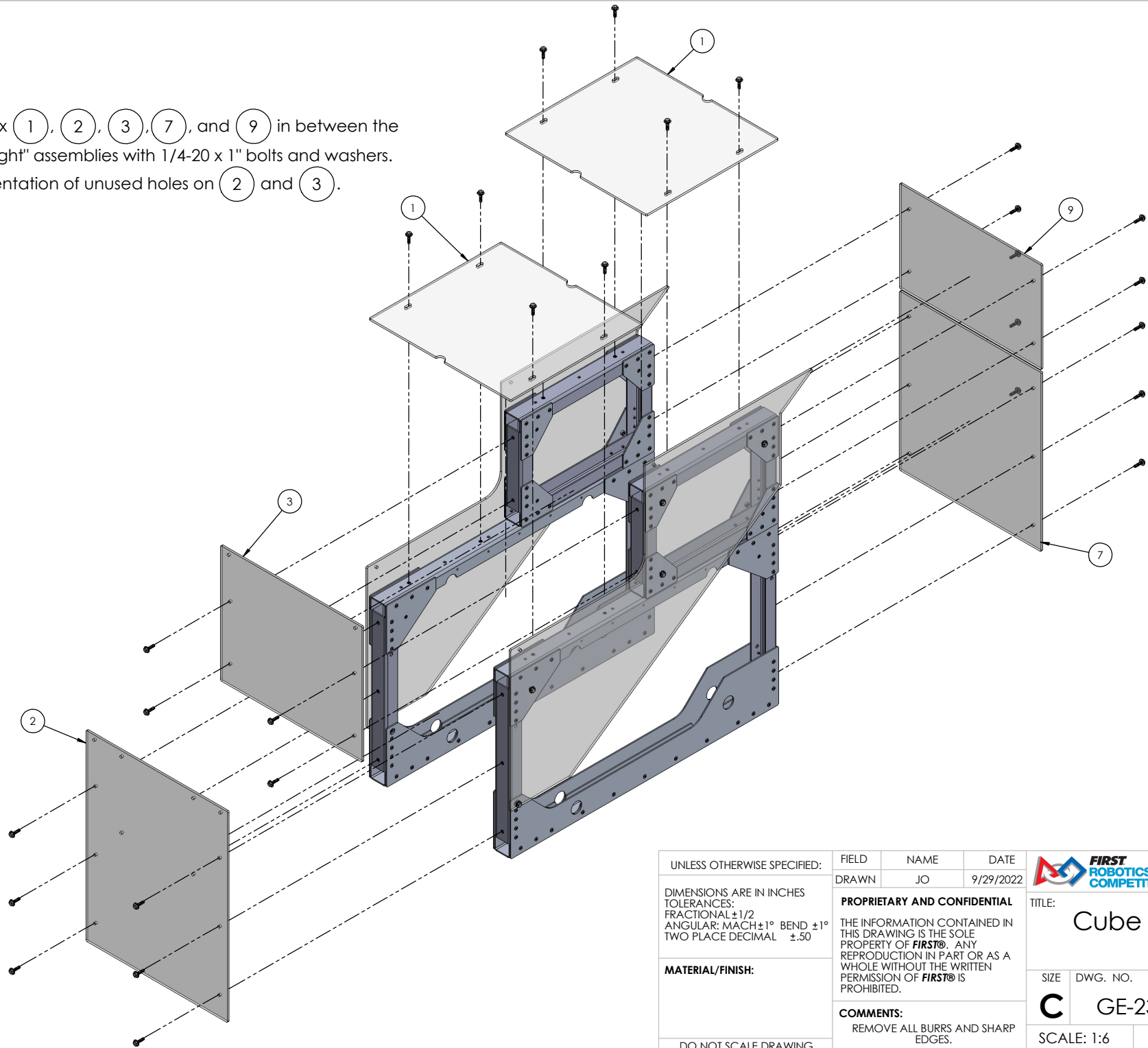
Step 1: Bolt (4) and (5) together with 1/4-20 x 1" bolts (12) and 1/4-20 locknuts (11). Quantity 2x





Step 2: Bolt (6) onto side of assembly with 1/4-20 x 1" bolts and washers into the existing PEM Nuts. Put the plastic on as shown for one assembly, and on the opposite side on the other assembly, so there is a "Left" and "Right"

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 
	DRAWN	JO	9/29/2022	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE:
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			Cube Shelf
MATERIAL/FINISH:	COMMENTS:			SIZE
	REMOVE ALL BURRS AND SHARP EDGES.			DWG. NO.
DO NOT SCALE DRAWING				C
				GE-23080
				SCALE: 1:5
				SHEET 2 OF 4
				REV
				A

Step 3: Bolt 2x (1), (2), (3), (7), and (9) in between the "Left" and "Right" assemblies with 1/4-20 x 1" bolts and washers. Note the orientation of unused holes on (2) and (3).



UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 		
	DRAWN	JO	9/29/2022			
	DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	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:  Cube Shelf	
MATERIAL/FINISH:	COMMENTS:  REMOVE ALL BURRS AND SHARP EDGES.			SIZE  C	DWG. NO.  GE-23080	REV  A
DO NOT SCALE DRAWING				SCALE: 1:6		SHEET 3 OF 4

4

3

2

1

D

D

C

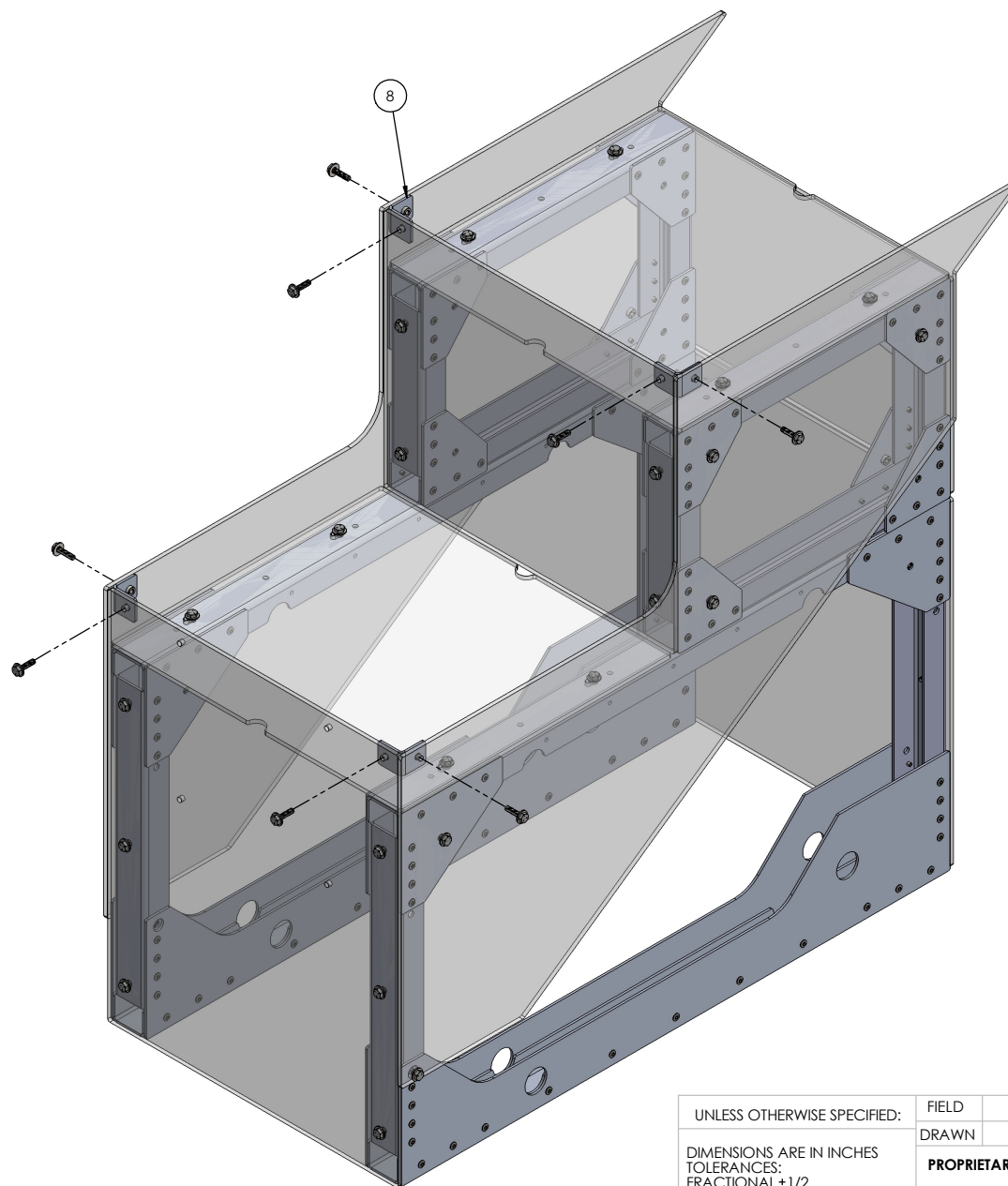
C

B



B

A

A



Step 4: Attach (8) brackets into the front corners with 1/4-20 x 1" bolts and washers.

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 
	DRAWN	JO	9/29/2022	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE:  Cube Shelf
	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  C GE-23080 A
	REMOVE ALL BURRS AND SHARP EDGES.			
DO NOT SCALE DRAWING				SCALE: 1:4 SHEET 4 OF 4

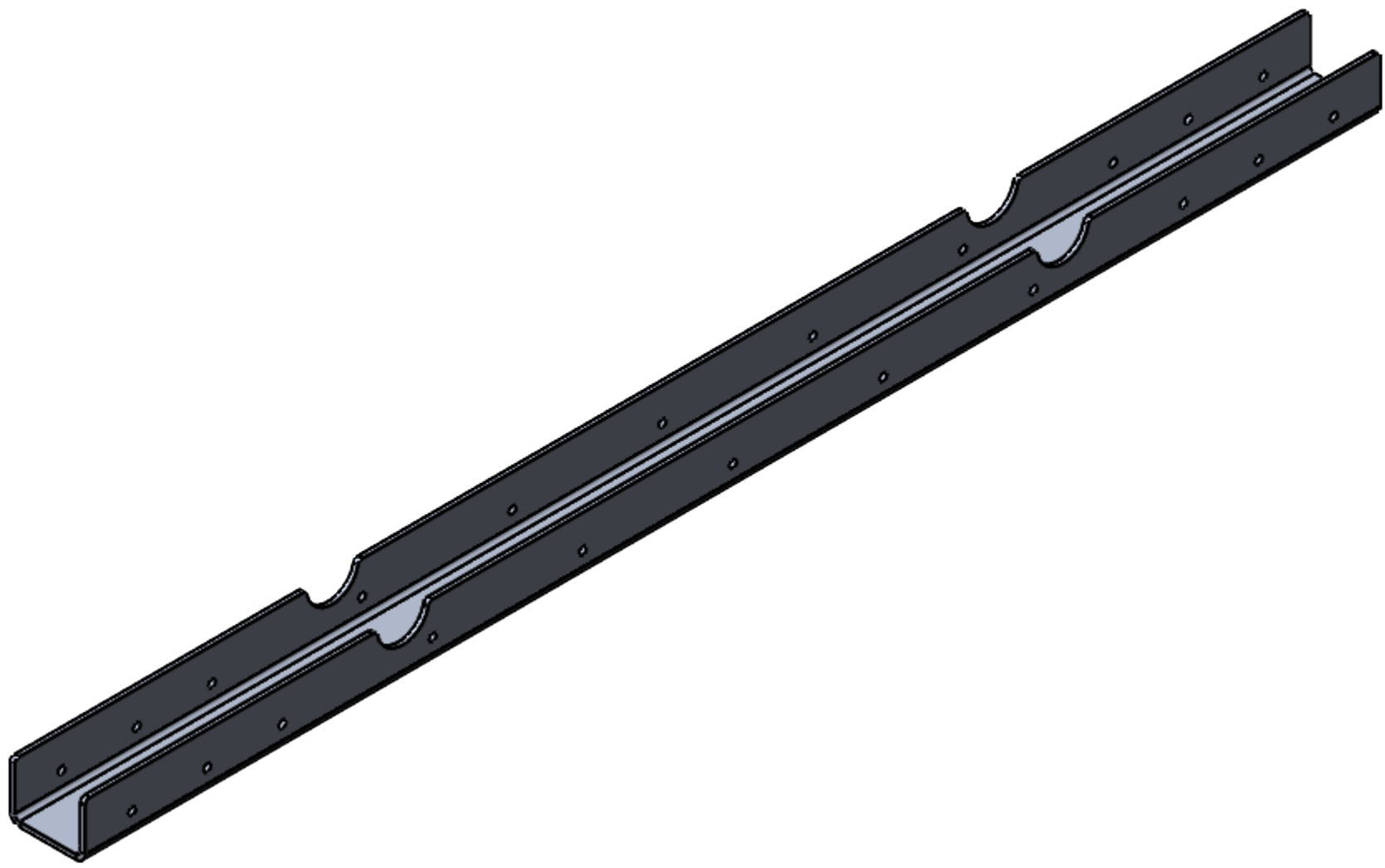
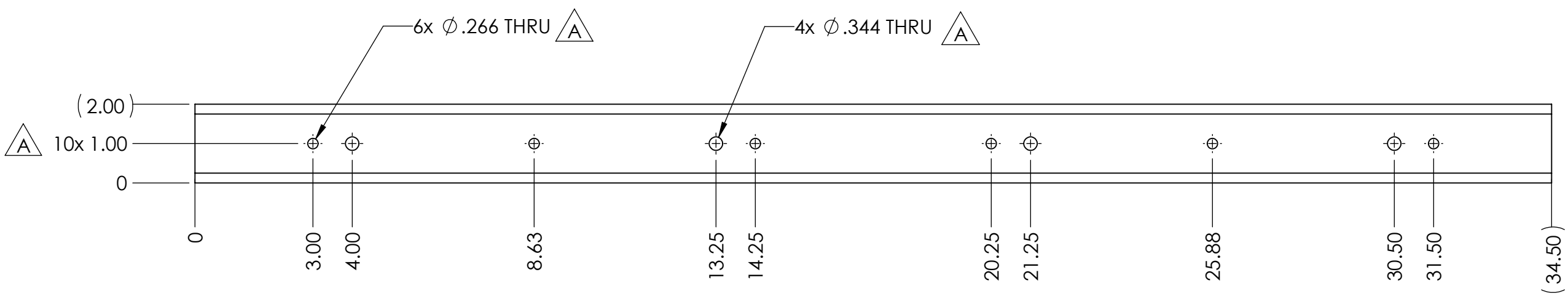
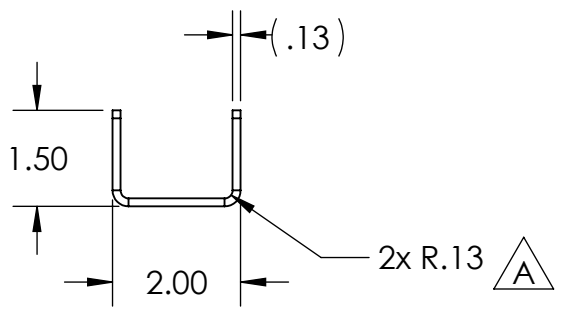
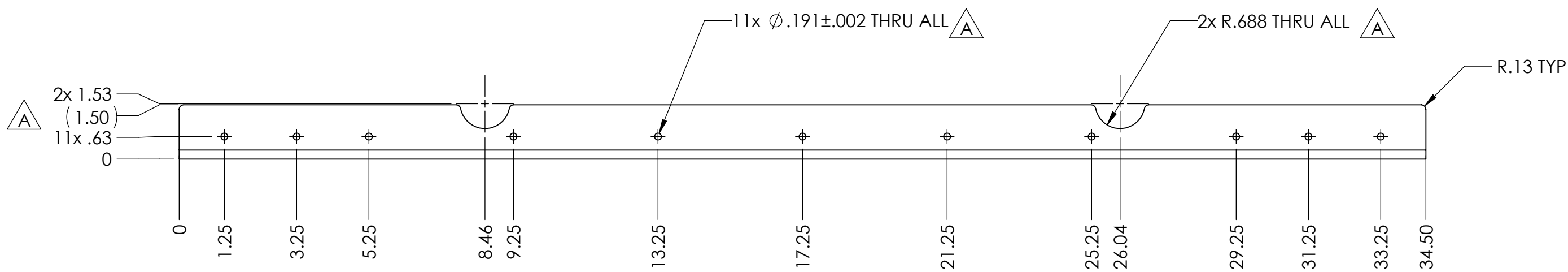
4



3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B4, C1, C2, C3, C4	A	Style of Qty callouts, changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts, Rivet Hole Tolerances	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>	
	DRAWN	NAL	9/23/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	<b>PROPRIETARY AND CONFIDENTIAL</b>			TITLE:  Cube Shelf Long Horizontal Channel	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>  DWG. NO. GE-23081  REV	
<b>MATERIAL/FINISH:</b>  8GA 5052 AL				SCALE: 1:3	
DO NOT SCALE DRAWING				SHEET 1 OF 1	

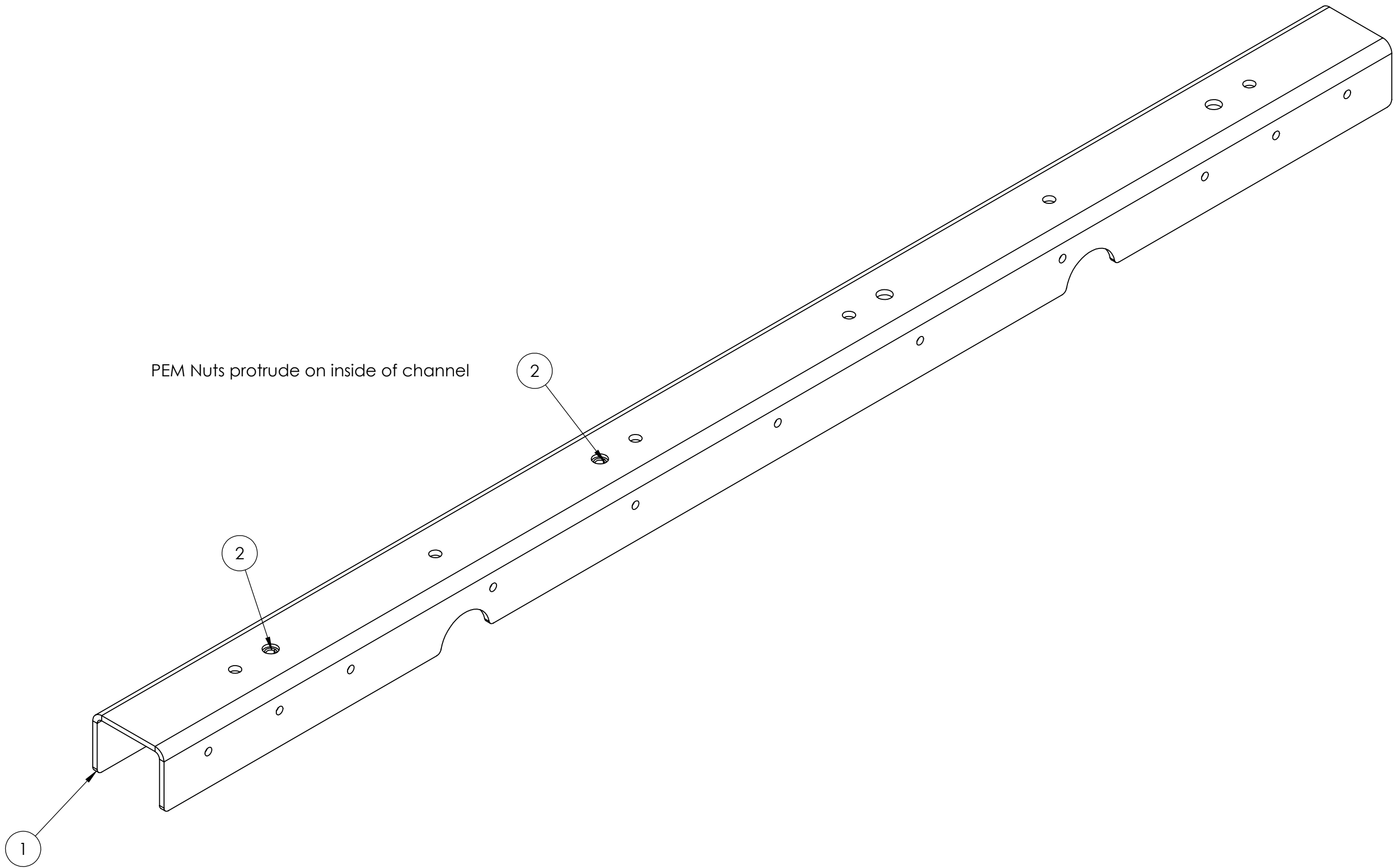
4

3

2

1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23081	Cube Shelf Long Horizontal Channel	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	2



PEM Nuts protrude on inside of channel

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

VEND

NAME

DATE

DRAWN

JO

10/4/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.



**FIRST**  
ROBOTICS  
COMPETITION



Modeling Solutions Partner

TITLE: Cube Shelf Long Horizontal Channel Config 1

SIZE

DWG. NO.

REV

C

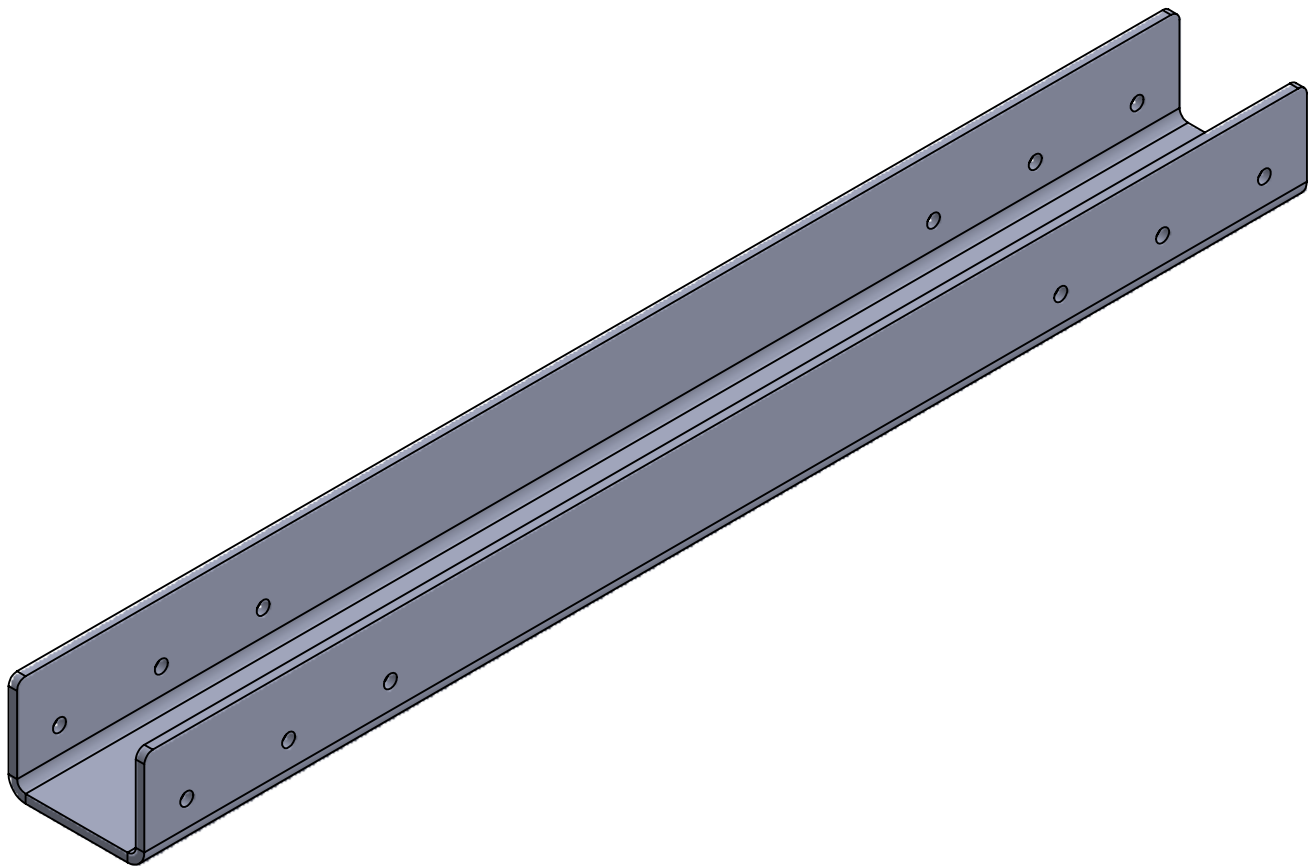
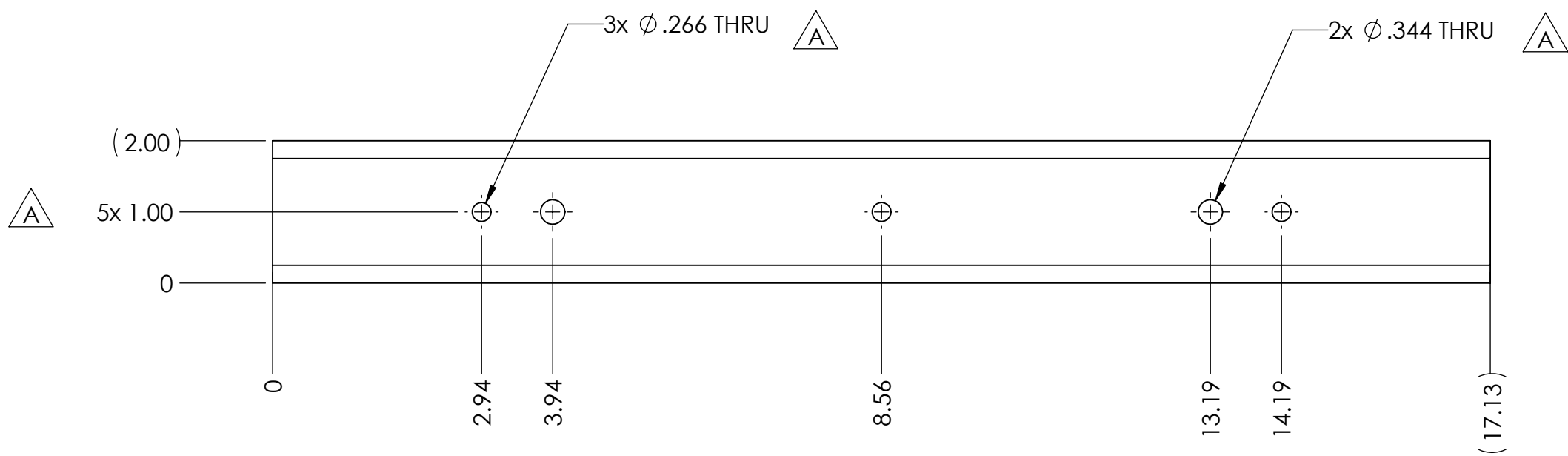
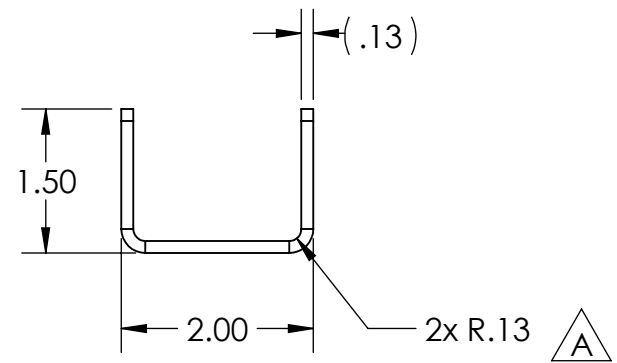
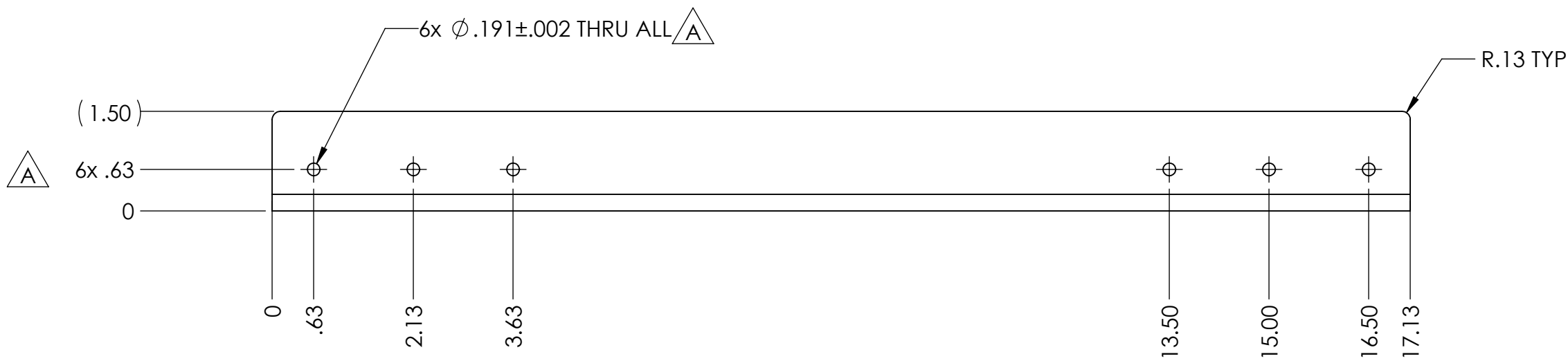
GE-23081-01

SCALE: 1:4

SHEET 1 OF 1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B4, C1, C2, C3, C4	A	Style of Qty callouts, changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts, Rivet Hole Tolerance	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .02$   
THREE PLACE DECIMAL  $\pm .010$

**MATERIAL/FINISH:**  
8GA 5052 AL

DO NOT SCALE DRAWING

BEND	NAME	DATE
DRAWN	NAL	9/23/2022

**PROPRIETARY AND CONFIDENTIAL**

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**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE:  
**Cube Shelf  
Short Horizontal  
Channel**

SIZE	DWG. NO.	REV
<b>C</b>	<b>GE-23082</b>	

SCALE: 1:2 SHEET 1 OF 1

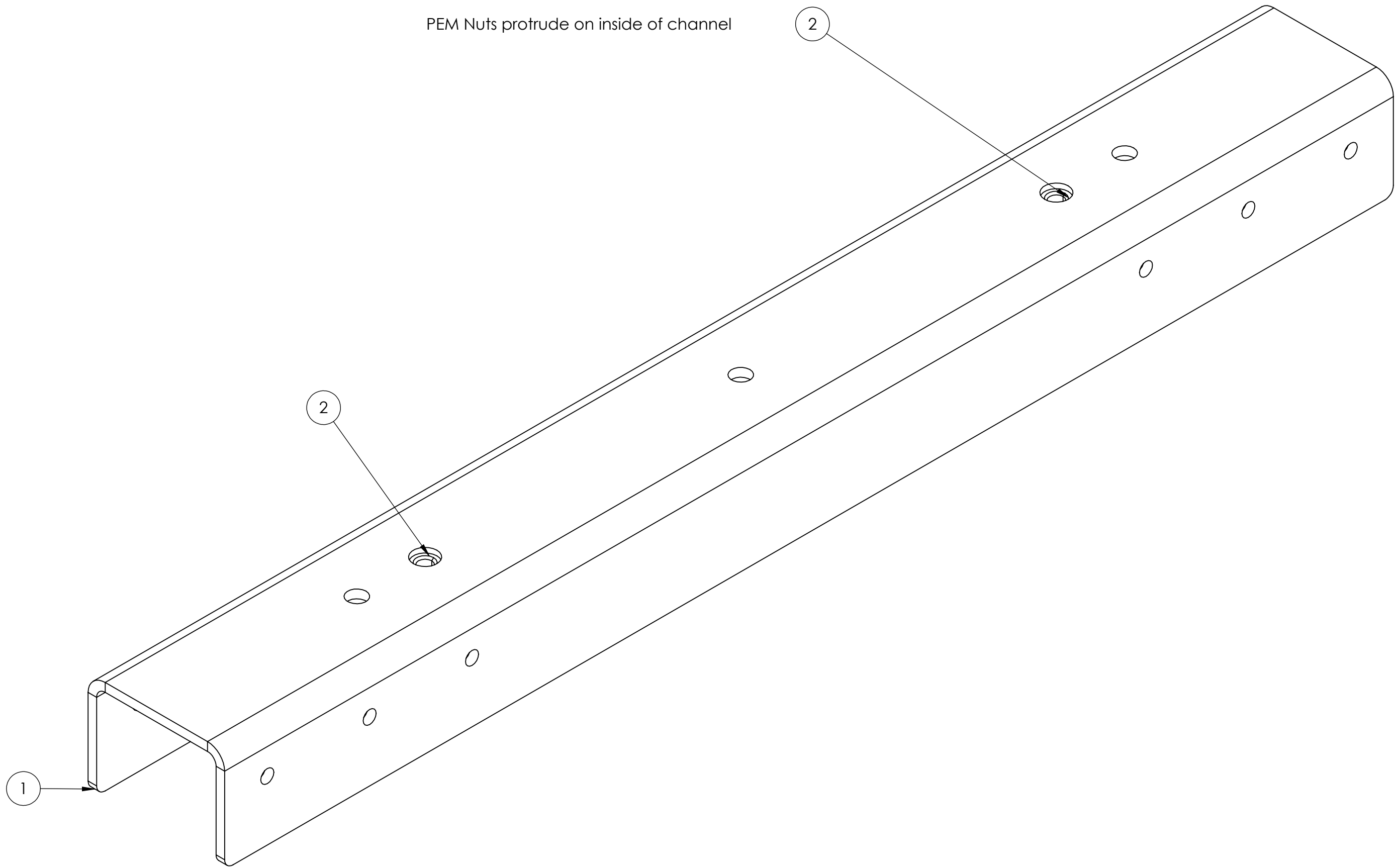
4

3

2

1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23082	Cube Shelf Short Horizontal Channel	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	2



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	JO	10/4/2022

**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.

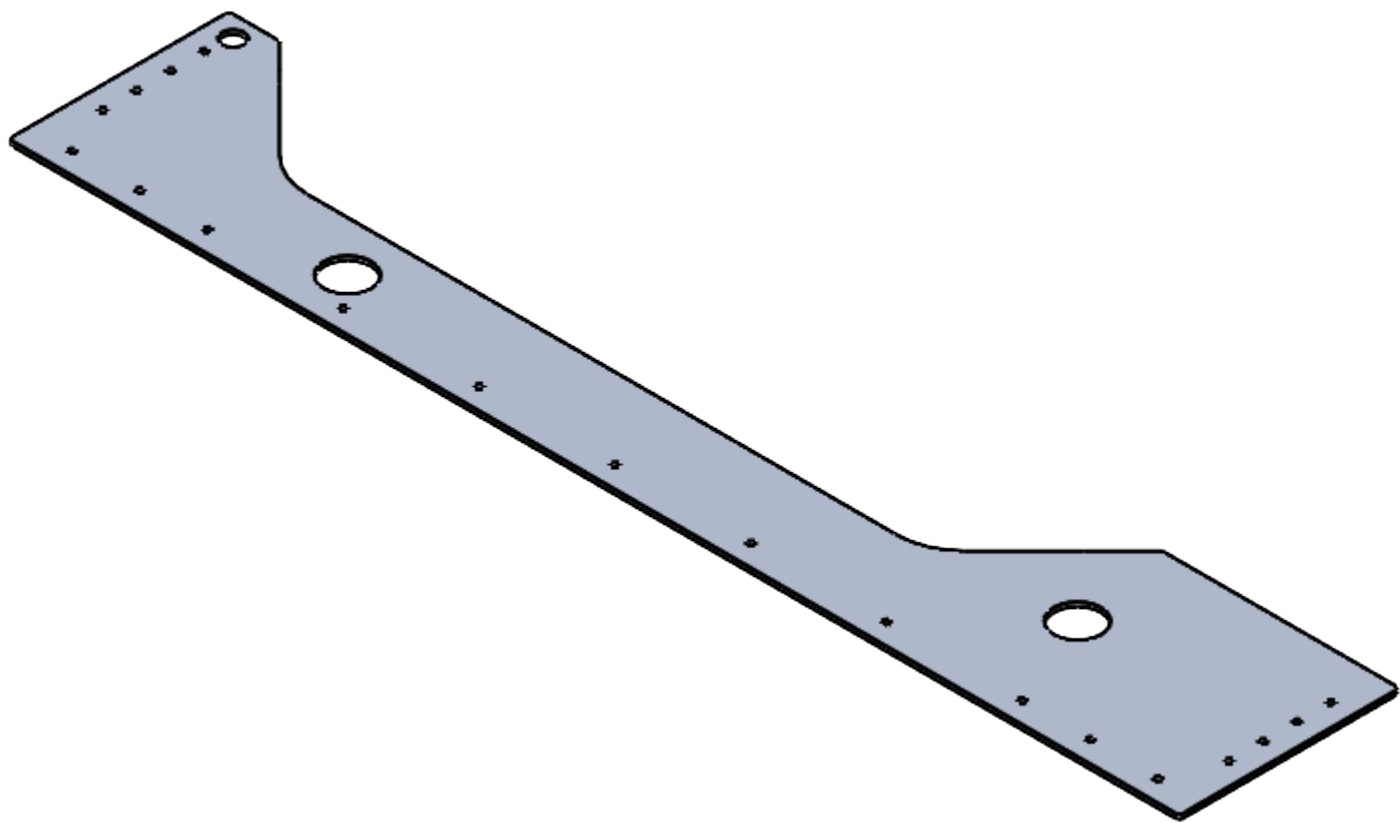
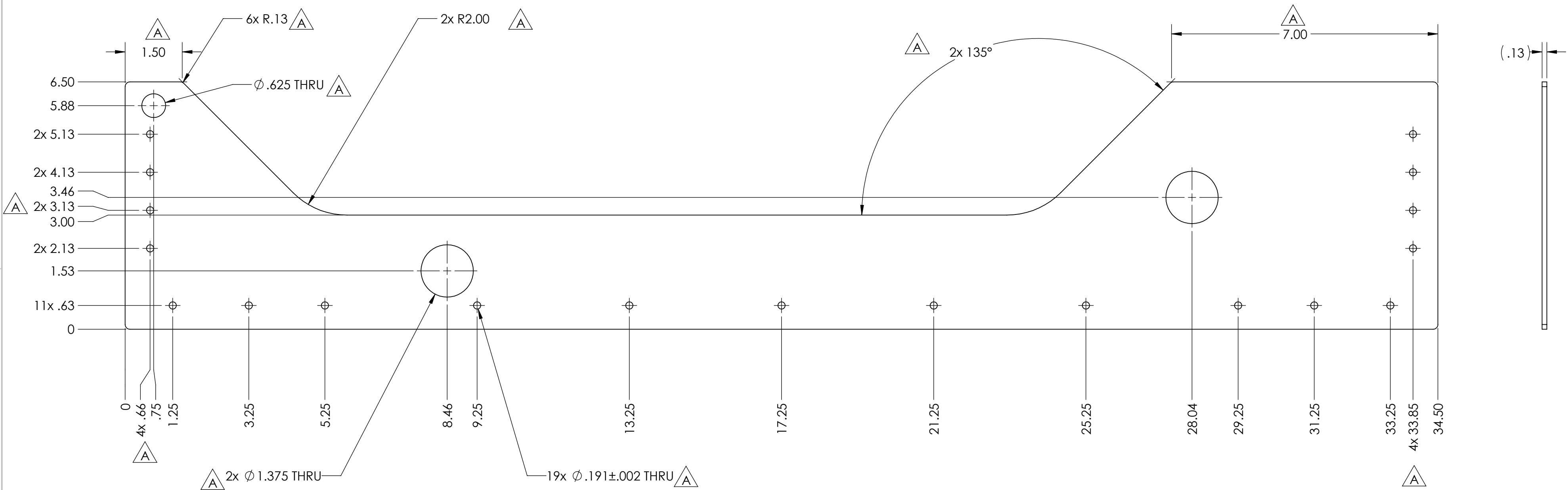


TITLE: Cube Shelf Short Horizontal Channel Config 1

SIZE	DWG. NO.	REV
<b>C</b>	GE-23082-01	

SCALE: 1:2 SHEET 1 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, B1, B3, B4, C1, C2, C3, C4	A	Style of Qty Callouts, changed .391 hole to .625 for clearance, Rivet Hole Tolerance, Block Tolerance	9/23/2022	JO



<div>UNLESS OTHERWISE SPECIFIED:</div> <div><div><div>A</div></div></div> <div>DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005</div> <div>MATERIAL/FINISH:  8GA 5052 AL</div> <div>DO NOT SCALE DRAWING</div>	VEND	NAME	DATE	<div><div><div><div></div><div></div></div></div><div>FIRST ROBOTICS COMPETITION</div><div><div><div></div><div></div></div><div>SOLIDWORKS</div><div>Modeling Solutions Partner</div></div></div>	
	DRAWN	NAL	9/23/2022		
	PROPRIETARY AND CONFIDENTIAL			TITLE:  Cube Shelf Lower Pin Socket Plate	
	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.
			C	GE-23083	
			SCALE: 1:2		SHEET 1 OF 1

4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, B2, B3, B4, C2	A	Style of Qty Callout, changed hole size from .391 to .344 for PEM nut instead of Riv-nut, Rivet Hole Tolerance, Block Tolerance	9/23/2022	JO

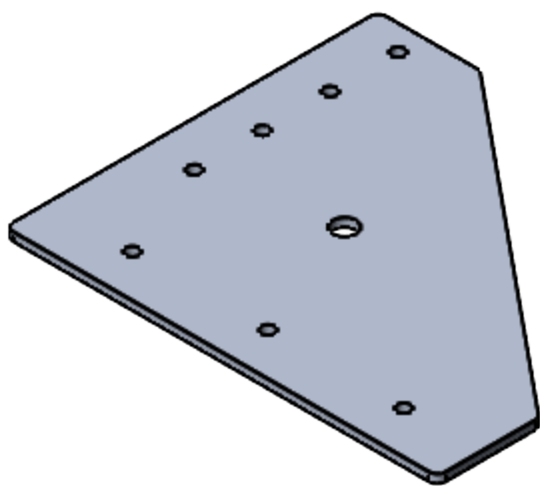
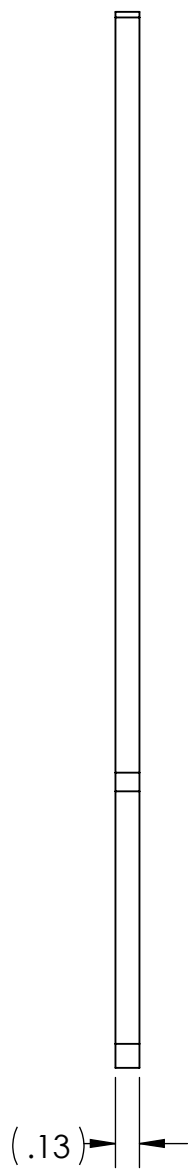
Technical drawing of a mechanical part, likely a bracket or arm, showing dimensions and feature callouts.



**Dimensions:**

- Overall width: 6.37
- Overall height: 5.50
- Horizontal distance from left edge to center of hole: 4x .67
- Horizontal distance between holes: 1.25
- Horizontal distance from center of hole to right edge: 5.25
- Horizontal distance from left edge to center of hole: 2.50
- Horizontal distance from center of hole to right edge: 3.25
- Horizontal distance from left edge to center of hole: 0
- Horizontal distance from center of hole to right edge: 6.37
- Horizontal distance from left edge to center of hole: 3x .63
- Horizontal distance from center of hole to right edge: 1.50
- Horizontal distance from center of hole to right edge: 2.13
- Horizontal distance from center of hole to right edge: 2.50
- Horizontal distance from center of hole to right edge: 3.13
- Horizontal distance from center of hole to right edge: 4.13
- Horizontal distance from center of hole to right edge: 5.13

**Feature Callouts:**

- 3x .63 (Feature A)
- 4x .67 (Feature A)
- 5.25 (Feature A)
- 6.37 (Feature A)
- 7x  $\phi .191 \pm .002$  THRU (Feature A)
- $\phi .344$  THRU (Feature A)
- 5x R.13 (Feature A)
- 39.4° (Angle)



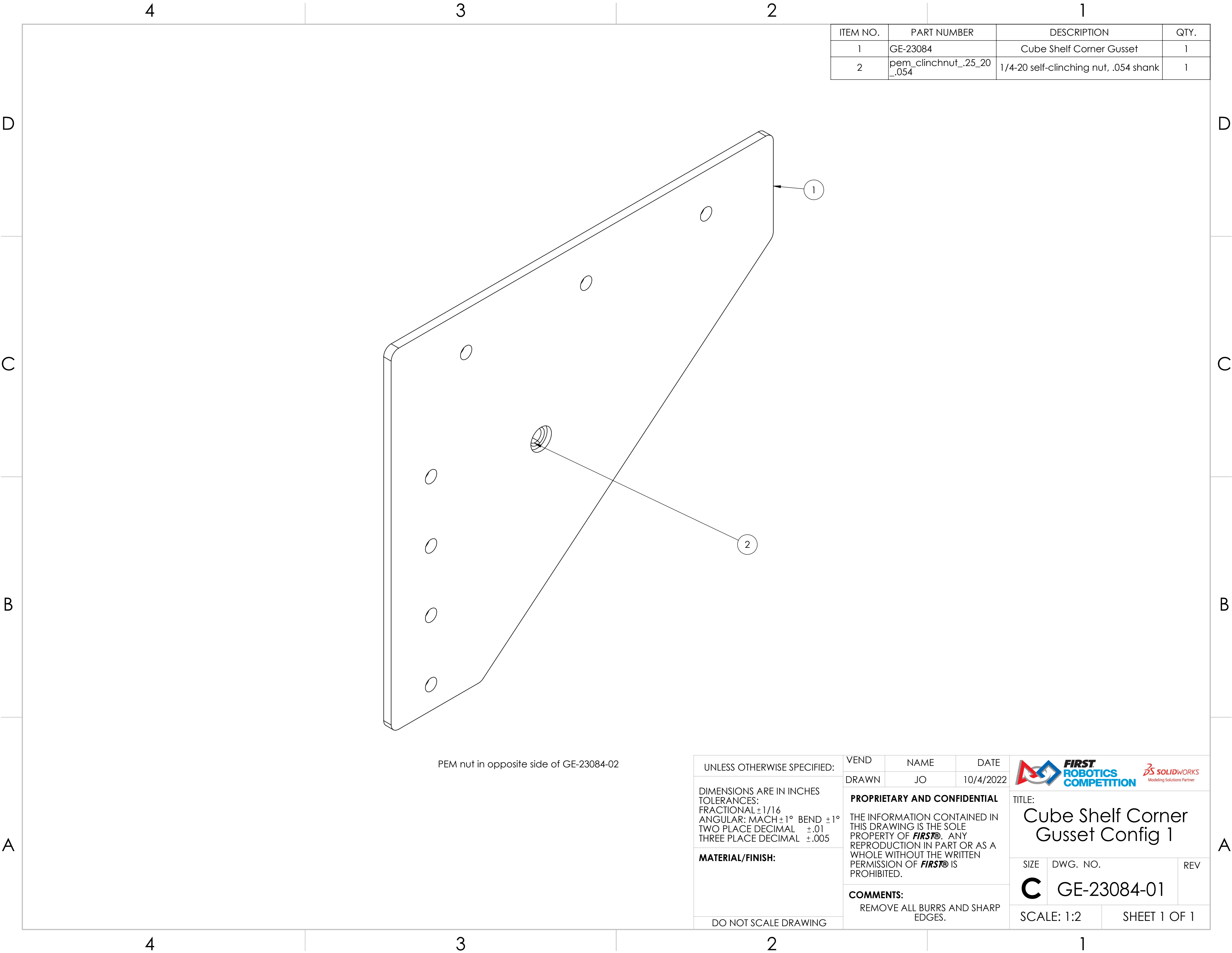
UNLESS OTHERWISE SPECIFIED:		VEND	NAME	DATE	 	
		DRAWN	NAL	9/23/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Cube Shelf Corner Gusset	
<b>MATERIAL/FINISH:</b>  8GA 5052 AL					SIZE  C	DWG. NO.  GE-23084  REV
DO NOT SCALE DRAWING		<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SCALE: 1:1  SHEET 1 OF 1	

4



3

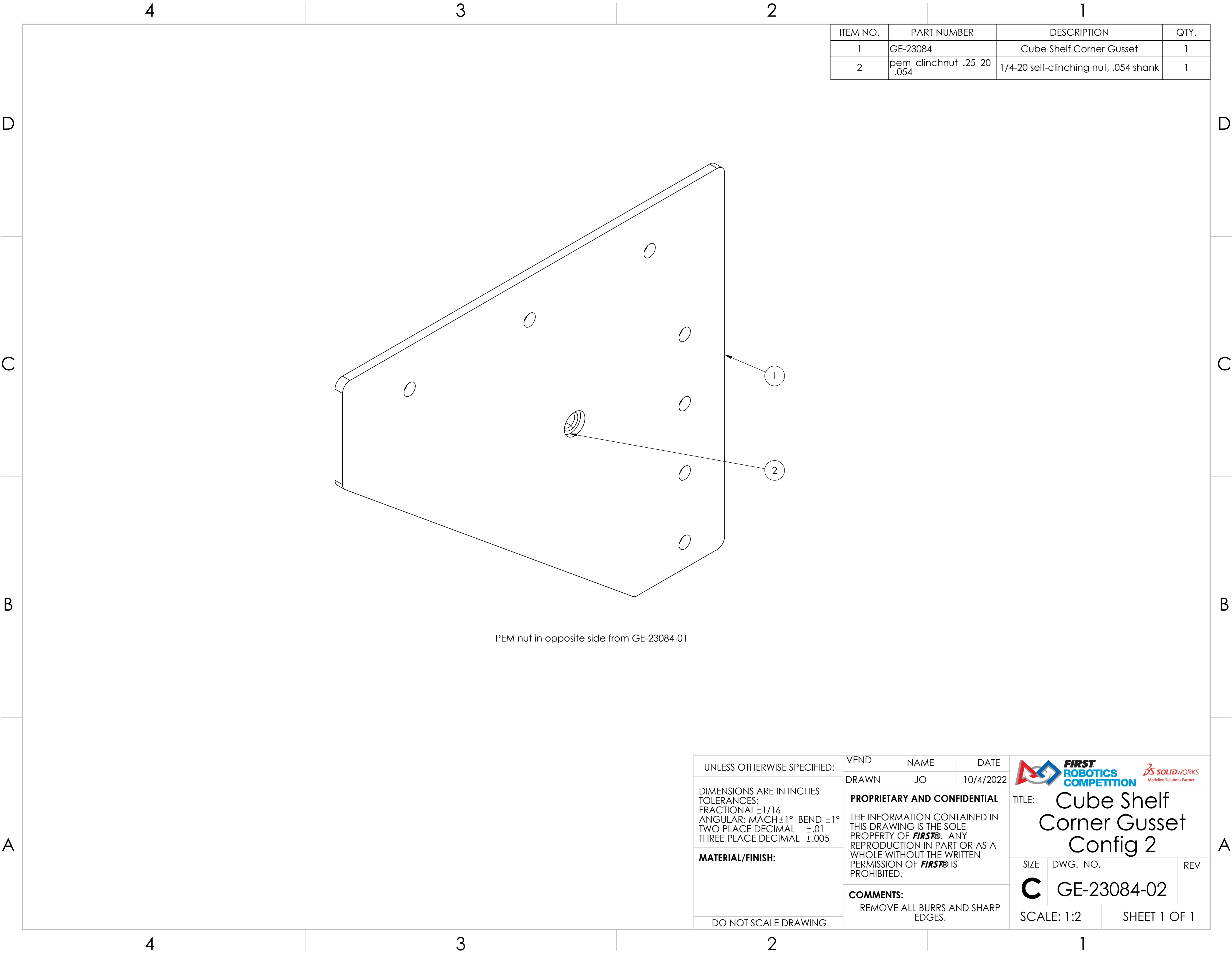
2

1





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23084	Cube Shelf Corner Gusset	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	1

UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>		
	DRAWN	JO	10/4/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	PROPRIETARY AND CONFIDENTIAL			TITLE:  Cube Shelf Corner Gusset Config 1		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
	COMMENTS:			SIZE		DWG. NO.
MATERIAL/FINISH:	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23084-01	
DO NOT SCALE DRAWING				SCALE: 1:2		SHEET 1 OF 1

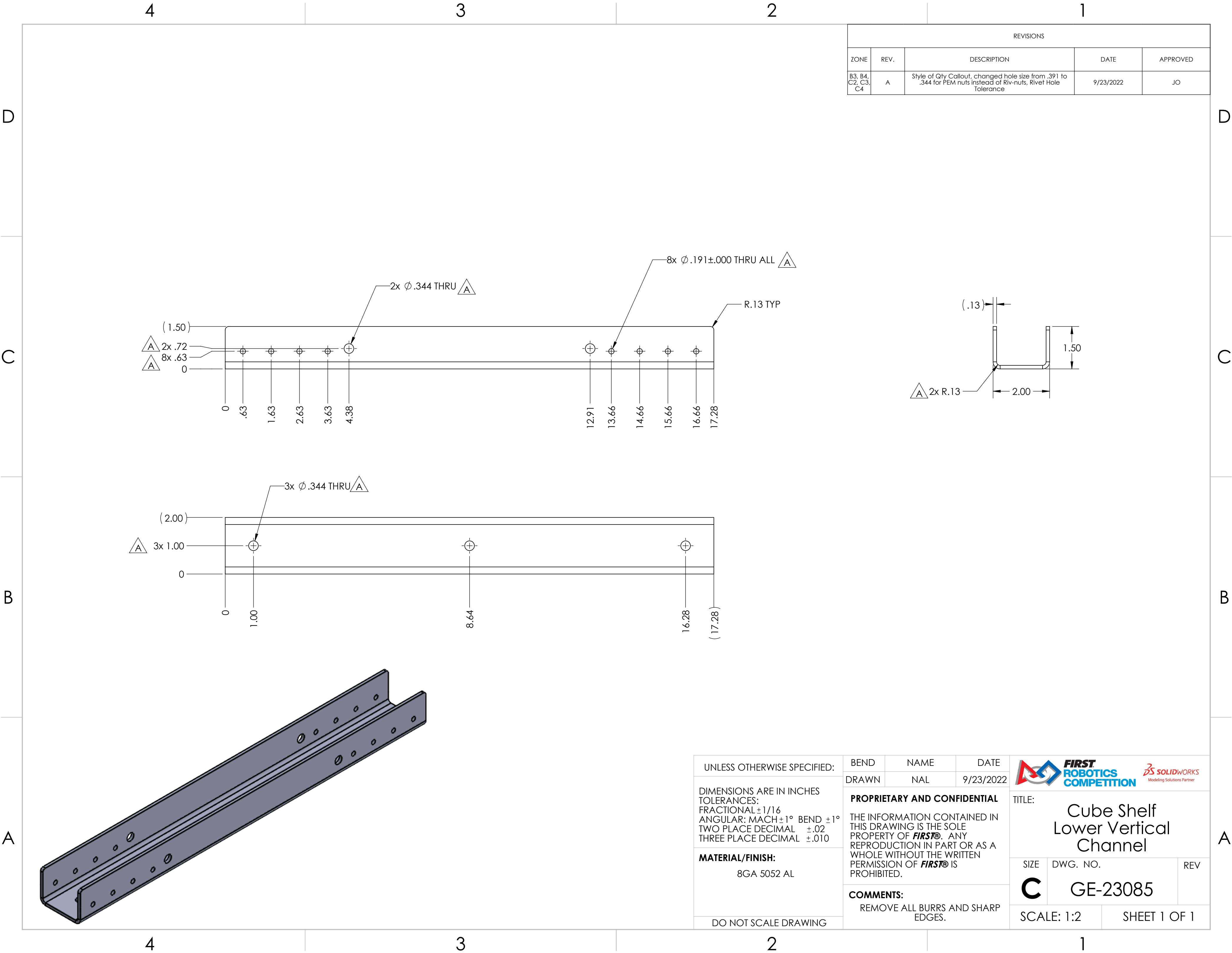


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23084	Cube Shelf Corner Gusset	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	1

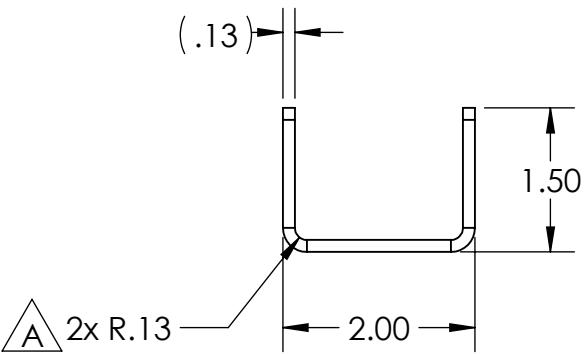
PEM nut in opposite side from GE-23084-01



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>          DO NOT SCALE DRAWING	VEND	NAME	DATE	 	
	DRAWN	JO	10/4/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: Cube Shelf Corner Gusset Config 2	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. GE-23084-02 REV
			SCALE: 1:2		SHEET 1 OF 1



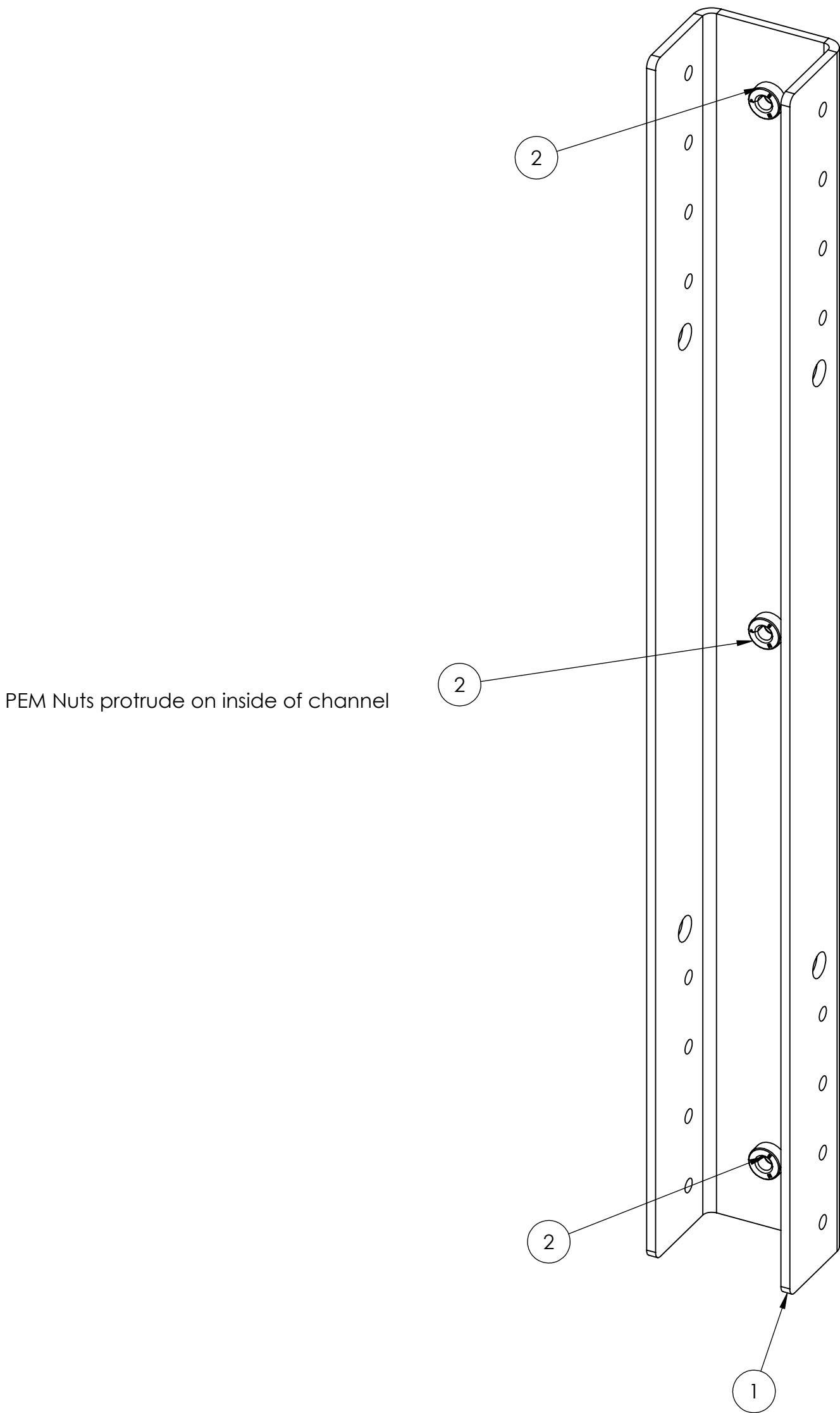




REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, B4, C2, C3, C4	A	Style of Qty Callout, changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts, Rivet Hole Tolerance	9/23/2022	JO



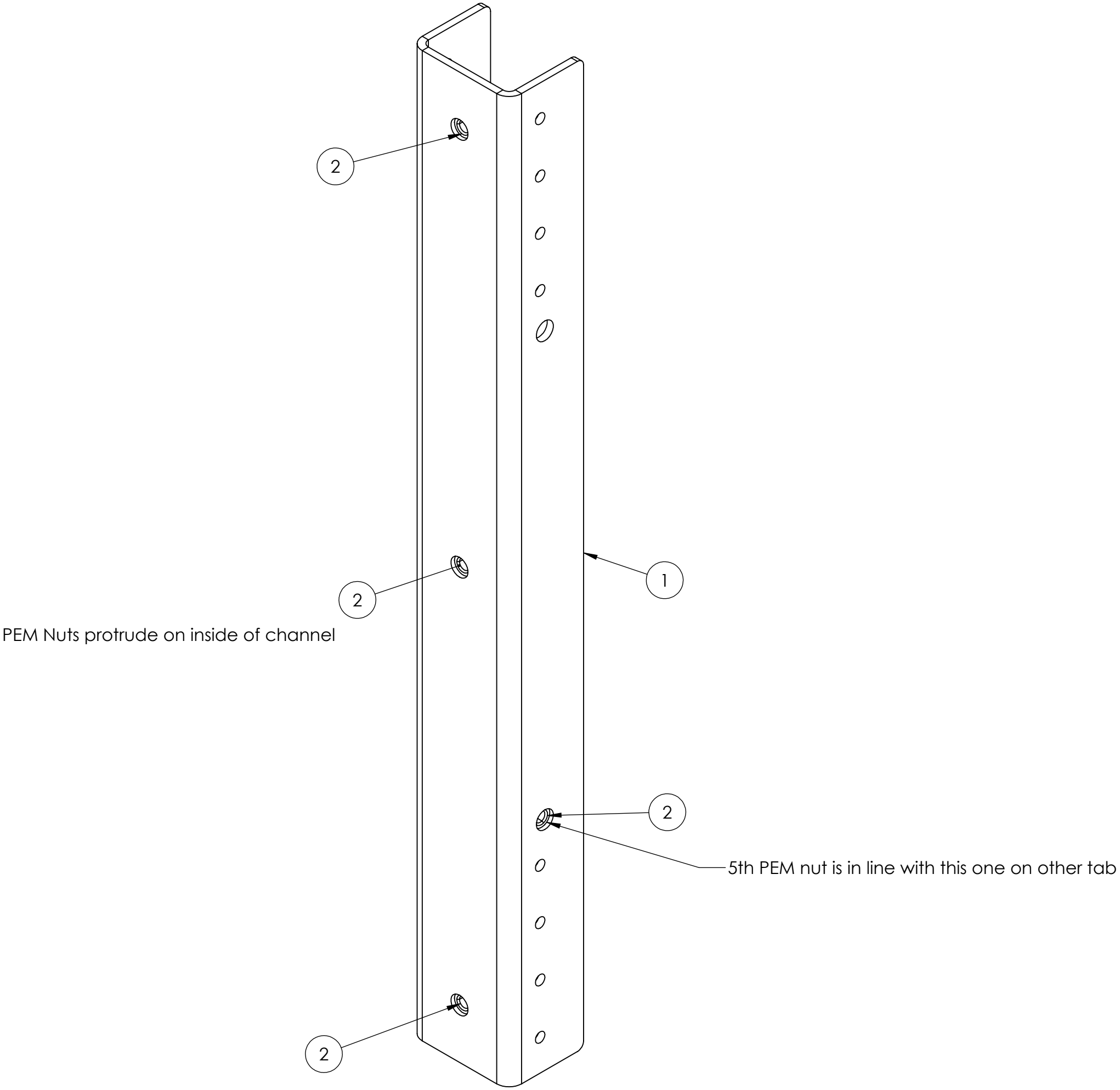
UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>		
	DRAWN	NAL	9/23/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			TITLE:  Cube Shelf Lower Vertical Channel		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:  8GA 5052 AL	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23085	
DO NOT SCALE DRAWING				SCALE: 1:2		SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23085	Cube Shelf Lower Vertical Channel	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	3

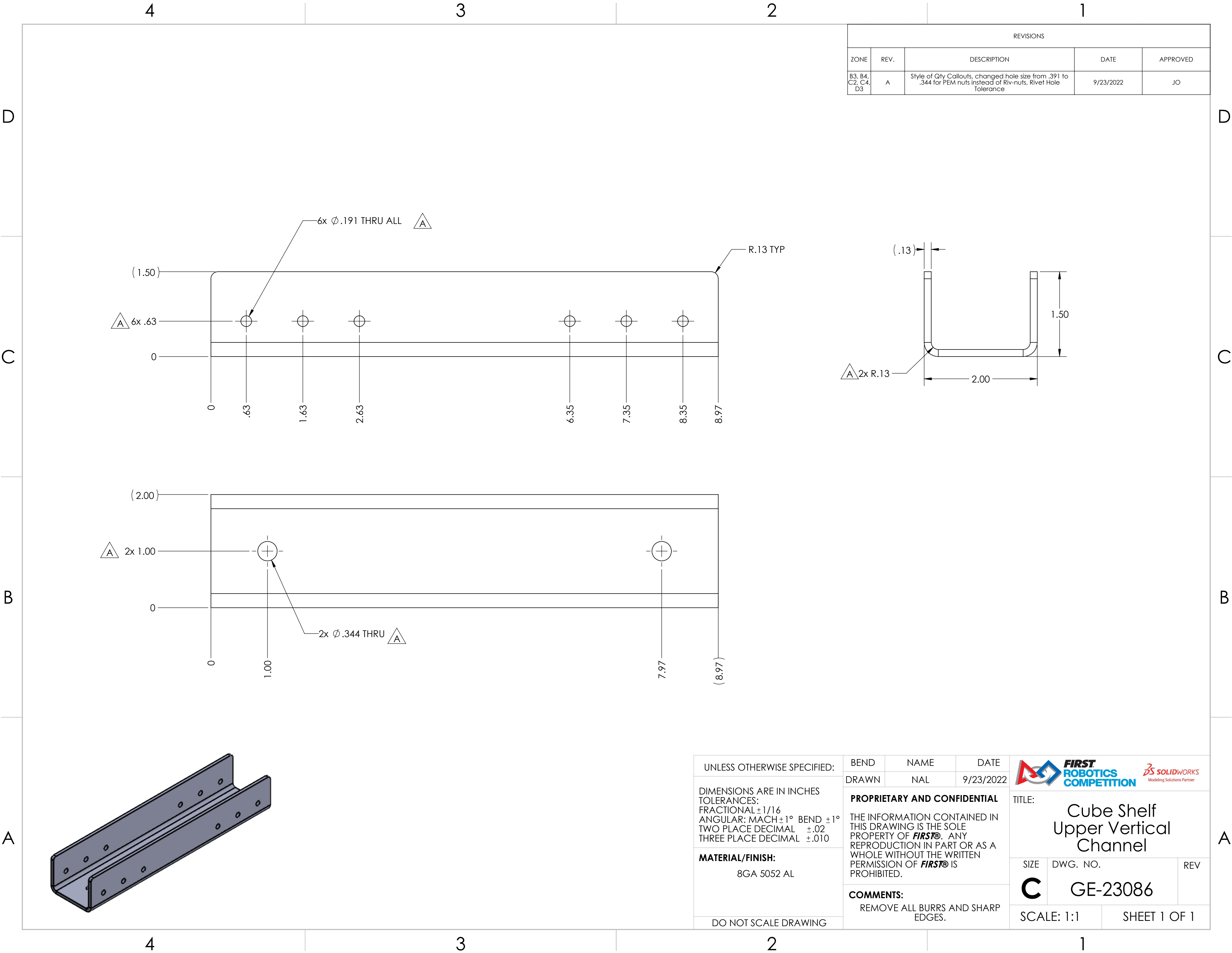


UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>     DO NOT SCALE DRAWING	VEND	NAME	DATE	 	
	DRAWN	JO	10/4/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: Cube Shelf Lower Vertical Channel Config 1	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
			<b>C</b>	GE-23085-01	
			SCALE: 1:4		SHEET 1 OF 1

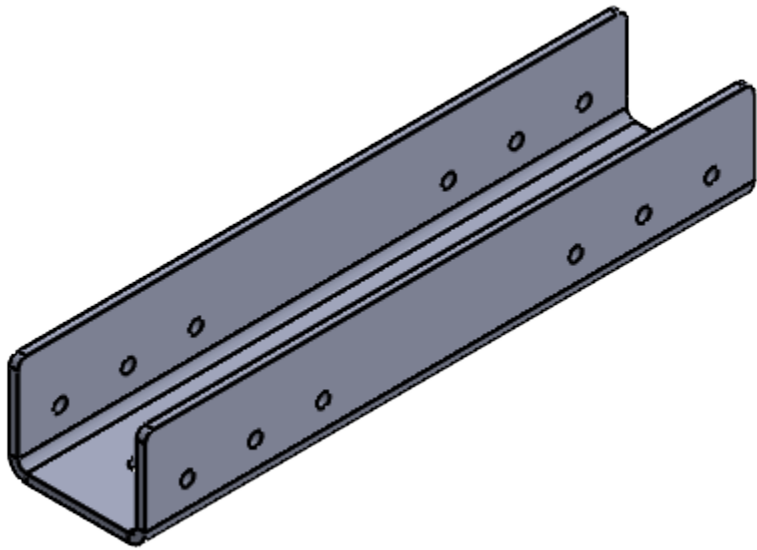
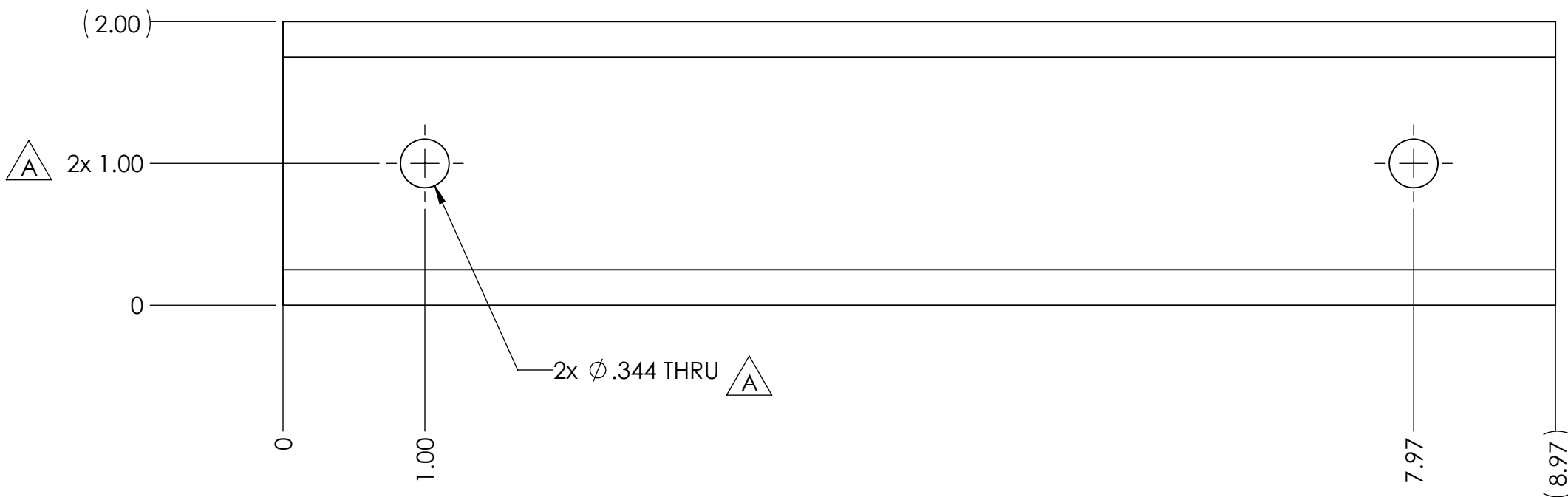
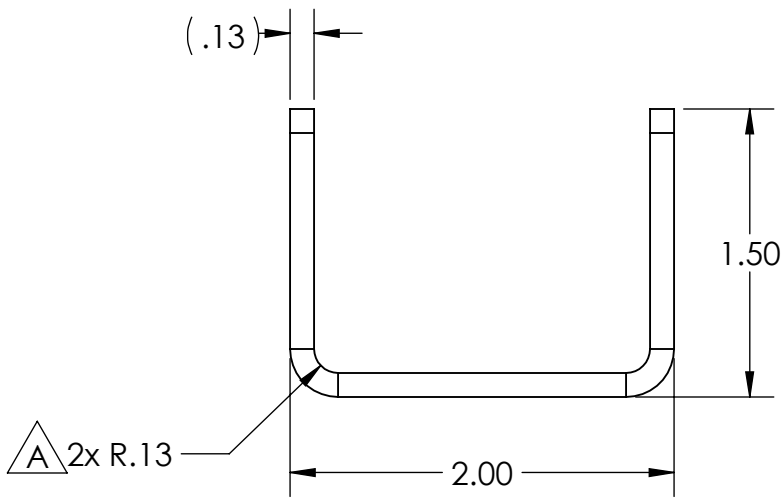
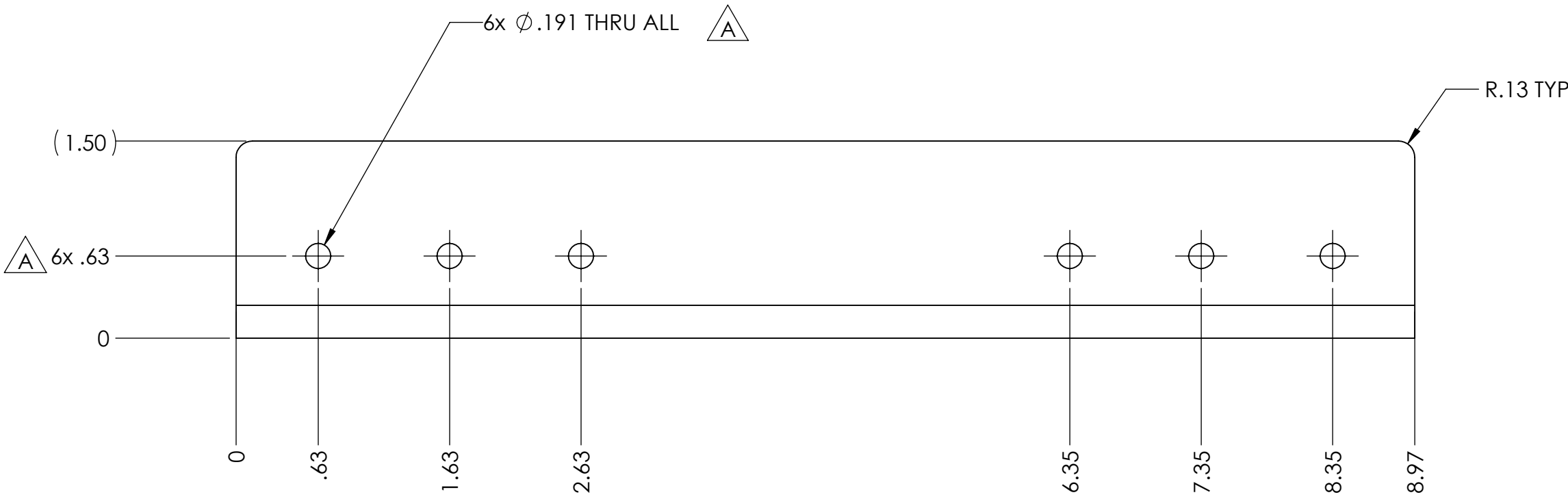
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23085	Cube Shelf Lower Vertical Channel	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	5





UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>          DO NOT SCALE DRAWING	VEND	NAME	DATE	<div><div></div><div>TITLE: Cube Shelf Lower Vertical Channel Config 2</div><div><div>SIZE</div><div>DWG. NO.</div><div>REV</div></div><div><div>C</div><div>GE-23085-02</div></div><div><div>SCALE: 1:4</div><div>SHEET 1 OF 1</div></div></div>					
	DRAWN	JO	10/4/2022						
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.								
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.								



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, B4, C2, C4, D3	A	Style of Qty Callouts, changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts, Rivet Hole Tolerance	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010  <b>MATERIAL/FINISH:</b>  8GA 5052 AL  DO NOT SCALE DRAWING	BEND	NAME	DATE	<div></div>	
	DRAWN	NAL	9/23/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				
TITLE:				Cube Shelf Upper Vertical Channel	
SIZE		DWG. NO.		REV	
C		GE-23086			
SCALE: 1:1			SHEET 1 OF 1		

4

3

2

1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23086	Cube Shelf Upper Vertical Channel	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	2

D

D

C

C

B

B

A



A

PEM Nuts protrude on inside of channel

2

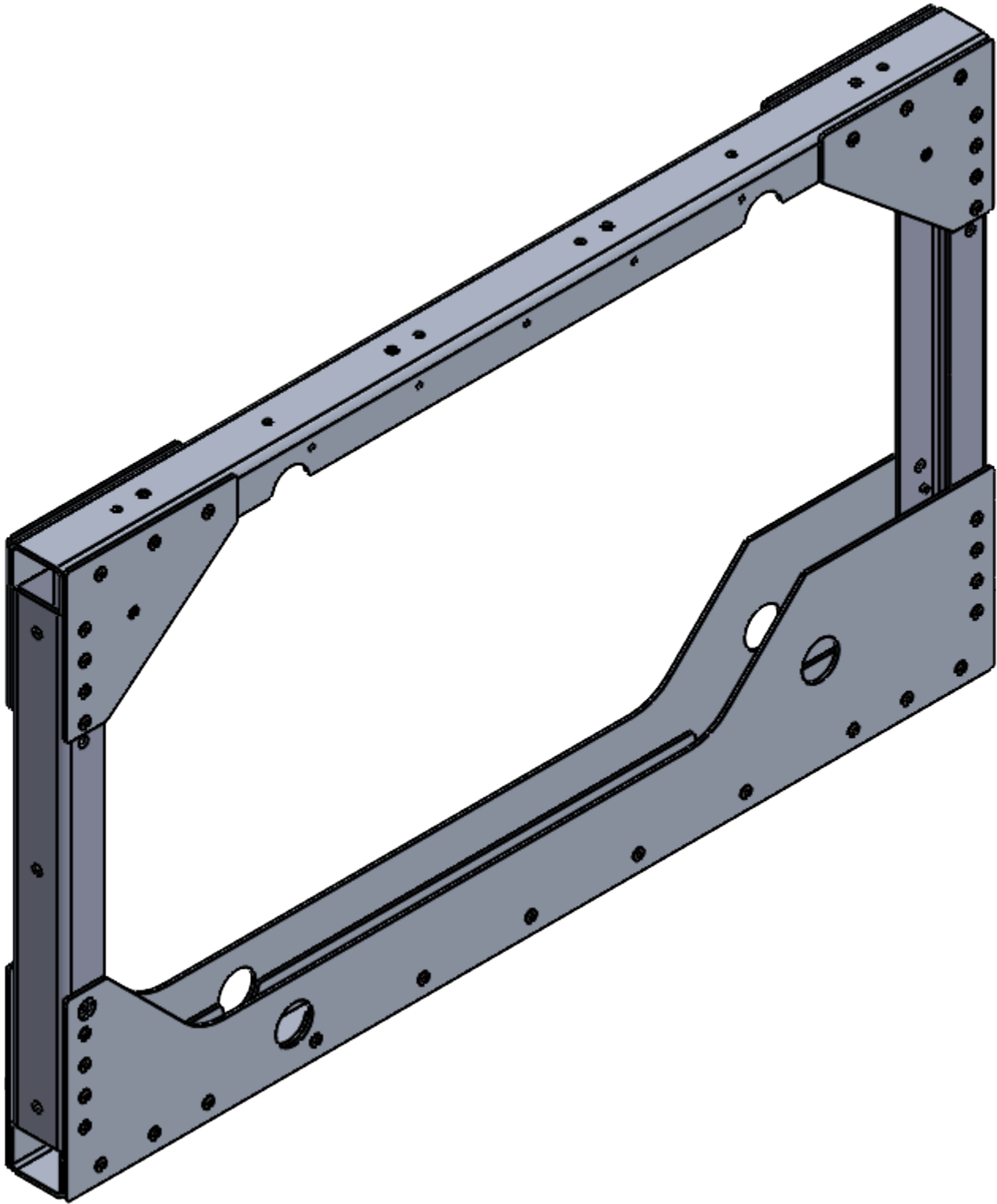
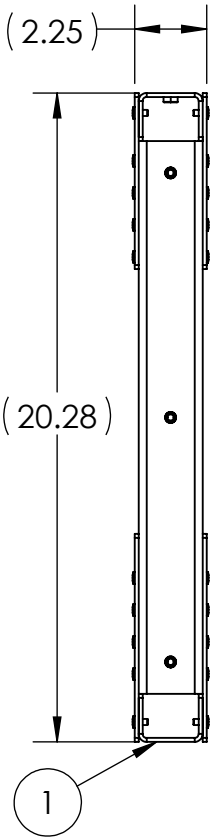
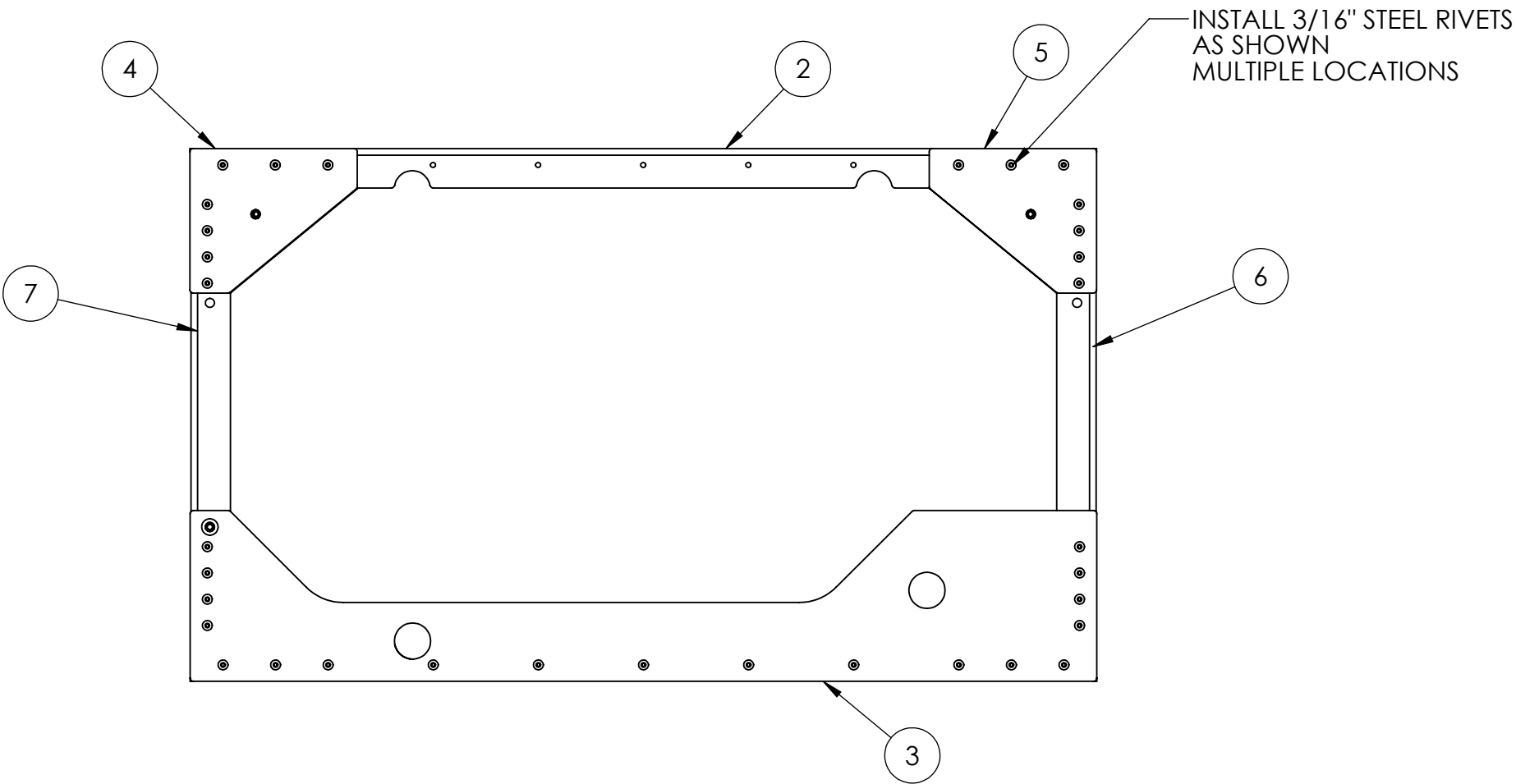
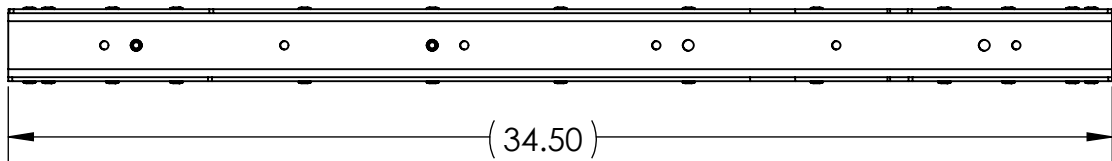
1



2

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>     DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: Cube Shelf Upper Vertical Channel Config 1</div>		
	DRAWN	JO	10/4/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
C				GE-23086-01		
SCALE: 1:2				SHEET 1 OF 1		

4			
ITEM NO.	PART NUMBER	Description	QTY.
1	GE-23081	Cube Shelf Long Horizontal Channel	1
2	GE-23081-01	Cube Shelf Long Horizontal Channel Config 1	1
3	GE-23083	Cube Shelf Lower Pin Socket Plate	2
4	GE-23084-01	Cube Shelf Corner Gusset Config 1	2
5	GE-23084-02	Cube Shelf Corner Gusset Config 2	2
6	GE-23085-01	Cube Shelf Lower Vertical Channel Config 1	1
7	GE-23085-02	Cube Shelf Lower Vertical Channel Config 2	1
8	187 pop rivet	3/16" Steel Rivet	66

NOTE: LABEL ASSEMBLY WITH PART NUMBER

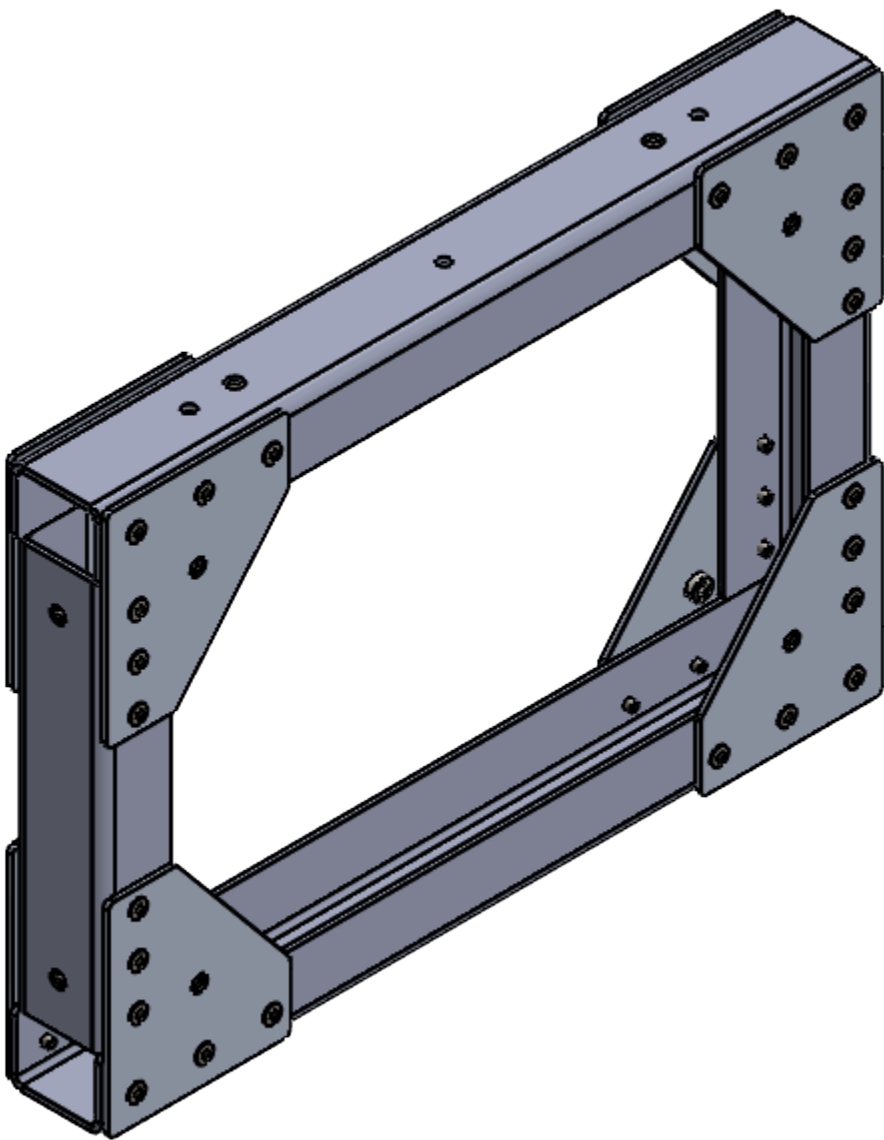
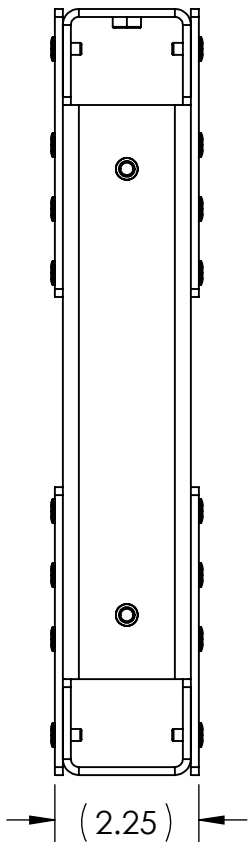
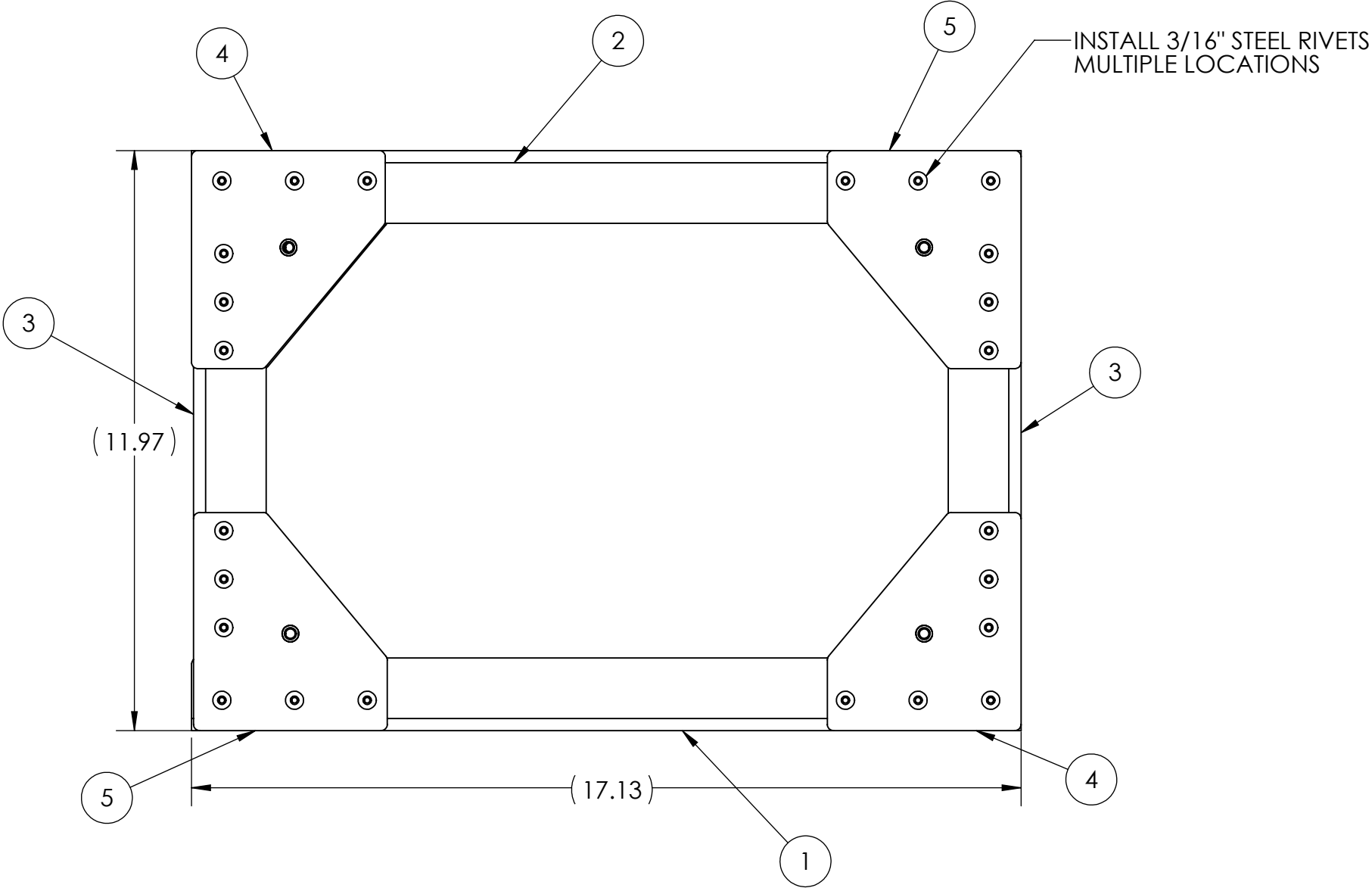
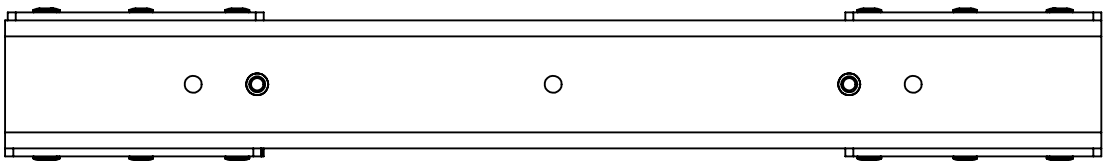


UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	 	
	DRAWN	NAL	9/29/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Cube Shelf Lower Hoop	
	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.				
	MATERIAL/FINISH:				SIZE  C
DO NOT SCALE DRAWING				DWG. NO.  GE-23087	REV
				SCALE: 1:4	SHEET 1 OF 1







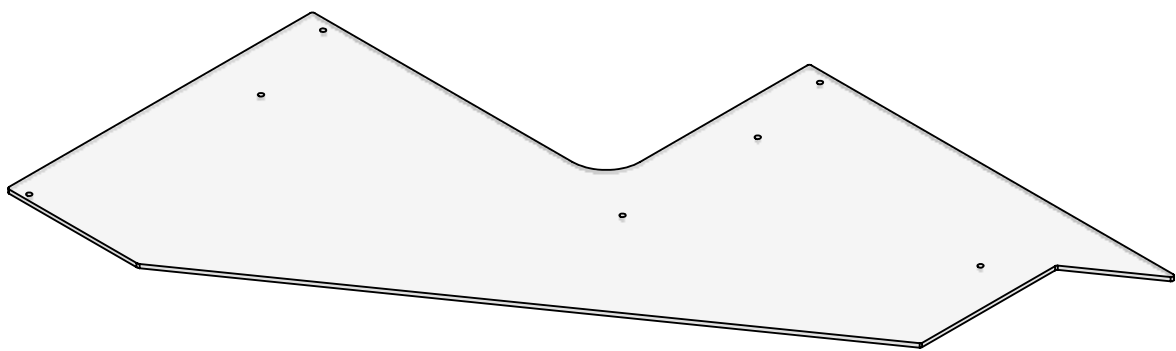
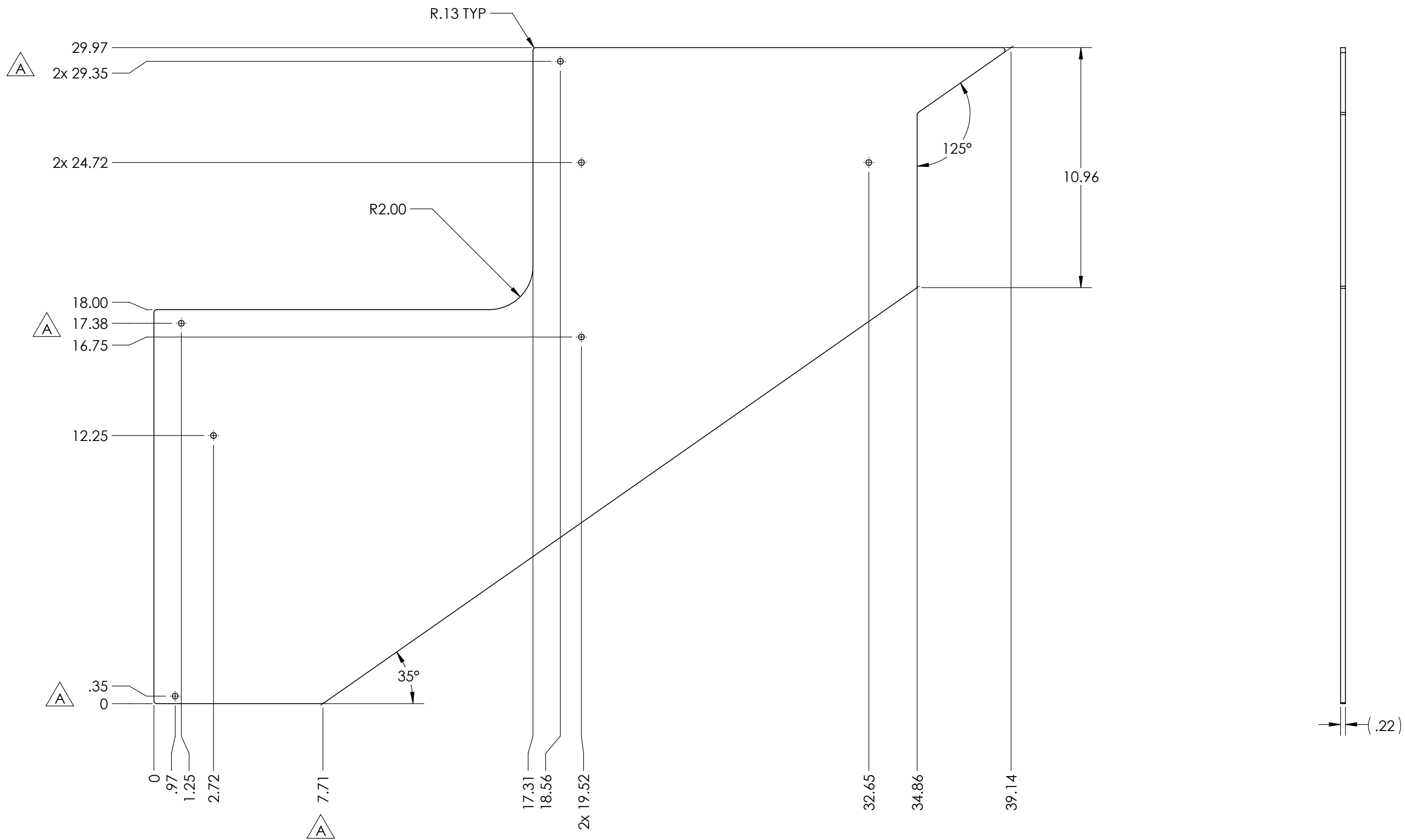
4			
ITEM NO.	PART NUMBER	Description	QTY.
1	GE-23082	Cube Shelf Horizontal Channel	1
2	GE-23082-01	Cube Shelf Short Horizontal Channel Config 1	1
3	GE-23086-01	Cube Shelf Upper Vertical Channel Config 1	2
4	GE-23093-01	Cube Shelf Upper Corner Gusset Config 1	4
5	GE-23093-02	Cube Shelf Upper Corner Gusset Config 2	4
6	187 pop rivet	3/16 Steel Rivet	48





NOTE: LABEL ASSEMBLY WITH PART NUMBER

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>    DO NOT SCALE DRAWING	BEND	NAME	DATE	 	
	DRAWN	NAL	9/29/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Cube Shelf Upper Hoop	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. GE-23088
SCALE: 1:3		SHEET 1 OF 1			

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, B4, C4, D4	A	Cut 1/2" off the bottom, changed all vertical dimensions	12/6/2022	JRO



UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div> <div>TITLE: <div>Cube Shelf Side Poly</div></div>		
	DRAWN	NAL	9/28/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23089	A
MATERIAL/FINISH:  .220 POLYCARBONATE CLEAR				SCALE: 1:4		SHEET 1 OF 1
DO NOT SCALE DRAWING						

4

3

2

1

D

D

C

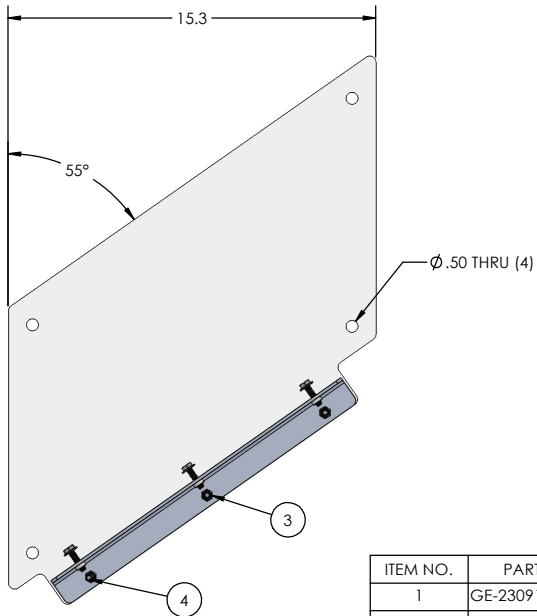
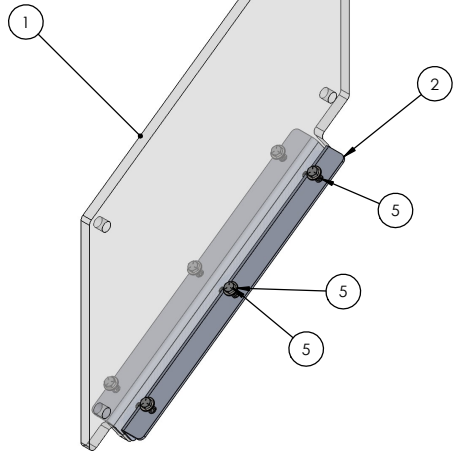
C

B

B

A

A



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23091	Shark Fin Poly	1
2	GE-23097	Shark Fin Bracket with PEM Nuts installed	2
3	90566A029	1/4-20 Locknut	3
4	92865A542	Medium-Strength Grade 5 Steel Hex Head Screw	3
5	92865A542 and 250 Washer	1/4-20 x 1" Bolt and Washer	6

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .02$   
THREE PLACE DECIMAL  $\pm .010$

MATERIAL/FINISH:  
Various

DO NOT SCALE DRAWING

BEND	NAME	DATE
DRAWN	NAL	9/29/2022

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:  
Shark Fin

SIZE DWG. NO. REV

C GE-23090

SCALE: 1:4 SHEET 1 OF 1

4

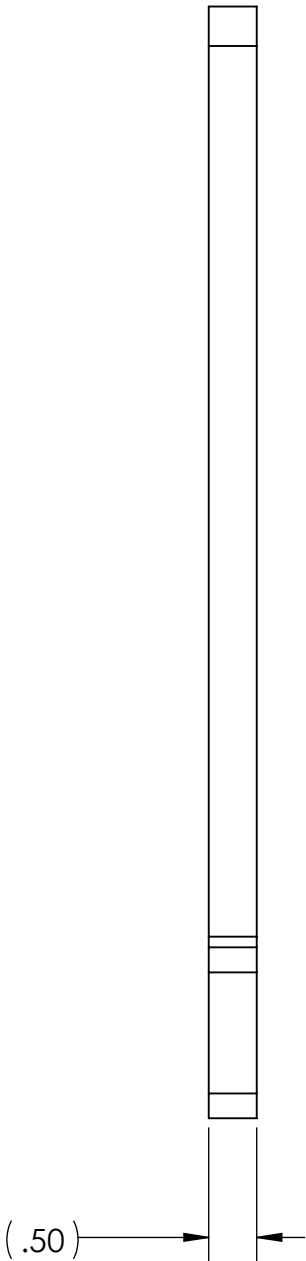
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2

1



1

D

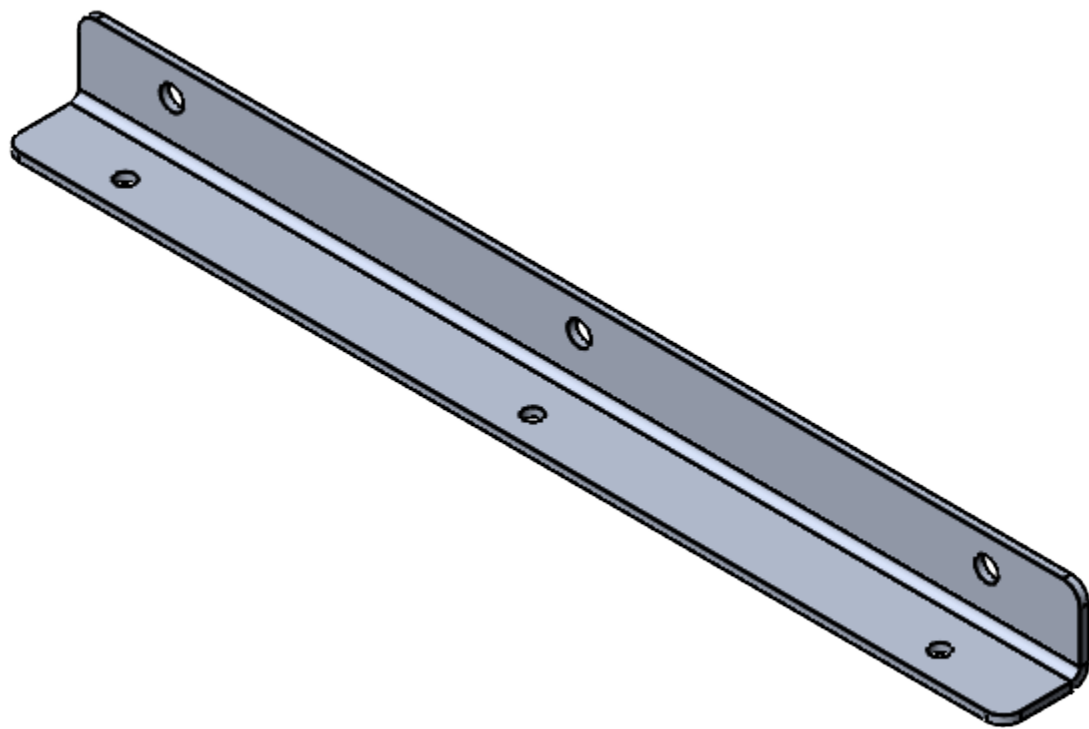
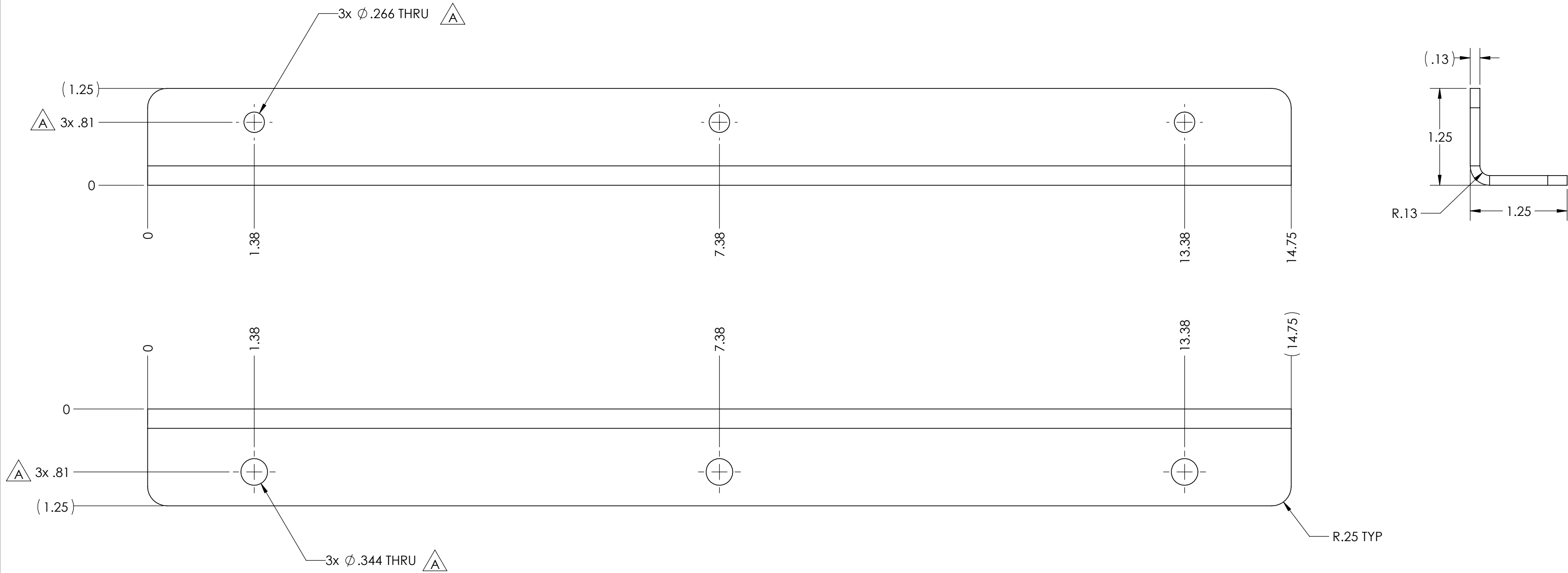




B

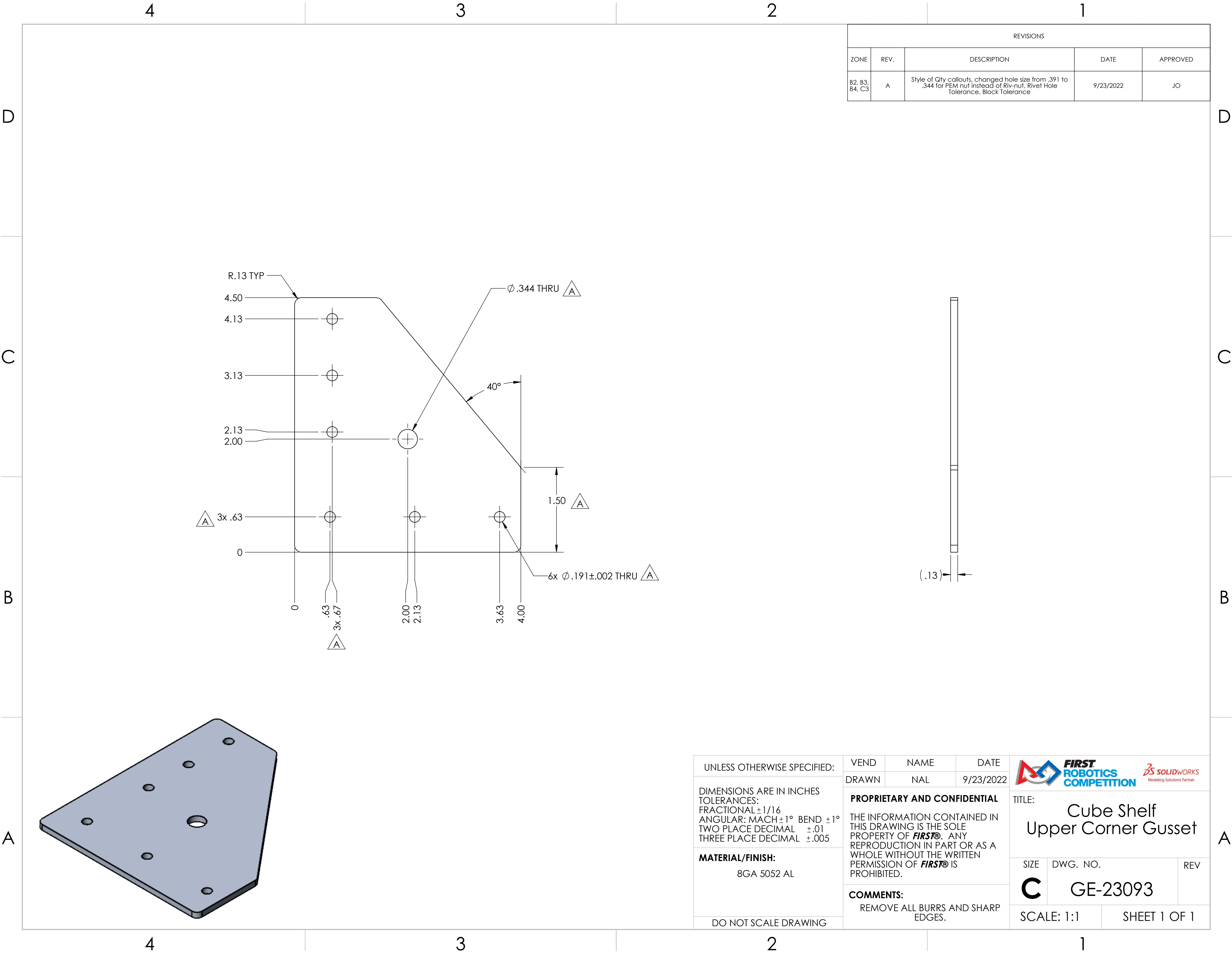
A

UNLESS OTHERWISE SPECIFIED:		VEND	NAME	DATE	 		
<p>DIMENSIONS ARE IN INCHES</p> <p>TOLERANCES:</p> <p>FRACTIONAL <math>\pm 1/16</math></p> <p>ANGULAR: MACH <math>\pm 1^\circ</math> BEND <math>\pm 1^\circ</math></p> <p>TWO PLACE DECIMAL <math>\pm .01</math></p> <p>THREE PLACE DECIMAL <math>\pm .005</math></p>		DRAWN	NAL	9/23/2022	TITLE:		
		<p><b>PROPRIETARY AND CONFIDENTIAL</b></p> <p>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b>. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.</p>				<p>Shark Fin Poly</p>	
		<p><b>COMMENTS:</b></p> <p>REMOVE ALL BURRS AND SHARP EDGES.</p>					
<p><b>MATERIAL/FINISH:</b></p> <p>1/2" POLYCARBONATE CLEAR</p>		<p>SIZE</p> <p><b>C</b></p>				<p>DWG. NO.</p> <p>GE-23091</p>	<p>REV</p>
DO NOT SCALE DRAWING					<p>SCALE: 1:2</p>		<p>SHEET 1 OF 1</p>



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, B4, C4, D3	A	Style of Qty callouts, changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts	9/23/2022	JO



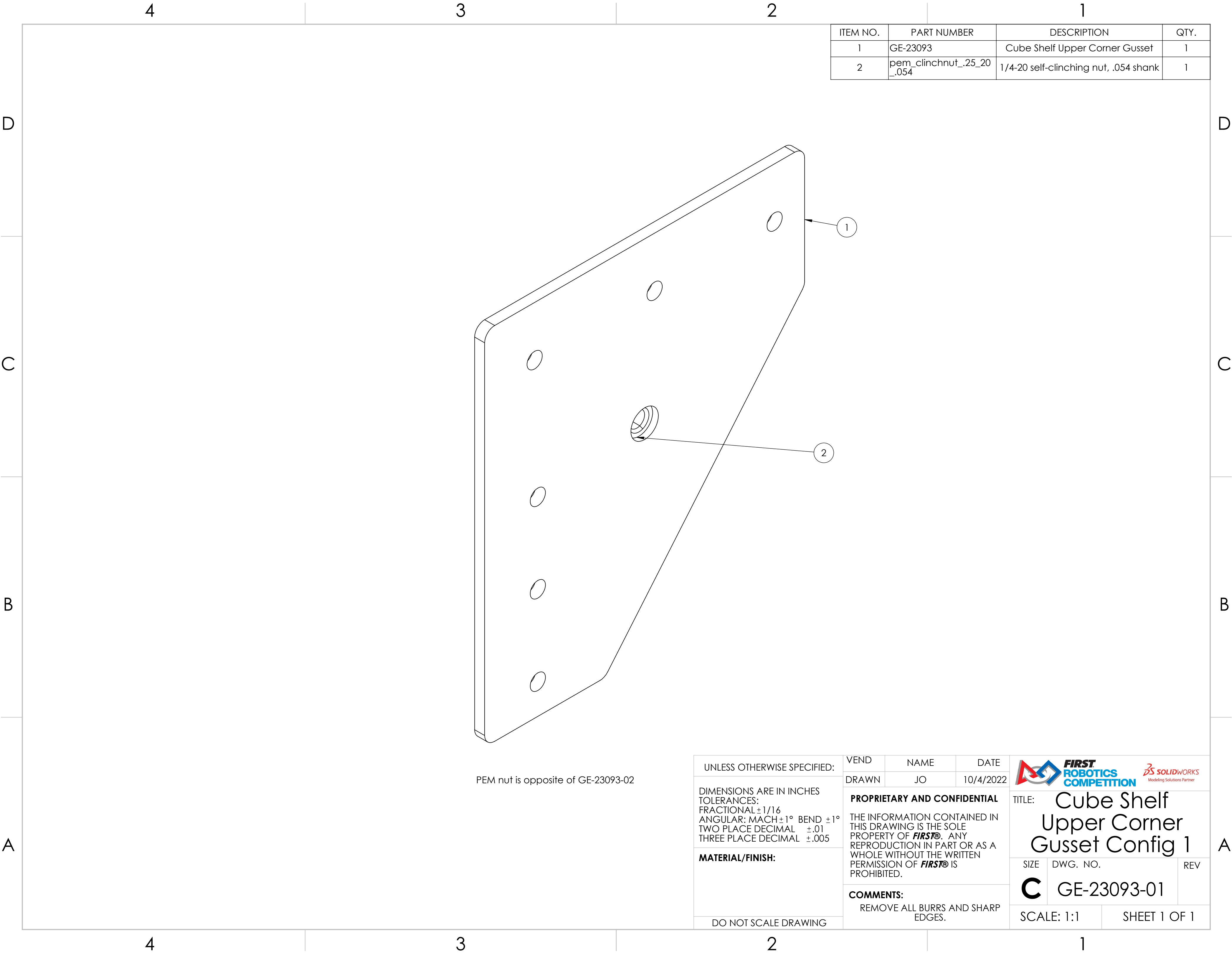
UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>			
	DRAWN	NAL	9/23/2022				
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			TITLE:  Shark Fin Bracket			
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.						
	COMMENTS:			SIZE		DWG. NO.	REV
MATERIAL/FINISH:  8GA 5052 AL			C			GE-23092	
DO NOT SCALE DRAWING			SCALE: 1:1			SHEET 1 OF 1	



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, B4, C3	A	Style of Qty callouts, changed hole size from .391 to .344 for PEM nut instead of Riv-nut, Rivet Hole Tolerance, Block Tolerance	9/23/2022	JO



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>  8GA 5052 AL  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div>		
	DRAWN	NAL	9/23/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.					
TITLE:			Cube Shelf Upper Corner Gusset			
SIZE	DWG. NO.		REV			
C	GE-23093					
SCALE: 1:1		SHEET 1 OF 1				

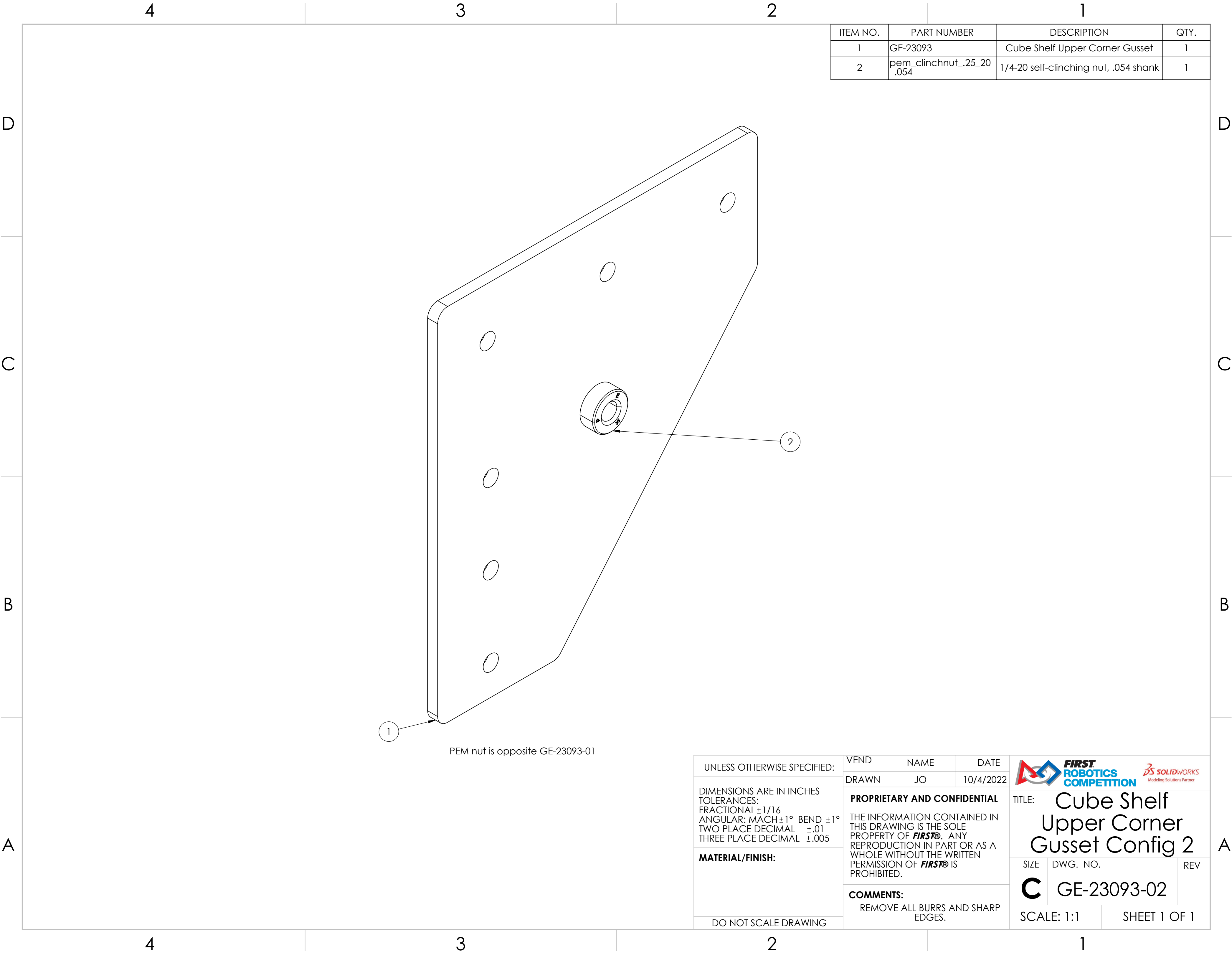






ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23093	Cube Shelf Upper Corner Gusset	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	1

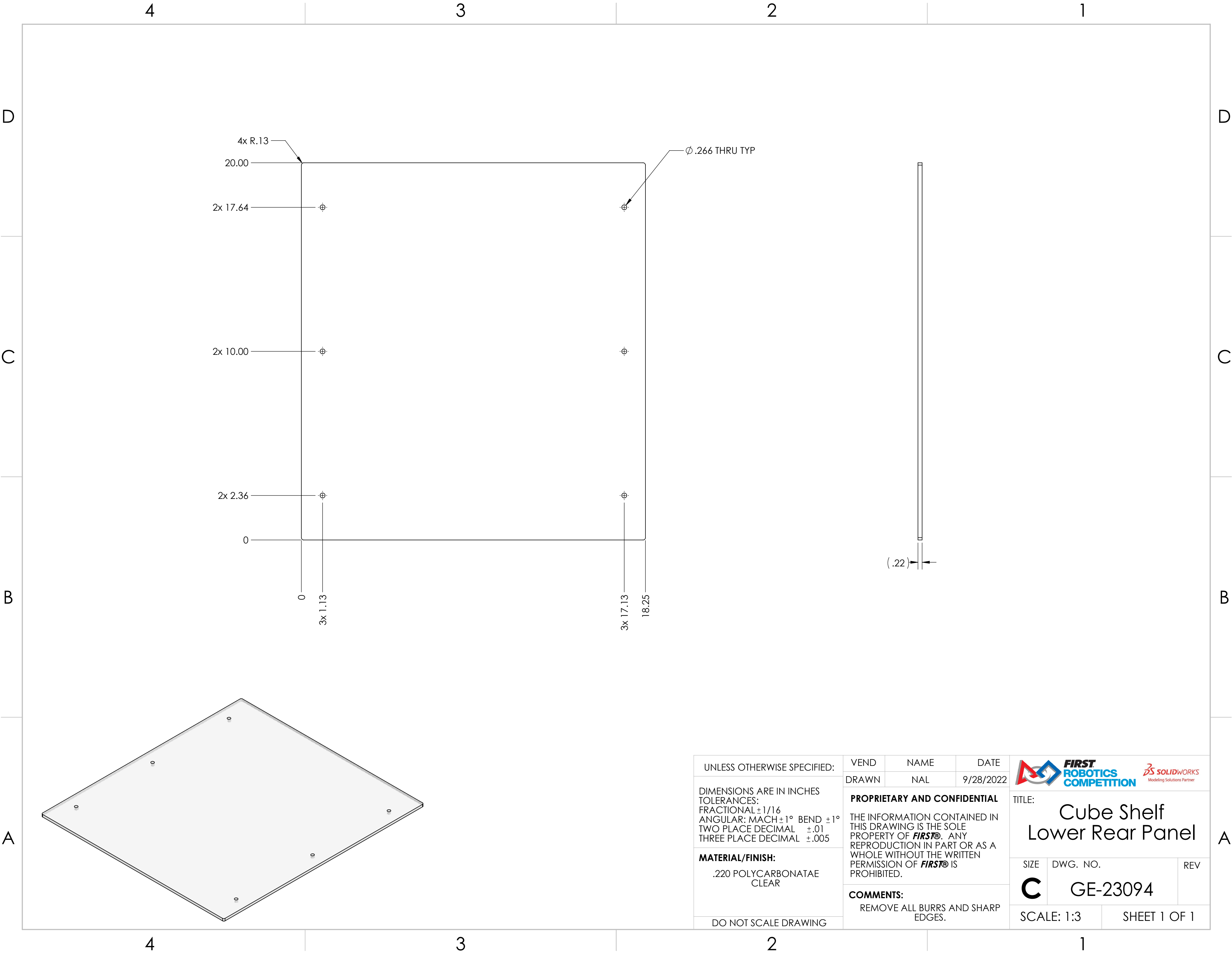
PEM nut is opposite of GE-23093-02

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>          DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div>	
	DRAWN	JO	10/4/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: Cube Shelf Upper Corner Gusset Config 1	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. GE-23093-01 REV
SCALE: 1:1		SHEET 1 OF 1			



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23093	Cube Shelf Upper Corner Gusset	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	1

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>          DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div>	
	DRAWN	JO	10/4/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: Cube Shelf Upper Corner Gusset Config 2	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				
	SIZE		DWG. NO.		REV
C		GE-23093-02			
SCALE: 1:1			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  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

**MATERIAL/FINISH:**  
.220 POLYCARBONATE  
CLEAR

DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	NAL	9/28/2022

**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: **Cube Shelf Lower Rear Panel**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23094	

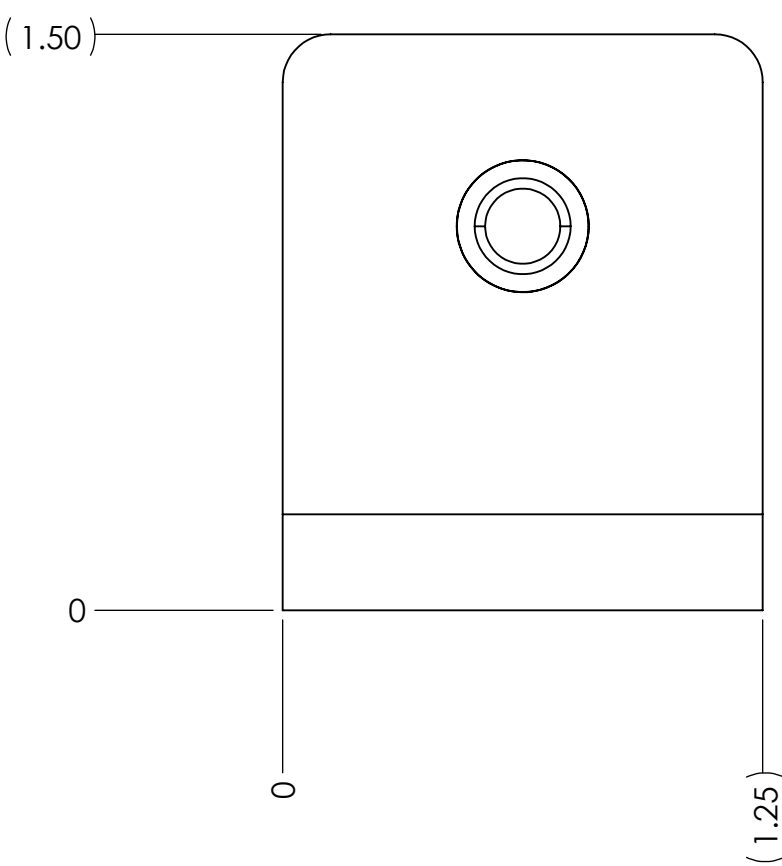
SCALE: 1:3 SHEET 1 OF 1

4			
ITEM NO.	PART NUMBER	Description	QTY.
1	GE-23096	Inside Corner Bracket	1
2	pem_clinchnut_.25_20_.054	1/4-20 PEM nuts	2

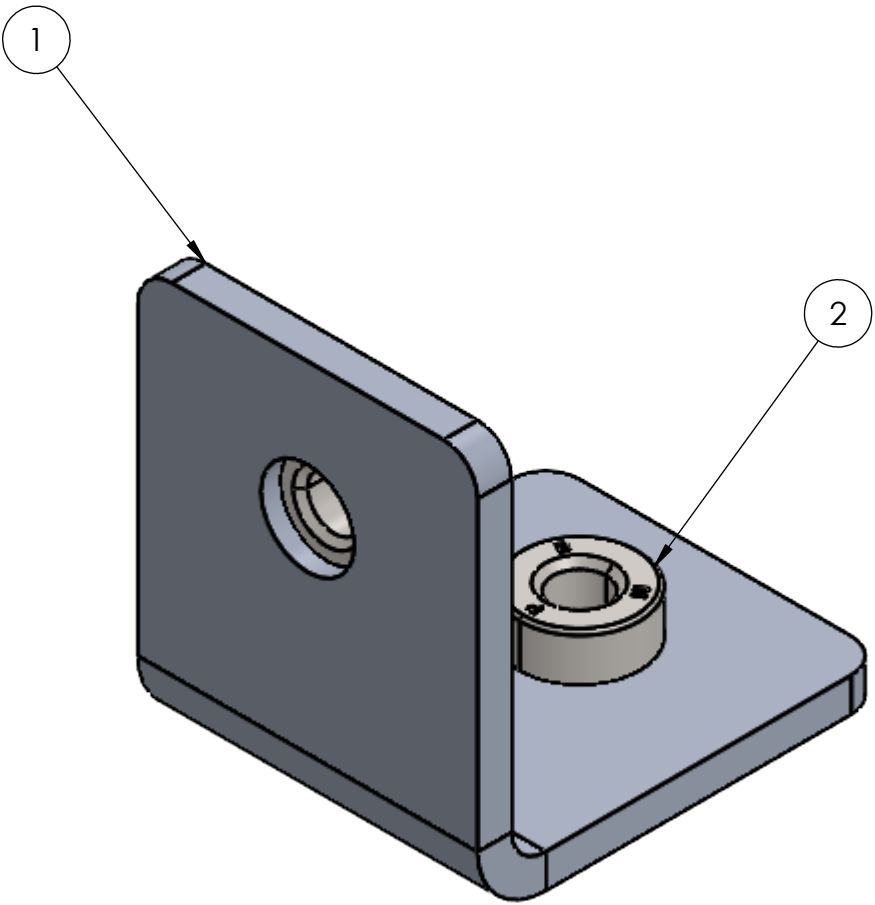
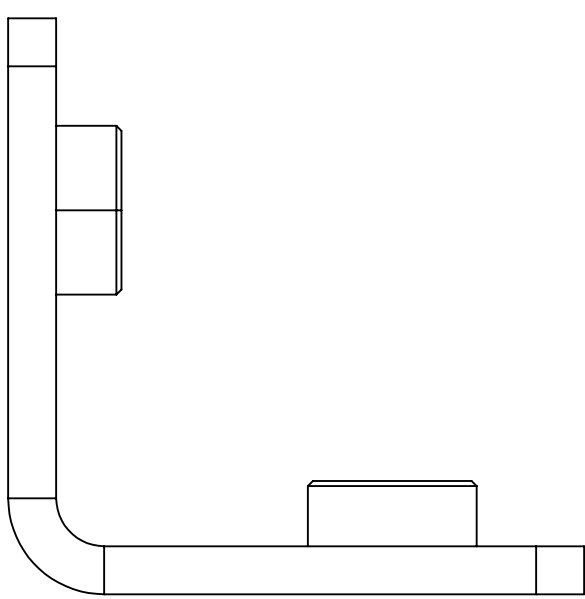
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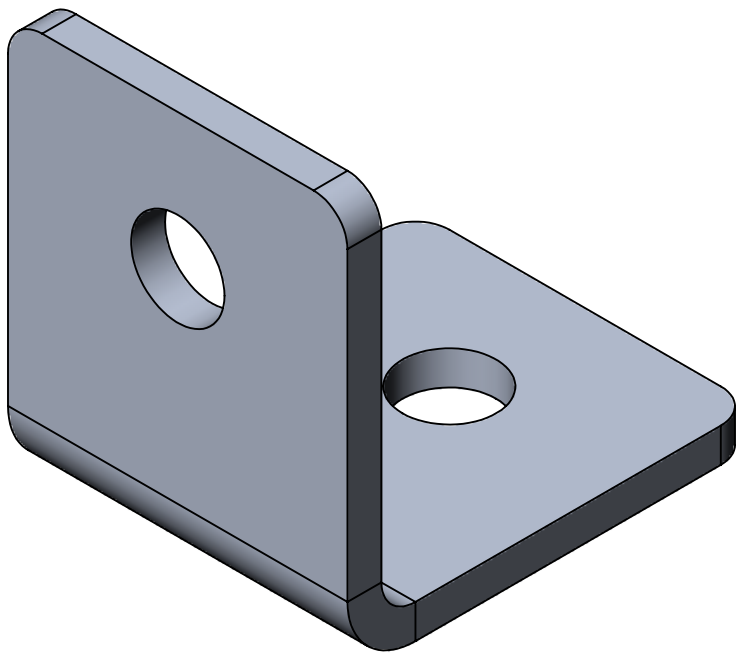
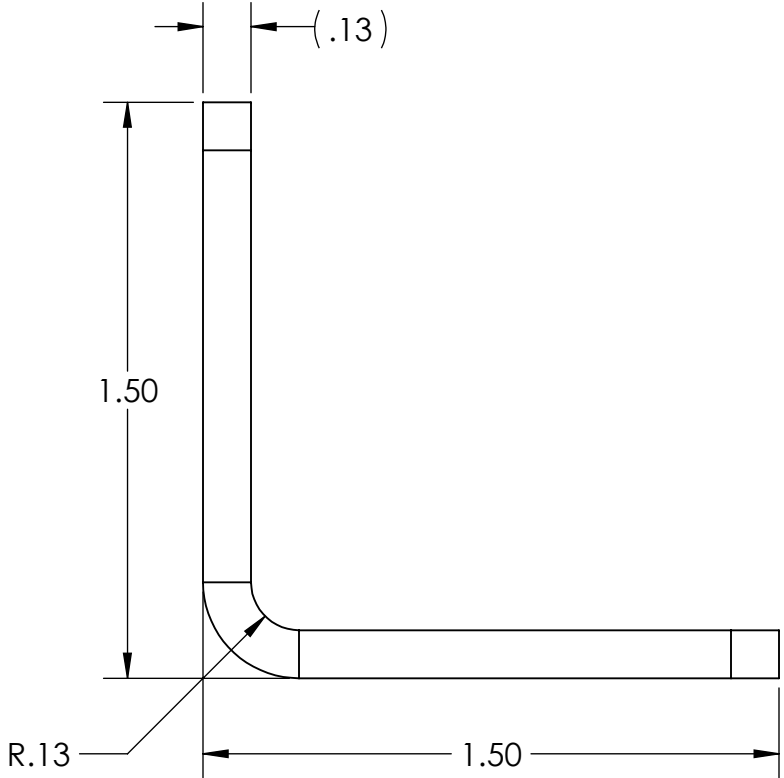
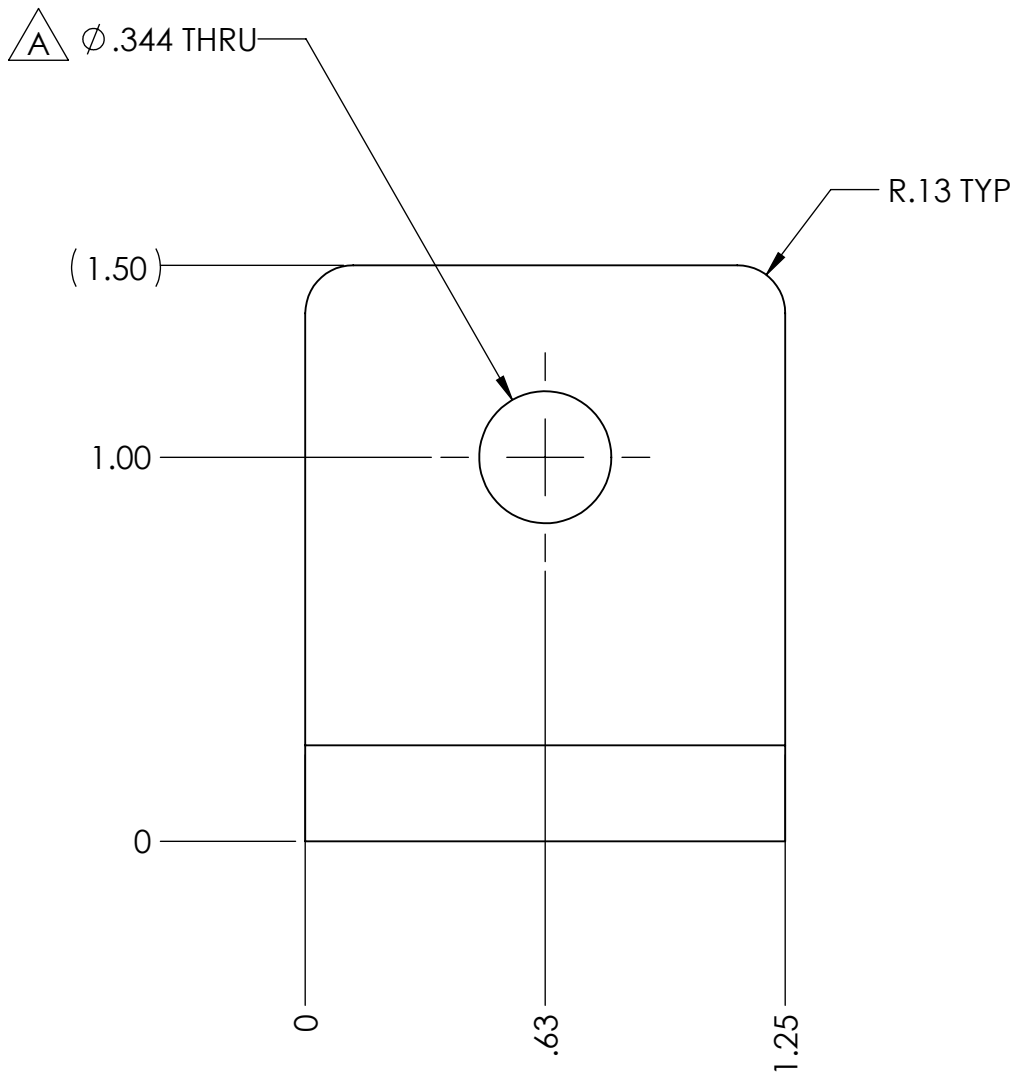
FOR BOTH FACES





LABEL OR BAG ASSEMBLIES WITH PART NUMBER

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>     DO NOT SCALE DRAWING	BEND	NAME	DATE	 		
	DRAWN	NAL	9/29/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				TITLE:  Cube Shelf Inside Corner Bracket with PEMnuts	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.					
SIZE		DWG. NO.		REV		
<b>C</b>		GE-23095				
SCALE: 2:1			SHEET 1 OF 1			

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C4	A	Changed hole size from .391 to .344 for PEM nuts instead of Riv-nuts	9/28/2022	JO



UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>		
	DRAWN	NAL	9/23/2022			
PROPRIETARY AND CONFIDENTIAL			TITLE:  Cube Shelf Inside Corner Bracket			
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.						
COMMENTS:			SIZE DWG. NO. <b>C</b> GE-23096 REV			
REMOVE ALL BURRS AND SHARP EDGES.						
DO NOT SCALE DRAWING						SCALE: 2:1 SHEET 1 OF 1

4			
ITEM NO.	PART NUMBER	Description	QTY.
1	GE-23092	Shark Fin Bracket	1
2	pem_clinchnut_.25_20_.054	1/4-20 PEM Nut	3

D

D

C

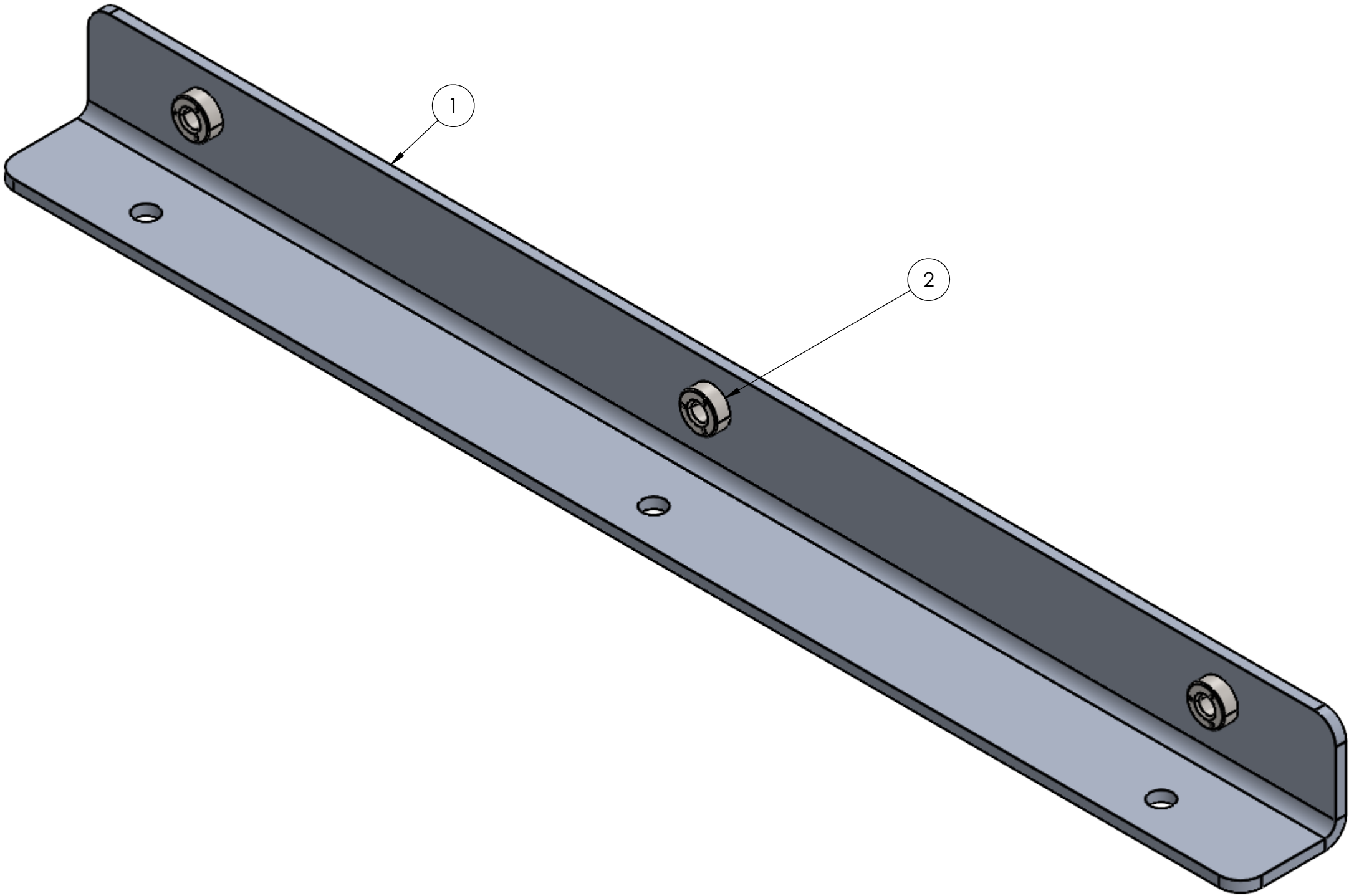
C

B



B

A

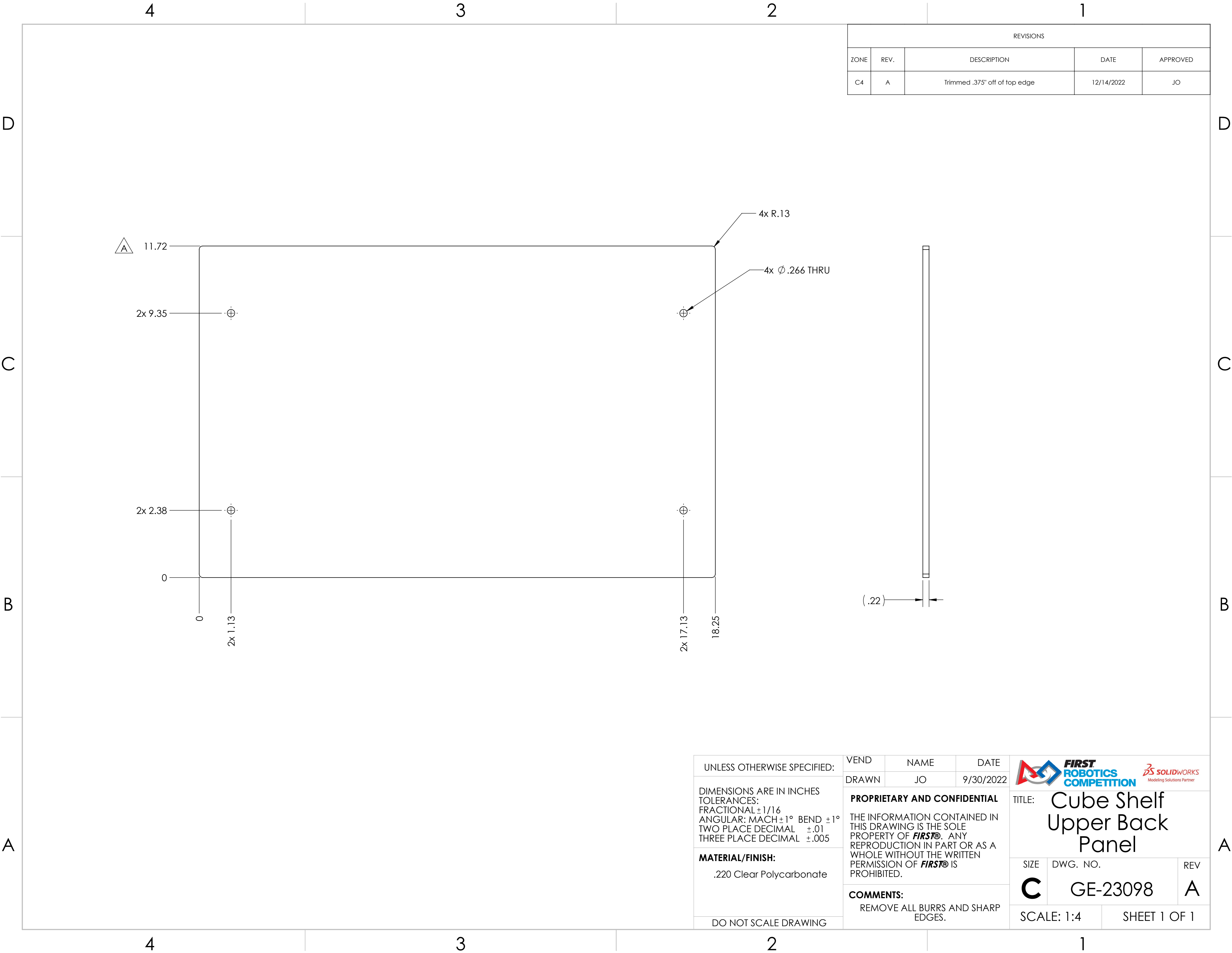
A





LABEL ASSEMBLY WITH PART NUMBER

UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div><div></div><div>TITLE: <b>Shark Fin Bracket With PEM nuts Installed</b></div><div><div>SIZE</div><div>DWG. NO.</div><div>REV</div></div><div><div>SCALE: 1:2</div><div>SHEET 1 OF 1</div></div></div>
	DRAWN	NAL	9/29/2022	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			
<b>MATERIAL/FINISH:</b>	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			
DO NOT SCALE DRAWING				





REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C4	A	Trimmed .375" off of top edge	12/14/2022	JO

UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div><div></div><div>TITLE: Cube Shelf Upper Back Panel</div></div>		
	DRAWN	JO	9/30/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	PROPRIETARY AND CONFIDENTIAL					
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:  .220 Clear Polycarbonate	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23098	A
DO NOT SCALE DRAWING				SCALE: 1:4		SHEET 1 OF 1

D

C

B

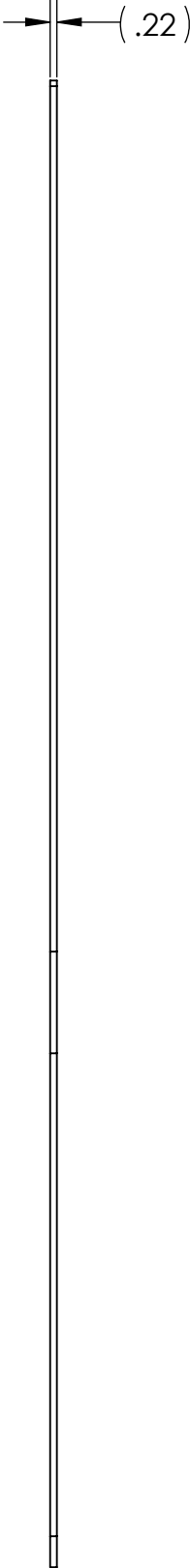
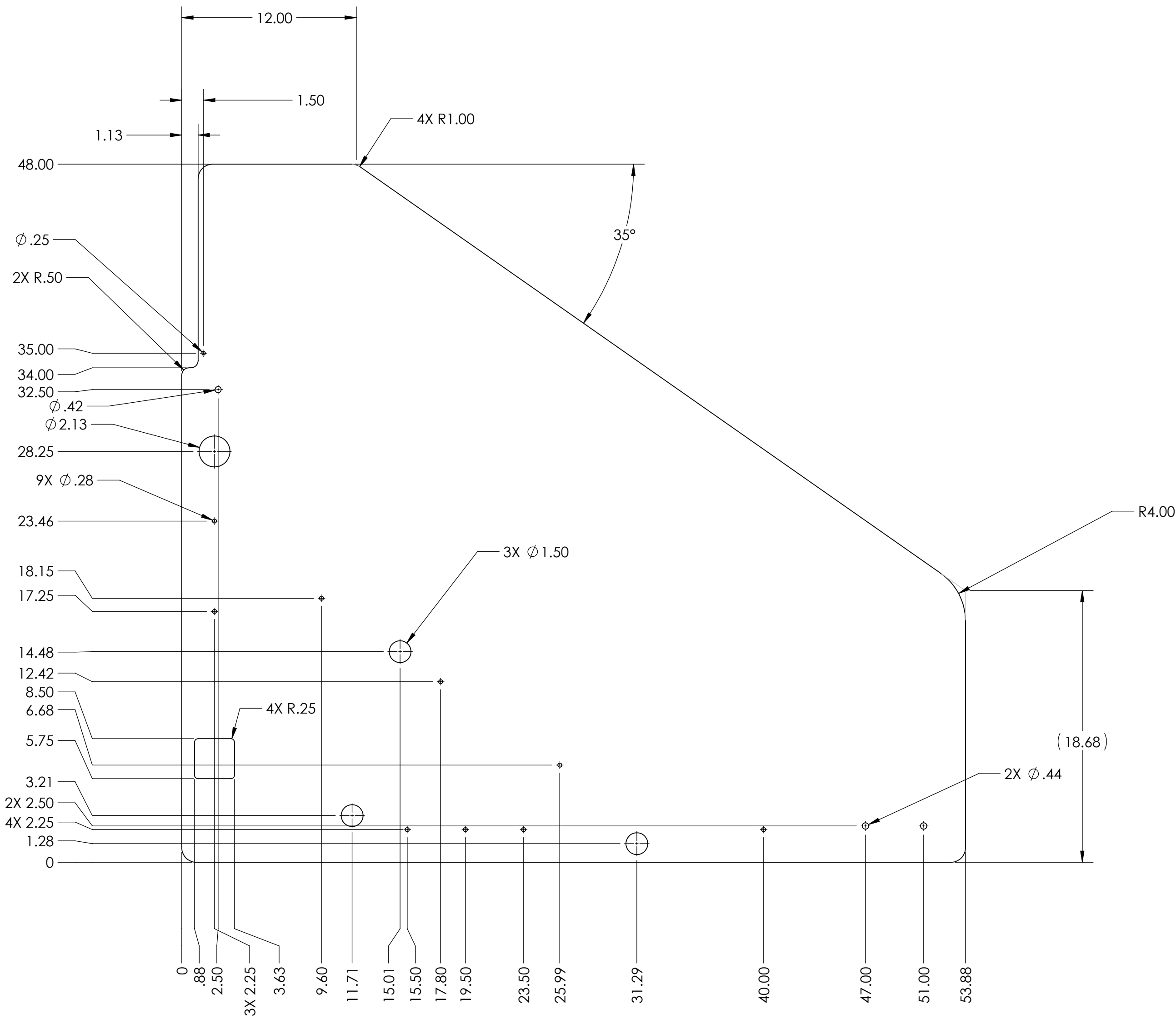
A


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C

B

A



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  0.220" Polycarbonate Clear  DO NOT SCALE DRAWING	VEND	NAME	DATE	 TITLE: <b>Goal Side Wall</b>		
	DRAWN	NE	9/28/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23099	
SCALE: 1:8		SHEET 1 OF 1				

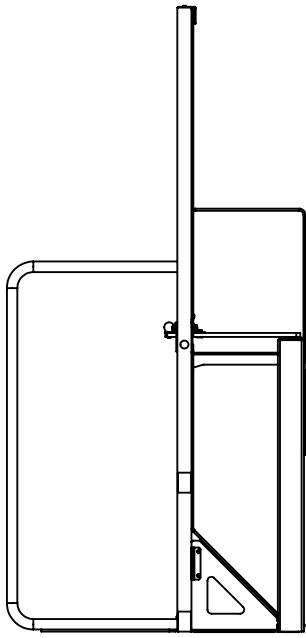
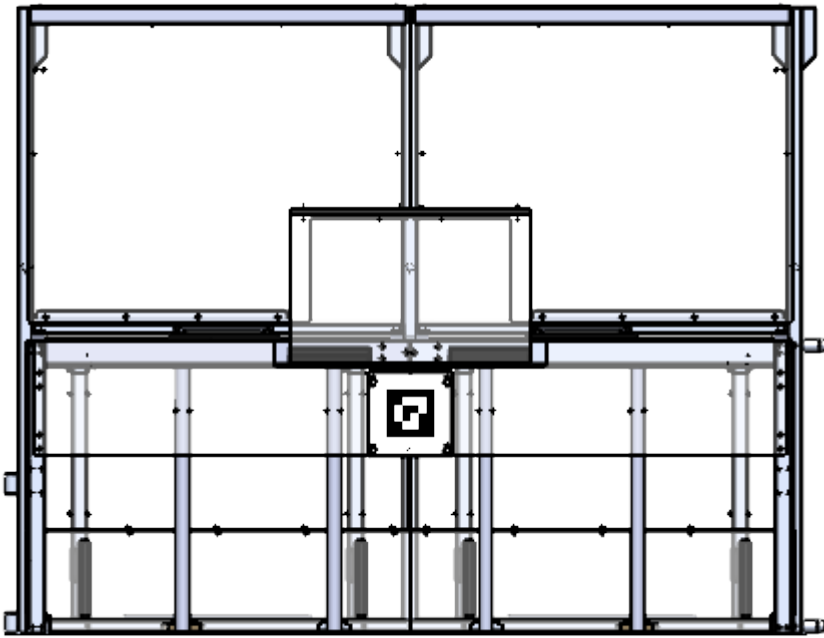
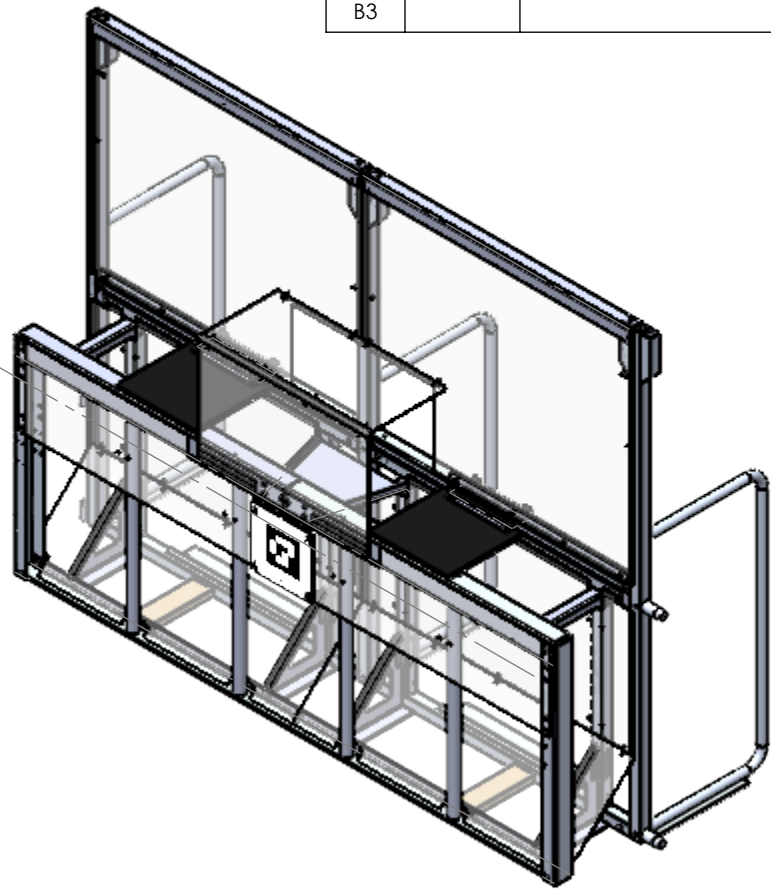
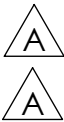
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A

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	FE-00001	Drivers Station Support	2
2	FE-00002_Right	Corner Supports, Right	1
3	GE-23122	GE-23101 and GE-23102 riveted	2
4	GE-23106	top rail assembly	2
5	GE-23110	slide assembly	2
6	GE-23107	Loading station lower plastic	2
7	GE-23123	GE-23113 w/ hook	1
8	GE-23124	GE-23114 w/ hook	1
9	GE-23127	GE-23111 w/ hook	4
10	GE-23120	Grill, brace to frame	2
11	GE-23116	Grill, front connector plate	1
12	GE-23117	connector plate to frame	1
13	GE-23104	Loading station top plastic assembly (left)	1
14	GE-23104	Loading station top plastic assembly (right)	1
15	GE-23126	GE-23108 w/ hook	1
16	GE-23118	front grill plastic	1
17	FE-00071	FE-00070 w/ hook	2
18	washer_flat_.25	Flat Washer for 1/4" Screw	19
19	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	19
20	pin_quick_ring_.25_.5	Pin, Ring-Grip Quick-Release with SS Ring, 1/4" Diameter, 0.5" Usable Length	4
21	91772A540	Pan head .25_20	19
22	pin_quick_ring_.25_2.0 625	Pin, Ring-Grip Quick-Release with SS Ring, 1/4" Diameter, 2.0625" Usable Length	4
23	FE-00081-ID4	AprilTag Target	1
25	GE-23112	Ramp plastic	2
25	GE-23128	FJ Spacer DSST	2
26	GE-23129	Plywood DSST Spacer	2





REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, 9-A4, 9-B3	A	Added wooden parts for extra bracing	3/20/2023	JO

D

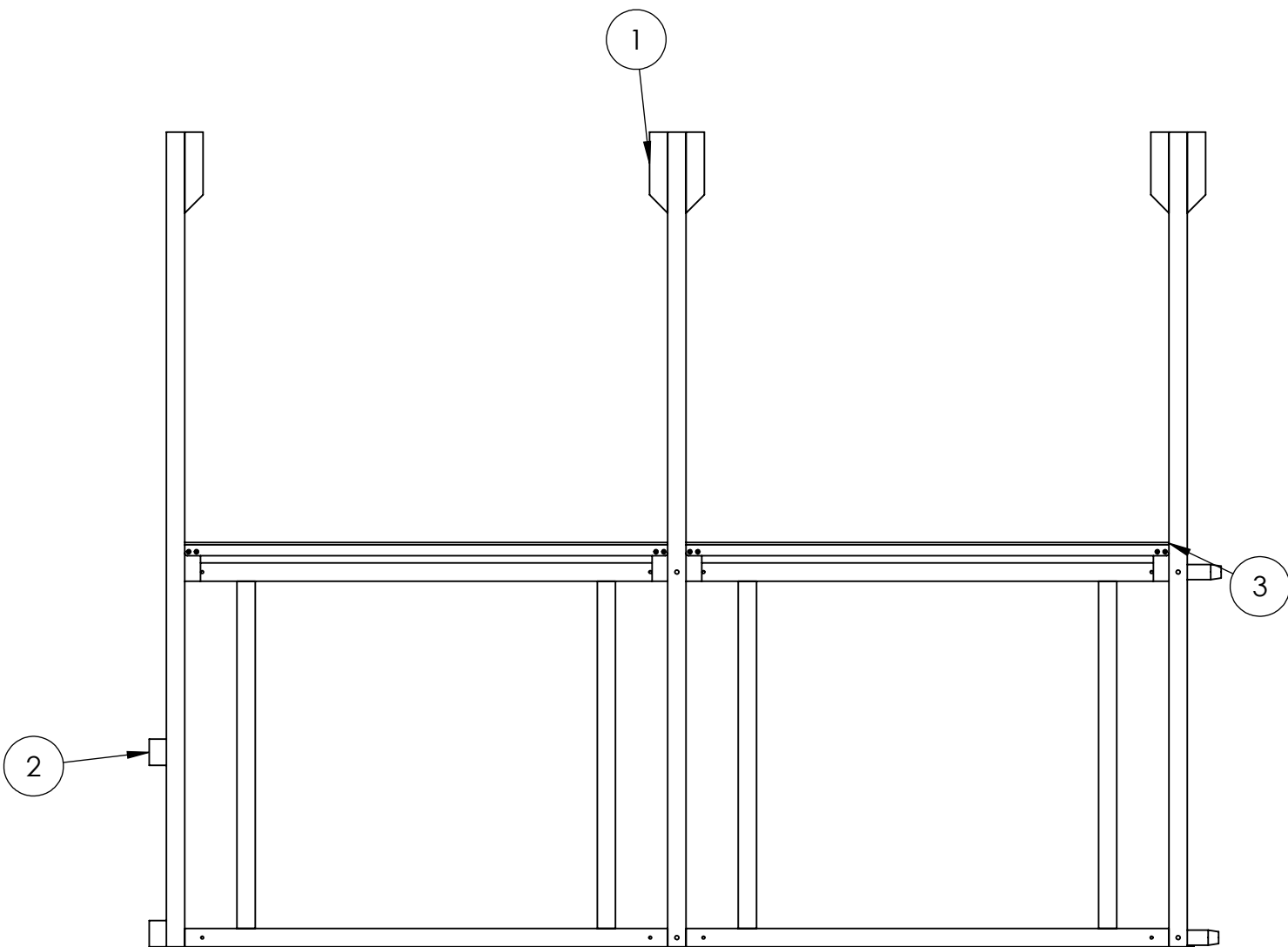
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UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div><div>FIRST ROBOTICS COMPETITION</div><div>Modeling Solutions Partner</div></div>		
	DRAWN	NW	12/27/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Double Substation		
<b>MATERIAL/FINISH:</b>	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23100	A
DO NOT SCALE DRAWING				SCALE: 1:24		SHEET 1 OF 11

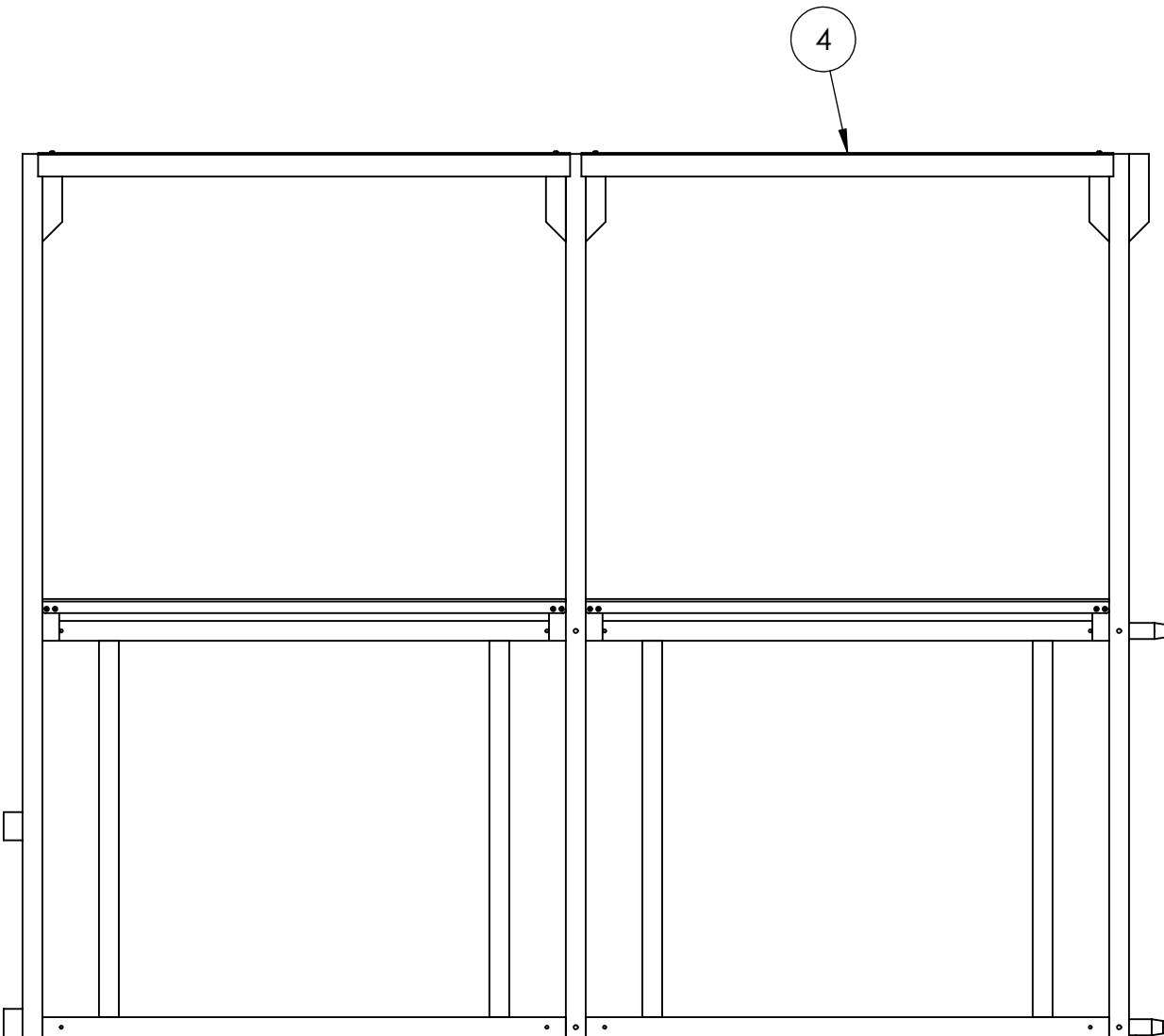
Step 1.



Notes:



- slide the opening of (3) into (1) that is attached to the Driver Station Diamond Plate.
- slide (1) into the other end of (3) .
- repeat step 1.
- Slide (2) into (3) .
- \*\* Andymark field border pin (3) to uprights.

Step 2.

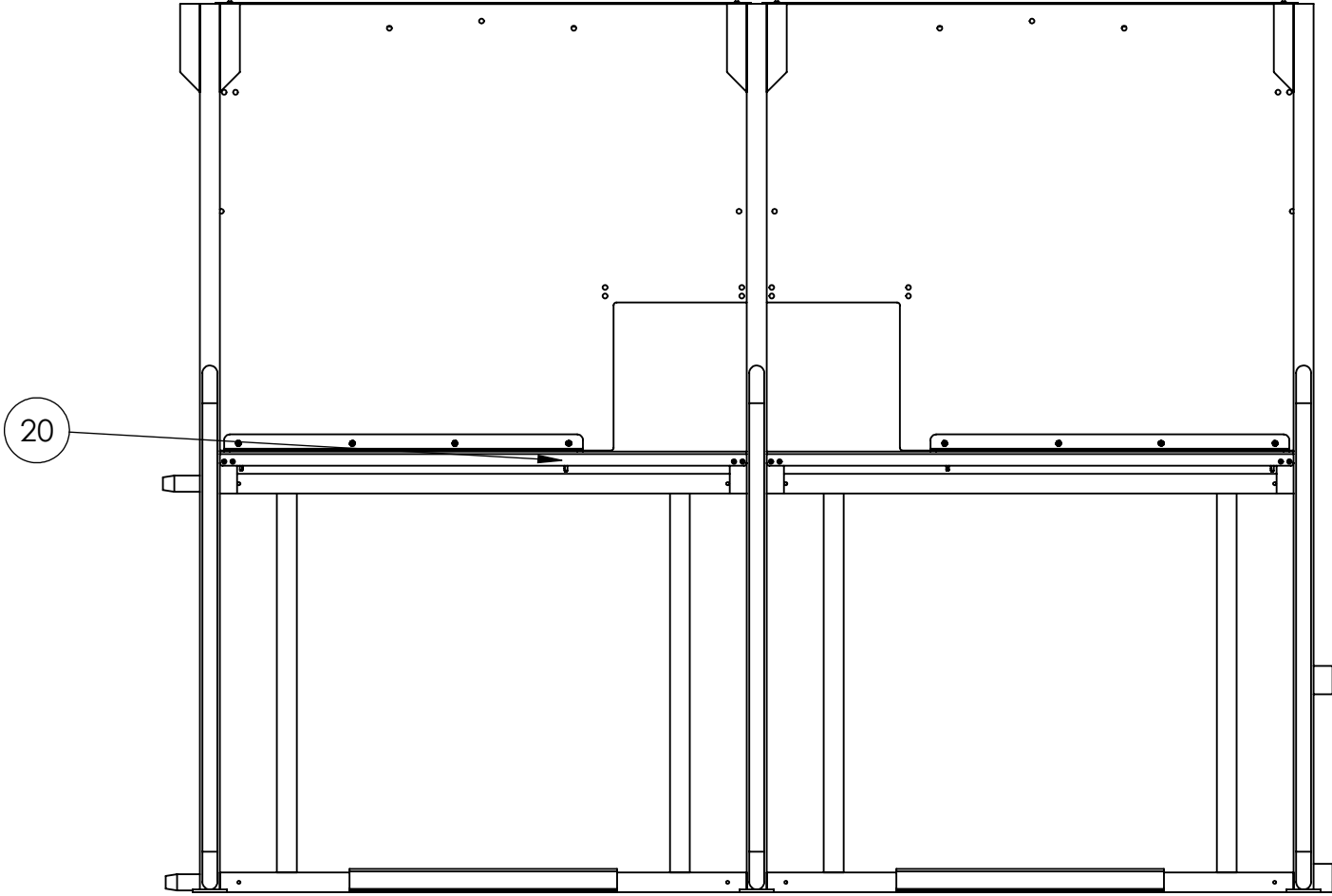
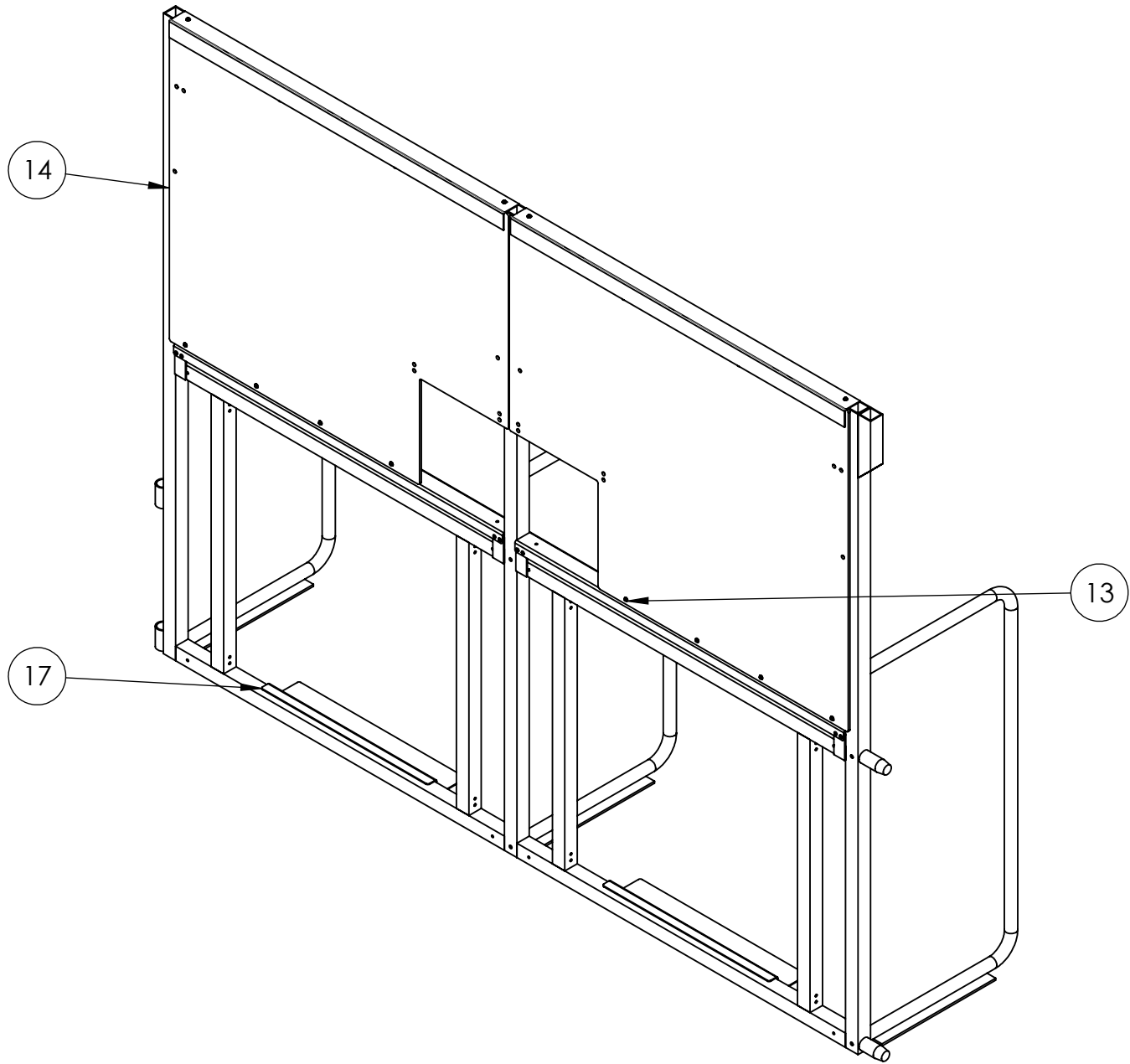


Notes:



- Insert (4) into the openings on top of the uprights in two locations.

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div><div></div><div>TITLE:</div></div>		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/2 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .50	DRAWN	NW	12/27/2022	<div>Double Substation</div>		
MATERIAL/FINISH:	PROPRIETARY AND CONFIDENTIAL			SIZE	DWG. NO.	REV
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			C	GE-23100	A
DO NOT SCALE DRAWING	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SCALE: 1:16		SHEET 2 OF 11

Step 3.



- Notes:
- Place 17 centered on the frame flush and to the carpet.
  - Insert 13 and 14 under step 2 and resting on the frame.
  - Pin using 20.

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50  <b>MATERIAL/FINISH:</b>     <b>DO NOT SCALE DRAWING</b>	FIELD	NAME	DATE	 	
	DRAWN	NW	12/27/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Double Substation	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				
	SIZE		DWG. NO.	REV	
C		GE-23100	A		
SCALE: 1:16			SHEET 3 OF 11		

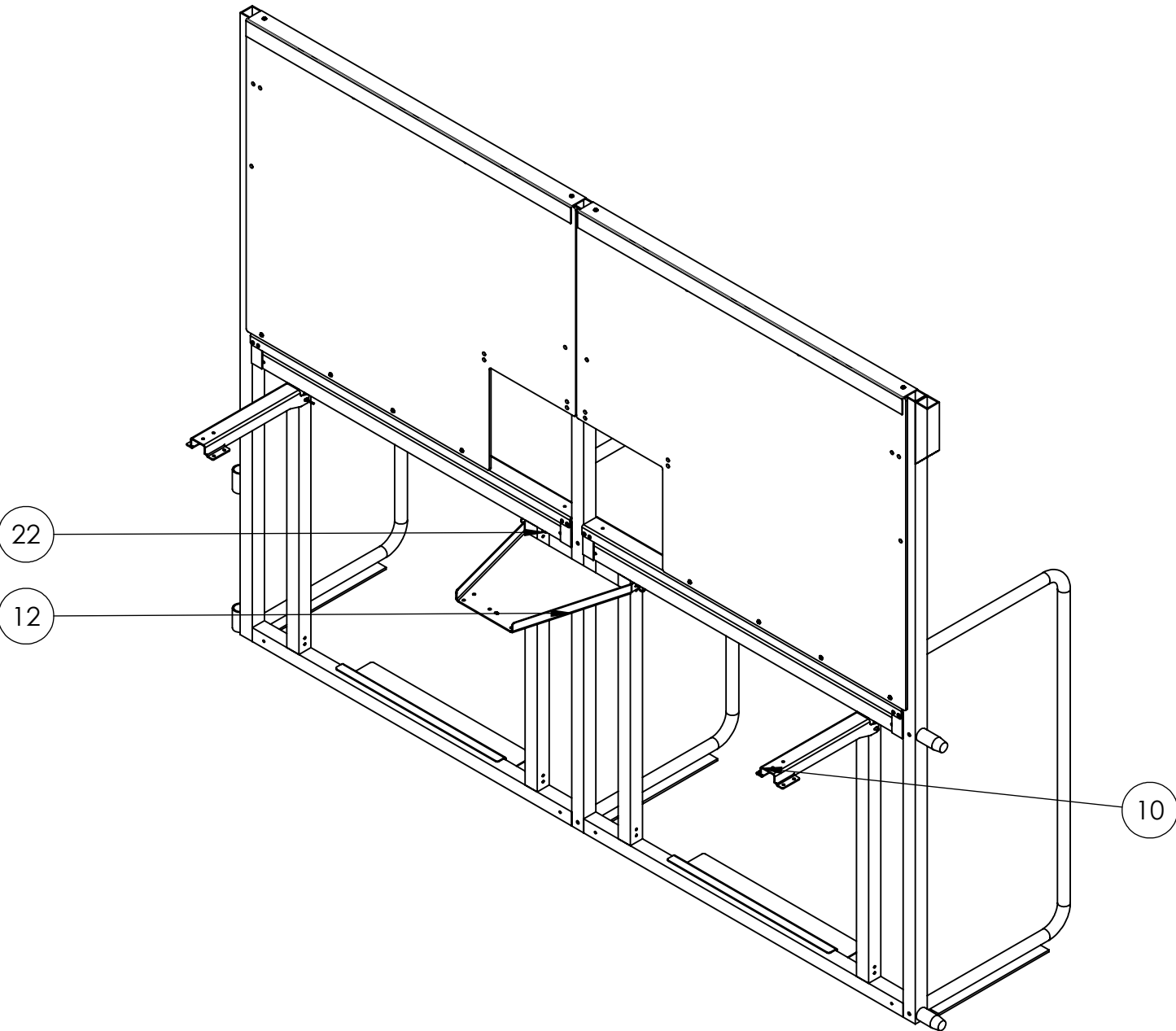
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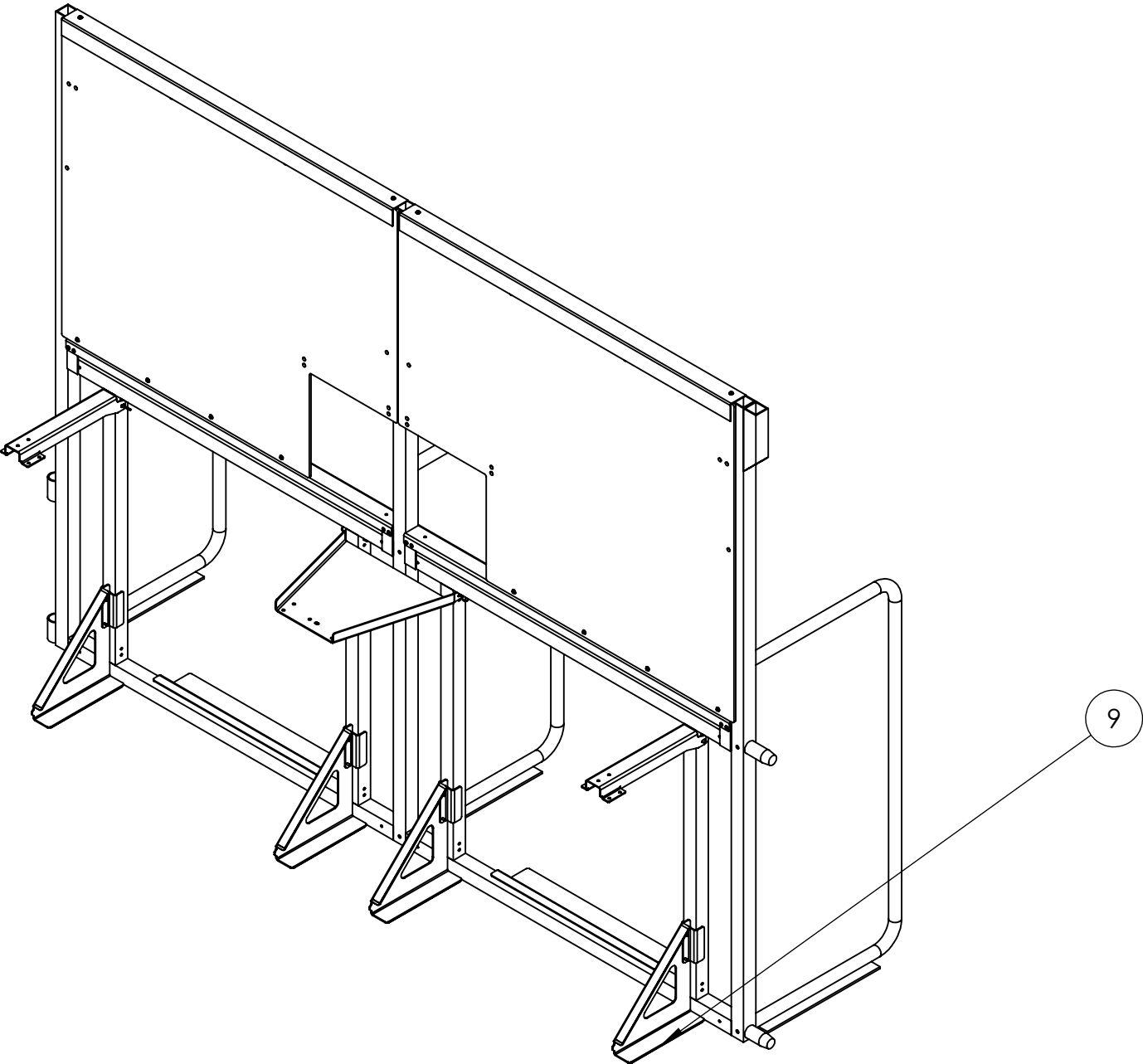
Step 4.



Notes:



- 1. Place 12 and pin with 22 at the center location using the top set of holes.
- 2. Place 10 and pin with 22 in two locations using the bottom set of holes.

Step 5.



Notes:

- 1. Place 9 on the floor in 4 locations centered and flush to the frame uprights.

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div>		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	DRAWN	NW	12/27/2022	TITLE:		
	PROPRIETARY AND CONFIDENTIAL			<div>Double Substation</div>		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
DO NOT SCALE DRAWING	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23100	A
				SCALE: 1:16		SHEET 4 OF 11

4

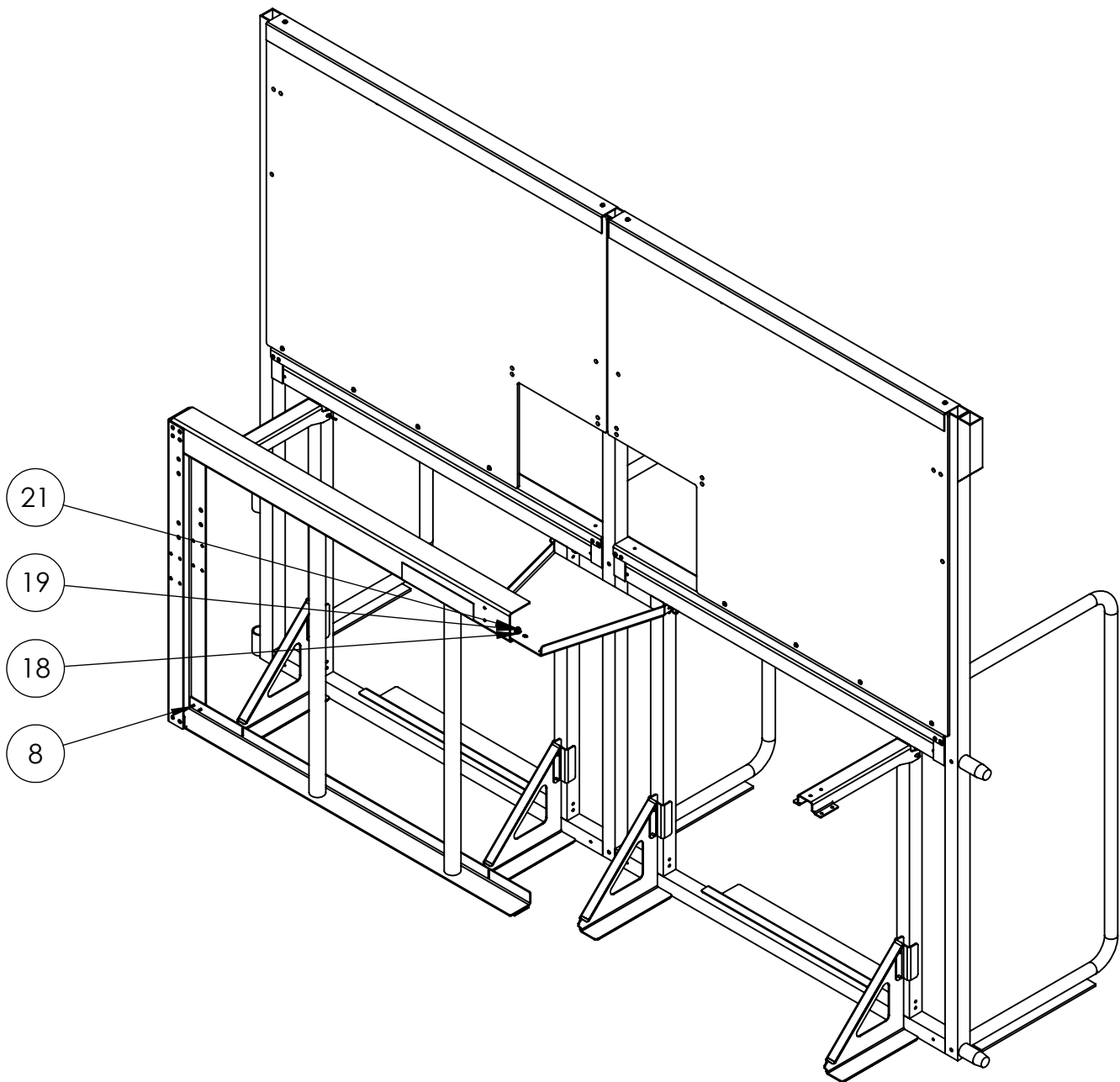
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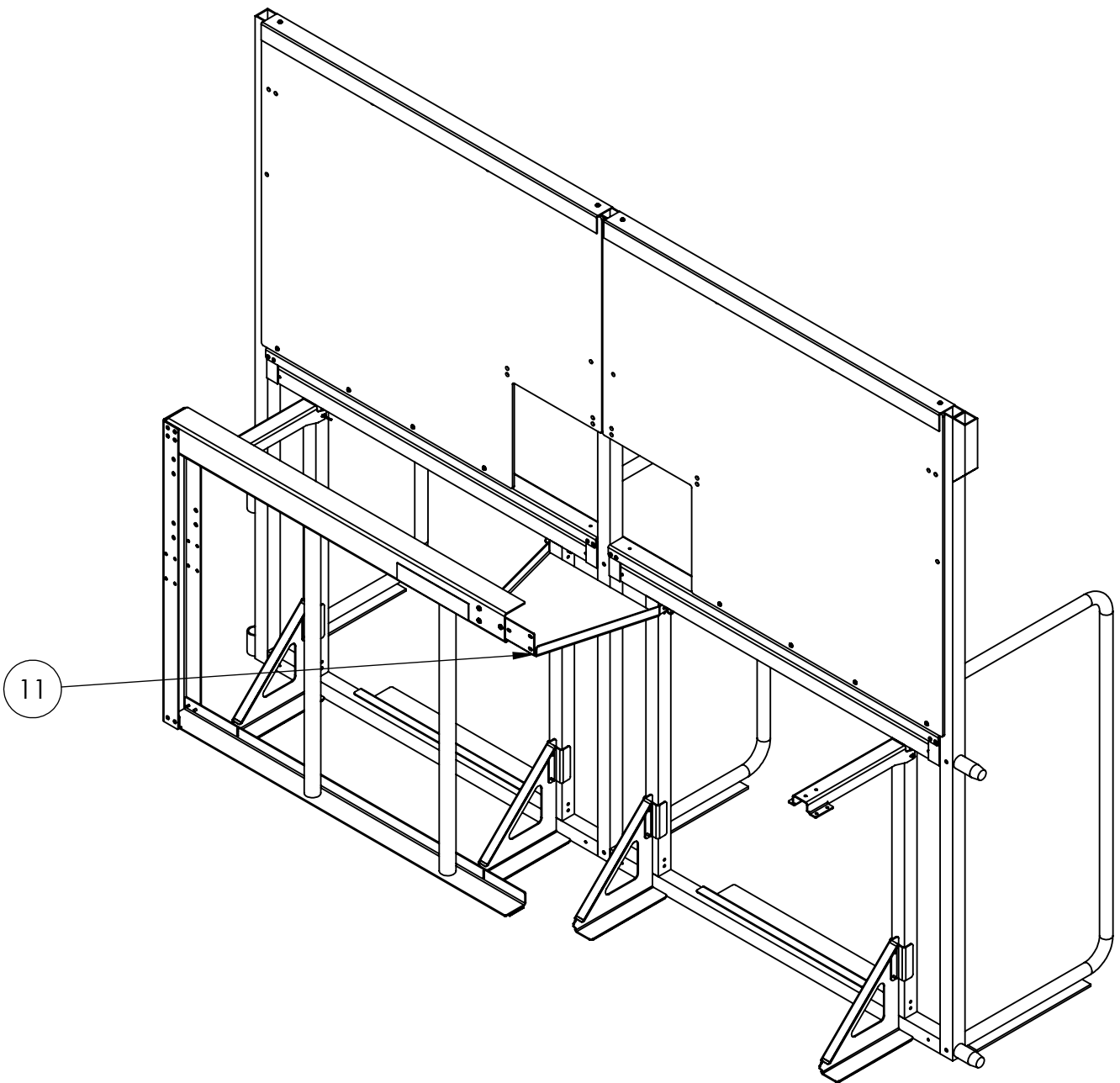


Step 6.





- Notes:
- 1. Place 8 in place aligning tabs and bolt hole locations with step 4 and 5.
  - 2. Bolt step 4 to 8 with 18, 19, and 21 in 7 locations. bolting up.

Step 7.



- Notes:
- 1. Insert and bolt 11 to step 6 in 3 locations bolting away from field.

UNLESS OTHERWISE SPECIFIED:		FIELD	NAME	DATE	<div></div>			
<div>DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50</div>		DRAWN	NW	12/27/2022	TITLE: <div>Double Substation</div>			
		PROPRIETARY AND CONFIDENTIAL						
		MATERIAL/FINISH:		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.				C	GE-23100	A		
DO NOT SCALE DRAWING					SCALE: 1:16		SHEET 5 OF 11	

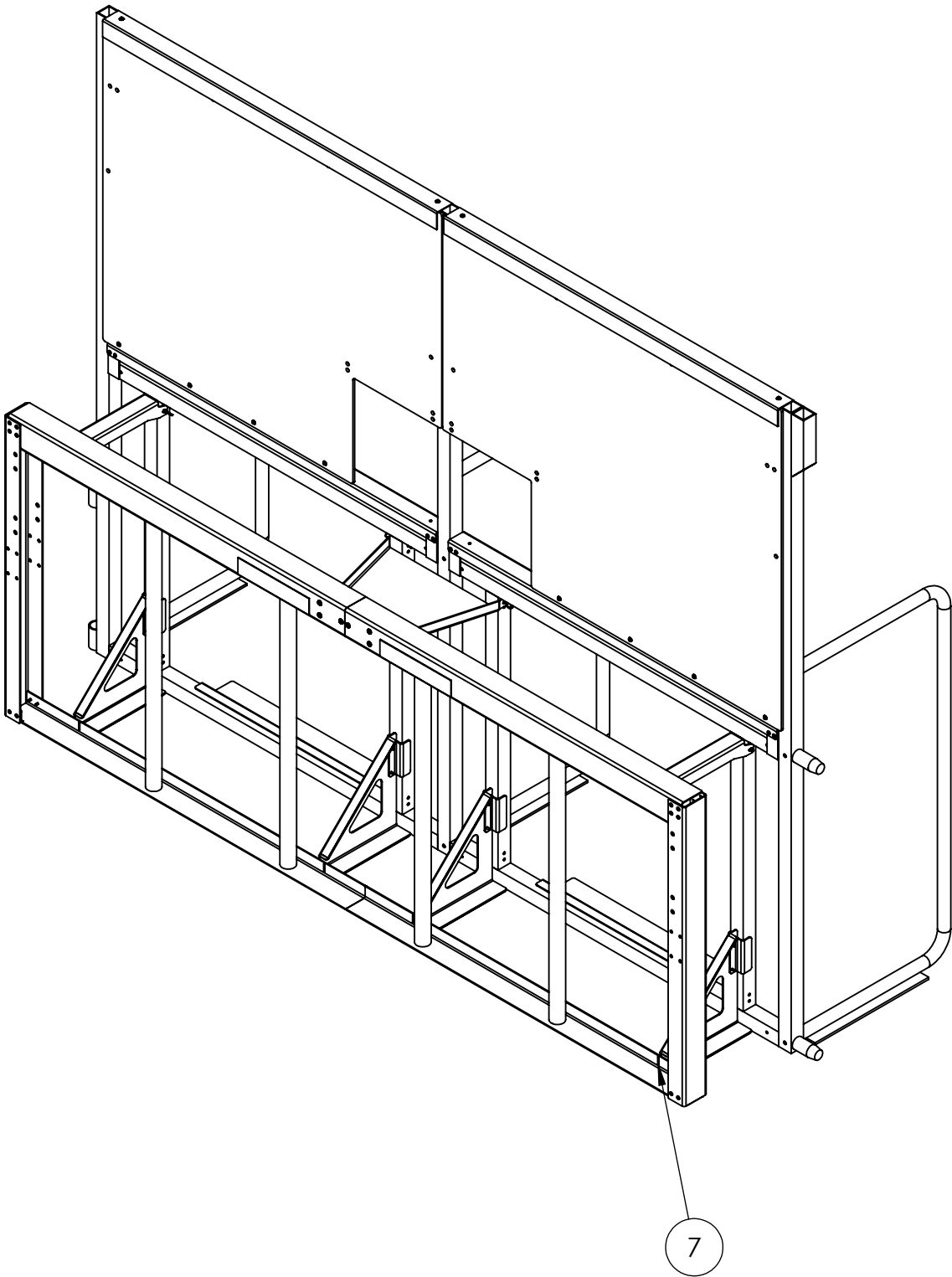
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3

2

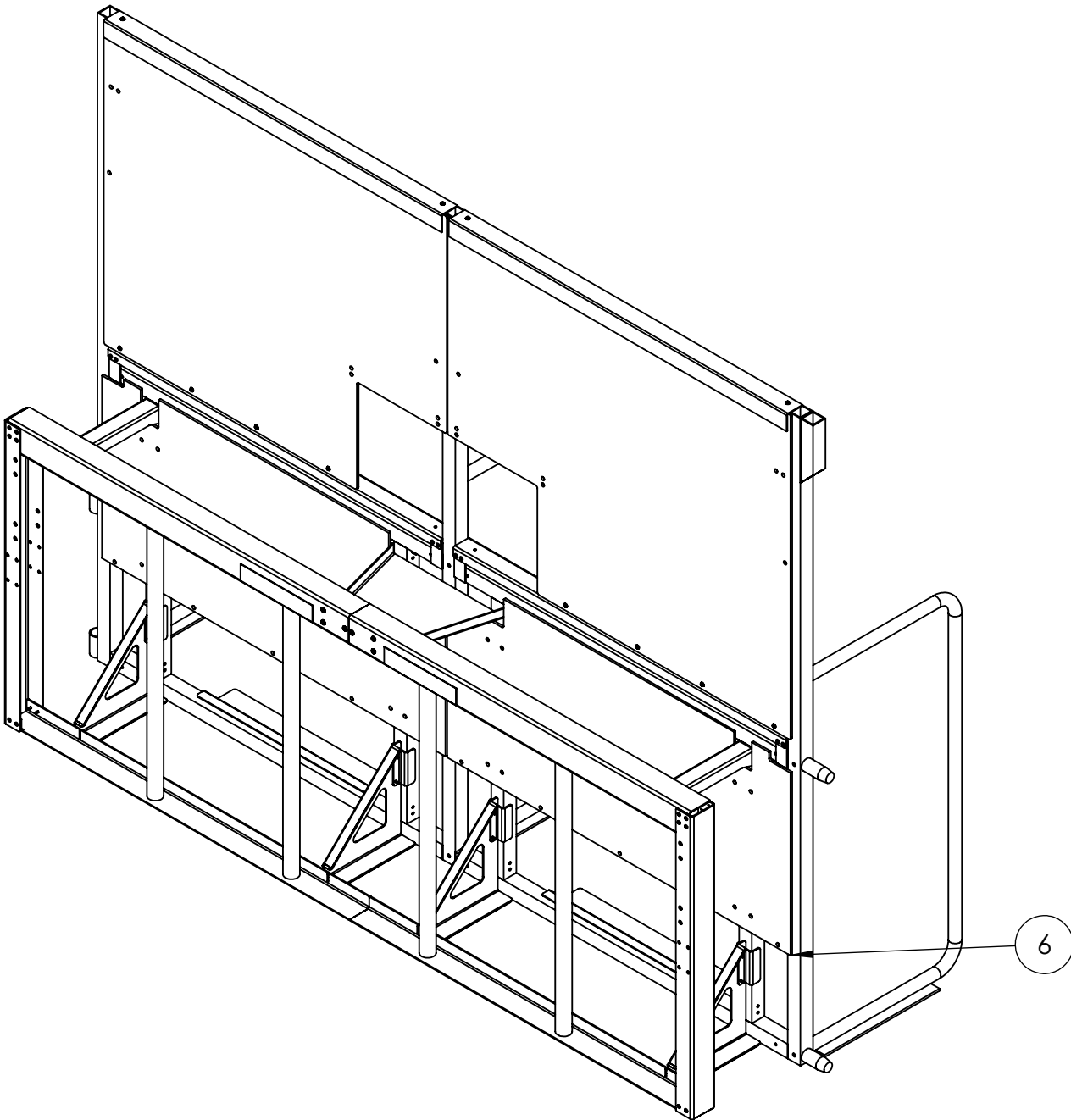
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Step 8.





- Notes:
- 1. Place 7 together like step 6 in 7 locations.
  - 2. Repeat part of step 7 bolting in remaining 3 locations of step 7.

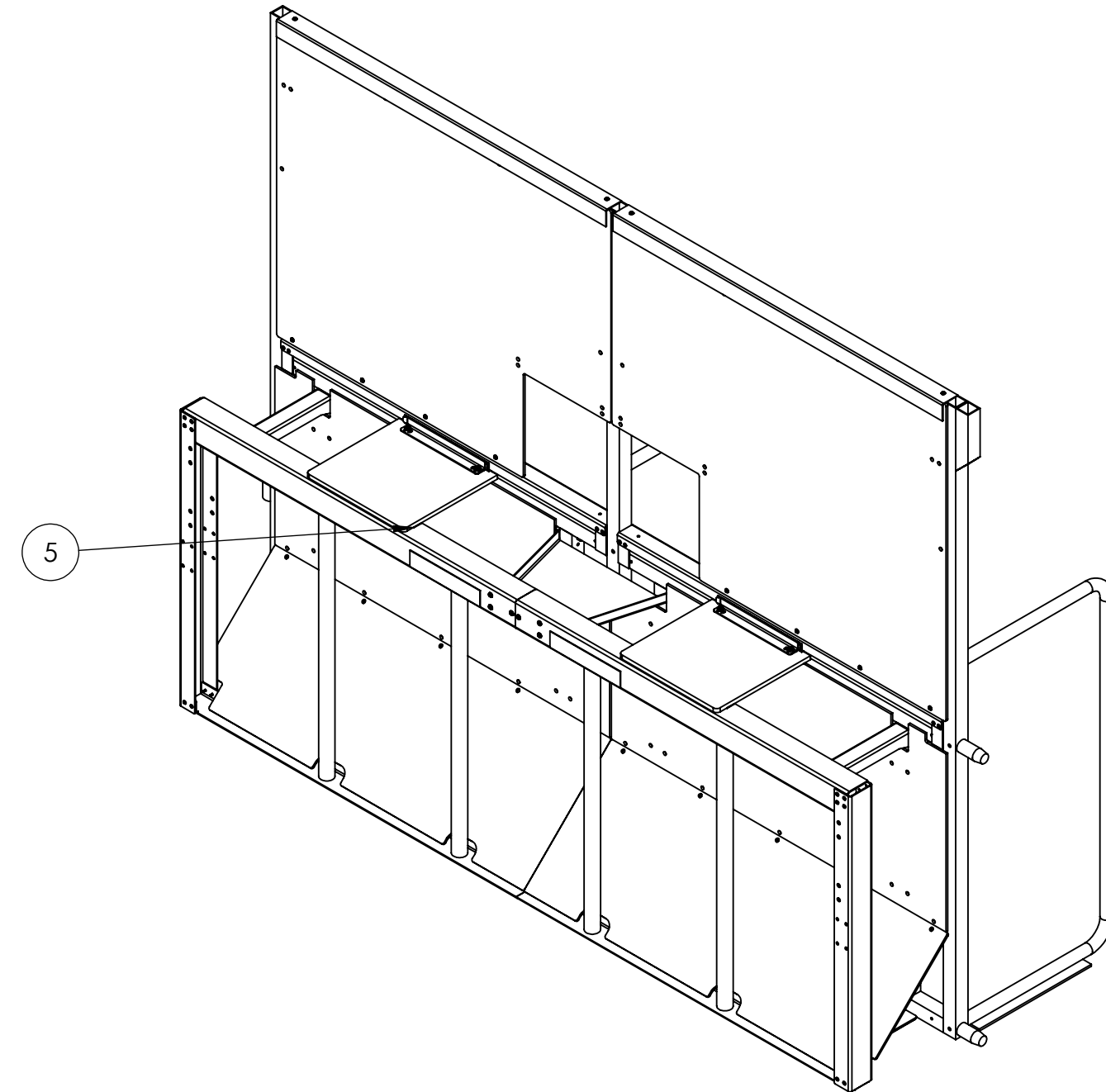
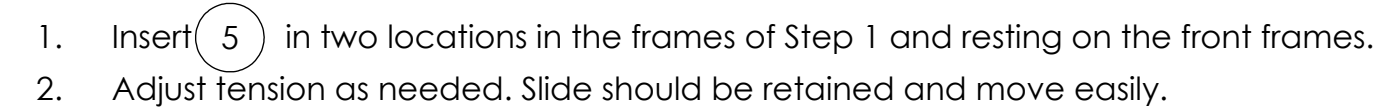
Step 9.





- Notes:
- 1. Insert 6 in two locations and attach with 120lb cable ties.

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div><div>FIRST ROBOTICS COMPETITION</div></div> <div><div>SOLIDWORKS Modeling Solutions Partner</div></div>		
	DRAWN	NW	12/27/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Double Substation		
<b>MATERIAL/FINISH:</b>	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23100	A
DO NOT SCALE DRAWING				SCALE: 1:16		SHEET 6 OF 11

1. Lay (25) on to step 5 attached with hook and loop.



UNLESS OTHERWISE SPECIFIED:		FIELD	NAME	DATE	 <b>FIRST</b> <b>ROBOTICS</b> <b>COMPETITION</b> 		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$		DRAWN	NW	12/27/2022	TITLE:  <h1>Double Substation</h1>		
		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
		<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.					
<b>MATERIAL/FINISH:</b>					SIZE	DWG. NO.	REV
					<b>C</b>	<b>GE-23100</b>	<b>A</b>
DO NOT SCALE DRAWING					SCALE: 1:16		SHEET 7 OF 11

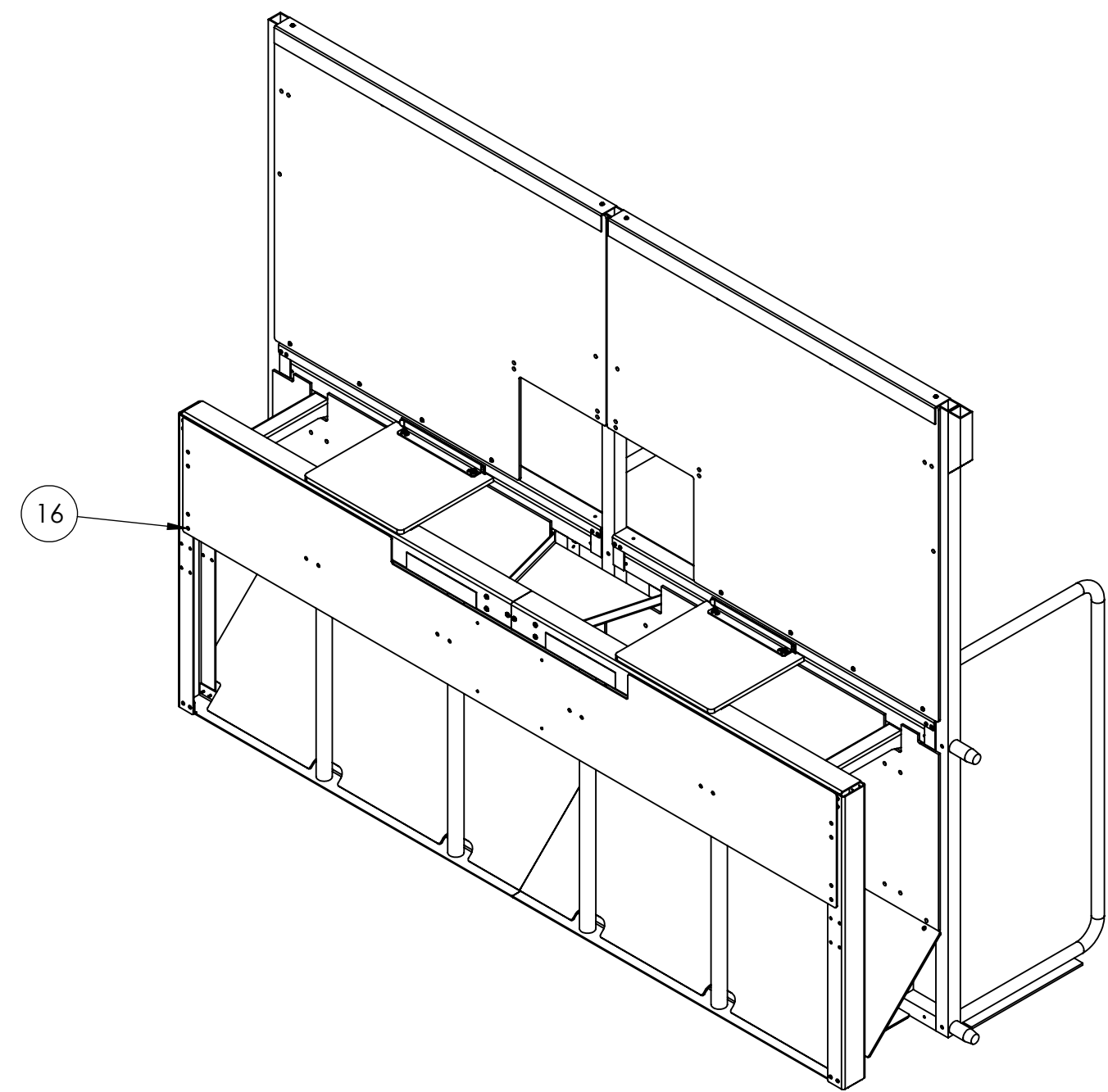
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C

B

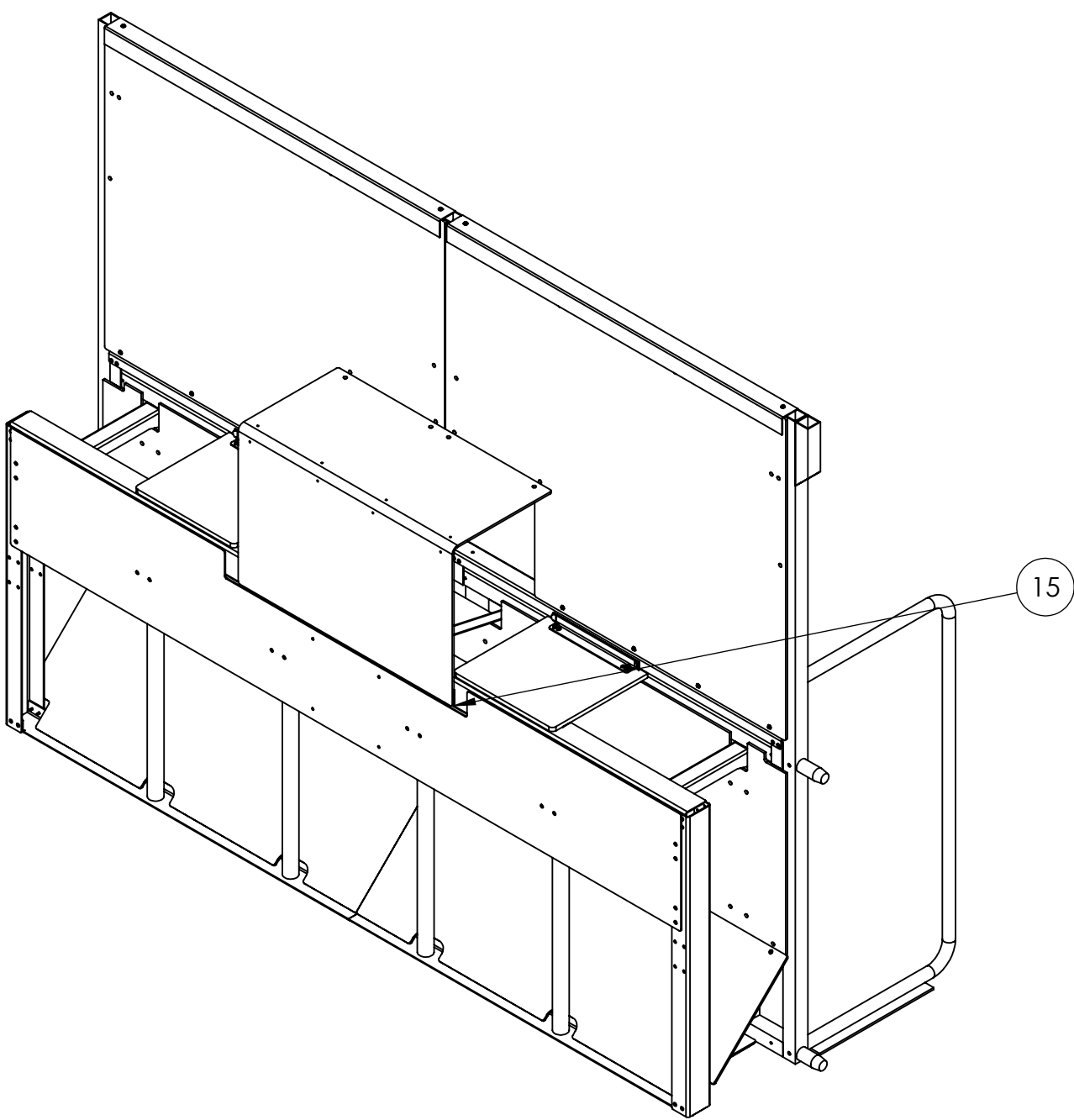
A

Step 12.





- Notes:
1. Attach 16 to the front with 120lb cable ties.

Step 13.



- Notes:
1. Attach 15 to the front frames with hook and loop.
  2. Attach the back to the plastic with 120lb cable ties..

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div>	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/2 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .50	DRAWN	NW	12/27/2022	TITLE:	
	PROPRIETARY AND CONFIDENTIAL			Double Substation	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.
DO NOT SCALE DRAWING	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23100
				SCALE: 1:16	SHEET 8 OF 11
				REV	A



4

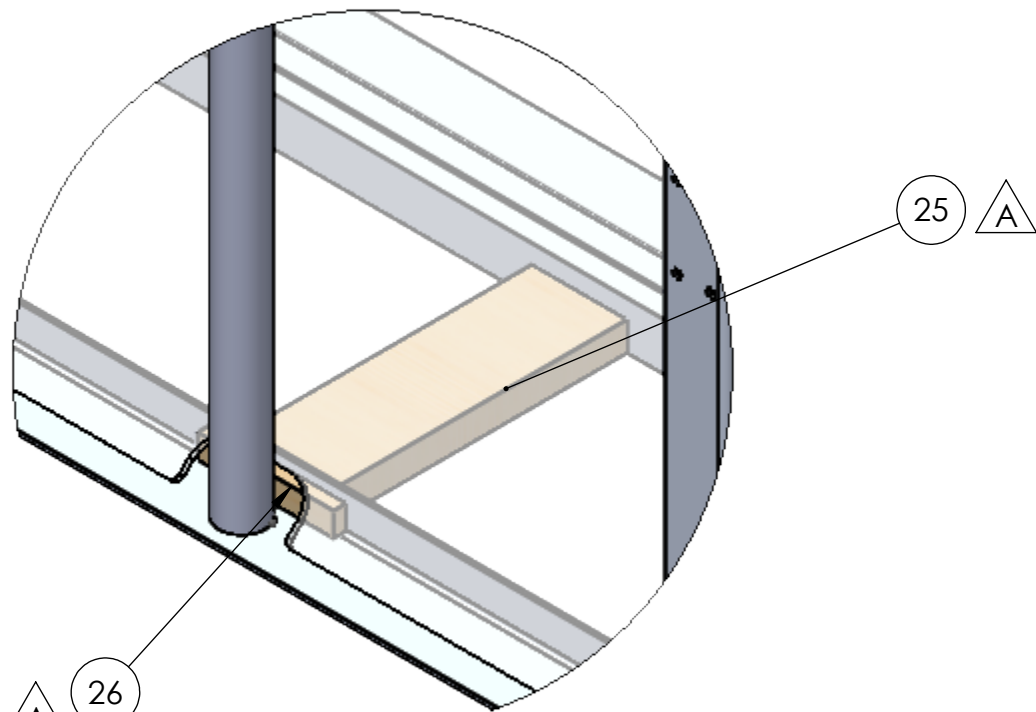
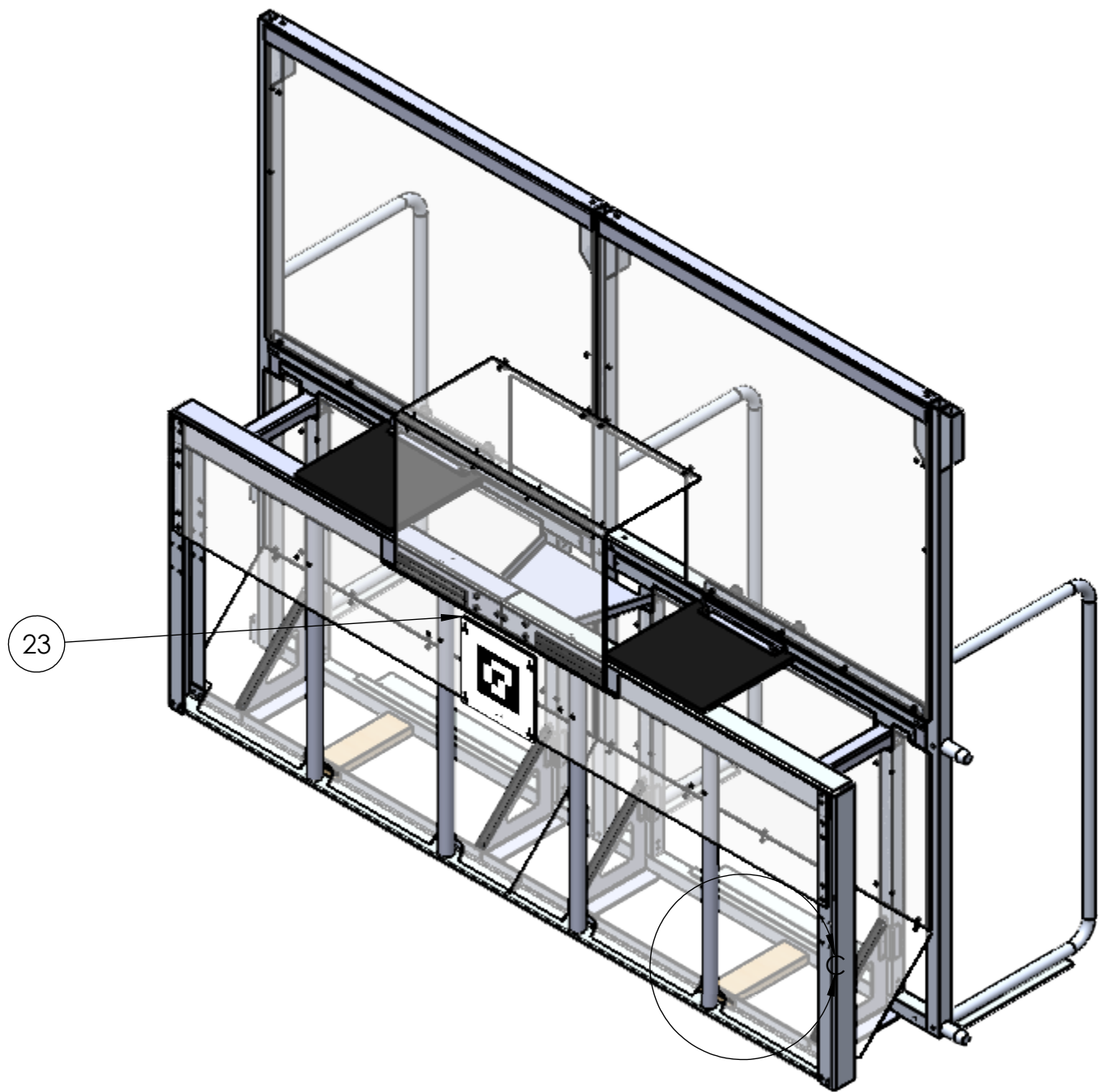
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2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
-	-	See Sheet1	-	-

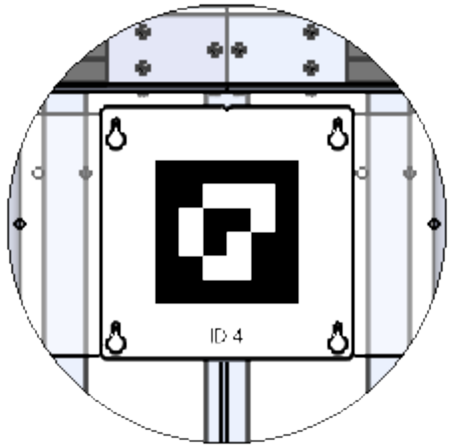
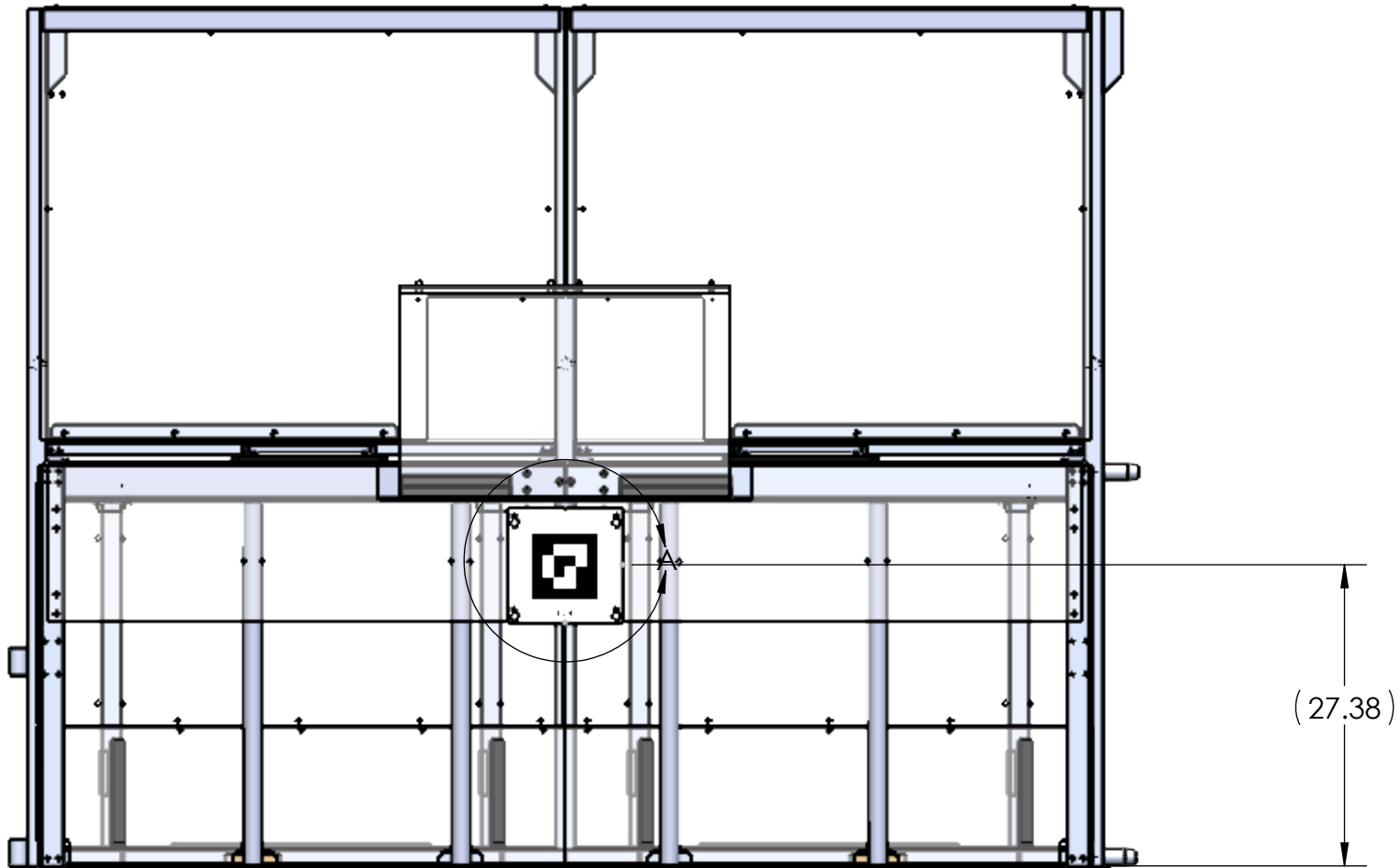
Step 14.



DETAIL C  
SCALE 1 : 5

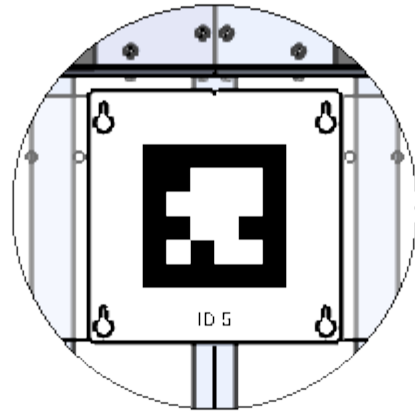
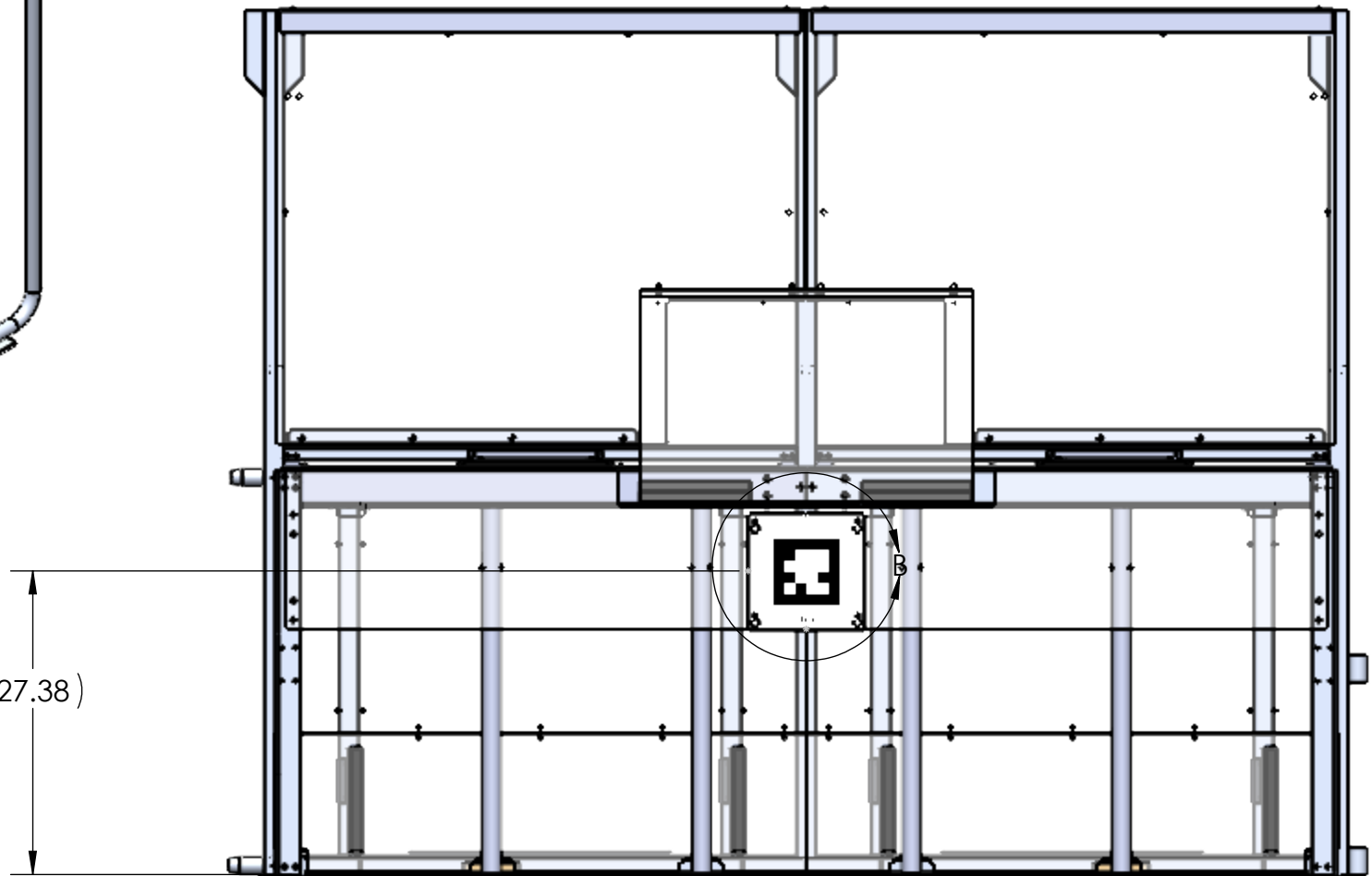
- Notes:
1. Attach 23 to step 13 with .25-20 hardware.
  2. Place 25 and 26 as shown.

Blue Double Substation



DETAIL A  
SCALE 1 : 8

Red Double Substation



DETAIL B  
SCALE 1 : 8

For more details on how this assembly interacts with the rest of the field, see FE-2023

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b>    DO NOT SCALE DRAWING	FIELD DRAWN	NAME NW	DATE 12/27/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		



TITLE:  Double Substation		
SIZE <b>C</b>	DWG. NO. GE-23100	REV A
SCALE: 1:16		SHEET 9 OF 11

4

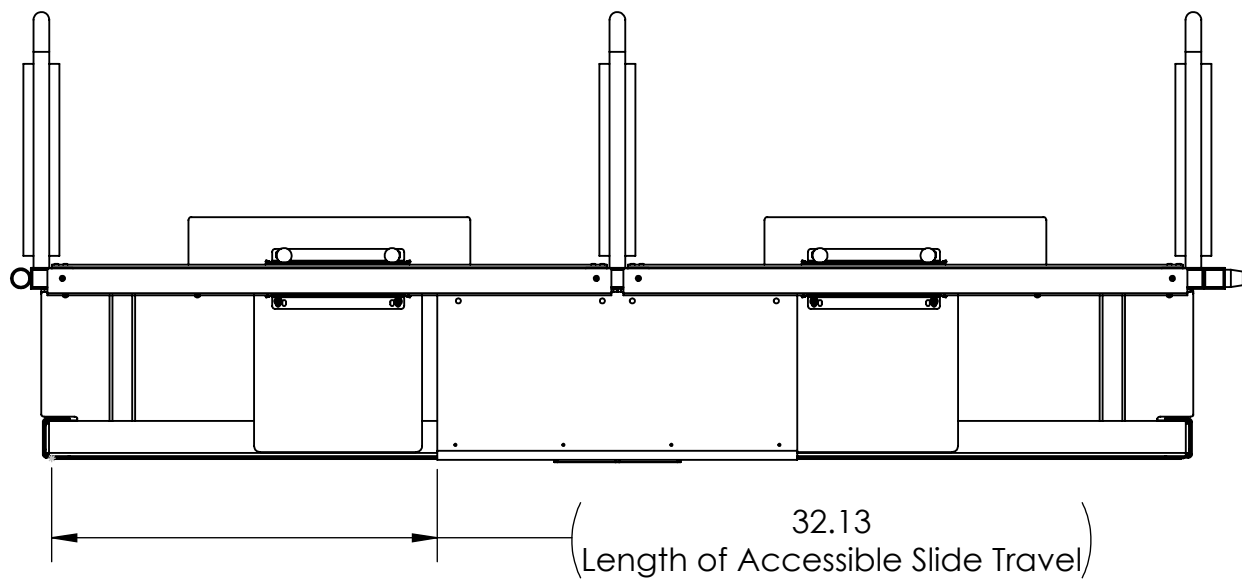
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2

1

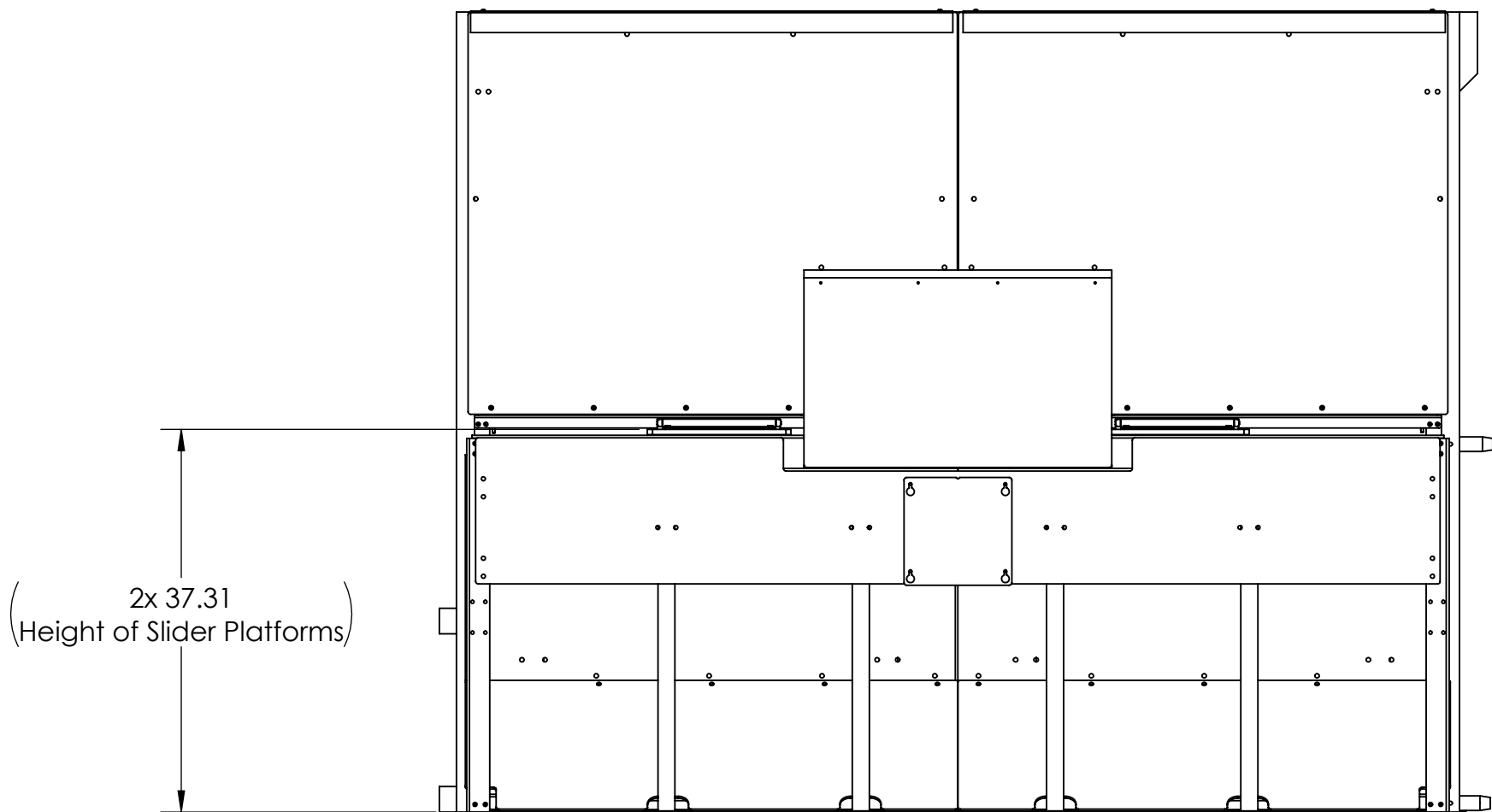
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D



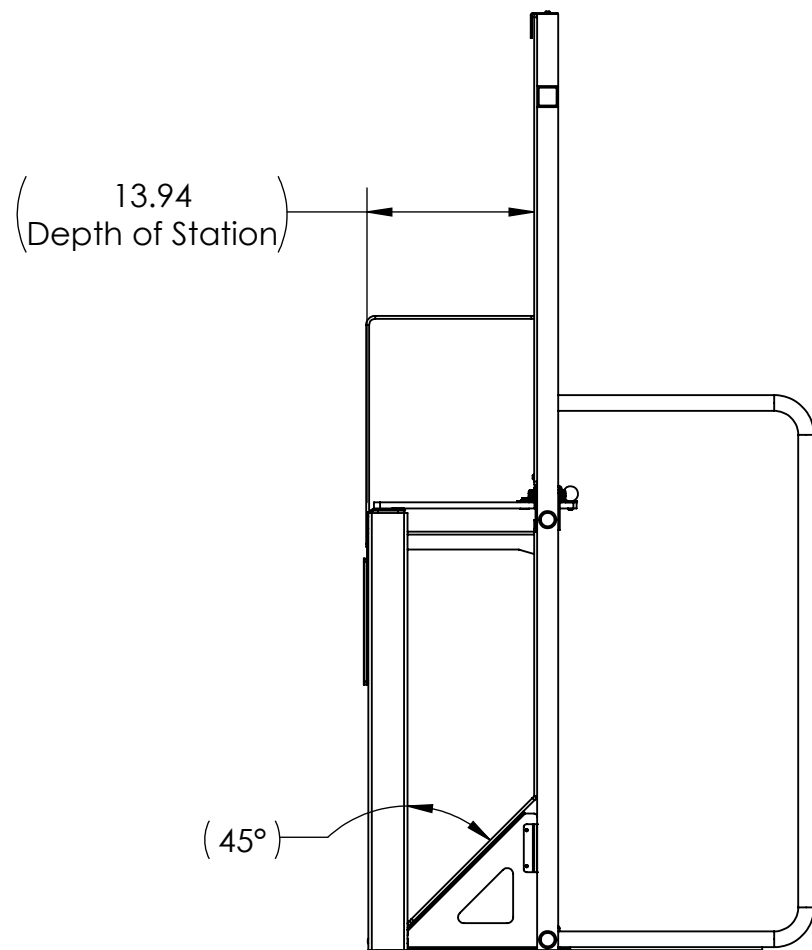
C

C





B

B



For more details on how this assembly interacts with the rest of the field, see FE-2023

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	DRAWN	JO	12/27/2022	TITLE:  Double Substation	
	PROPRIETARY AND CONFIDENTIAL  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
	MATERIAL/FINISH:	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>
DO NOT SCALE DRAWING				DWG. NO. GE-23100	REV A
				SCALE: 1:16	SHEET 10 OF 11

4

3

2

1

A

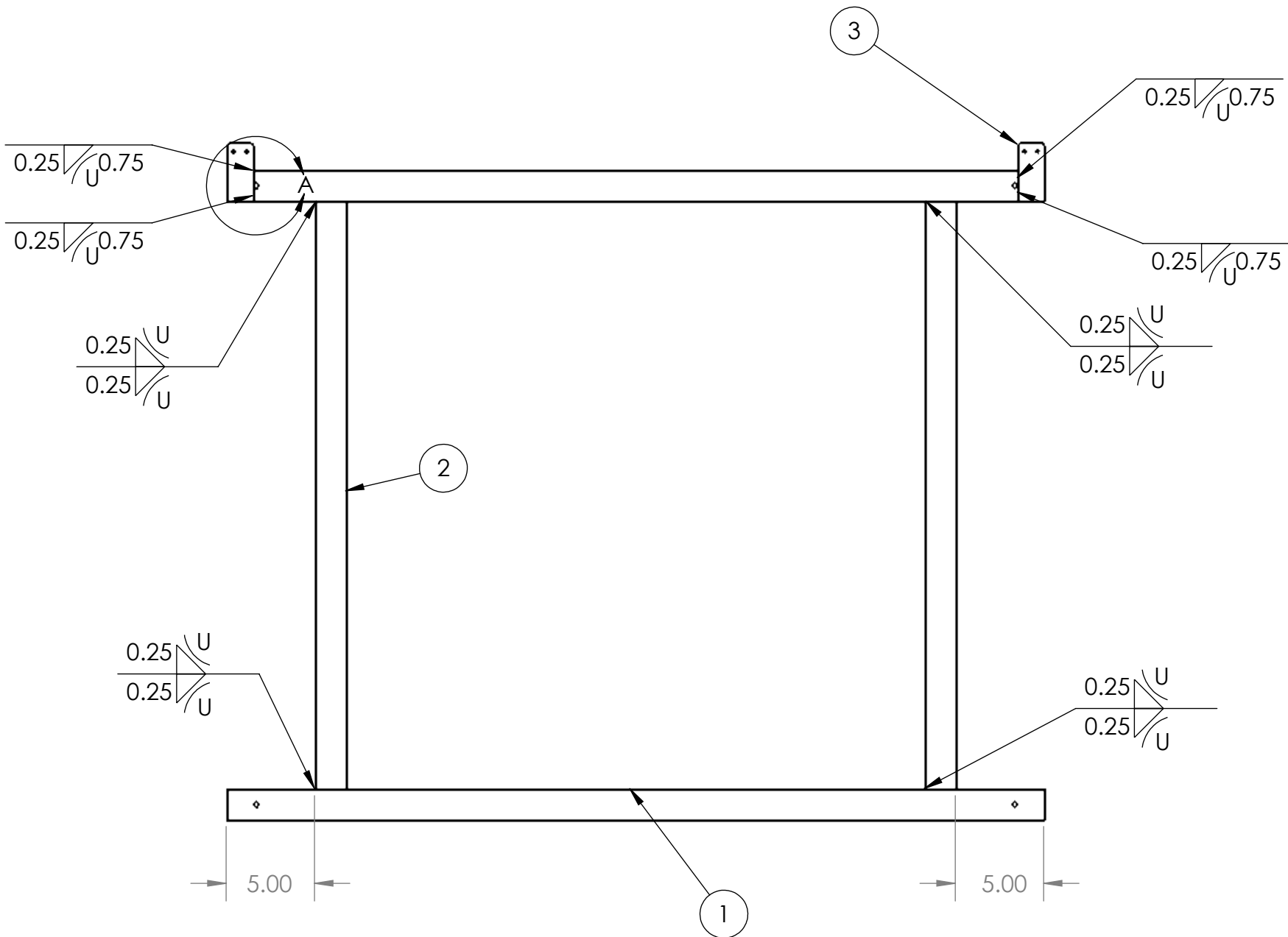
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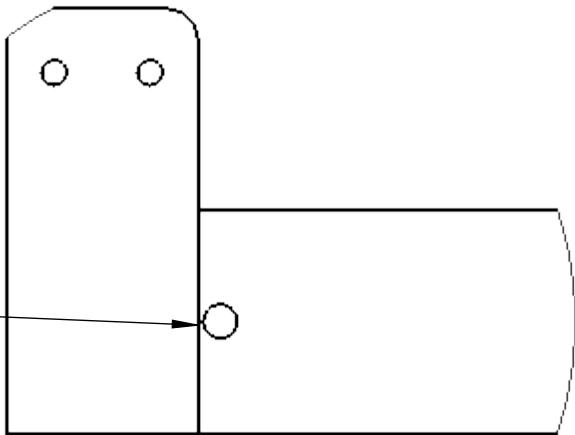


ITEM NO.	WELD SIZE	SYMBOL	WELD LENGTH	WELD MATERIAL	QTY.
1	0.25		3.5		8
2	0.25		1.5		4
3	0.25		0.75		9
4	0.25		1.5		4
5	0.25				4



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23101-01	Frame, Horizontal	2
2	GE-23101-02	Frame, Vertical	2
3	GE-23101-03	Frame, Spacer tab	4

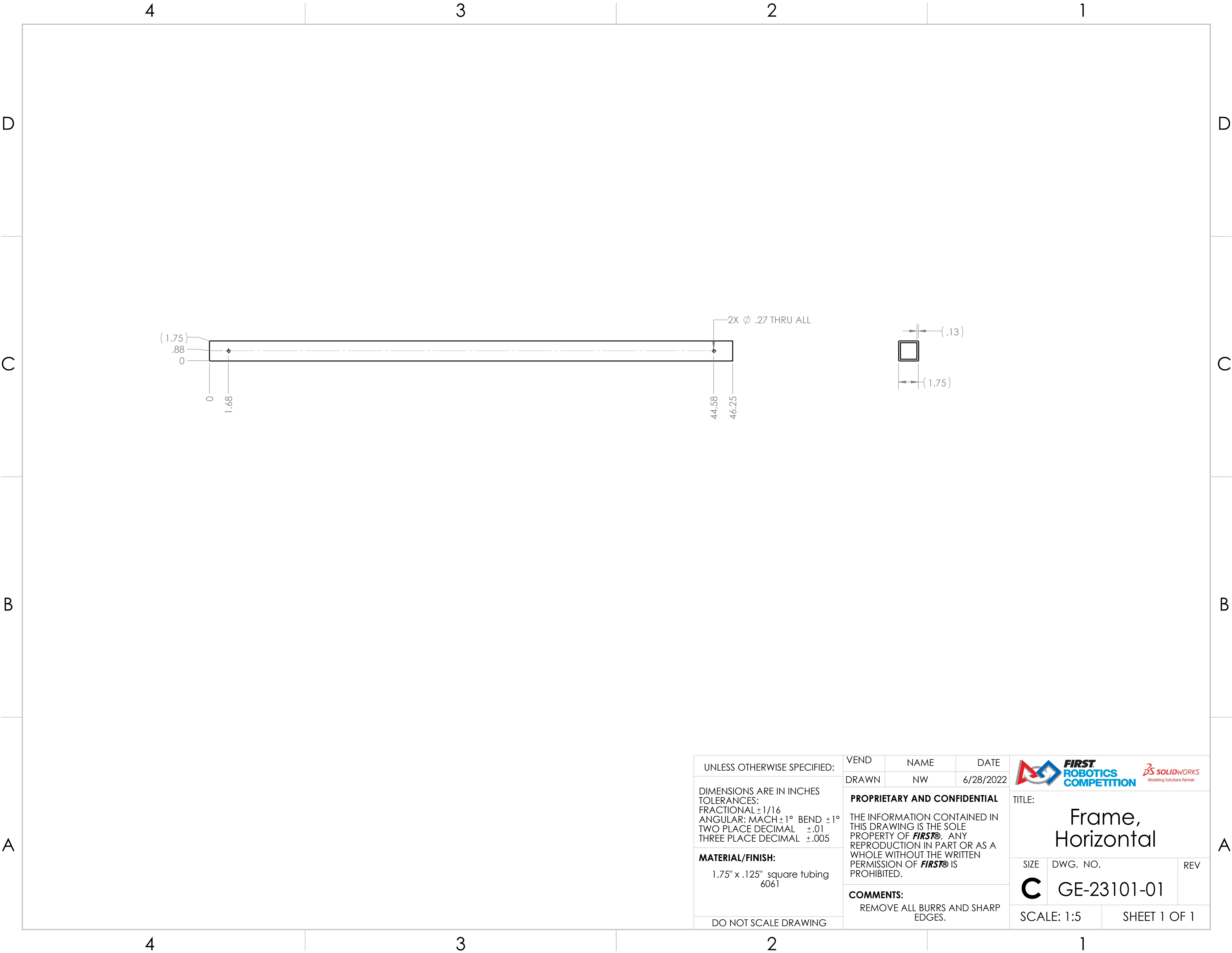




notes:  
1. No weld allowed at hole location.

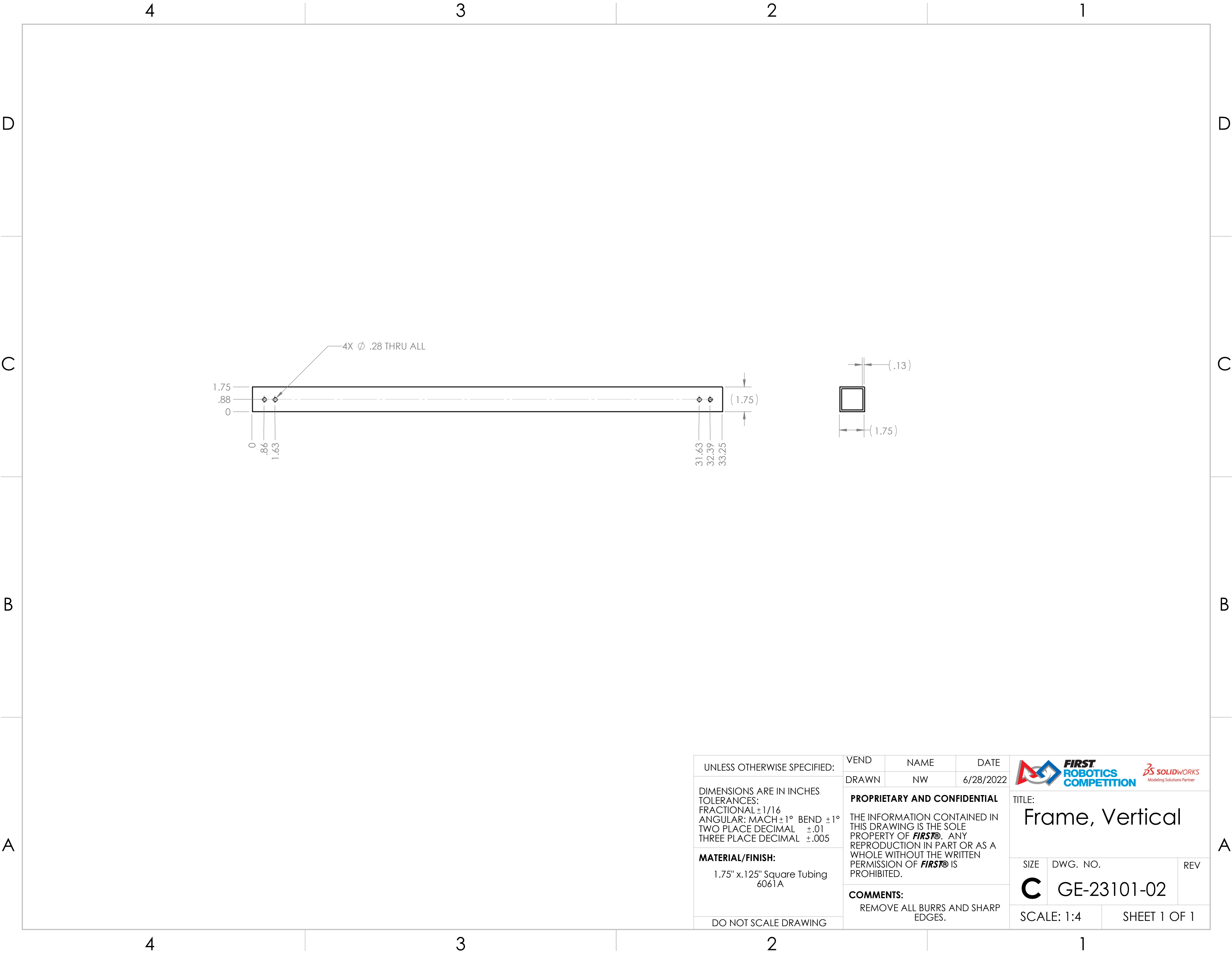




DETAIL A  
SCALE 1 : 1.5

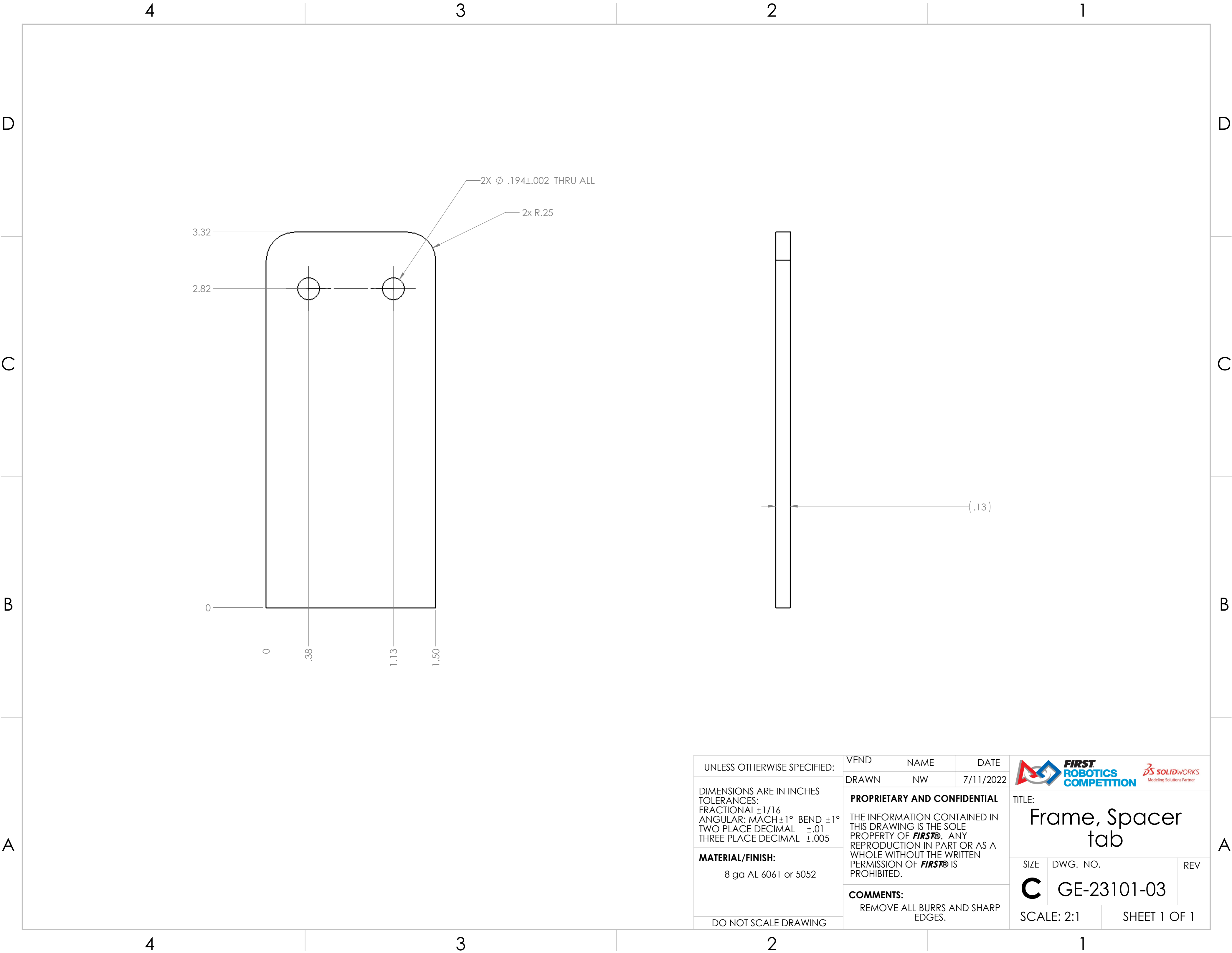
UNLESS OTHERWISE SPECIFIED:	WELD	NAME	DATE	 <div>FIRST ROBOTICS COMPETITION</div>  <div>SOLIDWORKS Modeling Solutions Partner</div>		
	DRAWN	NW	6/28/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.015	PROPRIETARY AND CONFIDENTIAL			TITLE: <div>HP lower frame (welded)</div>		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE C	DWG. NO. GE-23101	REV
DO NOT SCALE DRAWING				SCALE: 1:8		SHEET 1 OF 1





UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>		
	DRAWN	NW	6/28/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Frame, Horizontal		
	<b>MATERIAL/FINISH:</b>  1.75" x .125" square tubing 6061	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
DO NOT SCALE DRAWING	C				GE-23101-01	
				SCALE: 1:5		SHEET 1 OF 1

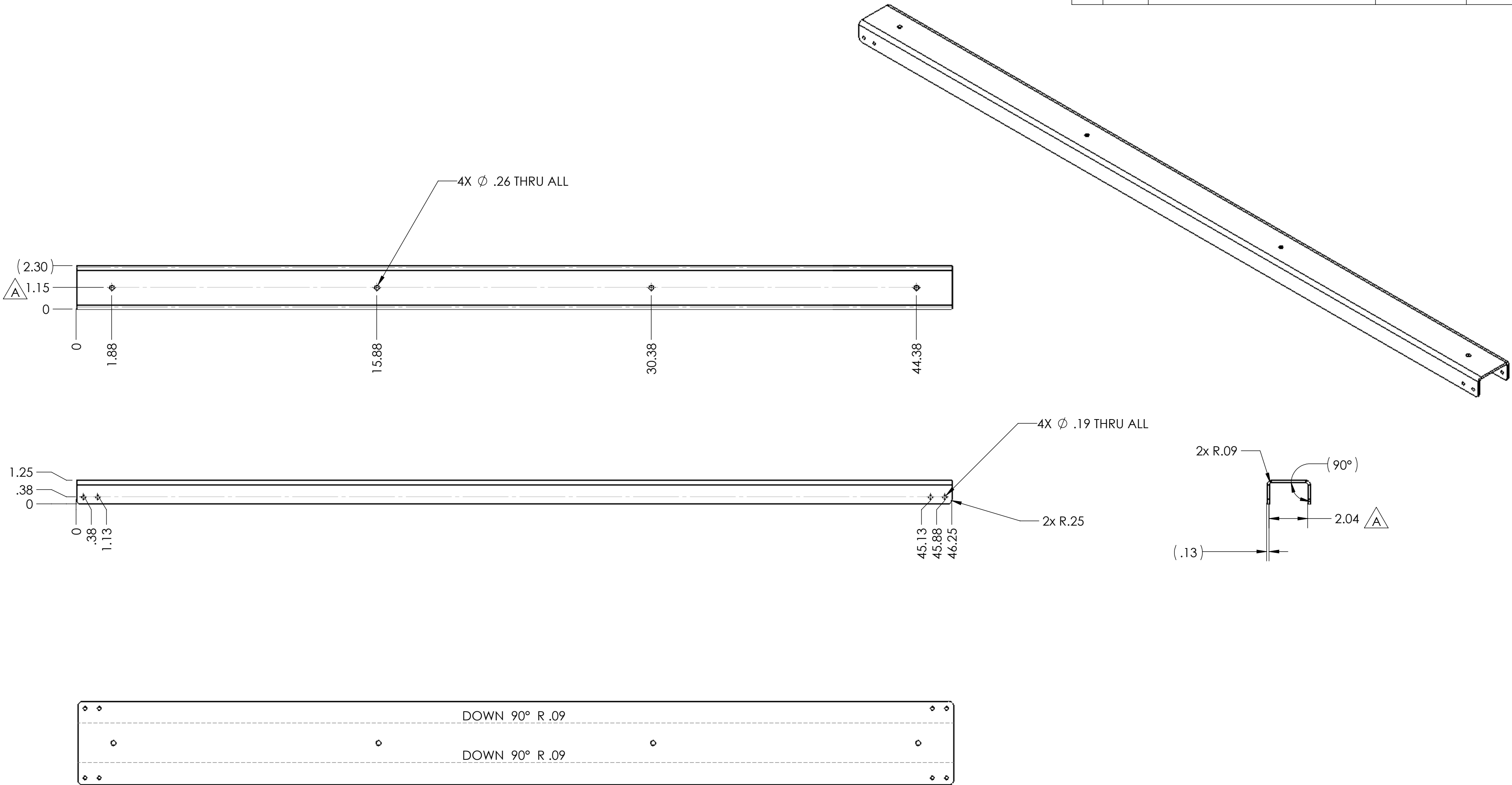



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  1.75" x.125" Square Tubing 6061A  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: Frame, Vertical</div>		
	DRAWN	NW	6/28/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
SCALE: 1:4		SHEET 1 OF 1				



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm$ 1/16 ANGULAR: MACH $\pm$ 1° BEND $\pm$ 1° TWO PLACE DECIMAL $\pm$ .01 THREE PLACE DECIMAL $\pm$ .005  <b>MATERIAL/FINISH:</b>  8 ga AL 6061 or 5052  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: Frame, Spacer tab</div>		
	DRAWN	NW	7/11/2022			
	PROPRIETARY AND CONFIDENTIAL  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
SCALE: 2:1		SHEET 1 OF 1				

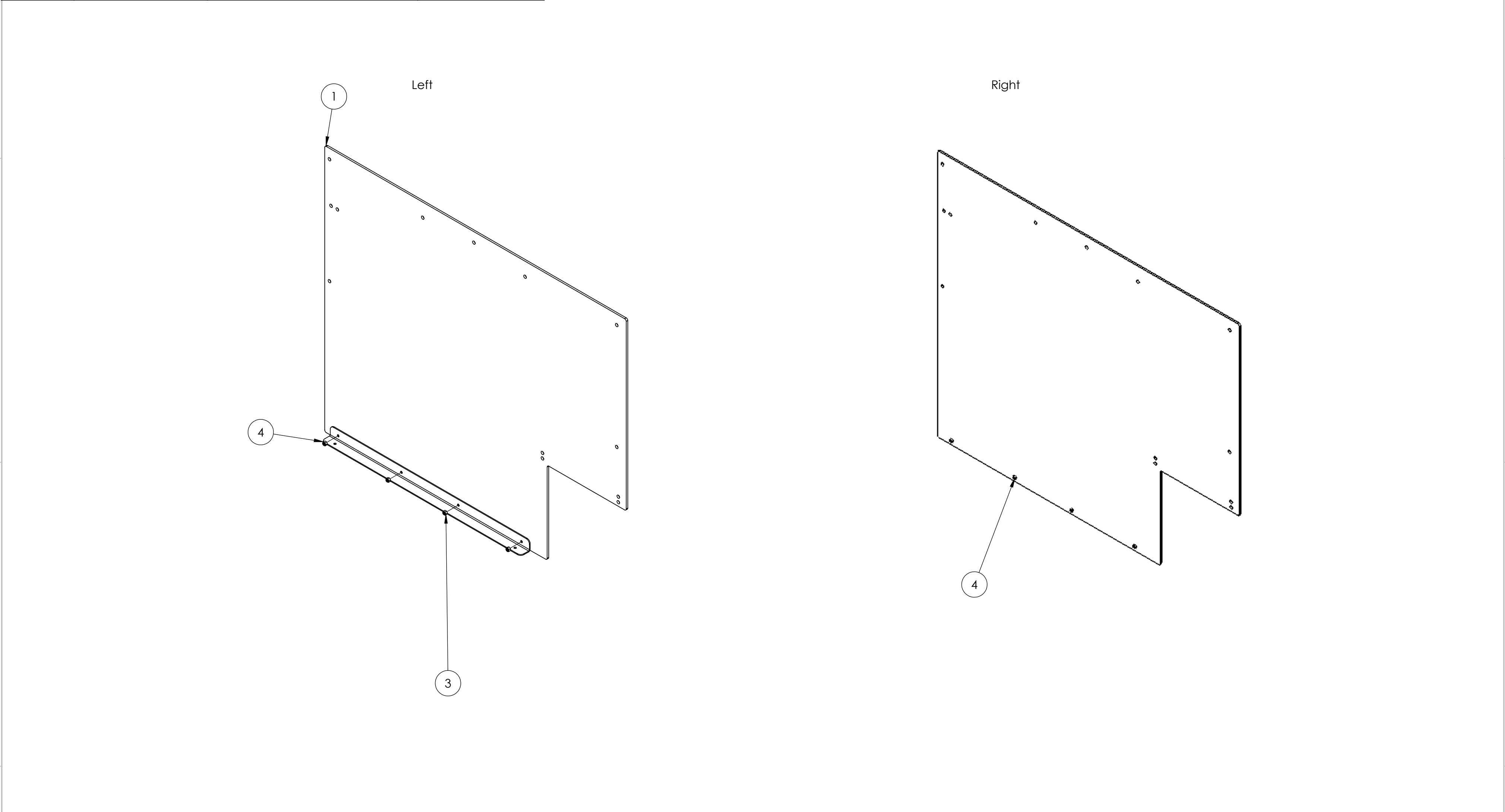
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B1, C4	A	Channel made wider to fit, controlled with new dimension	10/20/2022	JO





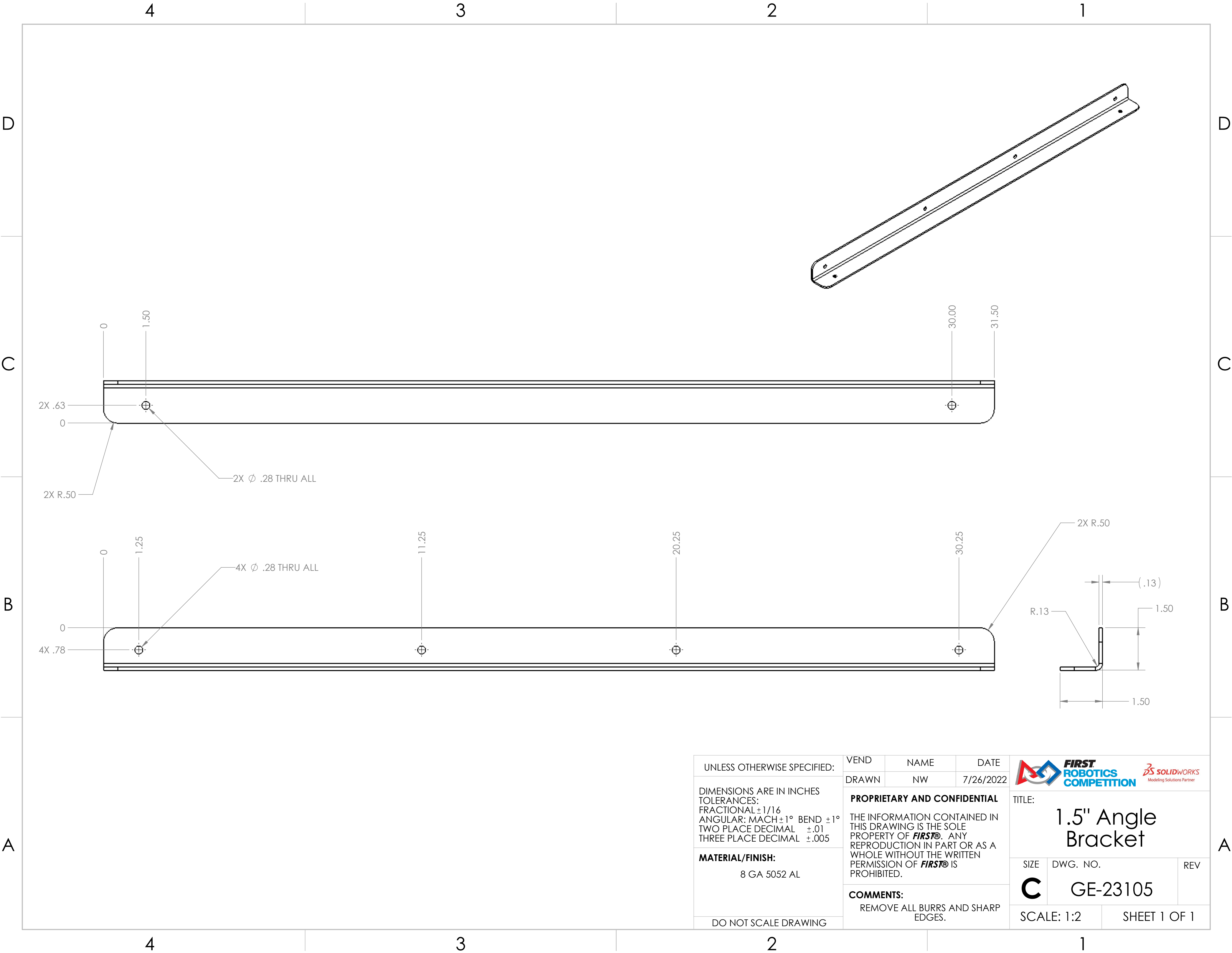
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>  .125" AL 6061 or 5052  DO NOT SCALE DRAWING	BEND DRAWN	NAME NW	DATE 6/28/2022	 TITLE: slide retainer	
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE <b>C</b>	DWG. NO. GE-23102
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			REV A	SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23105	1.5" Angle Bracket	1
2	GE-23121	Loading station top plastic	1
3	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	4
4	round_hex_.25_20_.75_full	Steel Button Head Hex Drive Screw, 1/4"-20 x 3/4" long, fully threaded	4



UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div><div></div><div>TITLE: Loading station top plastic assembly (right)</div></div>	
	DRAWN	NW	7/13/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/2 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .50	PROPRIETARY AND CONFIDENTIAL			SIZE C	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
MATERIAL/FINISH:	COMMENTS:			DWG. NO.	
	REMOVE ALL BURRS AND SHARP EDGES.			GE-23104	
DO NOT SCALE DRAWING				SCALE: 1:8	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  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

**MATERIAL/FINISH:**  
8 GA 5052 AL

DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	NW	7/26/2022

**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.

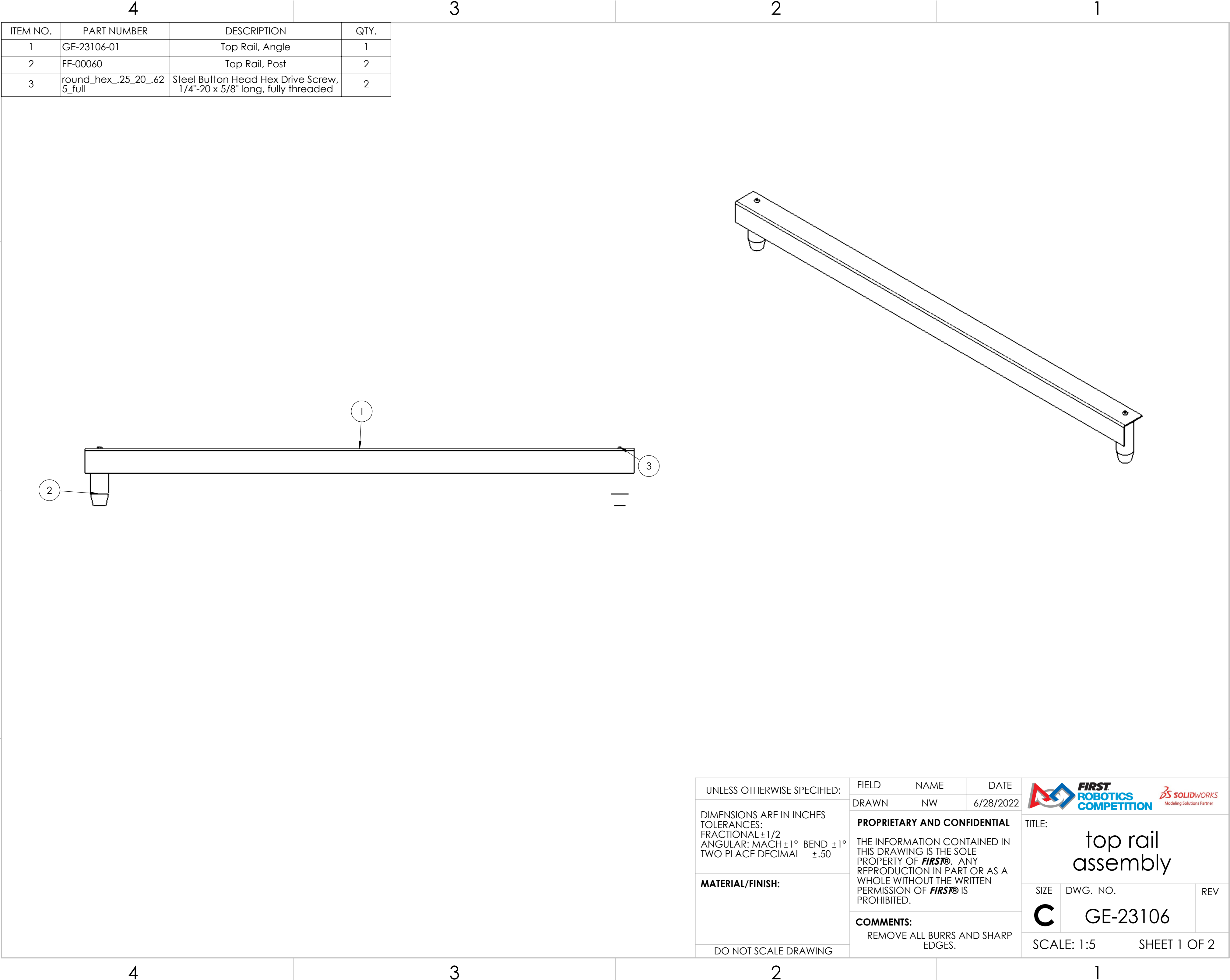
**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.

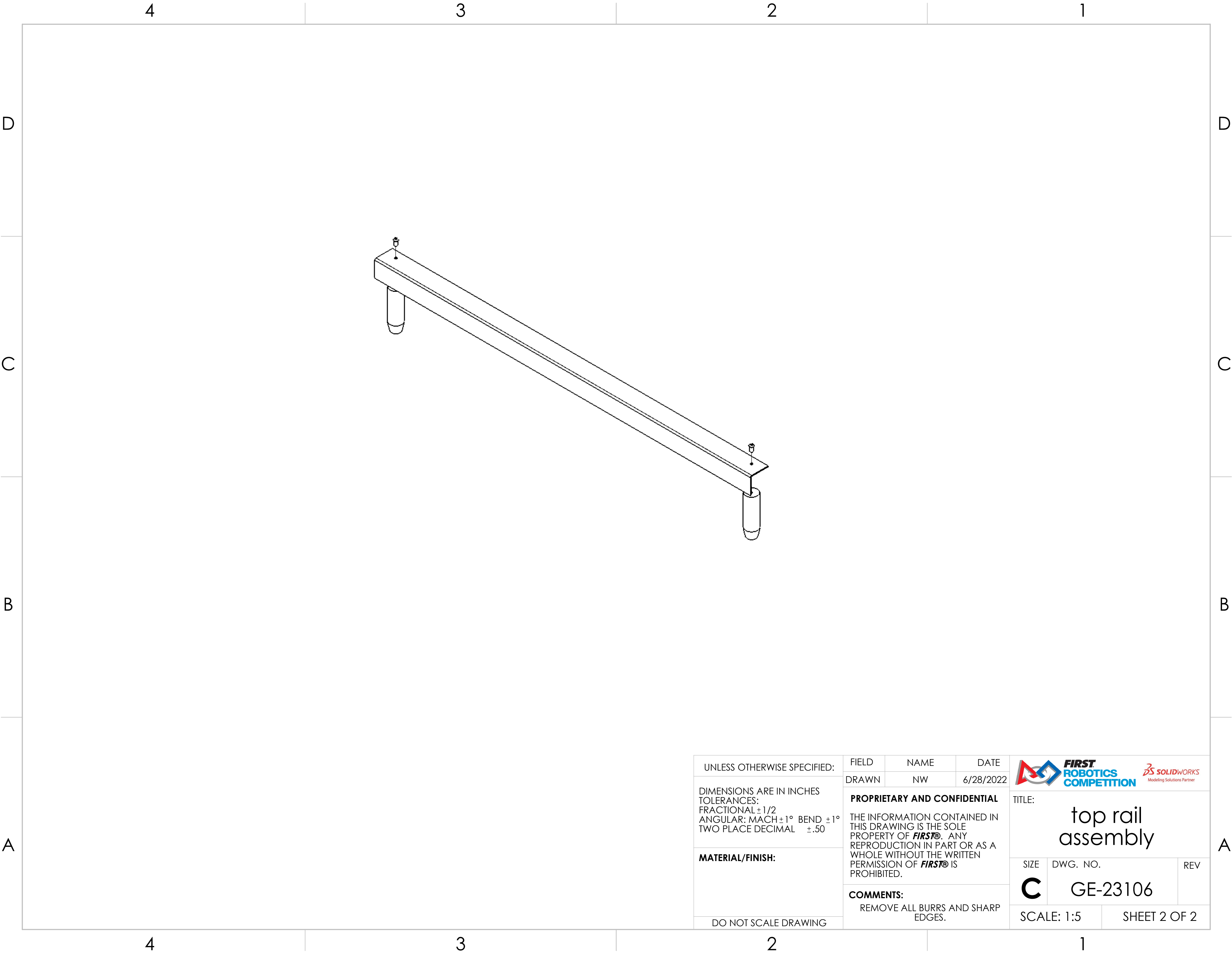


TITLE:  
**1.5" Angle Bracket**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23105	

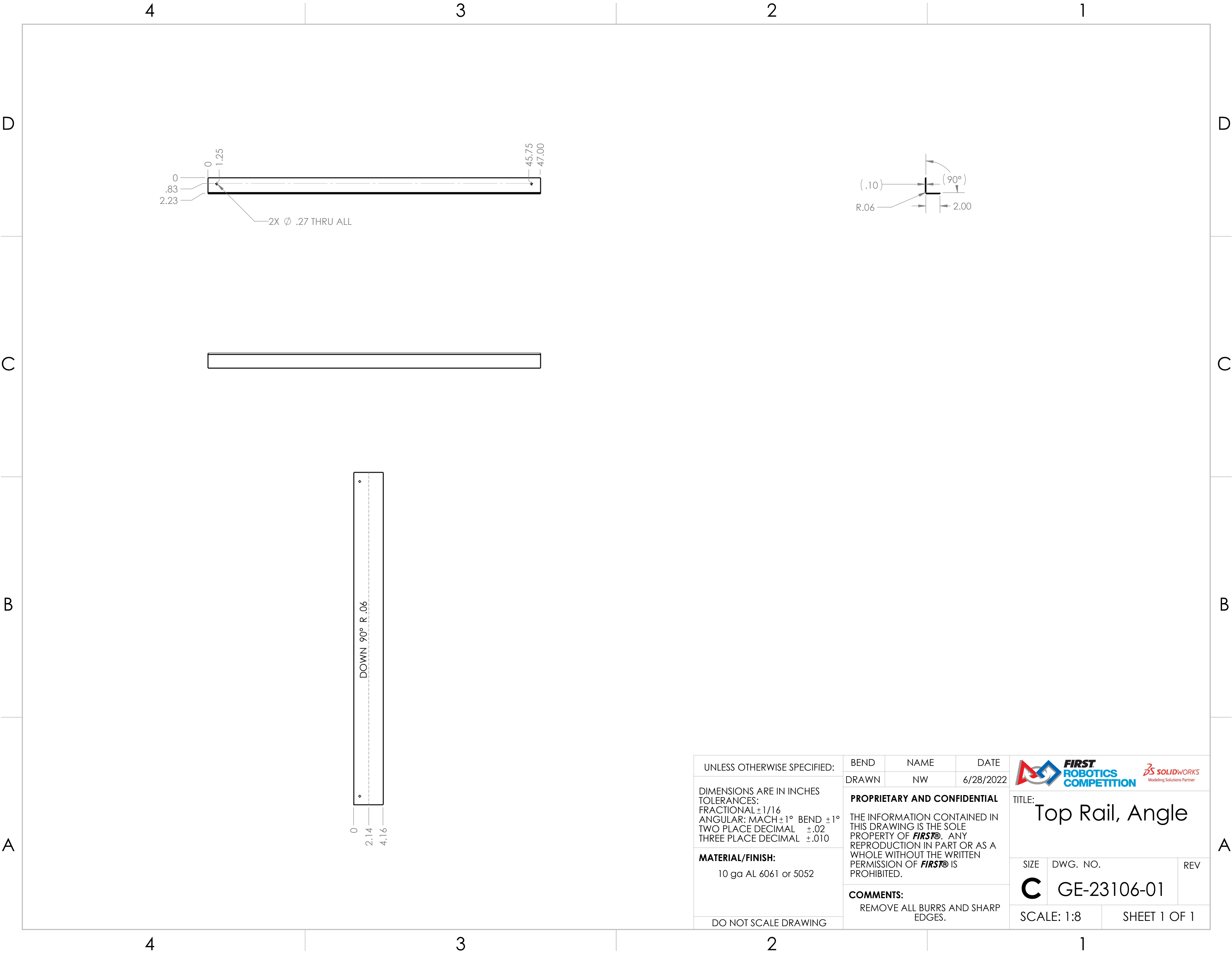
SCALE: 1:2 SHEET 1 OF 1





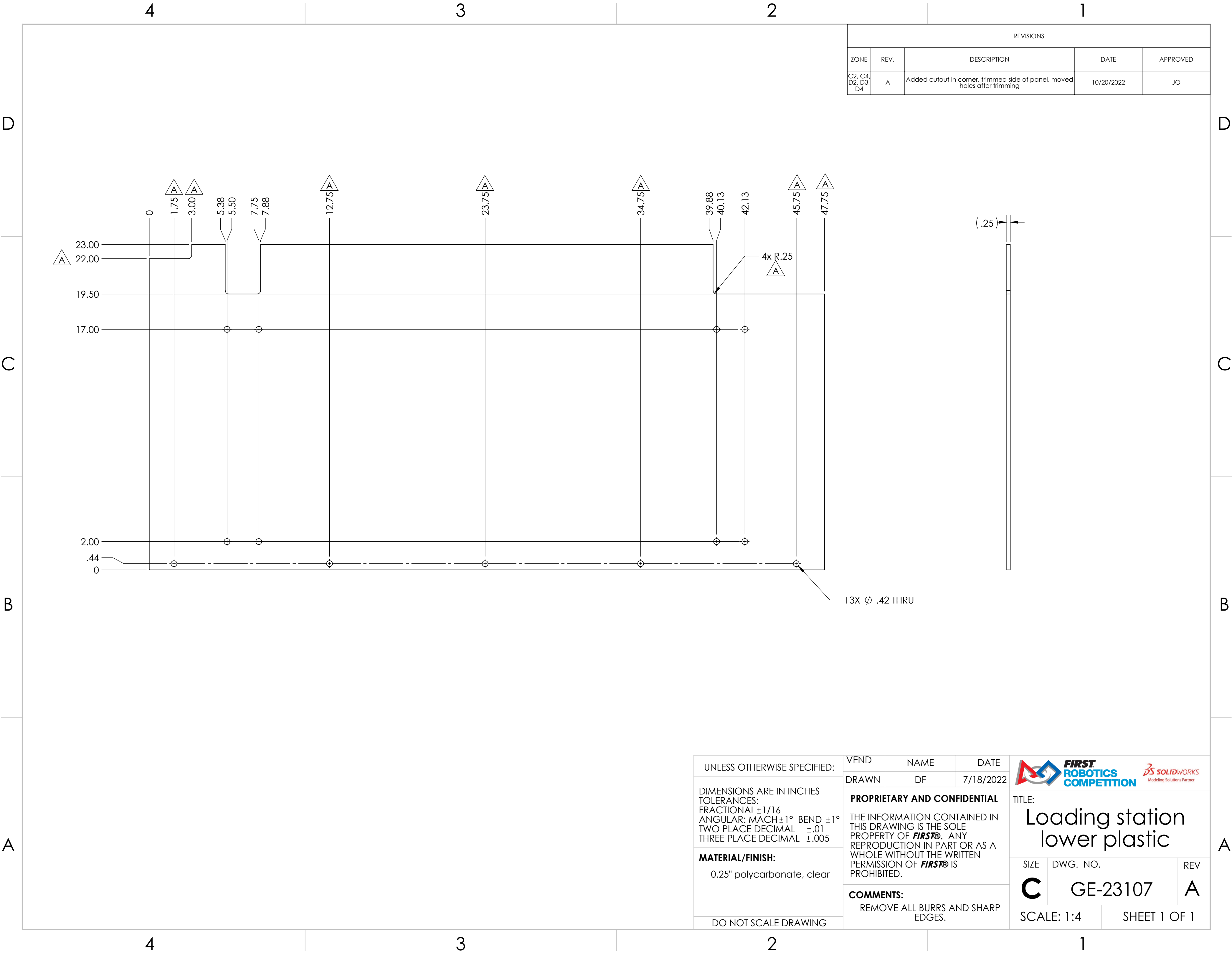


UNLESS OTHERWISE SPECIFIED:		FIELD	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$		DRAWN	NW	6/28/2022
MATERIAL/FINISH:		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
DO NOT SCALE DRAWING		COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.		
		TITLE:  top rail assembly		
		SIZE <b>C</b>	DWG. NO. GE-23106	REV
		SCALE: 1:5		SHEET 2 OF 2







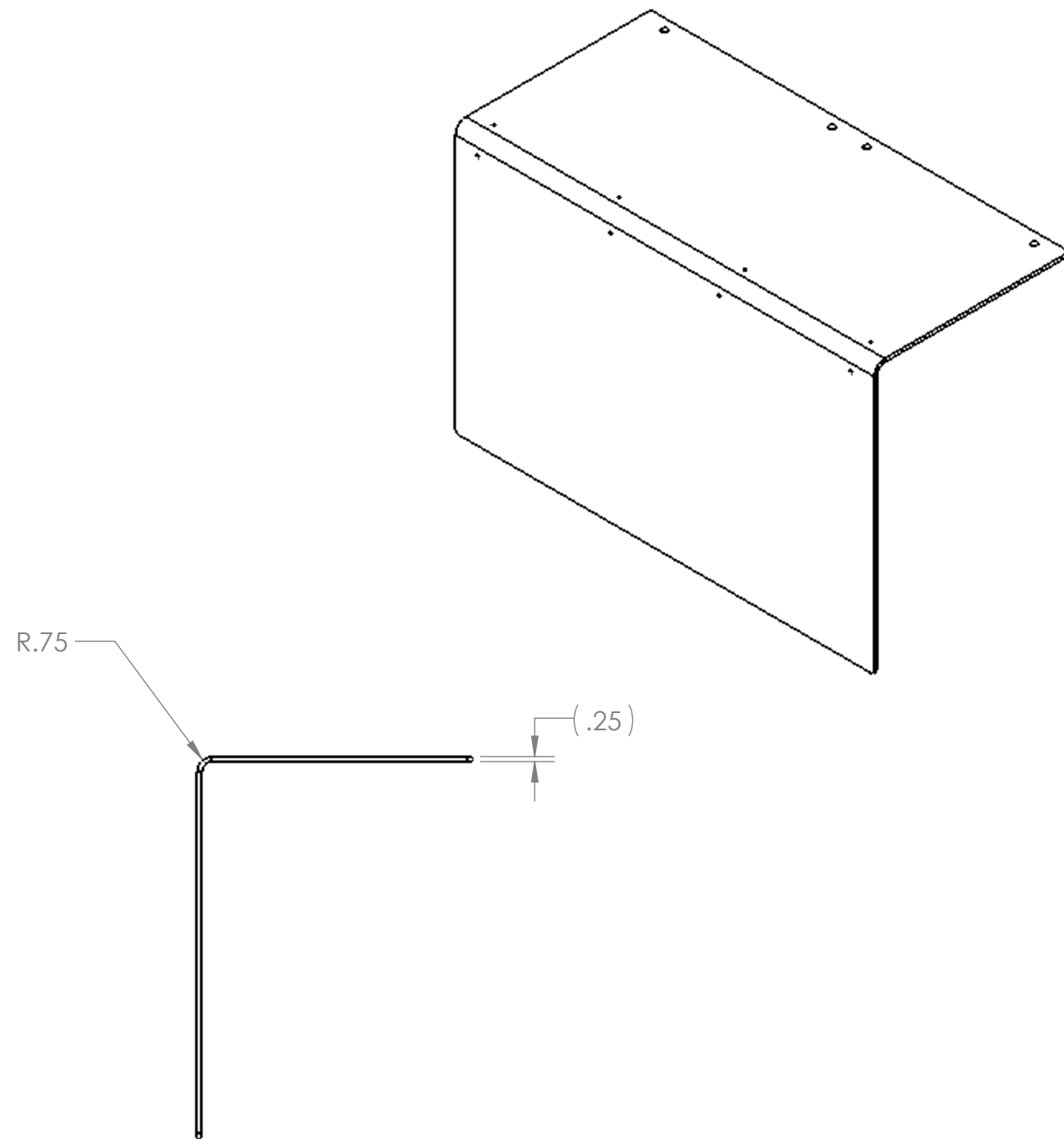
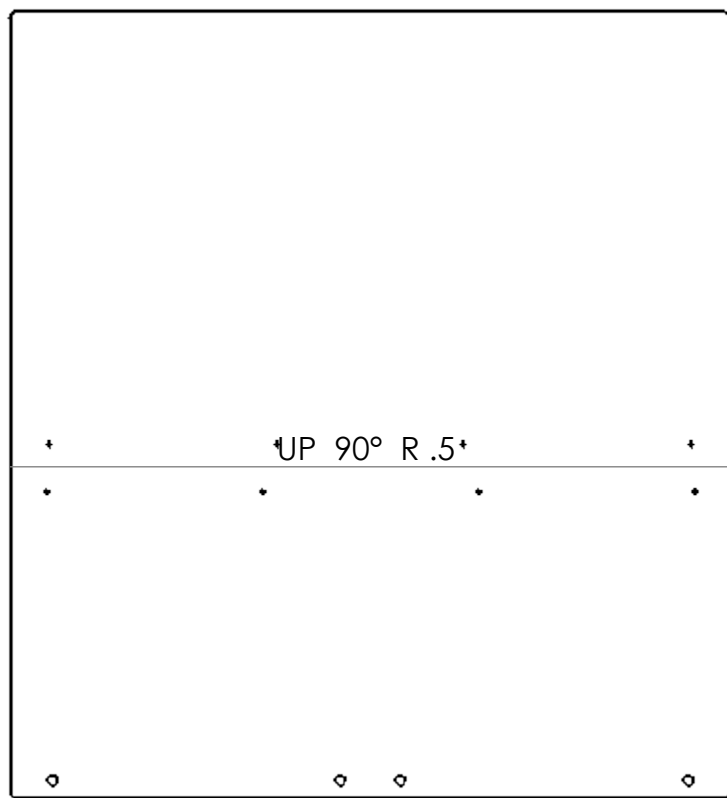
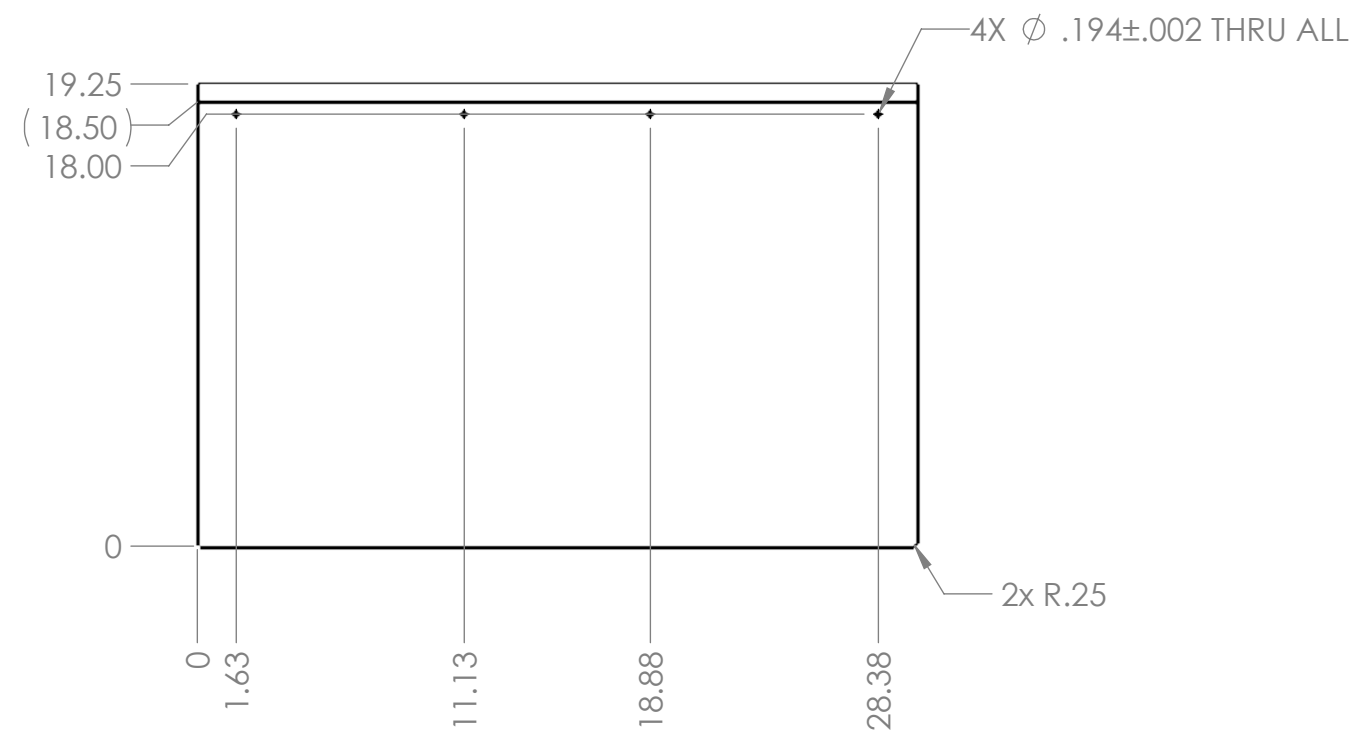
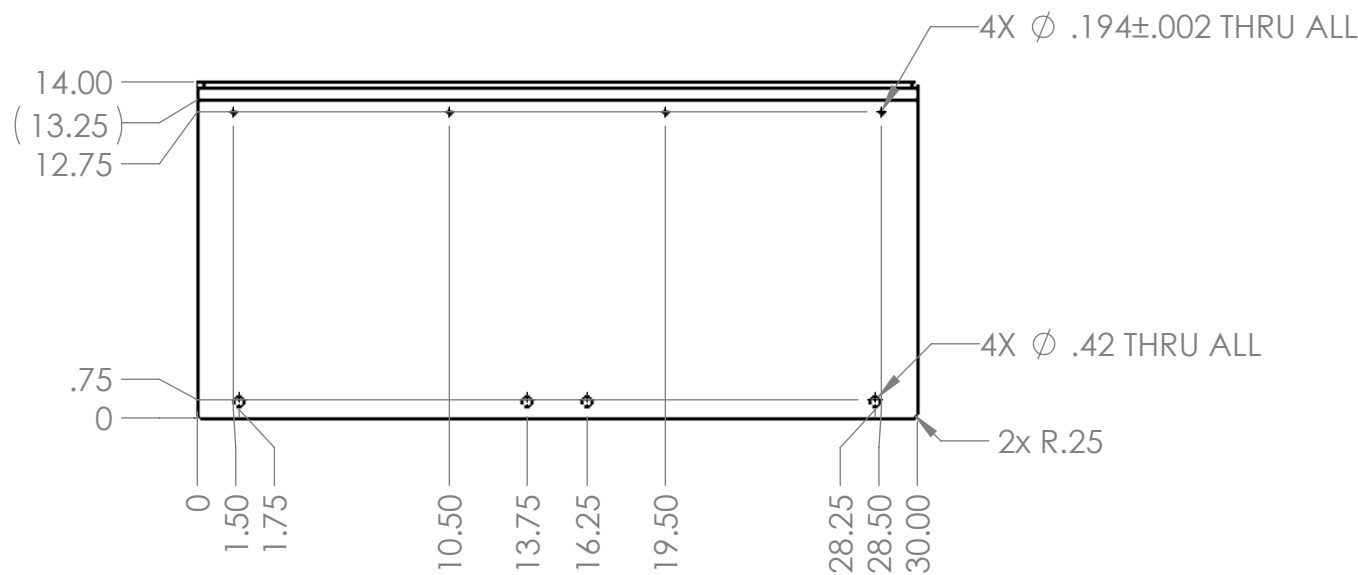
UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>		
	DRAWN	NW	6/28/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: <div>Top Rail, Angle</div>		
	<b>MATERIAL/FINISH:</b>  10 ga AL 6061 or 5052	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
	C				GE-23106-01	
DO NOT SCALE DRAWING				SCALE: 1:8		SHEET 1 OF 1





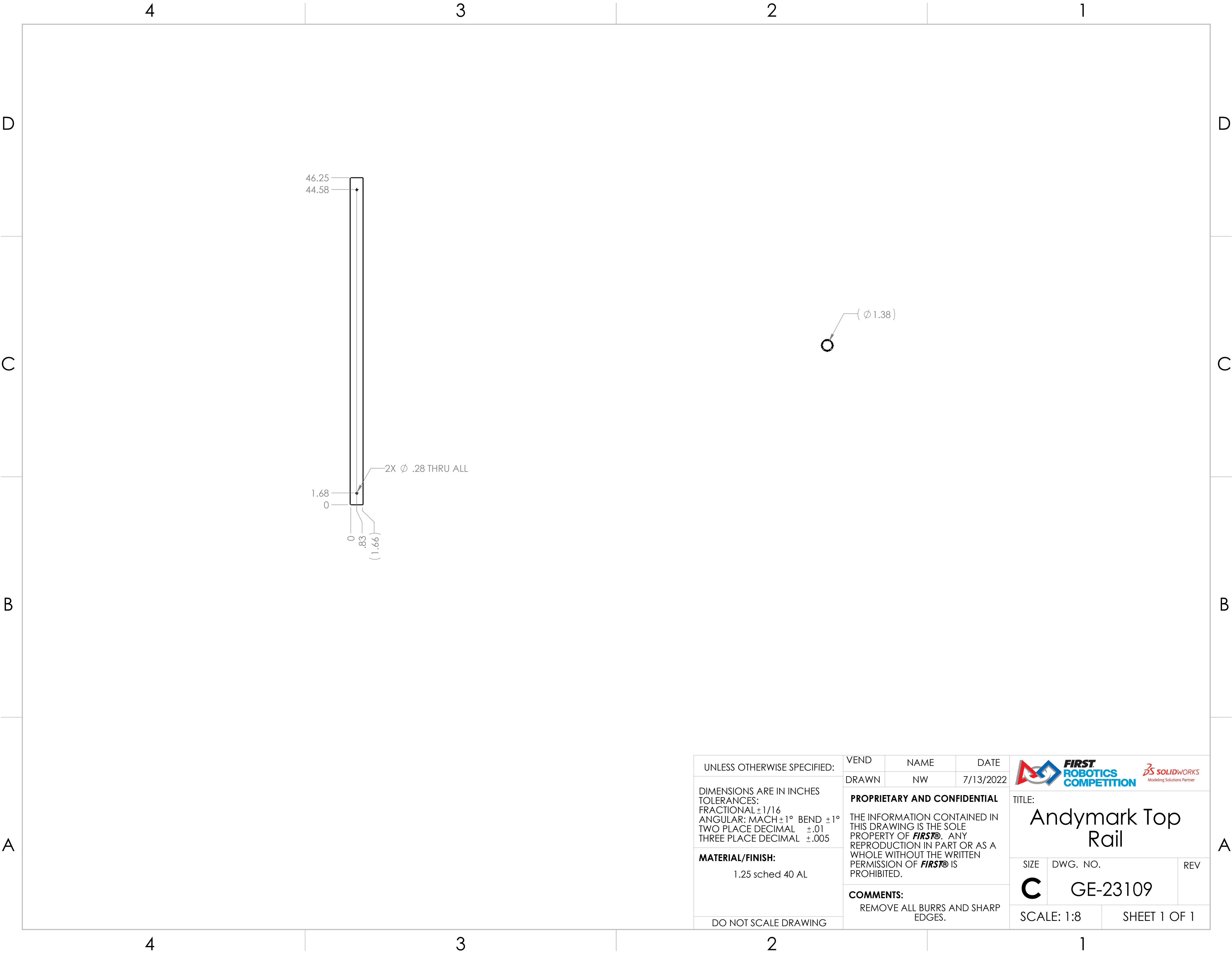
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C2, C4, D2, D3, D4	A	Added cutout in corner, trimmed side of panel, moved holes after trimming	10/20/2022	JO



UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div><div></div><div>TITLE: Loading station lower plastic</div></div>		
	DRAWN	DF	7/18/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	PROPRIETARY AND CONFIDENTIAL					
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
	COMMENTS:					
MATERIAL/FINISH:	REMOVE ALL BURRS AND SHARP EDGES.					
0.25" polycarbonate, clear				SIZE	DWG. NO.	REV
				C	GE-23107	A
DO NOT SCALE DRAWING				SCALE: 1:4		SHEET 1 OF 1



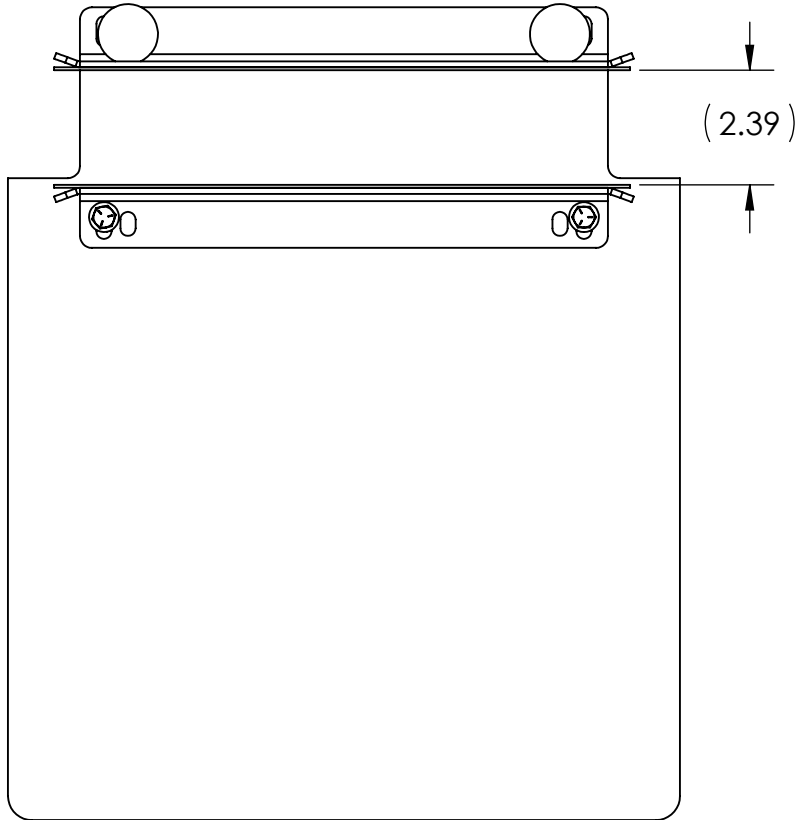
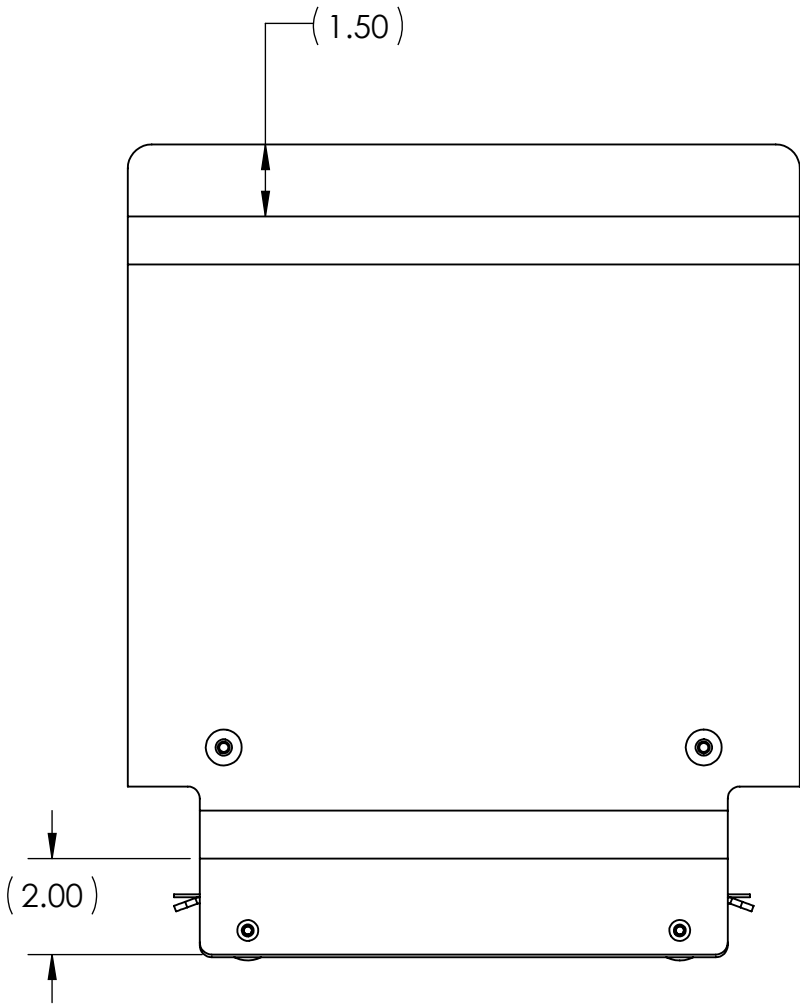
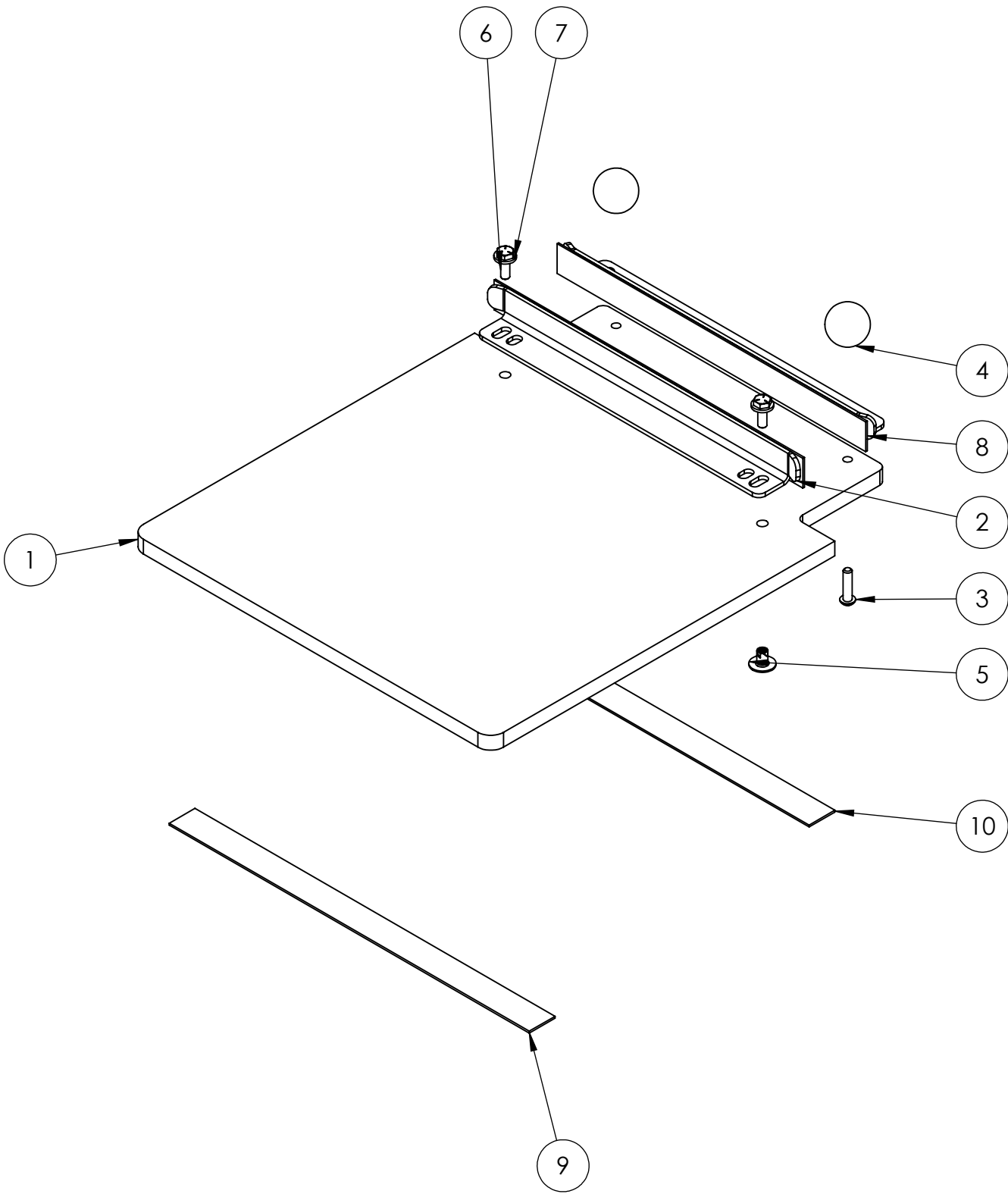
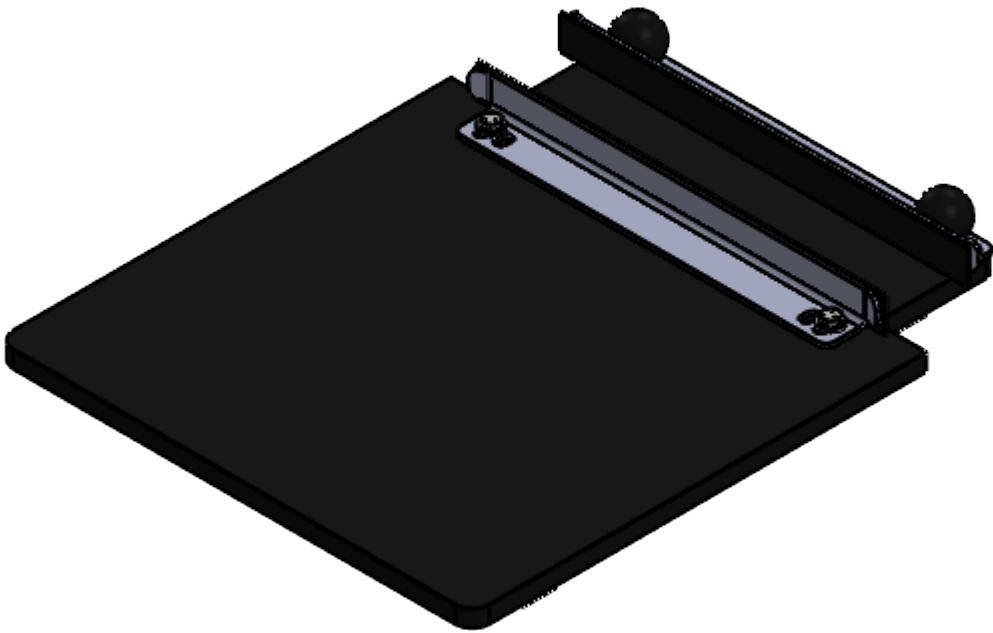


UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>  0.25" polycarbonate, clear  DO NOT SCALE DRAWING	VEND	NAME	DATE	 	
	DRAWN	NW	8/22/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  loading station front safety	
	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE  <b>C</b>	DWG. NO.  GE-23108
			SCALE: 1:8		SHEET 1 OF 1





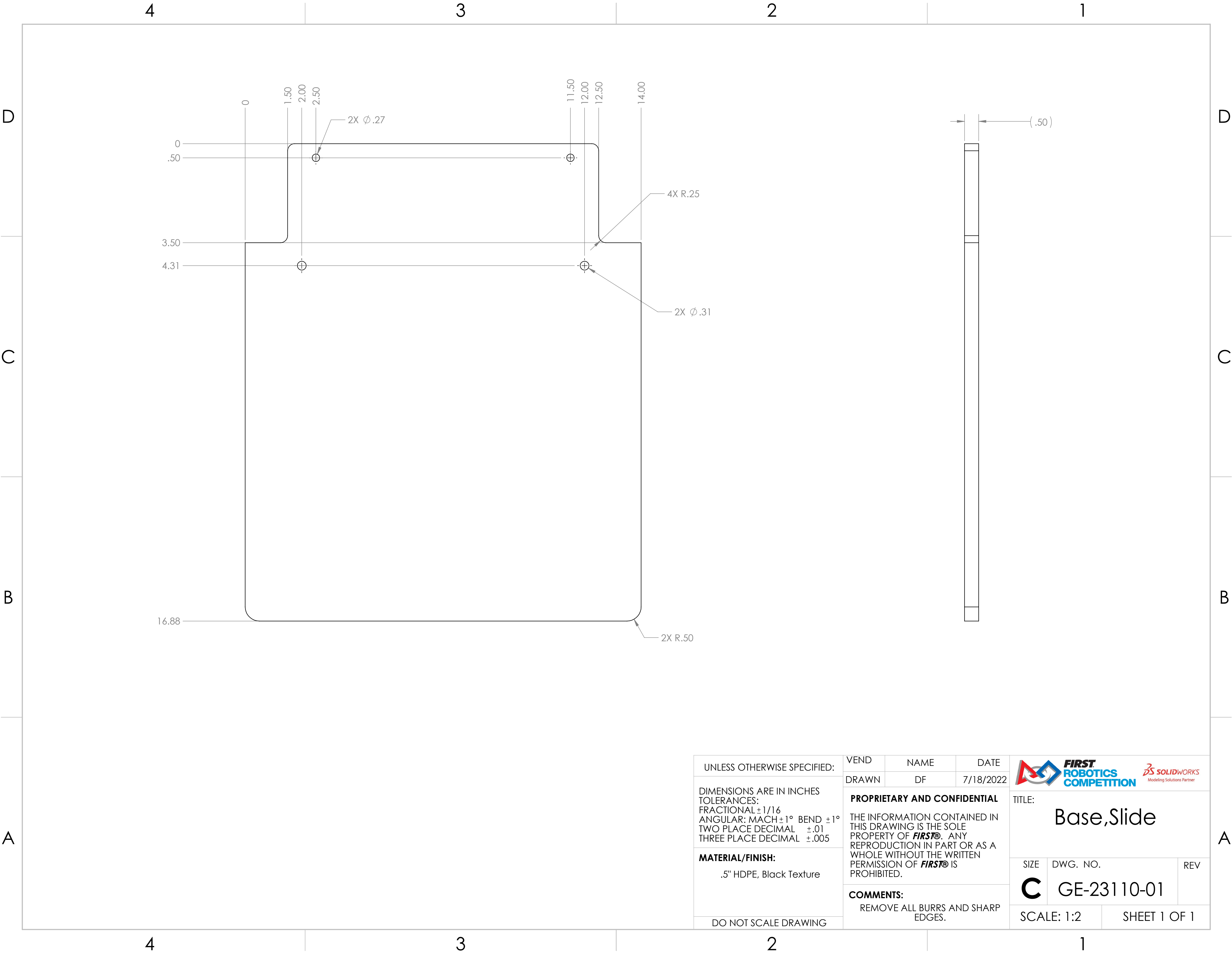
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	DRAWN	NW	7/13/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
			C	GE-23109		
			SCALE: 1:8		SHEET 1 OF 1	



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23110-01	Base,Slide	1
2	GE-23110-02	Angle capture, Slide	2
3	round_hex_.25_20_1_fu ll	Steel Button Head Hex Drive Screw, 1/4"-20 x 1" long, fully threaded	2
4	knob_round_threaded hole_.25_20	Comfort-Grip Plastic Ball Knob	2
5	TeeNut_ultra_split_rst_. 25_20	.25-20 TeeNut ultra split resistant	2
6	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	2
7	washer_flat_.25	Flat Washer for 1/4" Screw	2
8	Loop_1_12	1" x 13" Loop, Adhesive Backed	2
9	Loop_1_14	1" x 14" Loop, Adhesive Backed	1
10	Loop_1_11	11" x 1" loop adhesive backed	1

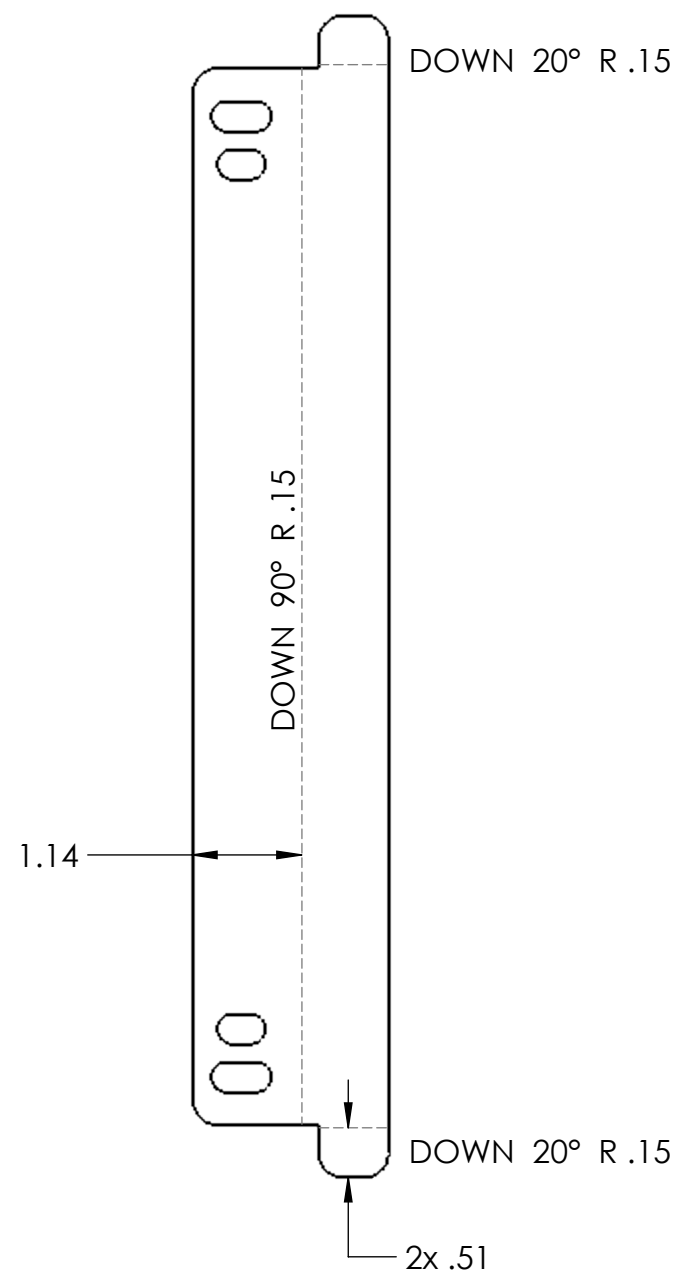
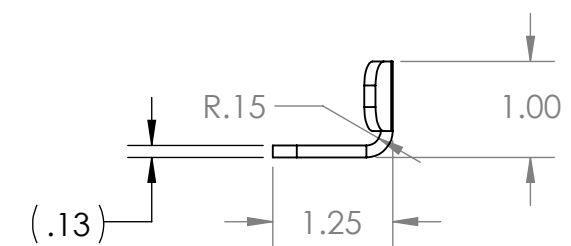
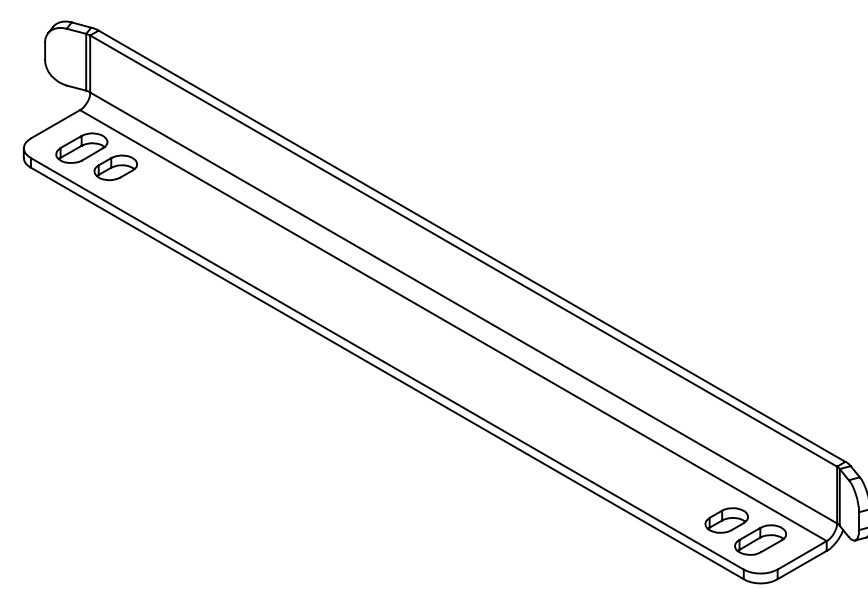
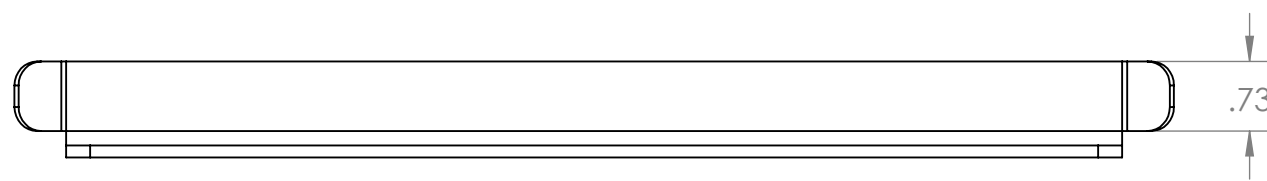
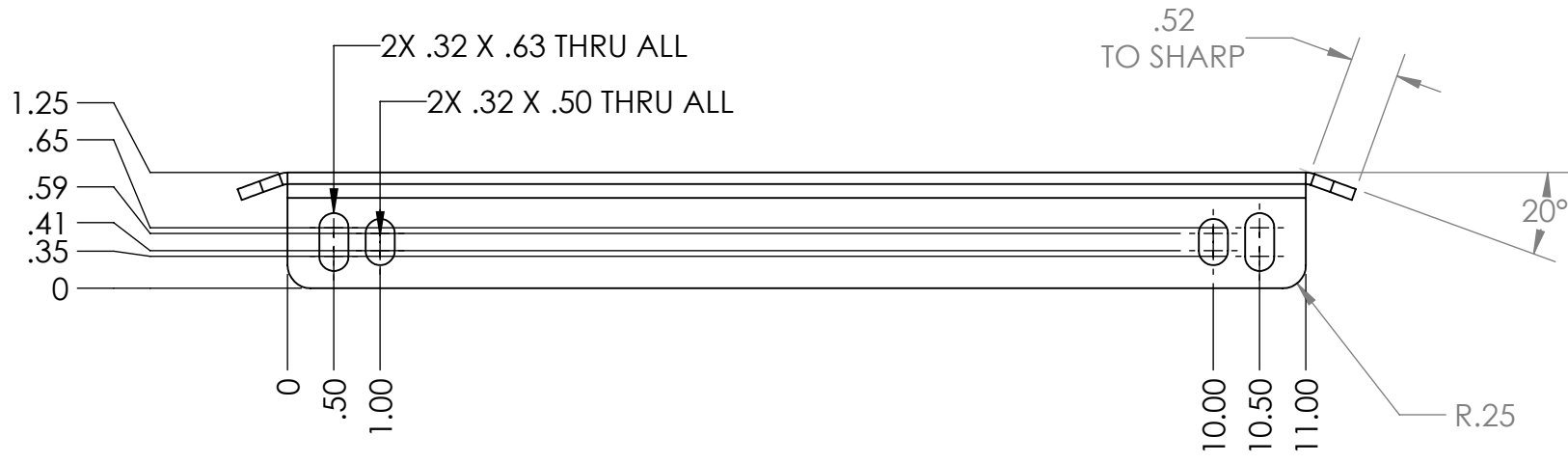




- Note:
- Spacing between (2) may vary per field set to slide easily per double substation.
  - Range for spacing on (9) and (10) may vary per field set to land at any point on the frame.

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div><div></div><div>TITLE: slide assembly</div></div>		
	DRAWN	NW	12/29/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
<b>MATERIAL/FINISH:</b>	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23110	
DO NOT SCALE DRAWING				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 $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  .5" HDPE, Black Texture  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE:  Base,Slide</div>		
	DRAWN	DF	7/18/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
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 $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>  .125 AL 6061  DO NOT SCALE DRAWING	BEND	NAME	DATE	  TITLE: <b>Angle capture, Slide</b>	
	DRAWN	DF	7/18/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23110-02
SCALE: 1:2		SHEET 1 OF 1			

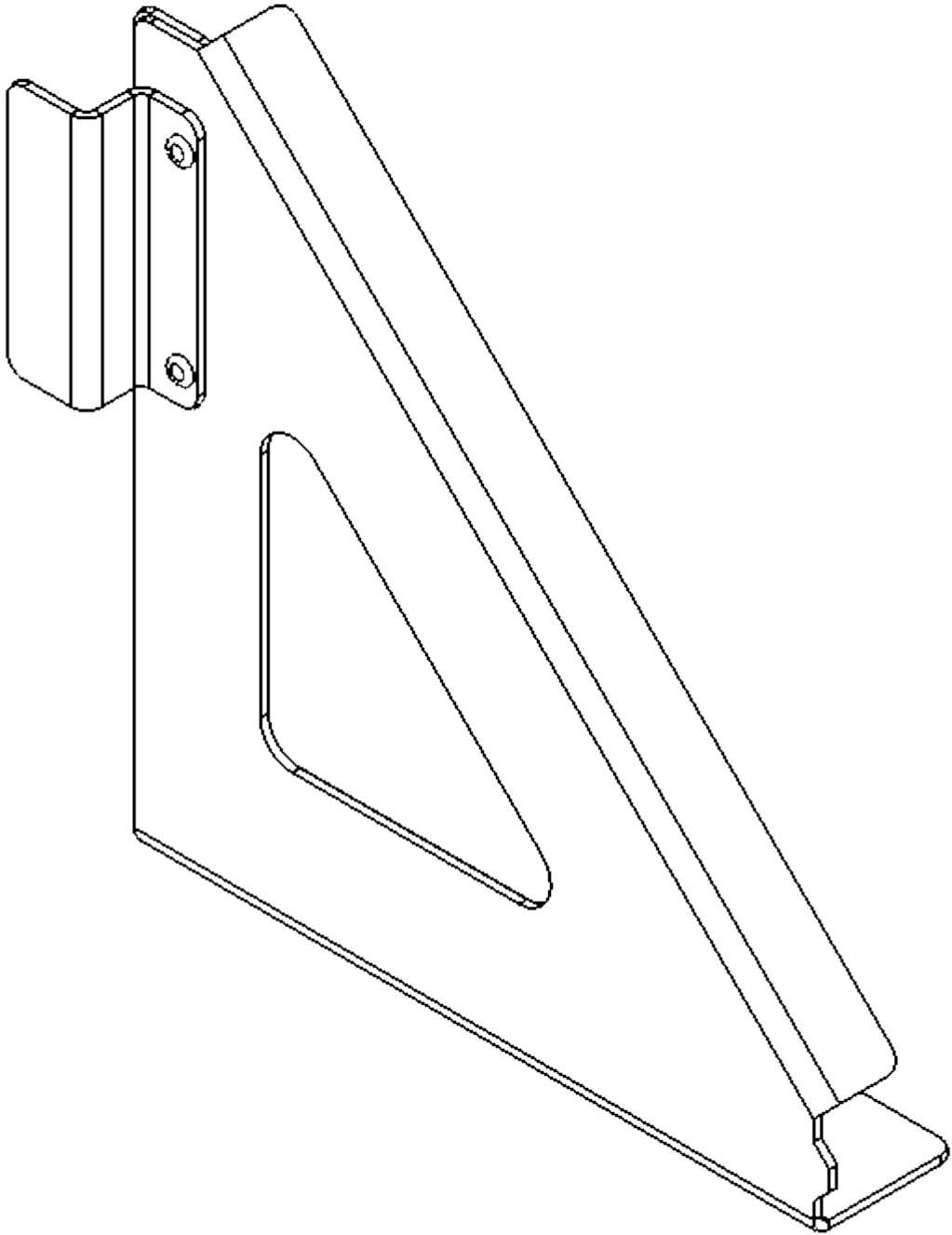
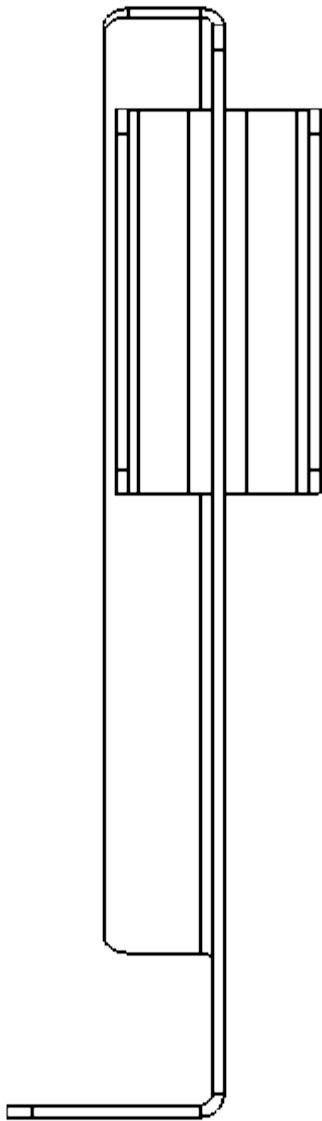
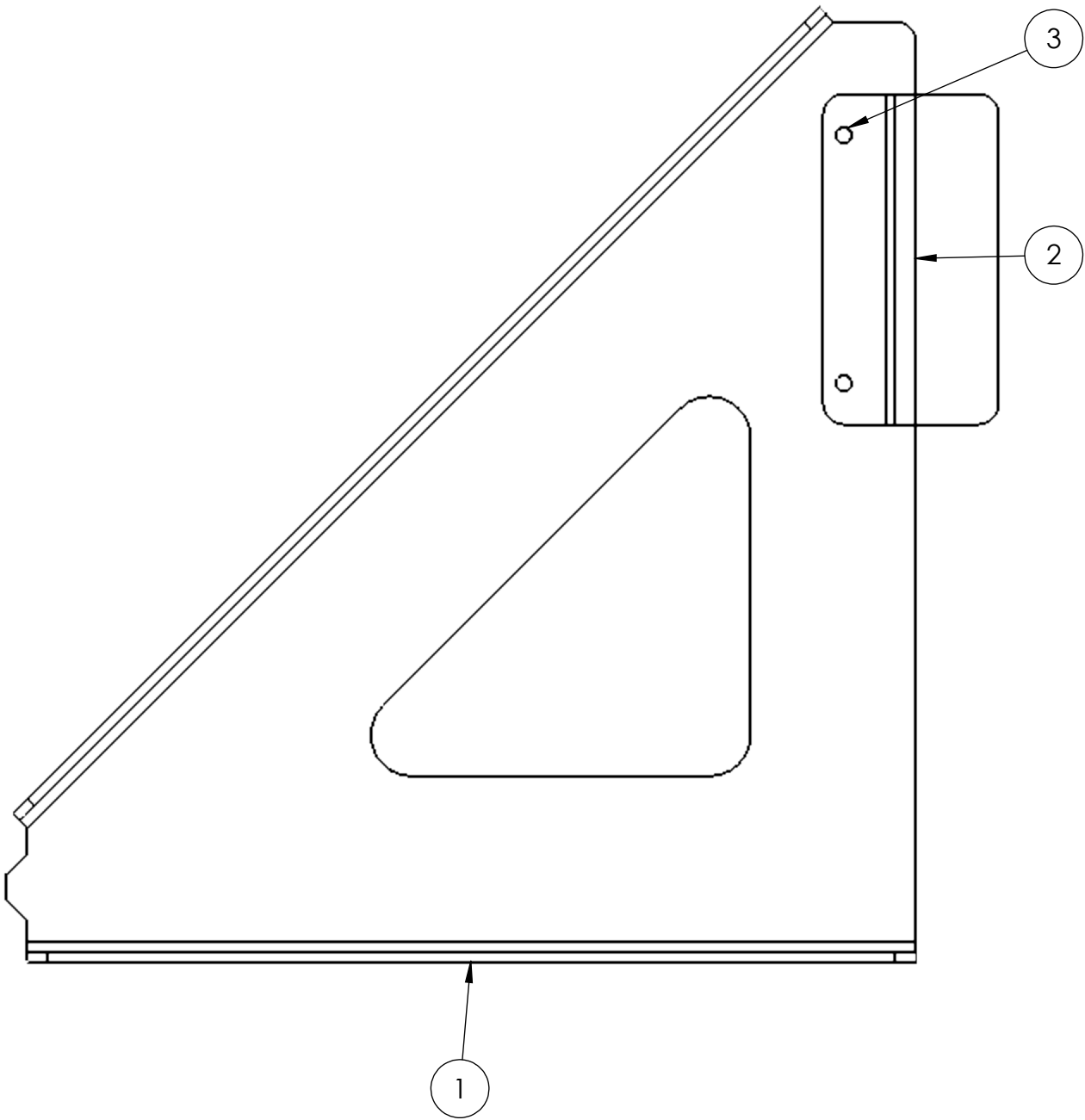
4			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23111-01	Brace, foot/ramp	1
2	GE-23111-03	brace, Z bracket	2
3	rivet_.1875_.376-.5	3/16" Aluminum Rivet, .376-.5 Grip Range	2

D

C

B

A





D

C

B

A

Notes:  
1. Rivet (2) QTY 2 to (1).

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>    DO NOT SCALE DRAWING	VEND	NAME	DATE	 	
	DRAWN	NW	8/23/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Grill, Brace foot/ramp	
	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO.  GE-23111
			SCALE: 1:2		SHEET 1 OF 1



D

C

B

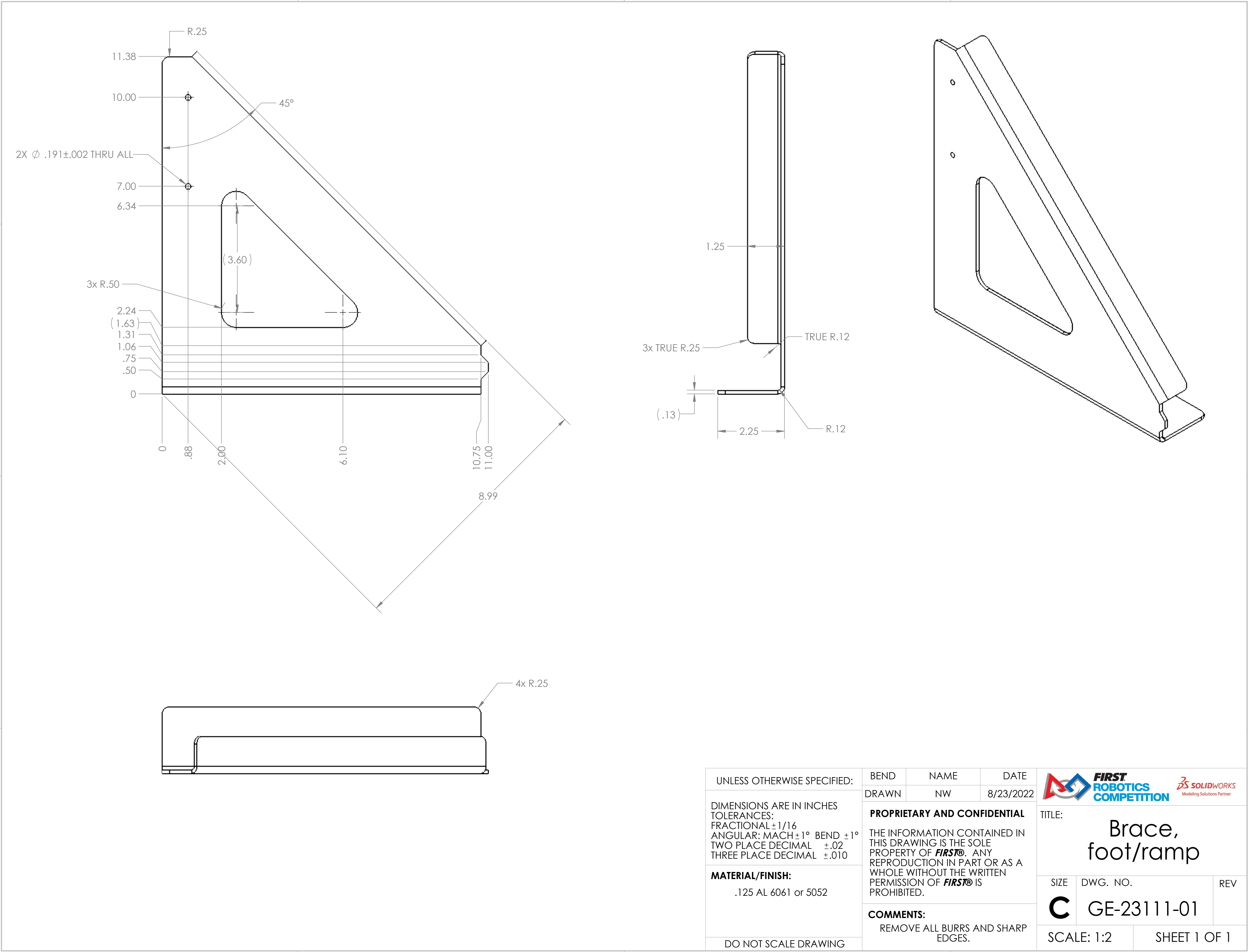
A

D

C

B

A



4

3

2

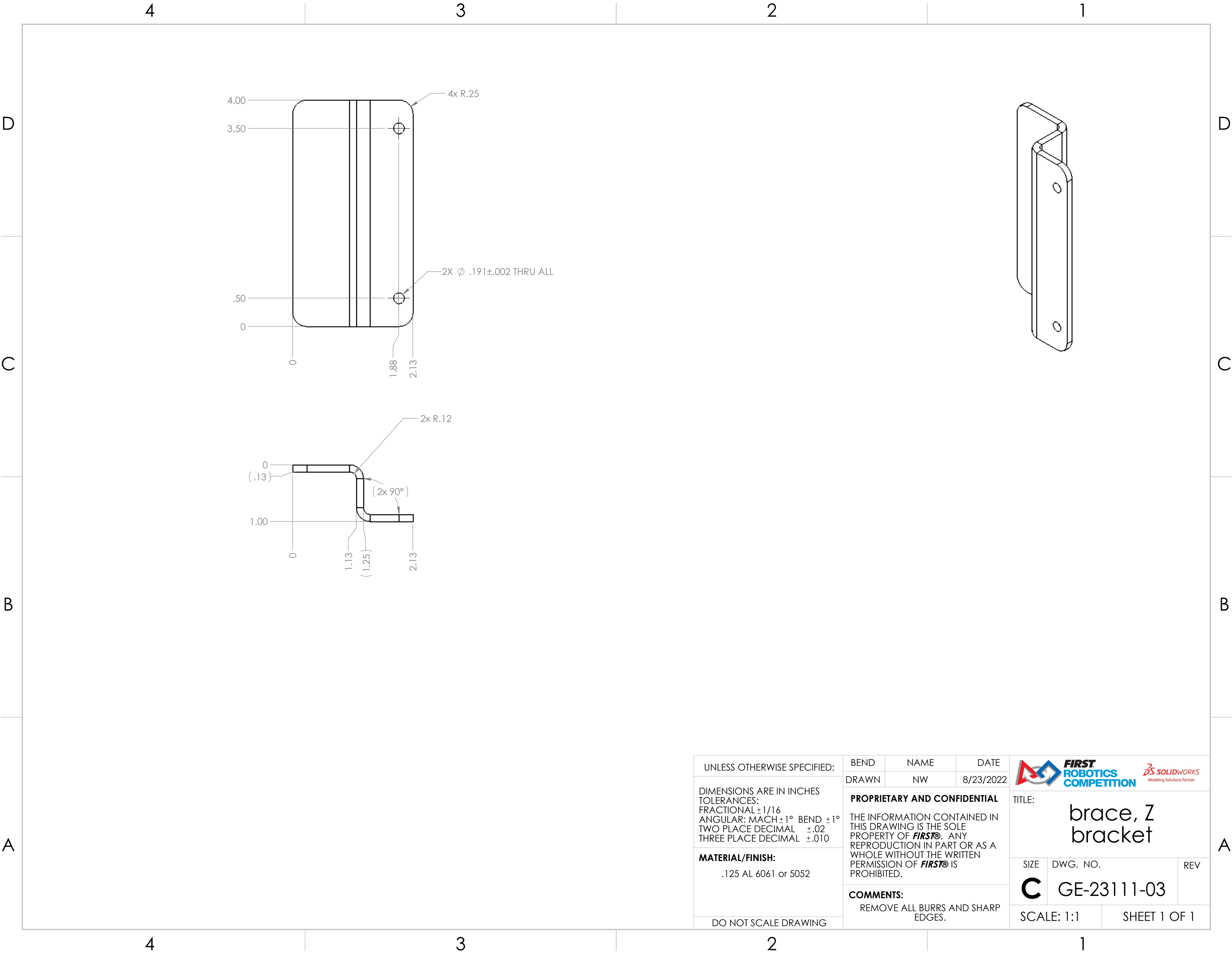
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4

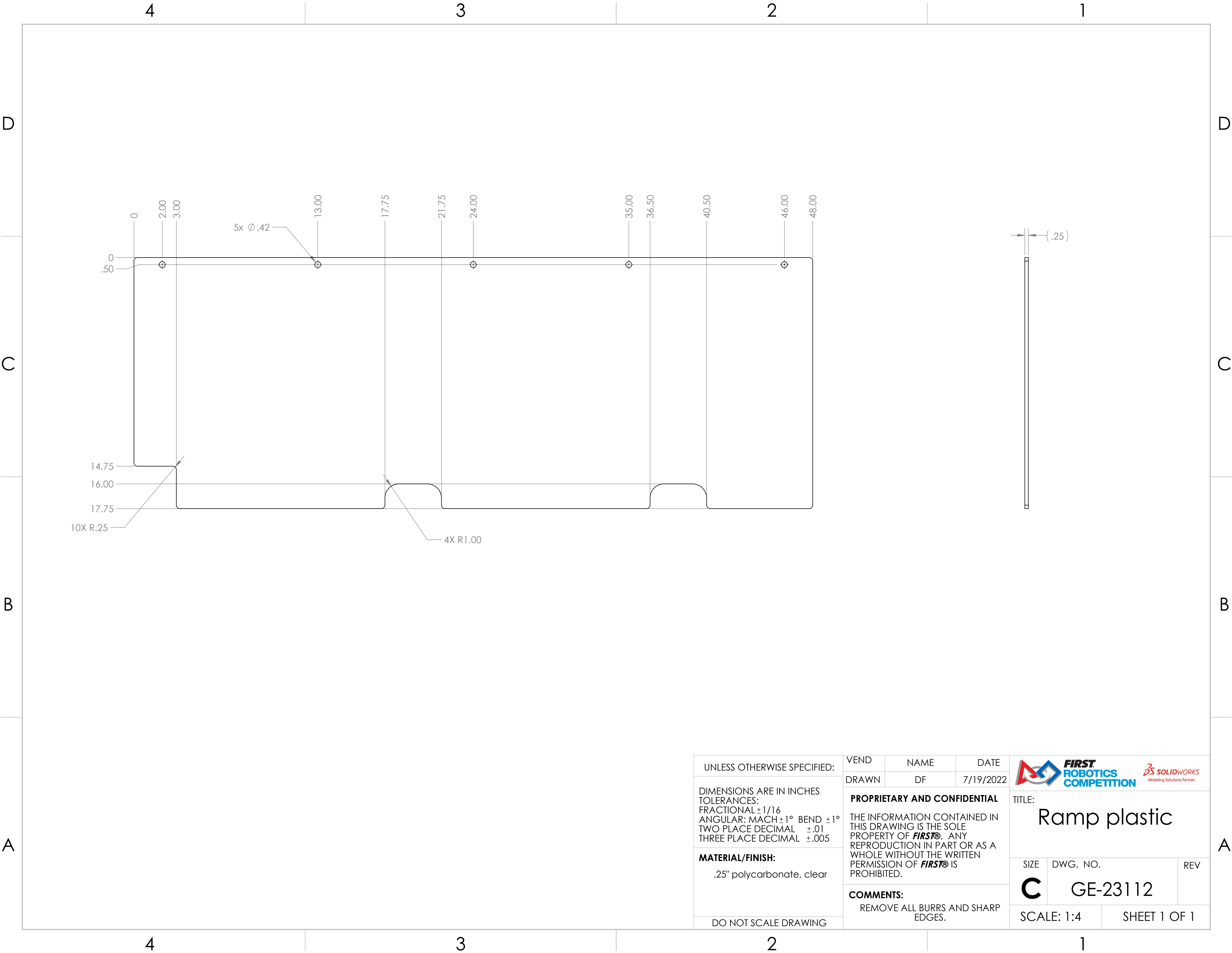
3





2


1



UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>		
	DRAWN	NW	8/23/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  brace, Z bracket		
	<b>MATERIAL/FINISH:</b>  .125 AL 6061 or 5052	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
	C				GE-23111-03	
DO NOT SCALE DRAWING				SCALE: 1:1		SHEET 1 OF 1

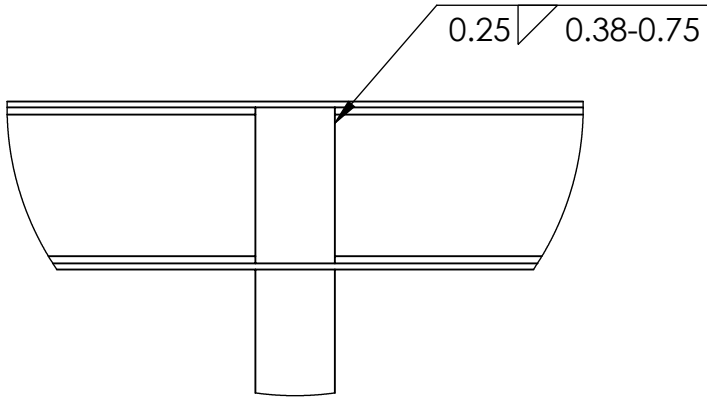
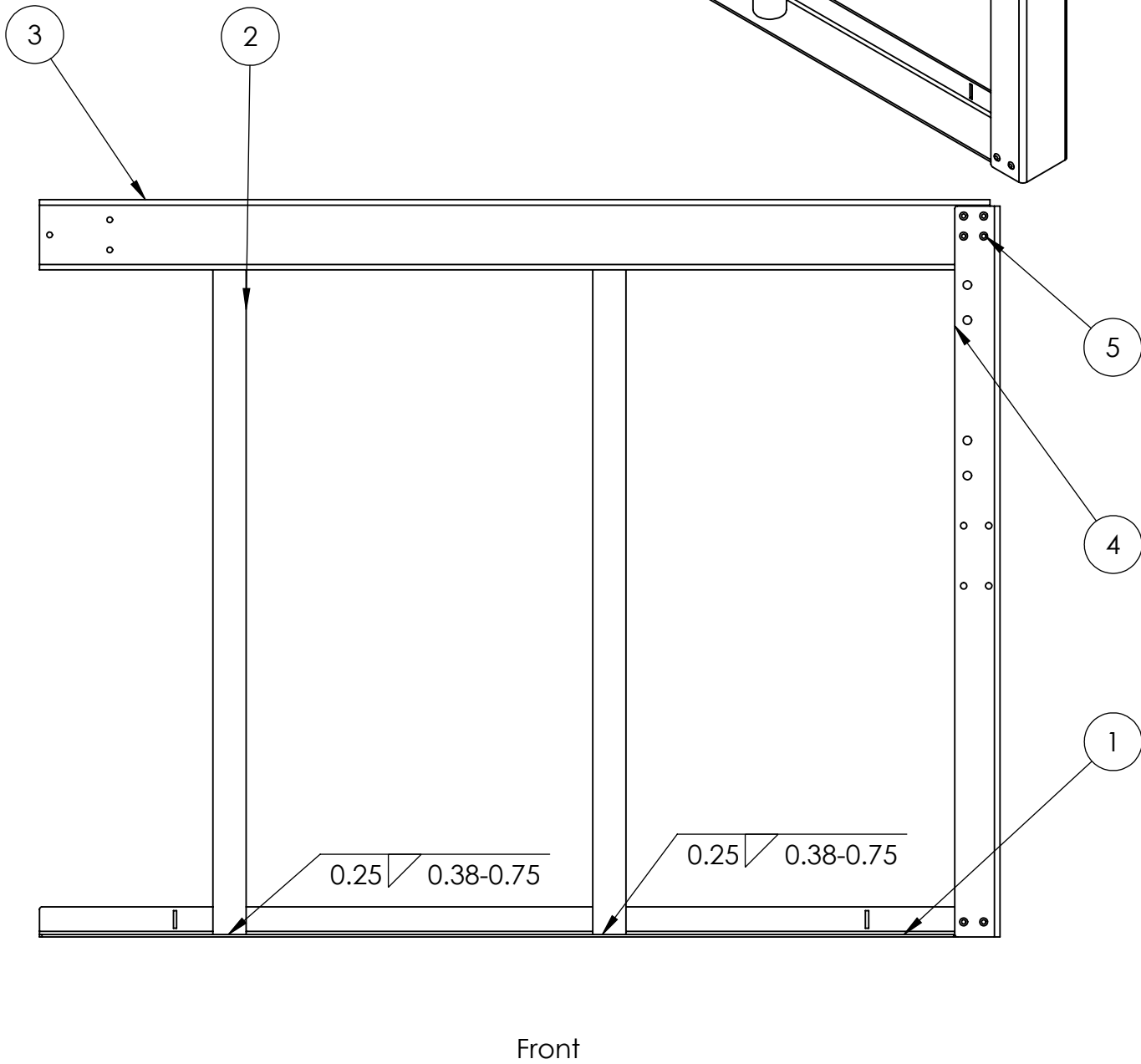
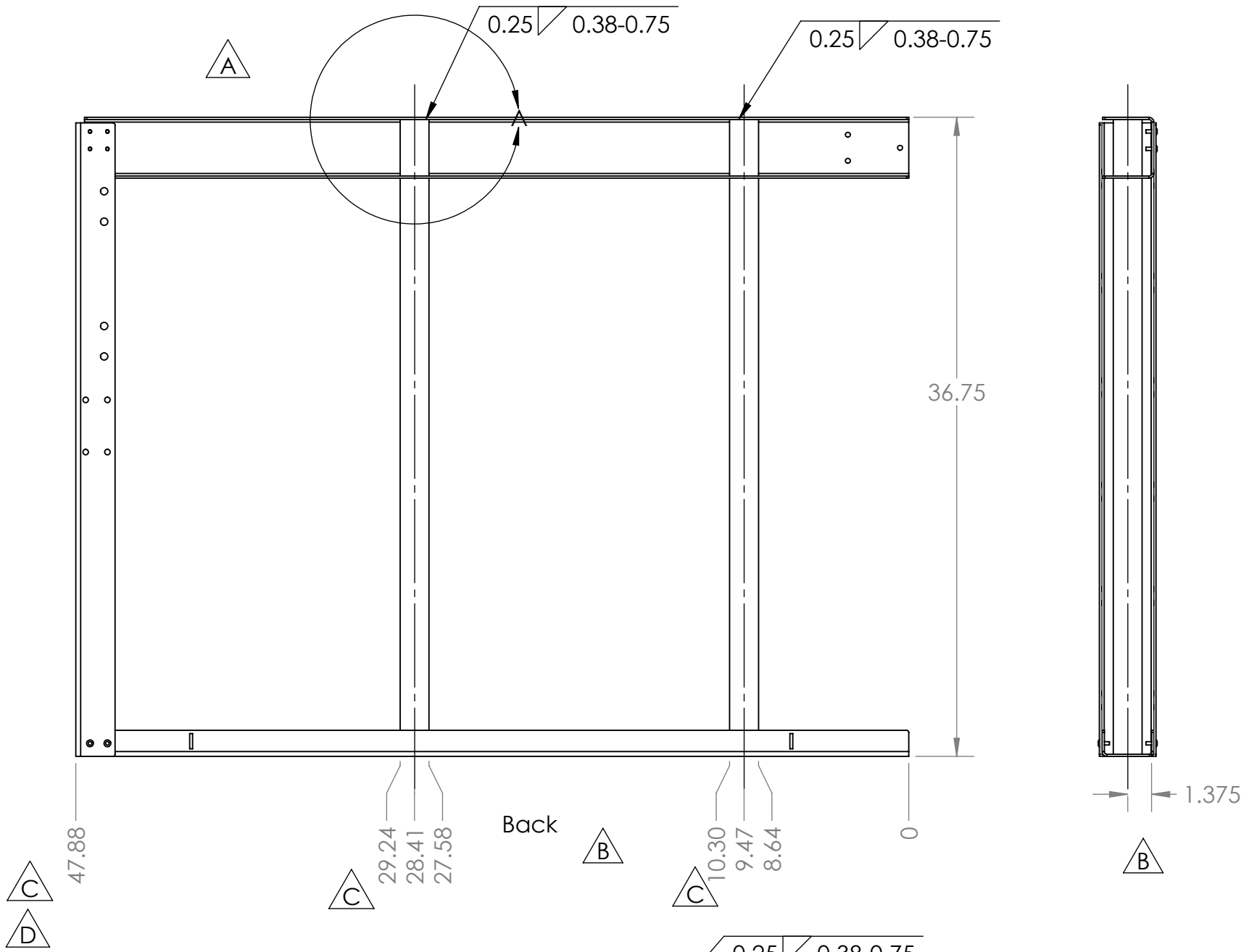
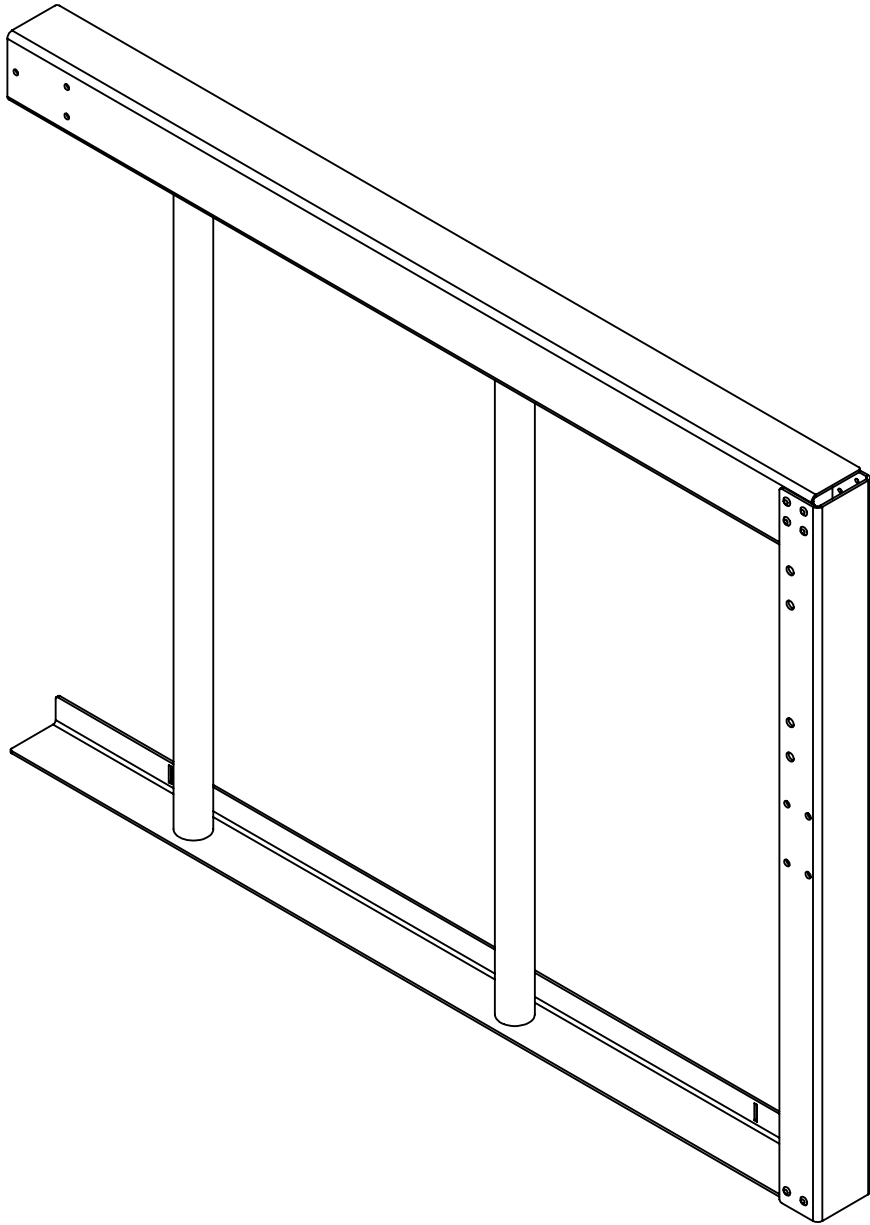


UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div> <div>TITLE: Ramp plastic</div>		
	DRAWN	DF	7/19/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23112	
	DO NOT SCALE DRAWING			SCALE: 1:4		SHEET 1 OF 1
<div></div>						

ITEM NO.	WELD SIZE	SYMBOL	WELD LENGTH	WELD MATERIAL	QTY.
1	0.25		0.38-0.75{1.5}		4

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23113-01	grill, base (field)	1
2	GE-23113-02	Grill, Bar 2	2
3	GE-23113-03	Grill, Top 2	1
4	GE-23113-04	Grill, Side 2	1
5	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	8

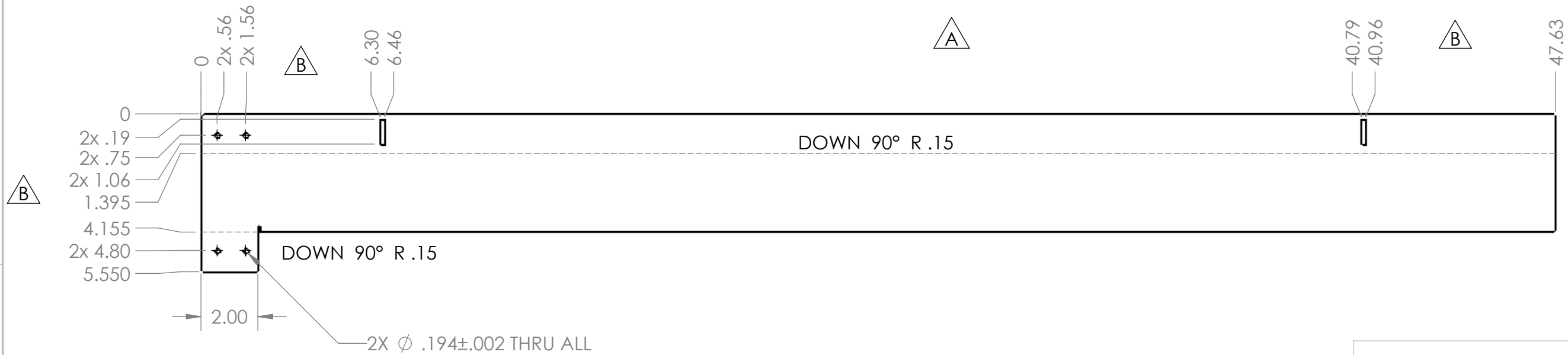
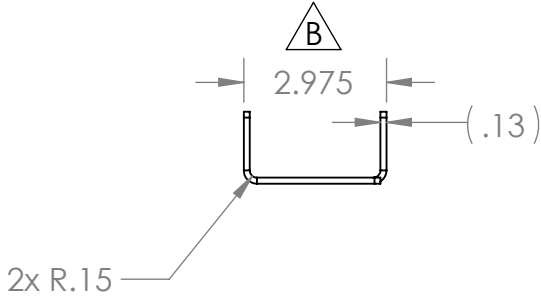
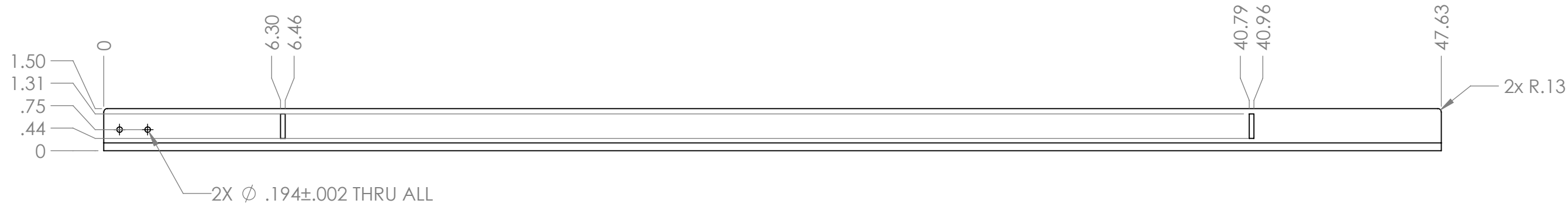
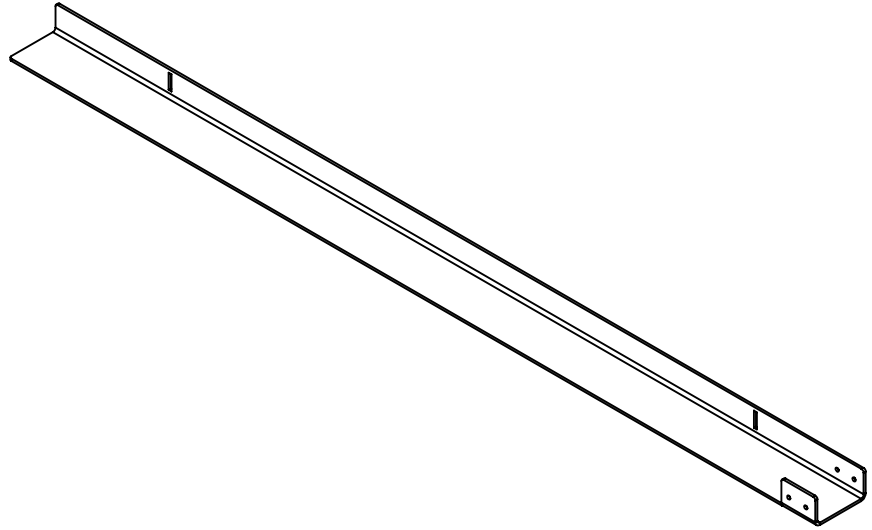
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C4	A	Removed holes, and now welds flat to under surface.	9/12/2022	NTW
B2, B3	B	removed bottom hole for weld and dims. for jig	10/26/2022	NTW
A3, B4	C	Added dimensions to back view.	11/17/2022	CPO
A4	D	overall length change -1"	12/6/2022	NTW





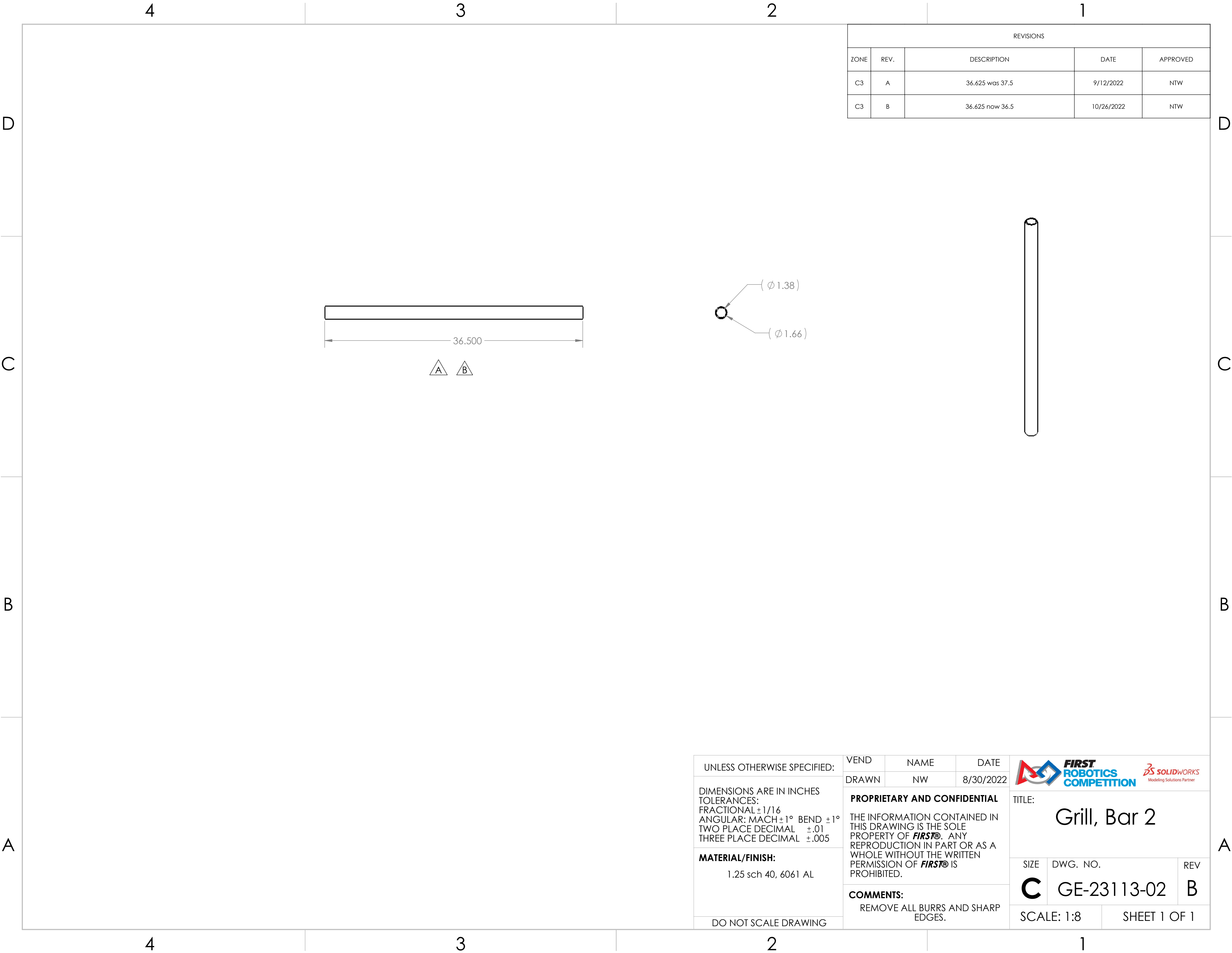
Notes:  
1. Weld intermittent to keep from warping.  
2. Rivet in 8 places prior to welding.

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .015$  MATERIAL/FINISH:  DO NOT SCALE DRAWING	WELD	NAME	DATE
	DRAWN	NW	7/27/2022
	PROPRIETARY AND CONFIDENTIAL  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.		
TITLE:		Grill, Loading Station (field)	
SIZE	DWG. NO.	REV	
C	GE-23113	D	
SCALE: 1:8		SHEET 1 OF 1	



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, C3	A	Removed hole for pipe	10/26/2022	NTW
B1, B2, B4	B	Adjusted profile width to increase assembly tolerance. Added dimensions to flat pattern.	11/2/2022	CPO
C2	C	removed 1" overall	12/6/2022	NTW



UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>		
	DRAWN	DF	7/20/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			TITLE:		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			grill, base (field)		
MATERIAL/FINISH:  0.125" AL 6061 or 5052	COMMENTS:  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23113-01	C
DO NOT SCALE DRAWING				SCALE: 1:4		SHEET 1 OF 1

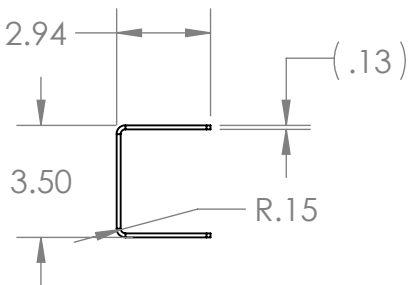
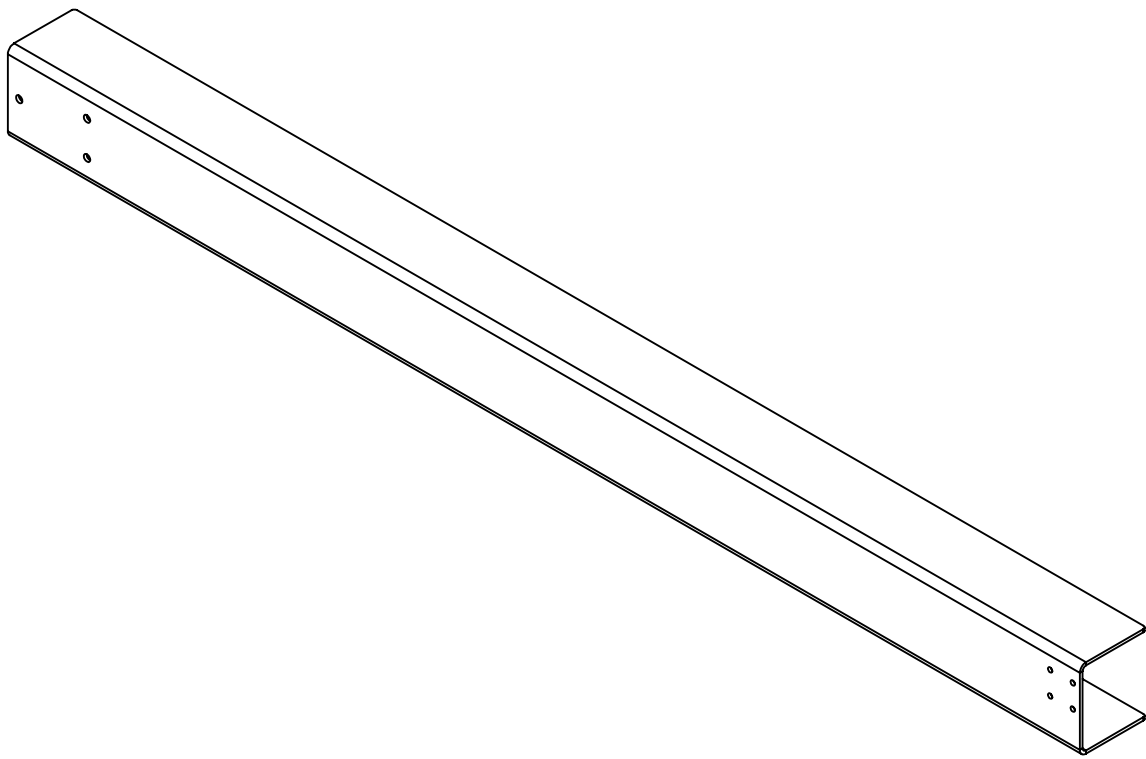


REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C3	A	36.625 was 37.5	9/12/2022	NTW
C3	B	36.625 now 36.5	10/26/2022	NTW

UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>		
	DRAWN	NW	8/30/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:		
				Grill, Bar 2		
<b>MATERIAL/FINISH:</b>  1.25 sch 40, 6061 AL	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23113-02	B
DO NOT SCALE DRAWING				SCALE: 1:8		SHEET 1 OF 1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
D3	A	Removed 1.71 holes from top face for weld surface	9/12/2022	NTW
A3, A4, B2	B	Added various dimensions to part flat pattern.	11/2/2022	CPO
A3, A4	C	Modified part overall length.	11/17/2022	CPO
A4, C3, D3	D	Changed to reflect removing 1"	12/6/2022	NTW

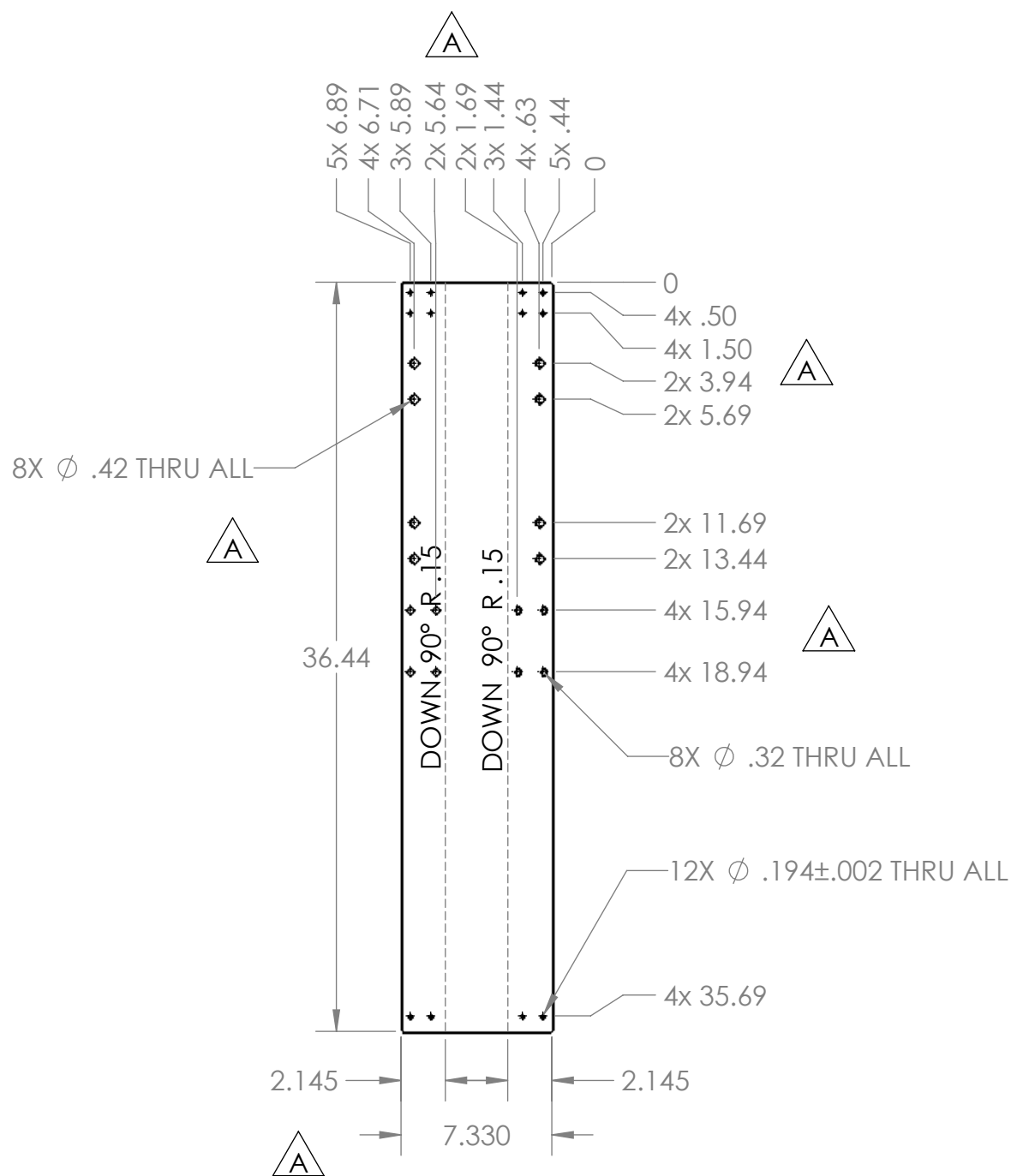
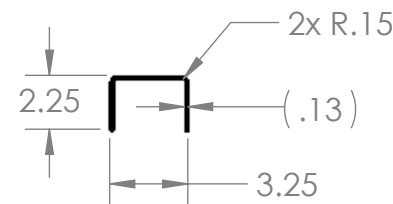
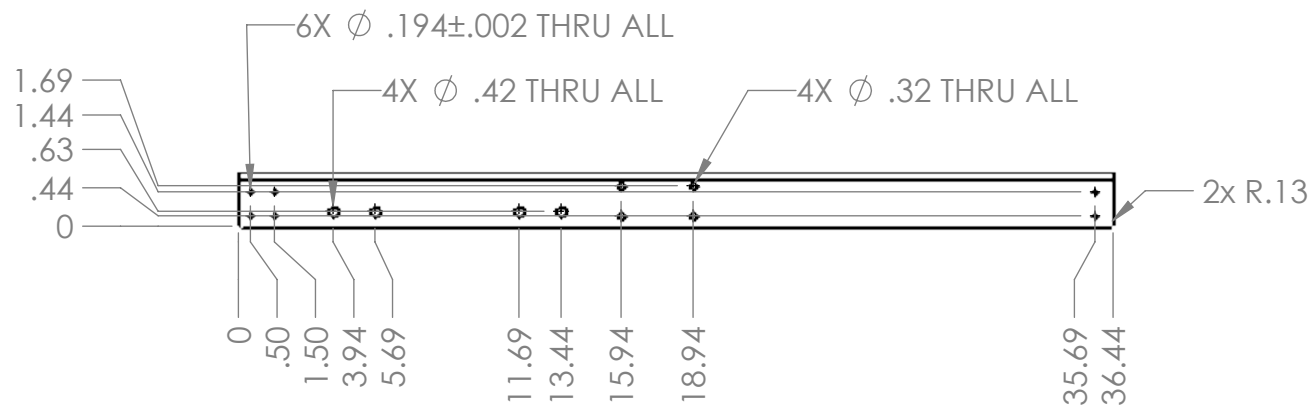



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>  .125 AL 6061 or 5052  DO NOT SCALE DRAWING	BEND	NAME	DATE
	DRAWN	DF	7/20/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		




TITLE: <h1>Grill, Top 2</h1>		
SIZE <b>C</b>	DWG. NO. GE-23113-03	REV D
SCALE: 1:6		SHEET 1 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, A4, B3, B4	A	Added various dimensions to flat pattern.	11/2/2022	CPO

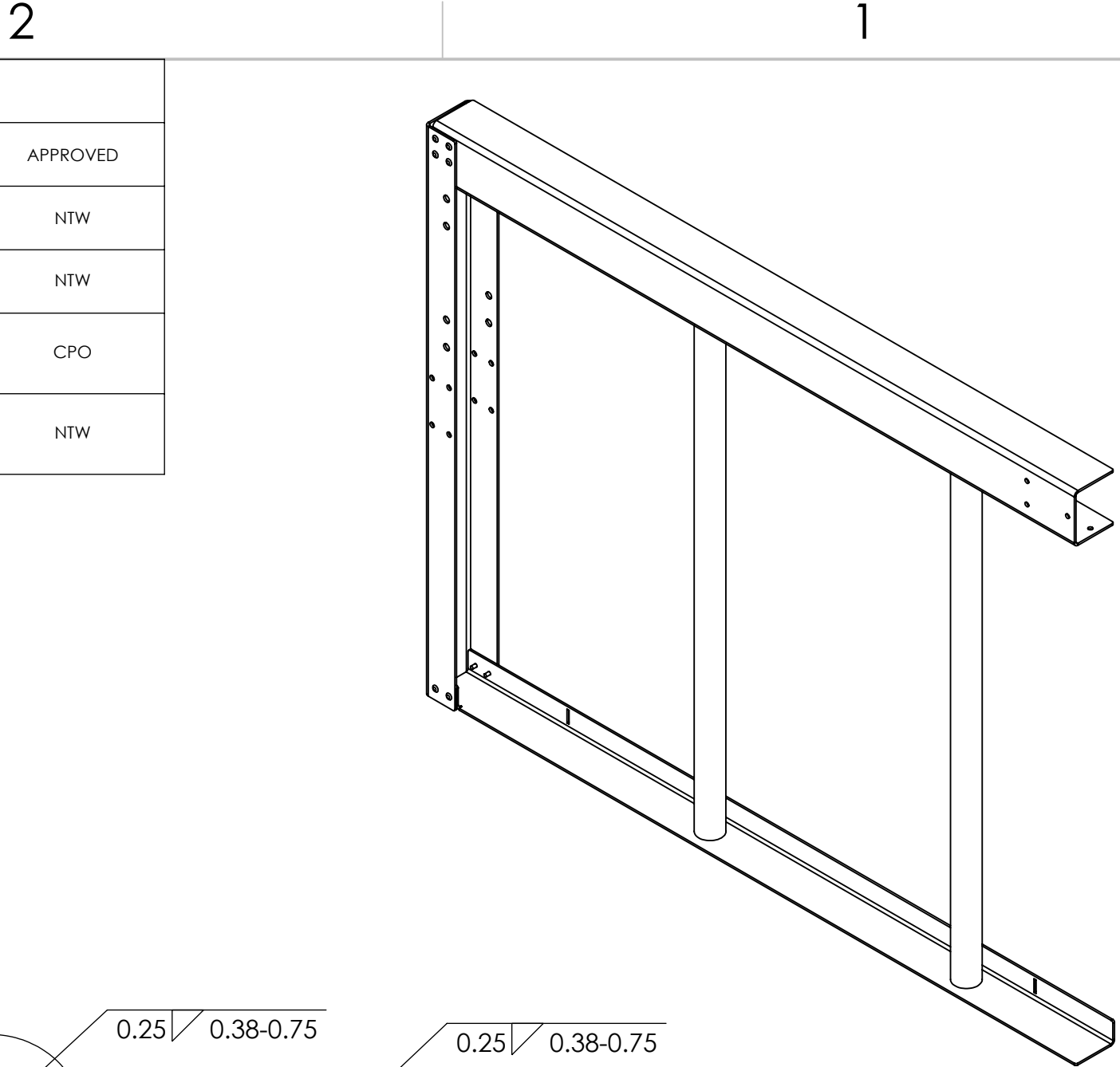


UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm$ 1/16 ANGULAR: MACH $\pm$ 1° BEND $\pm$ 1° TWO PLACE DECIMAL $\pm$ .02 THREE PLACE DECIMAL $\pm$ .010  <b>MATERIAL/FINISH:</b>  .125 AL 6061 or 5052  DO NOT SCALE DRAWING	BEND	NAME	DATE	 TITLE: <h1>Grill, Side 2</h1>		
	DRAWN	NW	8/30/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23113-04	<b>A</b>
SCALE: 1:8		SHEET 1 OF 1				

4					
ITEM NO.	WELD SIZE	SYMBOL	WELD LENGTH	WELD MATERIAL	QTY.
1	0.25		0.38-0.75{1.5}		4

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23114-01	Grill, lower	1
2	GE-23114-02	Grill, Pipe	2
3	GE-23114-03	Grill, Upper horizontal	1
4	GE-23114-04	Grill, Vertical	1
5	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	8

3				
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C2	A	Removed holes, and now welds flat to under surface.	9/12/2022	NTW
C3, C4	B	removed hole for welding on -01 and add dims for jig	10/26/2022	NTW
C3, C4	C	Added more dimensions to view for clarity for manufacturing.	11/17/2022	CPO
C3, C4	D	Updated dims for removing length	12/6/2022	NTW



D

D

C

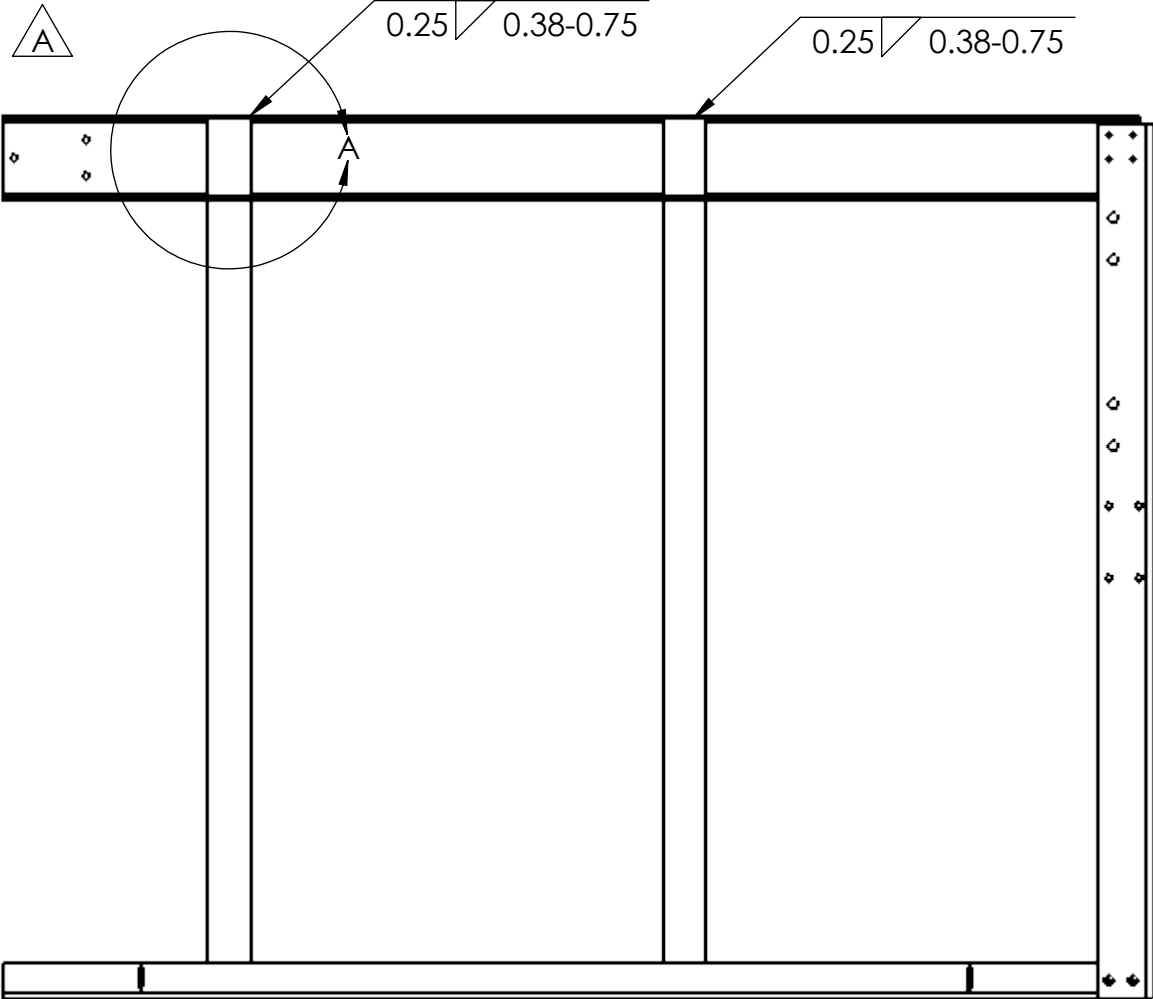
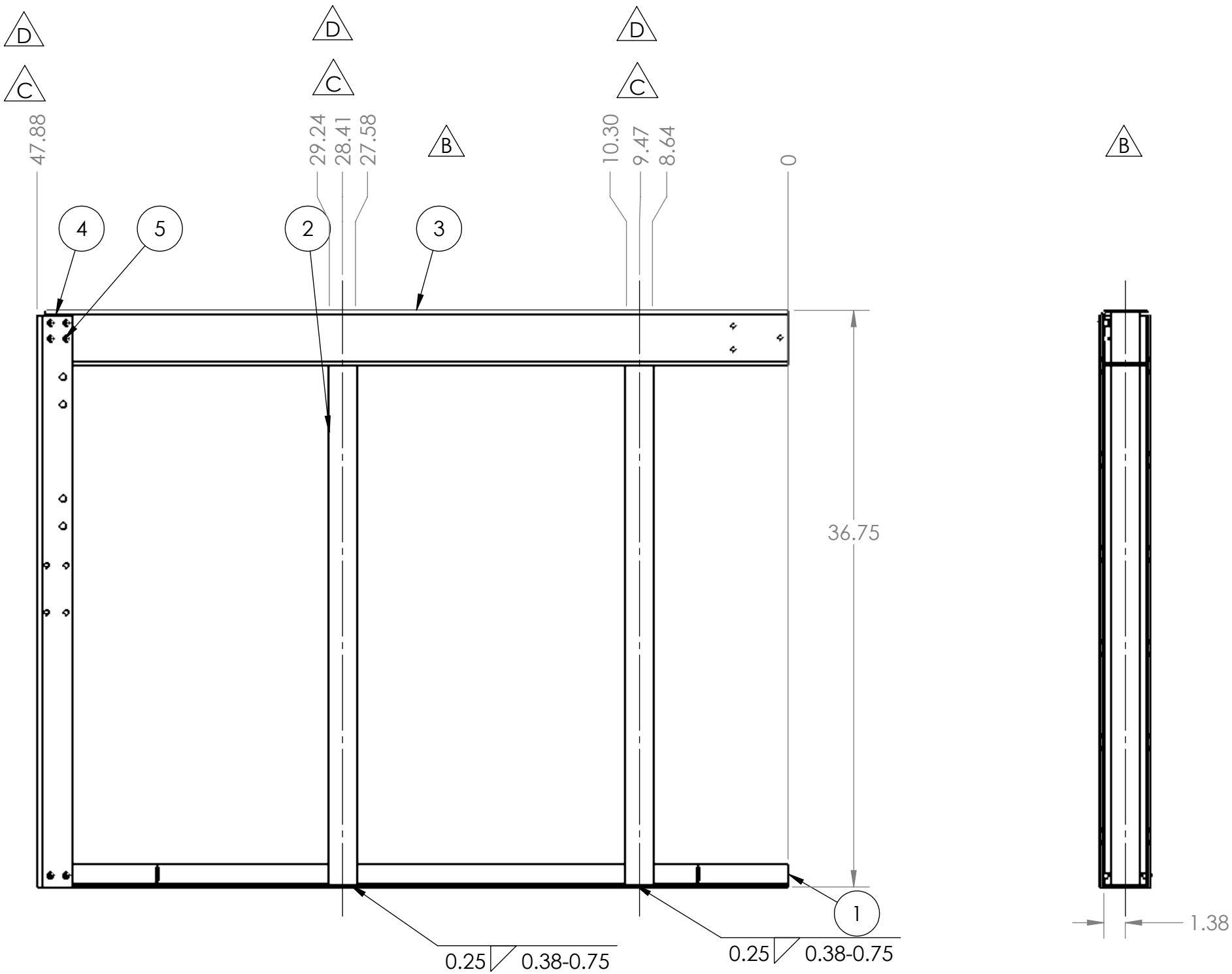
C

B

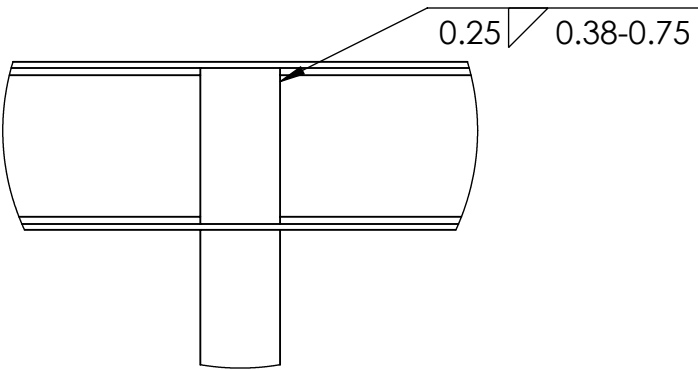
B

A



A

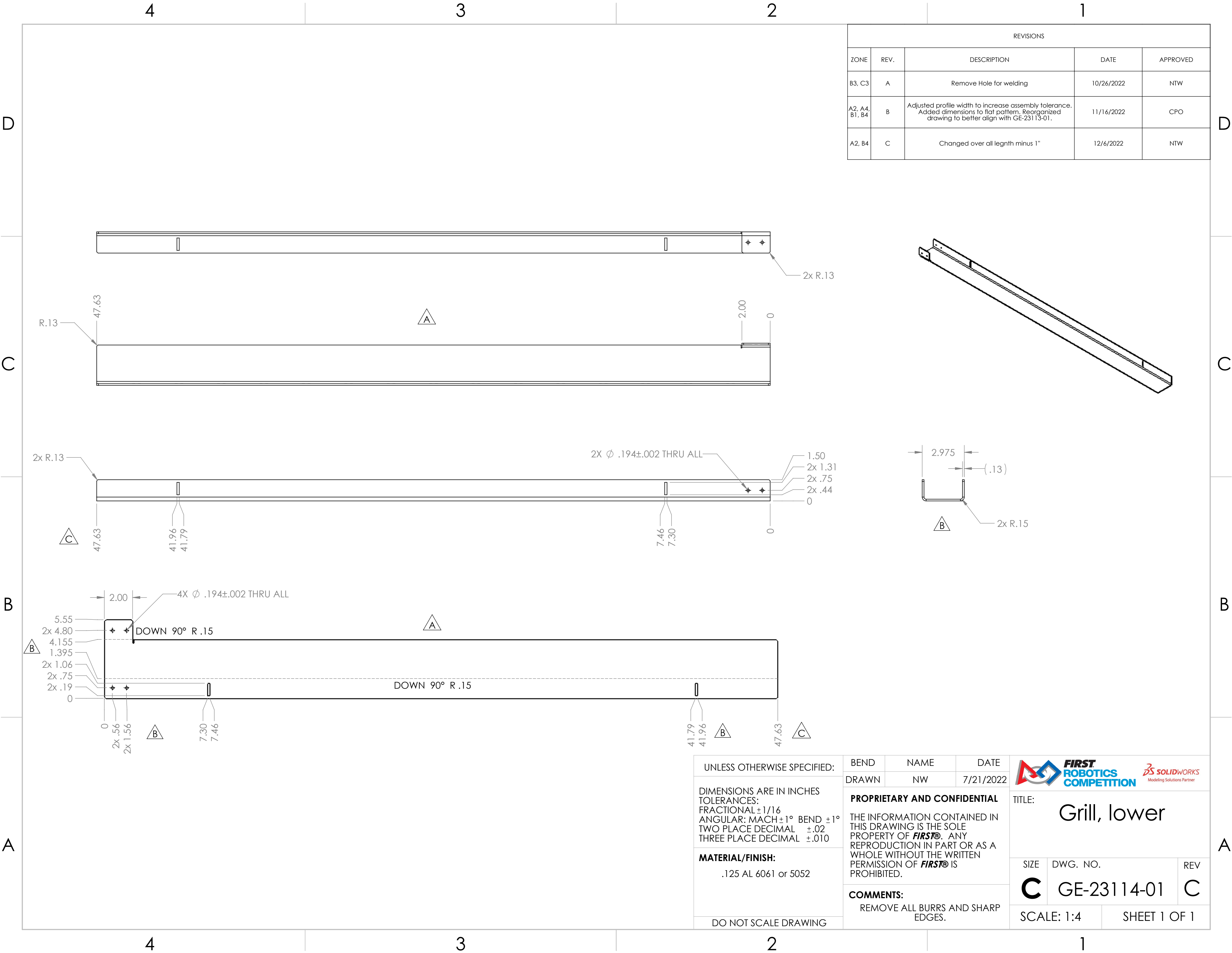


Notes:  
1. Weld intermittent to keep from warping.  
2. Rivet in 8 places prior to welding.



DETAIL A  
SCALE 1 : 4



UNLESS OTHERWISE SPECIFIED:	WELD	NAME	DATE	<div><div>FIRST ROBOTICS COMPETTITION</div><div><div>SOLIDWORKS Modeling Solutions Partner</div></div></div>	
	DRAWN	NW	8/24/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.015	PROPRIETARY AND CONFIDENTIAL			TITLE:  Grill Outer, Loading Station	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
MATERIAL/FINISH:	COMMENTS:			SIZE	
	REMOVE ALL BURRS AND SHARP EDGES.			DWG. NO.	
DO NOT SCALE DRAWING				C	GE-23114
				SCALE: 1:8	REV D
			SHEET 1 OF 1		



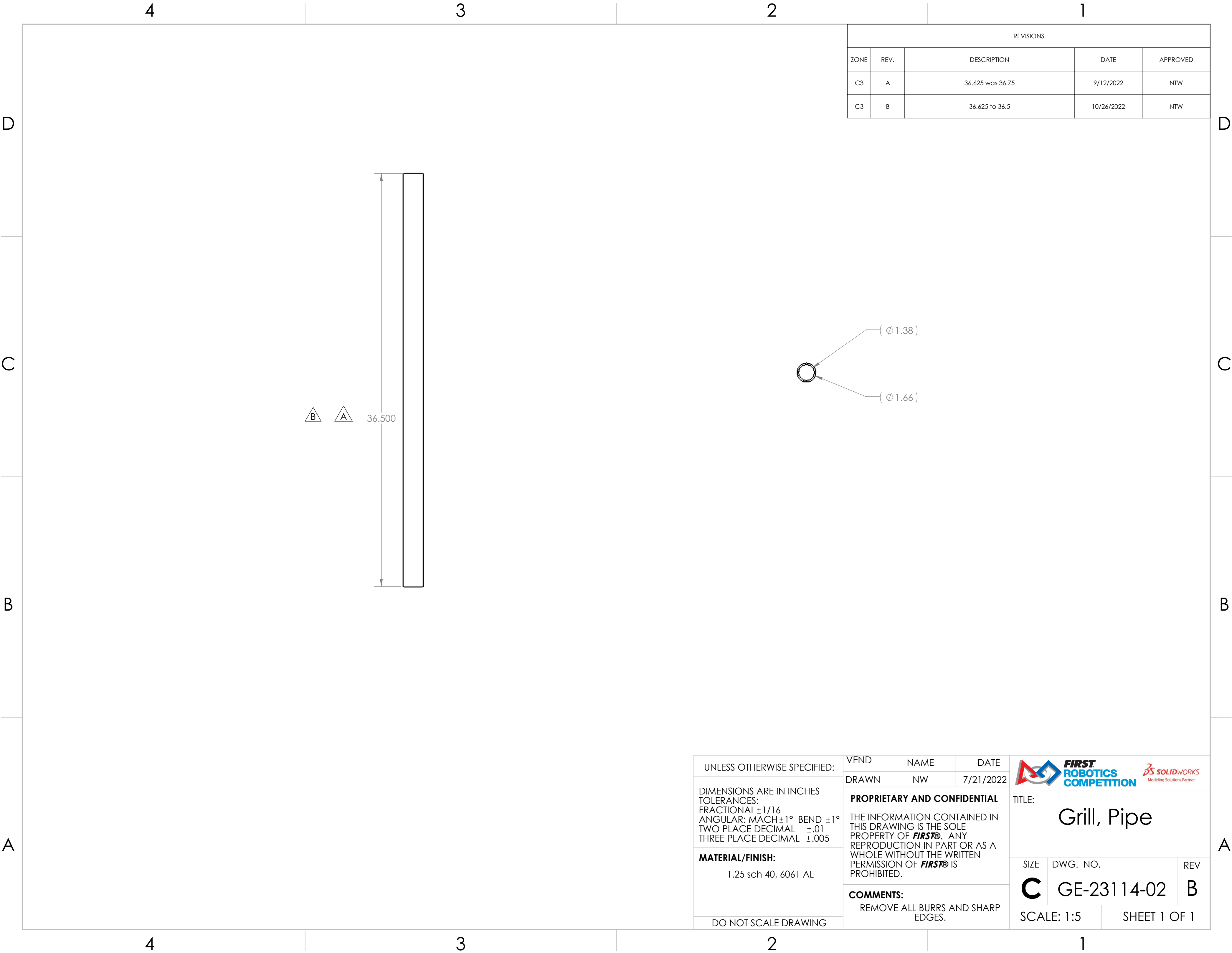
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, C3	A	Remove Hole for welding	10/26/2022	NTW
A2, A4, B1, B4	B	Adjusted profile width to increase assembly tolerance. Added dimensions to flat pattern. Reorganized drawing to better align with GE-23113-01.	11/16/2022	CPO
A2, B4	C	Changed over all legnth minus 1"	12/6/2022	NTW

UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$	DRAWN	NW	7/21/2022
MATERIAL/FINISH: .125 AL 6061 or 5052	PROPRIETARY AND CONFIDENTIAL  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
DO NOT SCALE DRAWING			



TITLE: <b>Grill, lower</b>			
SIZE <b>C</b>	DWG. NO. <b>GE-23114-01</b>	REV <b>C</b>	
SCALE: 1:4		SHEET 1 OF 1	



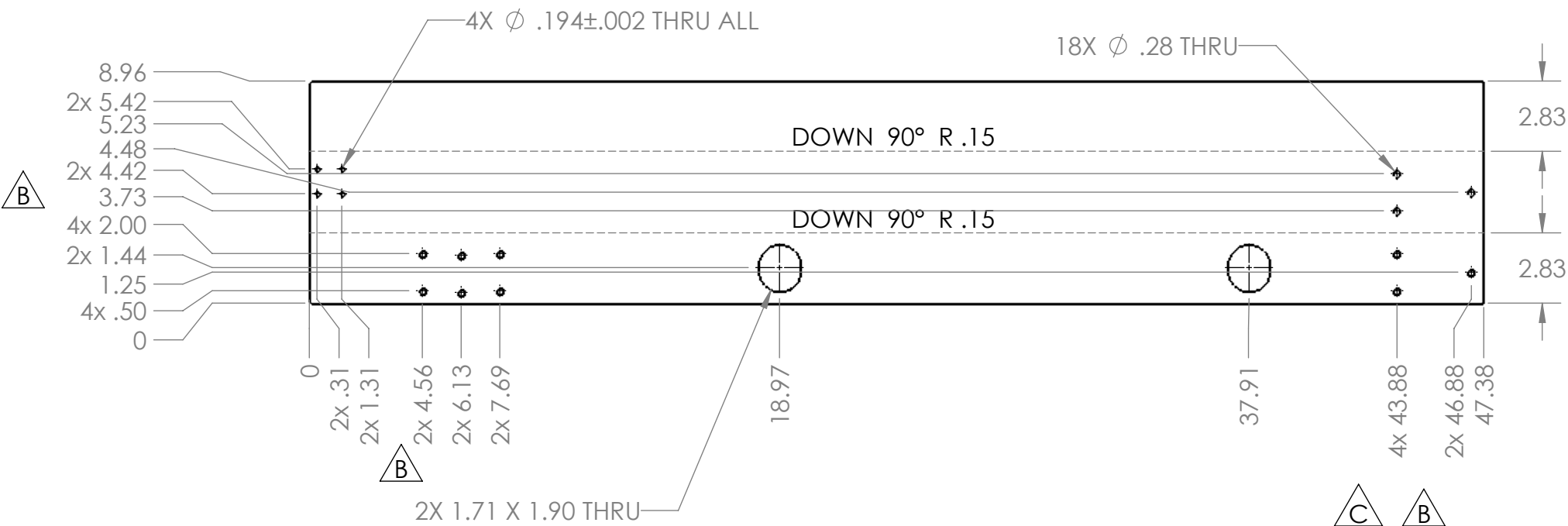
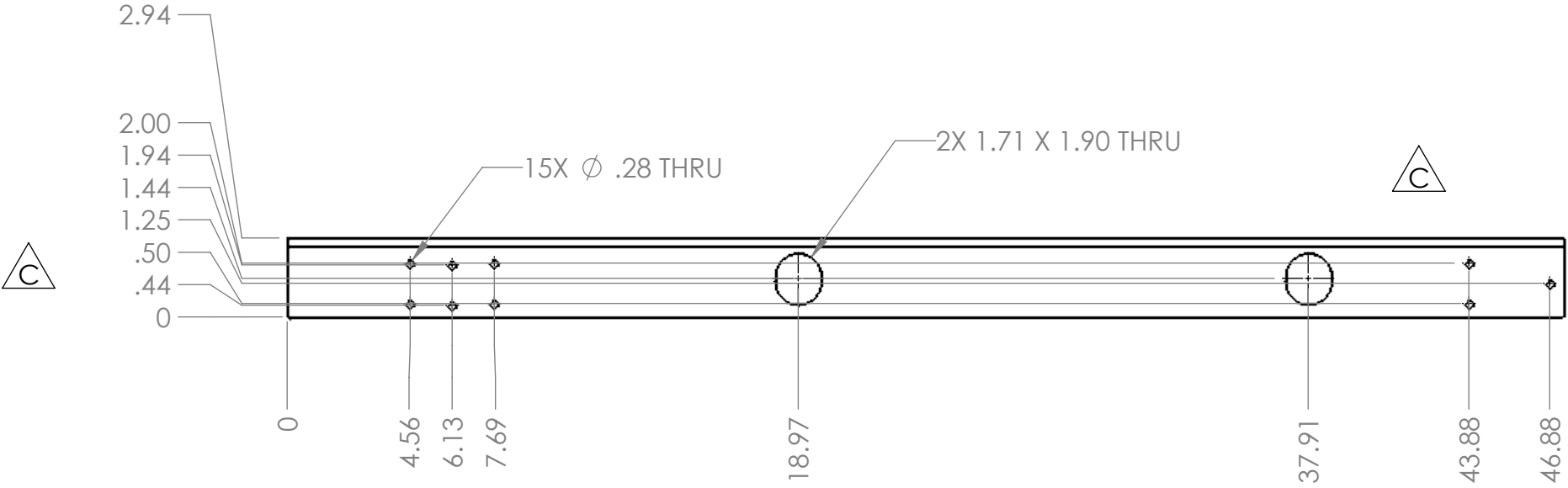
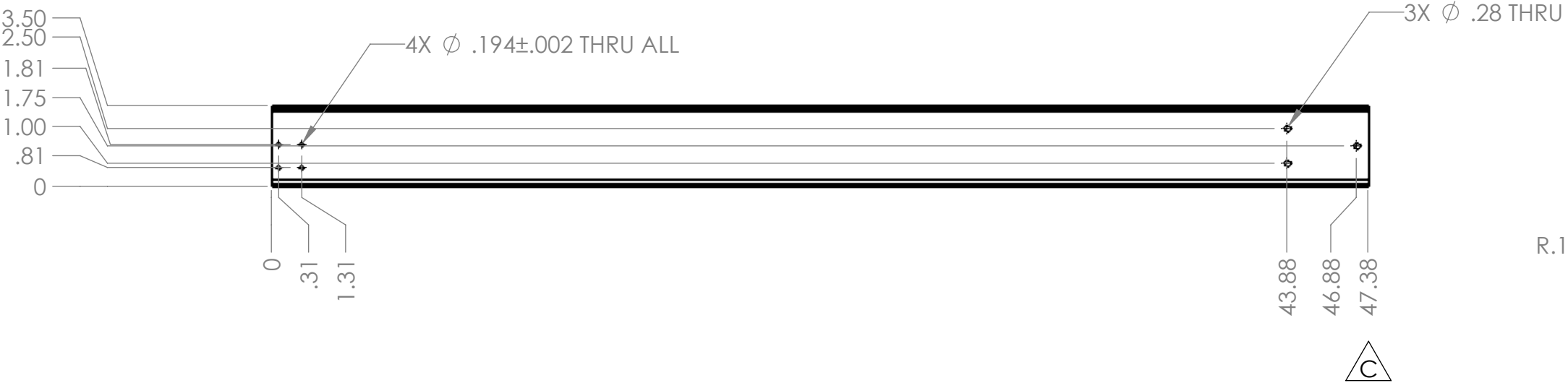
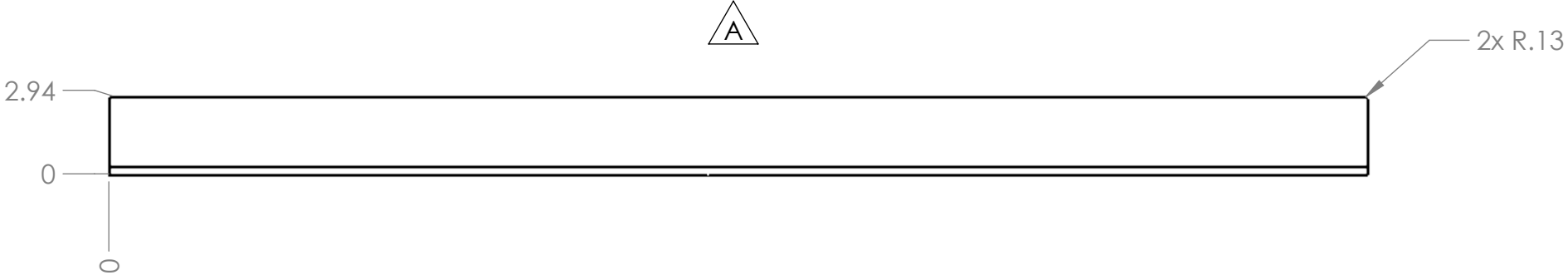
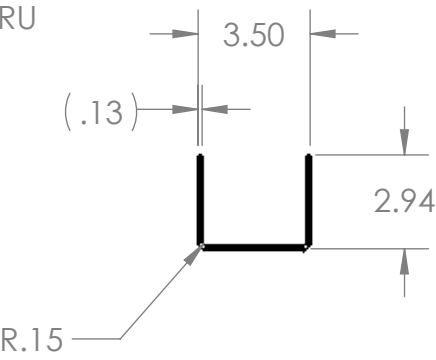
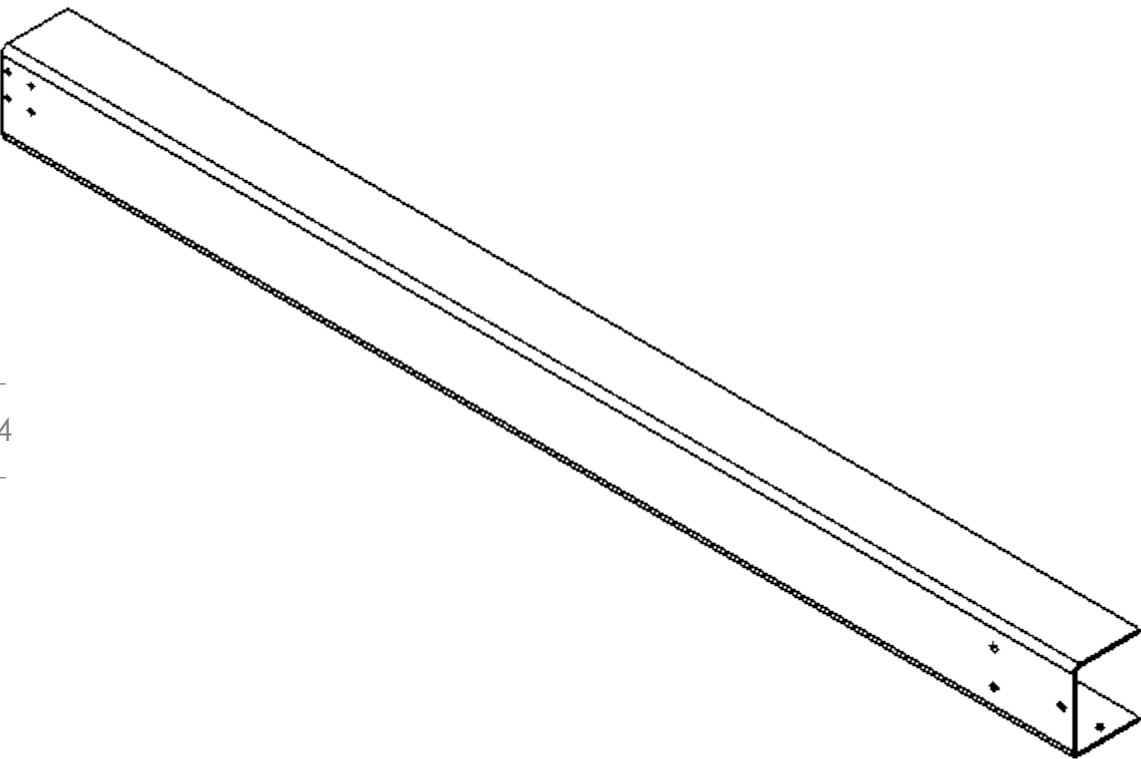
Modeling Solutions Partner



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C3	A	36.625 was 36.75	9/12/2022	NTW
C3	B	36.625 to 36.5	10/26/2022	NTW

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>  1.25 sch 40, 6061 AL  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE:  Grill, Pipe</div>		
	DRAWN	NW	7/21/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				SIZE	DWG. NO.
				<b>C</b>	GE-23114-02	<b>B</b>
				SCALE: 1:5		SHEET 1 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
D3	A	Removed holes from top face for welding	9/12/2022	NTW
A3, A4, B4, C3	B	Added various dimensions to flat pattern.	11/16/2022	CPO
A3, C2, C3, C4	C	Removed 1" over all and holes	12/6/2022	NTW



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .02$   
THREE PLACE DECIMAL  $\pm .010$

**MATERIAL/FINISH:**  
.125 AL 6061 or 5052

DO NOT SCALE DRAWING

BEND	NAME	DATE
DRAWN	NW	7/21/2022

**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.

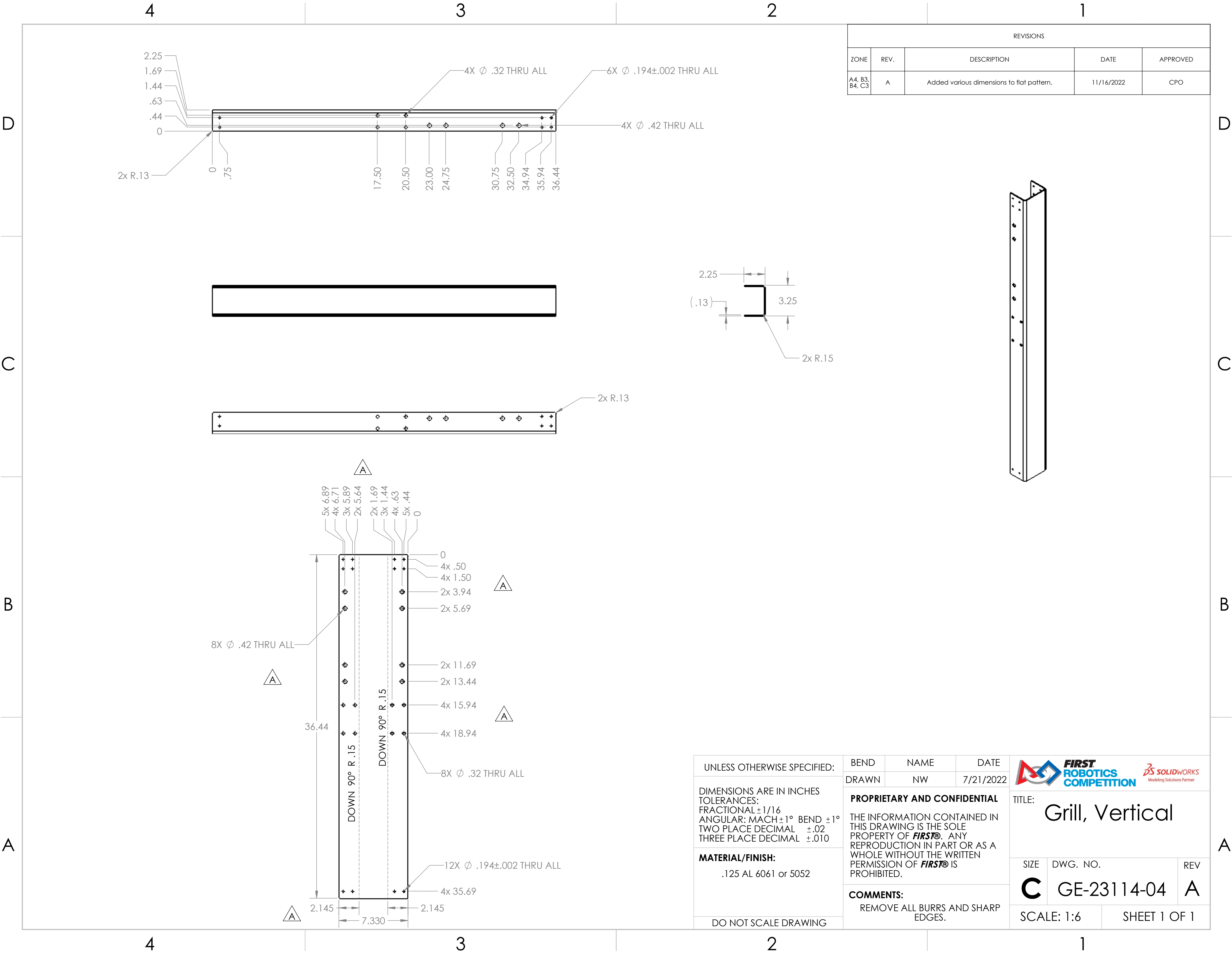


TITLE:  
**Grill, Upper horizontal**

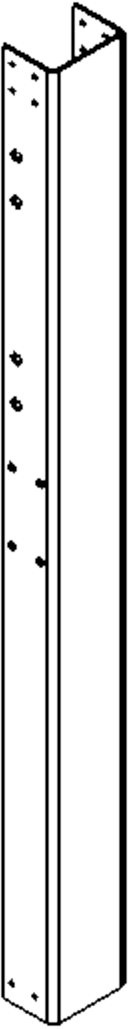
SIZE	DWG. NO.	REV
<b>C</b>	GE-23114-03	<b>C</b>

SCALE: 1:6 SHEET 1 OF 1





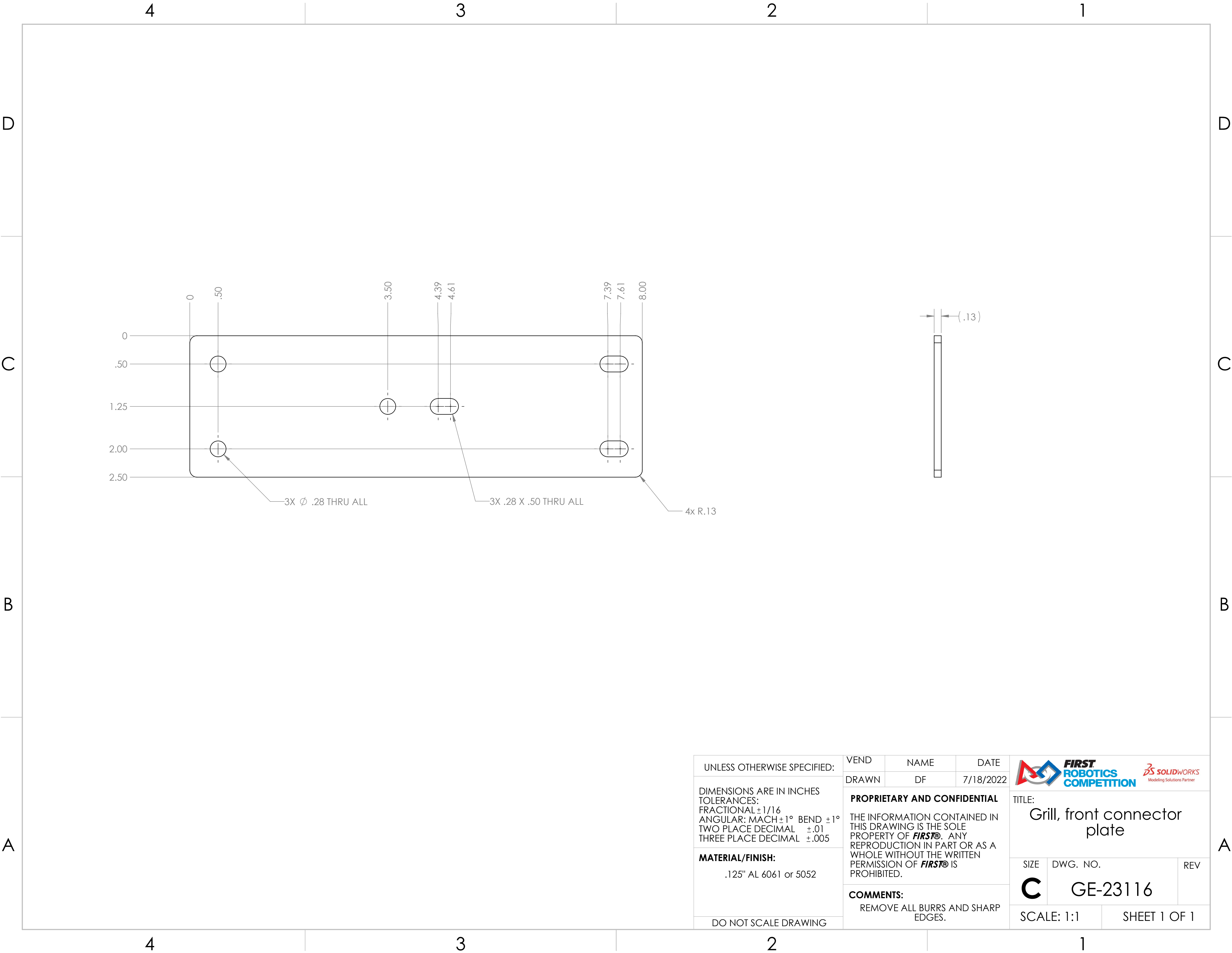




REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A4, B3, B4, C3	A	Added various dimensions to flat pattern.	11/16/2022	CPO

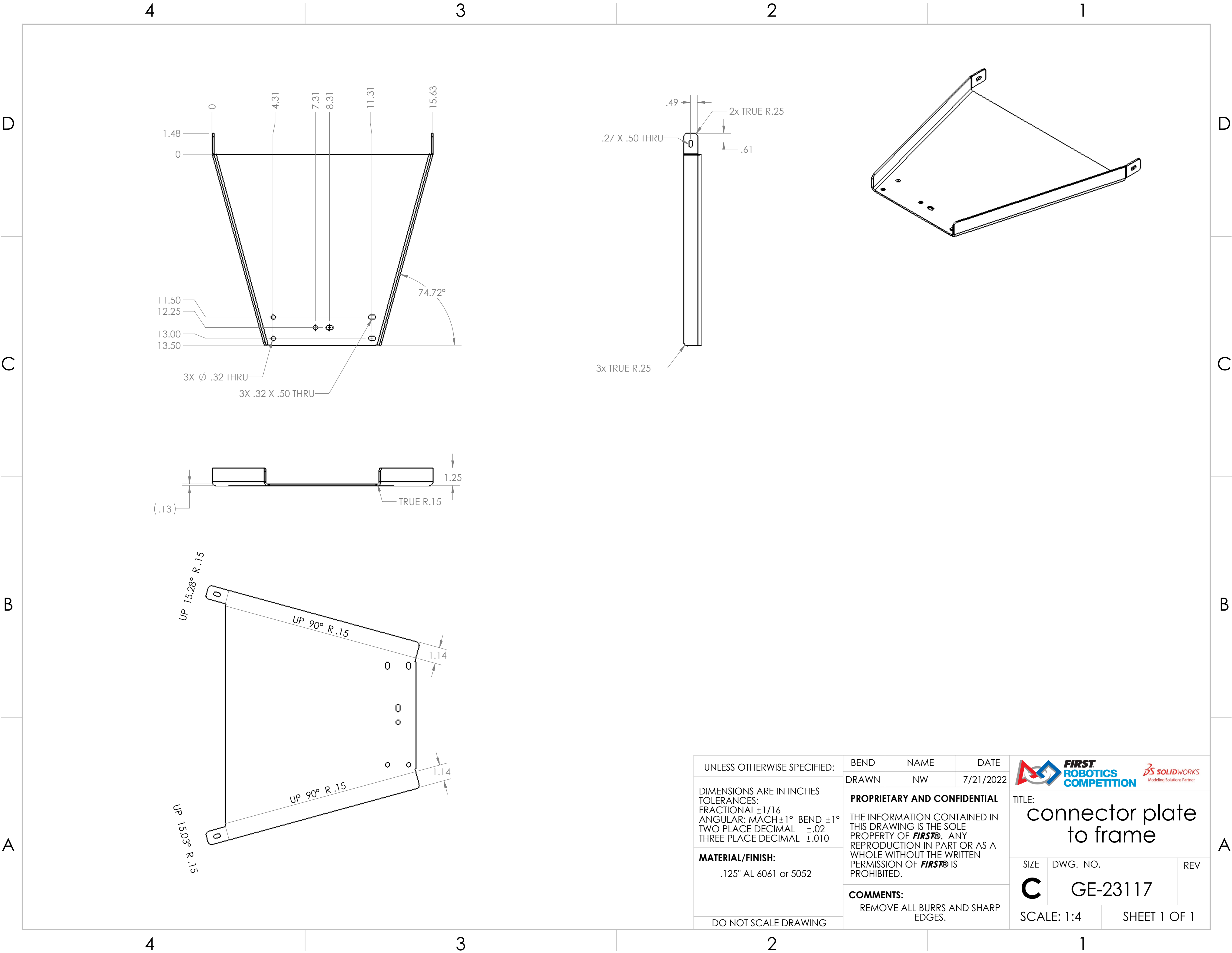


UNLESS OTHERWISE SPECIFIED:		BEND	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010		DRAWN	NW	7/21/2022
		PROPRIETARY AND CONFIDENTIAL		
		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
MATERIAL/FINISH:  .125 AL 6061 or 5052		COMMENTS:  REMOVE ALL BURRS AND SHARP EDGES.		
DO NOT SCALE DRAWING				

 		
TITLE: Grill, Vertical		
SIZE	DWG. NO.	REV
C	GE-23114-04	A
SCALE: 1:6		SHEET 1 OF 1



UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div> <div>TITLE: Grill, front connector plate</div>		
	DRAWN	DF	7/18/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23116	
	DO NOT SCALE DRAWING			SCALE: 1:1		SHEET 1 OF 1
<b>MATERIAL/FINISH:</b>  .125" AL 6061 or 5052						



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .02$   
THREE PLACE DECIMAL  $\pm .010$

**MATERIAL/FINISH:**  
.125" AL 6061 or 5052

DO NOT SCALE DRAWING

BEND	NAME	DATE
DRAWN	NW	7/21/2022

**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.

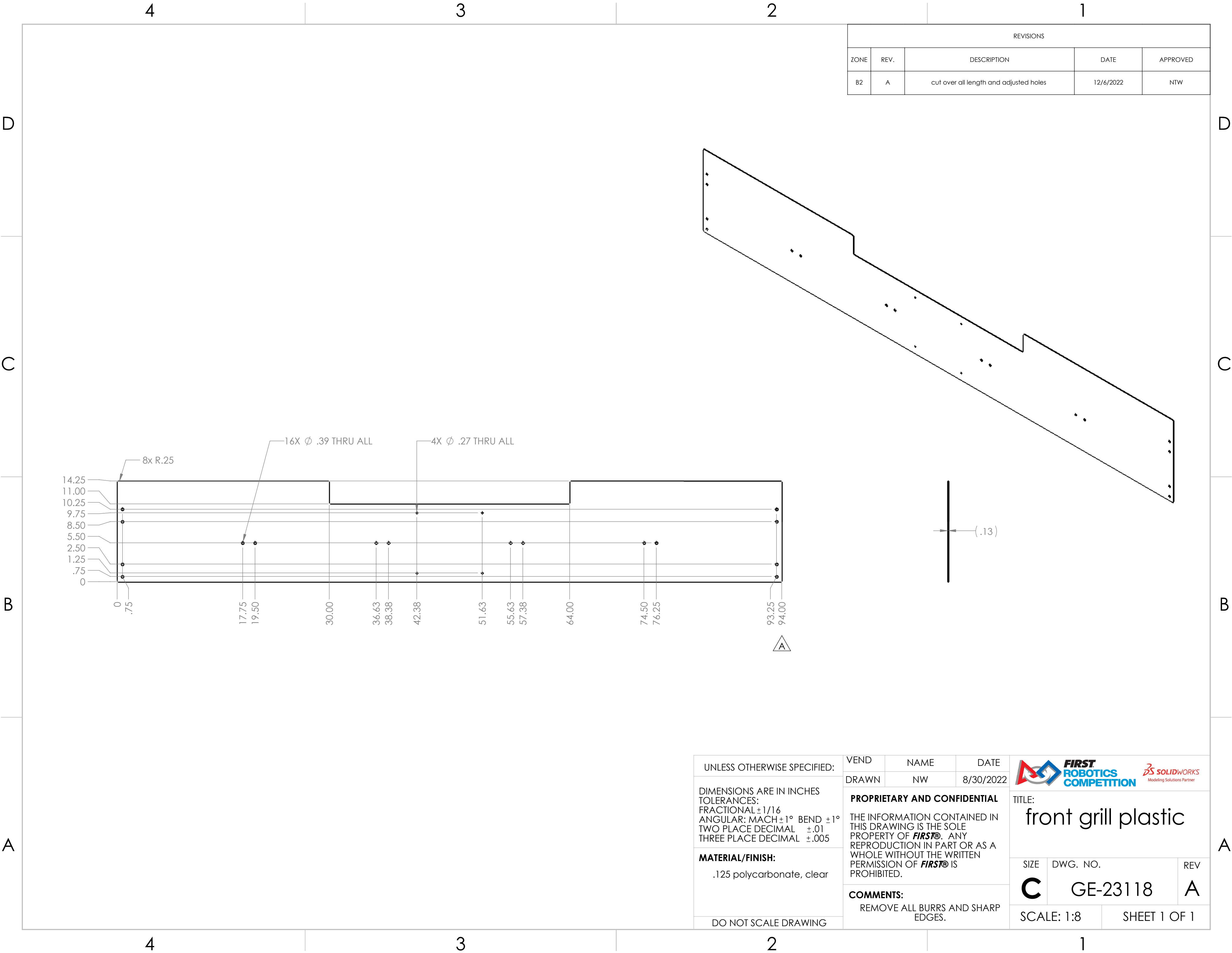
**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.





TITLE:  
**connector plate to frame**

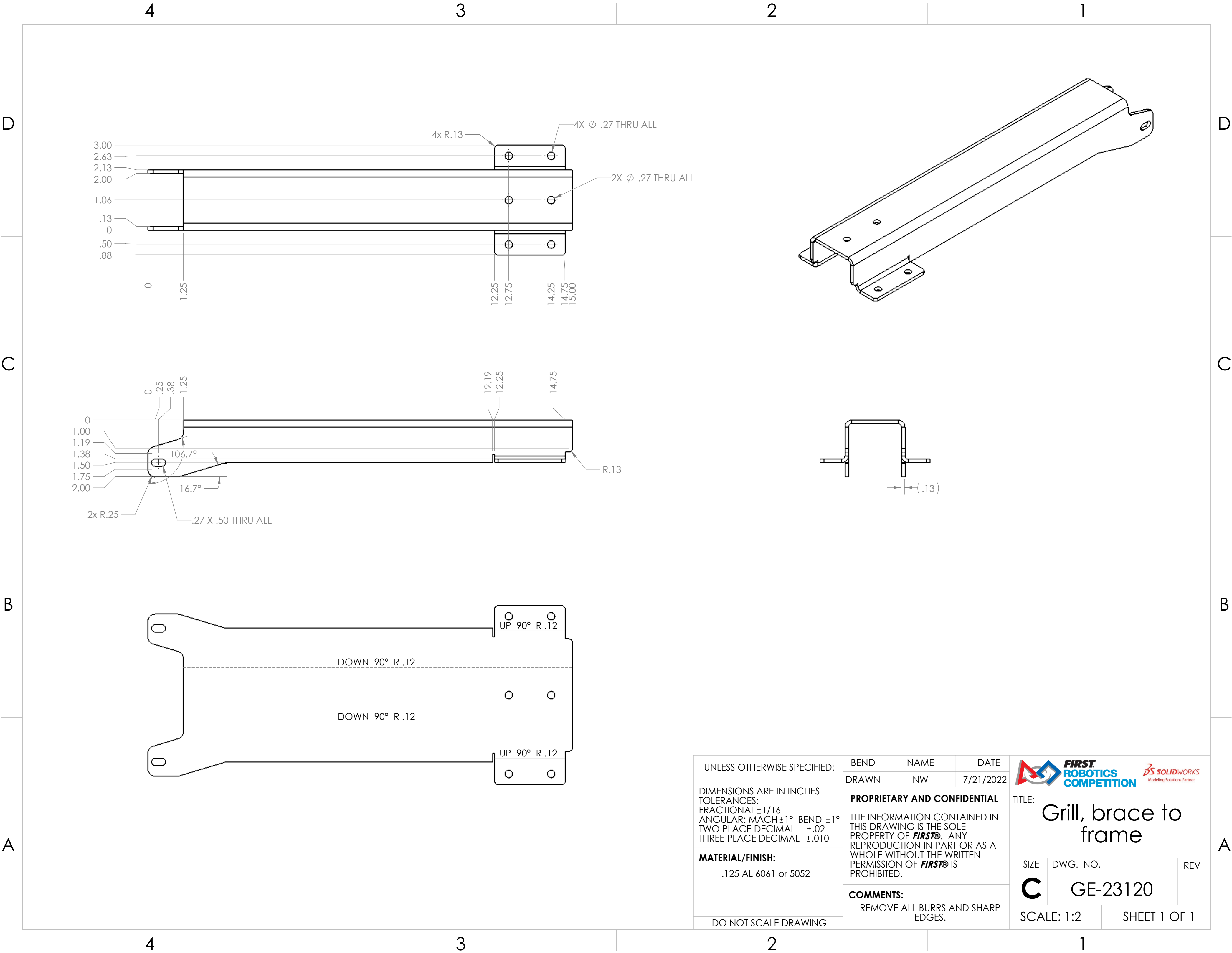
SIZE	DWG. NO.	REV
<b>C</b>	GE-23117	



SCALE: 1:4	SHEET 1 OF 1
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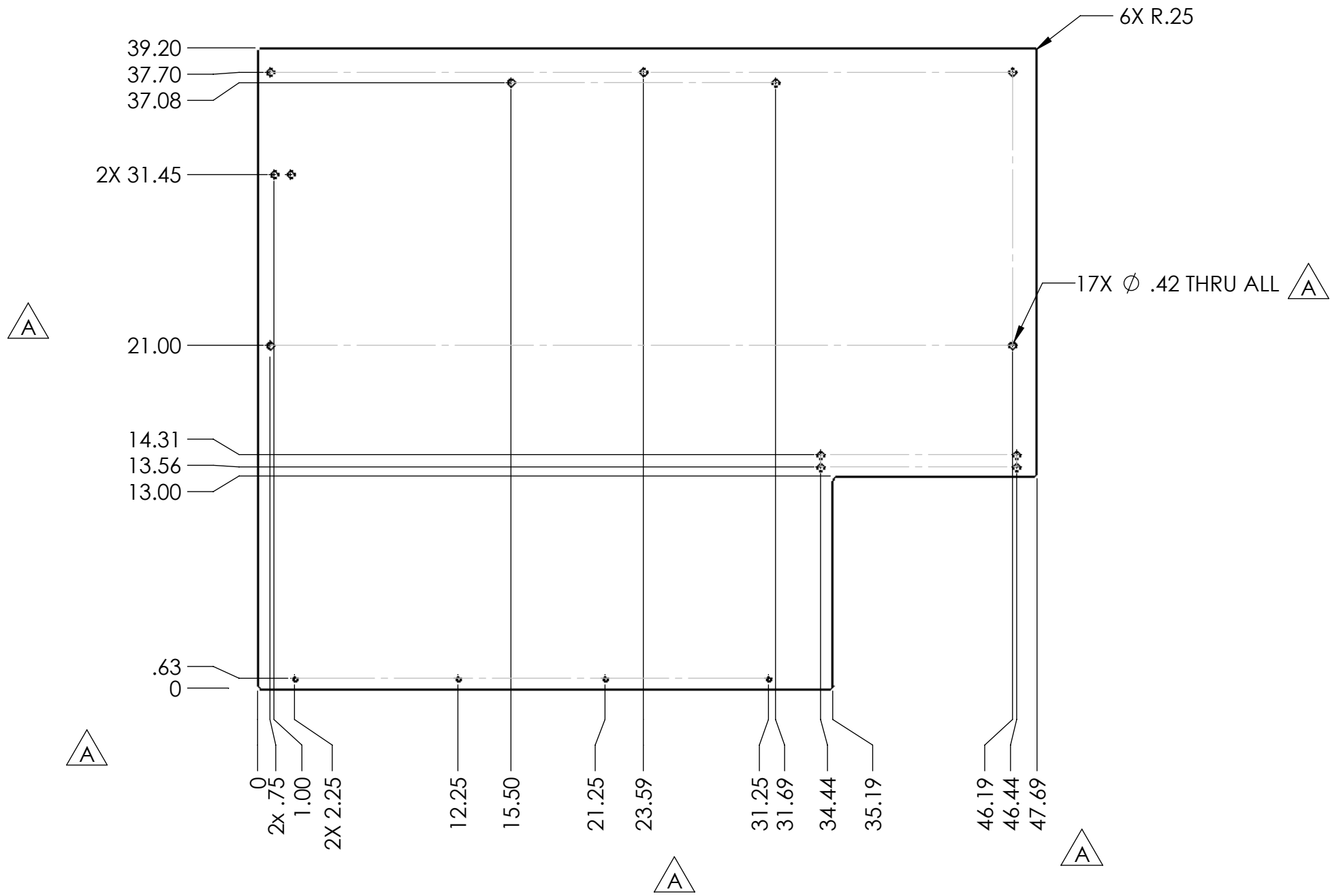
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2	A	cut over all length and adjusted holes	12/6/2022	NTW

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  .125 polycarbonate, clear  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: front grill plastic</div>		
	DRAWN	NW	8/30/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23118	<b>A</b>
			SCALE: 1:8		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 $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>  .125 AL 6061 or 5052  DO NOT SCALE DRAWING	BEND	NAME	DATE	<div></div> <div>TITLE: Grill, brace to frame</div>	
	DRAWN	NW	7/21/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23120
SCALE: 1:2		SHEET 1 OF 1			

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, B4, C2, C4	A	Trimmed 2 sides and extended 1, all Dims adjusted as a result. Simplified Hole callouts	10/20/2022	JO



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

**MATERIAL/FINISH:**  
0.25" polycarbonate, clear

DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	NW	7/13/2022

**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:  
**Loading station  
top plastic**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23121	<b>A</b>

SCALE: 1:8 SHEET 1 OF 1



4

3

2

1

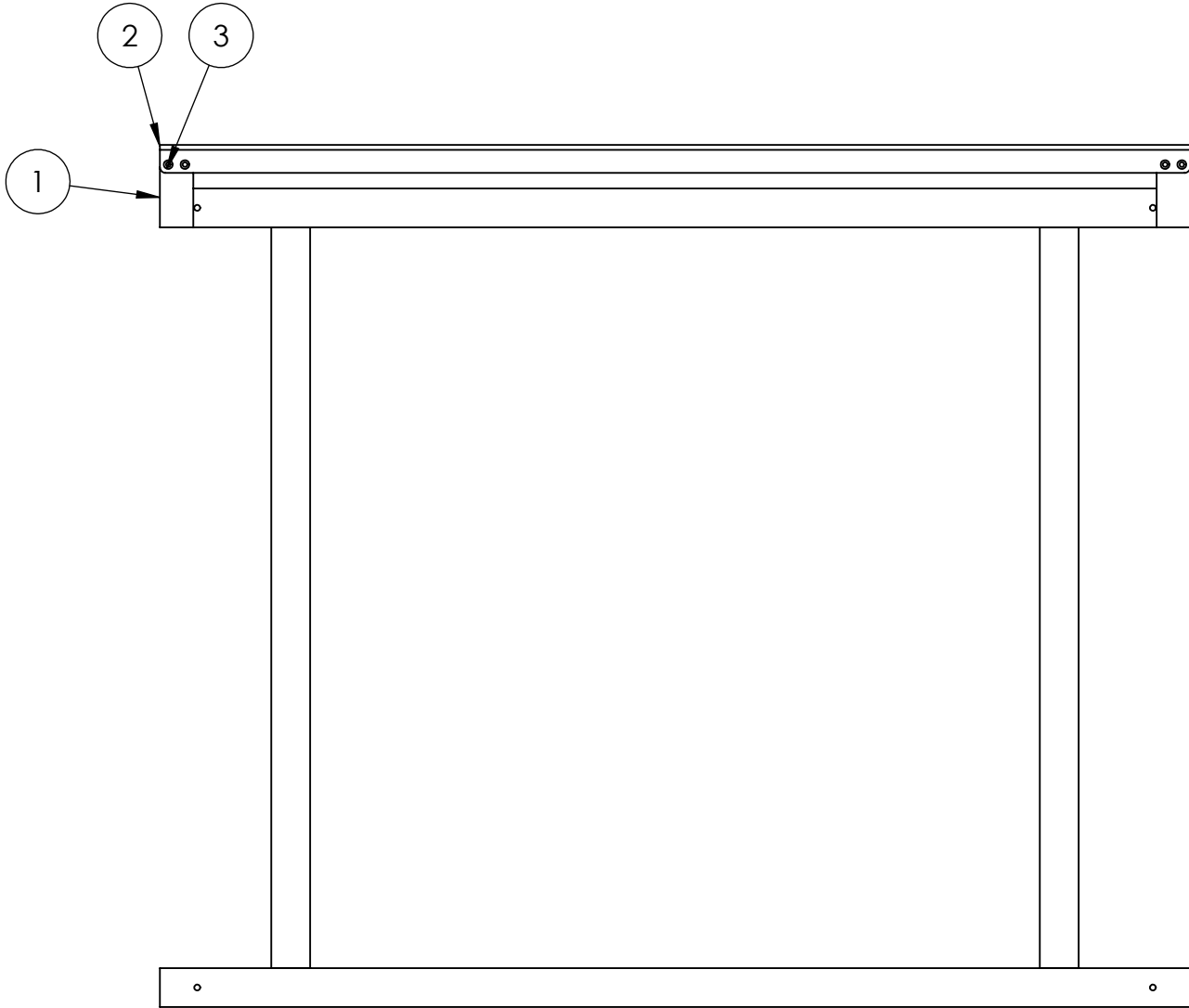
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23101	HP lower frame (welded)	1
2	GE-23102	slide retainer	1
3	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	8

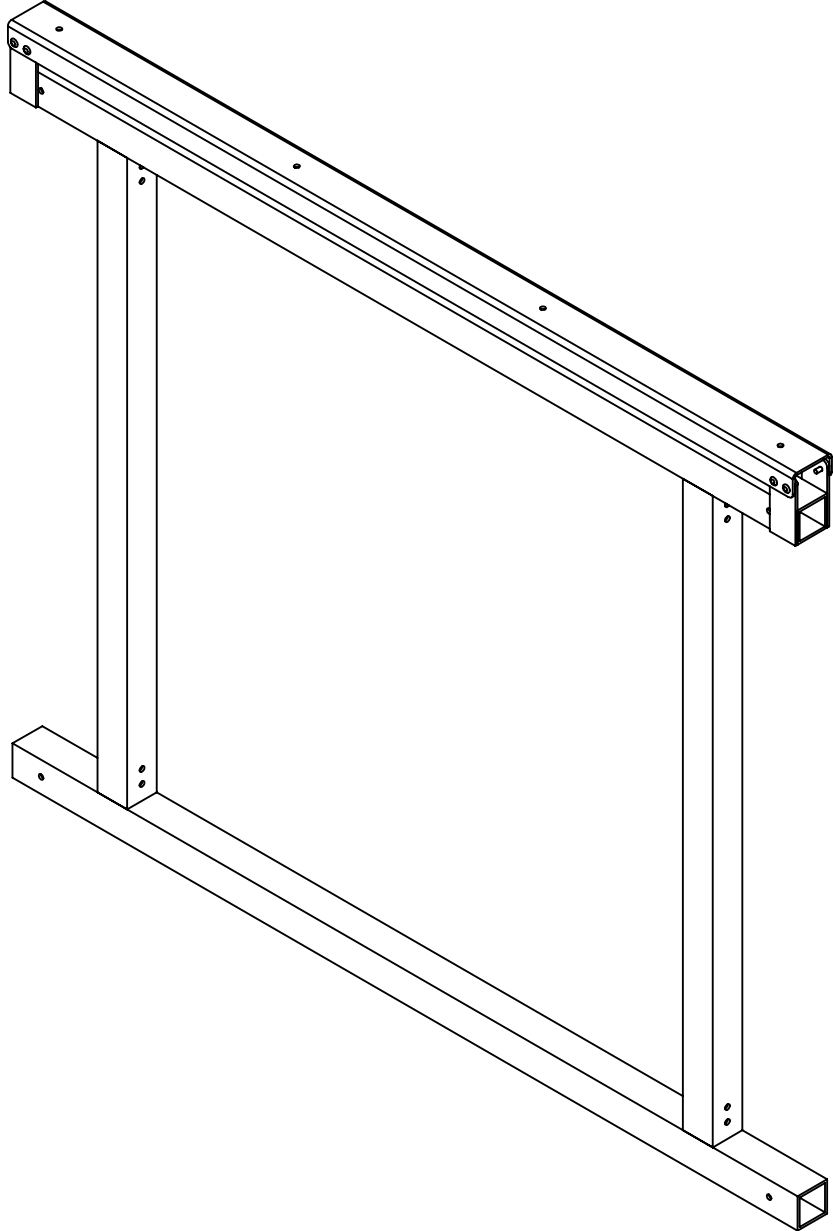
D

C



B

A





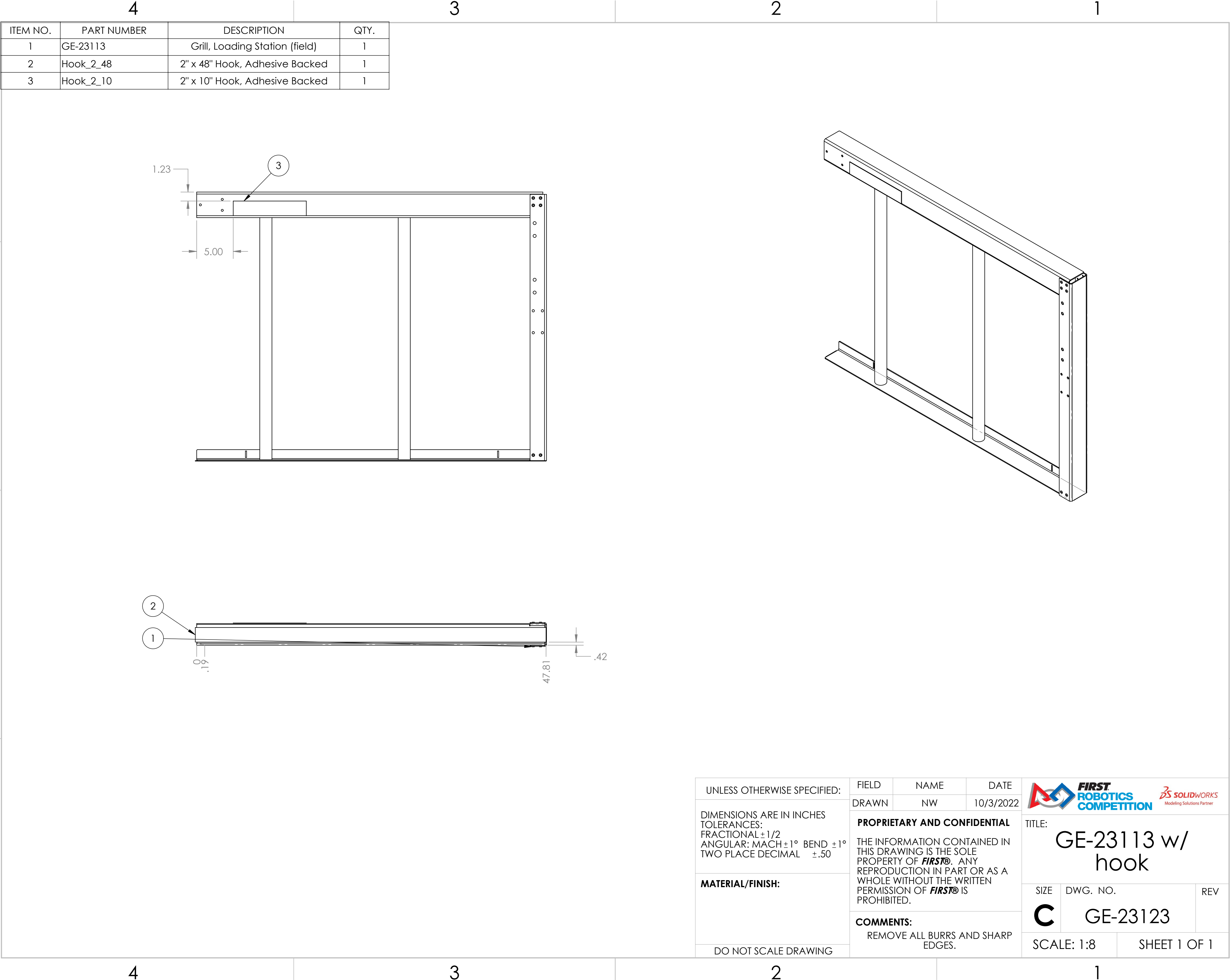
UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	DRAWN	NW	10/3/2022
MATERIAL/FINISH:	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
DO NOT SCALE DRAWING	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.		



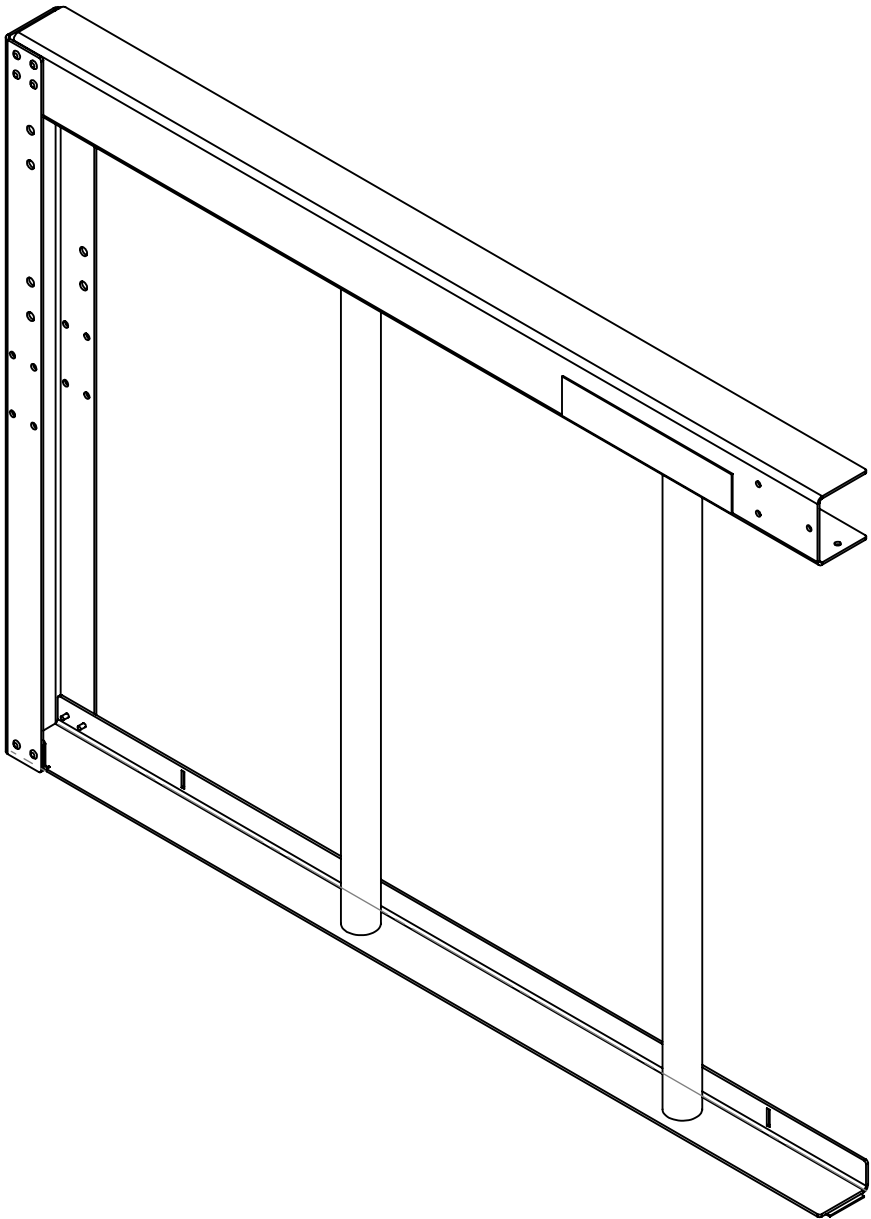
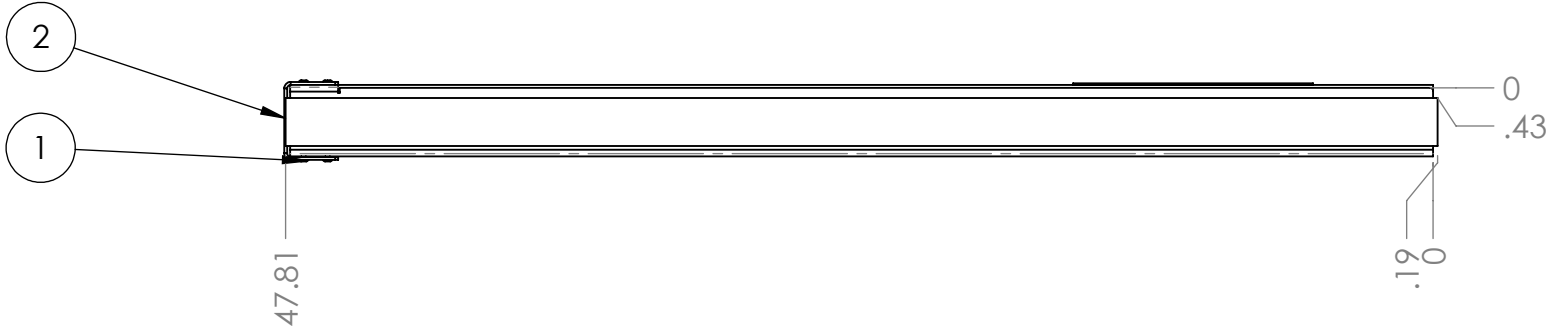
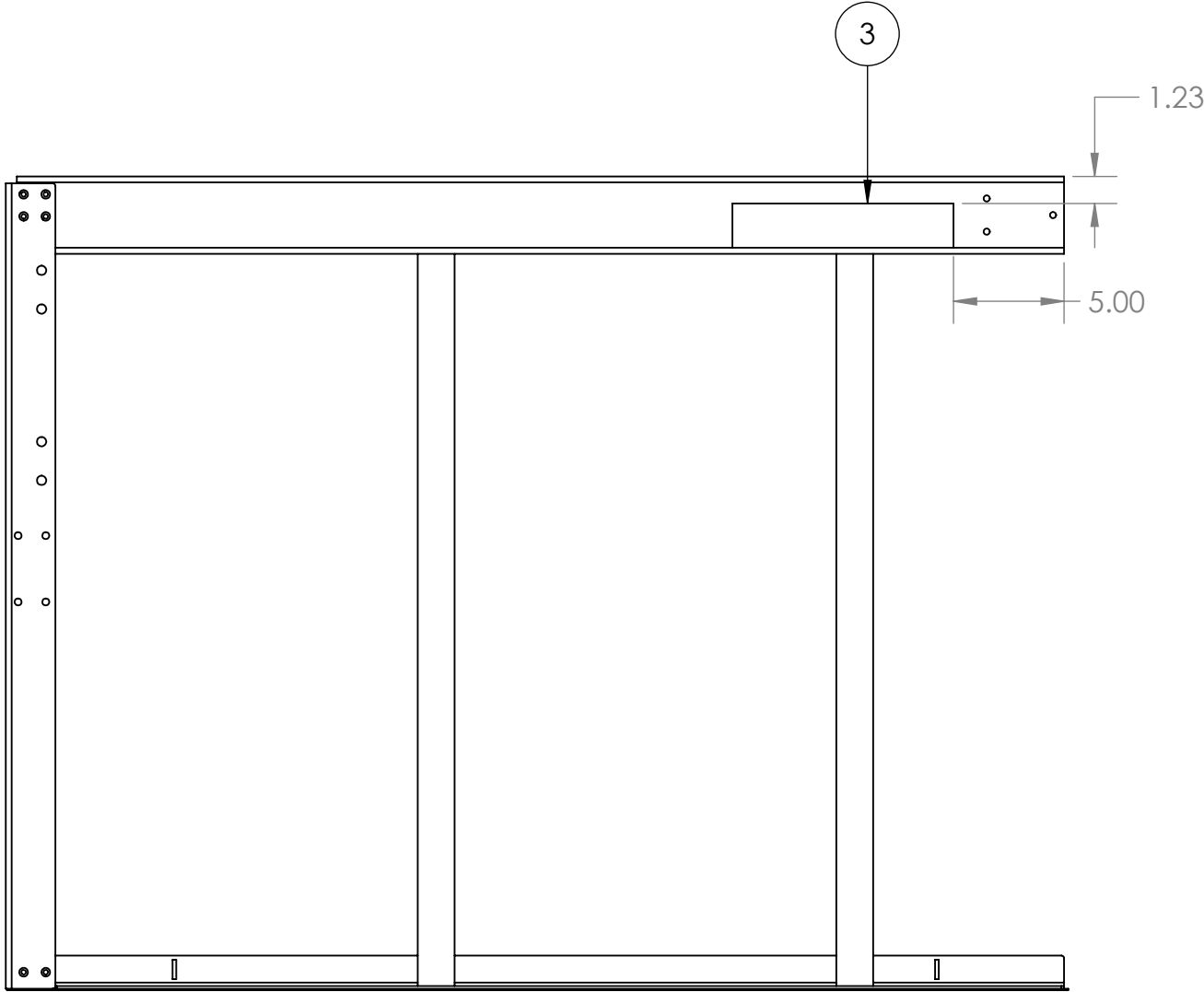
TITLE:  
GE-23101 and GE-23102 riveted



SIZE	DWG. NO.	REV
C	GE-23122	

SCALE: 1:8	SHEET 1 OF 1
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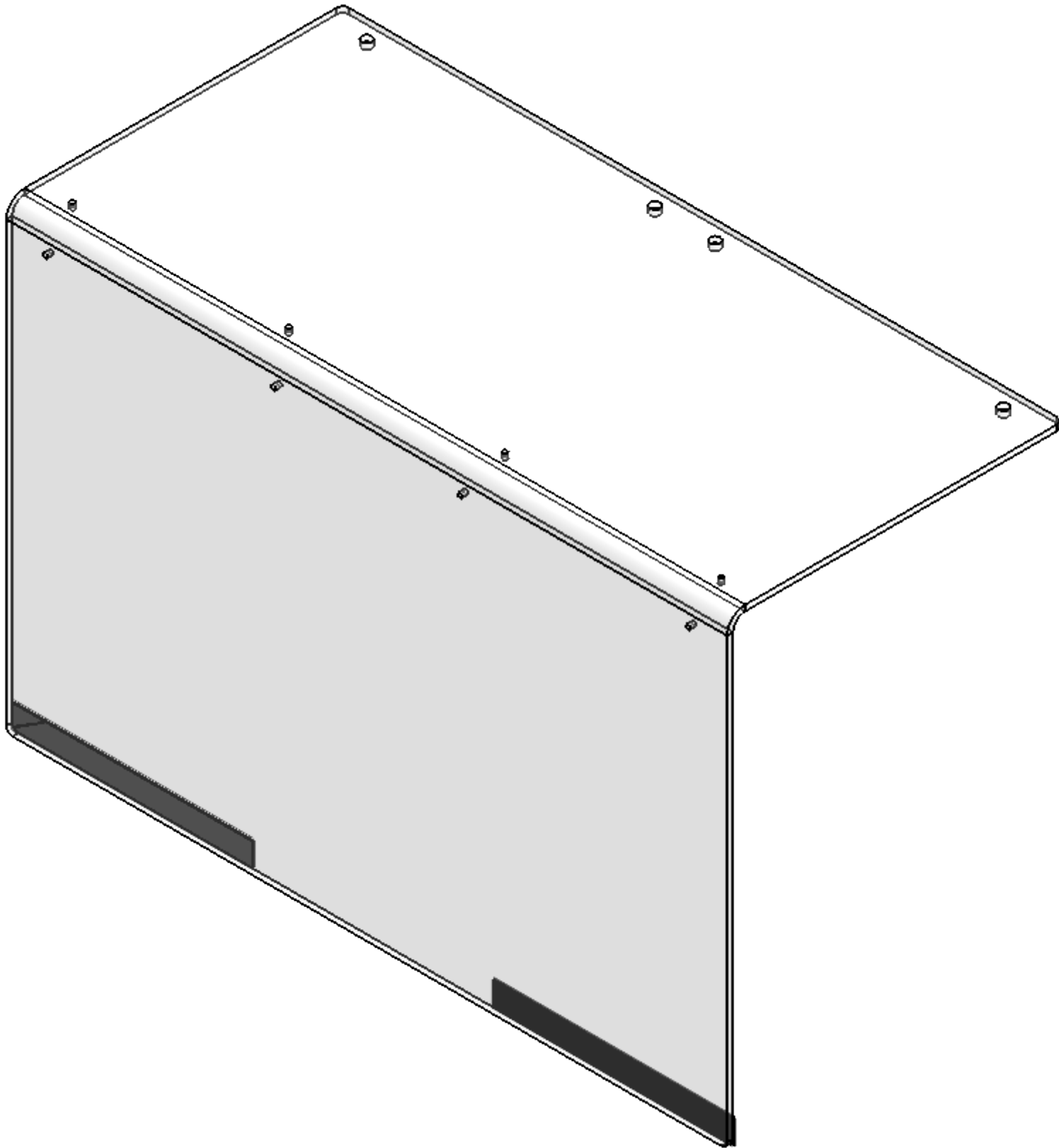




ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23114	Grill Outer, Loading Station	1
2	Hook_2_48	2" x 48" Hook, Adhesive Backed	1
3	Hook_2_10	2" x 10" Hook, Adhesive Backed	1

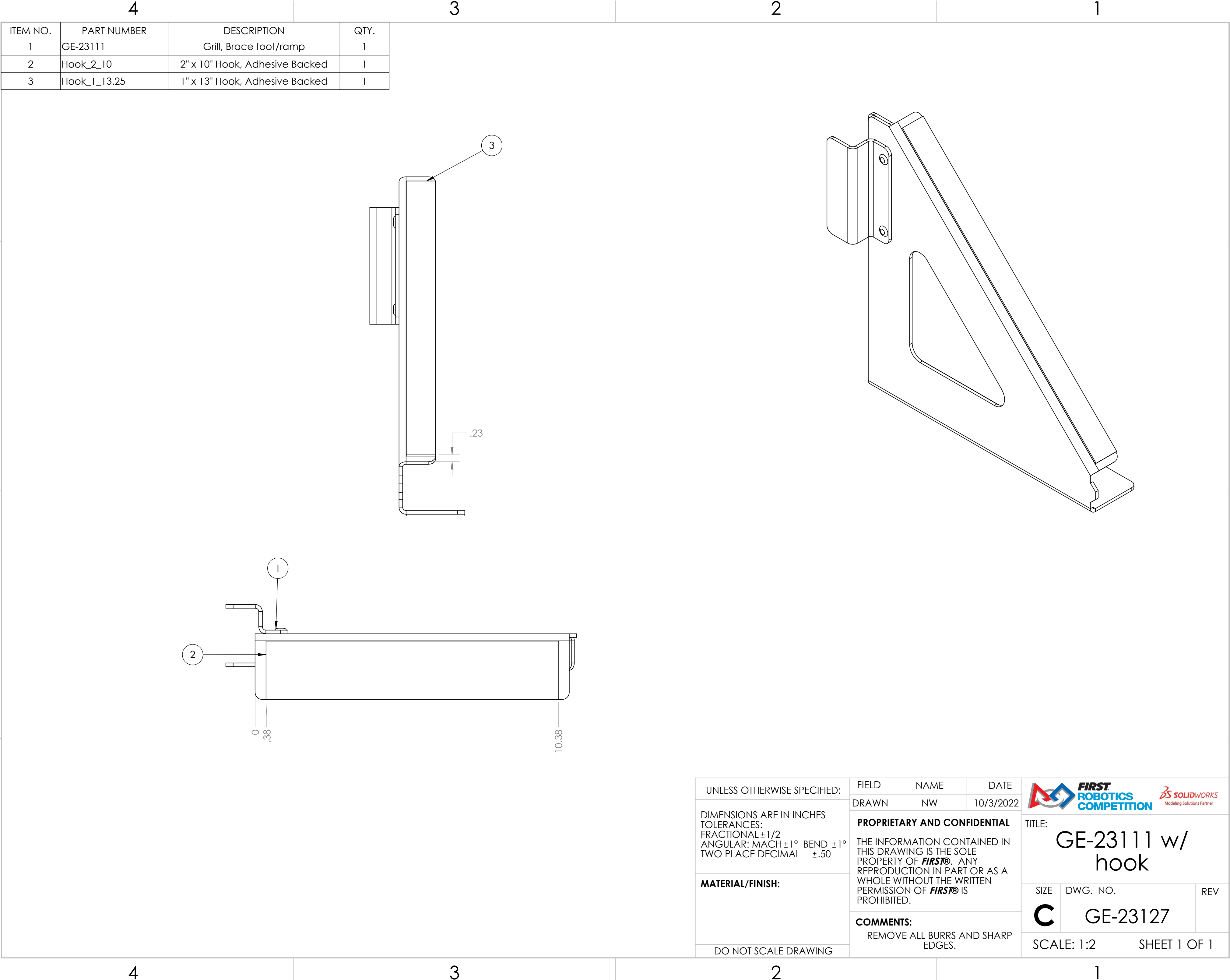


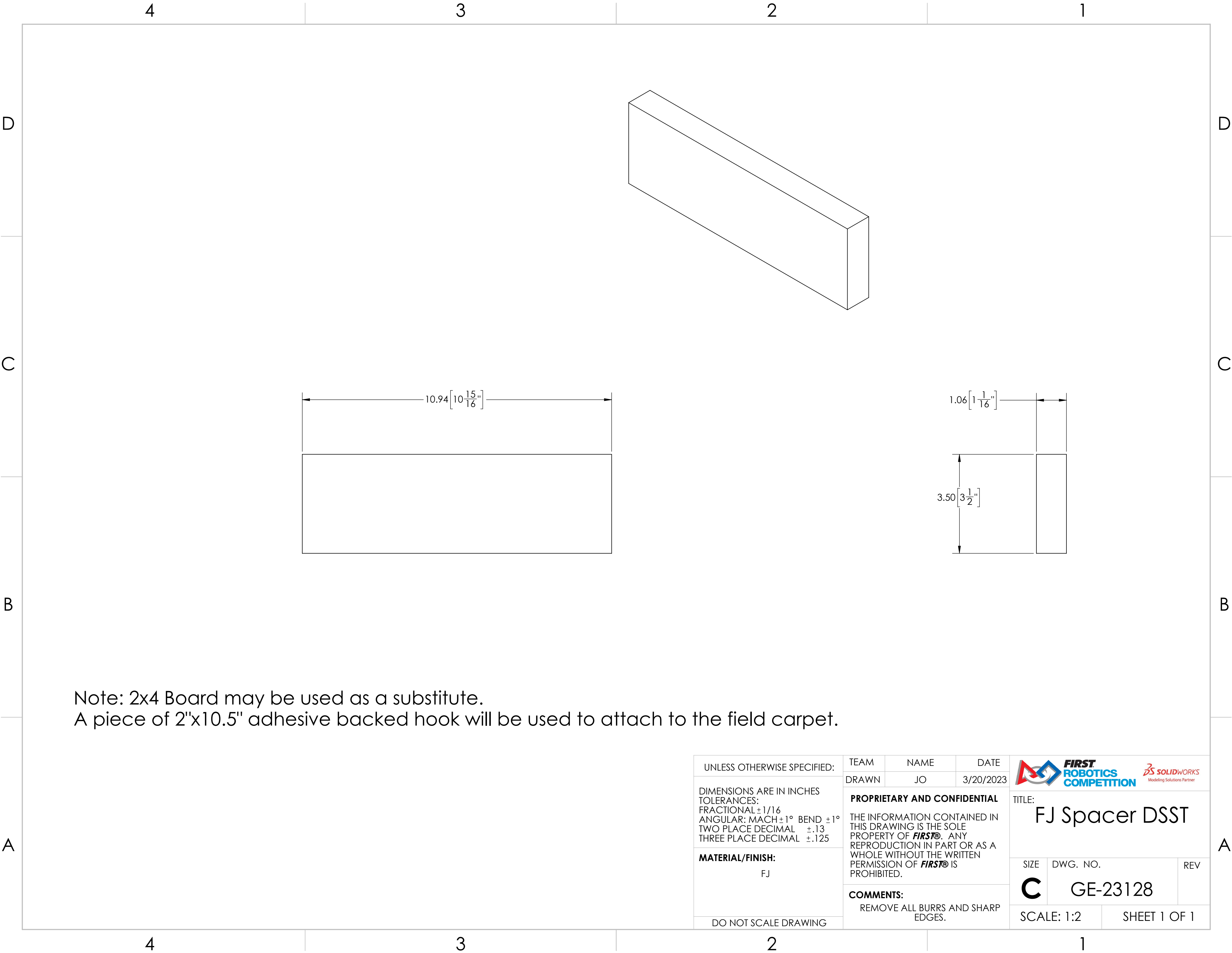
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b>     DO NOT SCALE DRAWING	FIELD	NAME	DATE	<div></div> <div>TITLE: <b>GE-23114 w/ hook</b></div> <div><div>SIZE</div><div>DWG. NO.</div><div>REV</div></div> <div><div>SCALE: 1:8</div><div>SHEET 1 OF 1</div></div>	
	DRAWN	NW	10/3/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23108	loading station front safety	1
2	Loop_1_10	3M 1" adhesive backed loop	2





UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div><div>FIRST ROBOTICS COMPETITION</div><div>SOLIDWORKS Modeling Solutions Partner</div></div>		
	DRAWN	NW	10/3/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  GE-23108 w/ hook		
<b>MATERIAL/FINISH:</b>	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23126	
DO NOT SCALE DRAWING				SCALE: 1:4		SHEET 1 OF 1

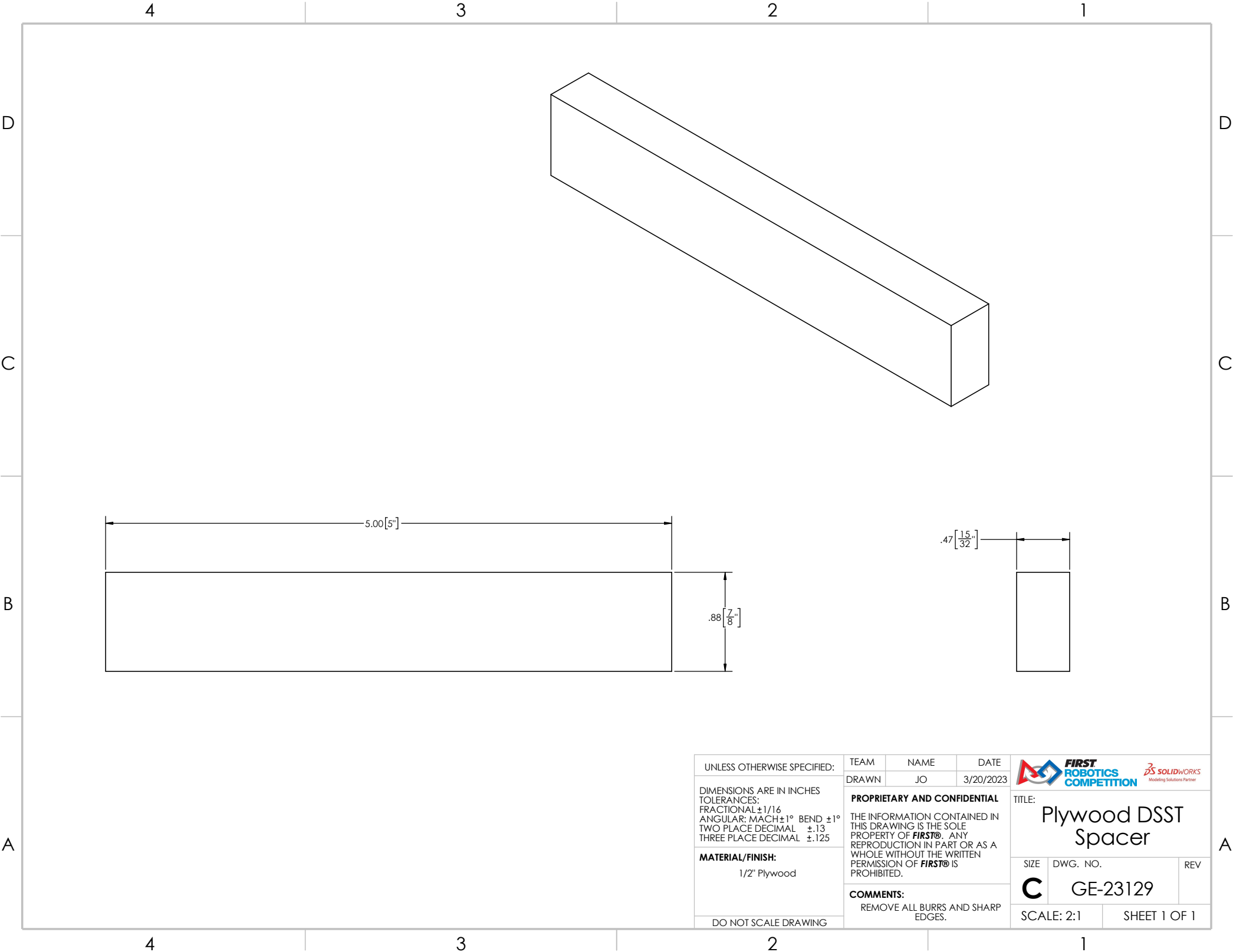






Note: 2x4 Board may be used as a substitute.  
A piece of 2"x10.5" adhesive backed hook will be used to attach to the field carpet.

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 $\pm .125$  <b>MATERIAL/FINISH:</b> FJ  DO NOT SCALE DRAWING	TEAM	NAME	DATE	<div></div> <div>TITLE: FJ Spacer DSST</div>		
	DRAWN	JO	3/20/2023			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23128	
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 $\pm .125$  <b>MATERIAL/FINISH:</b>  1/2" Plywood  DO NOT SCALE DRAWING	TEAM	NAME	DATE	  TITLE: <b>Plywood DSST Spacer</b>
	DRAWN	JO	3/20/2023	
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST</b> ®. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST</b> ® IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			
SIZE		DWG. NO.		REV
<b>C</b>		GE-23129		
SCALE: 2:1			SHEET 1 OF 1	



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23210	Blue Fence	1
2	GE-23214	Chute Guard	1
3	GE-23235	Extended Pin	1
4	GE-23240	Blue Chute	1
5	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	7
6	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	2

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b>     <b>DO NOT SCALE DRAWING</b>	FIELD	NAME	DATE	 	
	DRAWN	NE	12/21/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>			TITLE:	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST</b> IS PROHIBITED.			Blue Single Substation	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. GE-23200
		SCALE: 1:10		SHEET 1 OF 4	
				REV	



D

C

B

A



D

C

B

A

ATTACH 1 TO 4 WITH 7 OF 5 AND 2 OF 6

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	DRAWN	NE	12/21/2022	TITLE:  Blue Single Substation	
MATERIAL/FINISH:	PROPRIETARY AND CONFIDENTIAL  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	COMMENTS:  REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23200
DO NOT SCALE DRAWING				SCALE: 1:12	SHEET 2 OF 4

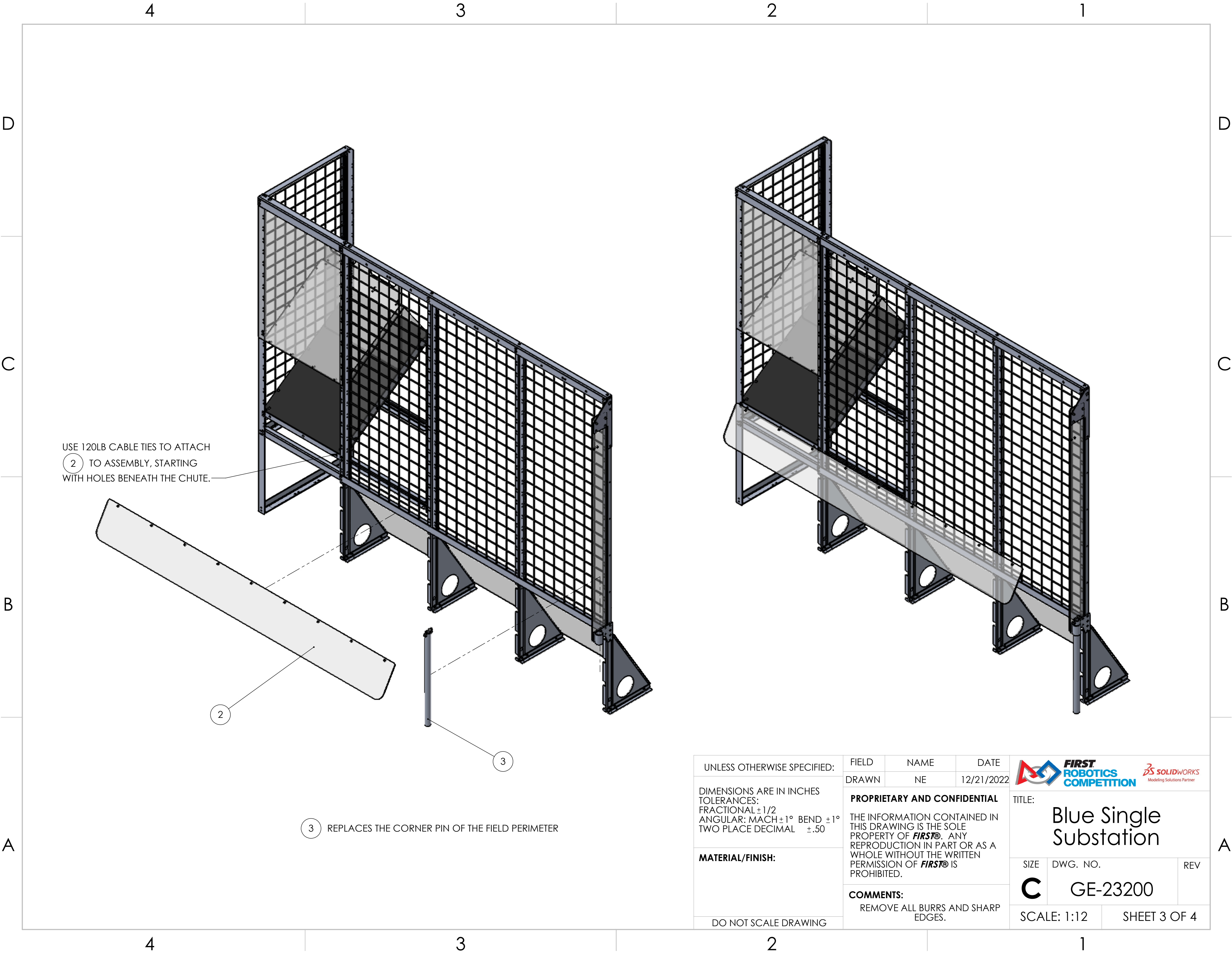
4

3

2



1

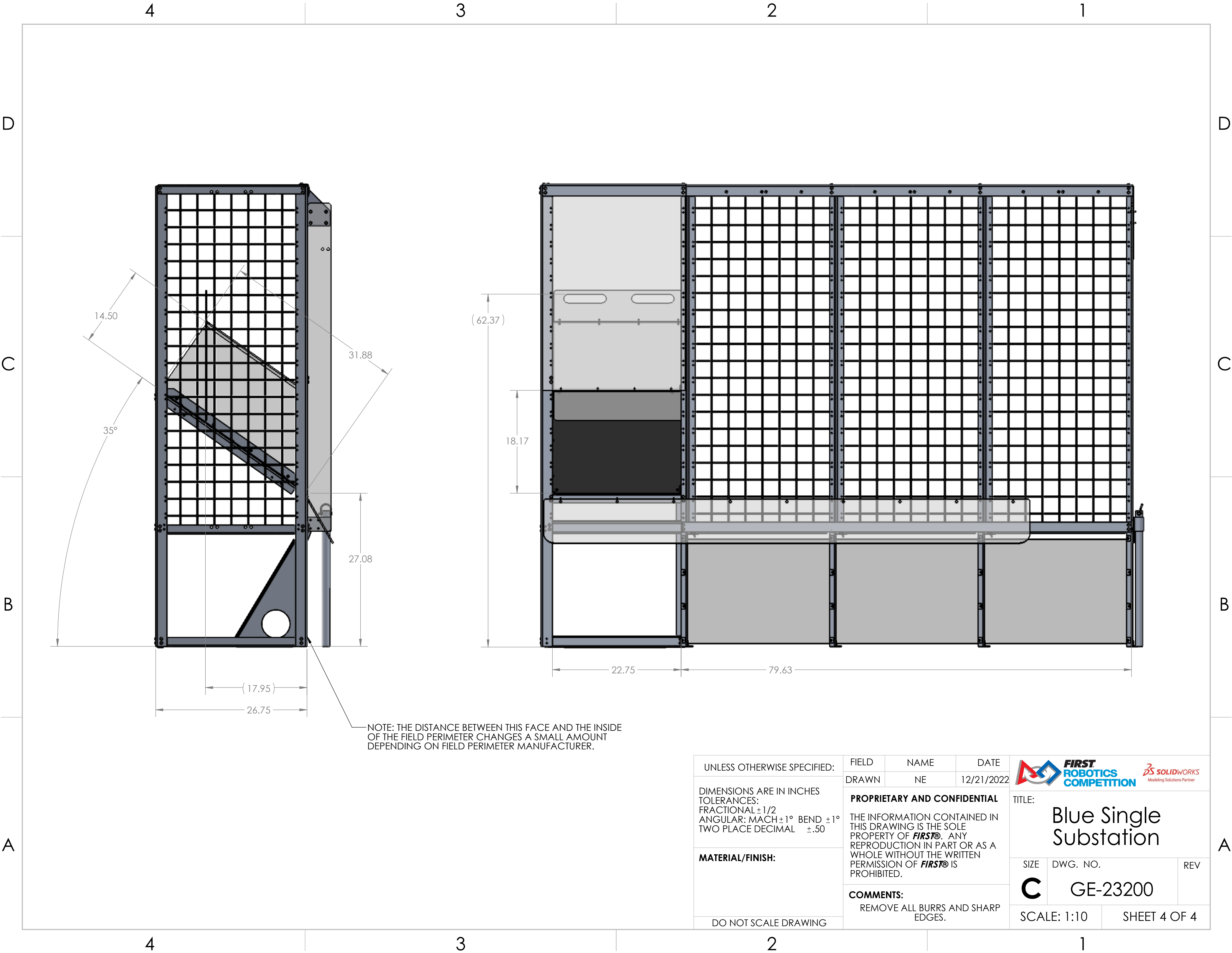






USE 120LB CABLE TIES TO ATTACH  
2 TO ASSEMBLY, STARTING  
WITH HOLES BENEATH THE CHUTE.

3 REPLACES THE CORNER PIN OF THE FIELD PERIMETER

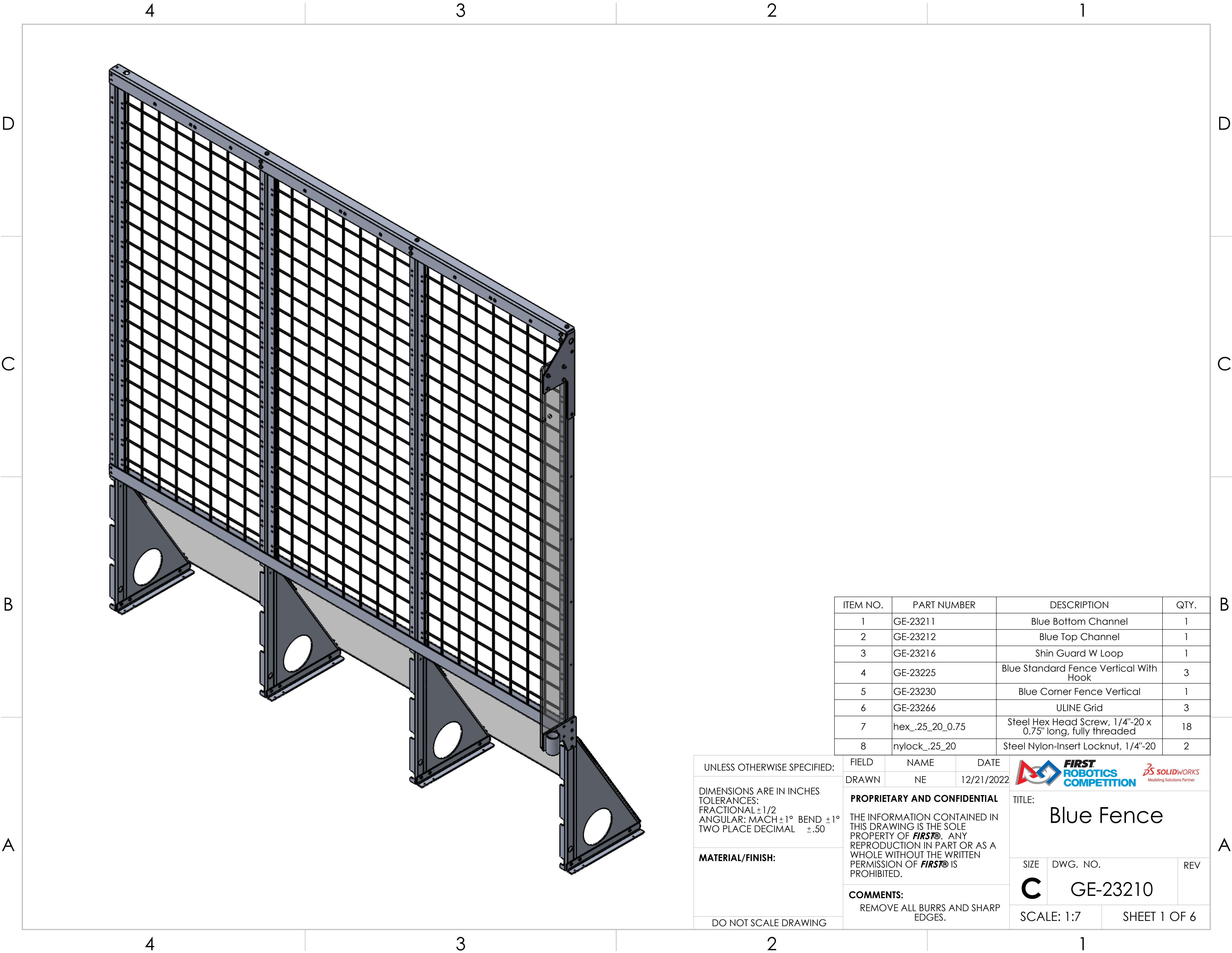
UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	DRAWN	NE	12/21/2022	TITLE:	
	PROPRIETARY AND CONFIDENTIAL			Blue Single Substation	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.
DO NOT SCALE DRAWING	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23200
				SCALE: 1:12	REV
				SHEET 3 OF 4	



NOTE: THE DISTANCE BETWEEN THIS FACE AND THE INSIDE OF THE FIELD PERIMETER CHANGES A SMALL AMOUNT DEPENDING ON FIELD PERIMETER MANUFACTURER.

UNLESS OTHERWISE SPECIFIED:		FIELD	NAME	DATE	<div></div>		
		DRAWN	NE	12/21/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Blue Single Substation		
<b>MATERIAL/FINISH:</b>		<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
					C	GE-23200	
DO NOT SCALE DRAWING					SCALE: 1:10		SHEET 4 OF 4





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23211	Blue Bottom Channel	1
2	GE-23212	Blue Top Channel	1
3	GE-23216	Shin Guard W Loop	1
4	GE-23225	Blue Standard Fence Vertical With Hook	3
5	GE-23230	Blue Corner Fence Vertical	1
6	GE-23266	ULINE Grid	3
7	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	18
8	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	2

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	12/21/2022

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.

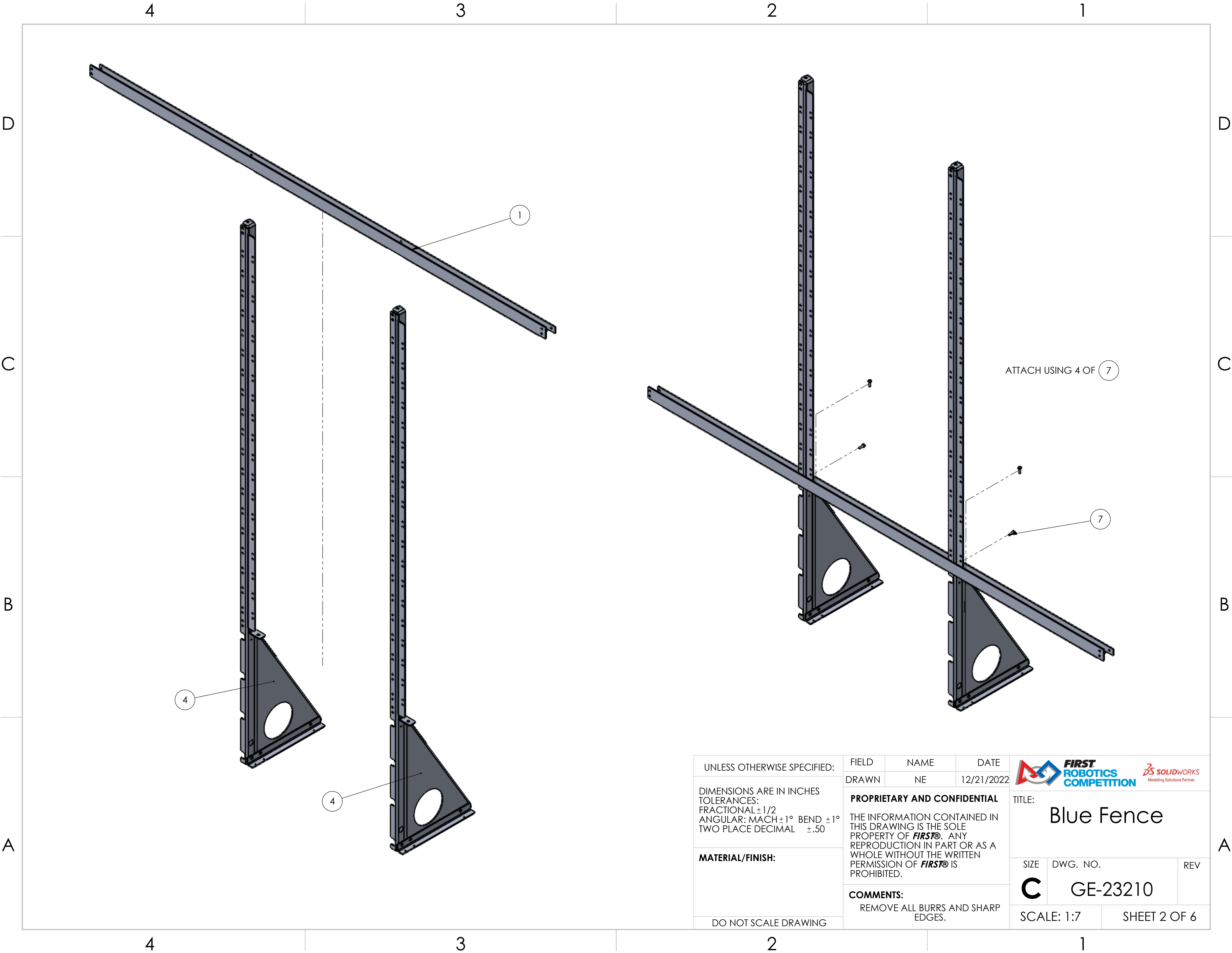




TITLE:  
Blue Fence

SIZE	DWG. NO.	REV
C	GE-23210	

SCALE: 1:7 SHEET 1 OF 6









UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div>		
	DRAWN	NE	12/21/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Blue Fence		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
C				GE-23210		
MATERIAL/FINISH:				SCALE: 1:7		SHEET 2 OF 6
DO NOT SCALE DRAWING						



ATTACH USING 3 OF (7) AND 2 OF (8)

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div> <div>TITLE: <h1>Blue Fence</h1></div>	
	DRAWN	NE	12/21/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23210
SCALE: 1:8				SHEET 3 OF 6	
MATERIAL/FINISH:					
DO NOT SCALE DRAWING					



UNLESS OTHERWISE SPECIFIED:		FIELD	NAME	DATE	<div><div></div><div>TITLE: <h1>Blue Fence</h1></div></div>							
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50		DRAWN	NE	12/21/2022								
MATERIAL/FINISH:		PROPRIETARY AND CONFIDENTIAL			SIZE		DWG. NO.		REV			
		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.										
DO NOT SCALE DRAWING		COMMENTS:			C		GE-23210		SCALE: 1:9		SHEET 4 OF 6	
		REMOVE ALL BURRS AND SHARP EDGES.										



4

3

2

1

D

D

C

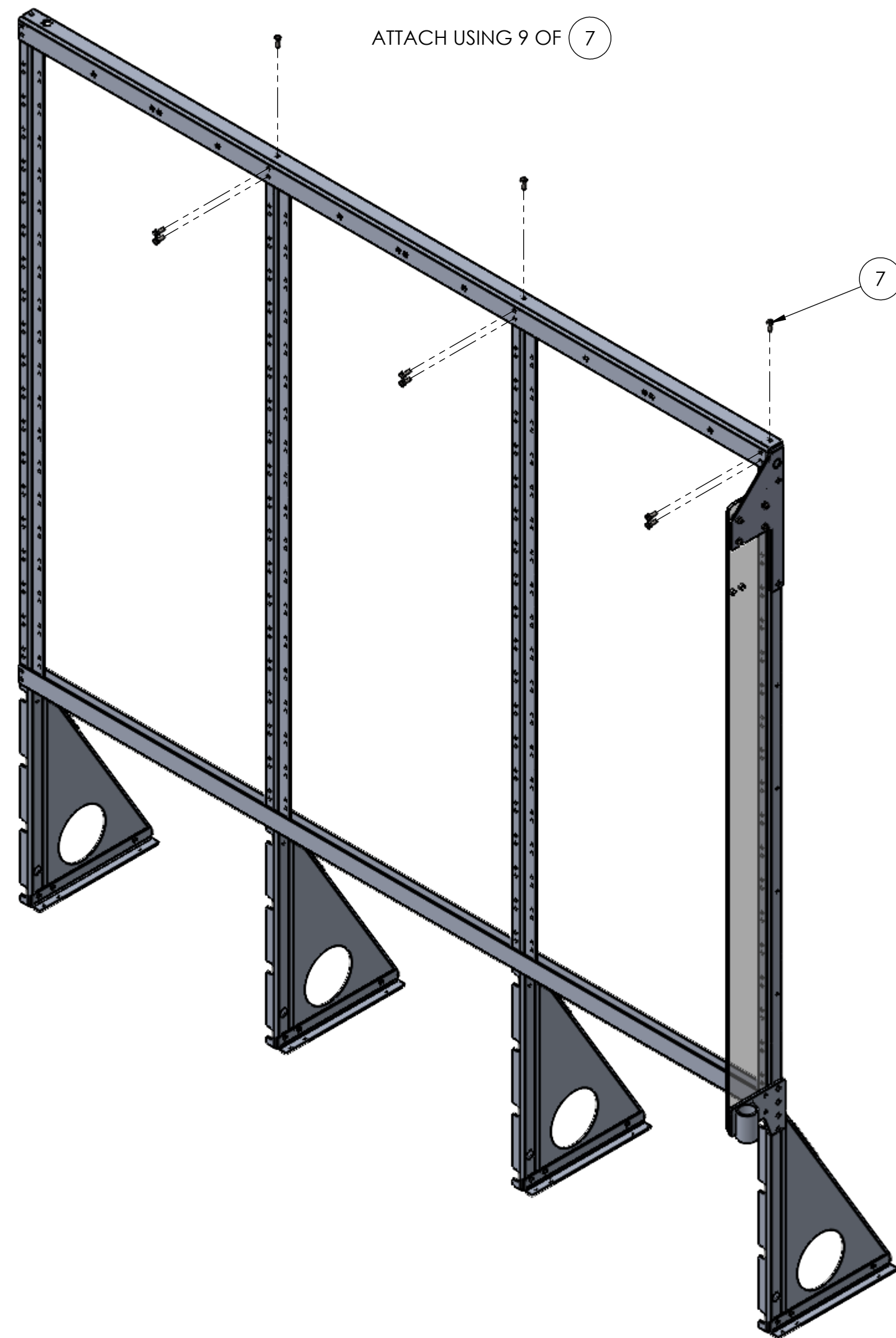
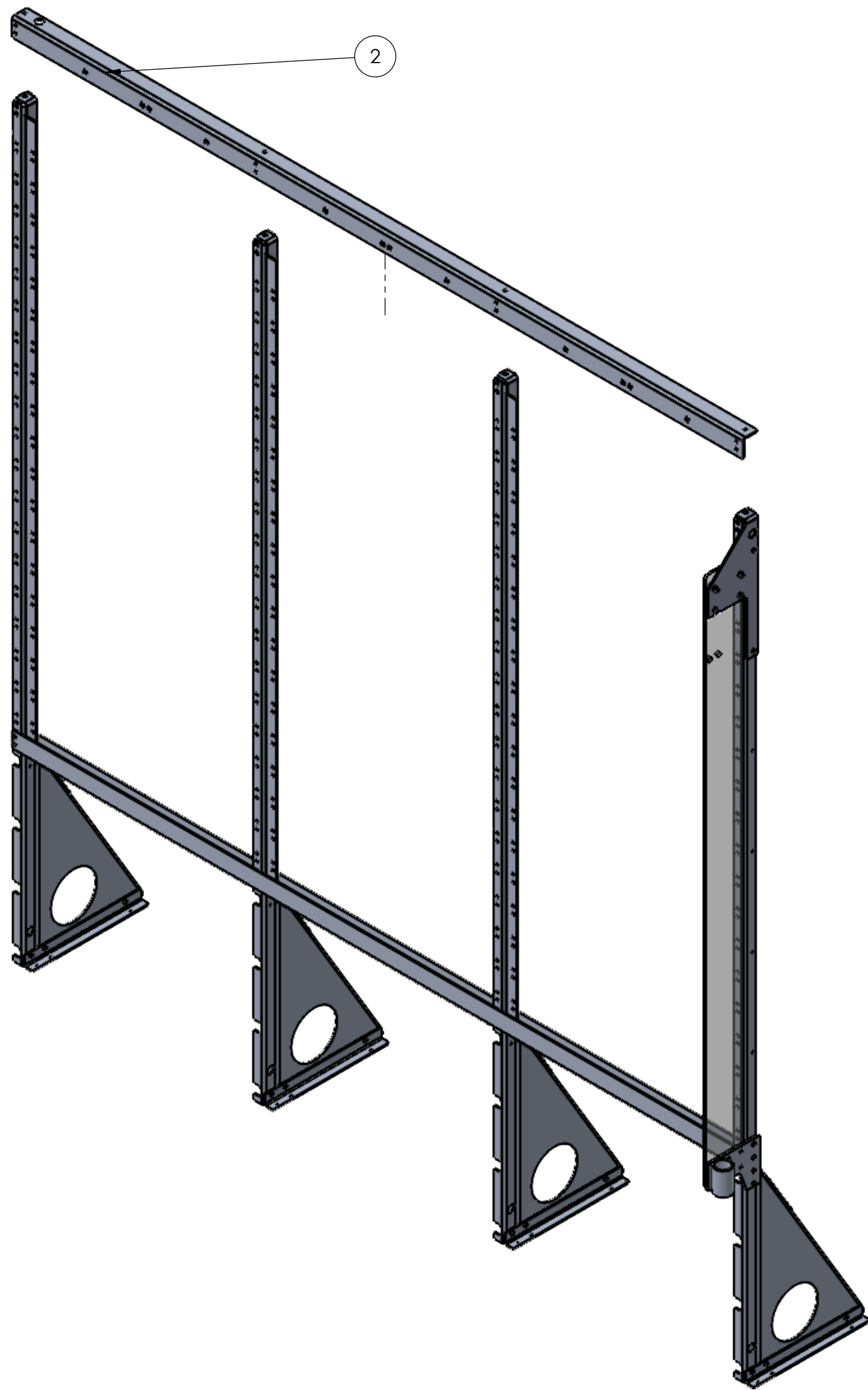
C



B

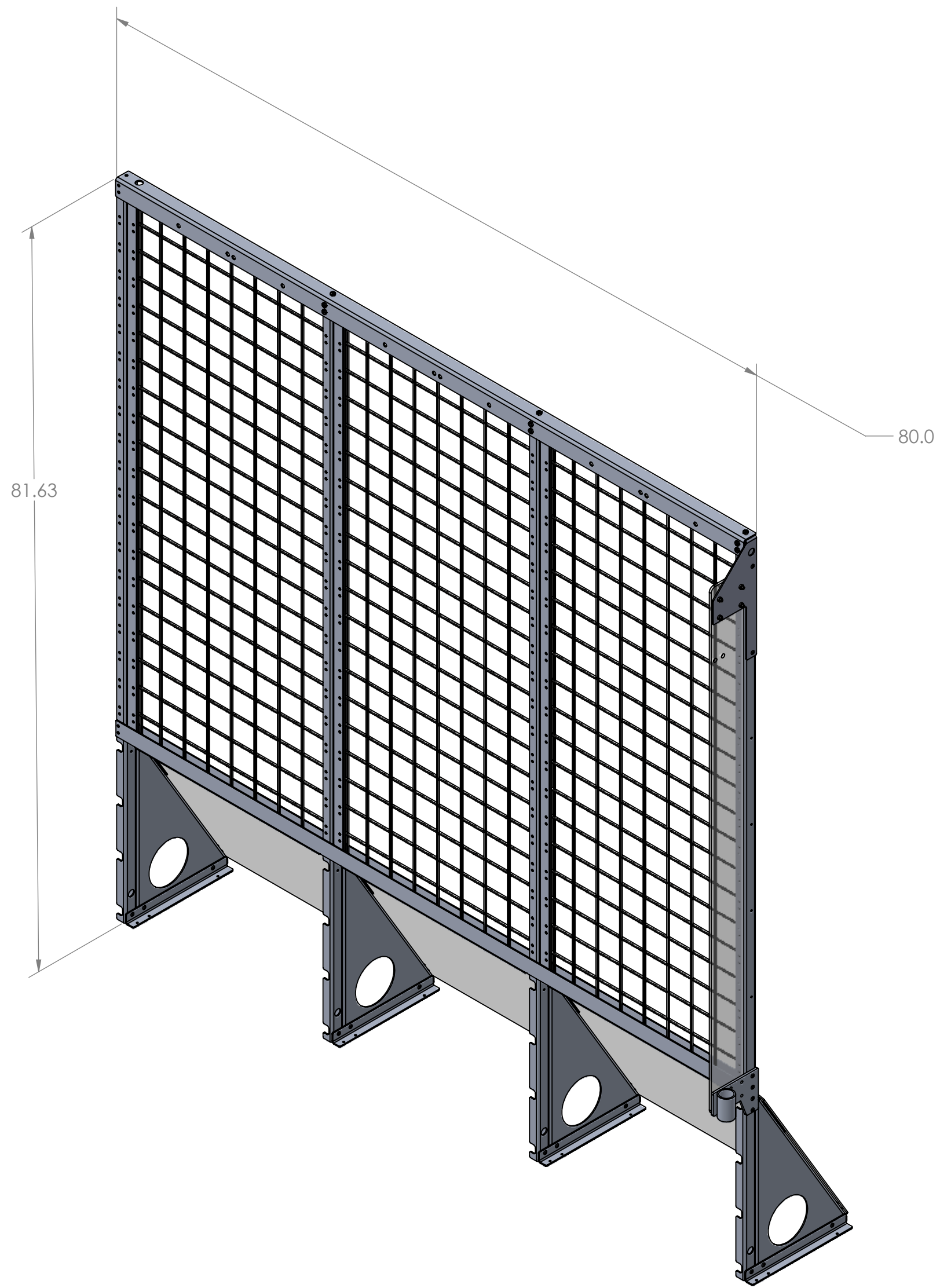
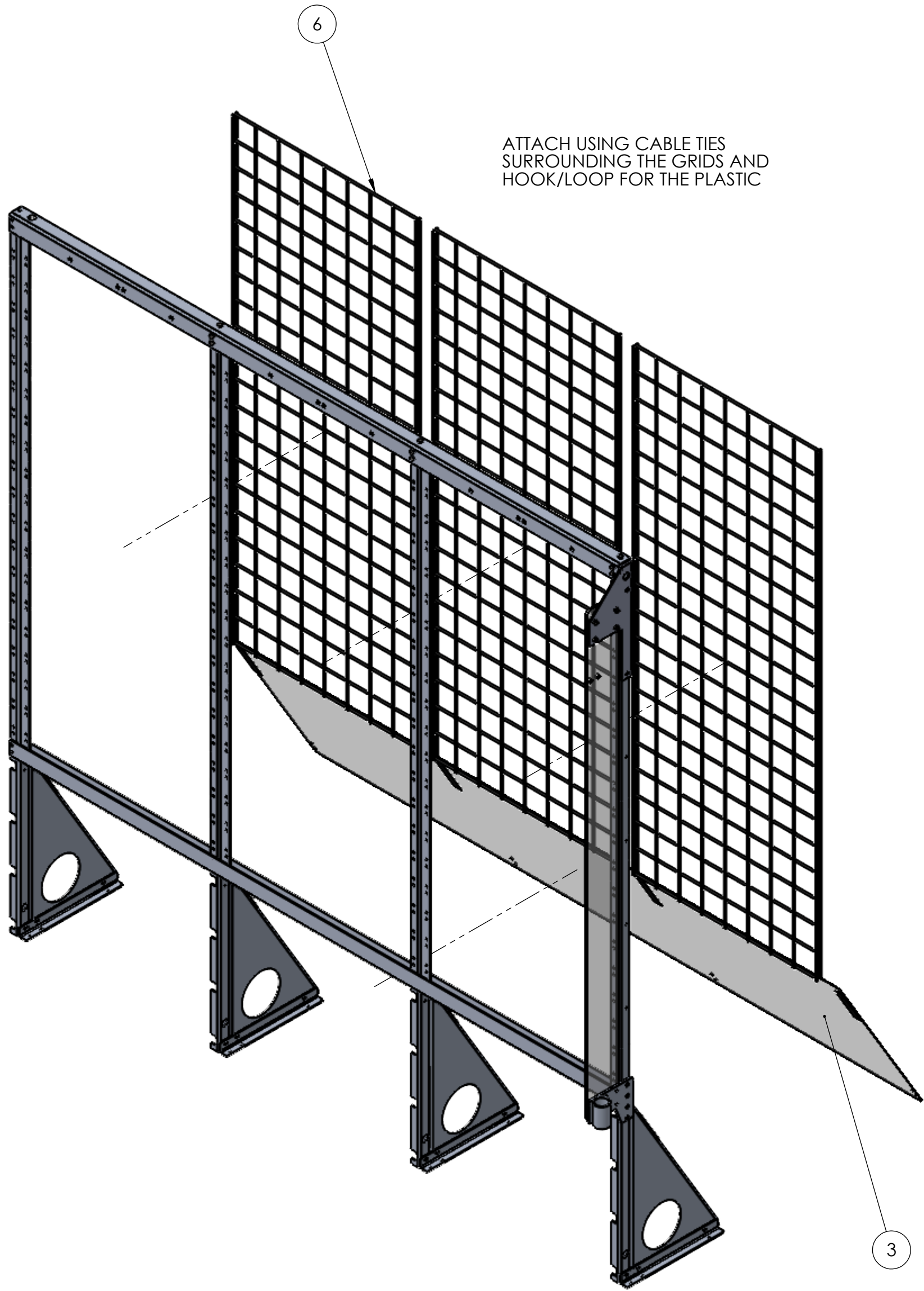
B



A

A

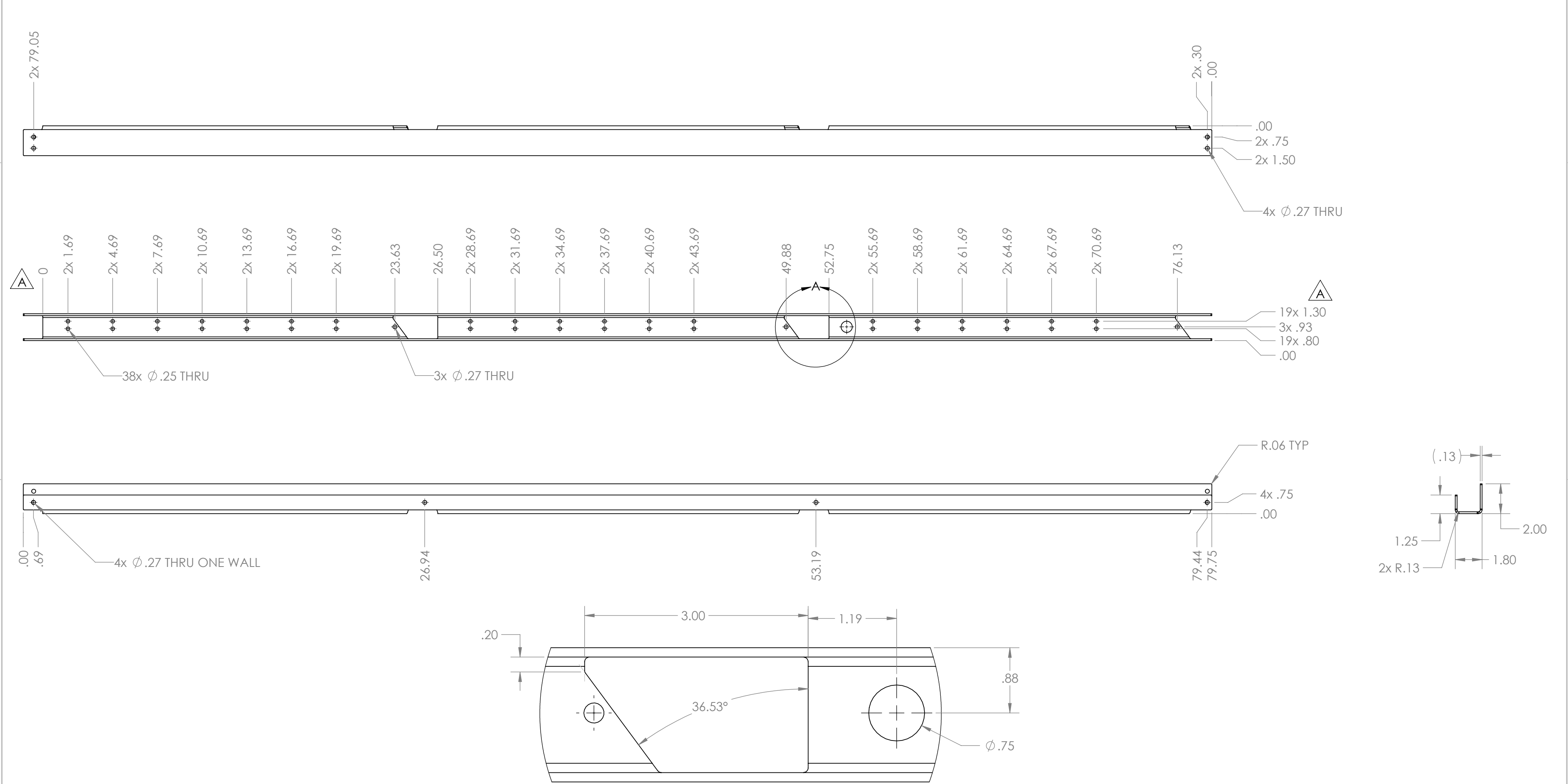


UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	DRAWN	NE	12/21/2022	TITLE:  Blue Fence	
	PROPRIETARY AND CONFIDENTIAL  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23210
MATERIAL/FINISH:				SCALE: 1:9	REV
DO NOT SCALE DRAWING				SHEET 5 OF 6	



UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 		
	DRAWN	NE	12/21/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Blue Fence		
<b>MATERIAL/FINISH:</b>	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23210	
DO NOT SCALE DRAWING				SCALE: 1:10		SHEET 6 OF 6

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, C1, C4	A	New Hole Locations, Cutout Sizes and Shape	10/11/2022	JO



DETAIL A  
SCALE 1:1  
Use DIMs for all instances

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

**MATERIAL/FINISH:**  
8GA 5052 AI

DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	JO	9/13/2022

**PROPRIETARY AND CONFIDENTIAL**

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**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.

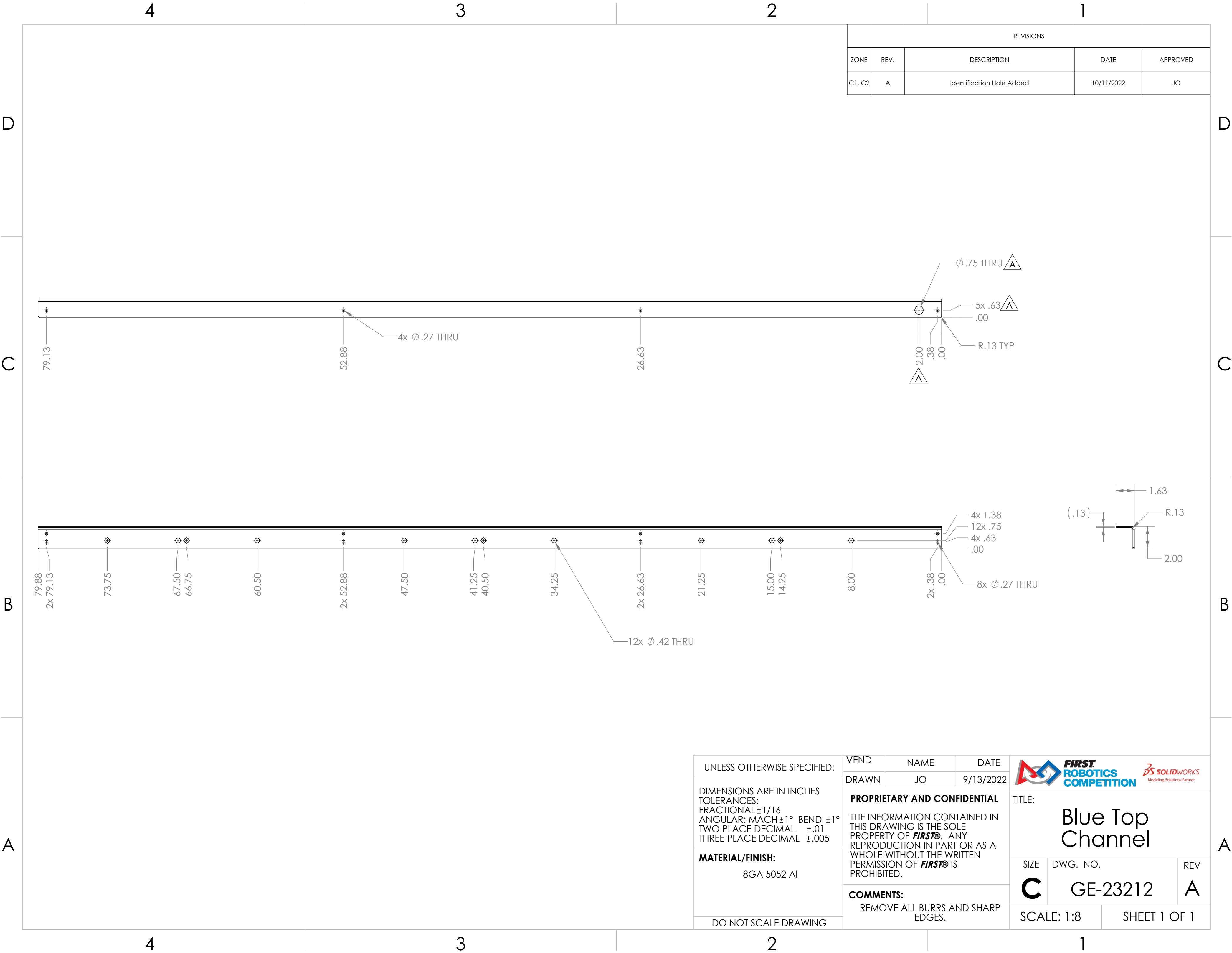


TITLE:  
**Blue Bottom Channel**



SIZE	DWG. NO.	REV
<b>C</b>	GE-23211	<b>A</b>

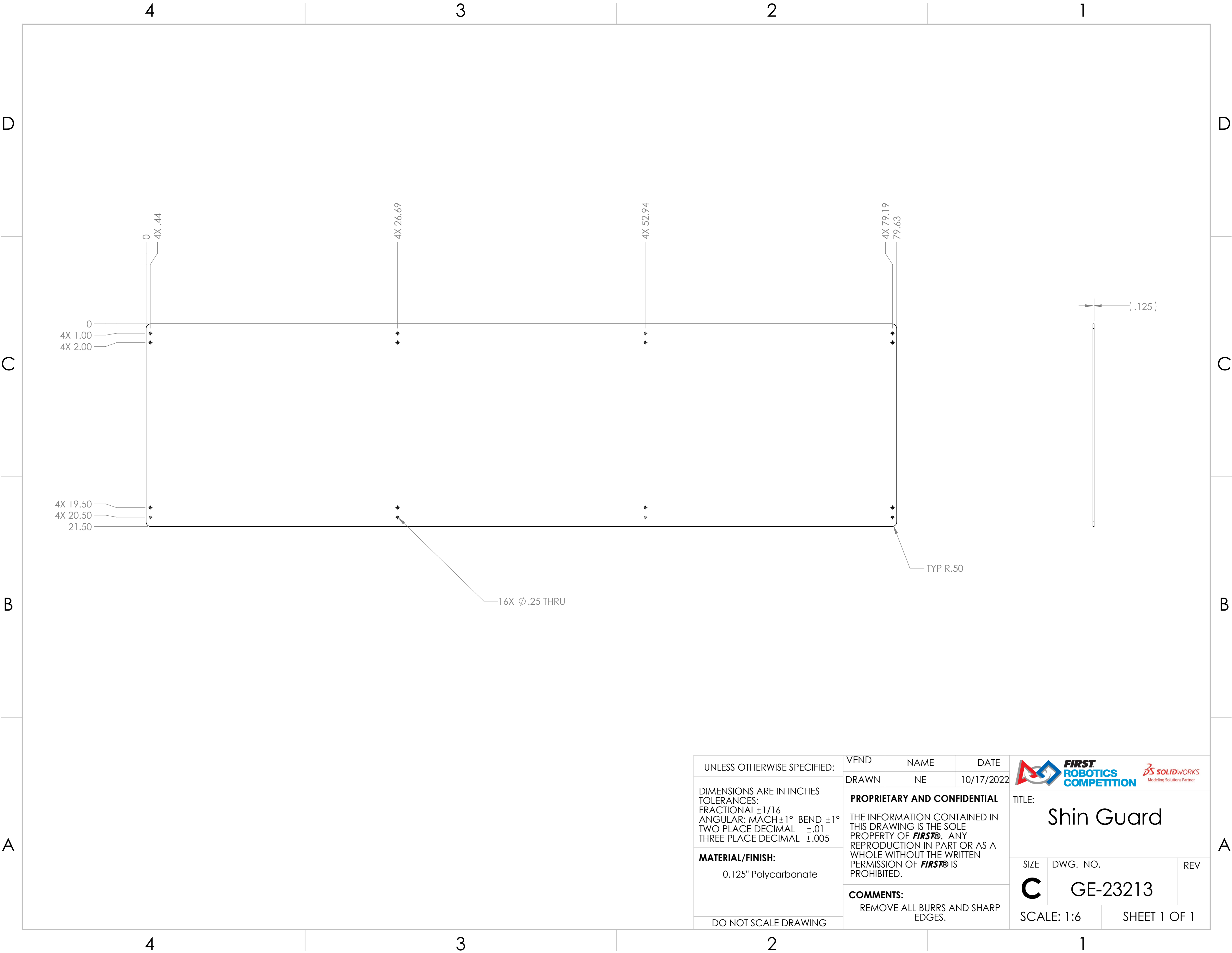
SCALE: 1:5 SHEET 1 OF 1





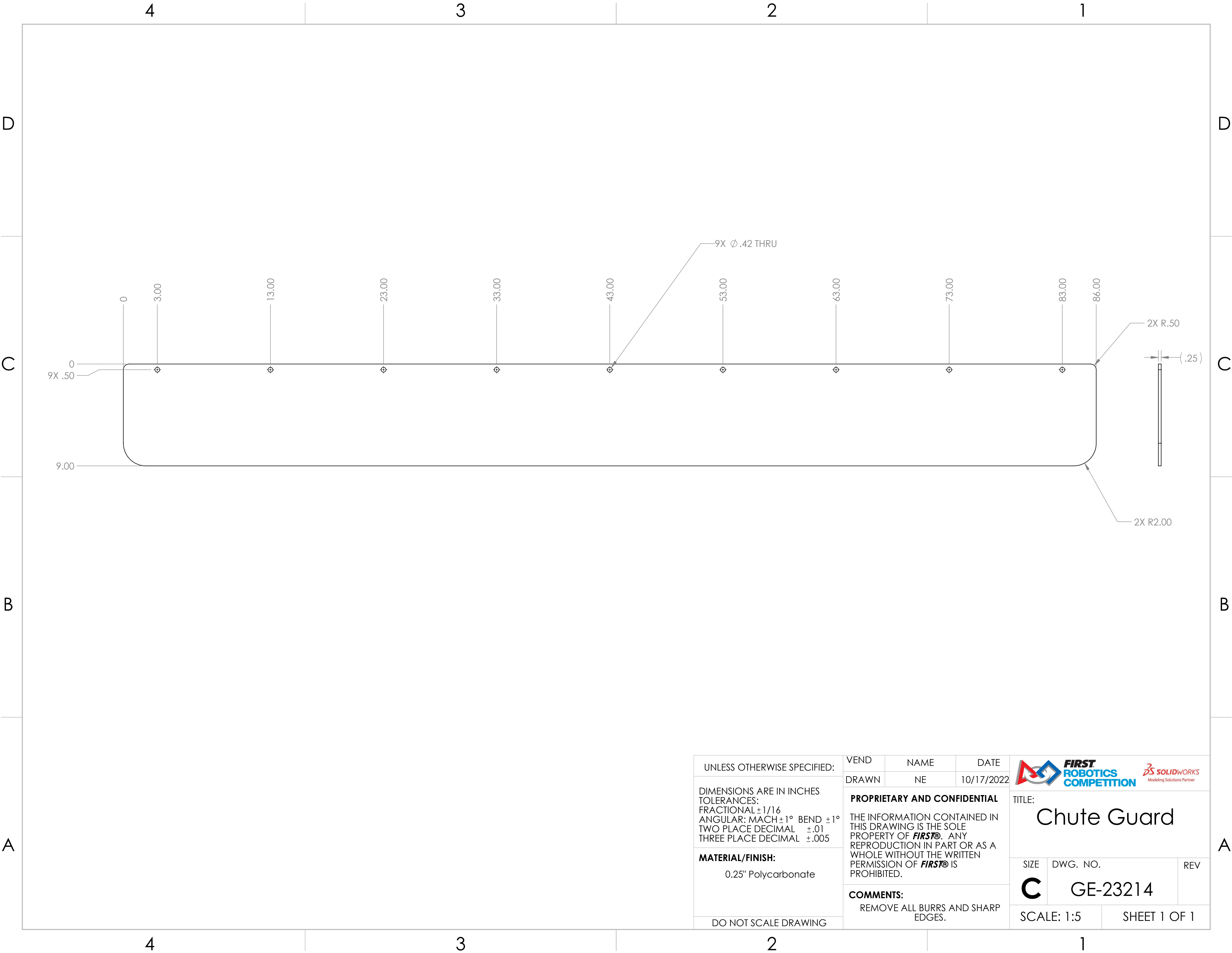




REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C1, C2	A	Identification Hole Added	10/11/2022	JO

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  8GA 5052 Al  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE:  Blue Top Channel</div>		
	DRAWN	JO	9/13/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23212	<b>A</b>
			SCALE: 1:8		SHEET 1 OF 1	



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>  0.125" Polycarbonate  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: <h1>Shin Guard</h1></div>			
	DRAWN	NE	10/17/2022				
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.						
SIZE		DWG. NO.		REV		SCALE: 1:6	SHEET 1 OF 1
<b>C</b>		GE-23213					



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  0.25" Polycarbonate  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: <h1>Chute Guard</h1></div>		
	DRAWN	NE	10/17/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. <b>GE-23214</b>	REV
SCALE: 1:5		SHEET 1 OF 1				

4

3

2

1

D

C

B

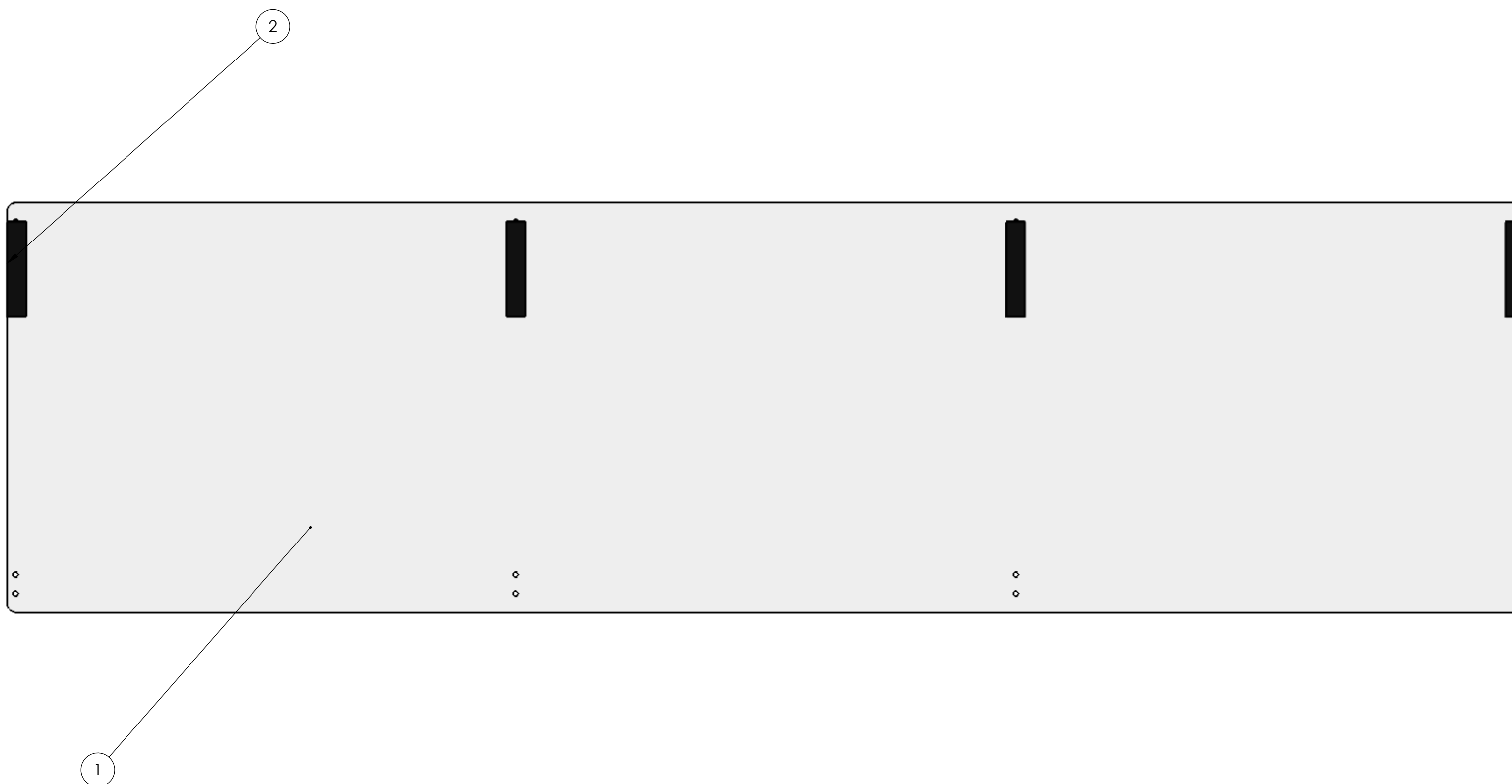
A

4



3

2

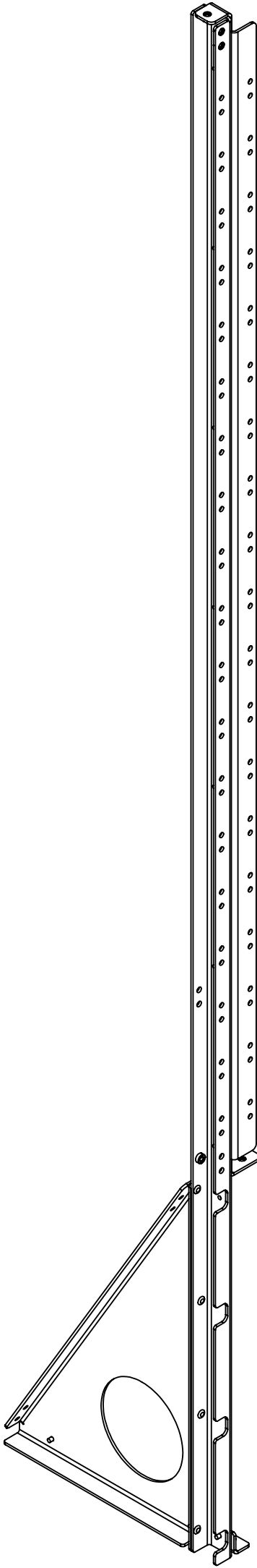
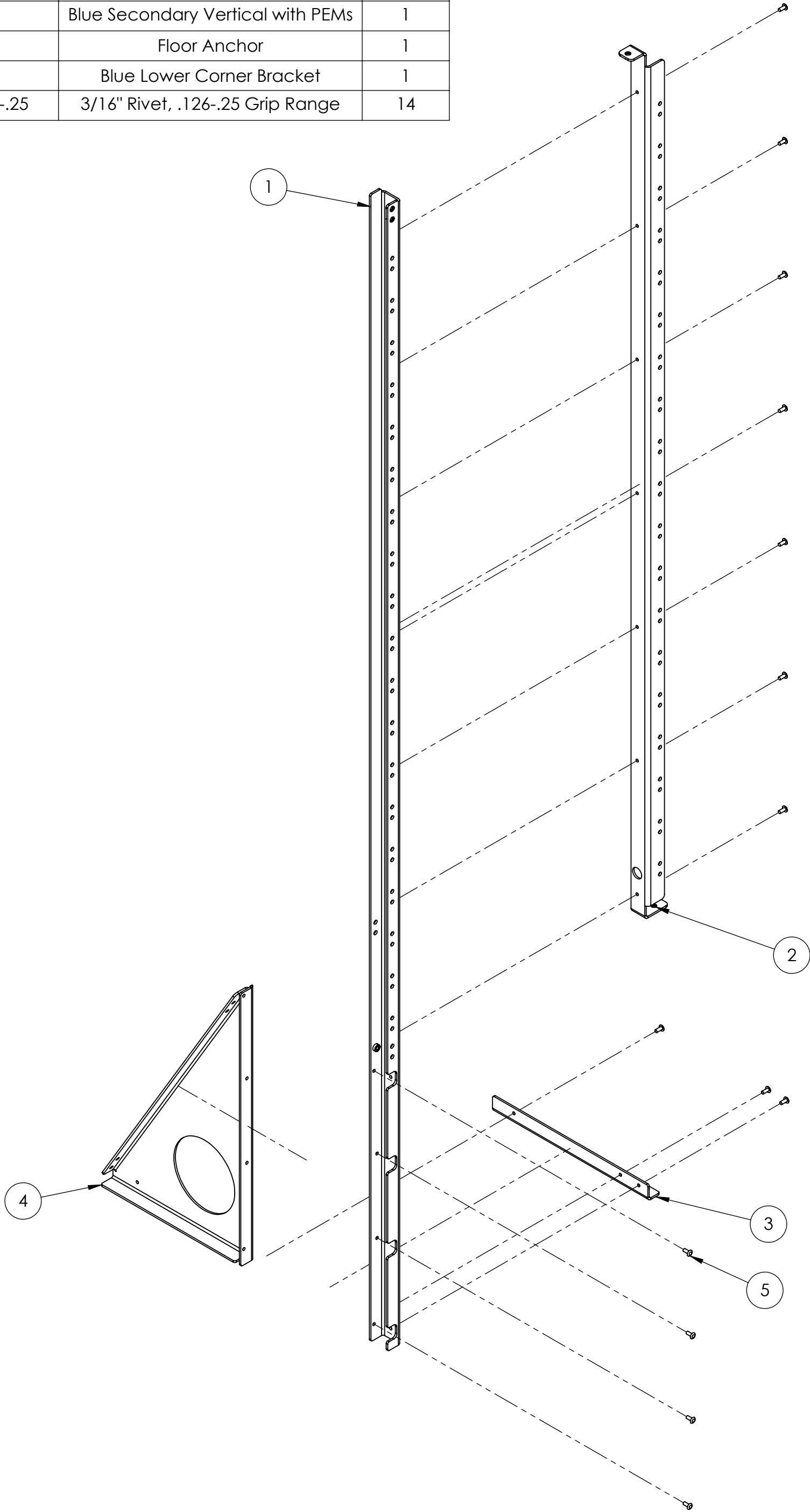
1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23213	Shin Guard	1
2	Loop_1_5	1" x 5" Loop, Adhesive Backed	4

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 
	DRAWN	NE	1/3/2023	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: $MACH \pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  <h1>Shin Guard W Loop</h1>
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			
<b>MATERIAL/FINISH:</b>				SIZE DWG. NO. REV <div>C</div> <div>GE-23216</div>
DO NOT SCALE DRAWING				SCALE: 1:5 SHEET 1 OF 1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23221	Blue Primary Vertical with PEMs	1
2	GE-23222	Blue Secondary Vertical with PEMs	1
3	GE-23223	Floor Anchor	1
4	GE-23224	Blue Lower Corner Bracket	1
5	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	14



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

VEND

NAME

DATE

DRAWN

JO

10/11/2022

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



TITLE:

Blue Standard  
Vertical

SIZE

C

DWG. NO.

GE-23220

REV

SCALE: 1:6

SHEET 1 OF 1

4

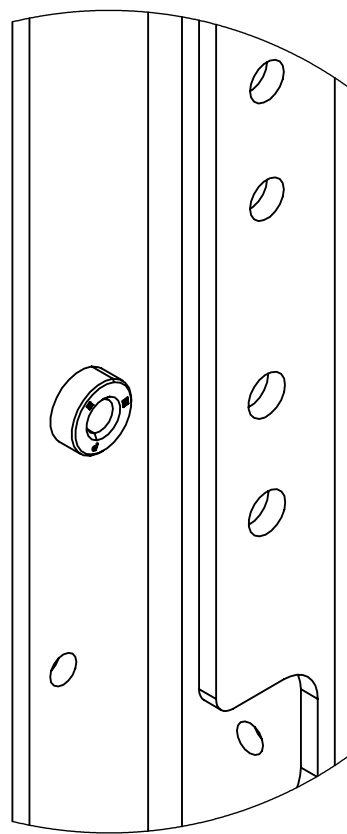
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2

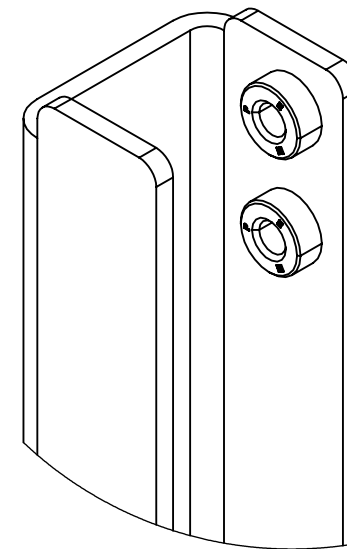
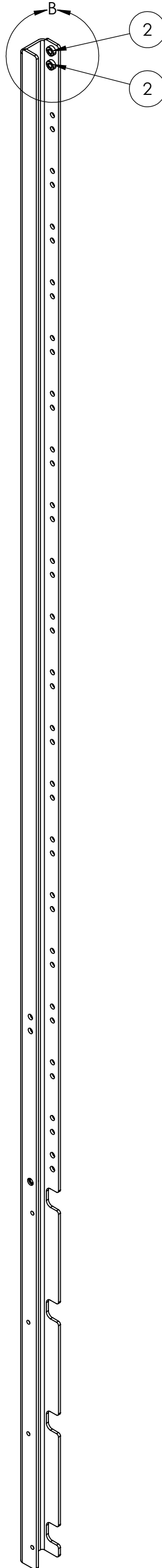
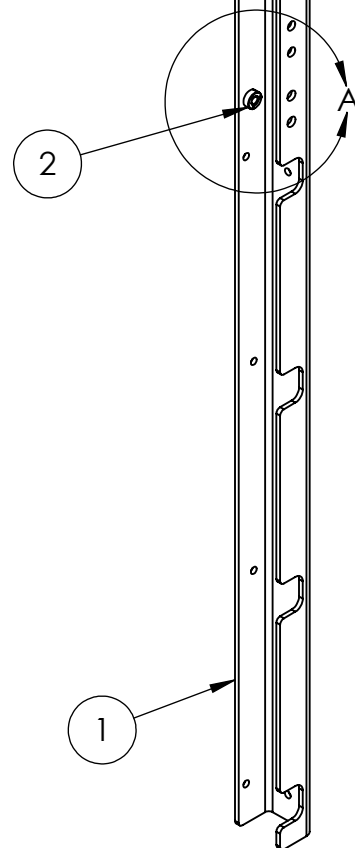
1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23221-01	Blue Primary Vertical	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	3

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	This Part # is now for PEM nut installation	10/11/2022	JO



DETAIL A  
SCALE 1 : 1



DETAIL B  
SCALE 1 : 1

Insert PEM nuts as shown, protruding inwards

UNLESS OTHERWISE SPECIFIED:	VEN	NAME	DATE
	DRAWN	JO	10/11/2022
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		
MATERIAL/FINISH:			
DO NOT SCALE DRAWING			

TITLE: **Blue Primary Vertical with PEMs**

SIZE	DWG. NO.	REV
<b>C</b>	<b>GE-23221</b>	<b>A</b>

SCALE: 1:12
SHEET 1 OF 1

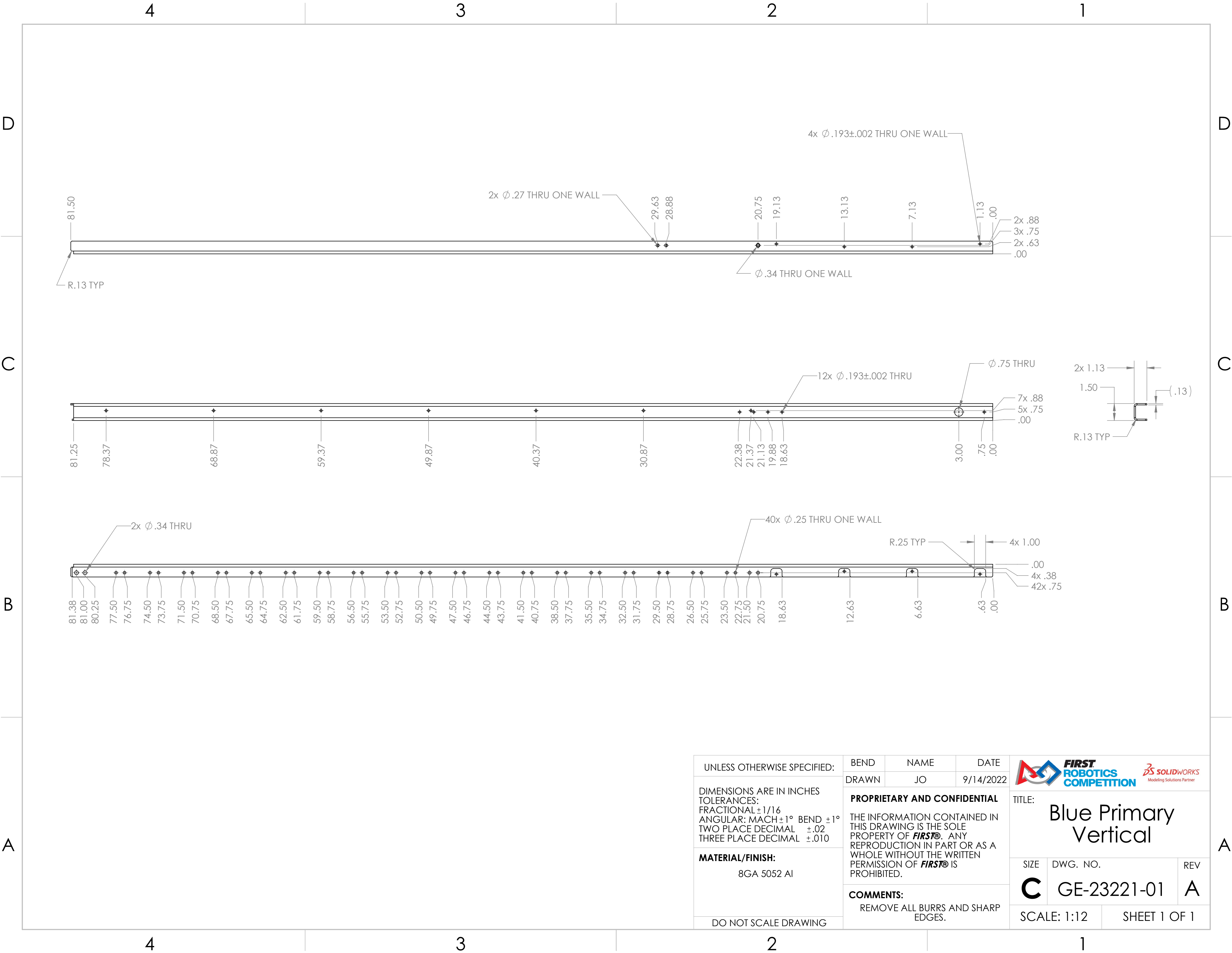
4

3

2

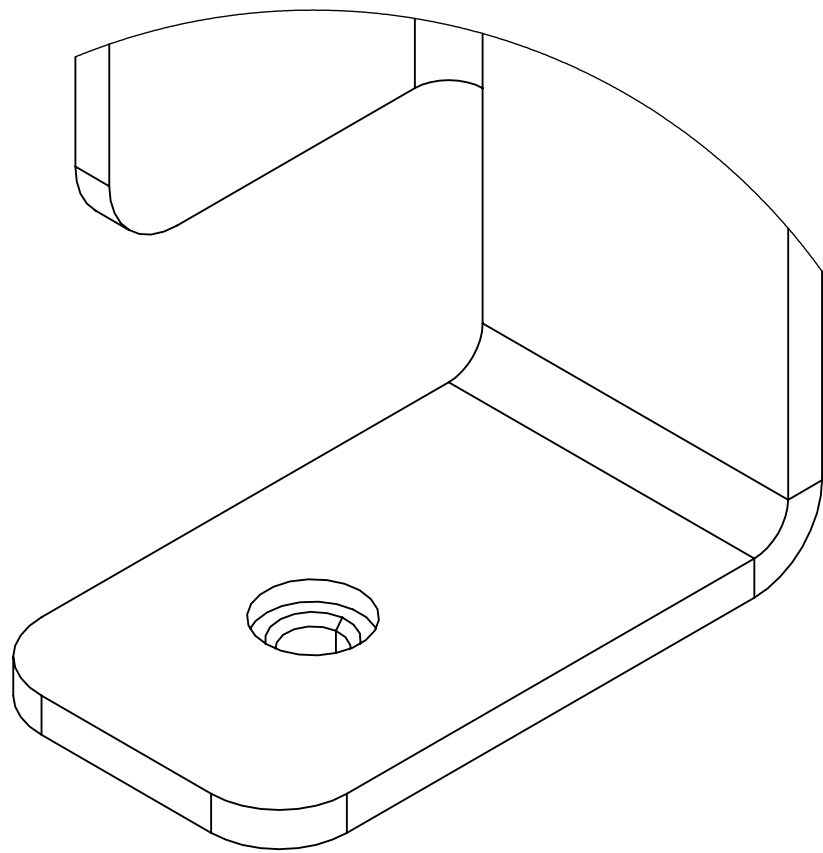
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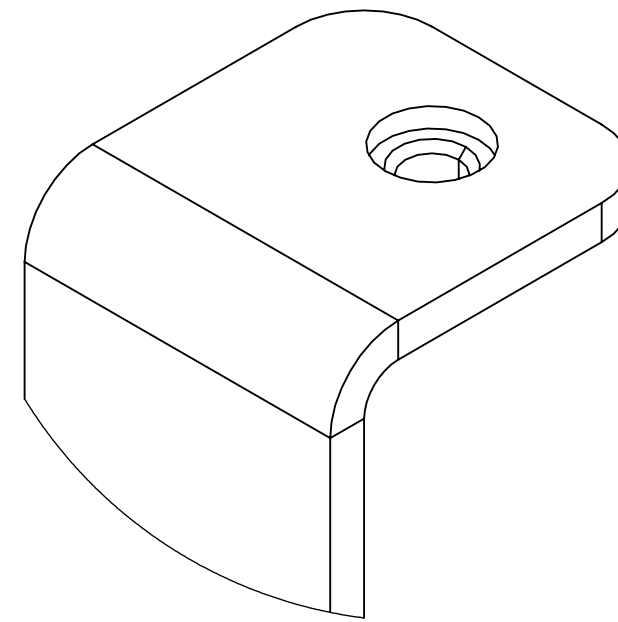


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23222-01	Blue Secondary Vertical	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	2

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	This Part # is now used for PEM nut installation	10/11/2022	JO

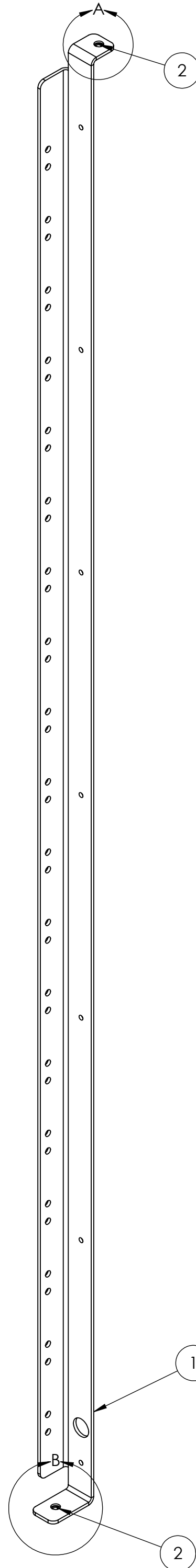




DETAIL B  
SCALE 2 : 1

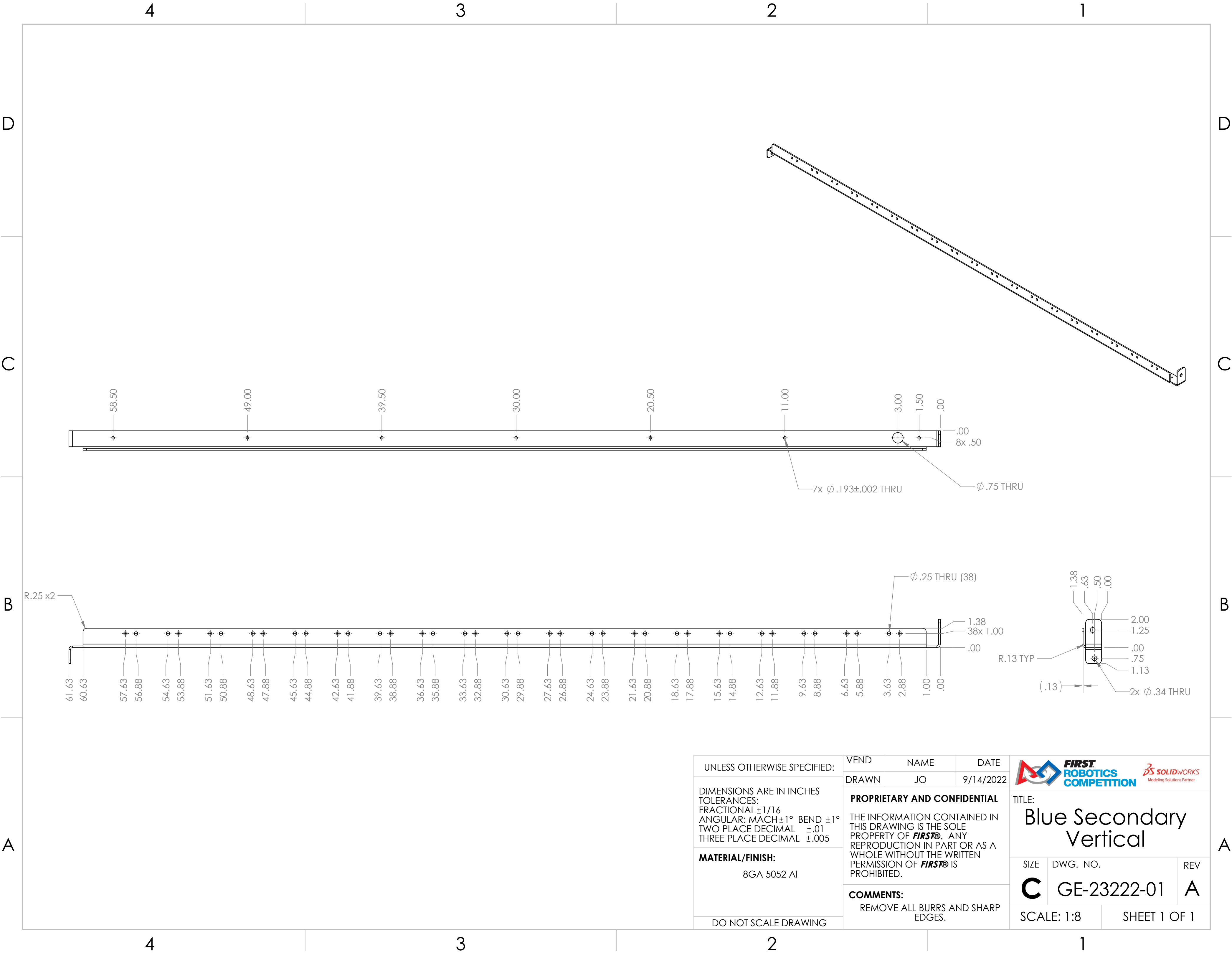


DETAIL A  
SCALE 2 : 1

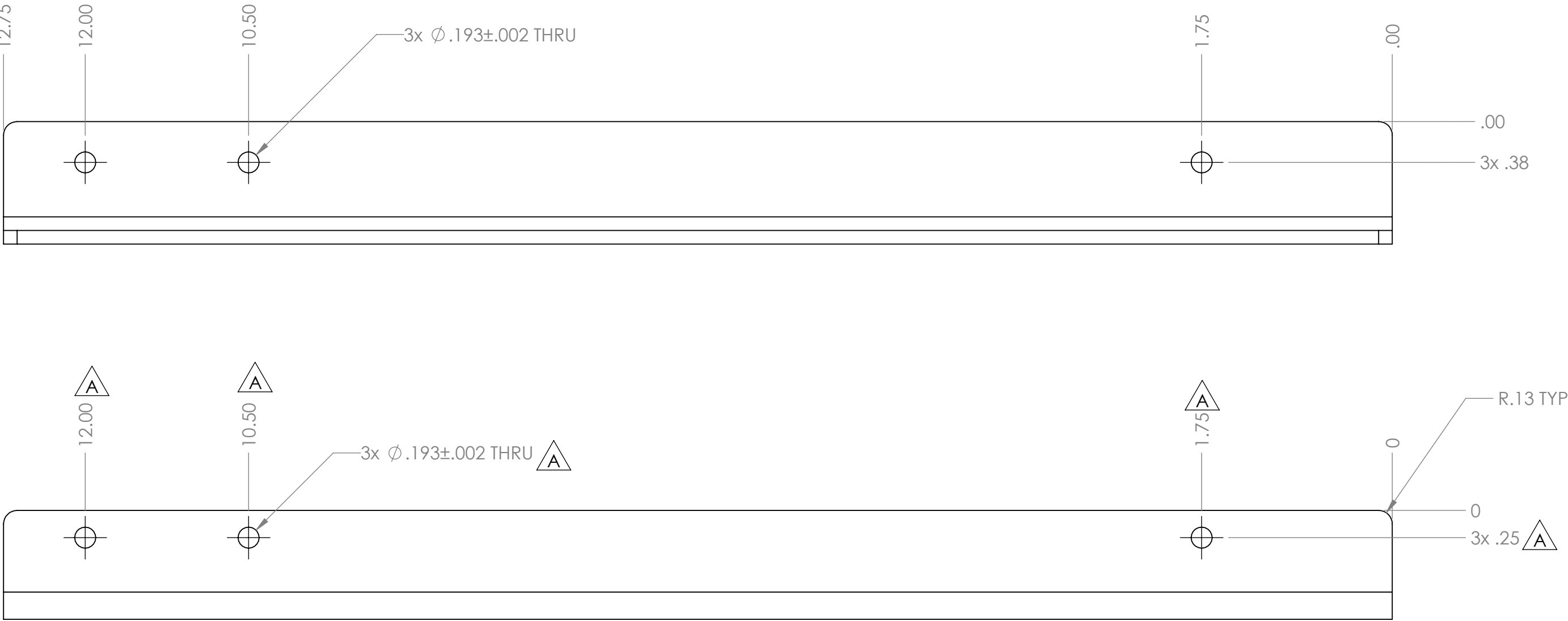
Install PEM nuts as shown, both facing same direction





UNLESS OTHERWISE SPECIFIED:		VEND		NAME		DATE									
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>		DRAWN		JO		10/11/2022									
		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.													
		<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.													
DO NOT SCALE DRAWING		<div><div></div><div>TITLE: Blue Secondary Vertical with PEMs</div><div><table><tr><td>SIZE</td><td>DWG. NO.</td><td>REV</td></tr><tr><td>C</td><td>GE-23222</td><td>A</td></tr></table></div><div><table><tr><td>SCALE: 1:8</td><td>SHEET 1 OF 1</td></tr></table></div></div>						SIZE	DWG. NO.	REV	C	GE-23222	A	SCALE: 1:8	SHEET 1 OF 1
SIZE	DWG. NO.	REV													
C	GE-23222	A													
SCALE: 1:8	SHEET 1 OF 1														

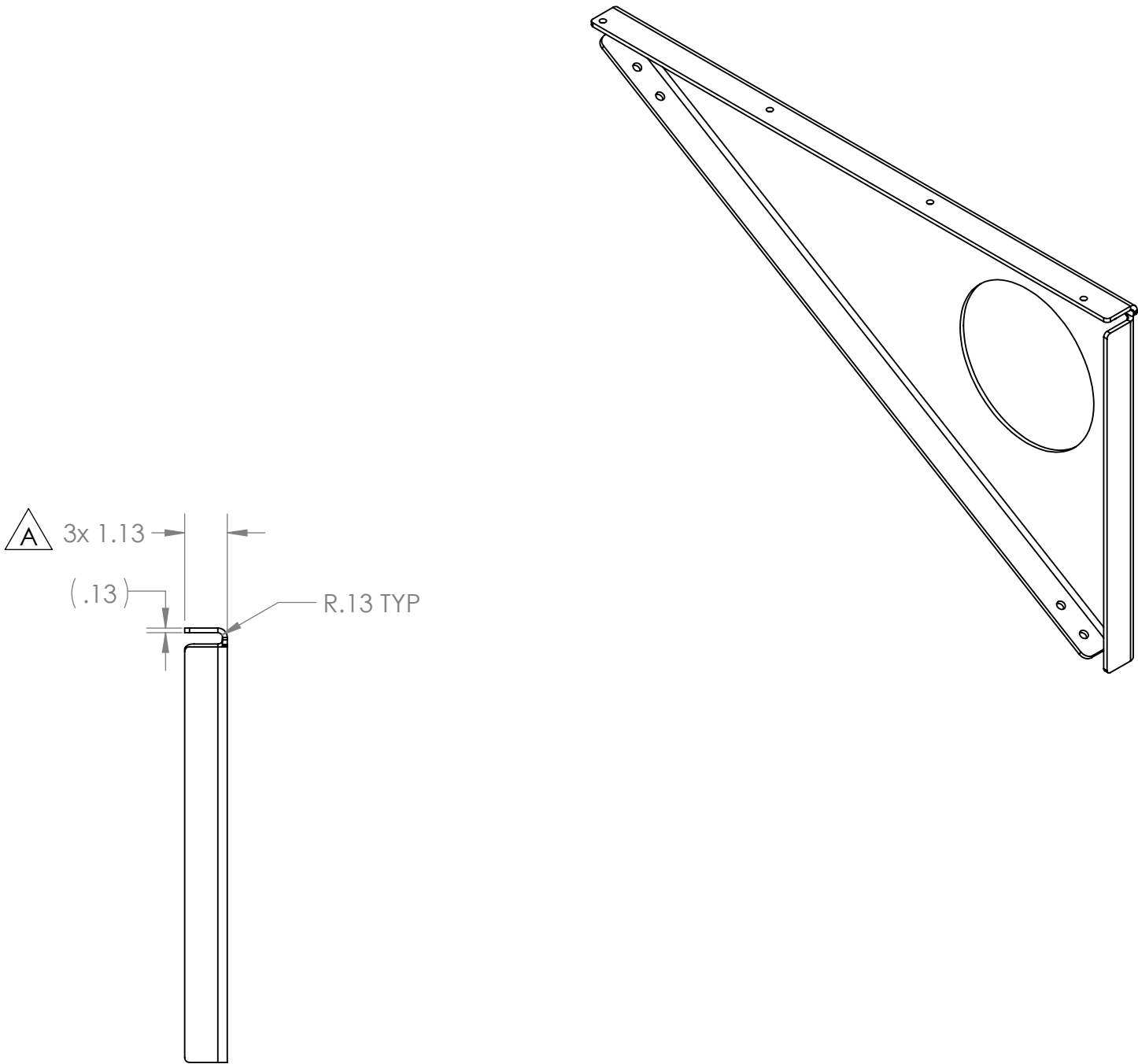
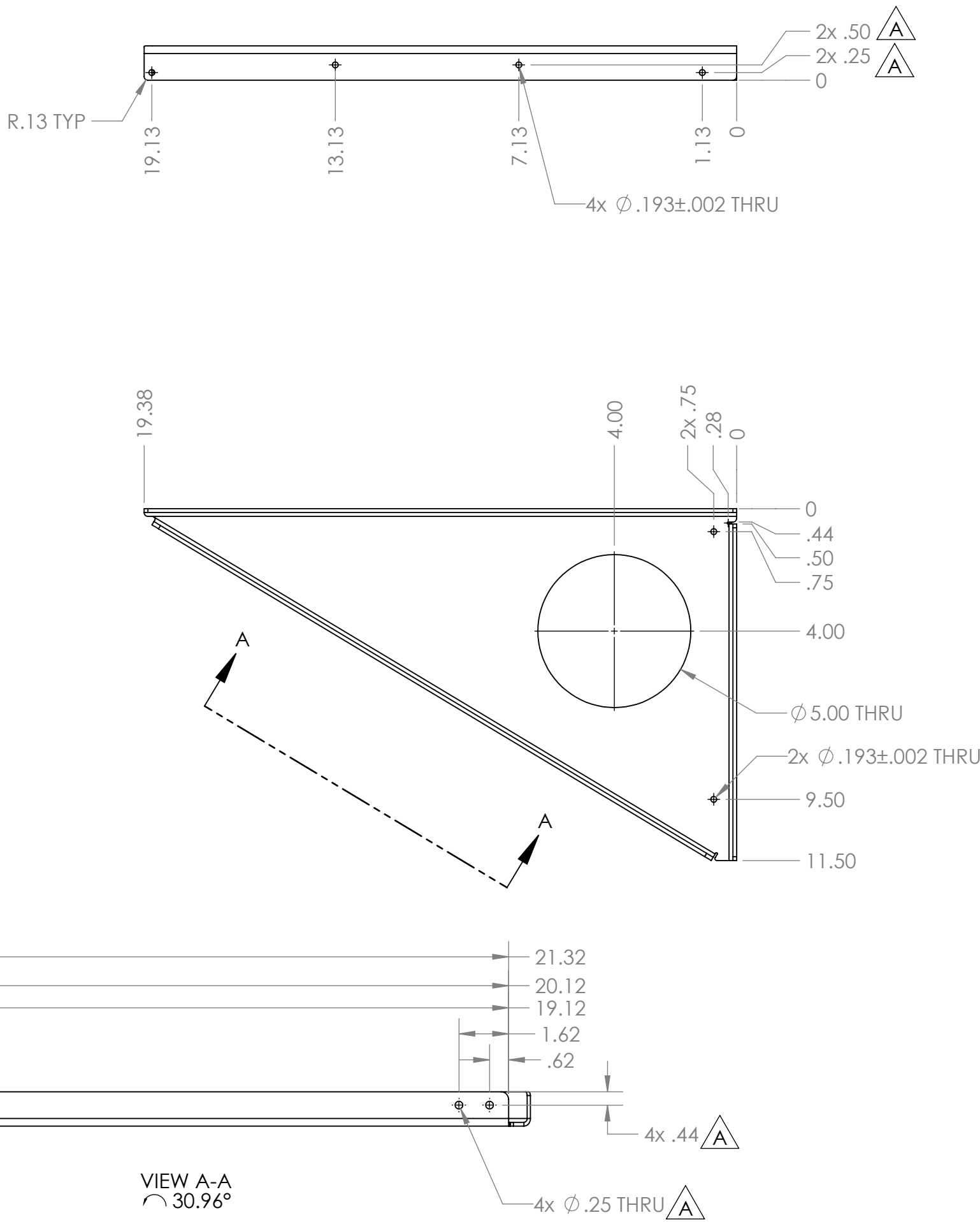




REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, C2, C4	A	Holes added to second flange	10/11/2022	JO

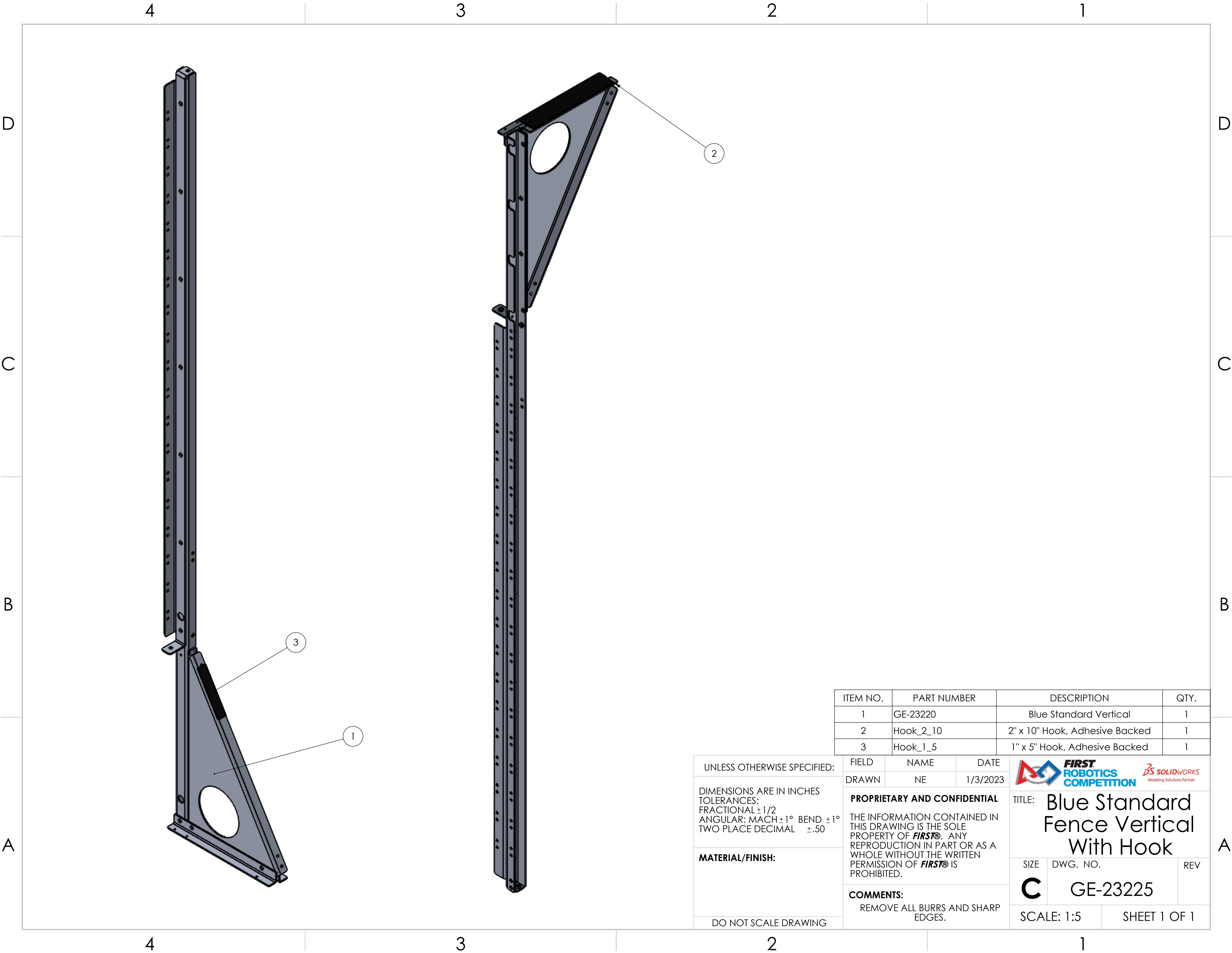


UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>		
	DRAWN	JO	9/14/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$	PROPRIETARY AND CONFIDENTIAL			TITLE:		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			Floor Anchor		
MATERIAL/FINISH:	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23223	A
DO NOT SCALE DRAWING				SCALE: 1:2		SHEET 1 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B3, C2, D3	A	Style of Qty callouts, moved two holes on flange .25"	10/11/2022	JO



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  8GA 5052 Al  DO NOT SCALE DRAWING	VEND	NAME	DATE	  TITLE: <b>Blue Lower Corner Bracket</b>		
	DRAWN	JO	9/14/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23224	<b>A</b>
SCALE: 1:4		SHEET 1 OF 1				



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23220	Blue Standard Vertical	1
2	Hook_2_10	2" x 10" Hook, Adhesive Backed	1
3	Hook_1_5	1" x 5" Hook, Adhesive Backed	1

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	1/3/2023

**PROPRIETARY AND CONFIDENTIAL**  
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**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.

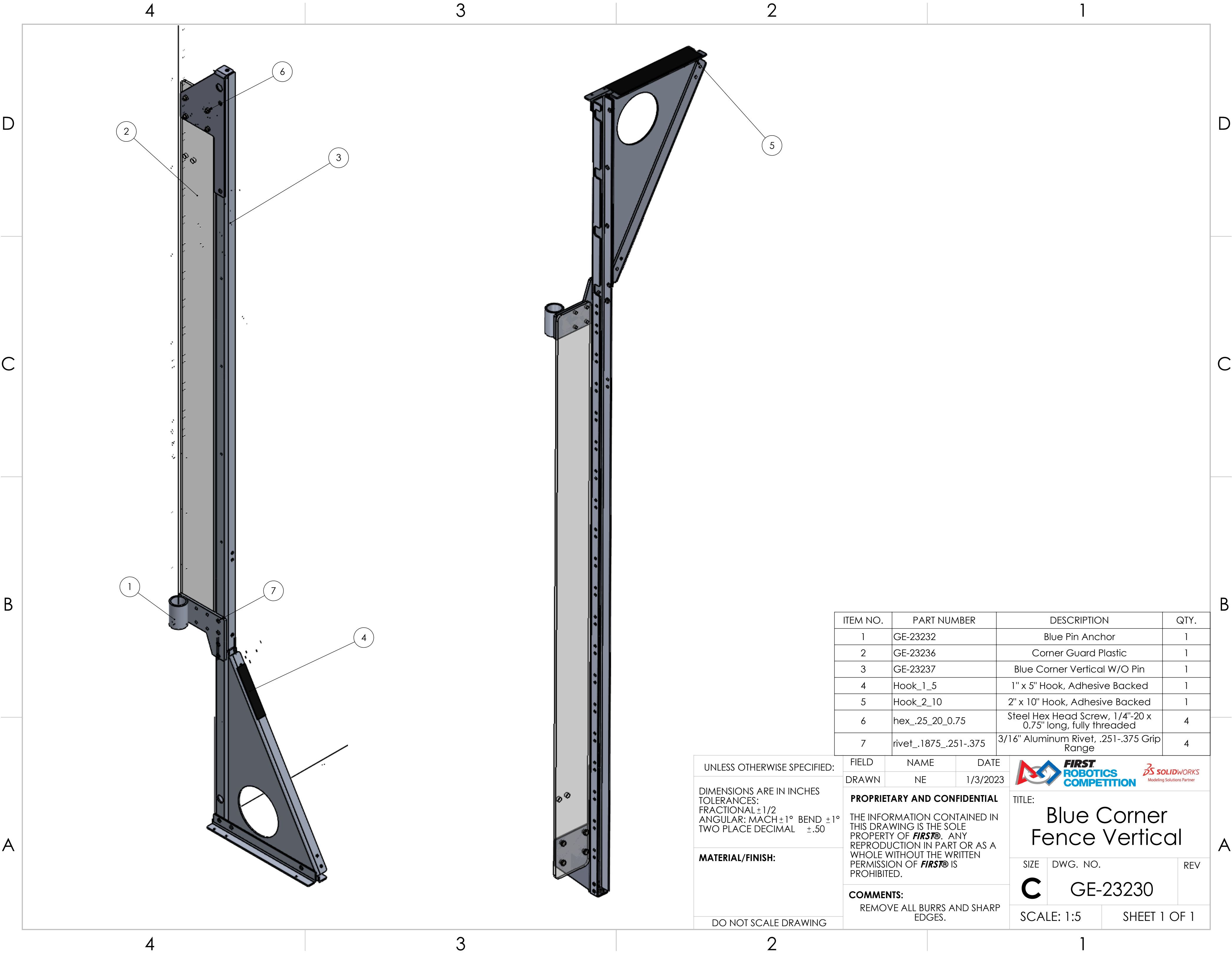


TITLE: **Blue Standard Fence Vertical With Hook**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23225	

SCALE: 1:5 SHEET 1 OF 1





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23232	Blue Pin Anchor	1
2	GE-23236	Corner Guard Plastic	1
3	GE-23237	Blue Corner Vertical W/O Pin	1
4	Hook_1_5	1" x 5" Hook, Adhesive Backed	1
5	Hook_2_10	2" x 10" Hook, Adhesive Backed	1
6	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	4
7	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	4

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	1/3/2023

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.



**FIRST**  
ROBOTICS  
COMPETITION



TITLE:

Blue Corner  
Fence Vertical

SIZE

**C**

DWG. NO.

GE-23230

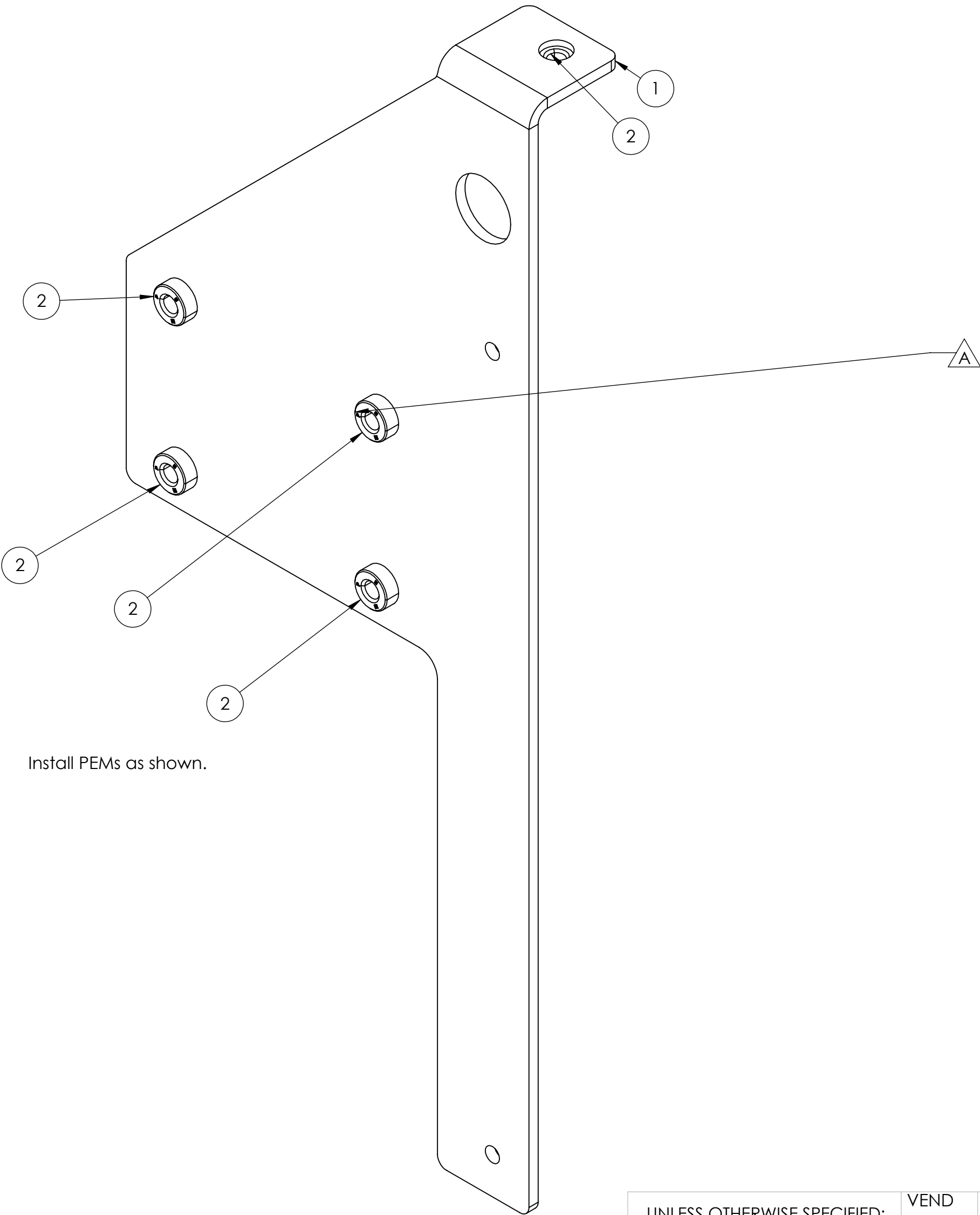
REV



SCALE: 1:5

SHEET 1 OF 1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23231-01	Blue Tertiary Vertical	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	5

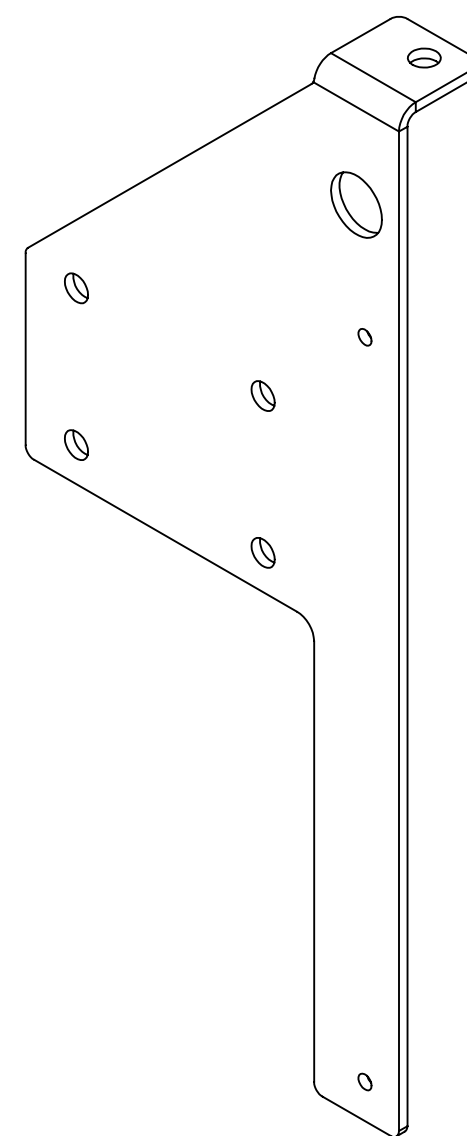
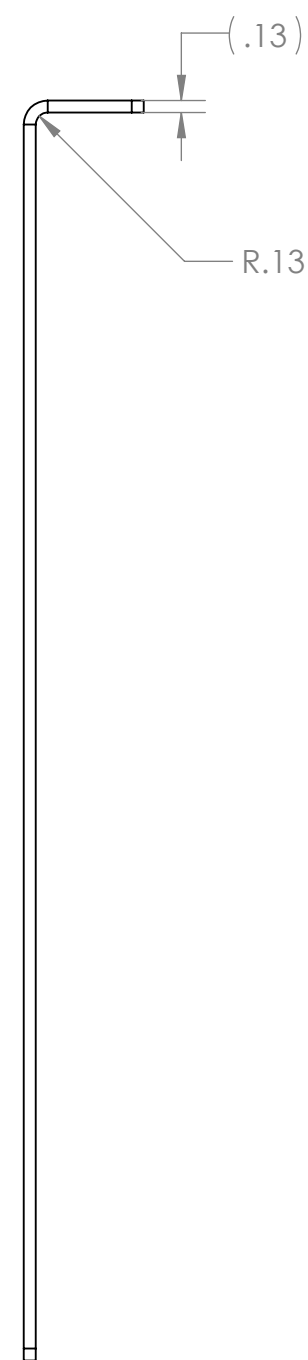
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C2	A	PEM NUTS ADDED	10/14/2022	NE



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>          DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: <b>Tertiary Vertical with PEMs</b></div> <div><div>SIZE</div><div>DWG. NO.</div><div>REV</div><div><b>C</b><div>GE-23231</div><div>A</div></div></div> <div><div>SCALE: 1:1</div><div>SHEET 1 OF 1</div></div>	
	DRAWN	JO	10/11/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				

1



D



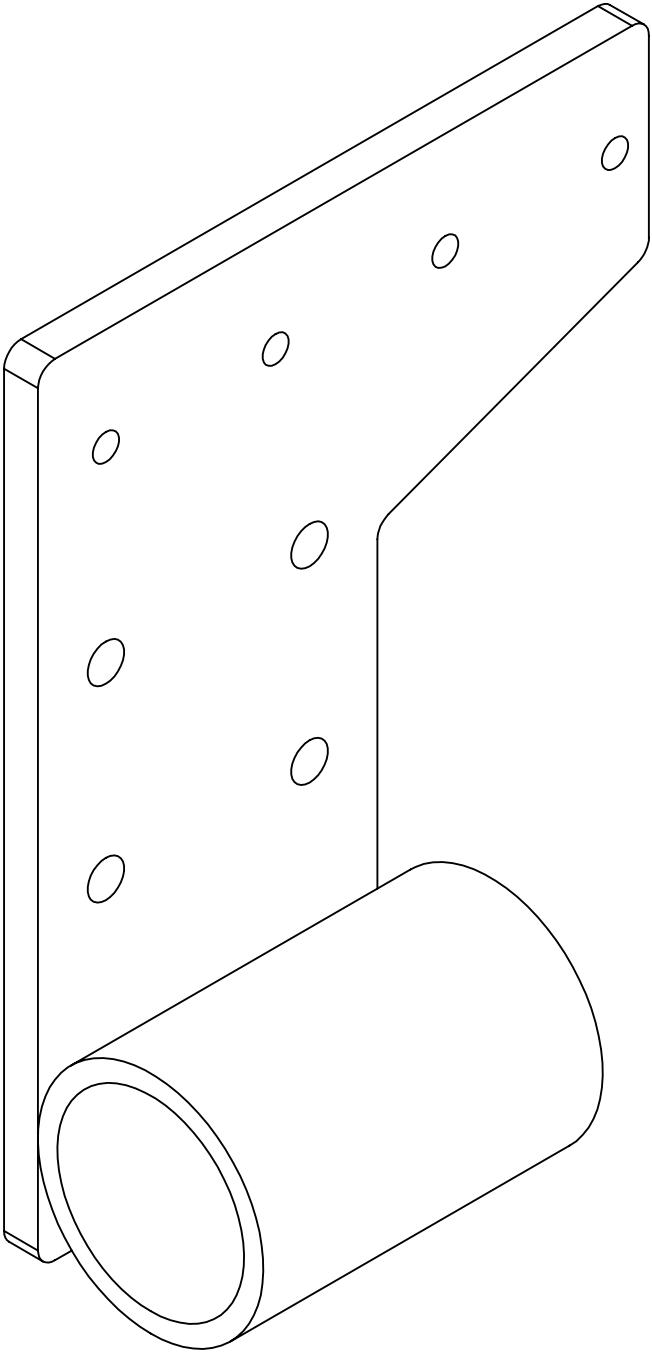
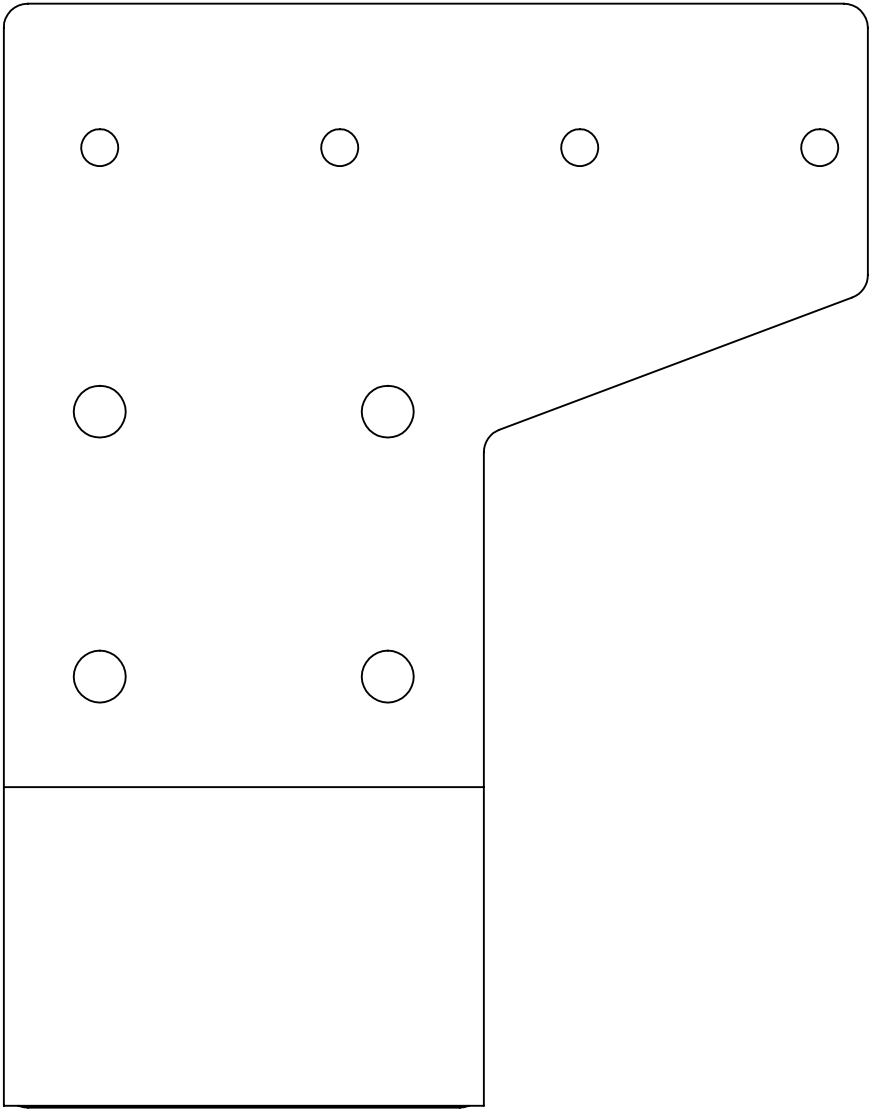
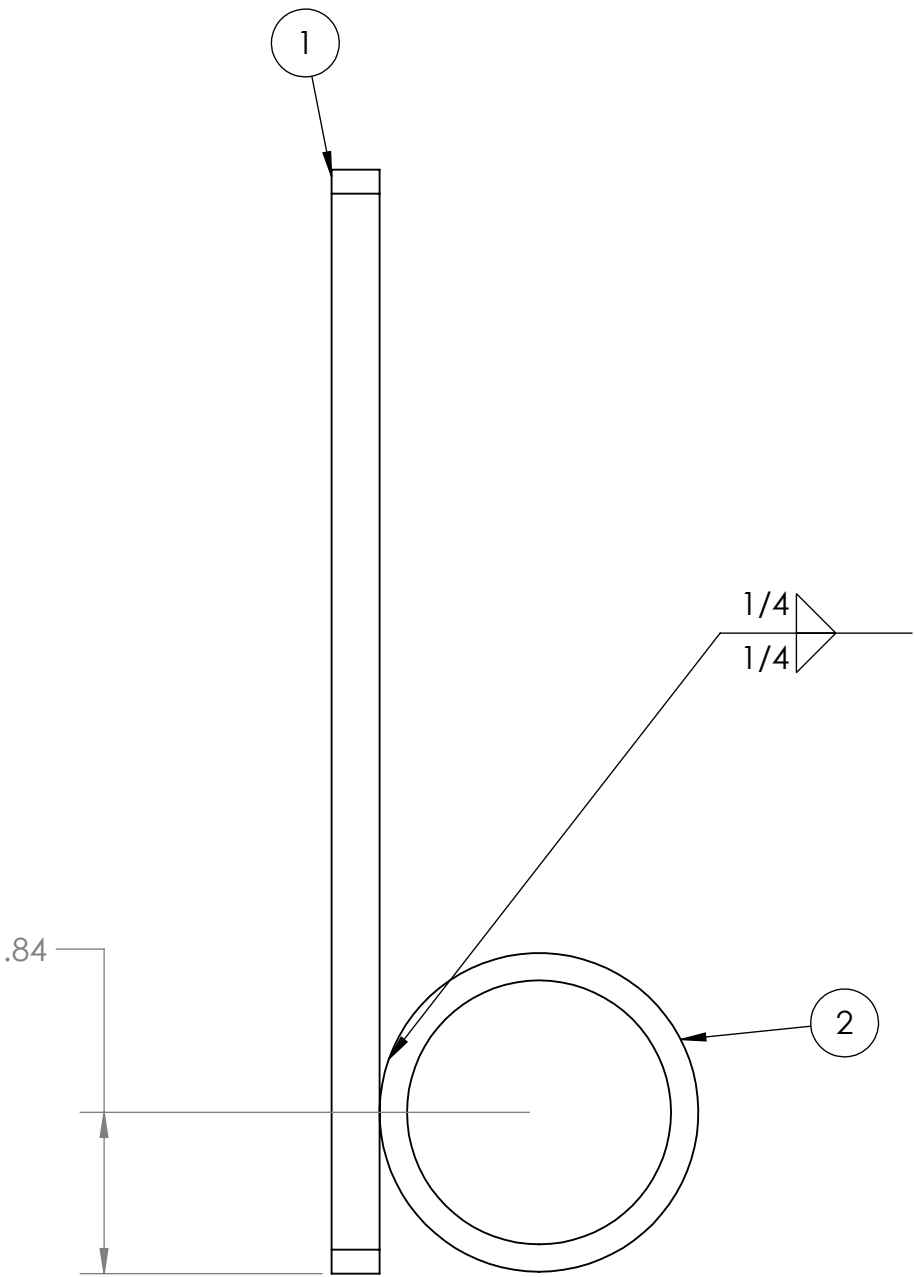
C

B



A

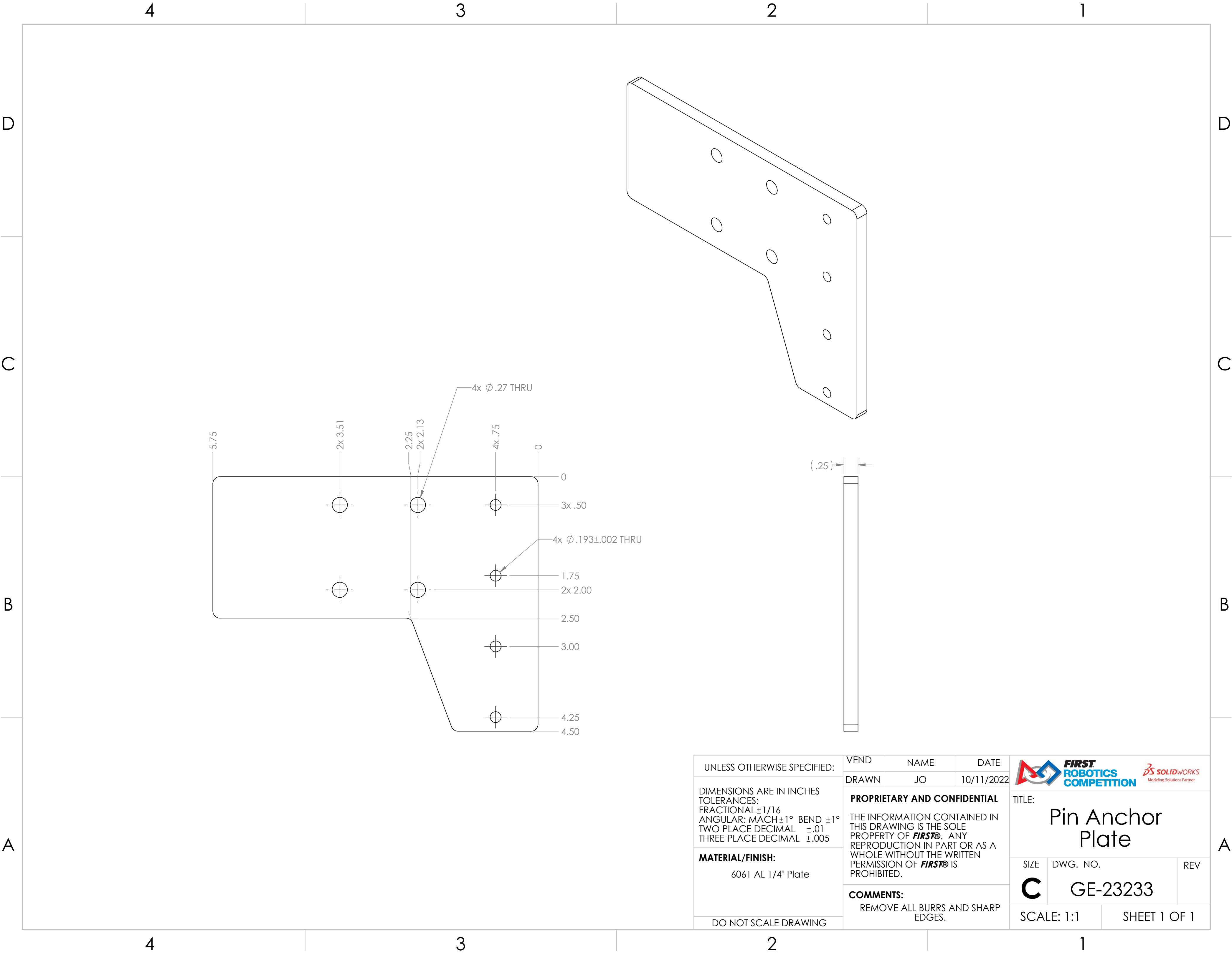
UNLESS OTHERWISE SPECIFIED:		VEND		NAME		DATE	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$		DRAWN		JO		9/14/2022	
		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
		<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.					
MATERIAL/FINISH:  8GA 5052 AI		 					
DO NOT SCALE DRAWING							
		TITLE:  Blue Tertiary Vertical					
		SIZE  C		DWG. NO.  GE-23231-01		REV  A	
		SCALE: 1:2		SHEET 1 OF 1			



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23233	Pin Anchor Plate	1
2	GE-23234	Pin Anchor Tube	1

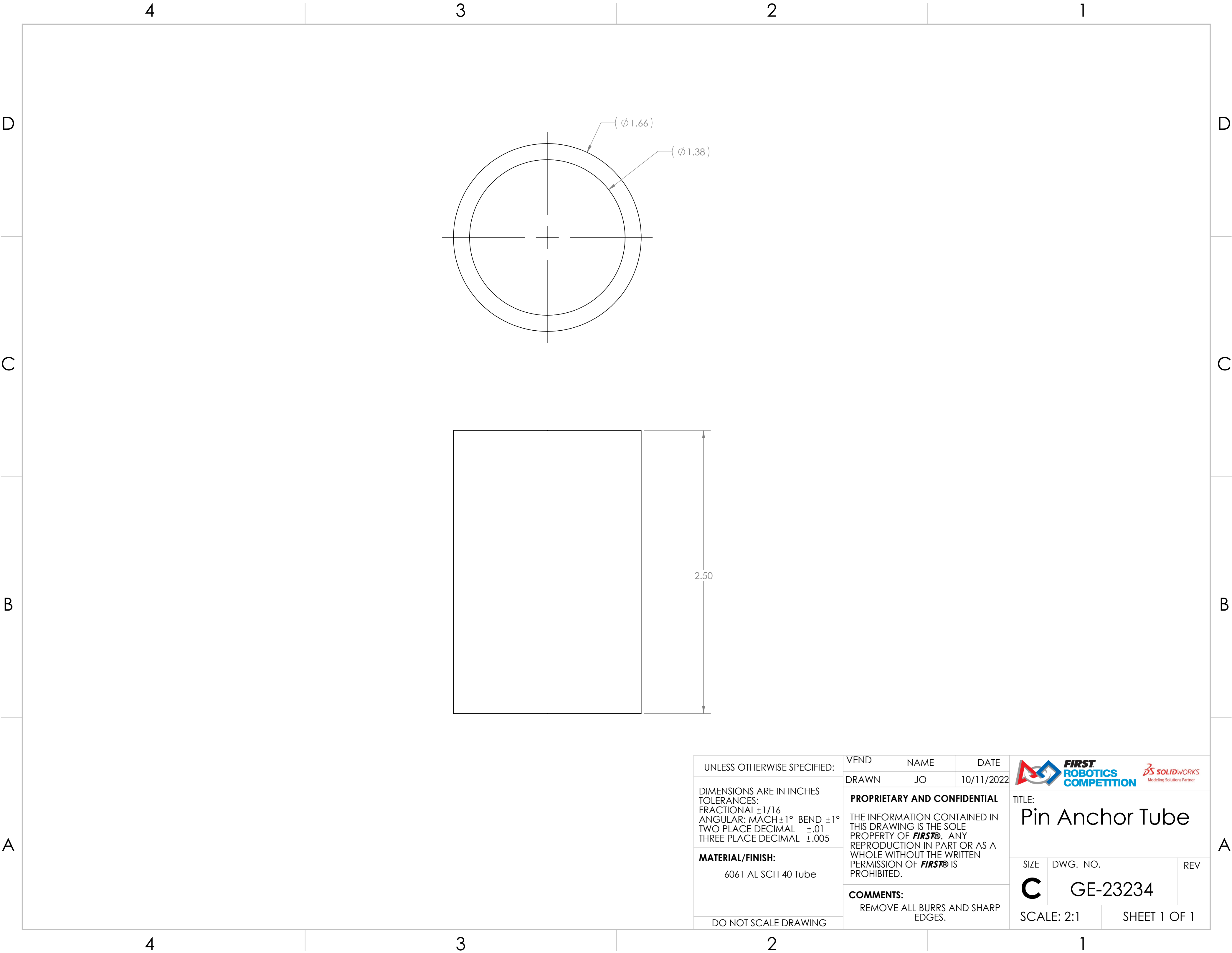




NO WELD PERMISSIBLE IN TUBE

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.015  <b>MATERIAL/FINISH:</b>          <b>DO NOT SCALE DRAWING</b>	WELD	NAME	DATE	<div></div> <div>TITLE: <b>Blue Pin Anchor</b></div>		
	DRAWN	JO	10/11/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				SIZE <b>C</b>  DWG. NO. <b>GE-23232</b>  REV	
	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.					
SCALE: 1:1		SHEET 1 OF 1				



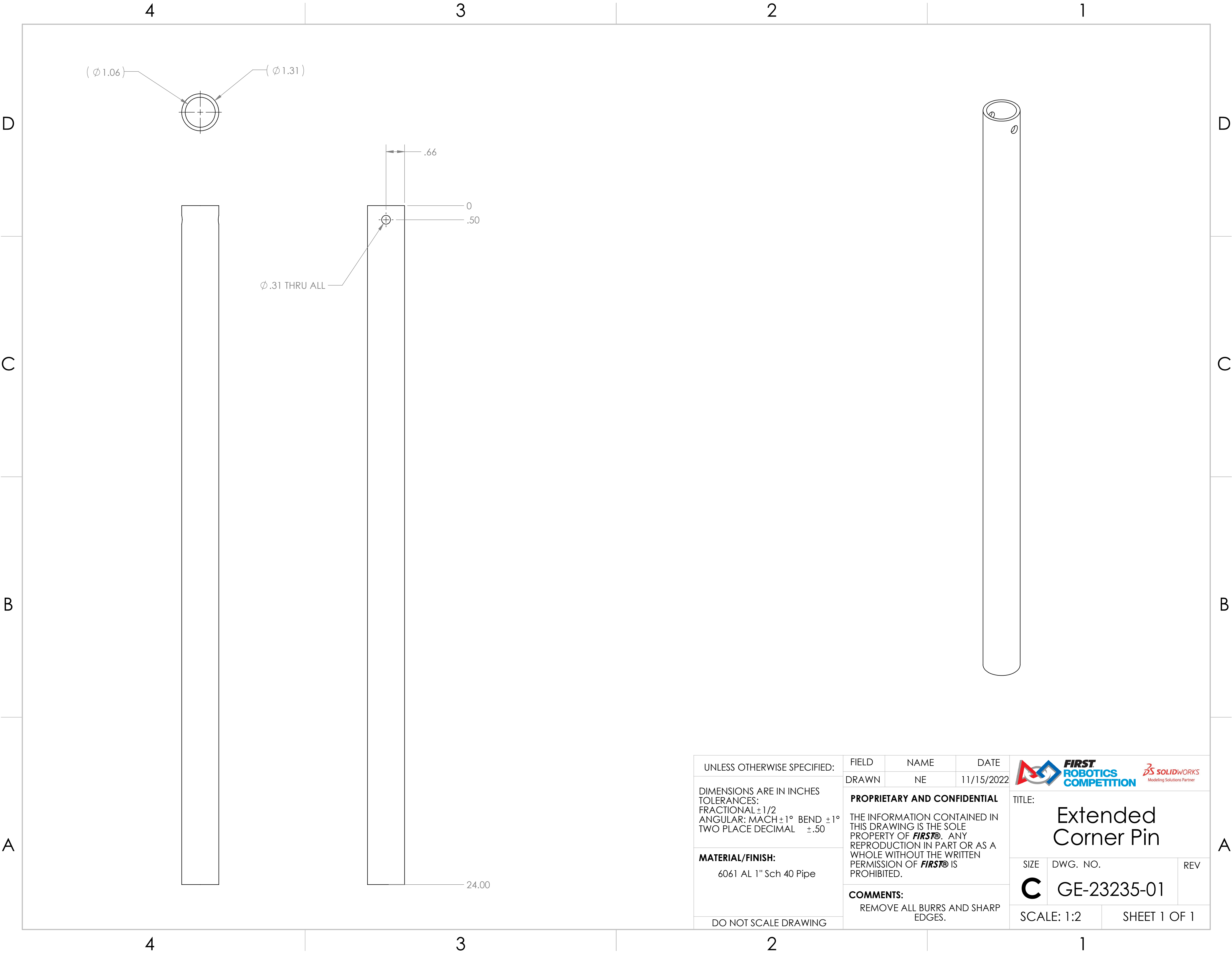
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  6061 AL 1/4" Plate  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE:  Pin Anchor Plate</div>		
	DRAWN	JO	10/11/2022			
	PROPRIETARY AND CONFIDENTIAL  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. GE-23233	REV
SCALE: 1:1		SHEET 1 OF 1				





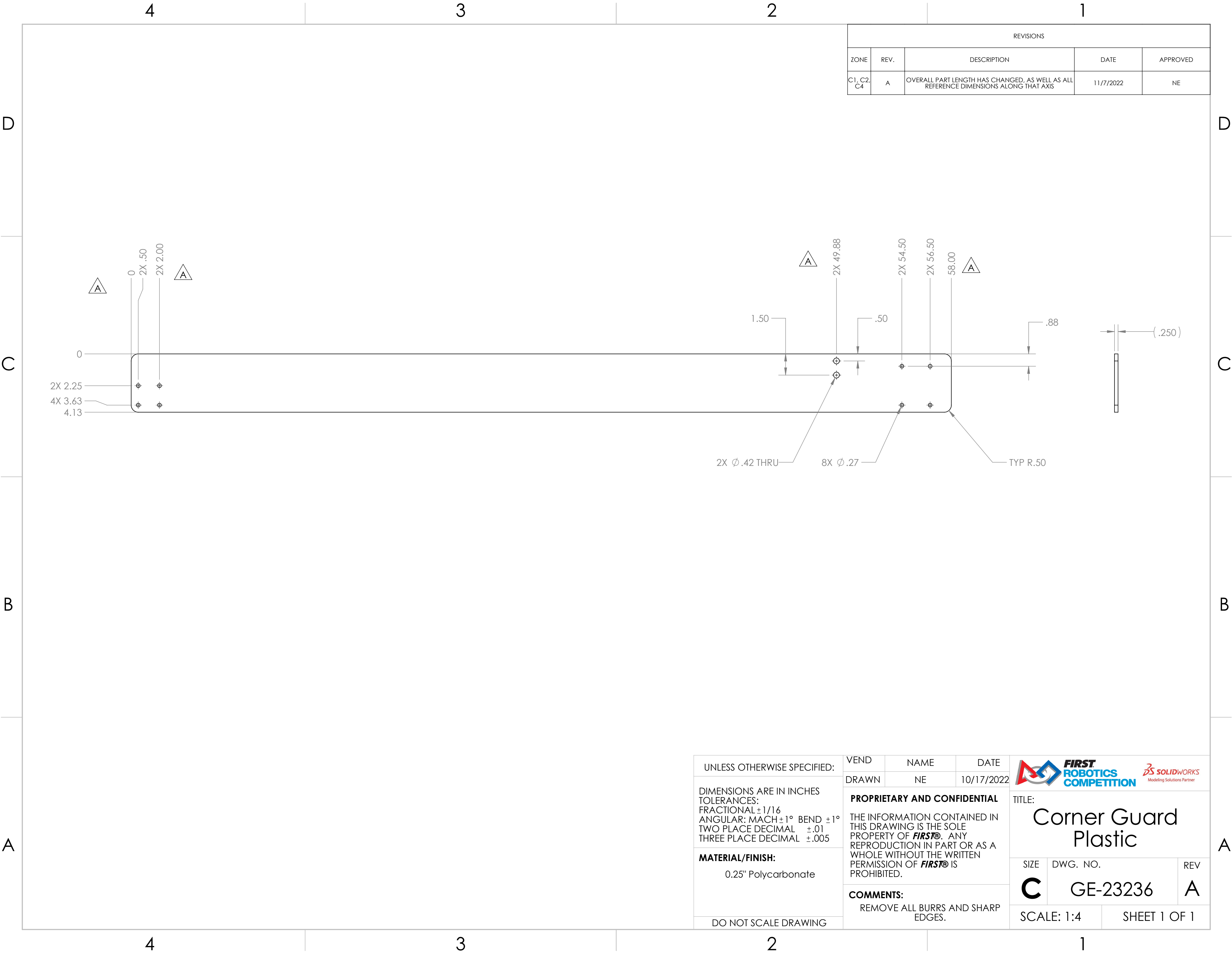
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>  6061 AL SCH 40 Tube   DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div>		
	DRAWN	JO	10/11/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.					
TITLE: Pin Anchor Tube				SIZE	DWG. NO.	REV
				C	GE-23234	
SCALE: 2:1				SHEET 1 OF 1		









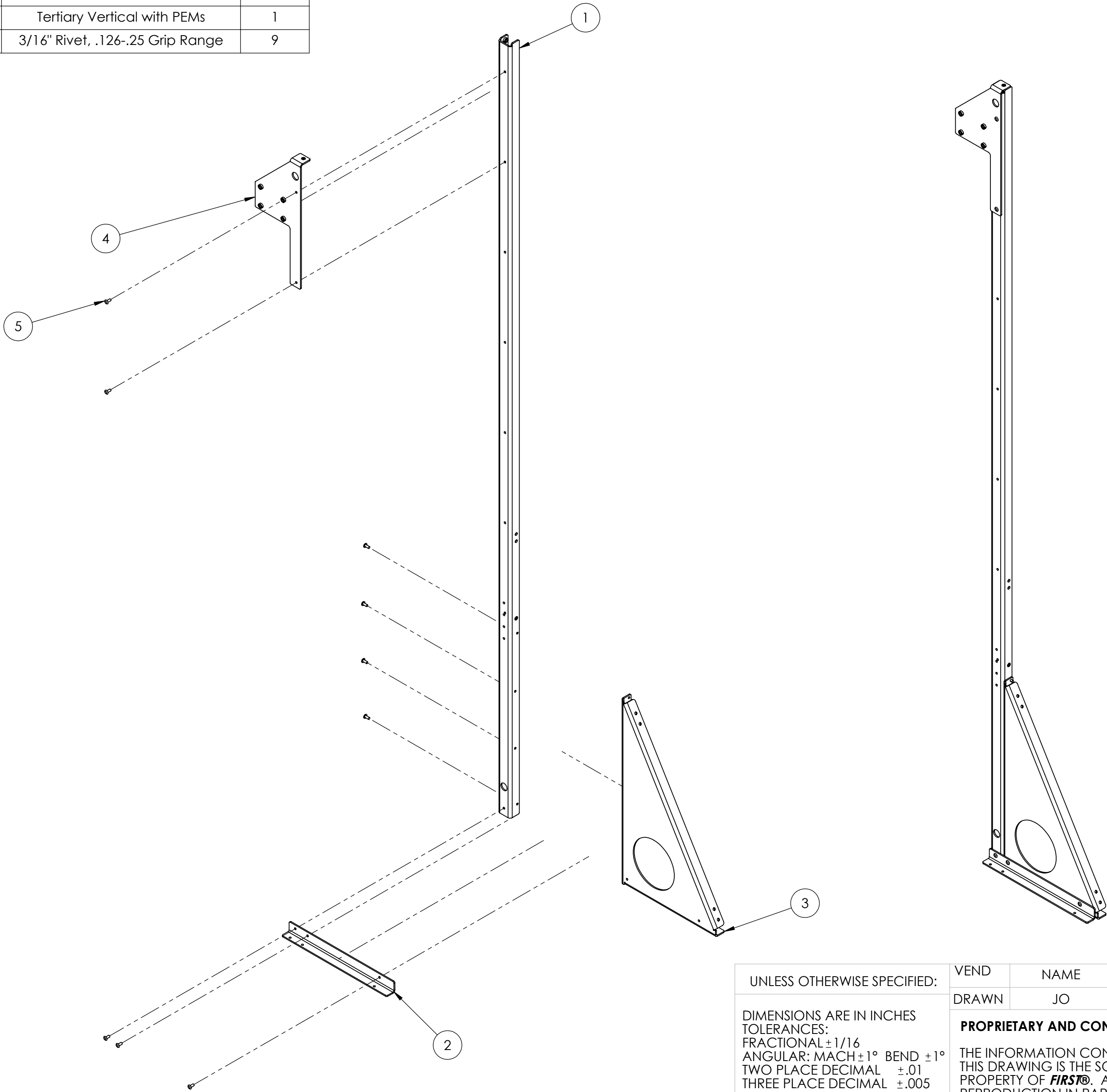
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b> 6061 AL 1" Sch 40 Pipe  DO NOT SCALE DRAWING	FIELD	NAME	DATE	 		
	DRAWN	NE	11/15/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>			TITLE: Extended Corner Pin		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE <b>C</b>	DWG. NO. GE-23235-01	REV
<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SCALE: 1:2		SHEET 1 OF 1	



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C1, C2, C4	A	OVERALL PART LENGTH HAS CHANGED, AS WELL AS ALL REFERENCE DIMENSIONS ALONG THAT AXIS	11/7/2022	NE

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  0.25" Polycarbonate  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> TITLE: <b>Corner Guard Plastic</b>		
	DRAWN	NE	10/17/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. <b>GE-23236</b>	REV <b>A</b>
SCALE: 1:4		SHEET 1 OF 1				

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23221	Blue Primary Vertical with PEMs	1
2	GE-23223	Floor Anchor	1
3	GE-23224	Blue Lower Corner Bracket	1
4	GE-23231	Tertiary Vertical with PEMs	1
5	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	9



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

VEND

NAME

DATE

DRAWN

JO

10/11/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.



**FIRST**  
ROBOTICS  
COMPETITION



Modeling Solutions Partner

TITLE: Blue Corner  
Vertical W/O  
Pin

SIZE

C

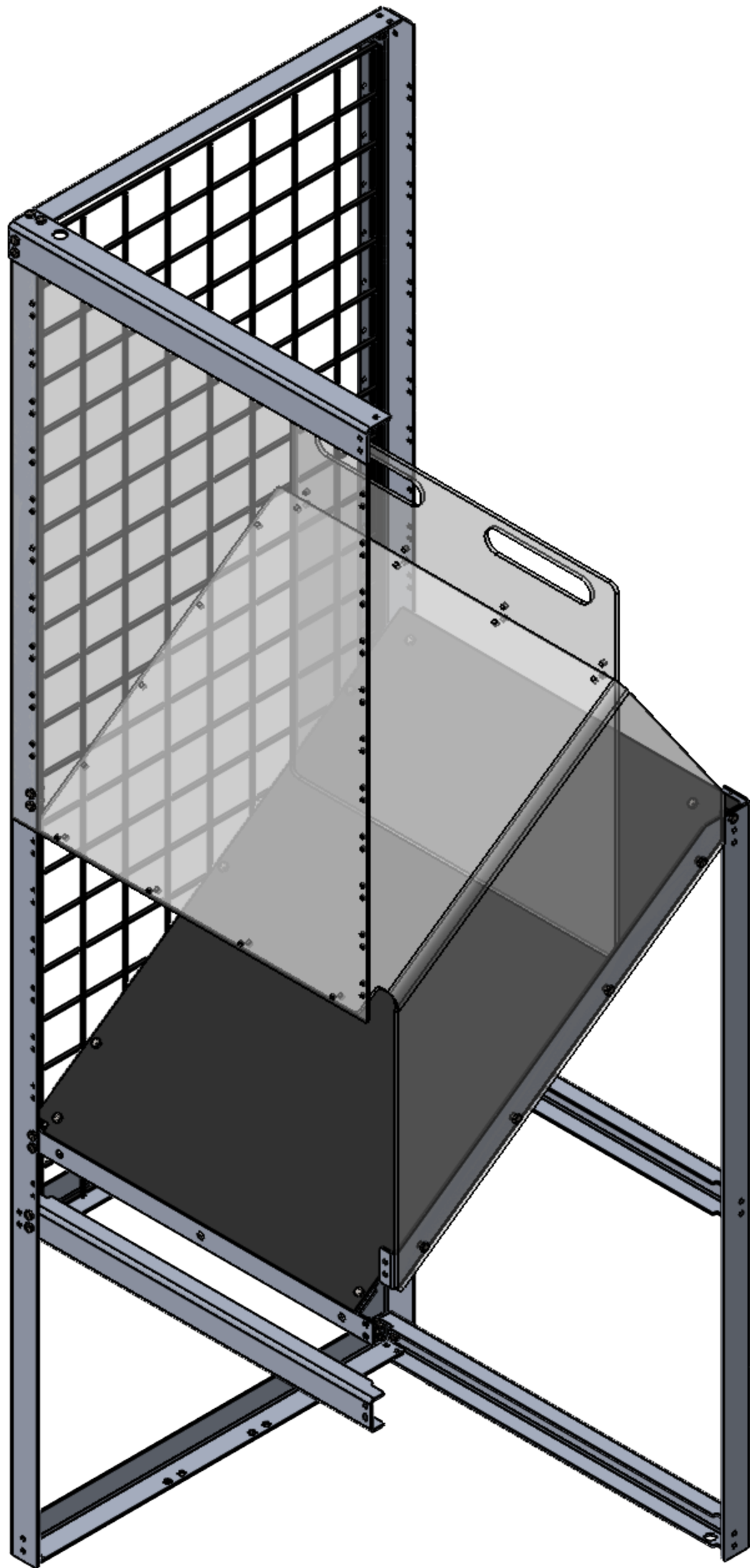
DWG. NO.

GE-23237

REV

SCALE: 1:7

SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23241	HP Protection Plastic	1
2	GE-23242	Blue Chute Cover	1
3	GE-23243	Blue Chute Top Connector	1
4	GE-23244	Blue Crossbeam	2
5	GE-23245	Short Chute Vertical	1
6	GE-23246	Chute Door	1
7	GE-23247	Blue Crossbeam With Loop	1
8	GE-23250	Side Fence	1
9	GE-23260	Blue Ramp Assembly	1
10	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	27
11	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	17

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	12/22/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.



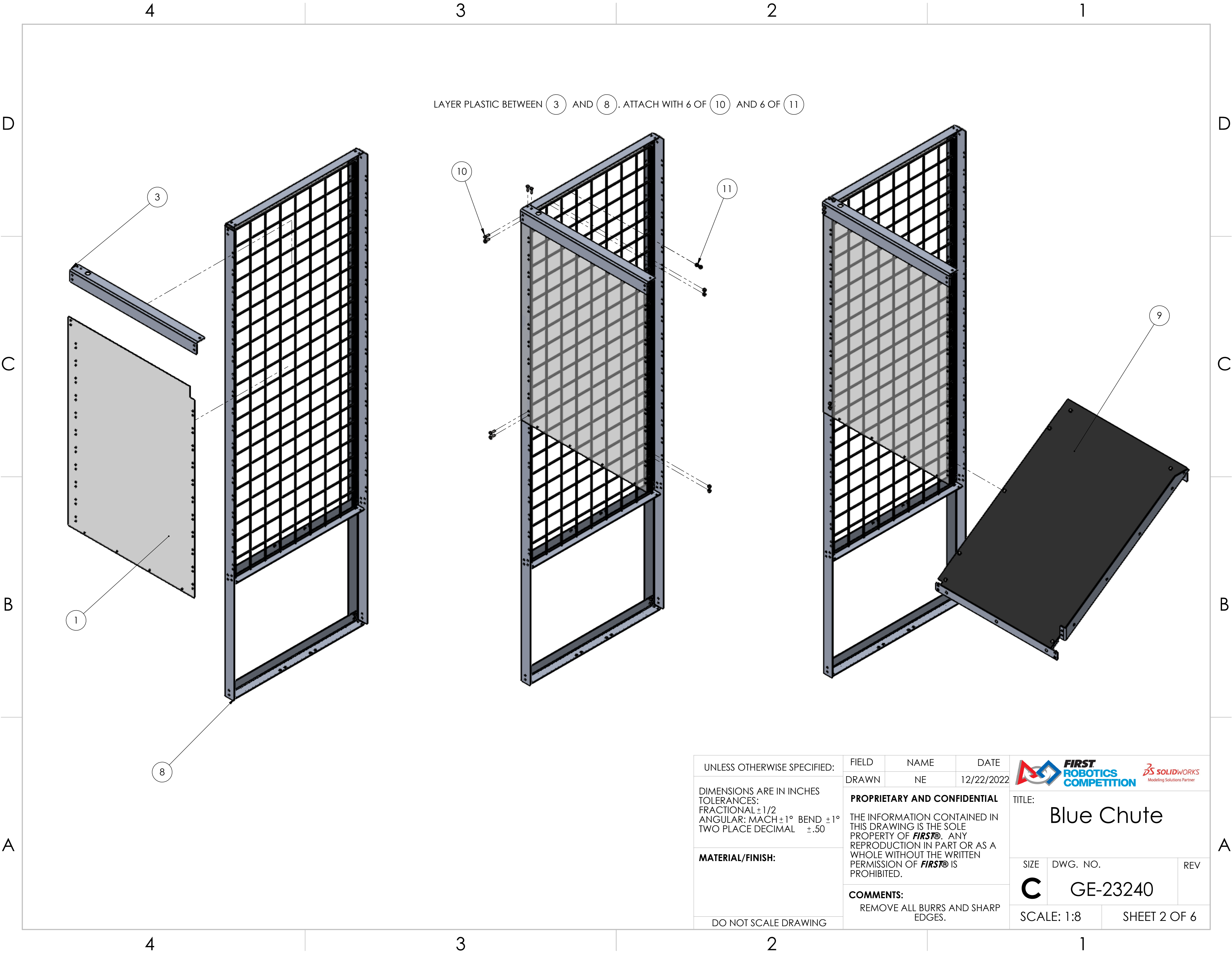
TITLE:  
Blue Chute

SIZE	DWG. NO.	REV
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C	GE-23240	
---	----------	--

SCALE: 1:6	SHEET 1 OF 6
------------	--------------





LAYER PLASTIC BETWEEN 3 AND 8. ATTACH WITH 6 OF 10 AND 6 OF 11

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

**MATERIAL/FINISH:**

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	12/22/2022

**PROPRIETARY AND CONFIDENTIAL**

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**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE: Blue Chute

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

<b>C</b>	GE-23240	
----------	----------	--

SCALE: 1:8	SHEET 2 OF 6
------------	--------------



4

3

2

1

D

D

C

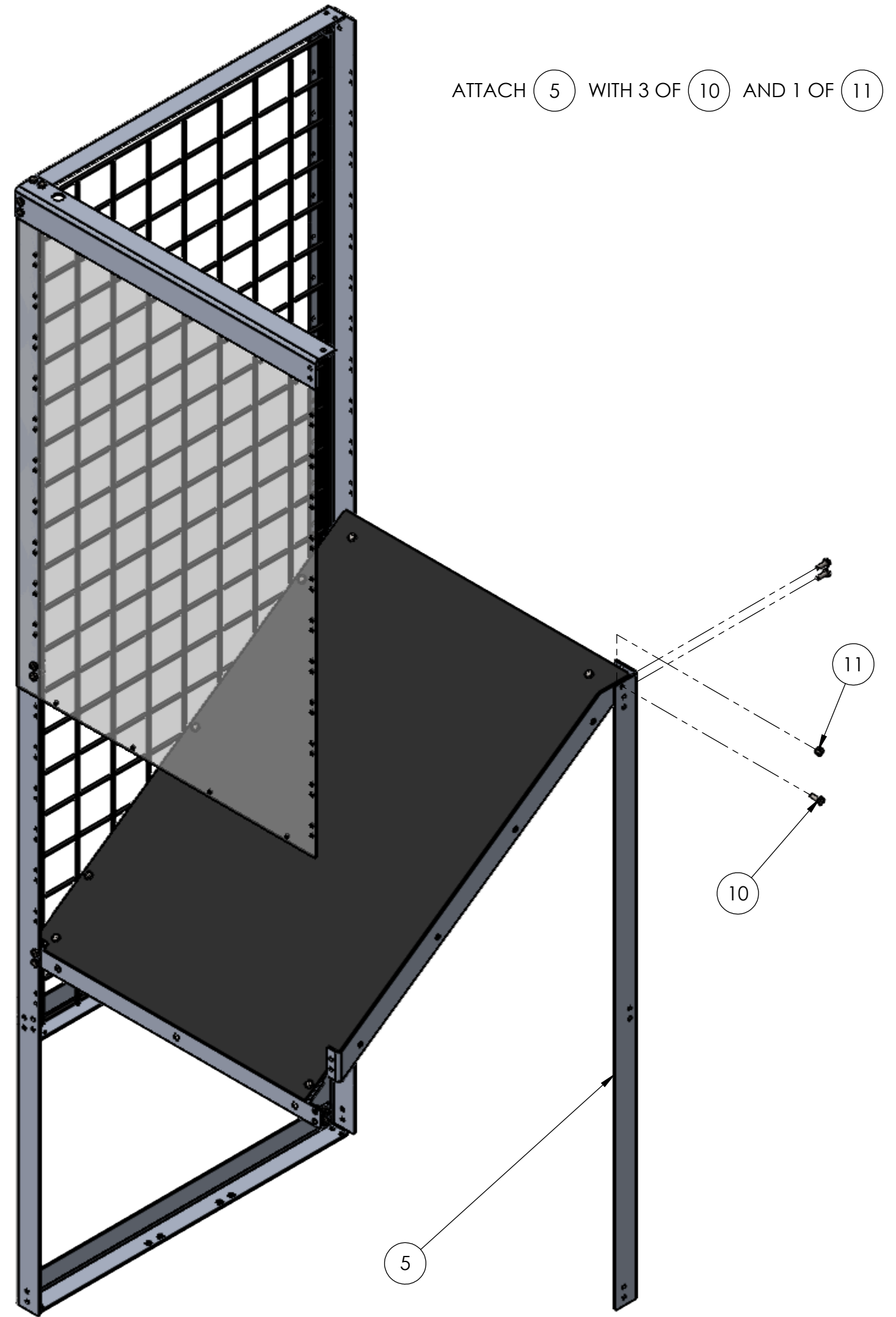
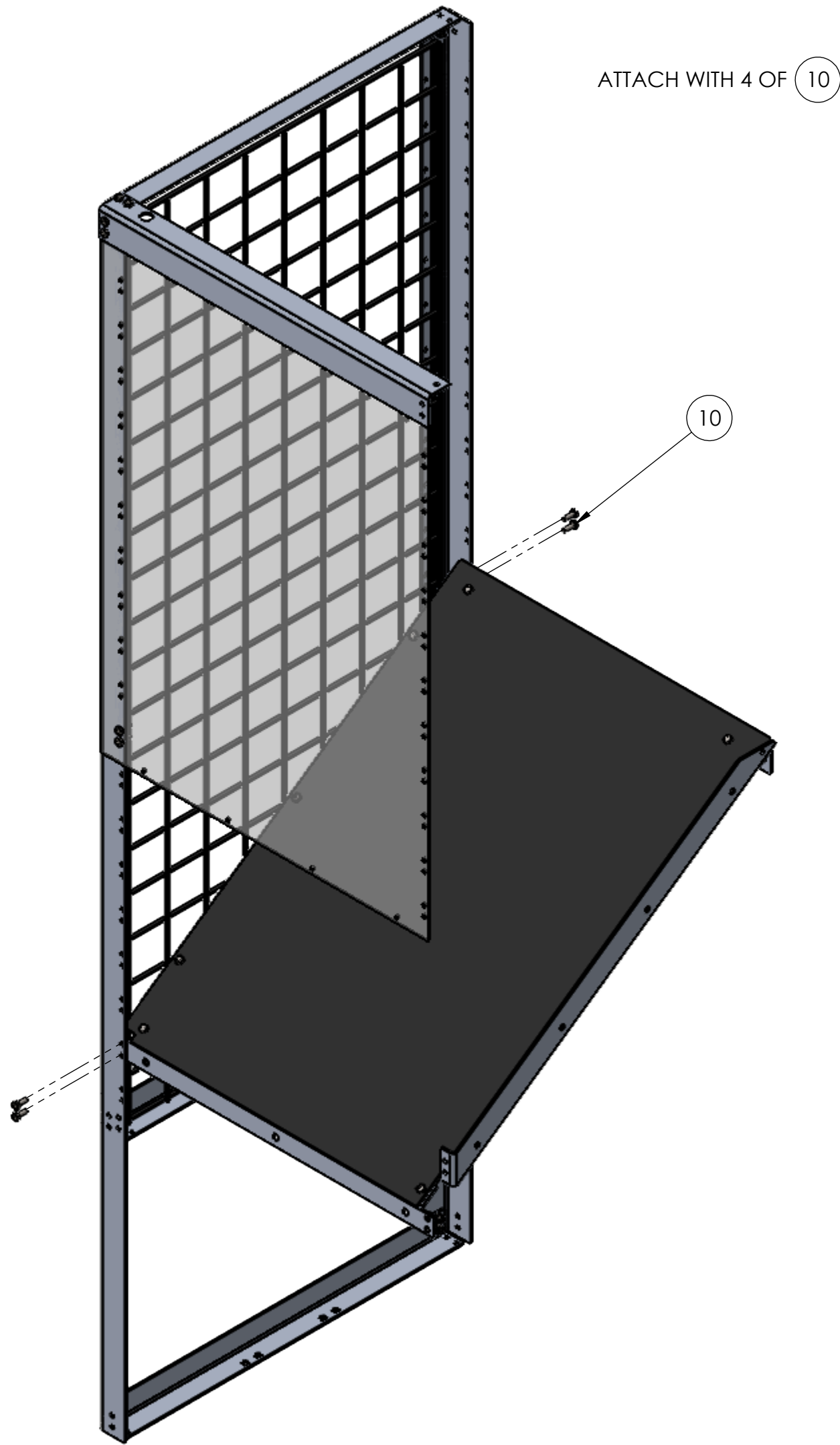
C

B

B

A

A



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD

NAME

DATE

DRAWN

NE

12/22/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.



**FIRST**  
ROBOTICS  
COMPETITION



Modeling Solutions Partner

TITLE:

Blue Chute

SIZE

DWG. NO.

REV

C

GE-23240

SCALE: 1:7

SHEET 3 OF 6

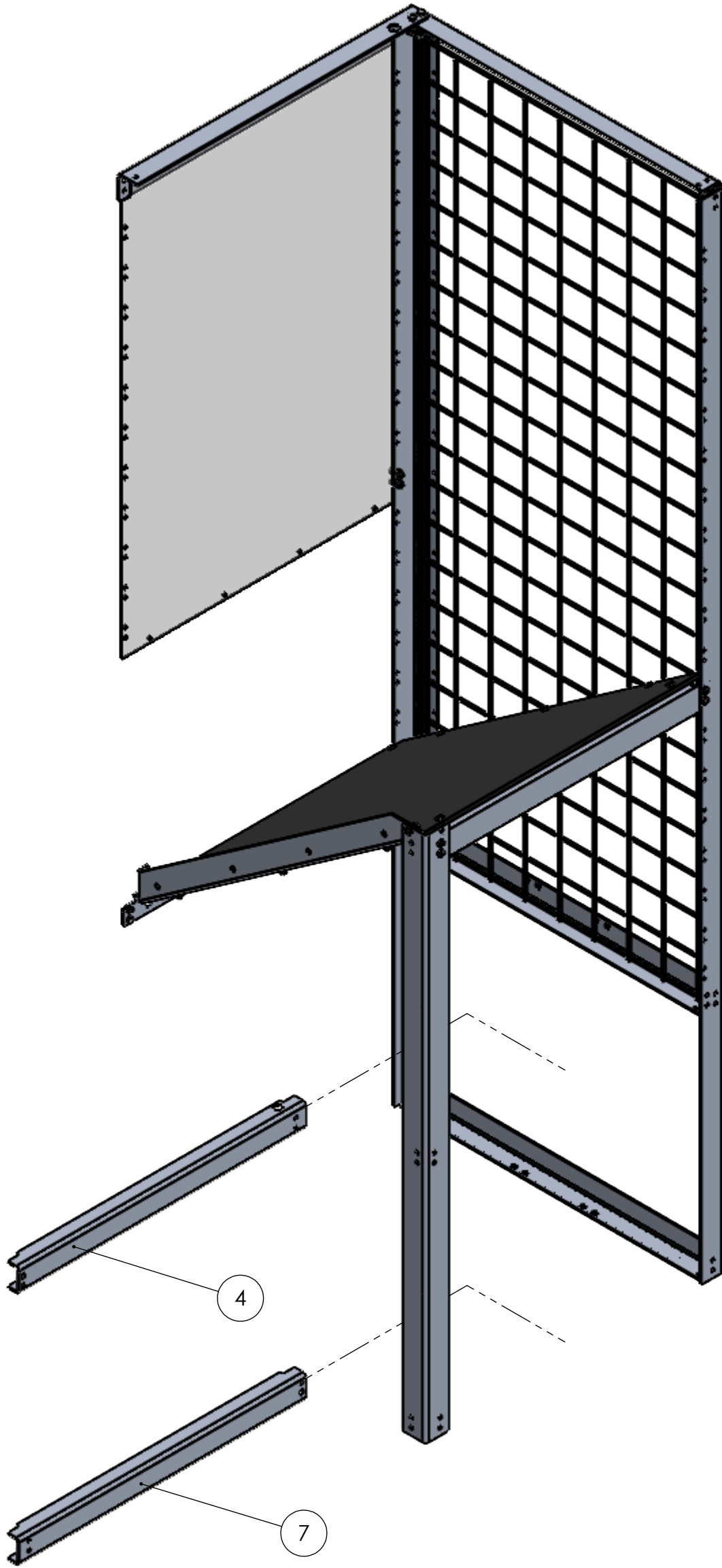
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3

2

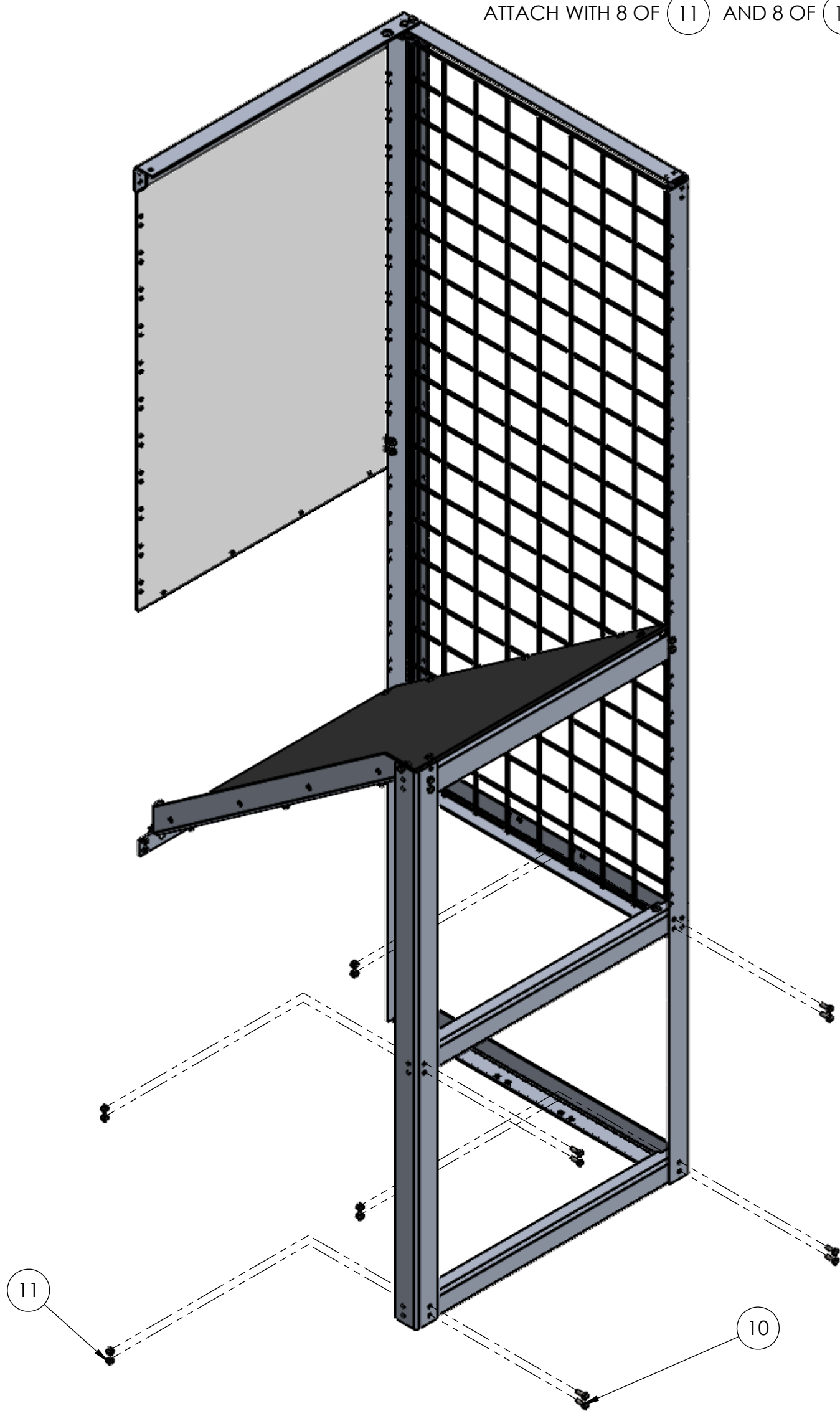
1



(ROTATED 90 DEGREES FOR VISIBILITY)



NOTE: (7) IS THE SAME PART AS (4)  
WITH LOOP ON ONE FACE. LOOP IS  
DOWNWARD FACING IN ASSEMBLY TO  
INTERACT WITH THE FLOOR

ATTACH WITH 8 OF (11) AND 8 OF (10)



UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div>		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	DRAWN	NE	12/22/2022	TITLE:  Blue Chute		
	PROPRIETARY AND CONFIDENTIAL			SIZE  C		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS:			DWG. NO.		REV
DO NOT SCALE DRAWING	REMOVE ALL BURRS AND SHARP EDGES.			GE-23240		
				SCALE: 1:8		SHEET 4 OF 6



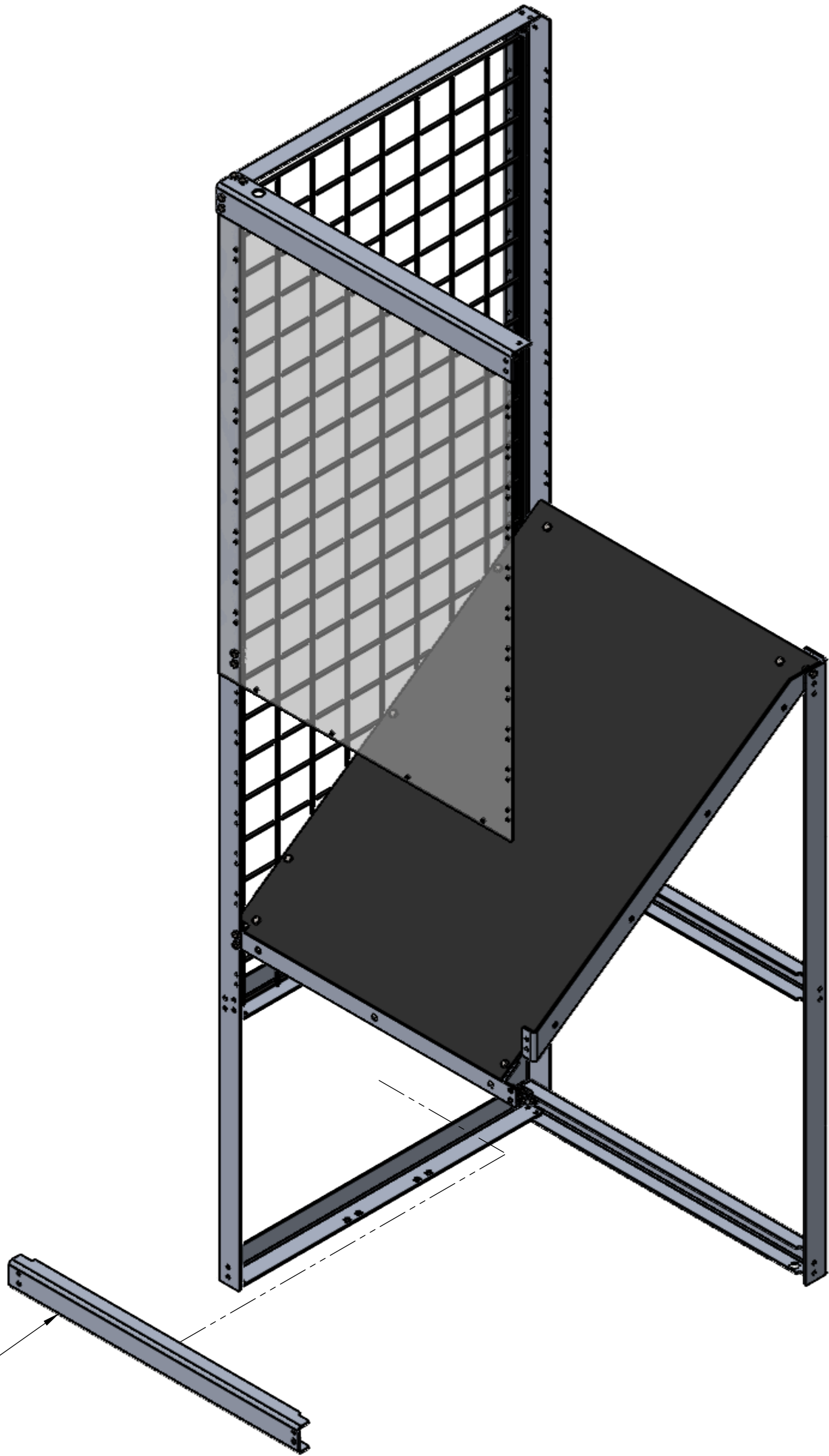
4

3

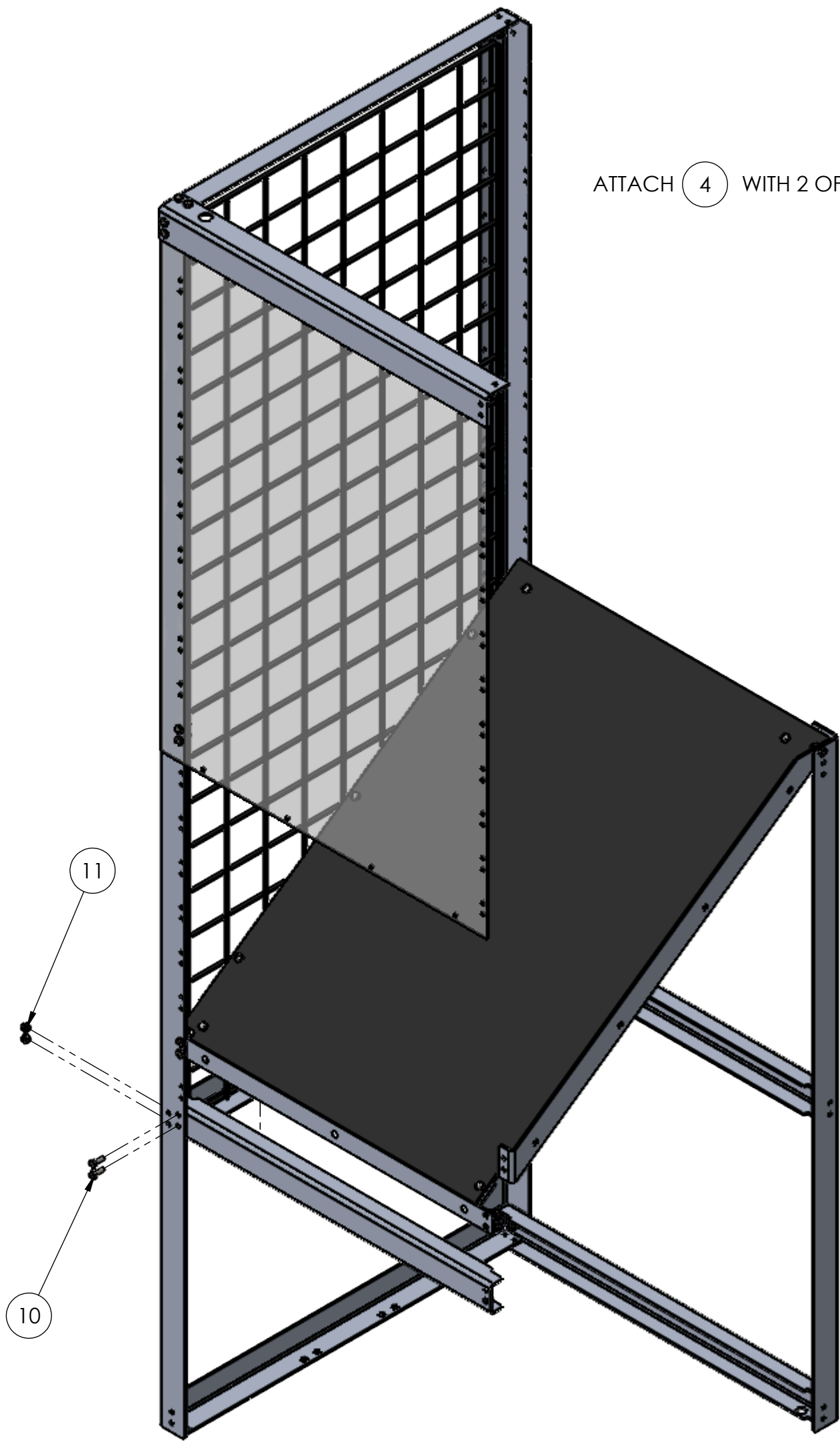
2



1

(ROTATED BACK TO ORIGINAL ORIENTATION)

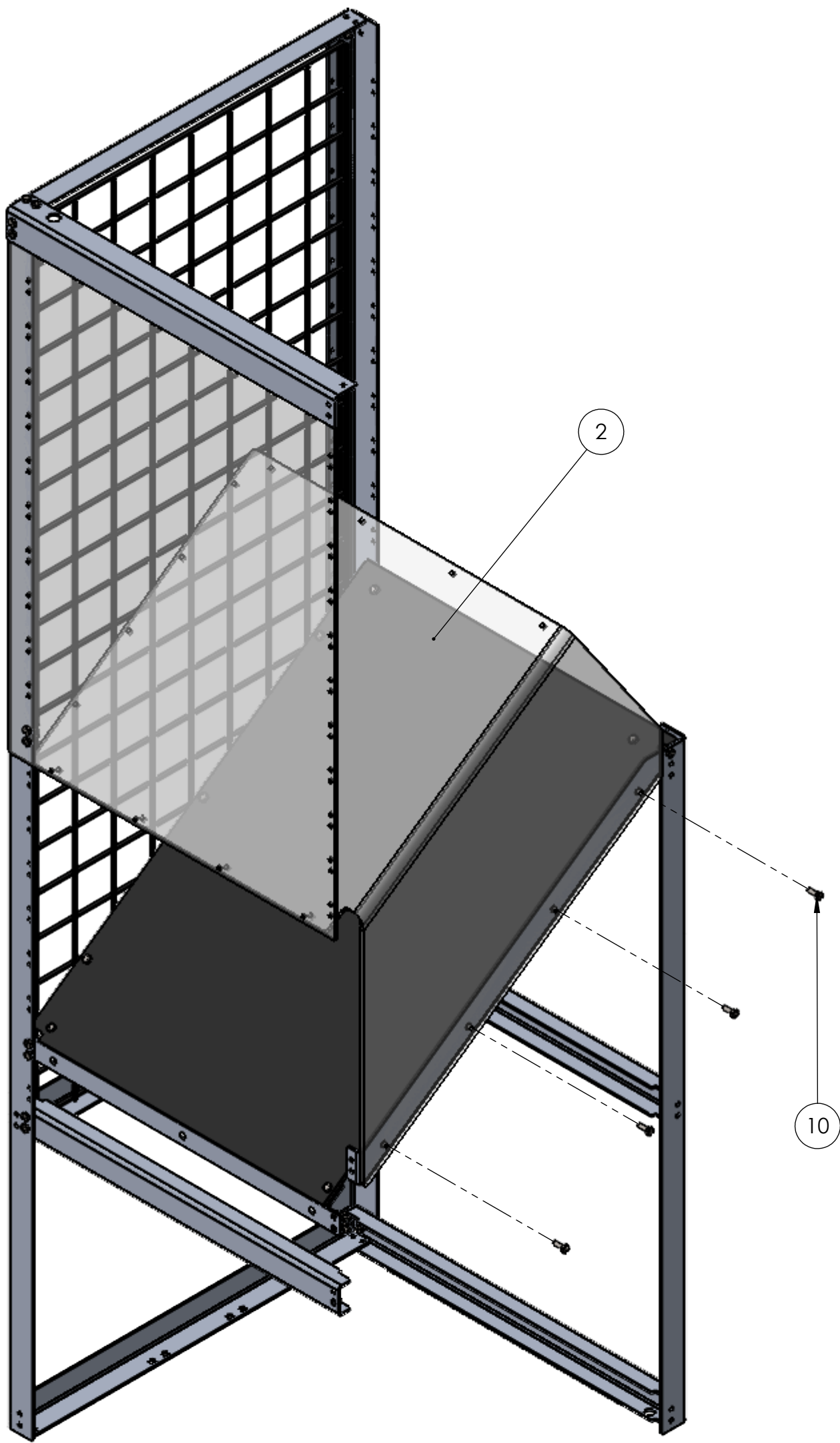


ATTACH 4 WITH 2 OF 11 AND 2 OF 10

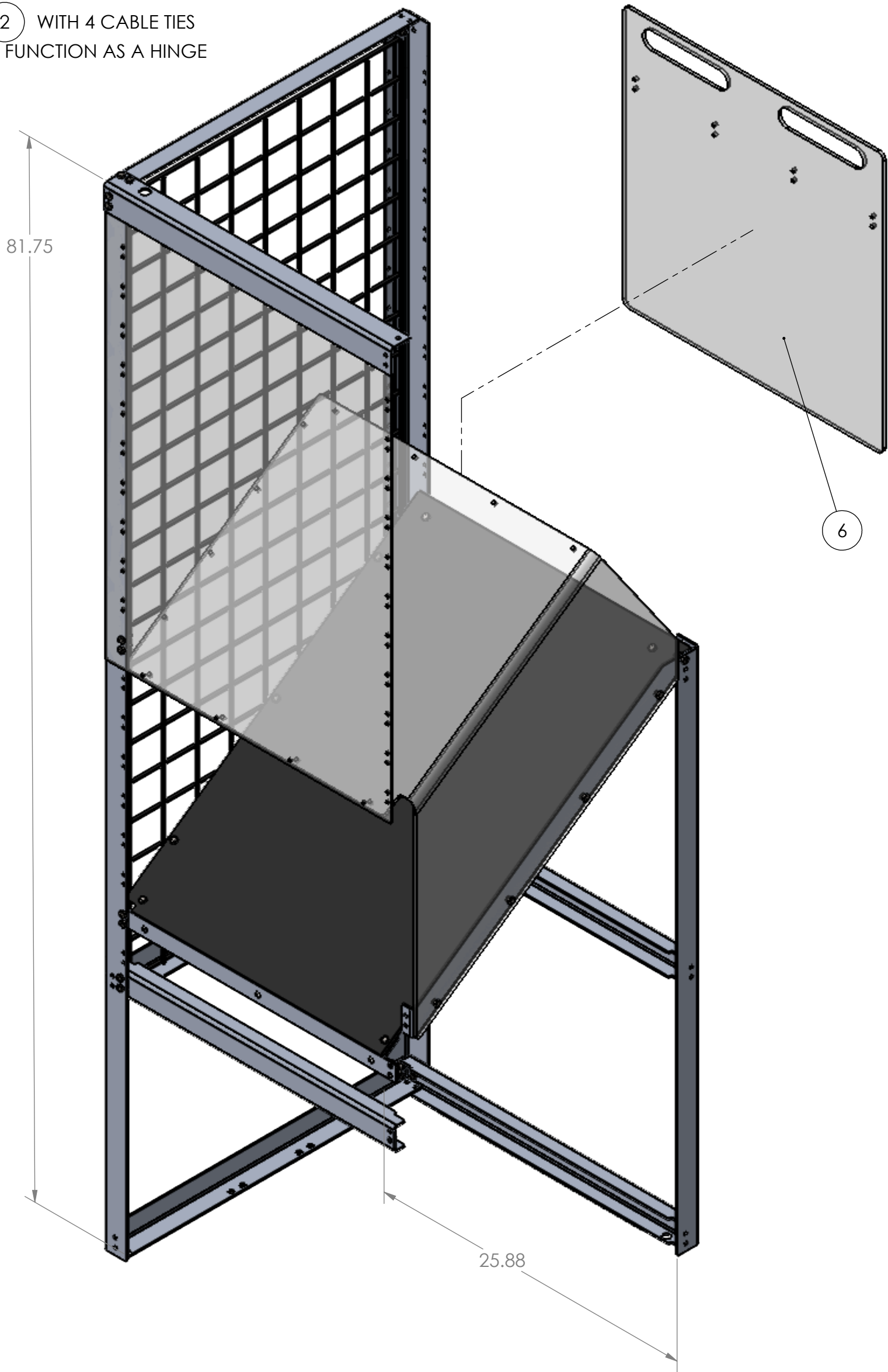




UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50  <b>MATERIAL/FINISH:</b>     DO NOT SCALE DRAWING	FIELD	NAME	DATE	 	
	DRAWN	NE	12/22/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Blue Chute	
	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE  <b>C</b>	DWG. NO.  GE-23240
			SCALE: 1:7		SHEET 5 OF 6

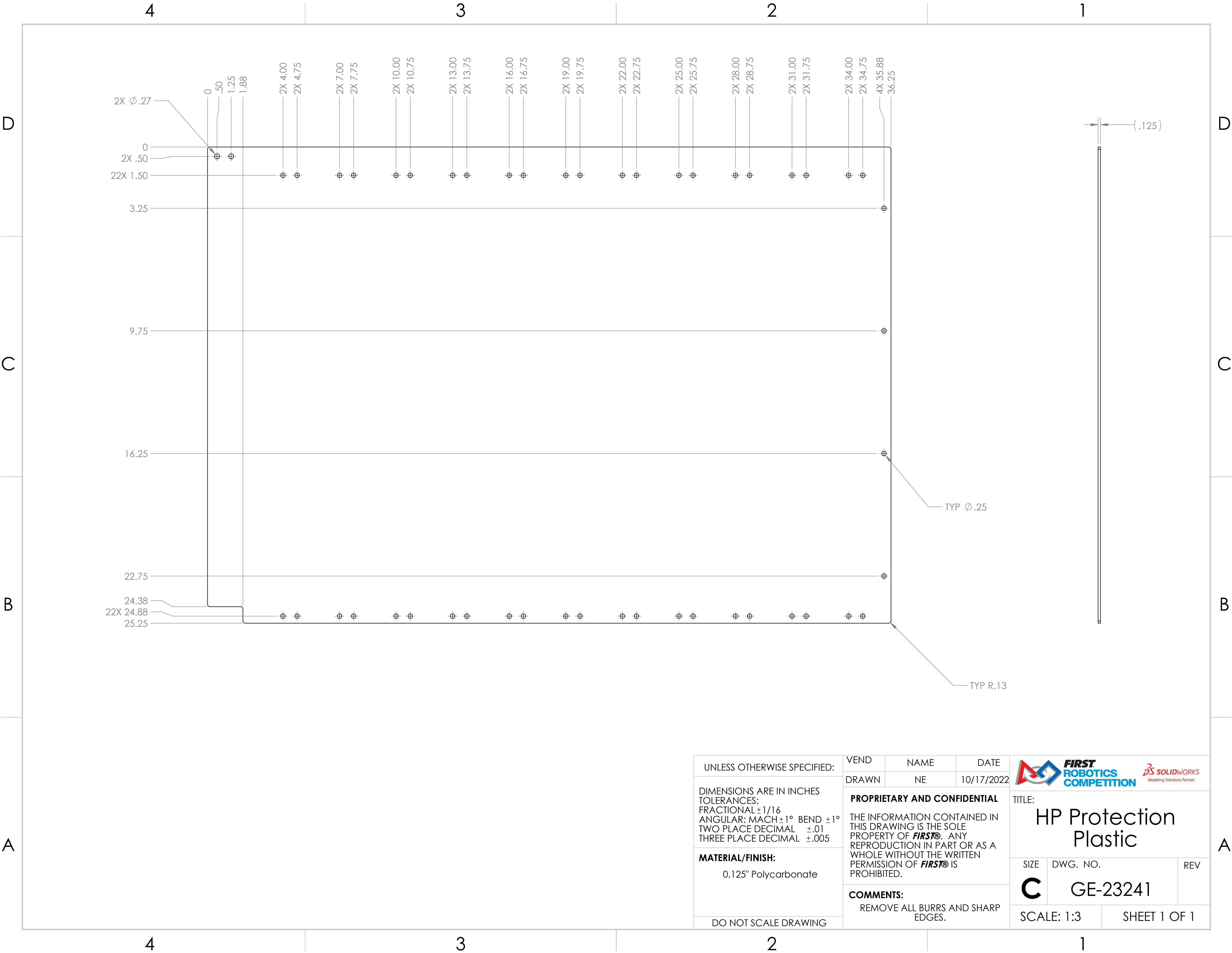
ATTACH 6 TO 2 WITH 4 CABLE TIES  
LOOSE ENOUGH TO FUNCTION AS A HINGE





ATTACH 2 TO THE OUTSIDE OF THE RAMP WITH 4 OF 10

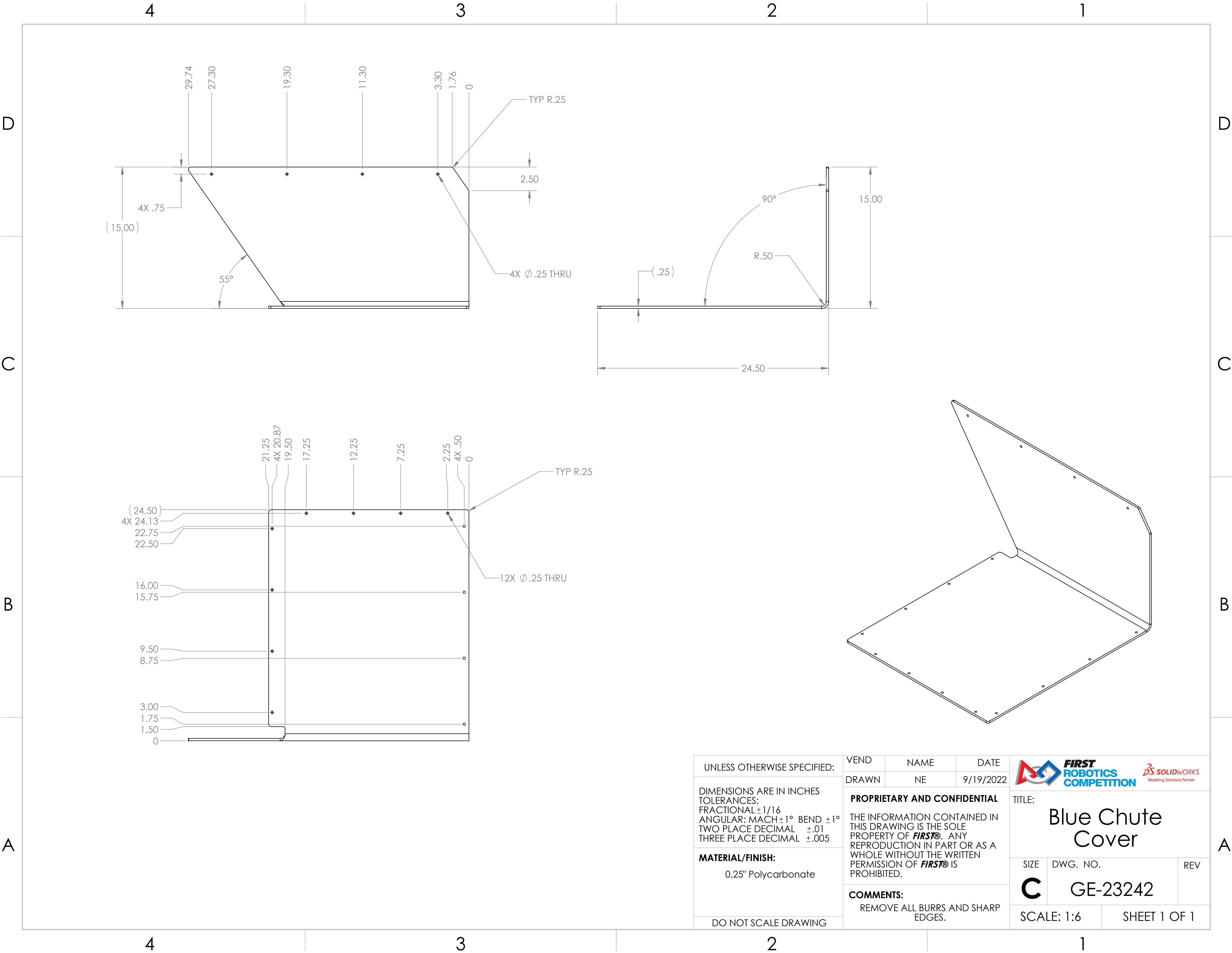




UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div><div>FIRST ROBOTICS COMPETTITION</div><div>Modeling Solutions Partner</div></div>		
	DRAWN	NE	12/22/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE:  Blue Chute		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
DO NOT SCALE DRAWING	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23240	
				SCALE: 1:7		SHEET 6 OF 6



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  0.125" Polycarbonate  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: <h1>HP Protection Plastic</h1></div>		
	DRAWN	NE	10/17/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23241	
SCALE: 1:3		SHEET 1 OF 1				

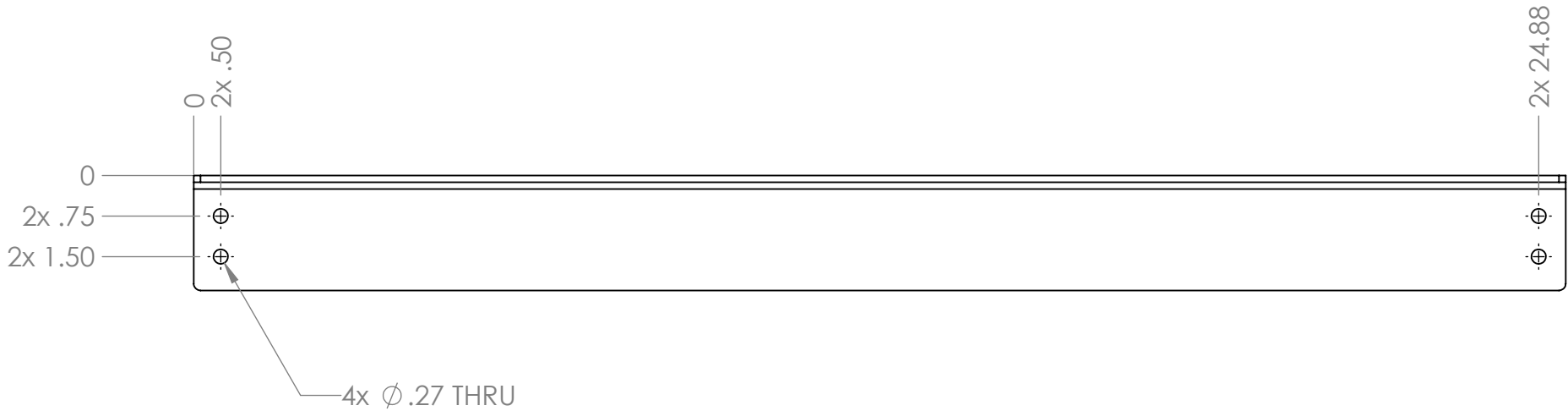
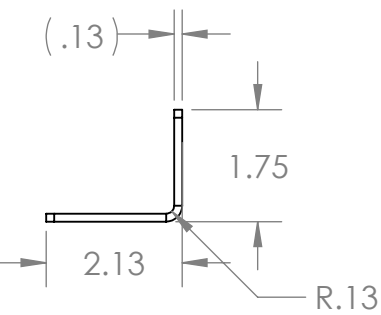
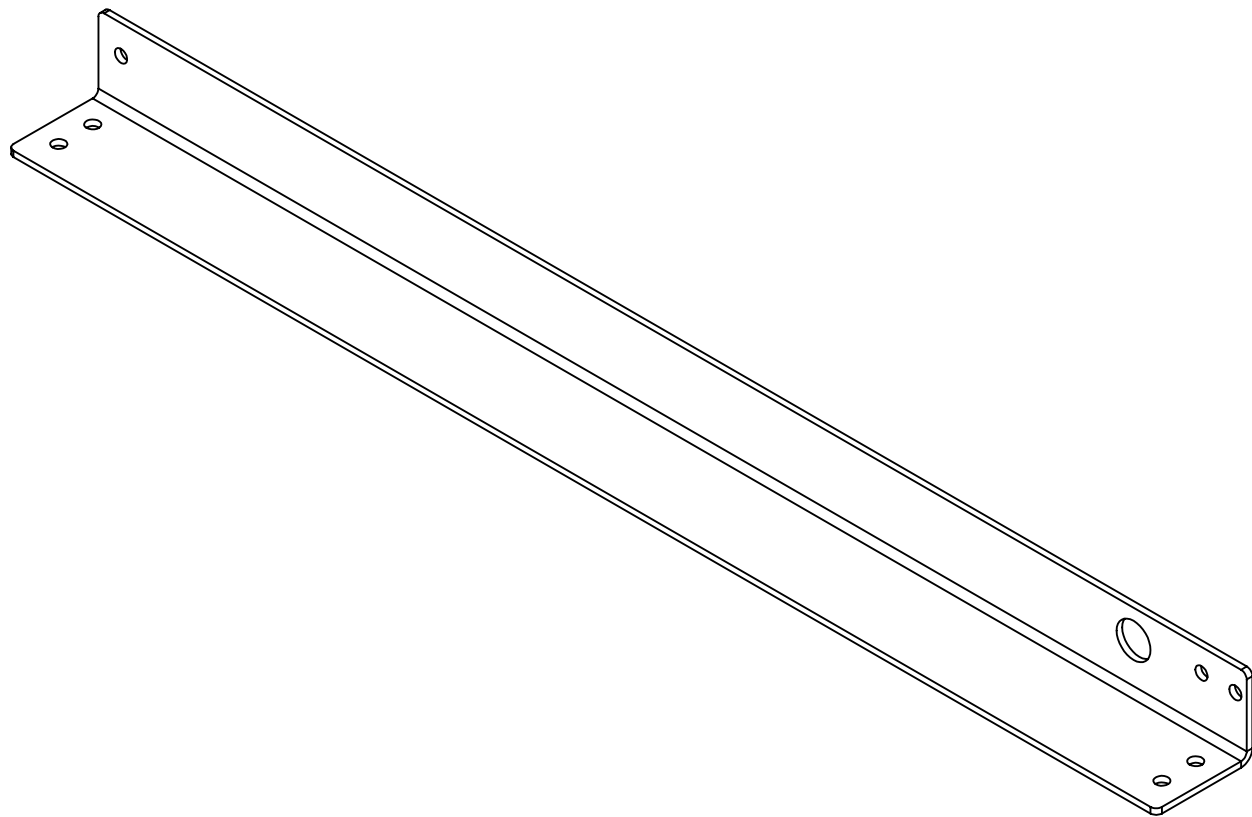






UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>  0.25" Polycarbonate  <b>DO NOT SCALE DRAWING</b>	VEND	NAME	DATE	<div></div> <div>TITLE:  Blue Chute Cover</div>		
	DRAWN	NE	9/19/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				<b>C</b>	GE-23242	
				SCALE: 1:6		SHEET 1 OF 1



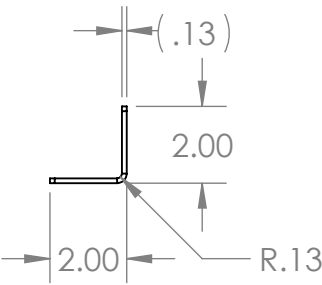
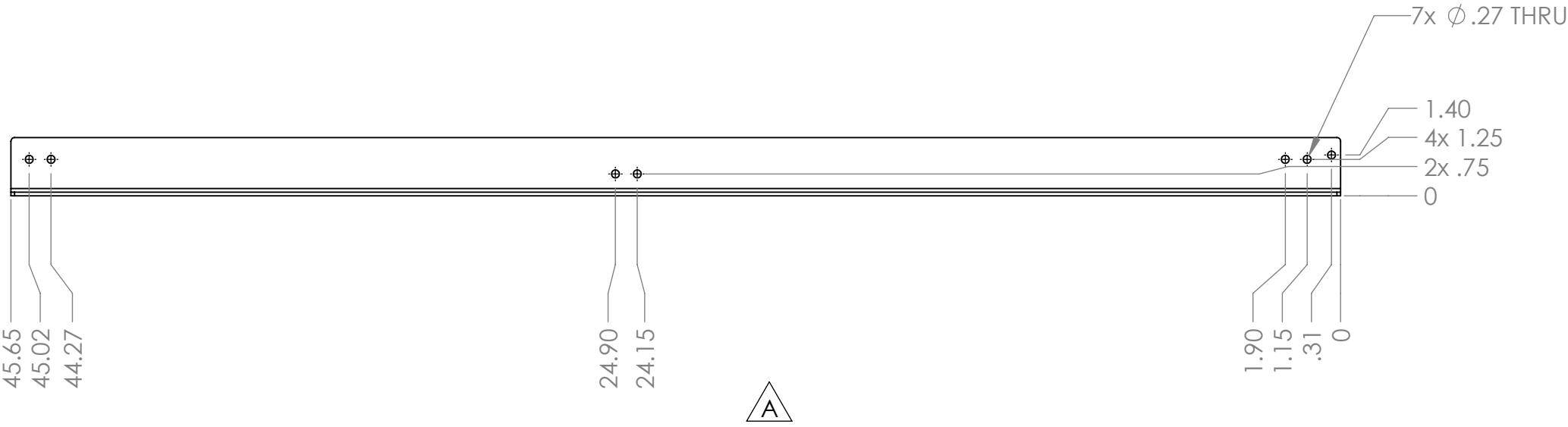
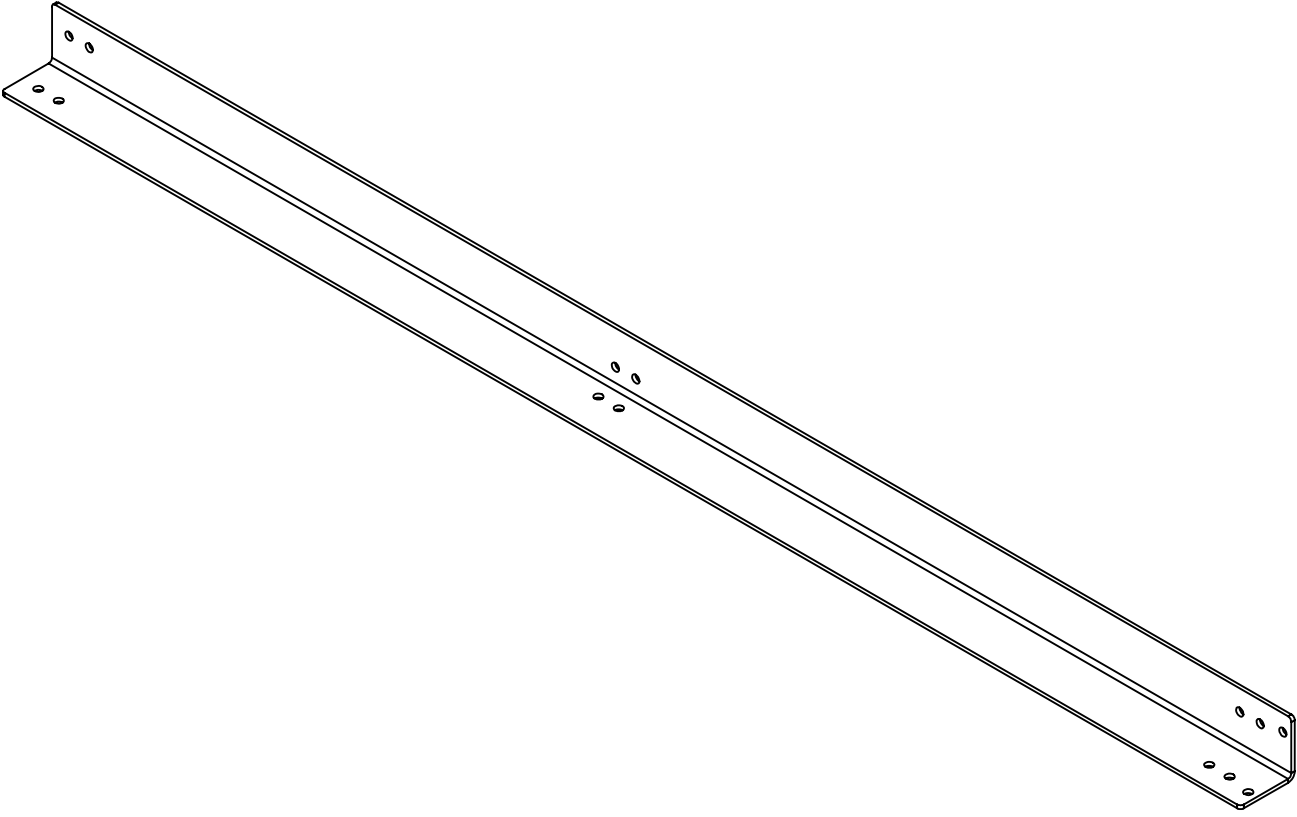
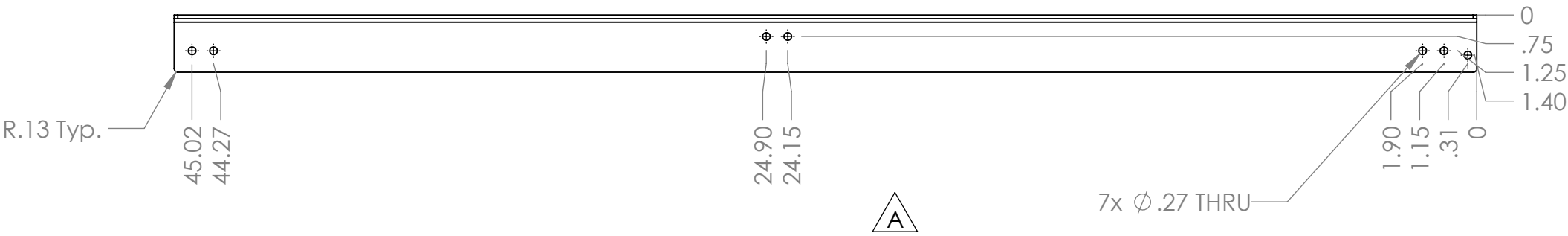
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, B4	A	Added 2 more holes	10/11/2022	JO



UNLESS OTHERWISE SPECIFIED:		BEND	NAME	DATE	<div></div>	
		DRAWN	CO	9/14/2022		
<p>DIMENSIONS ARE IN INCHES</p> <p>TOLERANCES:</p> <p>FRACTIONAL <math>\pm 1/16</math></p> <p>ANGULAR: MACH <math>\pm 1^\circ</math> BEND <math>\pm 1^\circ</math></p> <p>TWO PLACE DECIMAL <math>\pm .02</math></p> <p>THREE PLACE DECIMAL <math>\pm .010</math></p> <p><b>MATERIAL/FINISH:</b></p> <p>8 GA Aluminum 5052</p> <p>DO NOT SCALE DRAWING</p>		<p><b>PROPRIETARY AND CONFIDENTIAL</b></p> <p>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b>. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.</p> <p><b>COMMENTS:</b></p> <p>REMOVE ALL BURRS AND SHARP EDGES.</p>			TITLE:	
					Blue Chute Top Connector	
					SIZE	DWG. NO.
			C	GE-23243	A	
			SCALE: 1:3		SHEET 1 OF 1	



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, C3	A	Added holes to both faces	10/11/2022	JO



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .02$   
THREE PLACE DECIMAL  $\pm .010$

**MATERIAL/FINISH:**  
8 GA Aluminum 5052

DO NOT SCALE DRAWING

BEND	NAME	DATE
DRAWN	CO	9/14/2022

**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:  
**Short Chute Vertical**

SIZE	DWG. NO.	REV
<b>C</b>	<b>GE-23245</b>	<b>A</b>

SCALE: 1:5 SHEET 1 OF 1

4

3

2

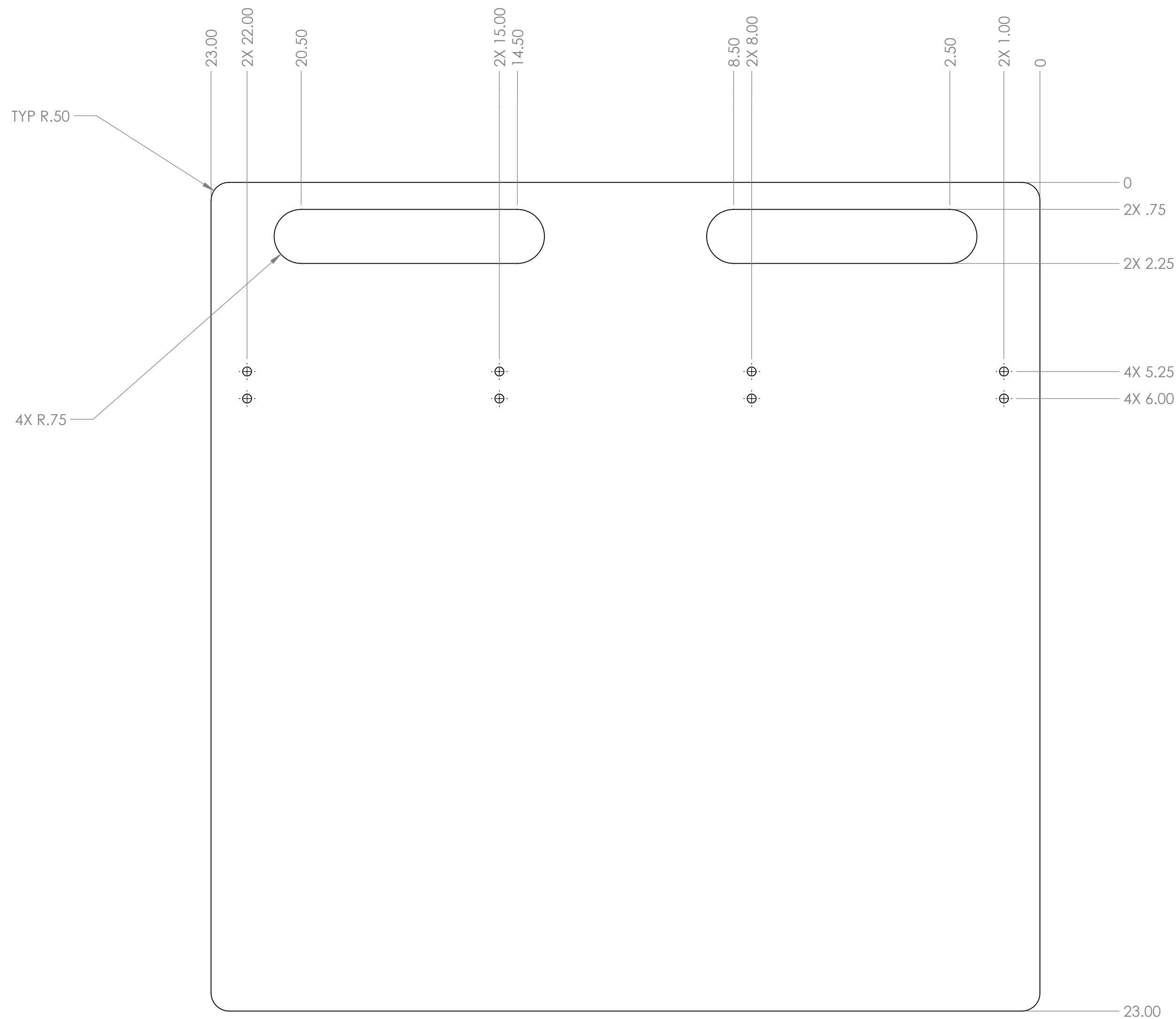
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D

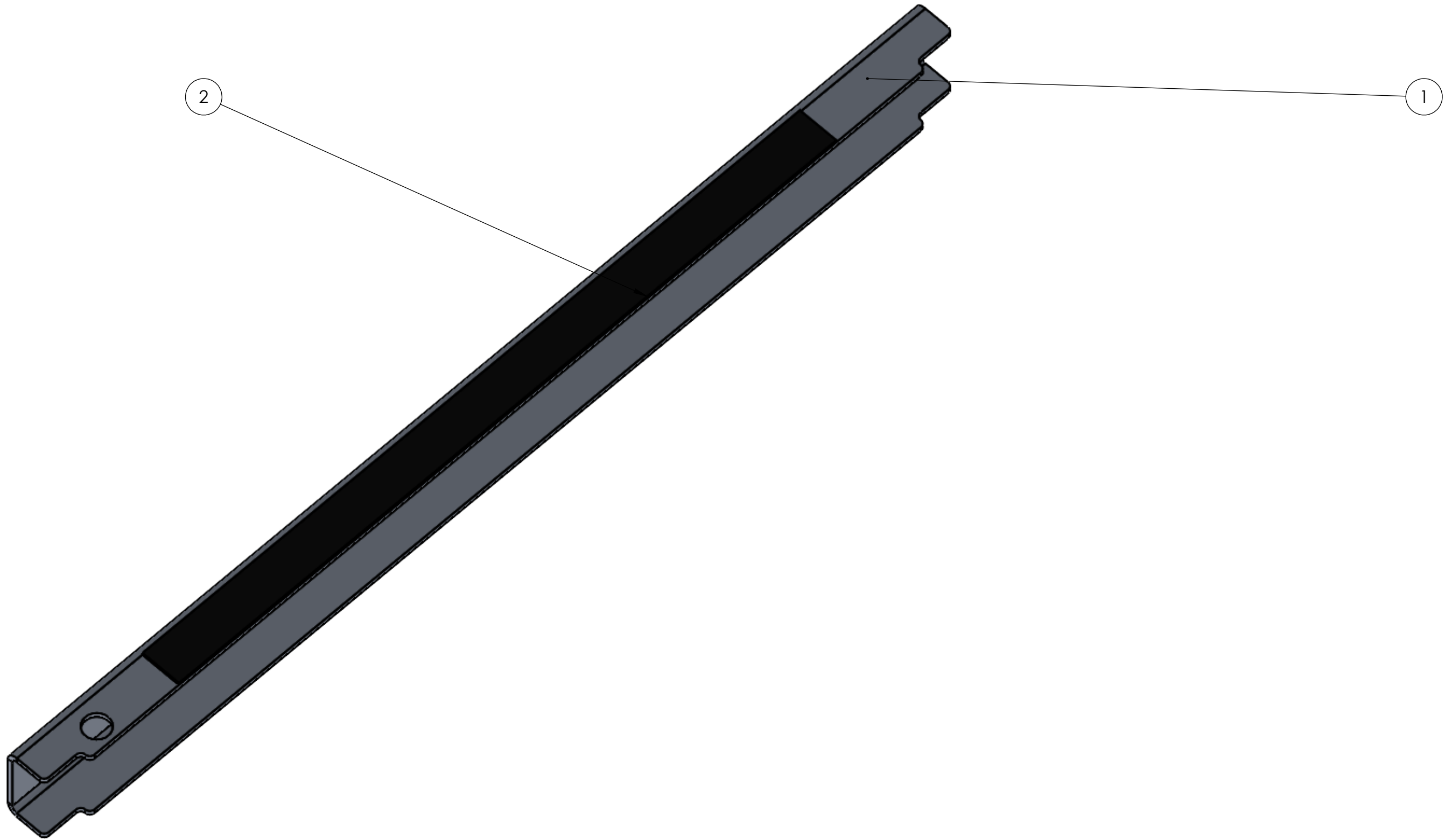
C

B

A



UNLESS OTHERWISE SPECIFIED:		VEN	NAME	DATE	 	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005		DRAWN	NE	10/17/2022		
MATERIAL/FINISH:  0.25" Polycarbonate		PROPRIETARY AND CONFIDENTIAL			TITLE:  Chute Door	
		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
		COMMENTS:  REMOVE ALL BURRS AND SHARP EDGES.			SIZE  C	DWG. NO.  GE-23246
DO NOT SCALE DRAWING					SCALE: 2:5  SHEET 1 OF 1	



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23244	Blue Crossbeam	1
2	Loop_1_18	1" x 18" Loop, Adhesive Backed	1

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

**MATERIAL/FINISH:**

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	1/3/2023

**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.

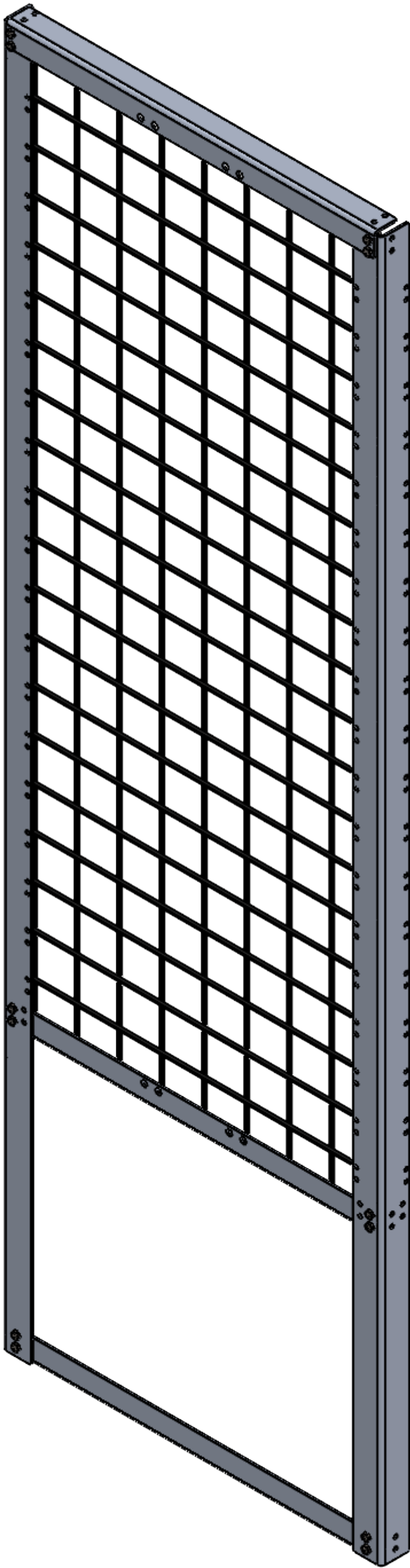


TITLE:  
**Blue Crossbeam  
With Loop**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23247	

SCALE: 1:2      SHEET 1 OF 1





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23251	Side Fence Horizontal	2
2	GE-23252	Side Fence Vertical	2
3	GE-23253	Side Fence Horizontal With Hook	1
4	GE-23266	ULINE Grid	1
5	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	12
6	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	12

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	12/22/2022

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:

Side Fence

SIZE

C

DWG. NO.

GE-23250

REV

SCALE: 2:11

SHEET 1 OF 3

ATTACH 1 AND 3 TO 2 WITH 12 OF 5 AND 12 OF 6

D

C

B

A

D

C



B

A

1 AND 3 ARE THE SAME PART.  
3 HAS HOOK ATTACHED TO ONE  
FACE. HOOK MUST FACE DOWN TO  
ADHERE TO CARPET

5

6

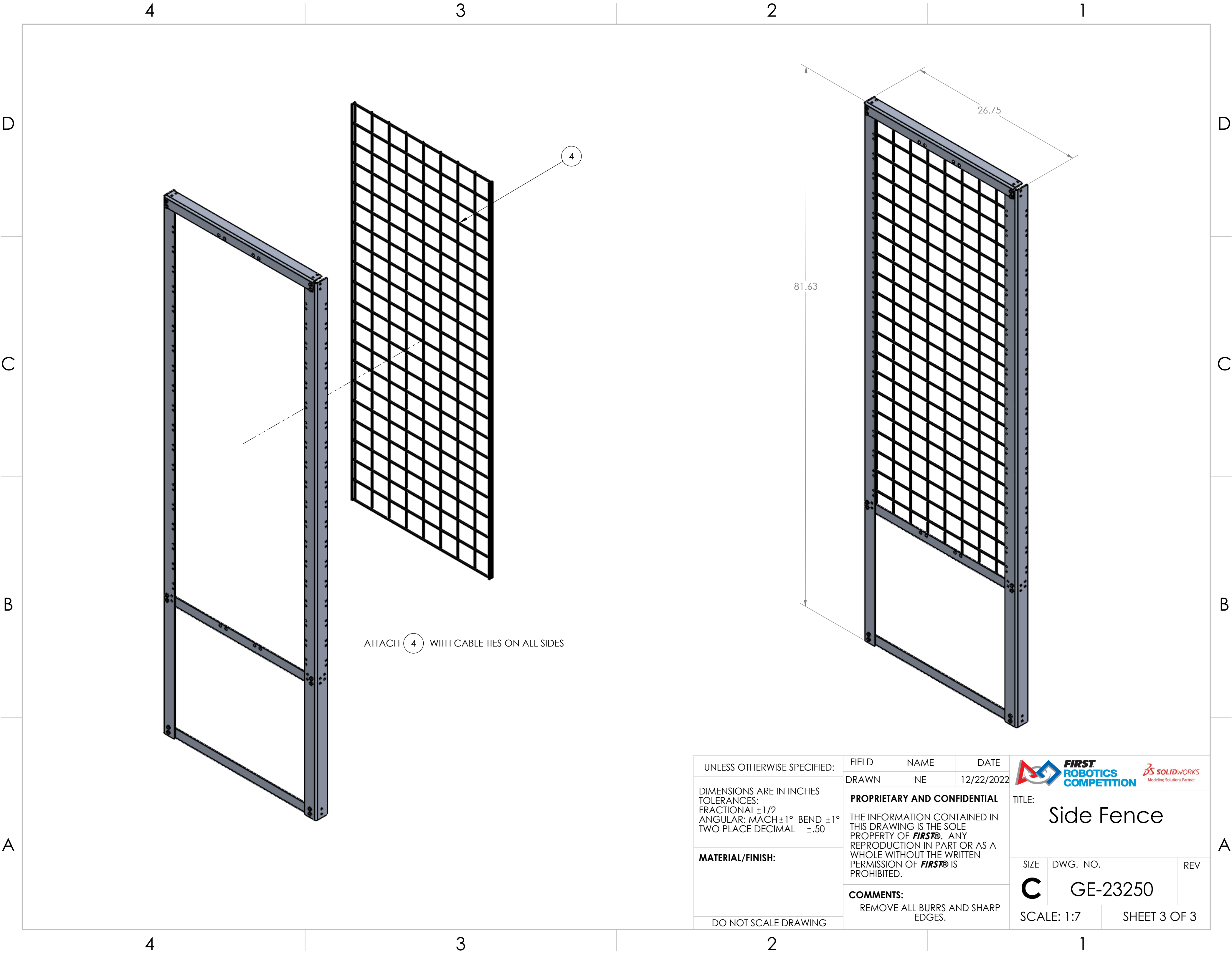
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50  <b>MATERIAL/FINISH:</b>     <b>DO NOT SCALE DRAWING</b>	FIELD	NAME	DATE	<div></div> <div>TITLE: <h1>Side Fence</h1></div>			
	DRAWN	NE	12/22/2022				
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				<b>C</b>	GE-23250	
				SCALE: 1:8		SHEET 2 OF 3	



4

3

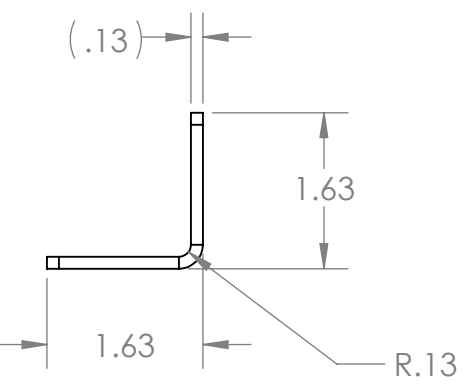
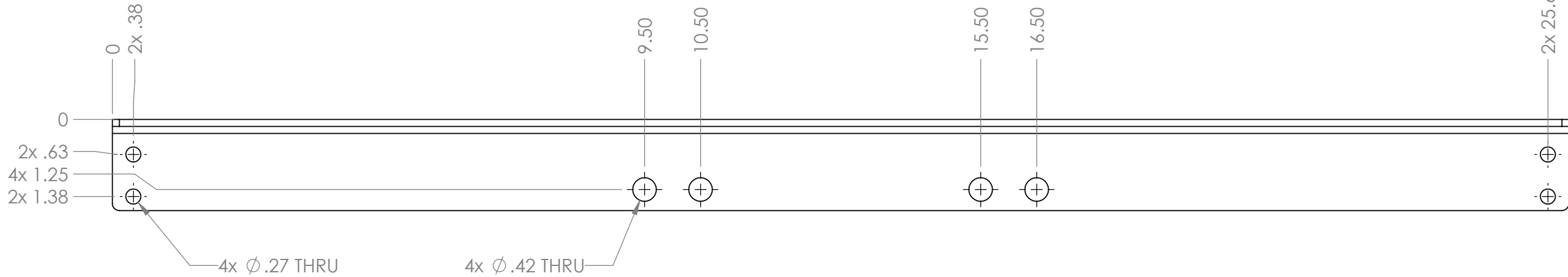
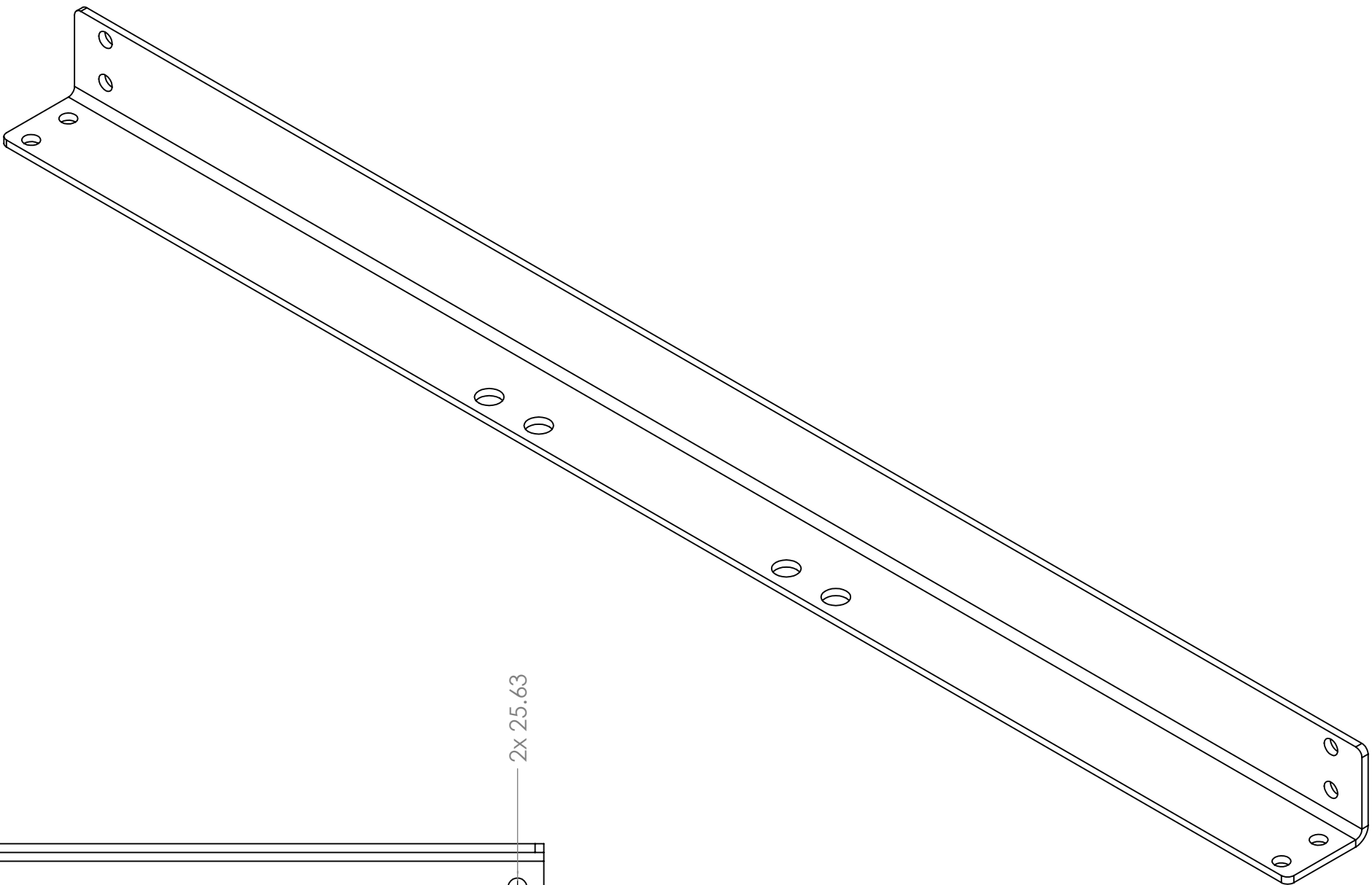
2



1



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50  <b>MATERIAL/FINISH:</b>          DO NOT SCALE DRAWING	FIELD	NAME	DATE	 	
	DRAWN	NE	12/22/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Side Fence	
	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
			C	GE-23250	
			SCALE: 1:7		SHEET 3 OF 3

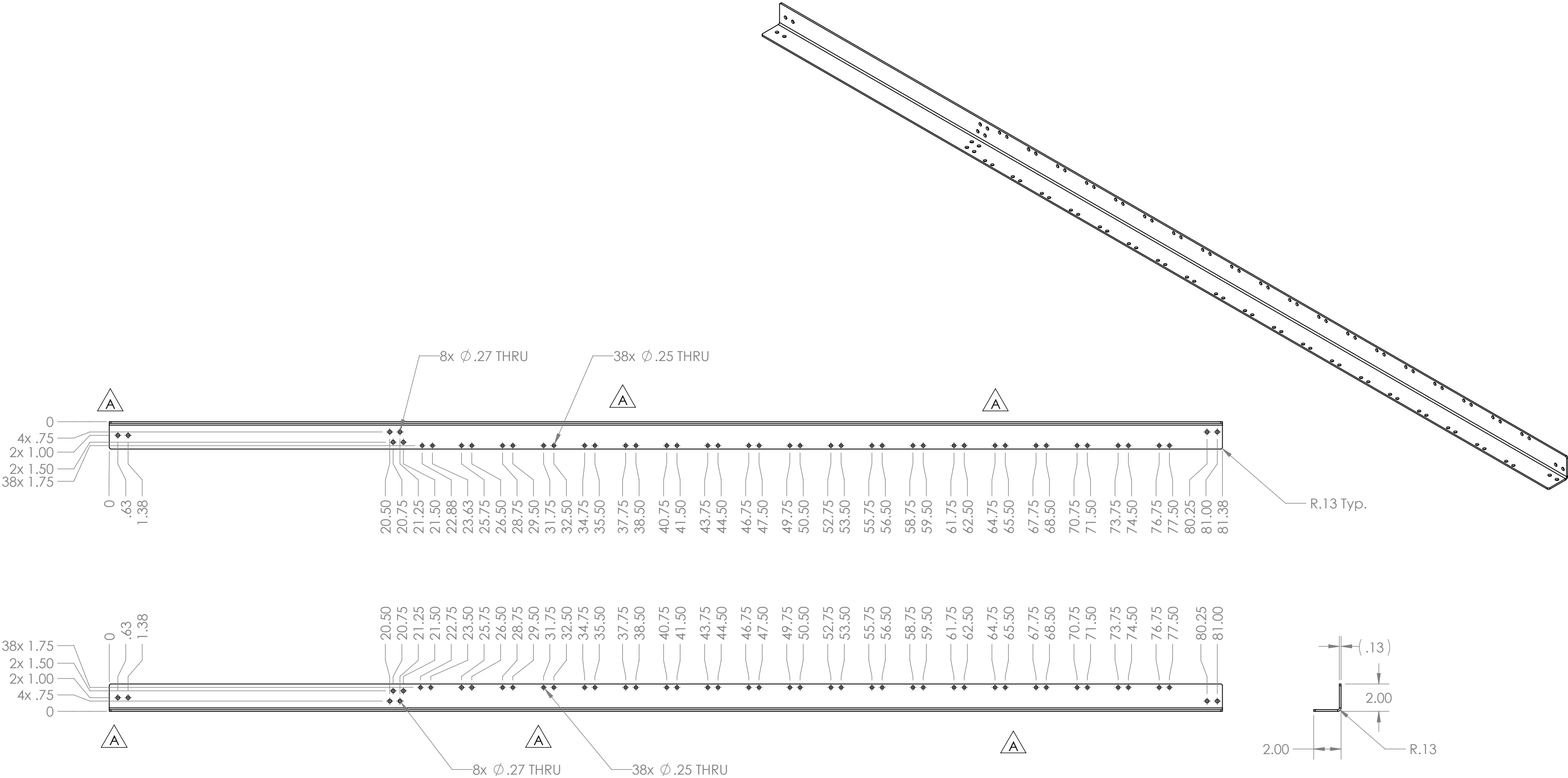
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, C3	A	Changed Numerous Hole Locations	10/11/2022	JO





UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>		
	DRAWN	CO	9/14/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			TITLE:		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			Side Fence Horizontal		
	COMMENTS:			SIZE		
MATERIAL/FINISH:	REMOVE ALL BURRS AND SHARP EDGES.			DWG. NO.		
				REV		
8 GA Aluminum 5052				C	GE-23251	A
DO NOT SCALE DRAWING				SCALE: 1:2		SHEET 1 OF 1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B2, B3, B4, C2, C3, C4	A	Added and Moved various holes	10/11/2022	JO



UNLESS OTHERWISE SPECIFIED:		BEND	NAME	DATE	<div></div>	
		DRAWN	CO	9/14/2022		
<p>DIMENSIONS ARE IN INCHES</p> <p>TOLERANCES:</p> <p>FRACTIONAL <math>\pm 1/16</math></p> <p>ANGULAR: MACH <math>\pm 1^\circ</math> BEND <math>\pm 1^\circ</math></p> <p>TWO PLACE DECIMAL <math>\pm .02</math></p> <p>THREE PLACE DECIMAL <math>\pm .010</math></p>		<p><b>PROPRIETARY AND CONFIDENTIAL</b></p> <p>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b>. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.</p>			<p>TITLE:</p> <p>Side Fence Vertical</p>	
		<p><b>COMMENTS:</b></p> <p>REMOVE ALL BURRS AND SHARP EDGES.</p>				
		<p><b>MATERIAL/FINISH:</b></p> <p>8 GA Aluminum 5052</p>				
<p>DO NOT SCALE DRAWING</p>					<p>SCALE: 1:6 SHEET 1 OF 1</p>	

4

3

2

1

D

D

C

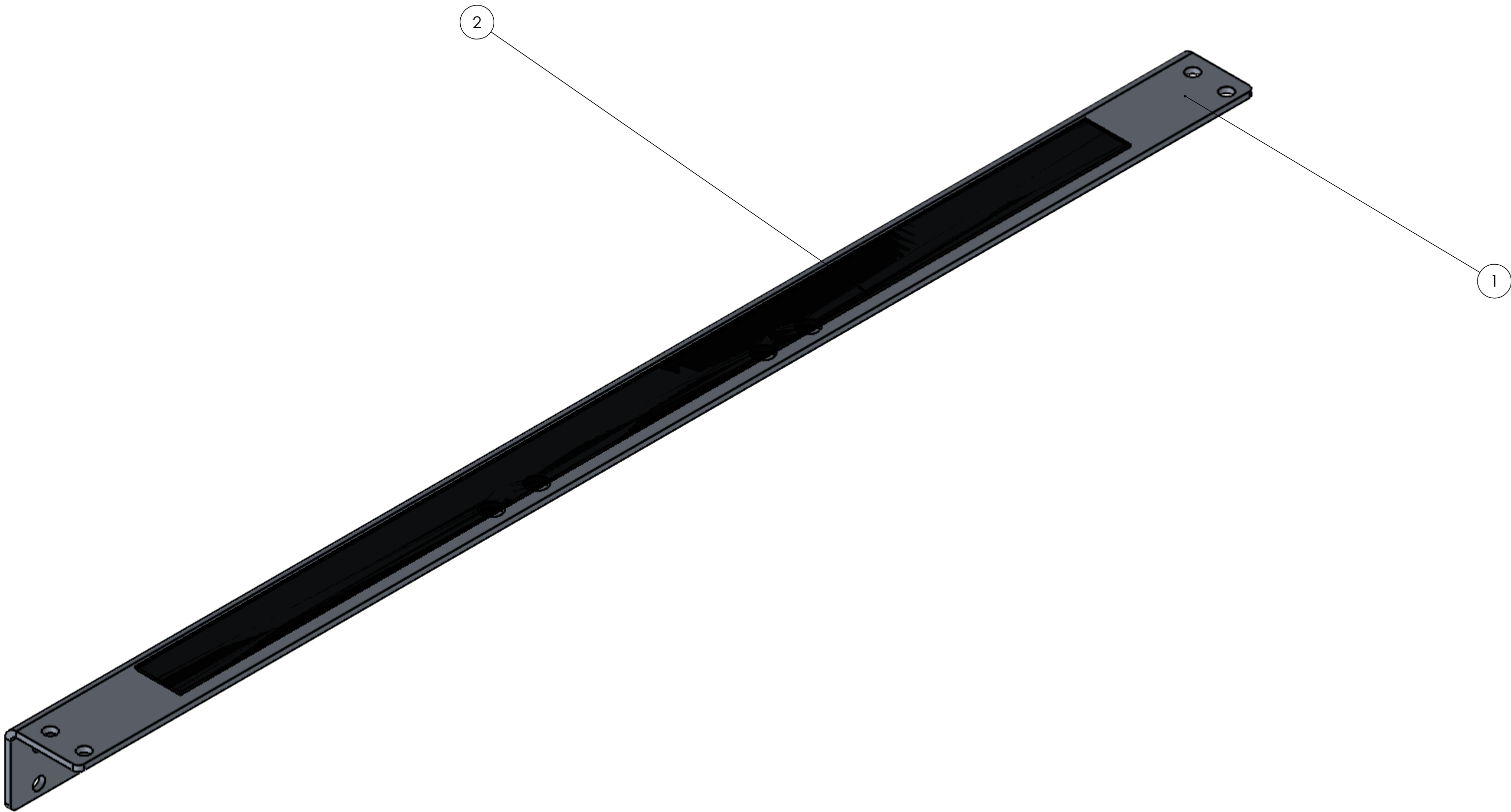
C

B



B

A

A



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23251	Side Fence Horizontal	1
2	Hook_1_21	1" x 21" Hook, Adhesive Backed	1

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b>          DO NOT SCALE DRAWING	FIELD DRAWN	NAME NE	DATE 1/3/2023	 	
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: <b>Side Fence Horizontal With Hook</b>	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. <b>GE-23253</b>
				SCALE: 2:3	SHEET 1 OF 1





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23261	Ramp Front Rail with PEMs	1
2	GE-23262	Ramp Back Rail with PEMs	1
3	GE-23263	Blue Ramp HP Side with PEMs	1
4	GE-23264	Ramp Side Fence Rail	1
5	GE-23265	Chute Floor	1
6	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	10
7	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	10

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	12/22/2022

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



TITLE:

Blue Ramp  
Assembly

SIZE

C

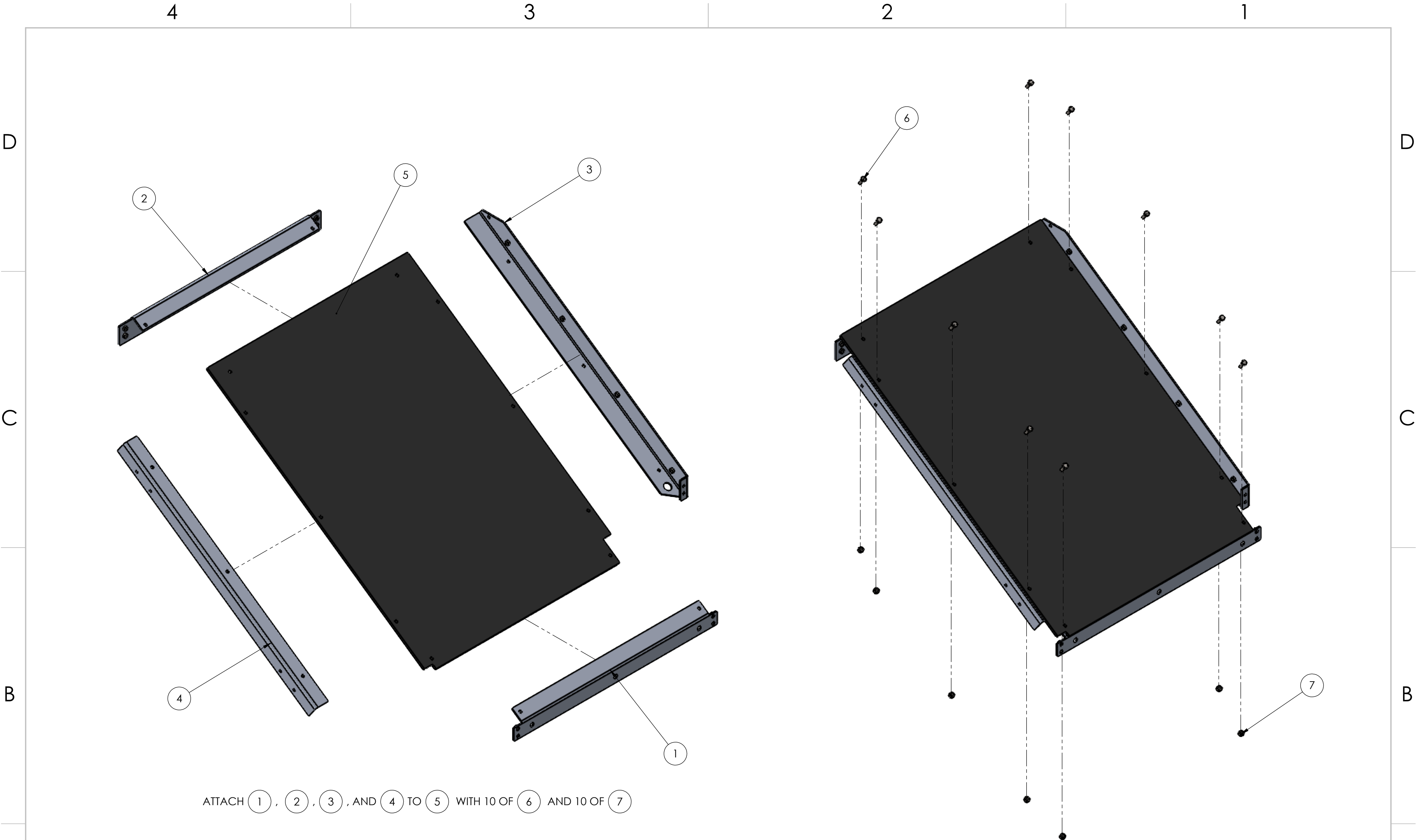
DWG. NO.

GE-23260



REV

SCALE: 1:3

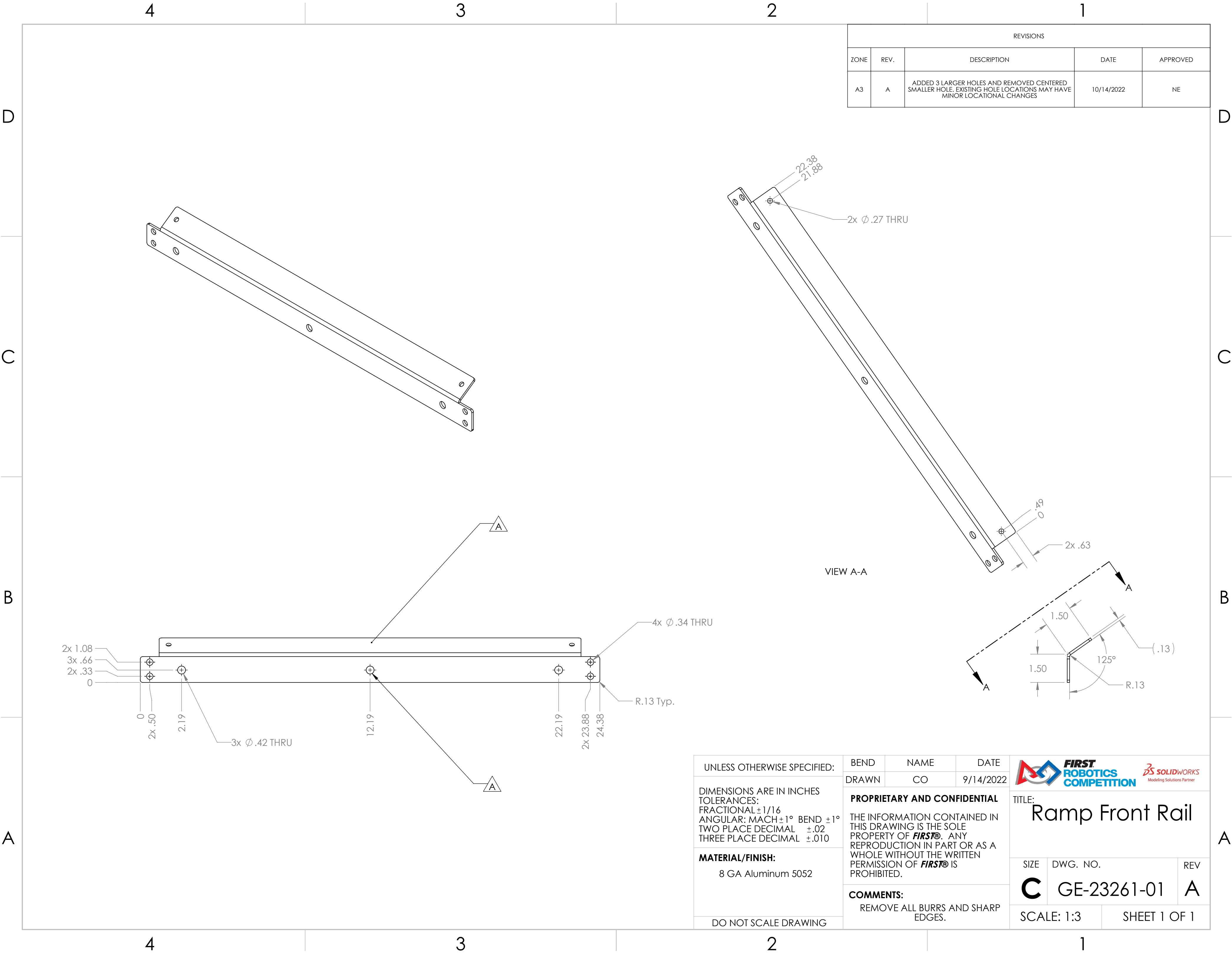
SHEET 1 OF 2





ATTACH (1) , (2) , (3) , AND (4) TO (5) WITH 10 OF (6) AND 10 OF (7)

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b>     <b>DO NOT SCALE DRAWING</b>	FIELD	NAME	DATE	<div></div> <div>TITLE: <h1>Blue Ramp Assembly</h1></div>	
	DRAWN	NE	12/22/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23260
		SCALE: 2:11		SHEET 2 OF 2	



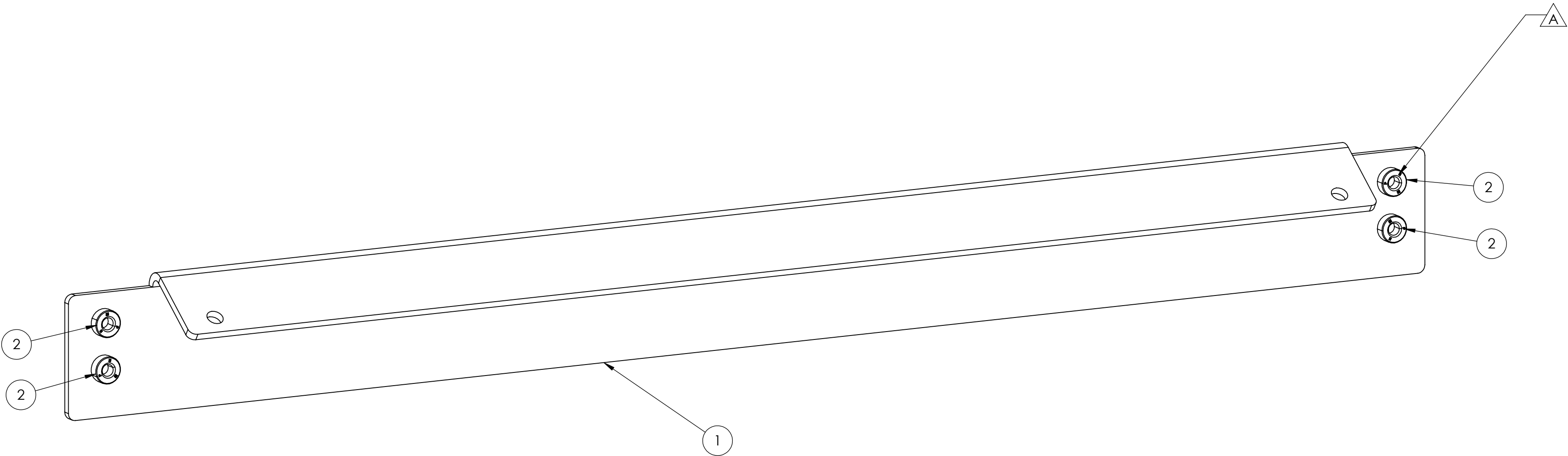


REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3	A	ADDED 3 LARGER HOLES AND REMOVED CENTERED SMALLER HOLE. EXISTING HOLE LOCATIONS MAY HAVE MINOR LOCATIONAL CHANGES	10/14/2022	NE



UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	 		
	DRAWN	CO	9/14/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			TITLE:		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			Ramp Front Rail		
MATERIAL/FINISH:  8 GA Aluminum 5052	COMMENTS:  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23261-01	A
DO NOT SCALE DRAWING				SCALE: 1:3		SHEET 1 OF 1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23262-01	Ramp Back Rail	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	4

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C1	A	PEM NUT ADDED TO OUTSIDE HOLES	10/14/2022	NE

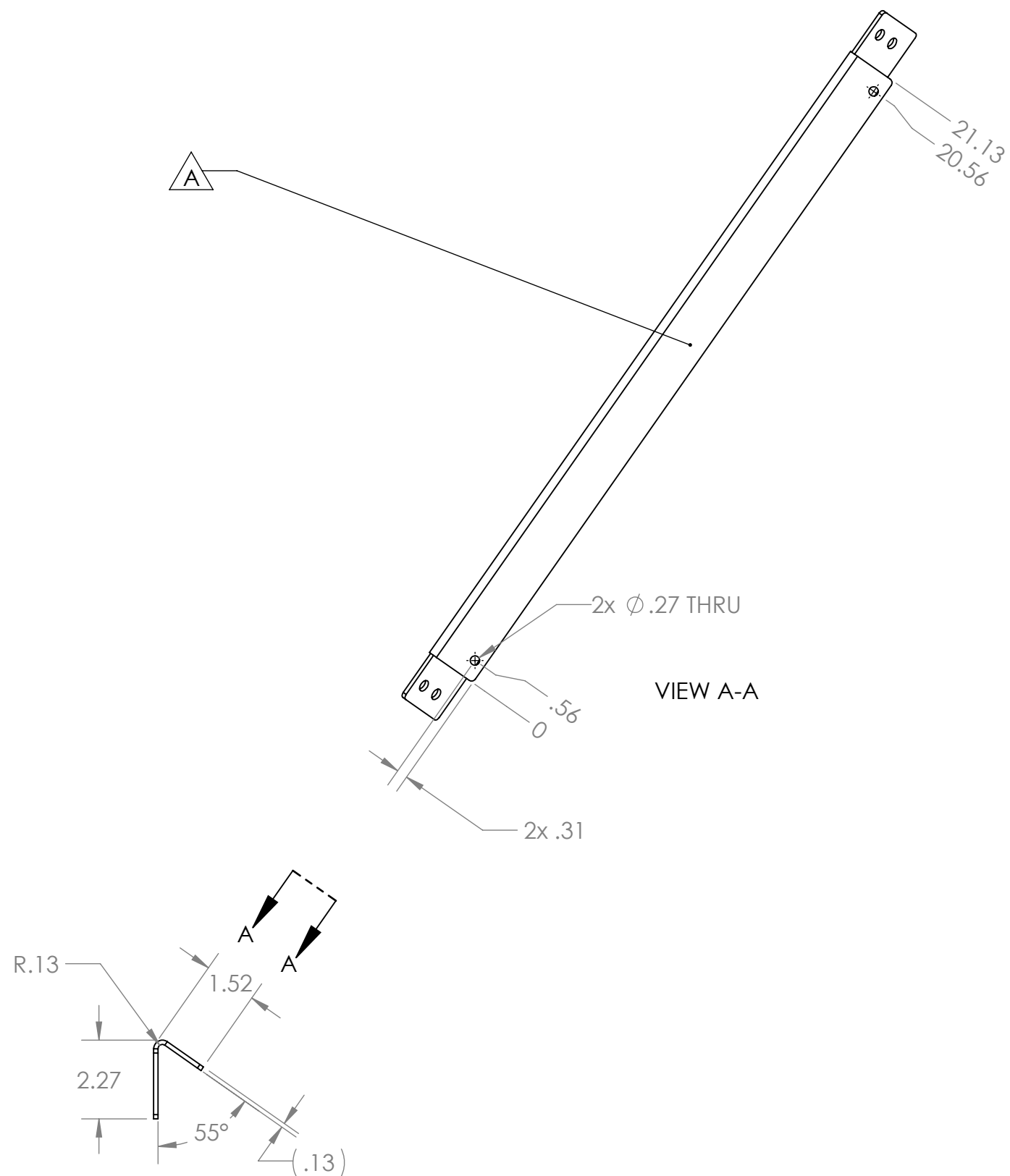
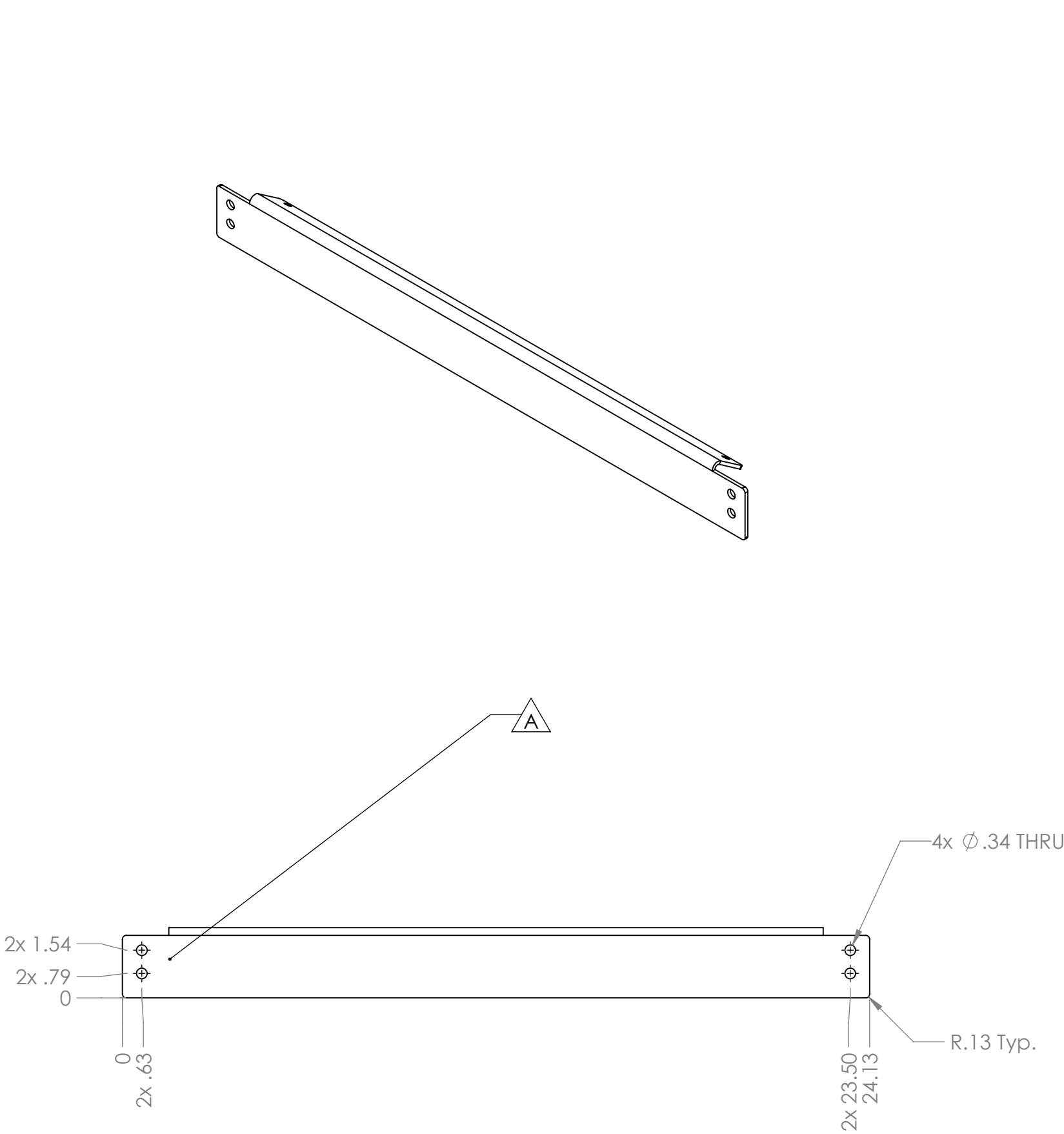




Install PEMs as shown

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>          DO NOT SCALE DRAWING	VEND	NAME	DATE	<div><div></div><div>TITLE: <b>Ramp Back Rail with PEMs</b></div><div><div>SIZE</div><div>DWG. NO.</div><div>REV</div><div><b>C</b><b>GE-23262</b><b>A</b></div></div><div><div>SCALE: 3:4</div><div>SHEET 1 OF 1</div></div></div>	
	DRAWN	JO	10/11/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, C2	A	REMOVAL OF SMALLER CENTER HOLE, MINOR LOCATOINAL DIFFERENCES WITH OUTER HOLE LOCATIONS	10/14/2022	NE

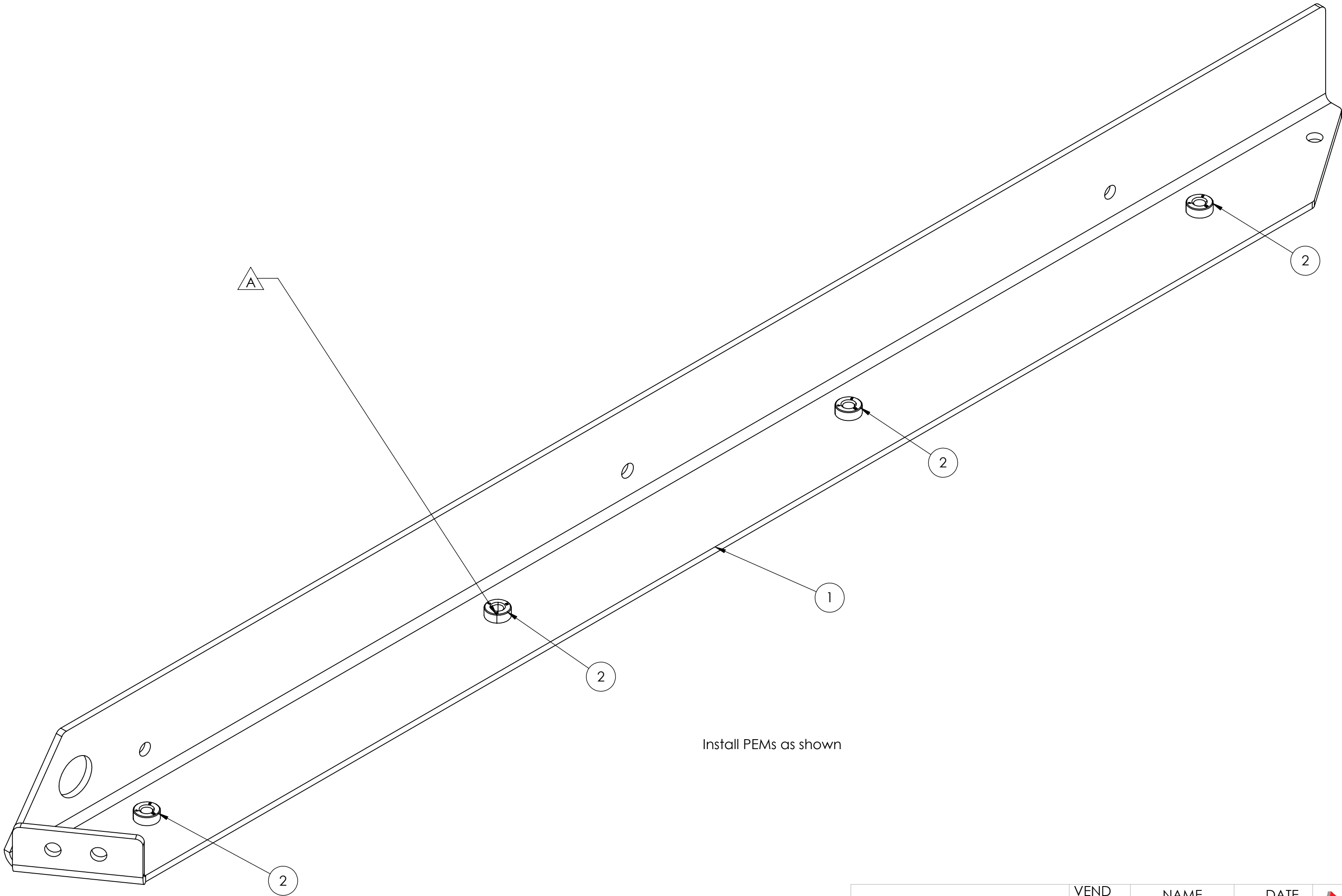




UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010  <b>MATERIAL/FINISH:</b>  8 Ga. Aluminum 5052  DO NOT SCALE DRAWING	BEND	NAME	DATE	<div></div> <div>TITLE: Ramp Back Rail</div>		
	DRAWN	CO	9/14/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				SIZE	DWG. NO.
<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				C	GE-23262-01	A
				SCALE: 1:4		SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23263-01	Blue Ramp HP Side Rail	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	4

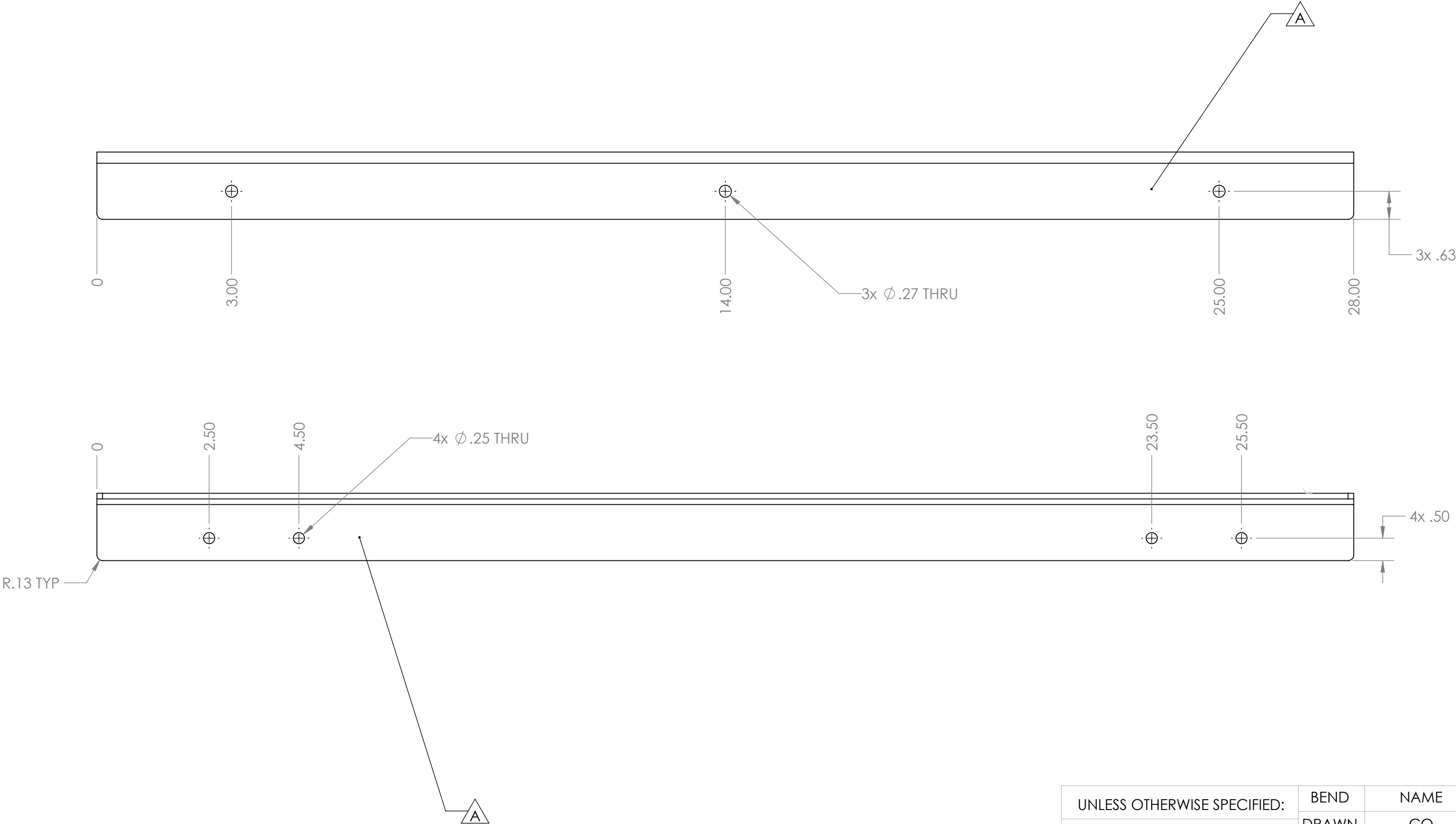
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C4	A	PEM NUTS ADDED TO 4 LOCATIONS	10/14/2022	NE





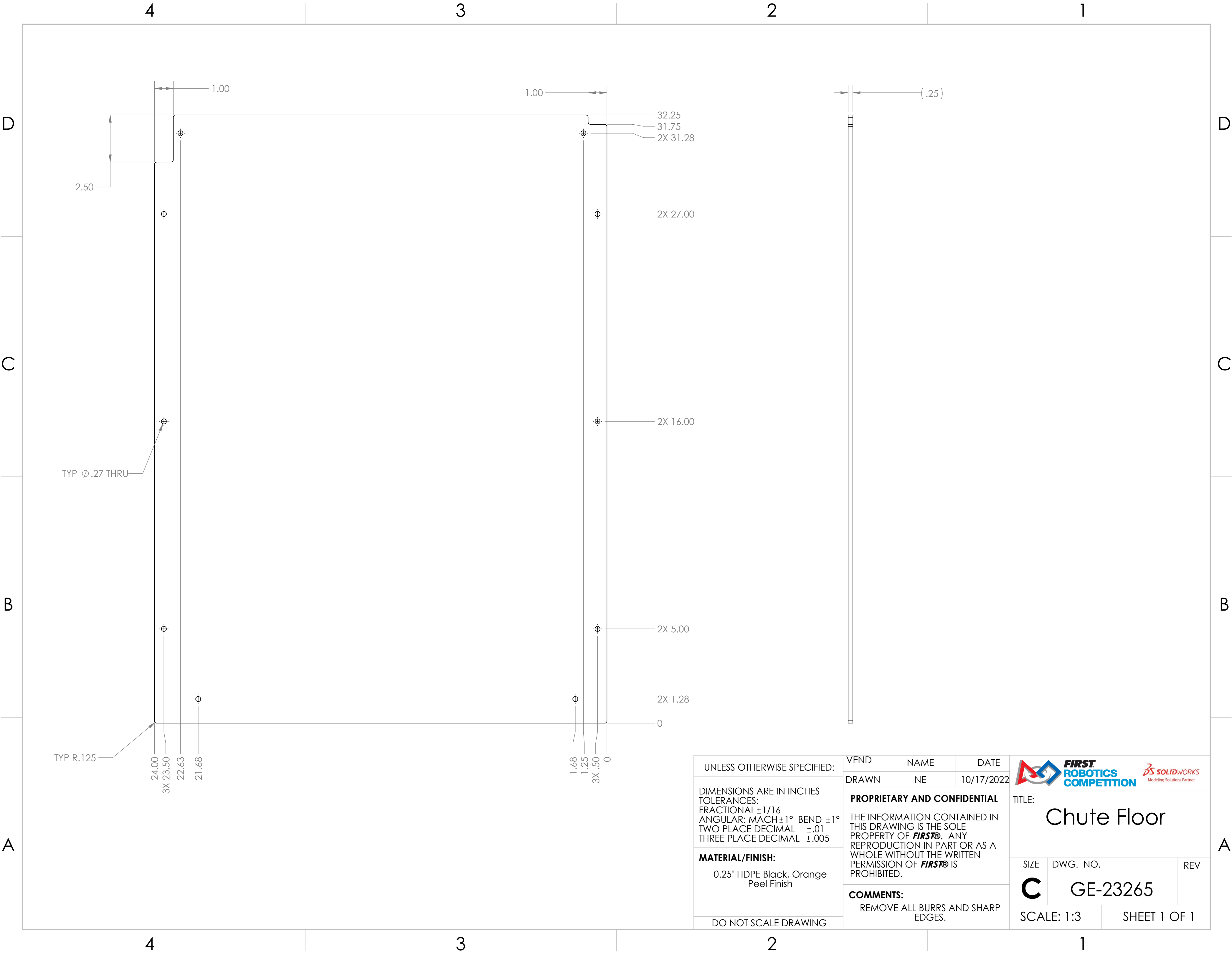
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>          <b>DO NOT SCALE DRAWING</b>	VEND	NAME	DATE	 		
	DRAWN	JO	10/11/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				TITLE:  <b>Blue Ramp HP Side with PEMs</b>	
				SIZE	DWG. NO.	REV
				<b>C</b>	<b>GE-23263</b>	<b>A</b>
				SCALE: 3:4		SHEET 1 OF 1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, C2	A	HOLE LOCATIONS HAVE CHANGES	10/14/2022	NE



UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>		
	DRAWN	CO	9/14/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Ramp Side Fence Rail		
	<b>MATERIAL/FINISH:</b>  8 GA 5052 Aluminum	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
DO NOT SCALE DRAWING	C				GE-23264	A
	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  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$


**MATERIAL/FINISH:**  
0.25" HDPE Black, Orange  
Peel Finish

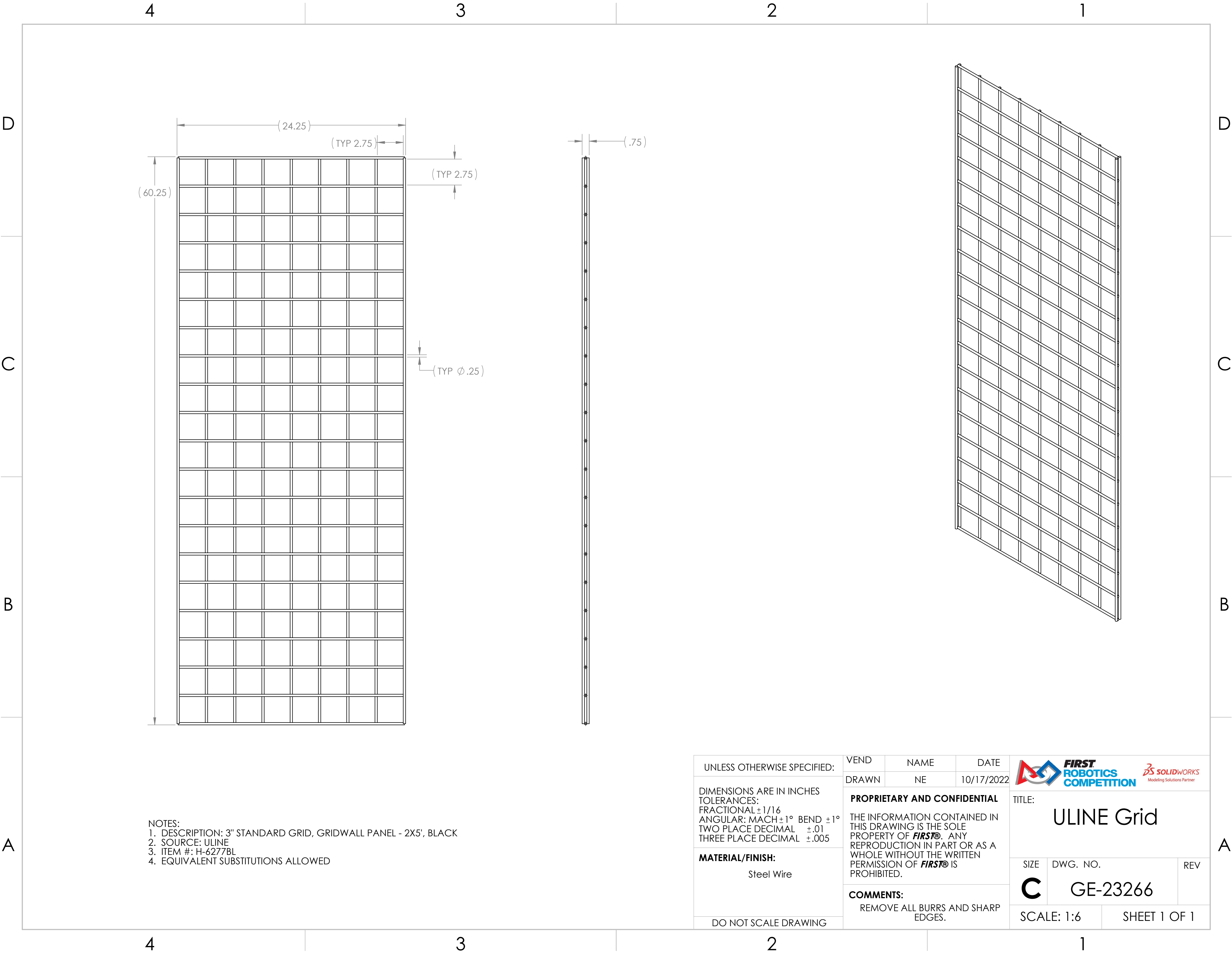
DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	NE	10/17/2022

**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: Chute Floor		
SIZE <b>C</b>	DWG. NO. GE-23265	REV
SCALE: 1:3		SHEET 1 OF 1







ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23214	Chute Guard	1
2	GE-23235	Extended Pin	1
3	GE-23280	Red Fence	1
4	GE-23290	Red Chute	1
5	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	7
6	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	2

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

**MATERIAL/FINISH:**

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	12/29/2022

**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



TITLE:

Red Single  
Substation

SIZE

**C**

DWG. NO.

GE-23270

REV

SCALE: 1:10

SHEET 1 OF 4

4

3

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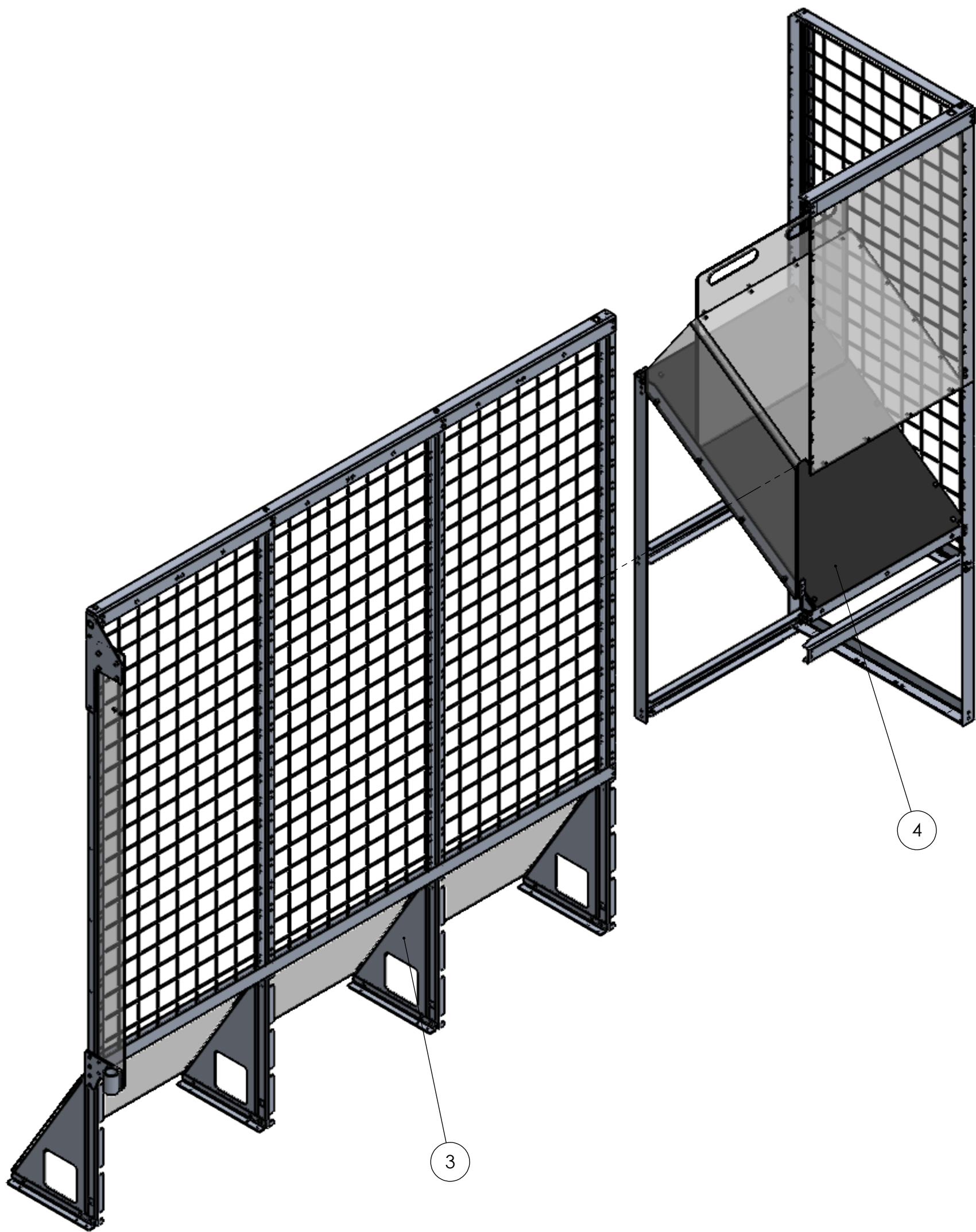
C

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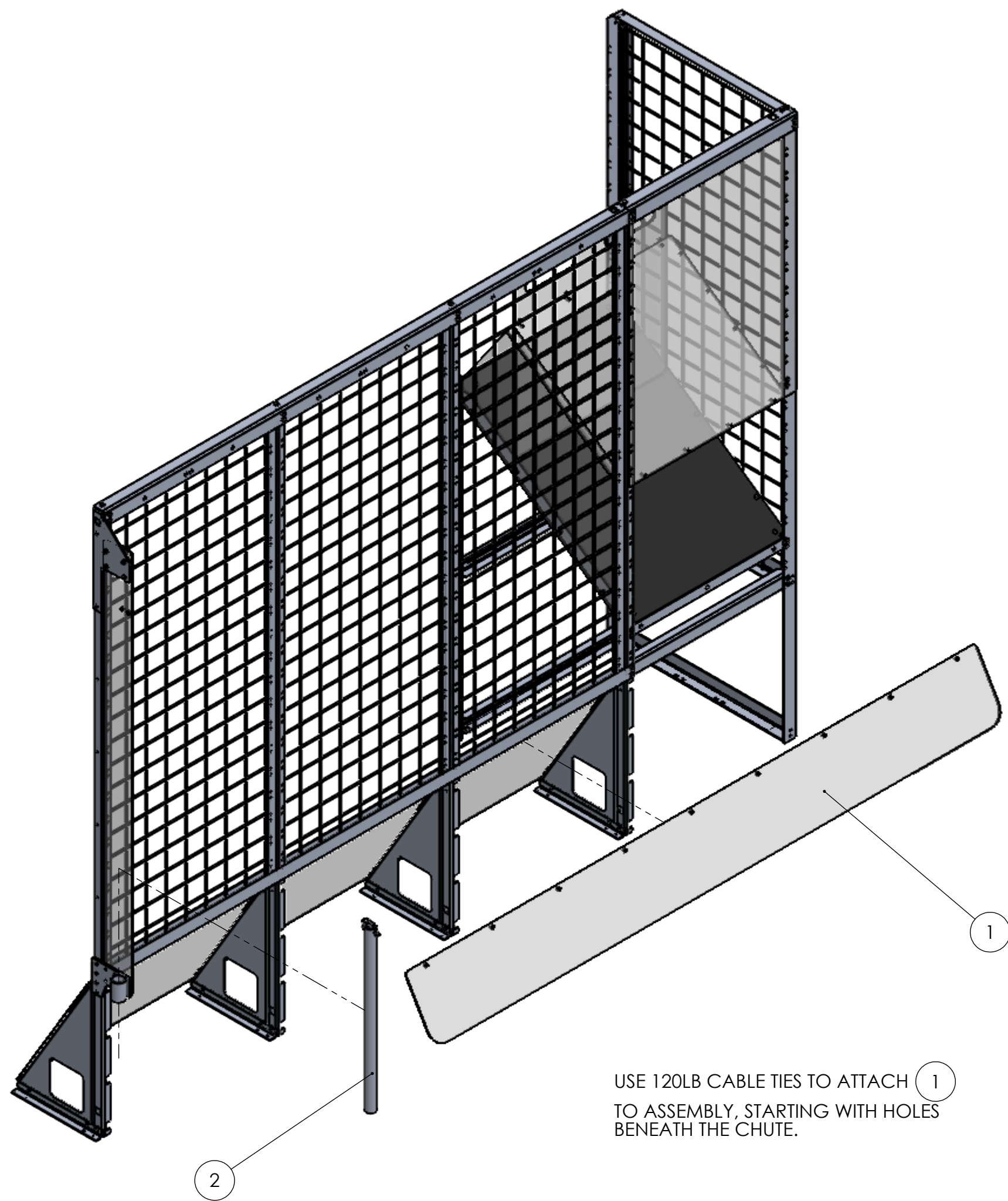
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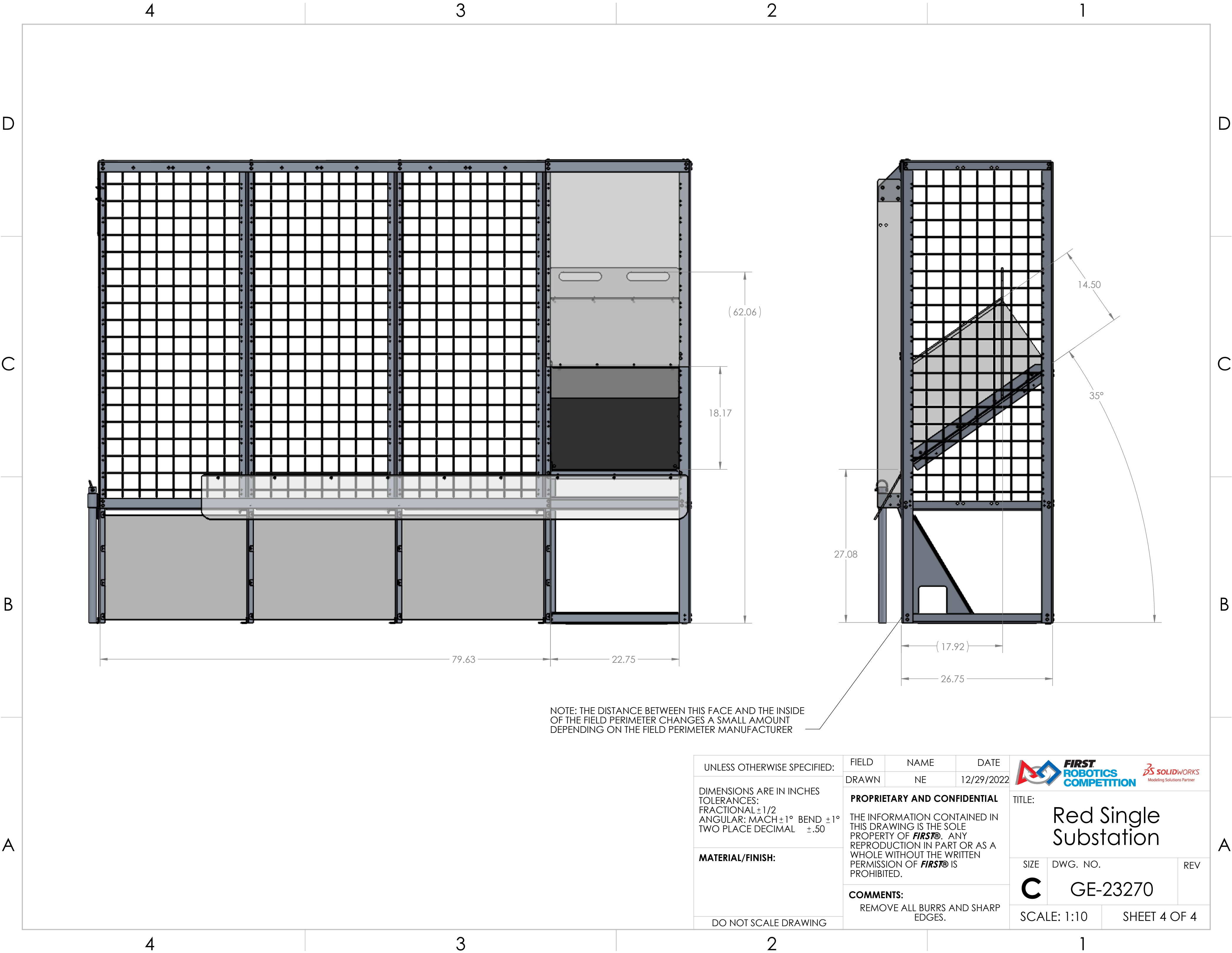
ATTACH 4 TO 3 WITH 7 OF 5 AND 2 OF 6



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50  <b>MATERIAL/FINISH:</b>    <b>DO NOT SCALE DRAWING</b>	FIELD	NAME	DATE	 	
	DRAWN	NE	12/29/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Red Single Substation	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. GE-23270
			SCALE: 1:12		SHEET 2 OF 4





UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div>	
	DRAWN	NE	12/29/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/2 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE:  Red Single Substation	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
MATERIAL/FINISH:	COMMENTS:			SIZE  C	
	REMOVE ALL BURRS AND SHARP EDGES.				
DO NOT SCALE DRAWING	SIZE		DWG. NO.		REV
	C		GE-23270		
SCALE: 1:12			SHEET 3 OF 4		



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	FIELD	NAME	DATE	 		
	DRAWN	NE	12/29/2022			
	MATERIAL/FINISH:	PROPRIETARY AND CONFIDENTIAL			TITLE:  Red Single Substation	
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.						
DO NOT SCALE DRAWING		COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE  C	DWG. NO.  GE-23270
				SCALE: 1:10		SHEET 4 OF 4



4

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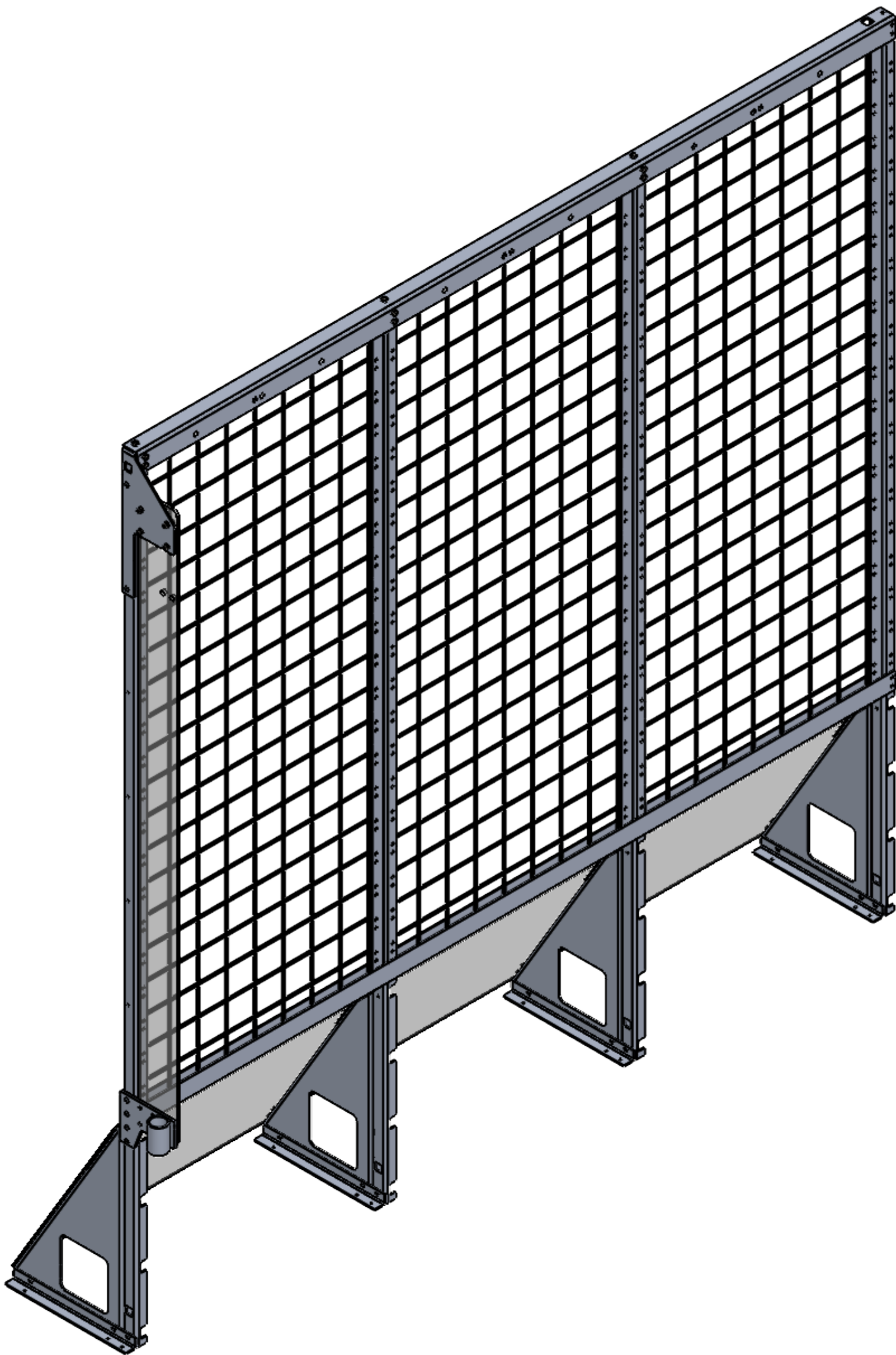
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23216	Shin Guard W Loop	1
2	GE-23266	ULINE Grid	3
3	GE-23281	Red Bottom Channel	1
4	GE-23282	Red Top Channel	1
5	GE-23287	Red Corner Fence Vertical	1
6	GE-23298	Red Standard Vertical With Hook	3
7	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	18
8	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	2

UNLESS OTHERWISE SPECIFIED:		FIELD	NAME	DATE	 	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50		DRAWN	NE	12/28/2022	TITLE:  Red Fence	
		PROPRIETARY AND CONFIDENTIAL			SIZE C	
		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
MATERIAL/FINISH:		COMMENTS:			DWG. NO. GE-23280	
DO NOT SCALE DRAWING		REMOVE ALL BURRS AND SHARP EDGES.			REV	
					SCALE: 1:8	
			SHEET 1 OF 6			



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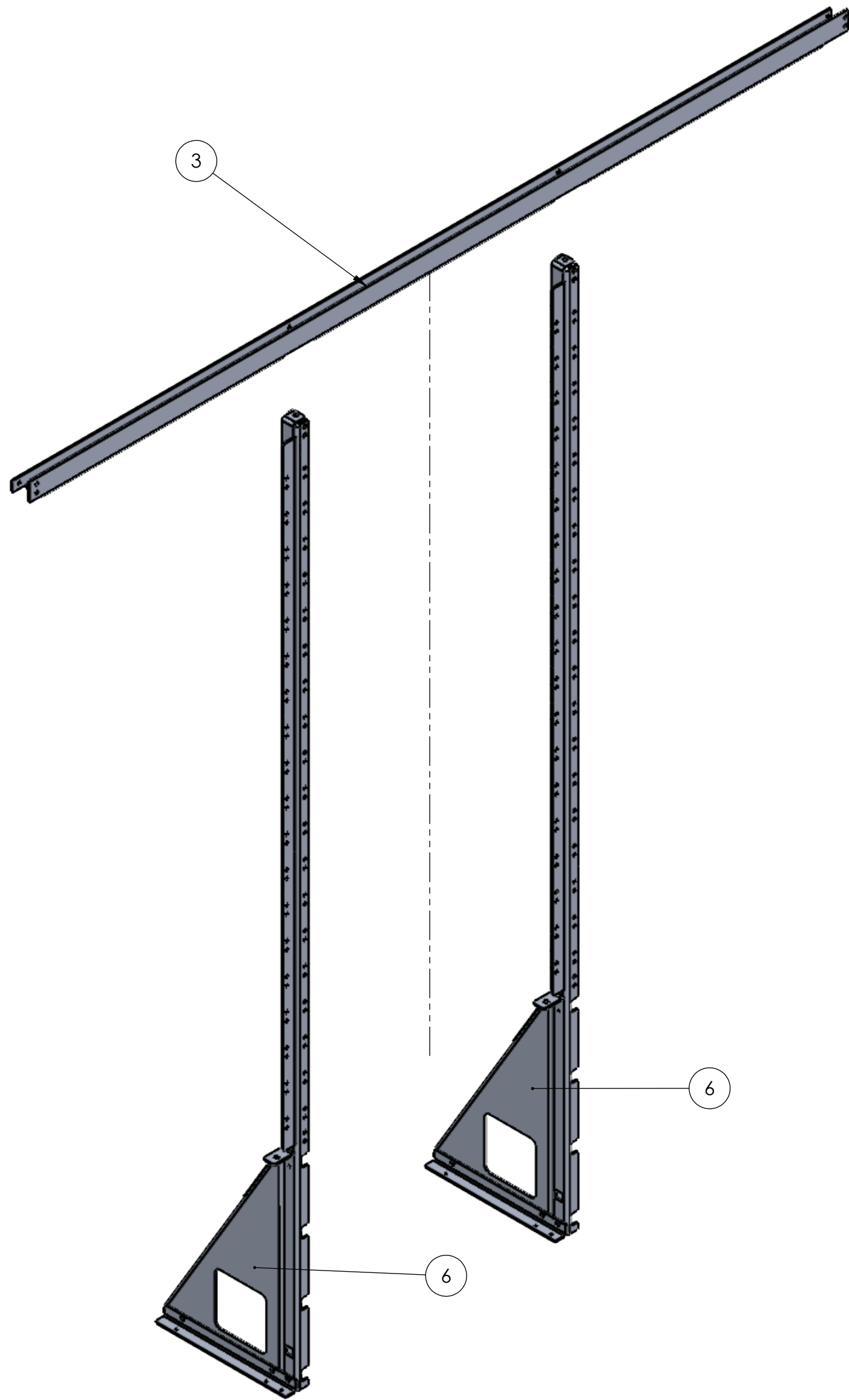
C

B

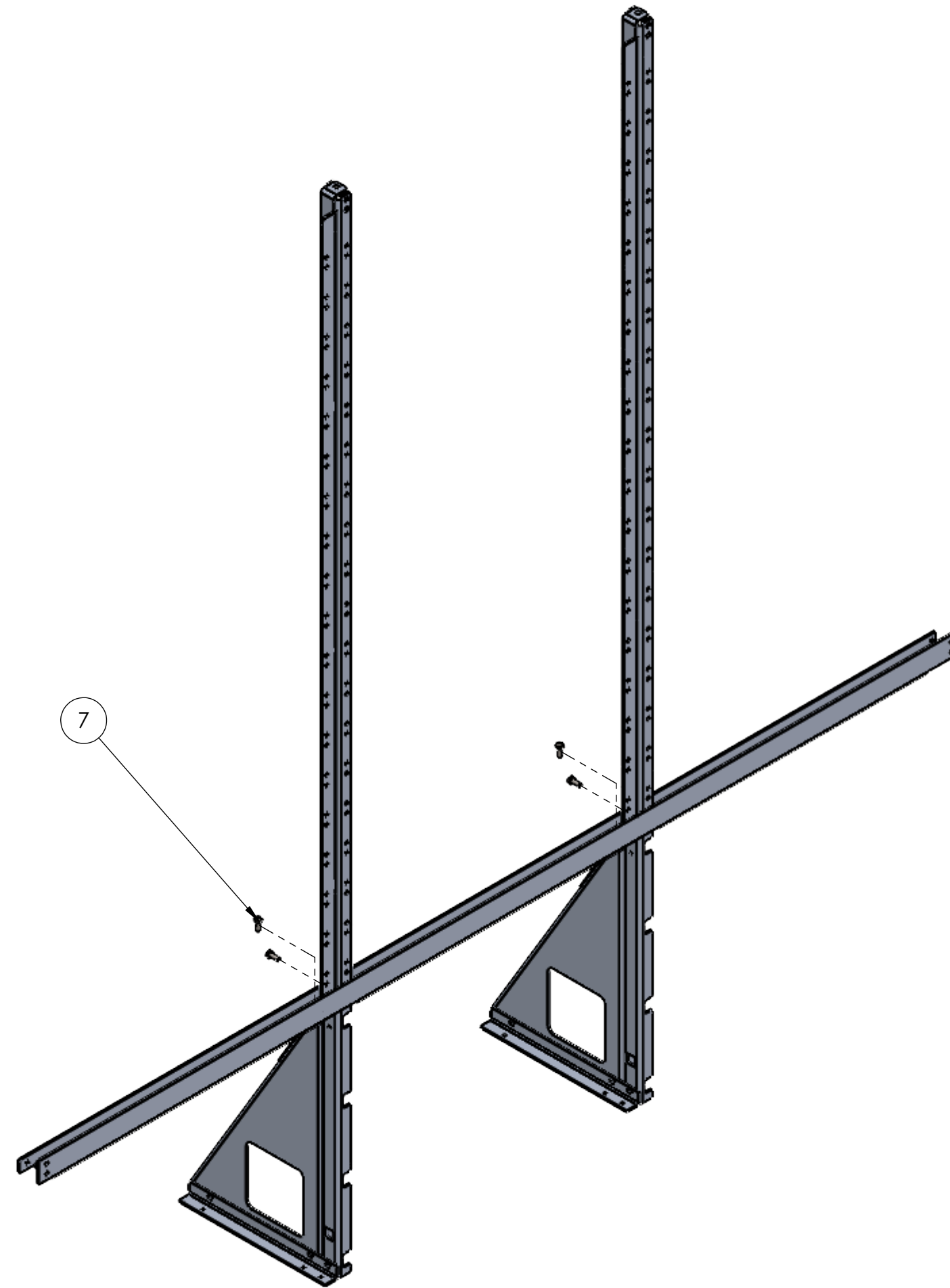
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ATTACH USING 4 OF (7)



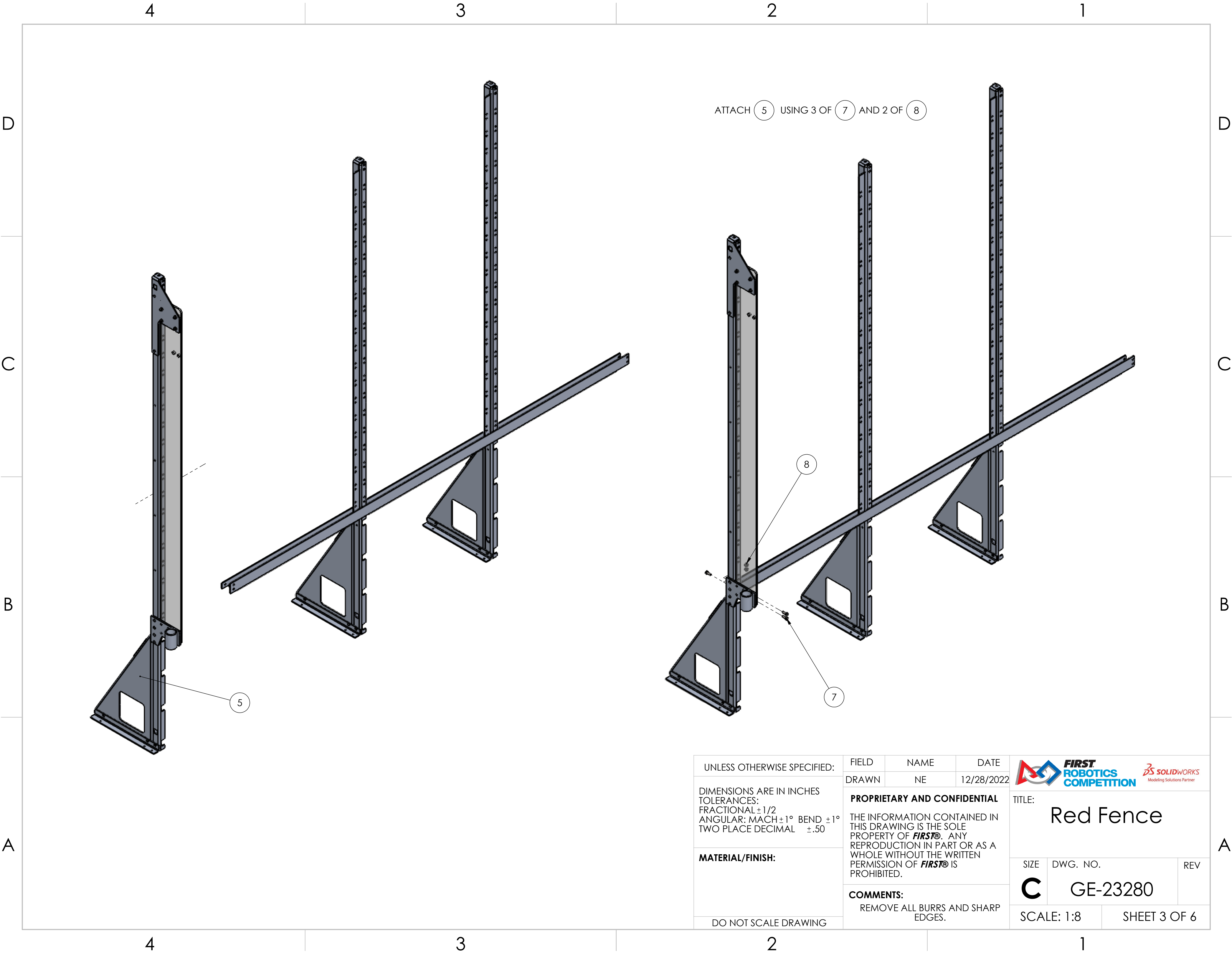
UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div>		
	DRAWN	NE	12/28/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/2 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE:  Red Fence		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23280	
DO NOT SCALE DRAWING				SCALE: 1:8		SHEET 2 OF 6



4

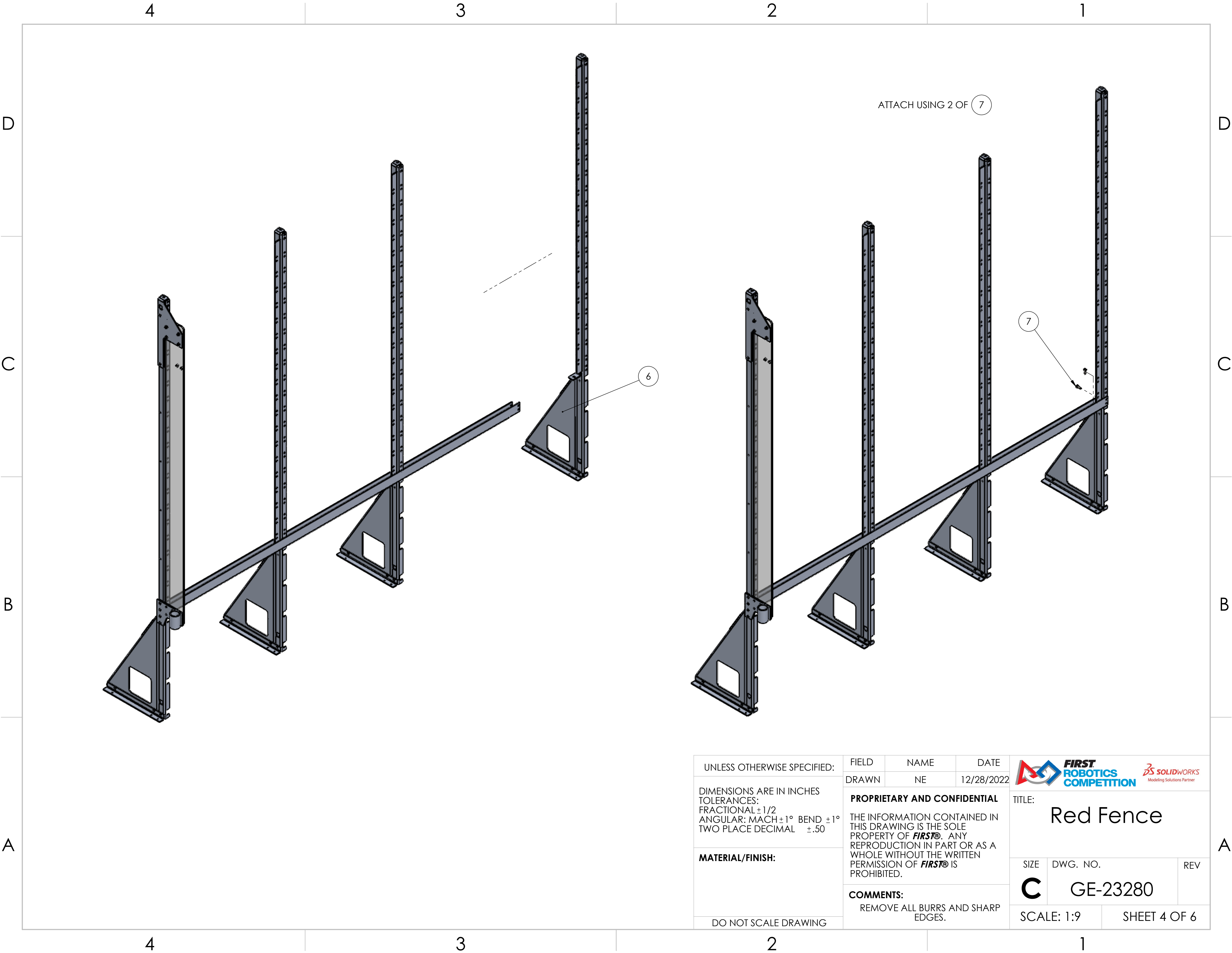
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1



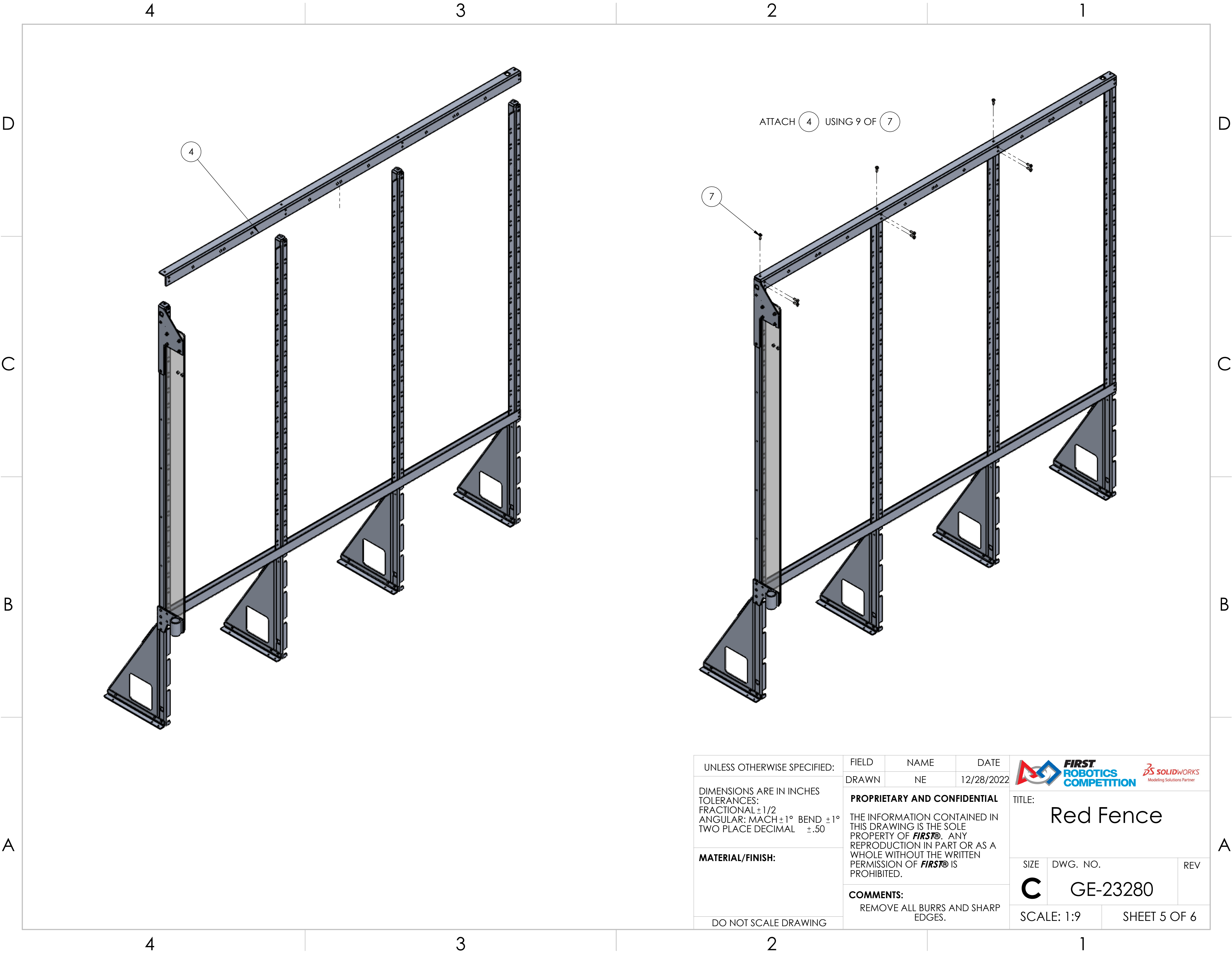
UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div> <div>TITLE: <h1>Red Fence</h1></div>	
	DRAWN	NE	12/28/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23280
SCALE: 1:8				SHEET 3 OF 6	
MATERIAL/FINISH:					
DO NOT SCALE DRAWING					





ATTACH USING 2 OF 7

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b>     <b>DO NOT SCALE DRAWING</b>	FIELD	NAME	DATE	<div></div> <div>TITLE: <h1>Red Fence</h1></div>	
	DRAWN	NE	12/28/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23280
SCALE: 1:9		SHEET 4 OF 6			





UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div> <div>TITLE: <div>Red Fence</div></div>	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	DRAWN	NE	12/28/2022		
MATERIAL/FINISH:	PROPRIETARY AND CONFIDENTIAL			SIZE	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
DO NOT SCALE DRAWING	COMMENTS:			DWG. NO.	
	REMOVE ALL BURRS AND SHARP EDGES.			REV	
				C	GE-23280
				SCALE: 1:9	
				SHEET 5 OF 6	

4 3 2 1

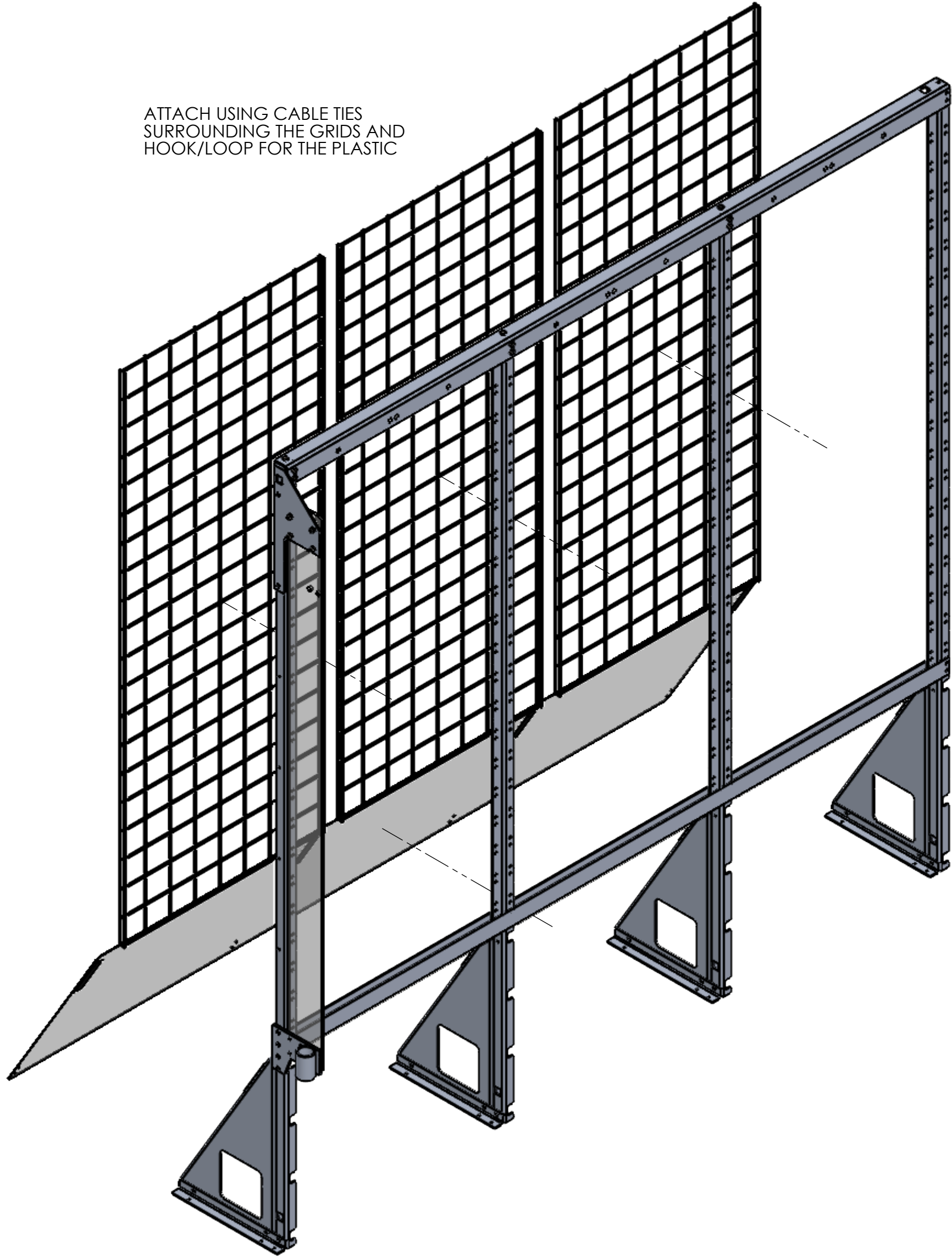
D

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ATTACH USING CABLE TIES  
SURROUNDING THE GRIDS AND  
HOOK/LOOP FOR THE PLASTIC

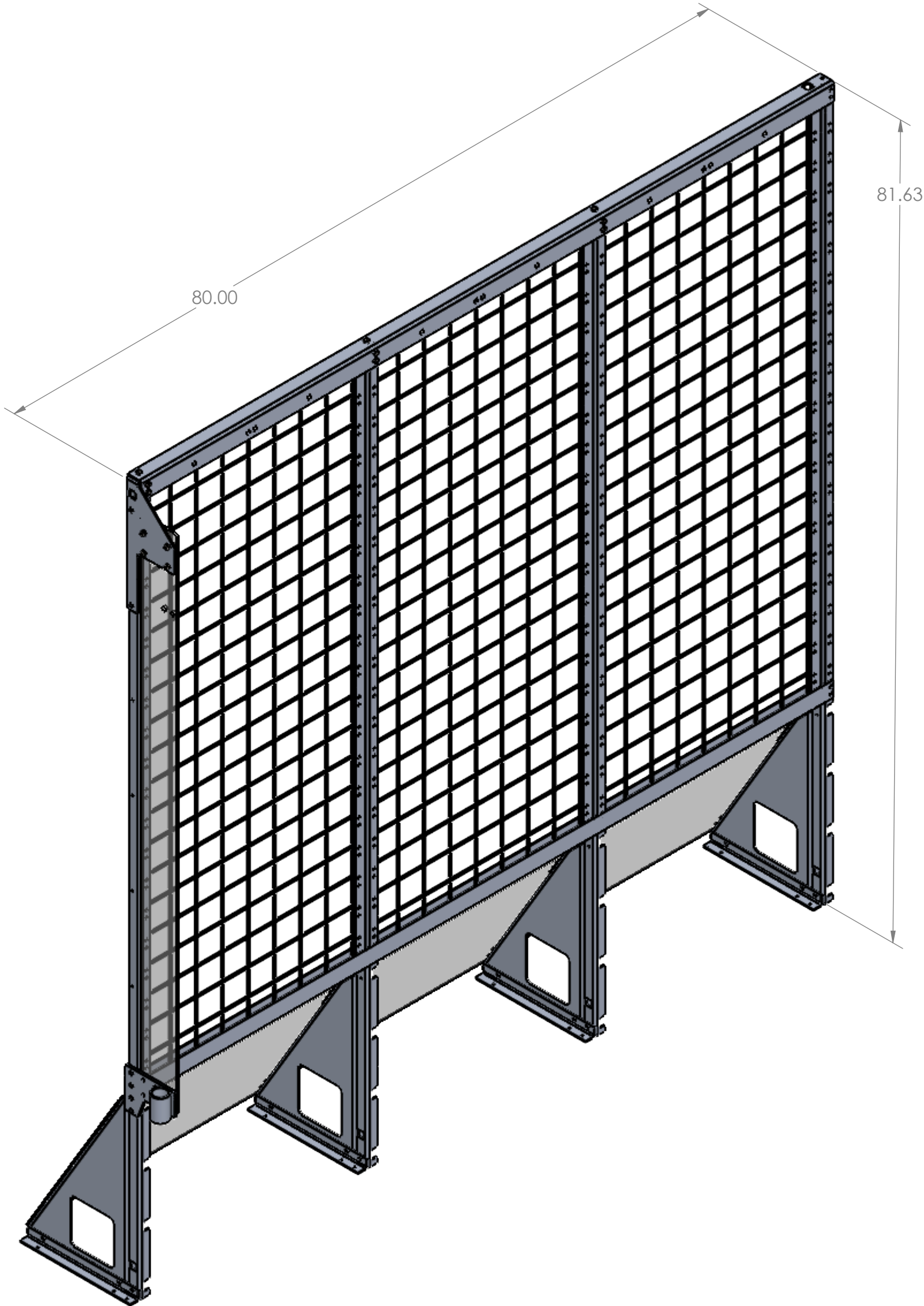


D

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UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	12/28/2022

**PROPRIETARY AND CONFIDENTIAL**

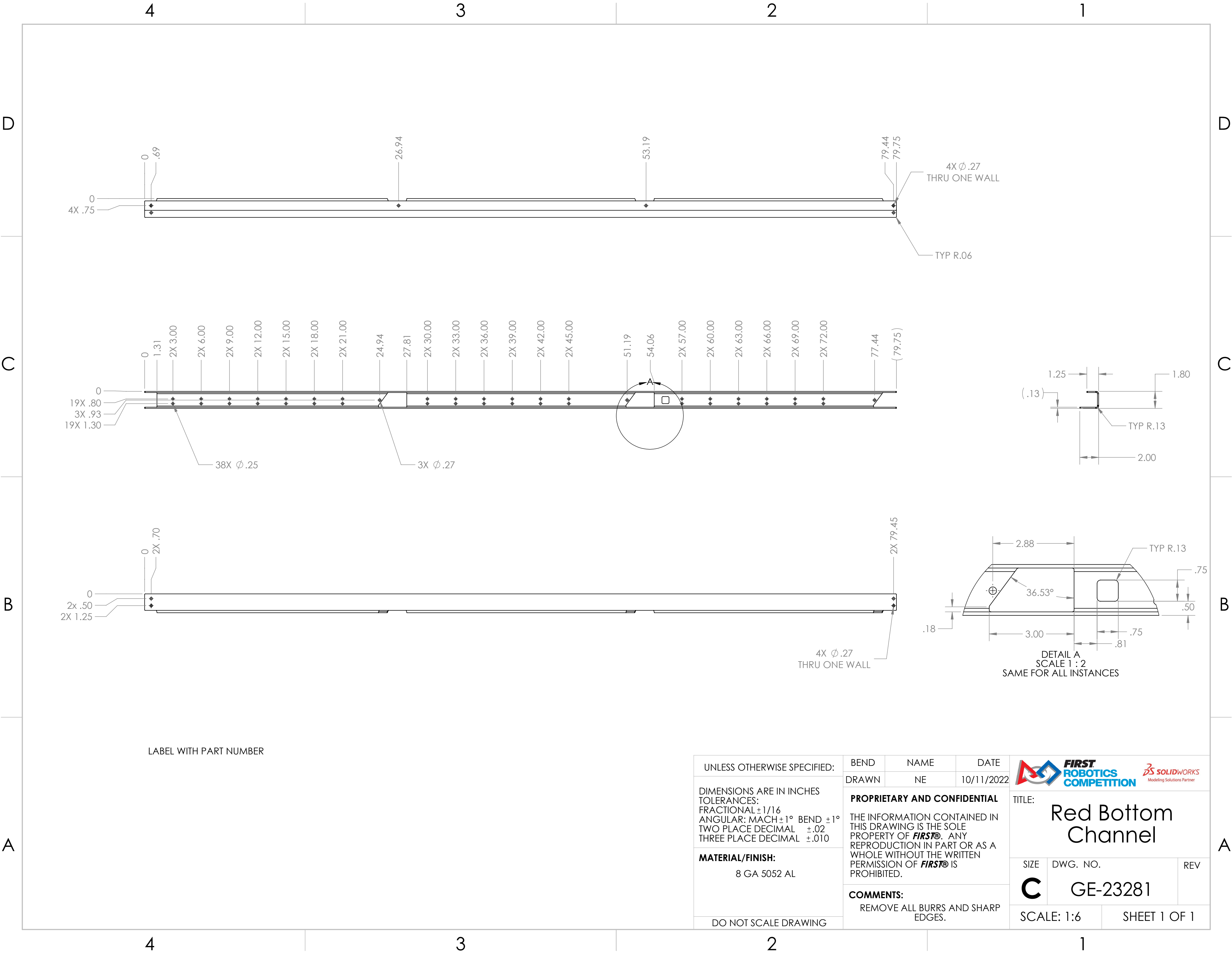
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF **FIRST®**. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF **FIRST®** IS PROHIBITED.

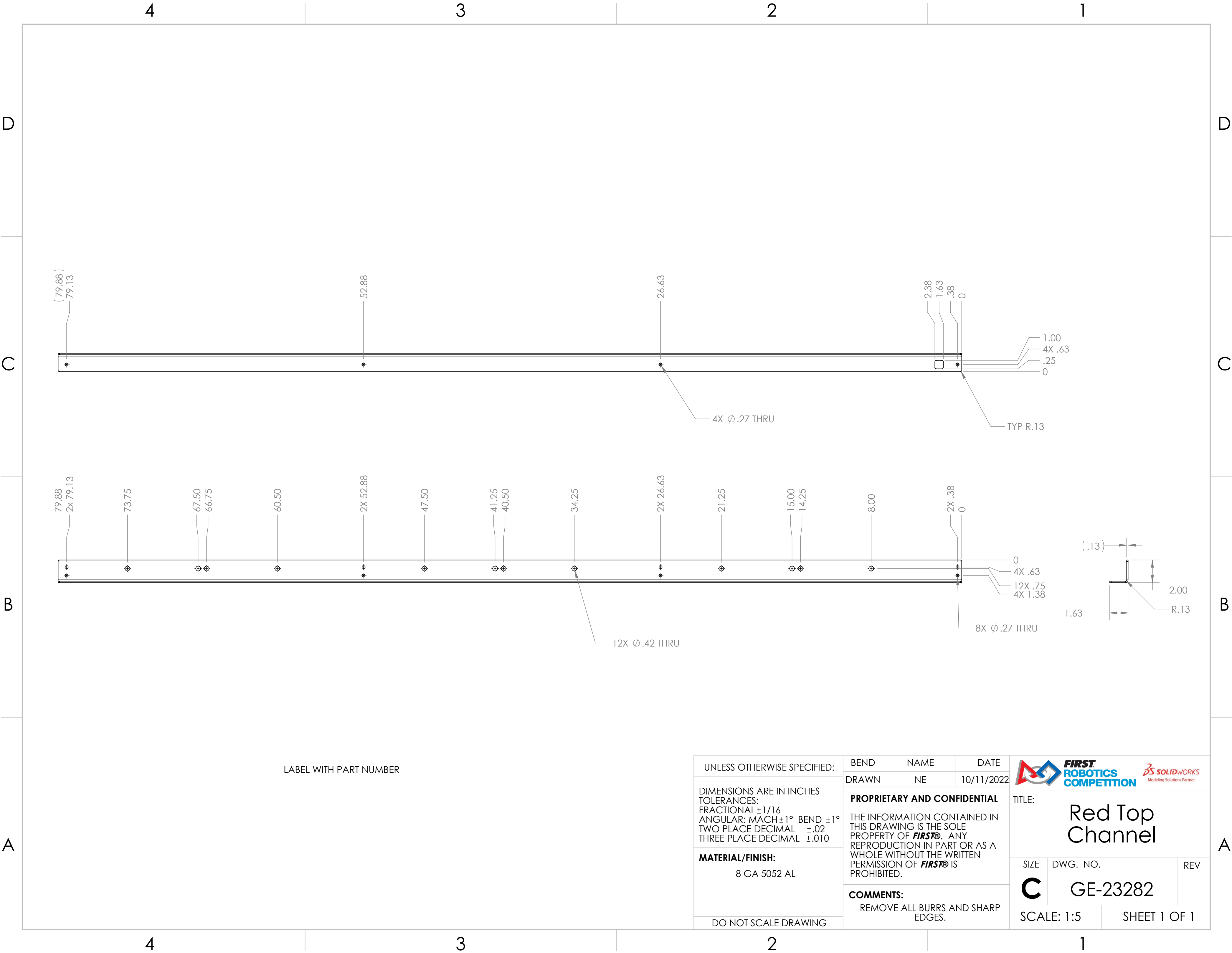
**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.





TITLE: <b>Red Fence</b>		
SIZE <b>C</b>	DWG. NO. <b>GE-23280</b>	REV
SCALE: 1:9		SHEET 6 OF 6

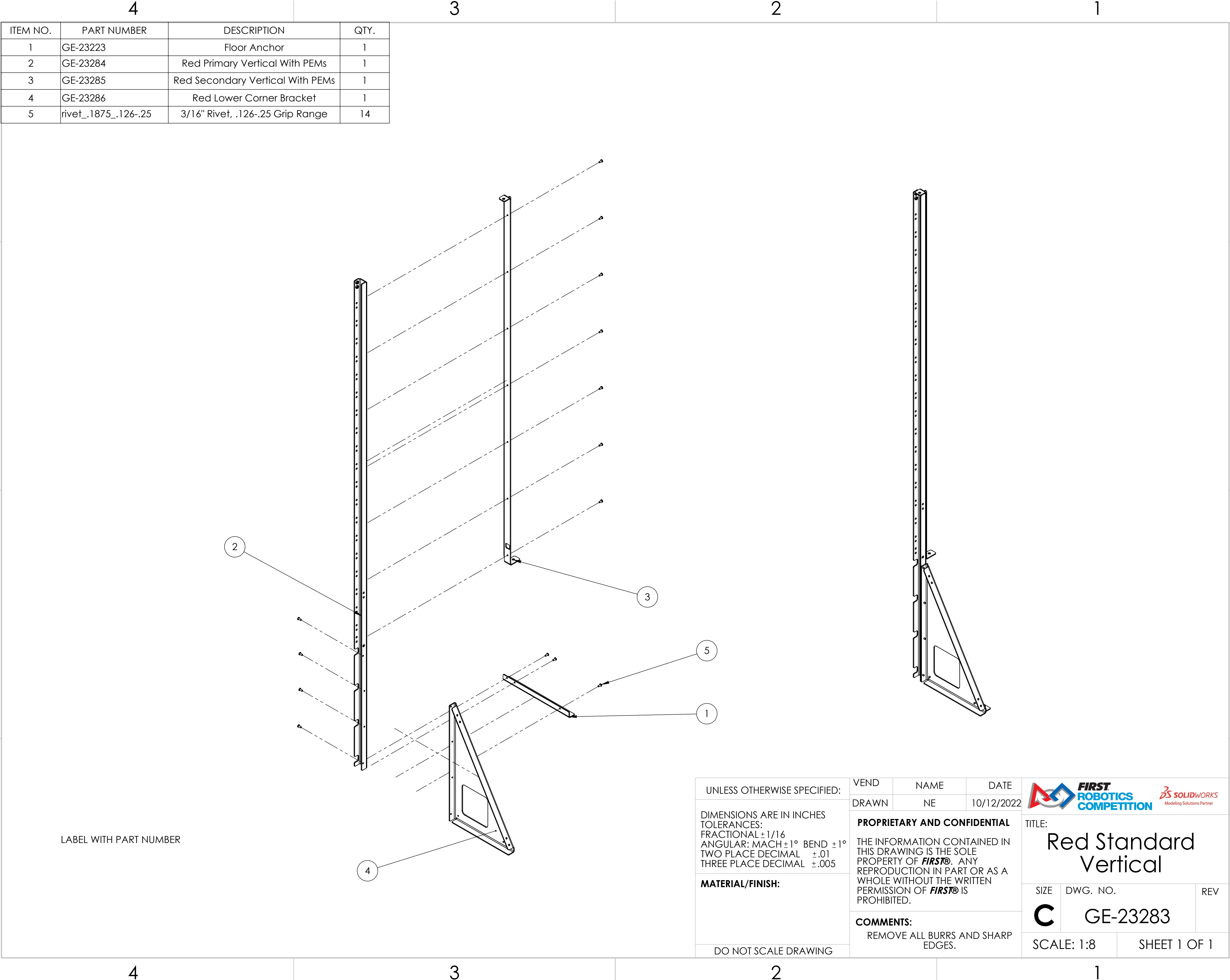






LABEL WITH PART NUMBER

UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>		
	DRAWN	NE	10/11/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  <div>Red Top Channel</div>		
	<b>MATERIAL/FINISH:</b>  8 GA 5052 AL	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
DO NOT SCALE DRAWING	C				GE-23282	
				SCALE: 1:5		SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23223	Floor Anchor	1
2	GE-23284	Red Primary Vertical With PEMs	1
3	GE-23285	Red Secondary Vertical With PEMs	1
4	GE-23286	Red Lower Corner Bracket	1
5	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	14



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

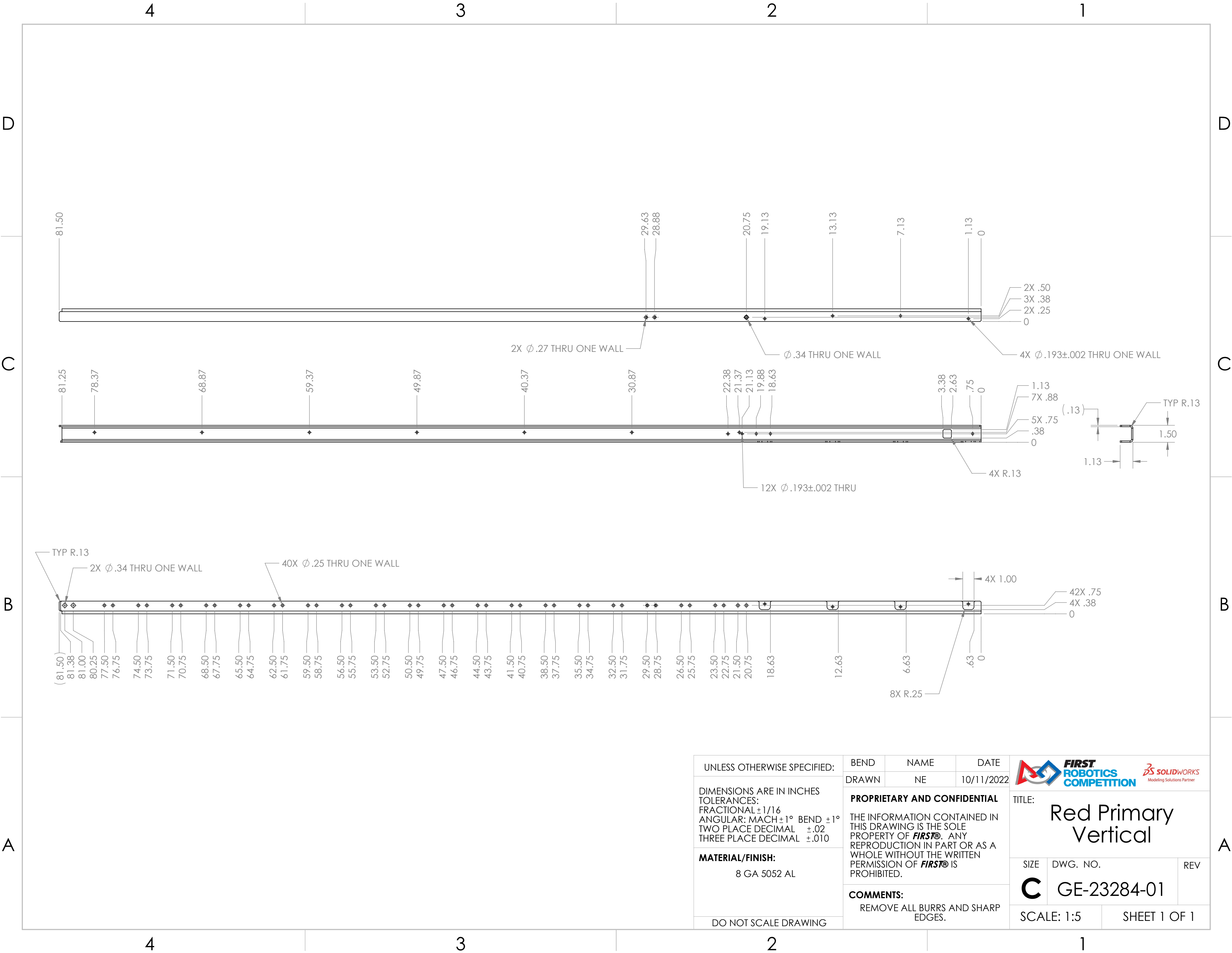
**MATERIAL/FINISH:**



DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	NE	10/12/2022
<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		

 		
TITLE: <b>Red Standard Vertical</b>		
SIZE <b>C</b>	DWG. NO. <b>GE-23283</b>	REV
SCALE: 1:8		SHEET 1 OF 1





UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div> <div>TITLE: <b>Red Primary Vertical</b></div>		
	DRAWN	NE	10/11/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	COMMENTS:					
	REMOVE ALL BURRS AND SHARP EDGES.					
MATERIAL/FINISH:  8 GA 5052 AL				SIZE	DWG. NO.	REV
				C	GE-23284-01	
DO NOT SCALE DRAWING				SCALE: 1:5		SHEET 1 OF 1





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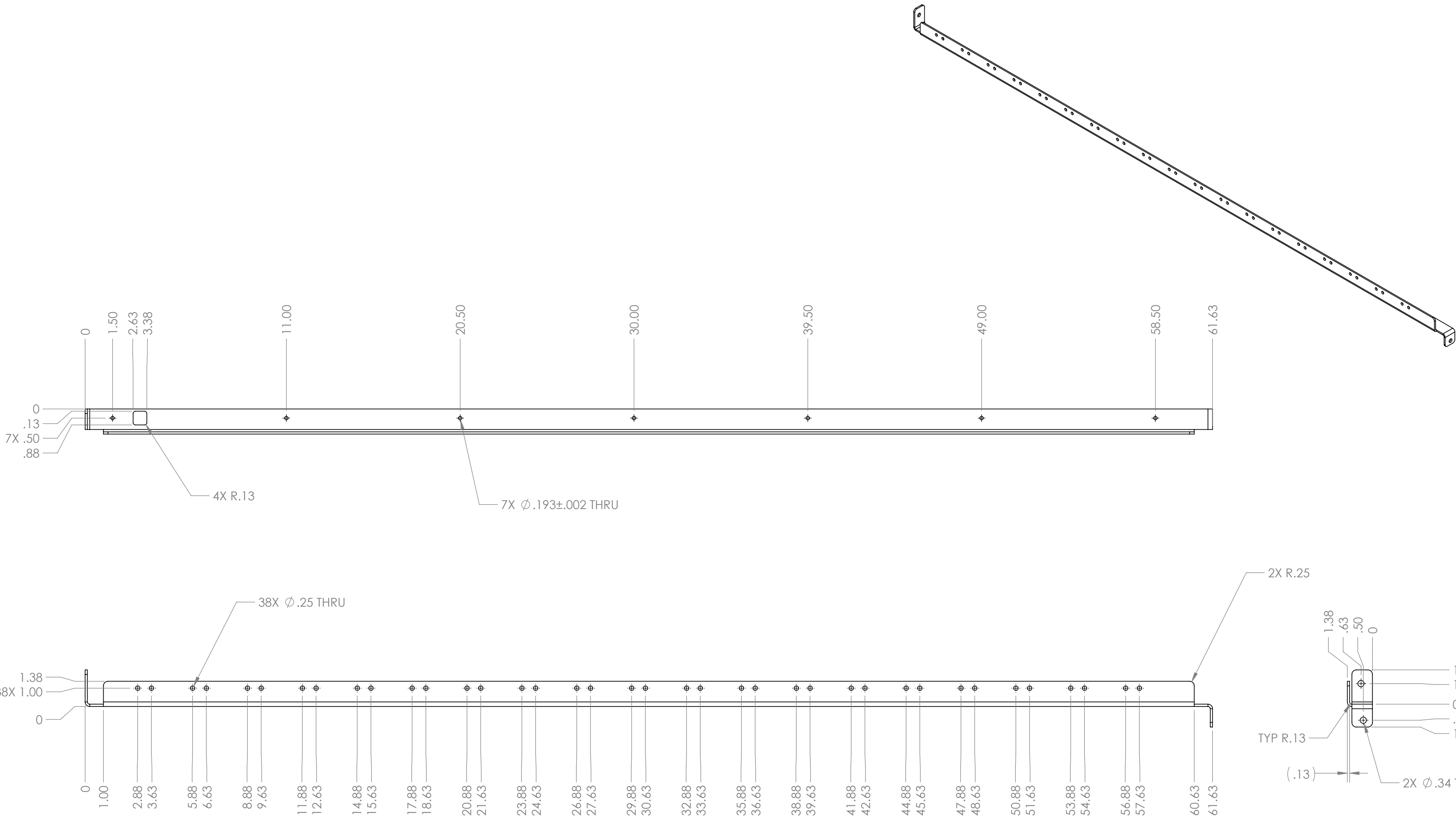
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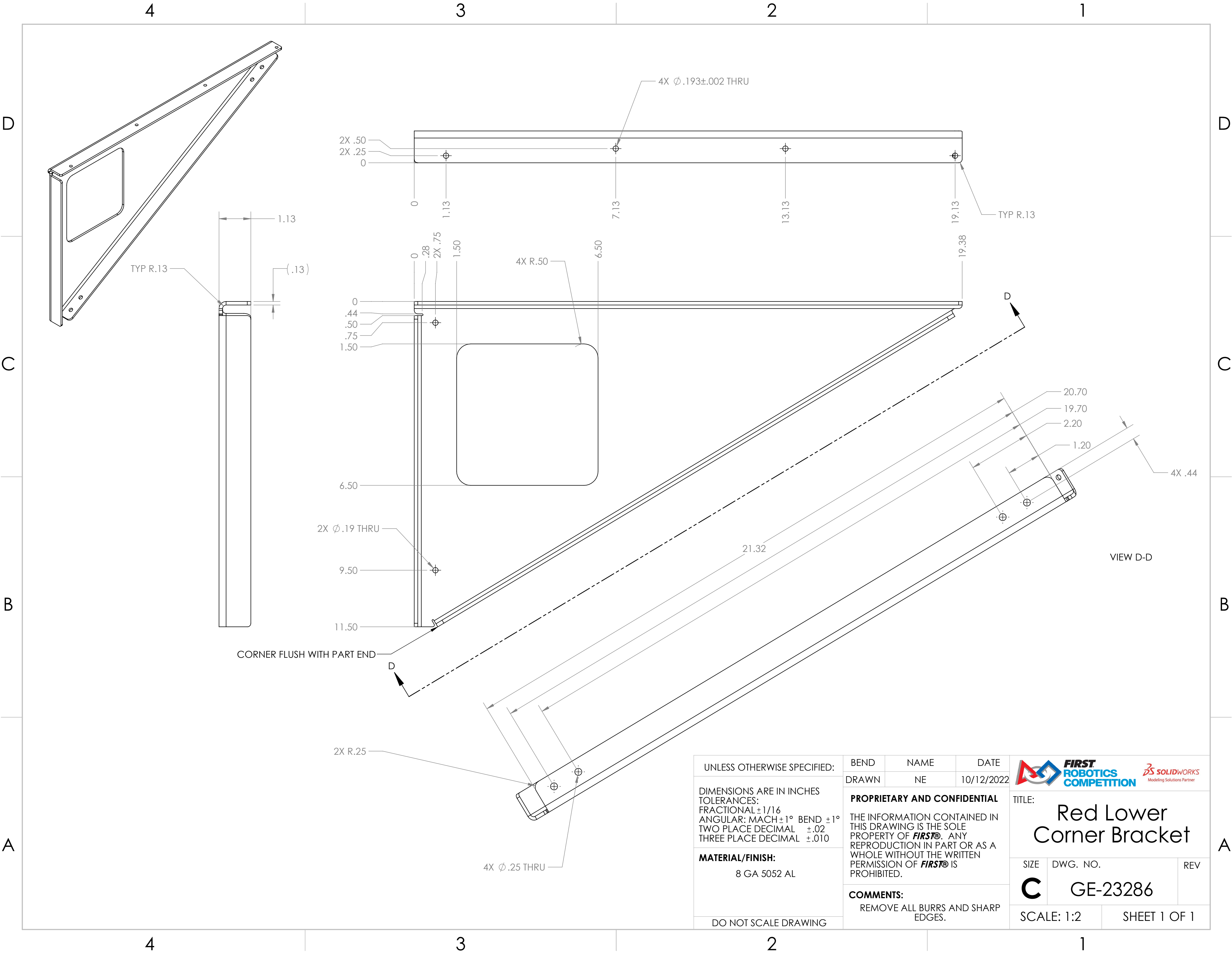
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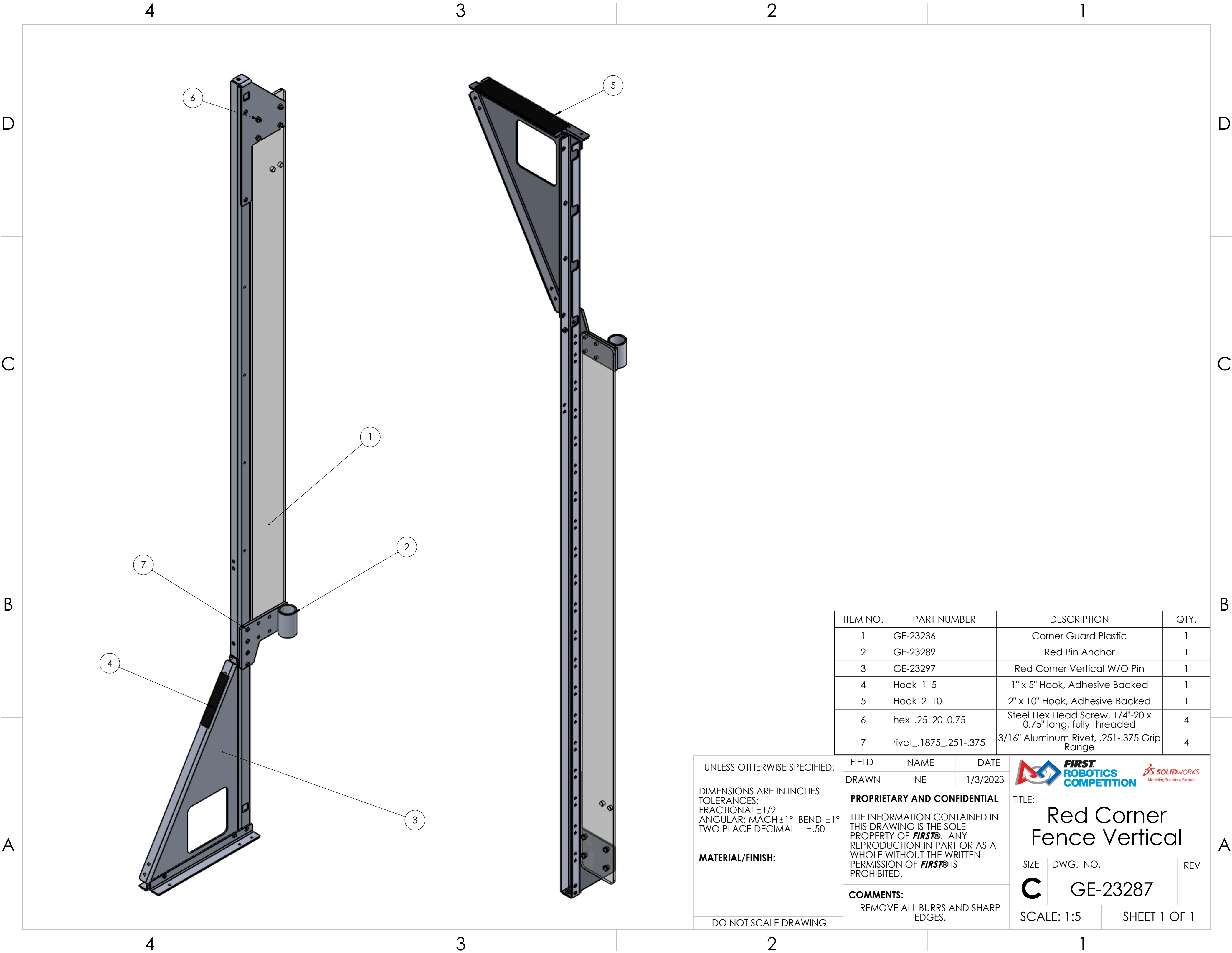
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UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b> 8 GA 5052 AL  DO NOT SCALE DRAWING	BEND	NAME	DATE	 	
	DRAWN	NE	10/12/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				TITLE: <b>Red Secondary Vertical</b>
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				SIZE <b>C</b> DWG. NO. <b>GE-23285-01</b> REV
SCALE: 1:4				SHEET 1 OF 1	



UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>	
	DRAWN	NE	10/12/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			TITLE:  Red Lower Corner Bracket	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
	COMMENTS:			SIZE	
MATERIAL/FINISH:  8 GA 5052 AL	REMOVE ALL BURRS AND SHARP EDGES.			DWG. NO.	
				REV	
DO NOT SCALE DRAWING				C	GE-23286
				SCALE: 1:2	
			SHEET 1 OF 1		



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23236	Corner Guard Plastic	1
2	GE-23289	Red Pin Anchor	1
3	GE-23297	Red Corner Vertical W/O Pin	1
4	Hook_1_5	1" x 5" Hook, Adhesive Backed	1
5	Hook_2_10	2" x 10" Hook, Adhesive Backed	1
6	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	4
7	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	4

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	1/3/2023

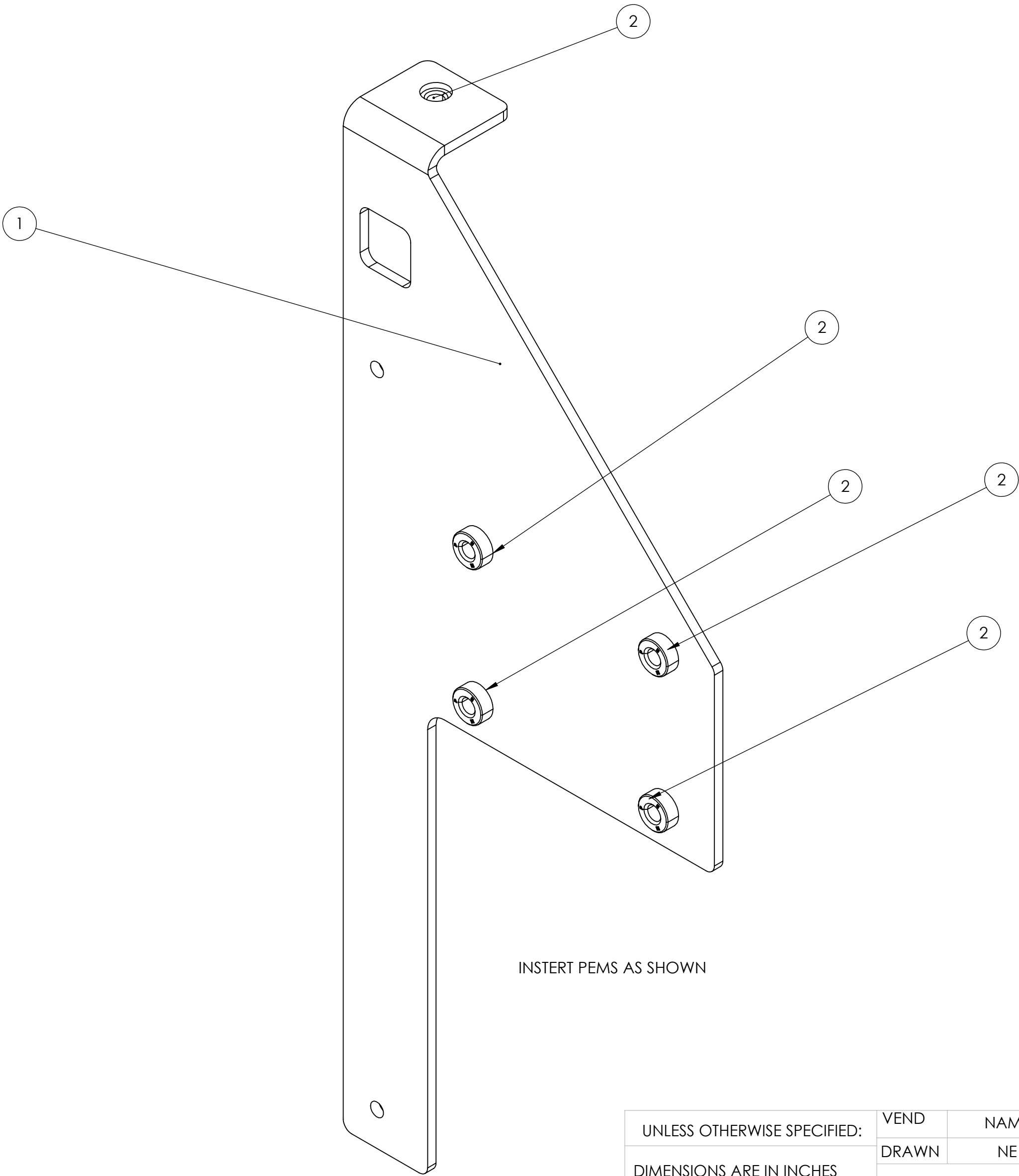
**PROPRIETARY AND CONFIDENTIAL**  
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF **FIRST®**. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF **FIRST®** IS PROHIBITED.



**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE: <b>Red Corner Fence Vertical</b>		
SIZE <b>C</b>	DWG. NO. <b>GE-23287</b>	REV
SCALE: 1:5		SHEET 1 OF 1

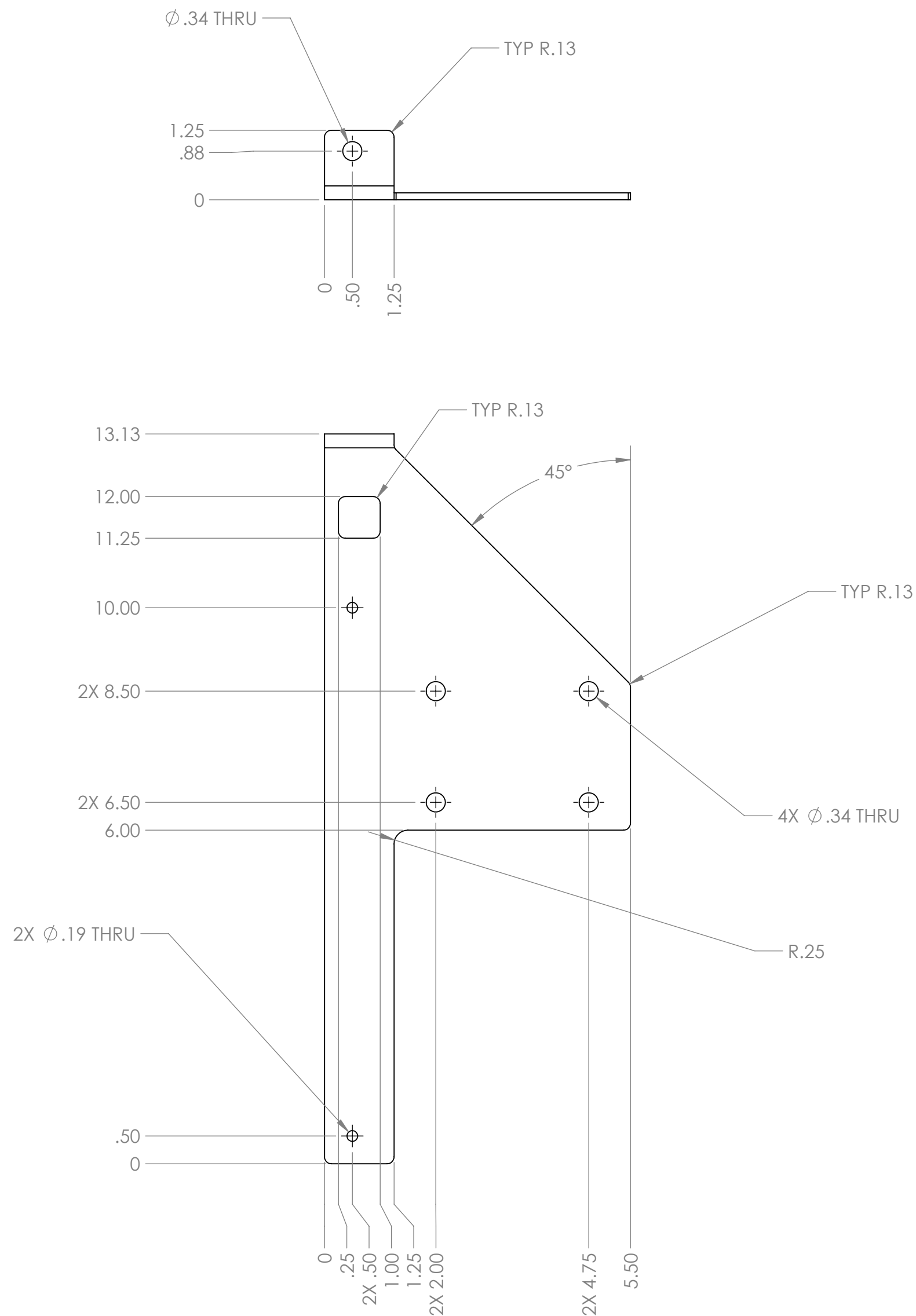
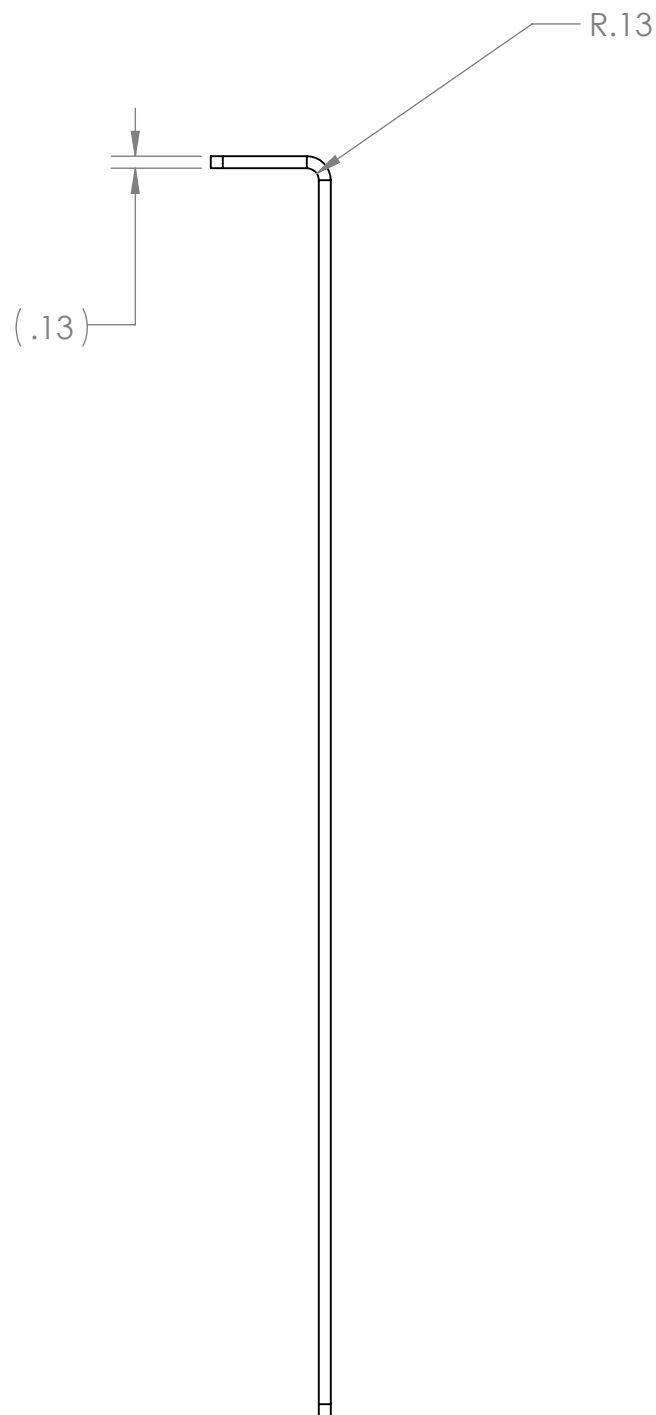
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23288-01	Red Tertiary Vertical	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	5



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>          <b>DO NOT SCALE DRAWING</b>	VEND	NAME	DATE	<div></div>	
	DRAWN	NE	10/13/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				TITLE:  <b>Red Tertiary Vertical With PEMs</b>
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				
SIZE		DWG. NO.		REV	
<b>C</b>		GE-23288			
SCALE: 1:1			SHEET 1 OF 1		



1



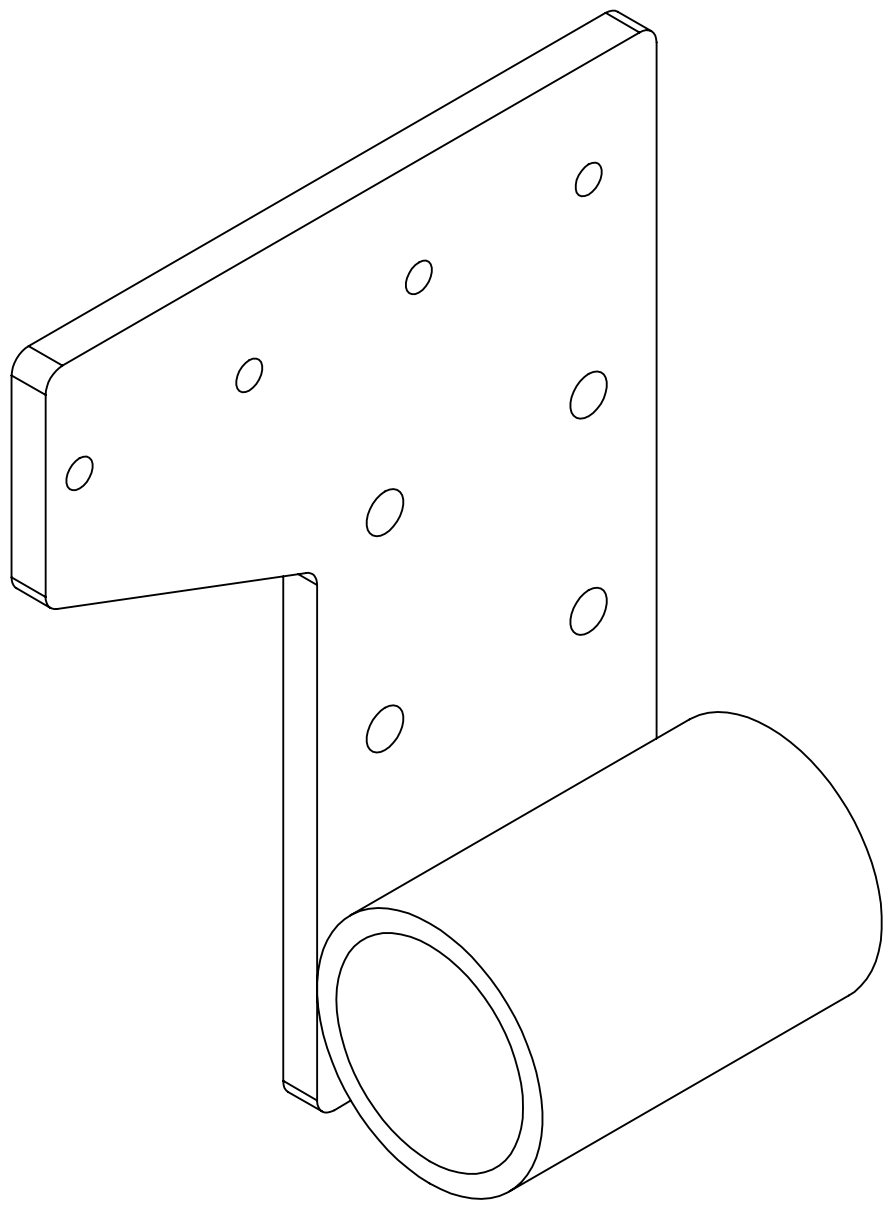
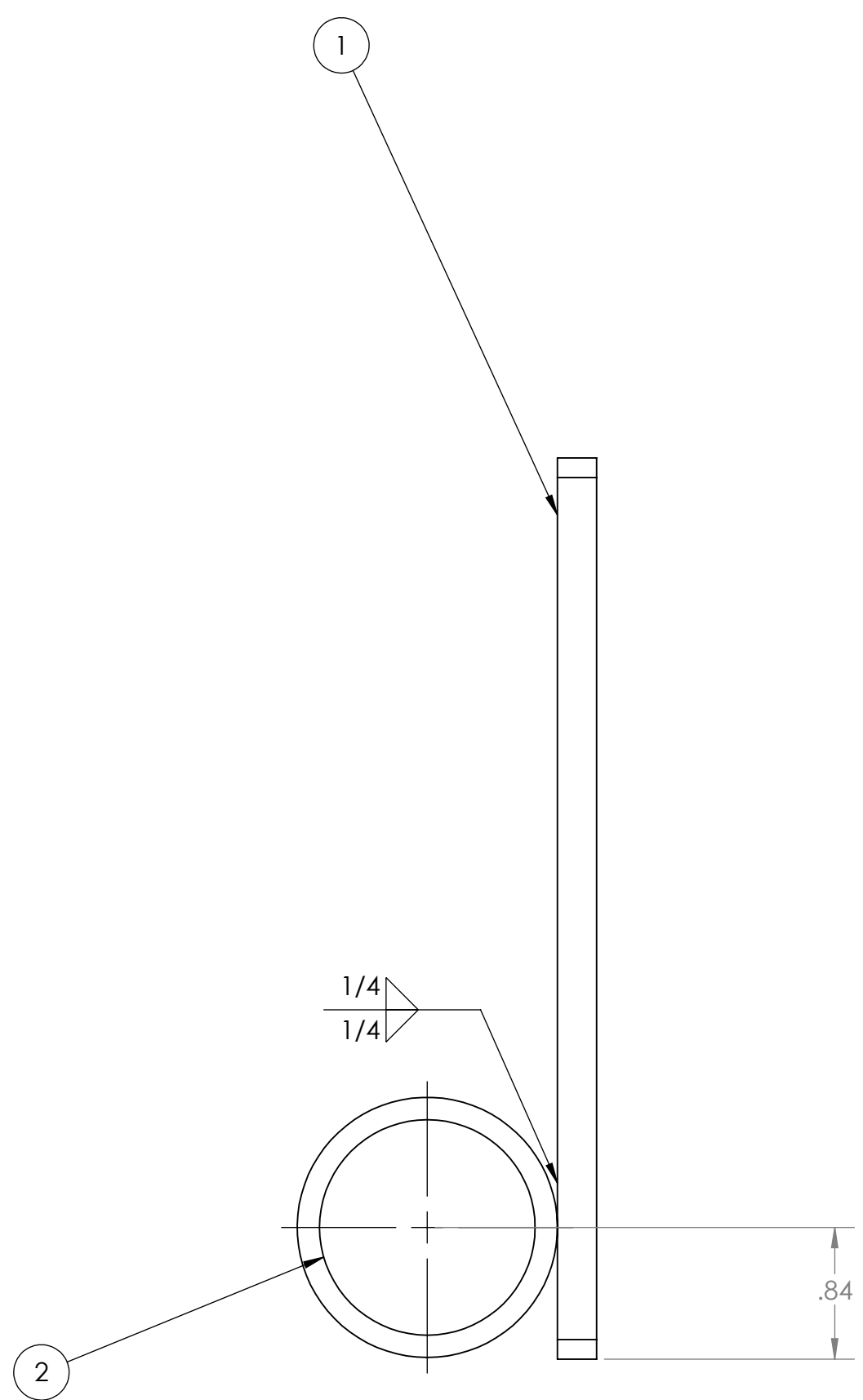
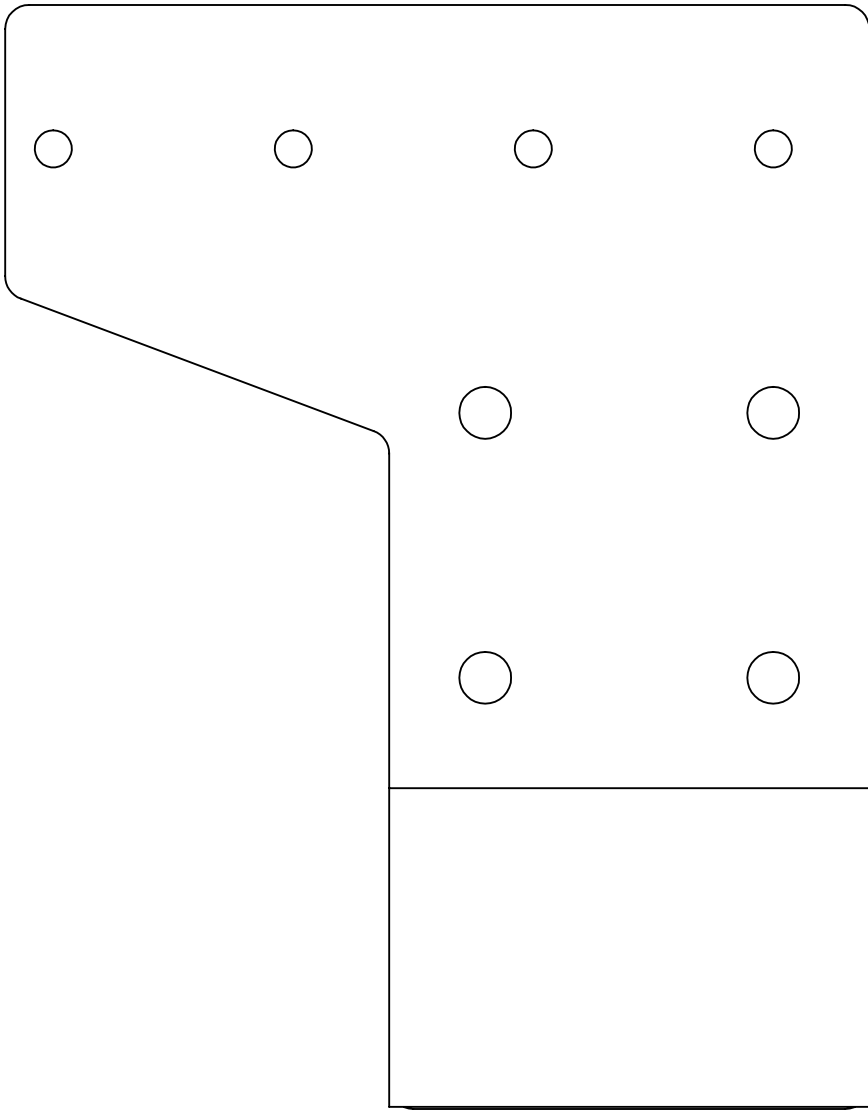
UNLESS OTHERWISE SPECIFIED:		BEND		NAME		DATE	
		DRAWN		NE		10/13/2022	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
<b>MATERIAL/FINISH:</b>  8 GA 5052 AL		<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.					
DO NOT SCALE DRAWING							




**FIRST**  
**ROBOTICS**  
**COMPETITION**

**SOLIDWORKS**  
Modeling Solutions Partner

TITLE:  <div style="text-align: center; font-size: 2em; margin-top: 20px;">Red Tertiary Vertical</div>		
SIZE	DWG. NO.	REV
C	GE-23288-01	
SCALE: 1:2		SHEET 1 OF 1

4			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23233	Pin Anchor Plate	1
2	GE-23234	Pin Anchor Tube	1



UNLESS OTHERWISE SPECIFIED:	WELD	NAME	DATE	  		
	DRAWN	NE	10/13/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.015	PROPRIETARY AND CONFIDENTIAL			TITLE:  Red Pin Anchor		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23289	
DO NOT SCALE DRAWING				SCALE: 1:1		SHEET 1 OF 1

4

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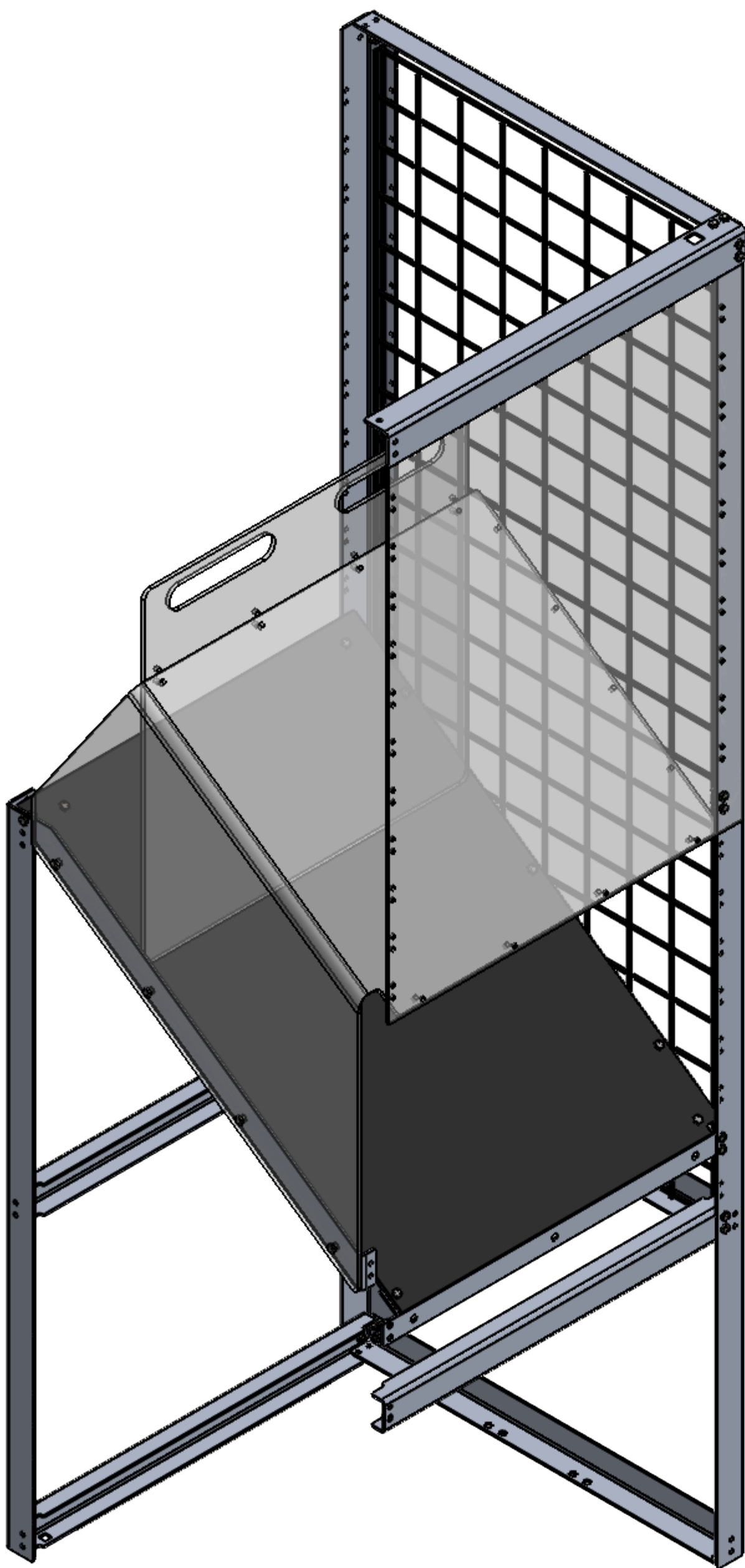
C

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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23241	HP Protection Plastic	1
2	GE-23245	Short Chute Vertical	1
3	GE-23246	Chute Door	1
4	GE-23250	Side Fence	1
5	GE-23291	Red Chute Cover	1
6	GE-23292	Red Chute Top Connector	1
7	GE-23293	Red Crossbeam	2
8	GE-23294	Red Ramp Assembly	1
9	GE-23299	Red Crossbeam With Loop	1
10	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	27
11	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	17

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	12/27/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.



TITLE:  
Red Chute

SIZE	DWG. NO.	REV
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C	GE-23290	
---	----------	--

SCALE: 1:6	SHEET 1 OF 6
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1

LAYER PLASTIC BETWEEN 4 AND 6. ATTACH WITH 6 OF 11 AND 6 OF 10

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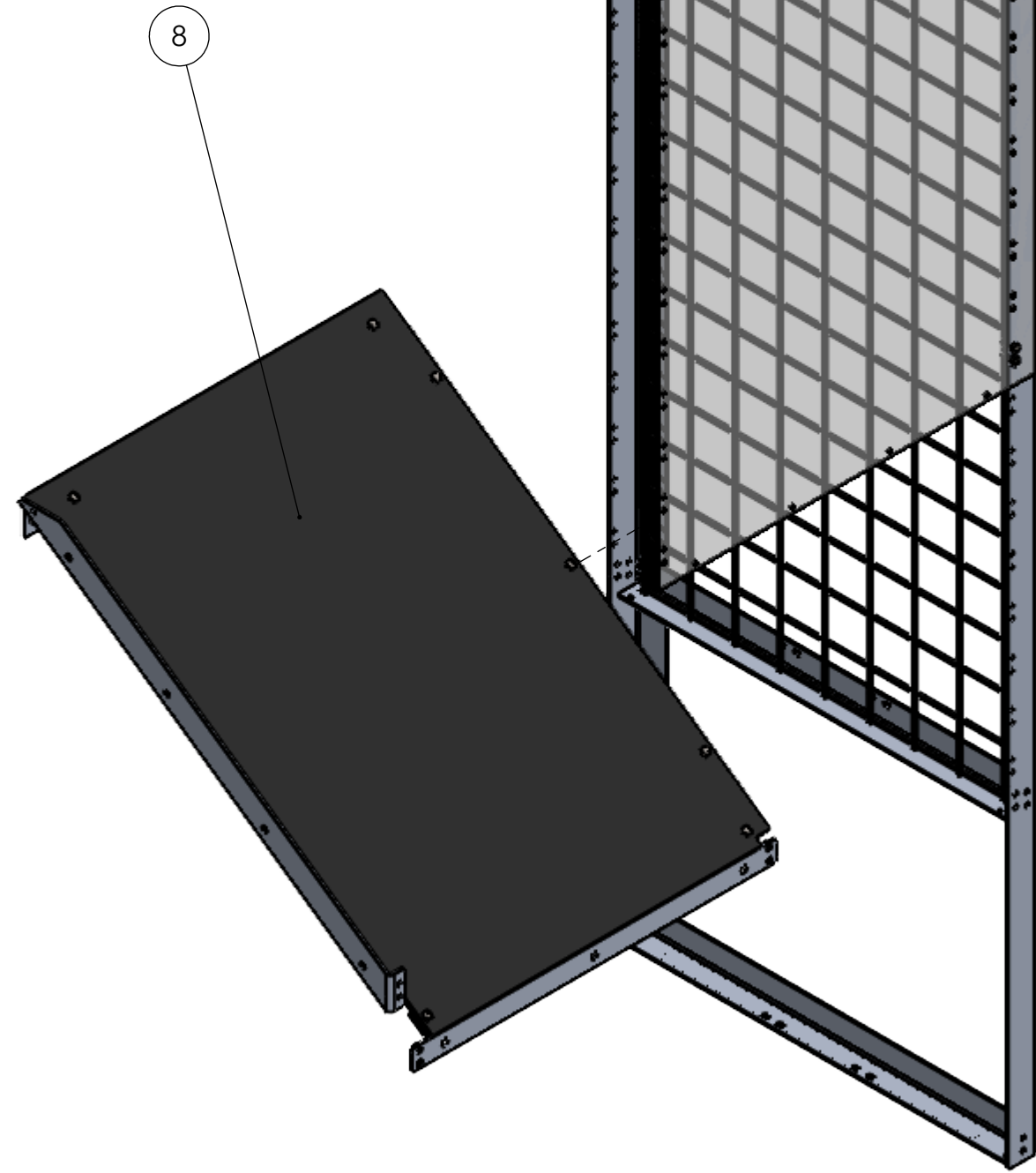
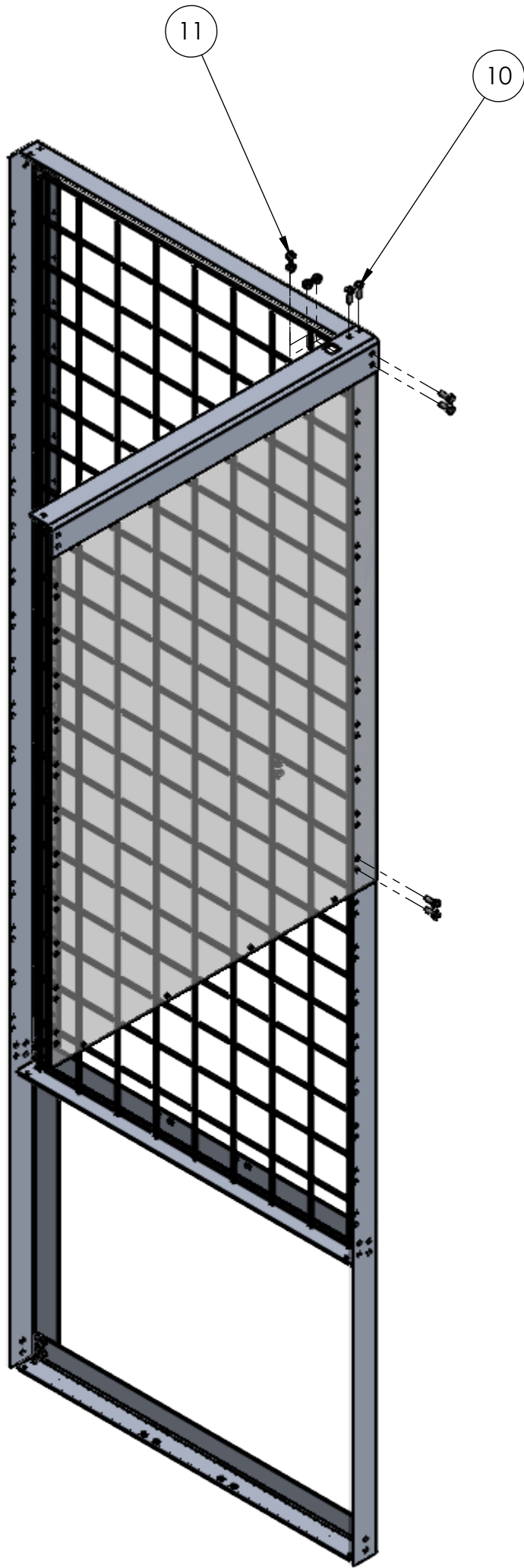
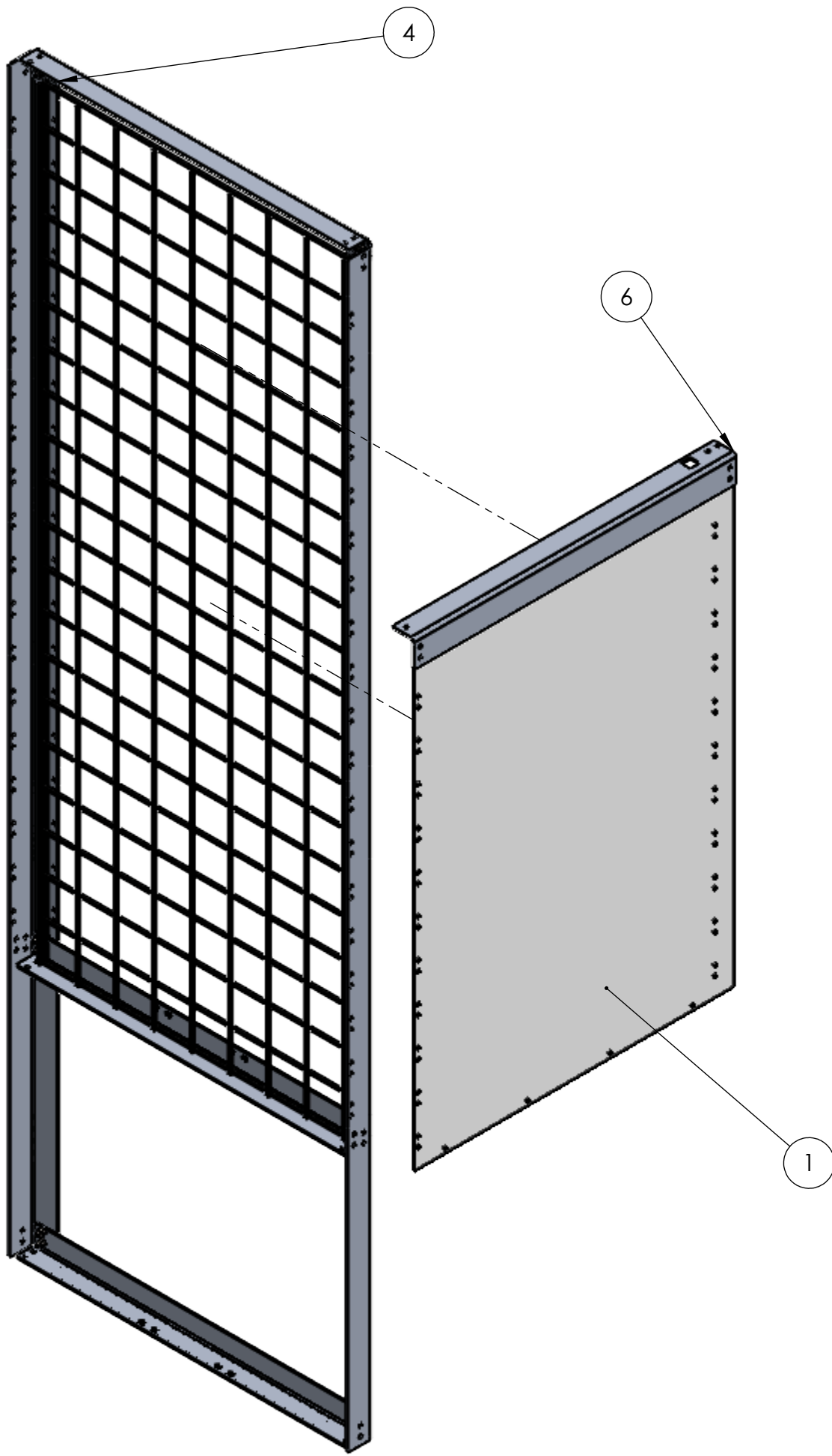
C



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UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	FIELD	NAME	DATE	<div><div>FIRST ROBOTICS COMPETITION</div></div> <div><div>SOLIDWORKS Modeling Solutions Partner</div></div>		
	DRAWN	NE	12/27/2022			
	MATERIAL/FINISH:	PROPRIETARY AND CONFIDENTIAL			TITLE:  Red Chute	
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.						
DO NOT SCALE DRAWING		COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. GE-23290
				SCALE: 1:8		SHEET 2 OF 6



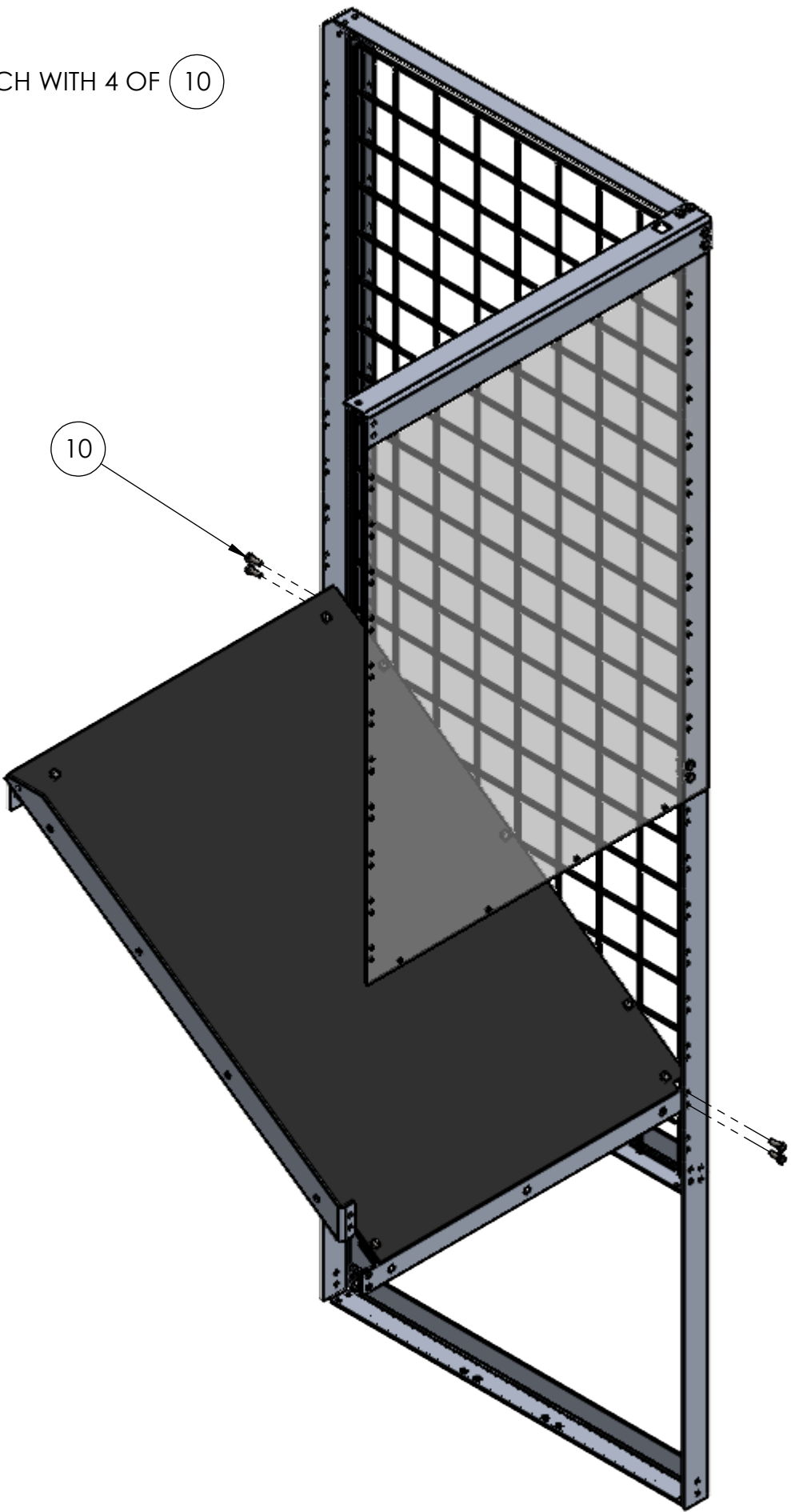
4

3

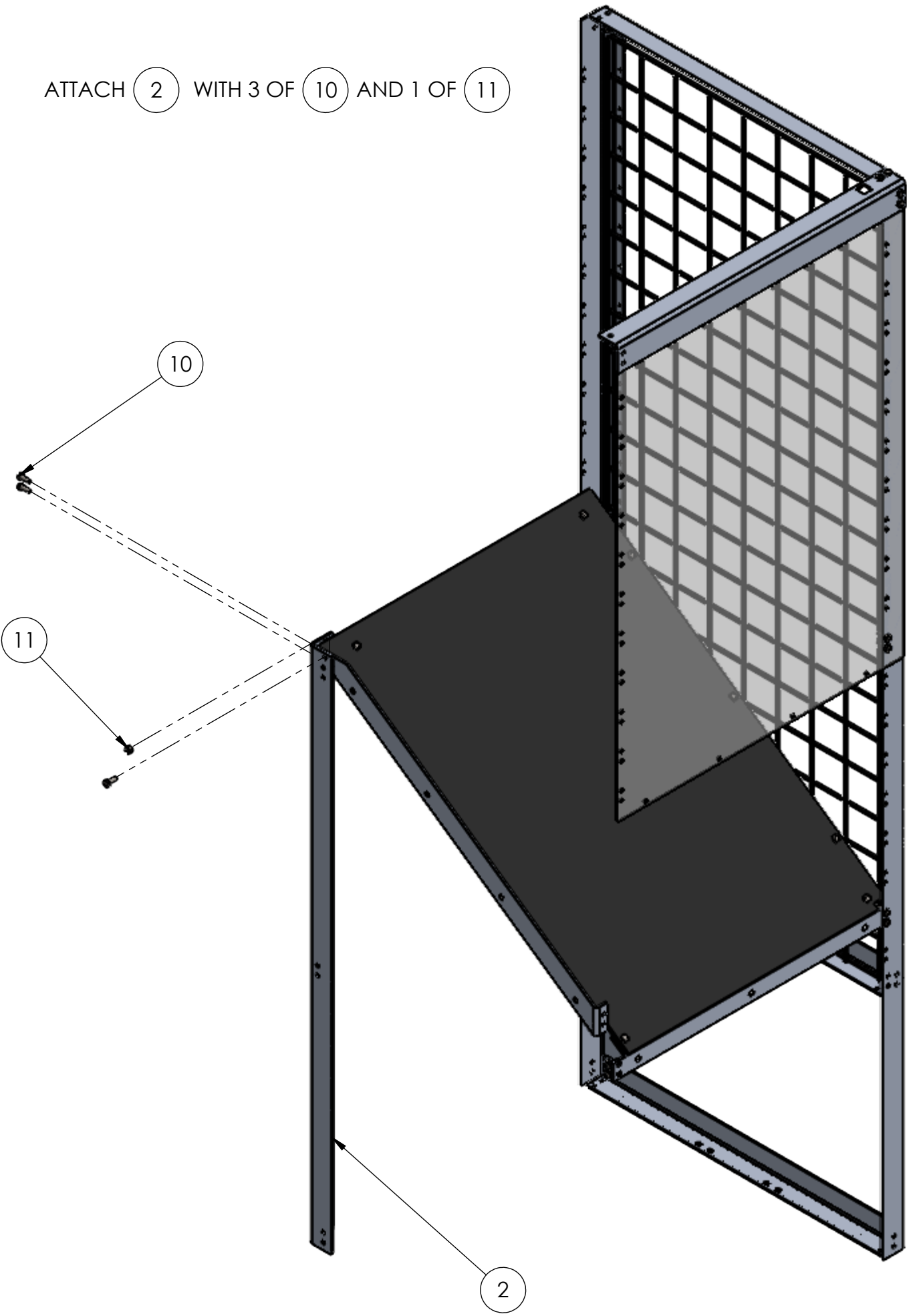
2

1

ATTACH WITH 4 OF (10)



ATTACH (2) WITH 3 OF (10) AND 1 OF (11)



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

**MATERIAL/FINISH:**

DO NOT SCALE DRAWING

FIELD

NAME

DATE

DRAWN

NE

12/27/2022

**PROPRIETARY AND CONFIDENTIAL**

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WHOLE WITHOUT THE WRITTEN  
PERMISSION OF **FIRST®** IS  
PROHIBITED.

**COMMENTS:**

REMOVE ALL BURRS AND SHARP  
EDGES.



**FIRST  
ROBOTICS  
COMPETITION**

**SOLIDWORKS**  
Modeling Solutions Partner

TITLE:

Red Chute

SIZE

**C**

DWG. NO.

GE-23290

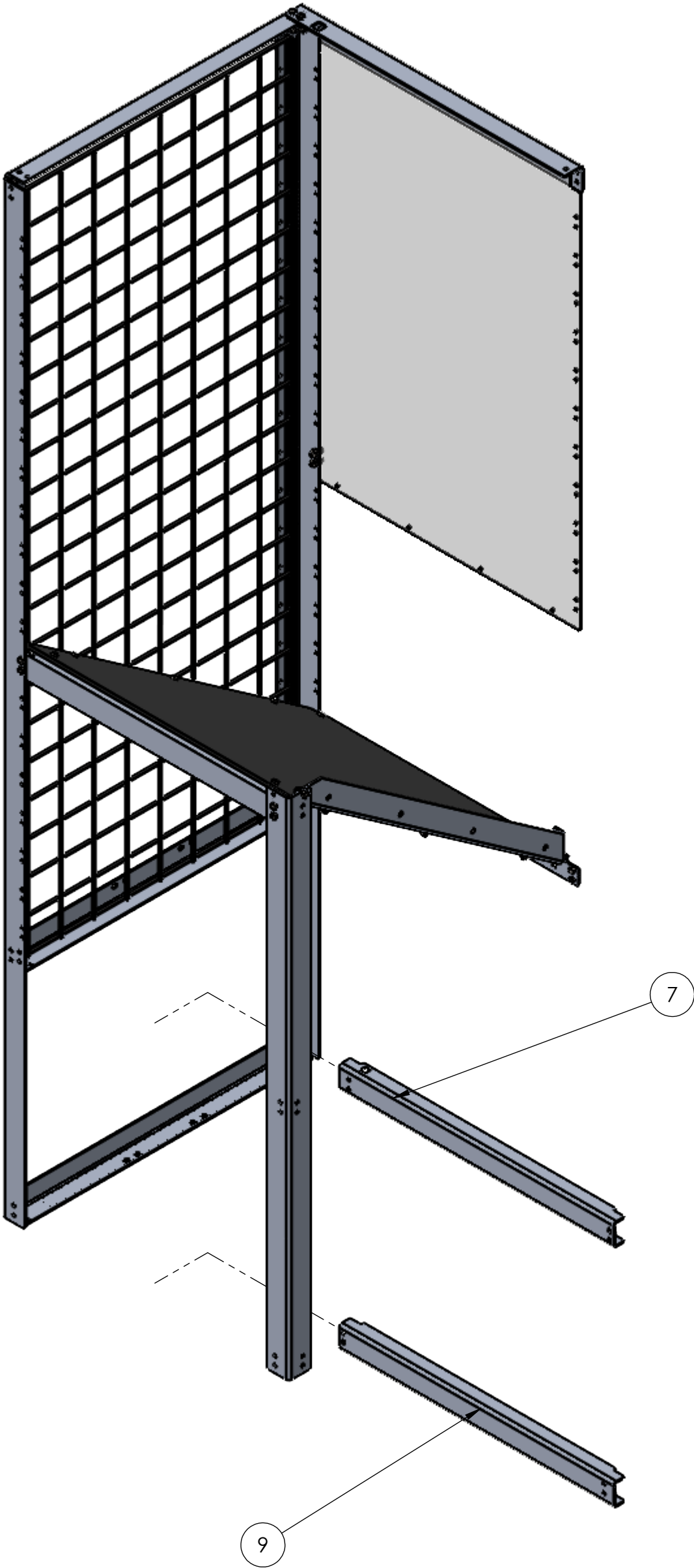
REV

SCALE: 1:8

SHEET 3 OF 6

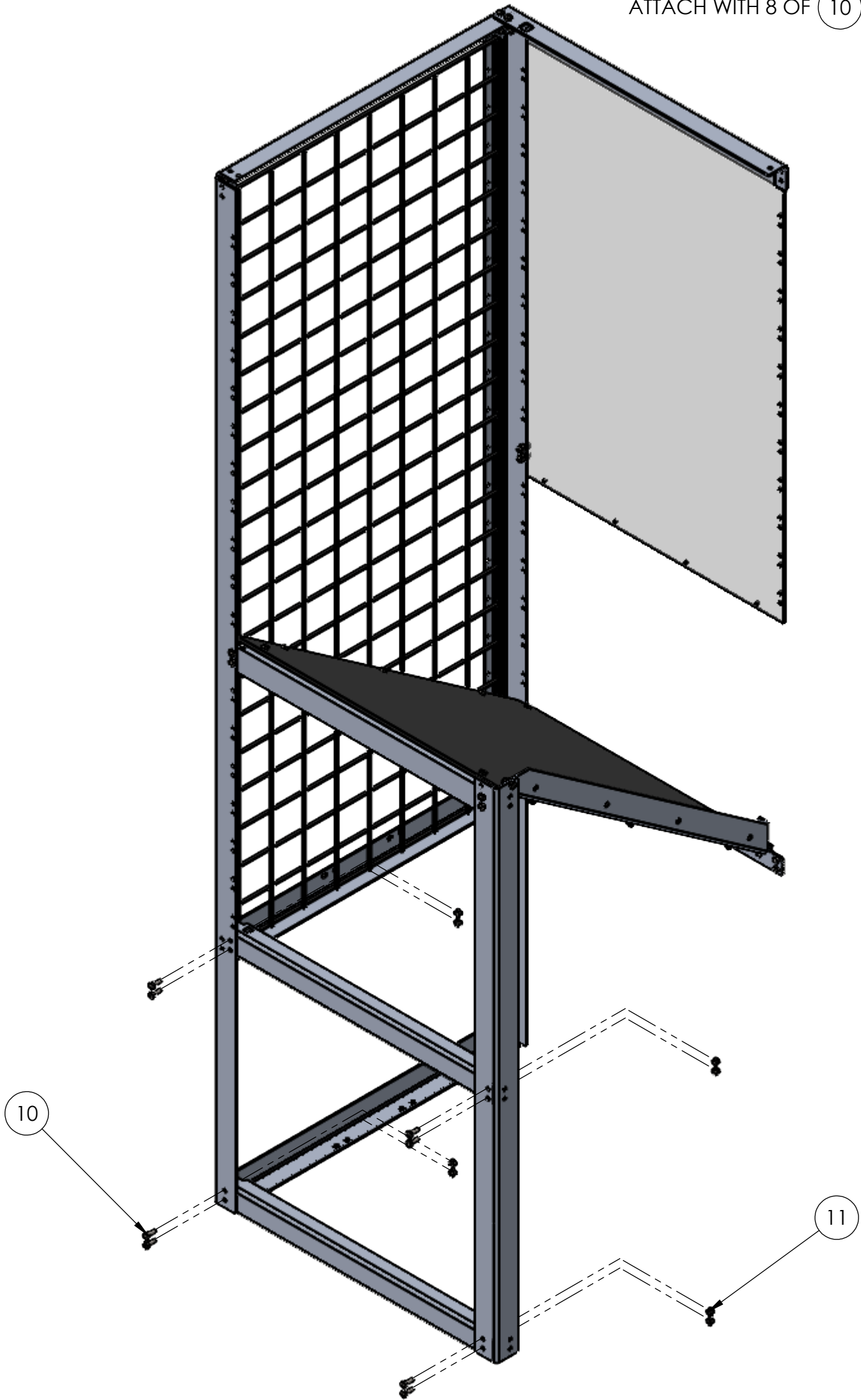




(ROTATED 90 DEGREES FOR VISIBILITY)



NOTE: 9 IS THE SAME PART AS 7  
WITH LOOP ON ONE FACE. LOOP IS  
DOWNWARD FACING IN ASSEMBLY TO  
INTERACT WITH THE FLOOR

ATTACH WITH 8 OF 10 AND 8 OF 11



UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 	
	DRAWN	NE	12/27/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE:  Red Chute	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
MATERIAL/FINISH:	COMMENTS:			SIZE  C	
	REMOVE ALL BURRS AND SHARP EDGES.				
DO NOT SCALE DRAWING				DWG. NO.  GE-23290	
				REV	
SCALE: 1:8			SHEET 4 OF 6		

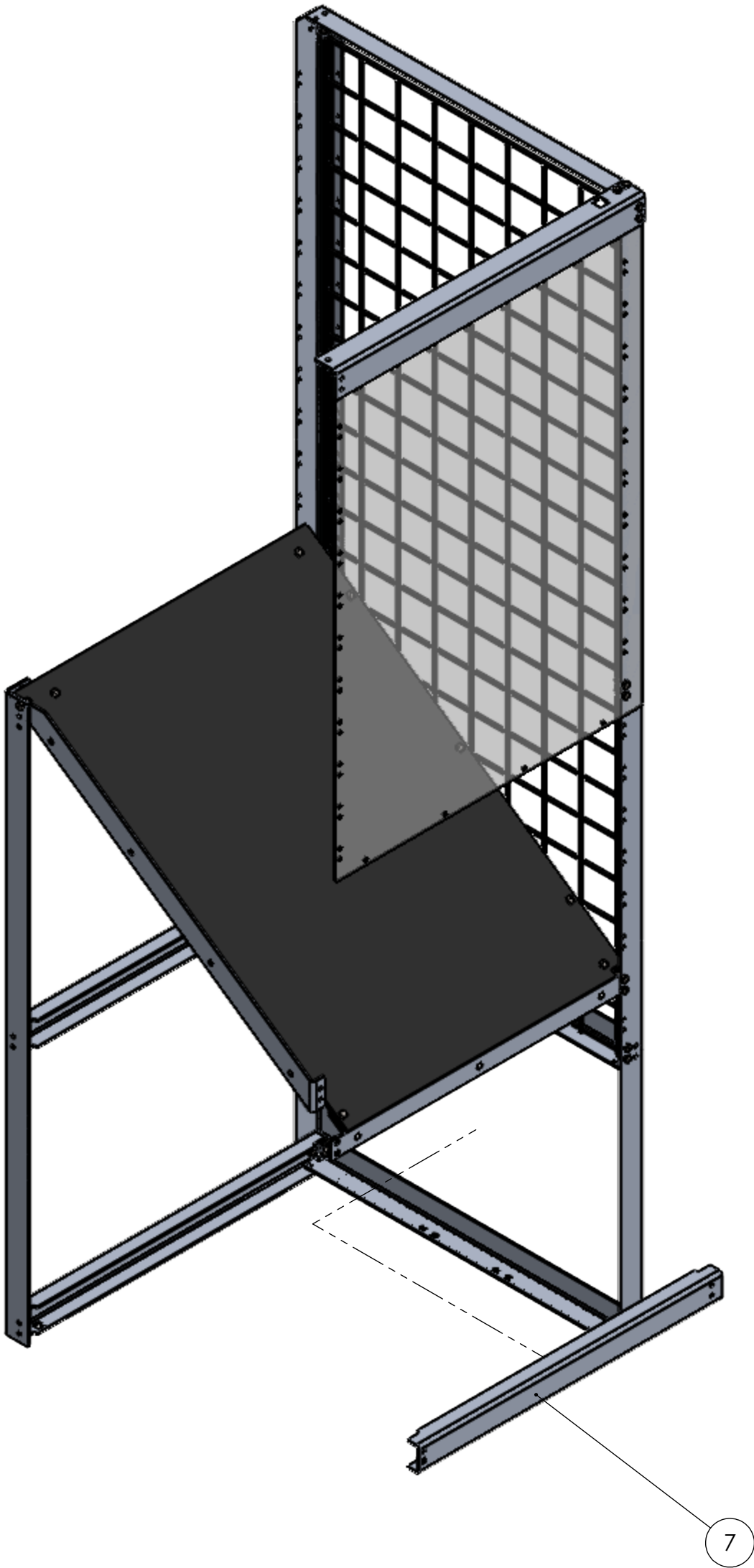
4

3

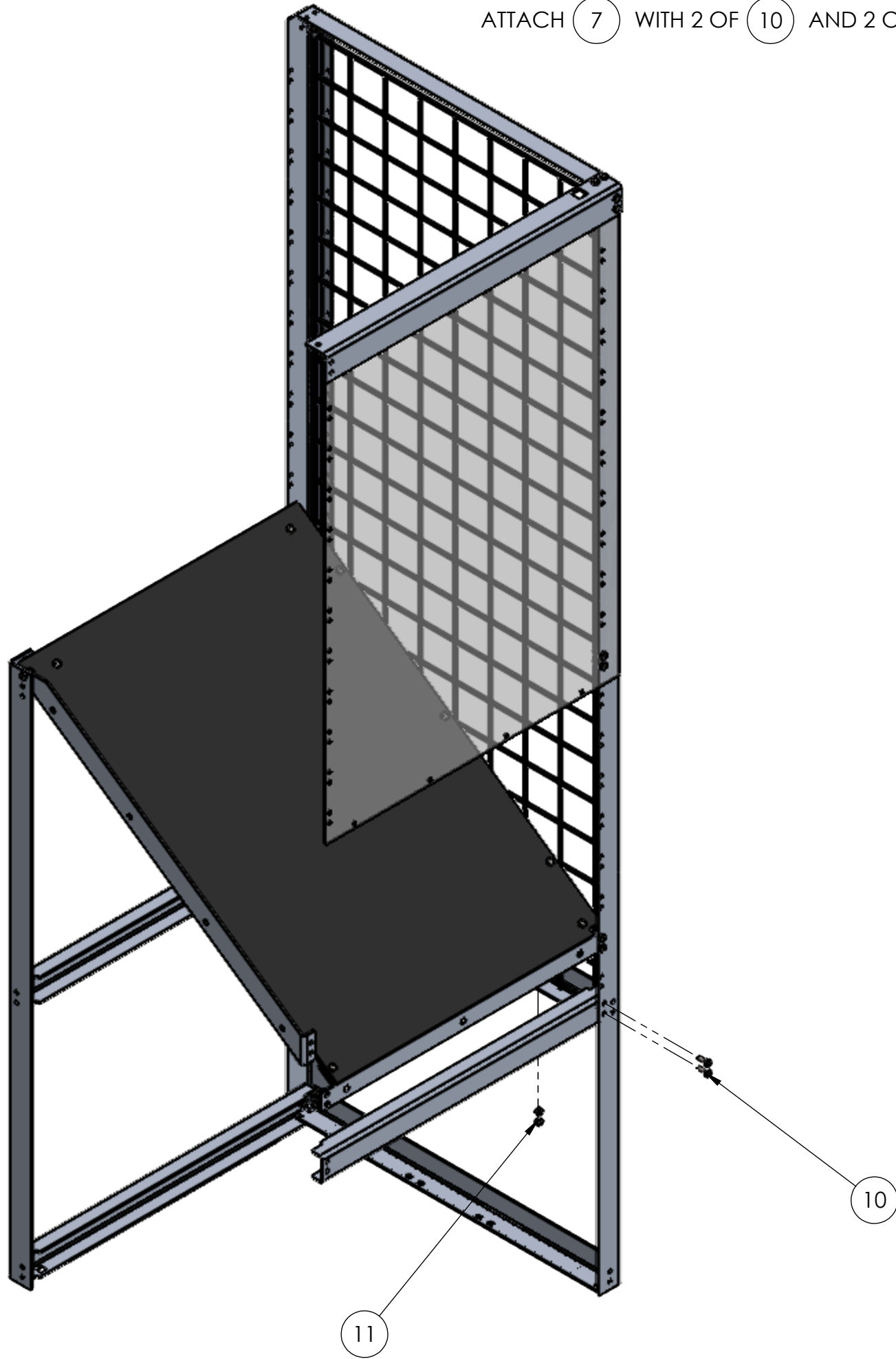
2

1

(ROTATED BACK TO ORIGINAL ORIENTATION)



ATTACH 7 WITH 2 OF 10 AND 2 OF 11



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD

NAME

DATE

DRAWN

NE

12/27/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.



FIRST  
ROBOTICS  
COMPETITION

SOLIDWORKS  
Modeling Solutions Partner

TITLE:

Red Chute

SIZE

C

DWG. NO.

GE-23290

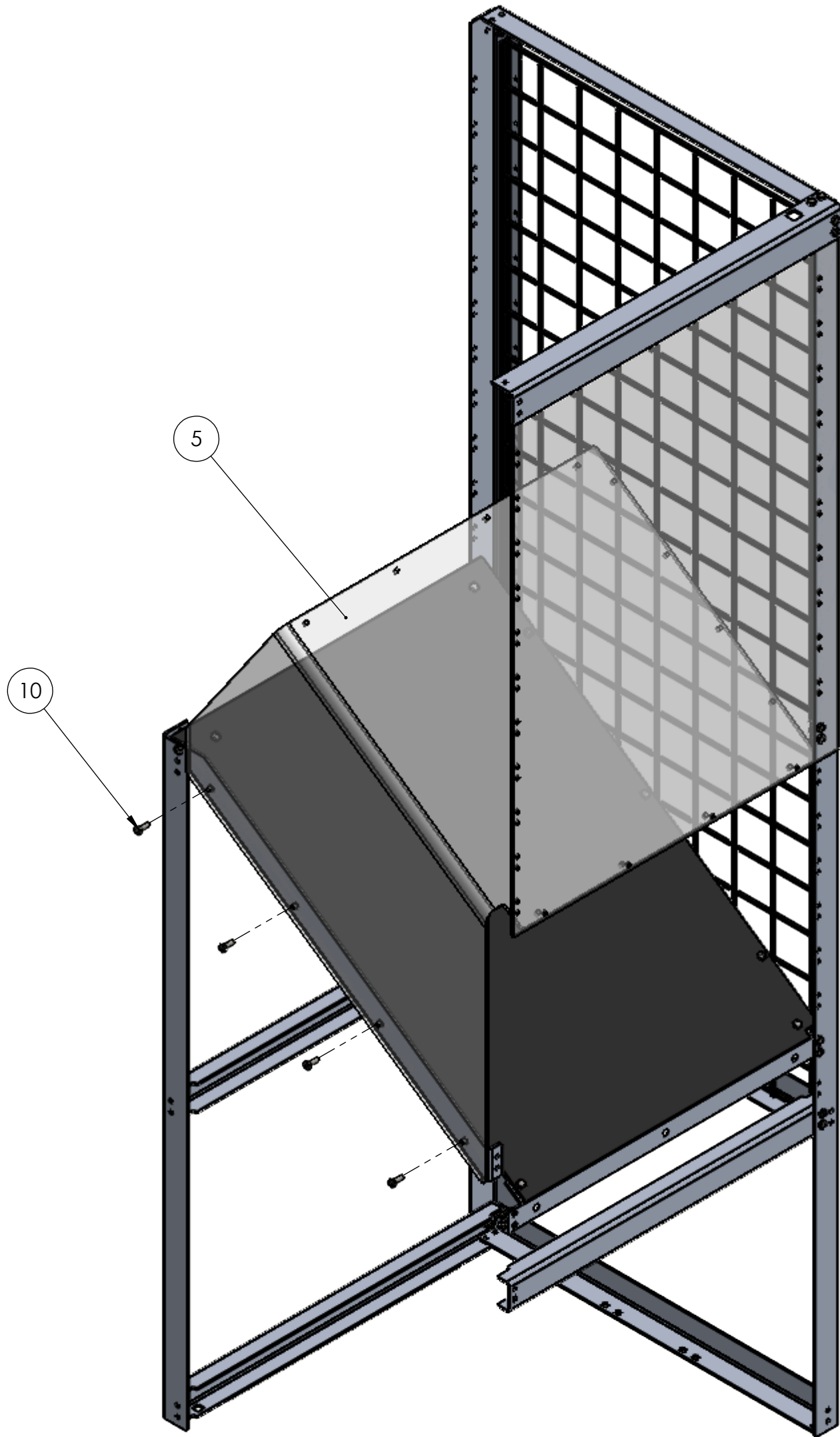
REV

SCALE: 1:8

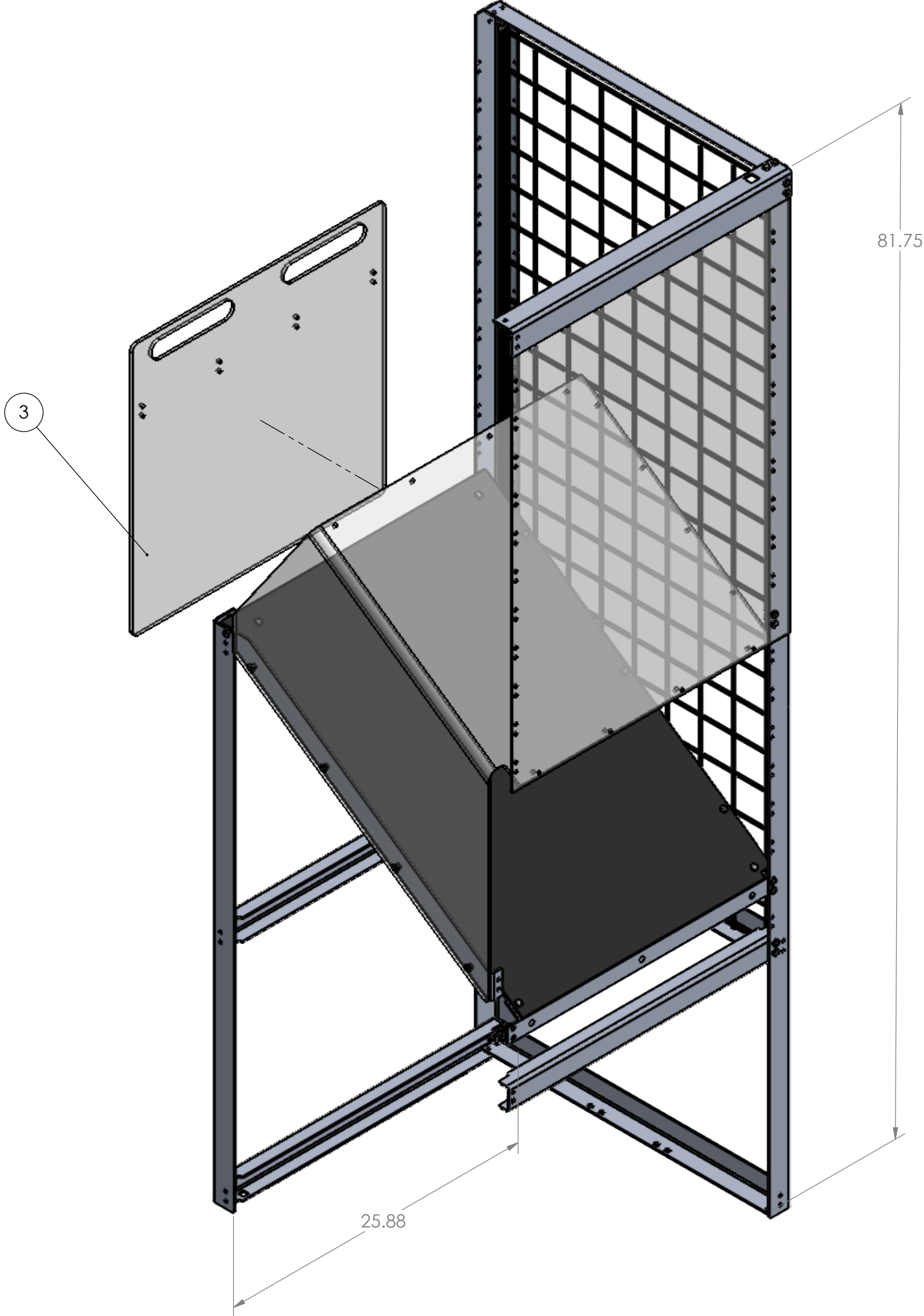
SHEET 5 OF 6





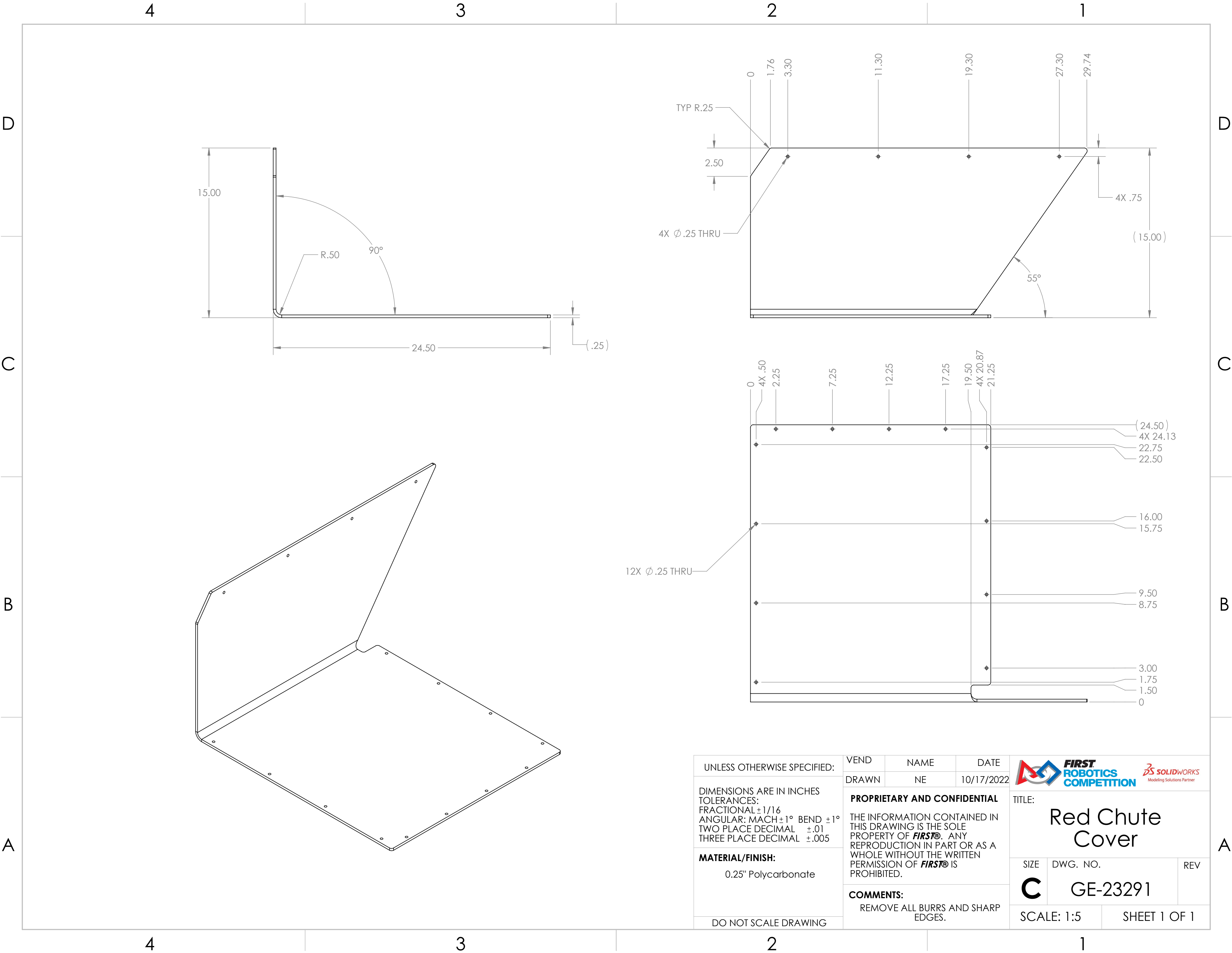
ATTACH 3 TO 5 WITH 4 CABLE TIES LOOSE ENOUGH TO FUNCTION AS A HINGE



ATTACH 5 TO THE OUTSIDE OF THE RAMP WITH 4 OF 10



UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div>		
	DRAWN	NE	12/27/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	<b>PROPRIETARY AND CONFIDENTIAL</b>			TITLE:  Red Chute		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
<b>MATERIAL/FINISH:</b>	<b>COMMENTS:</b>			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23290	
DO NOT SCALE DRAWING				SCALE: 1:7		SHEET 6 OF 6



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

**MATERIAL/FINISH:**  
0.25" Polycarbonate

DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	NE	10/17/2022

**PROPRIETARY AND CONFIDENTIAL**  
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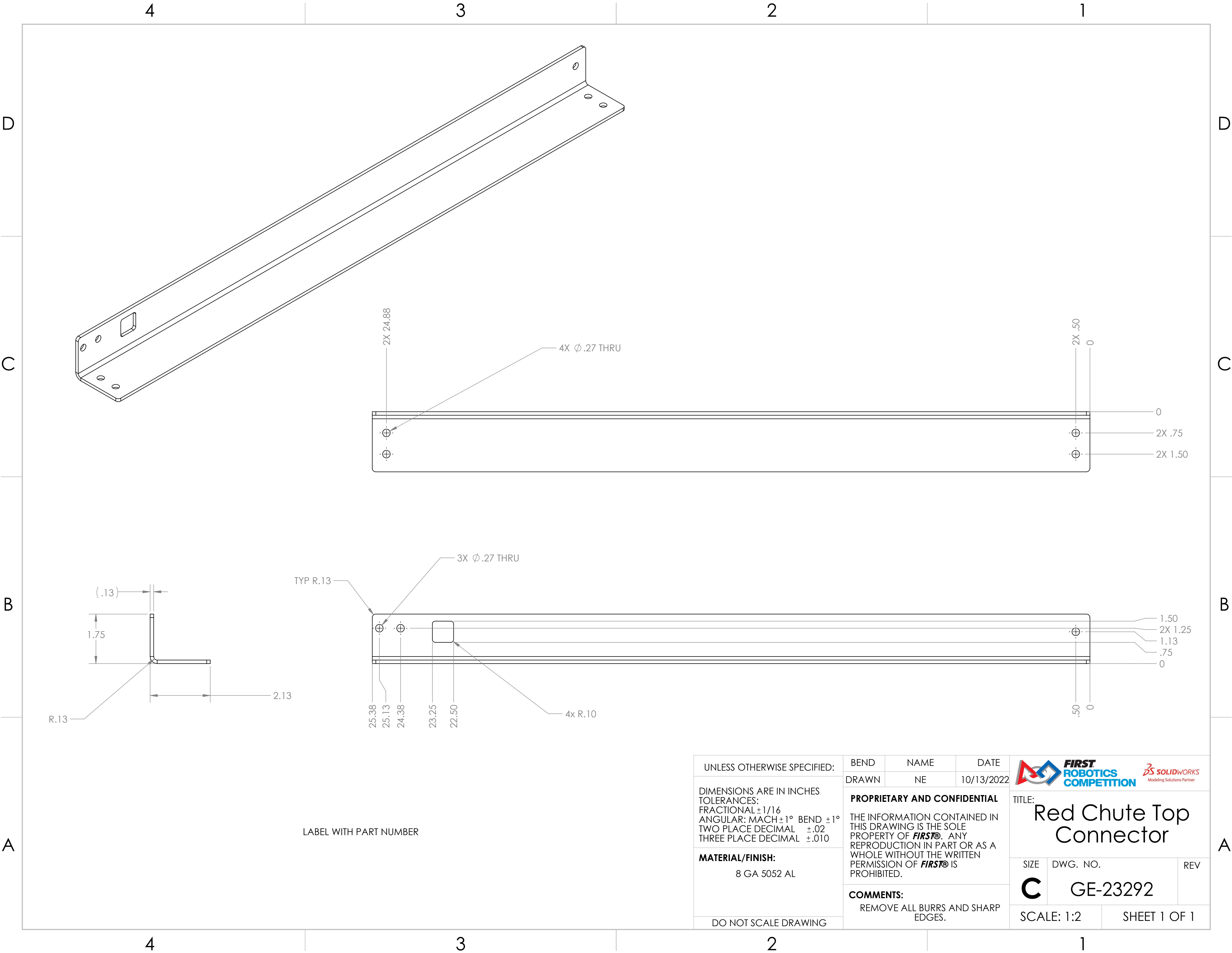
**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.





TITLE:  
**Red Chute Cover**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23291	

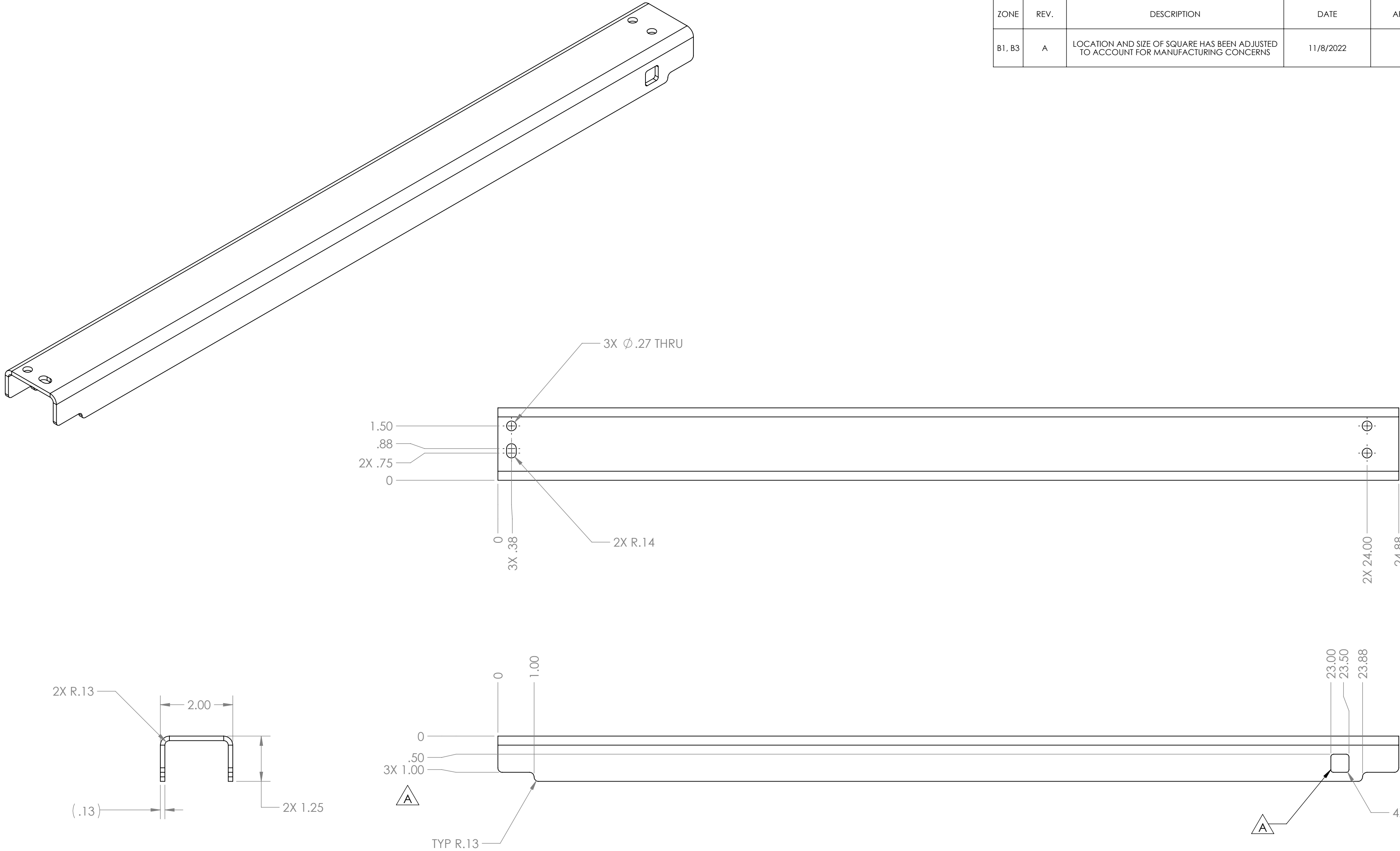
SCALE: 1:5 SHEET 1 OF 1





UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010  <b>MATERIAL/FINISH:</b>  8 GA 5052 AL  DO NOT SCALE DRAWING	BEND	NAME	DATE	<div></div>		
	DRAWN	NE	10/13/2022			
	TITLE: <div>Red Chute Top Connector</div>					
<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				SIZE	DWG. NO.	REV
				C	GE-23292	
				SCALE: 1:2		SHEET 1 OF 1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B1, B3	A	LOCATION AND SIZE OF SQUARE HAS BEEN ADJUSTED TO ACCOUNT FOR MANUFACTURING CONCERNS	11/8/2022	NE



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b> 8 GA 5052 AL  DO NOT SCALE DRAWING	BEND DRAWN	NAME NE	DATE 10/13/2022	  TITLE: <b>Red Crossbeam</b>	
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE <b>C</b>	DWG. NO. <b>GE-23293</b>
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			REV <b>A</b>	SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23261	Ramp Front Rail with PEMs	1
2	GE-23262	Ramp Back Rail with PEMs	1
3	GE-23264	Ramp Side Fence Rail	1
4	GE-23265	Chute Floor	1
5	GE-23295	Red Ramp HP Side With PEMs	1
6	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	10
7	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	10

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	12/27/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE:  
**Red Ramp Assembly**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23294	

SCALE: 1:3 SHEET 1 OF 2

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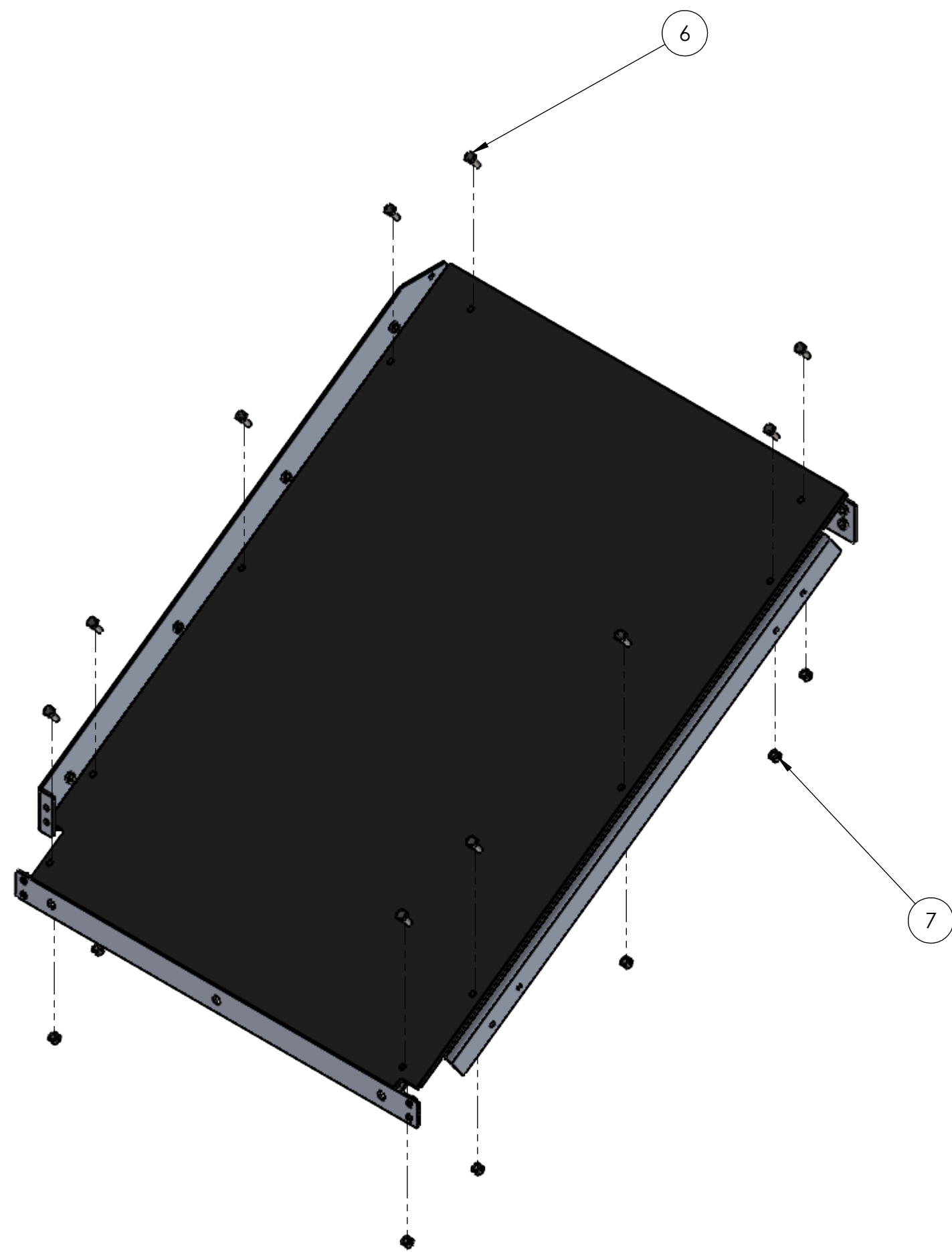
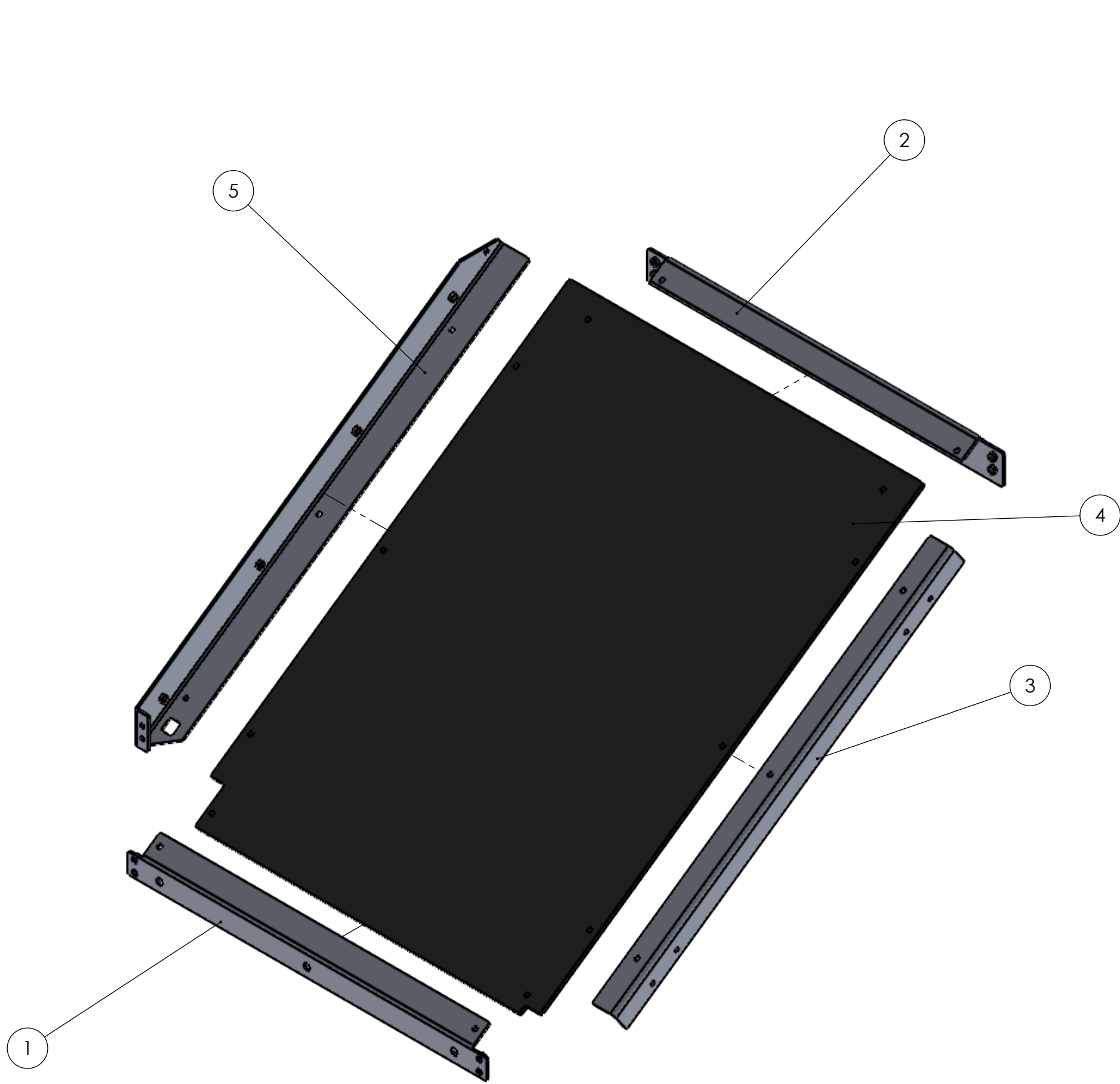
C

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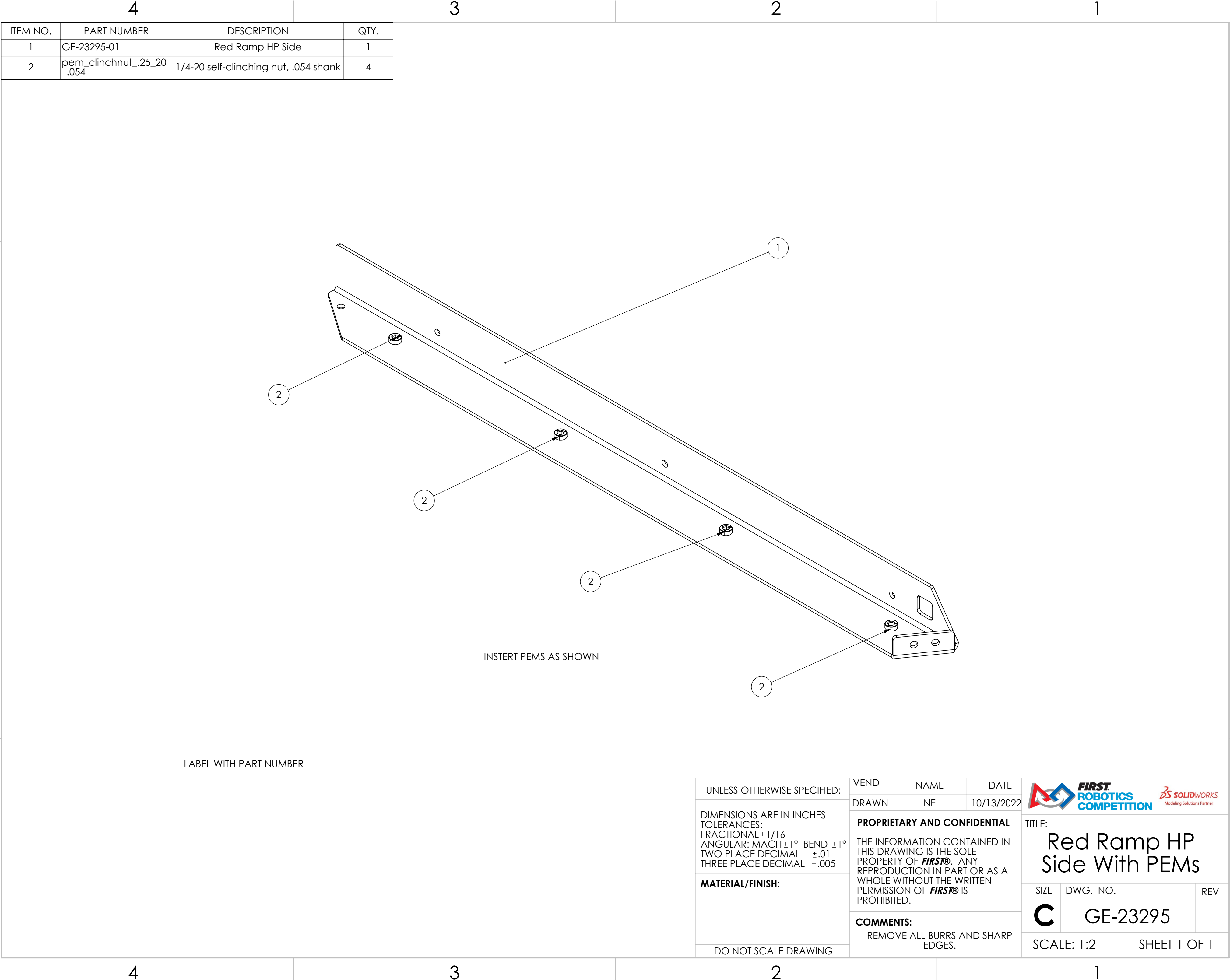
A

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ATTACH 1, 2, 3, AND 5 TO 4 WITH 10 OF 6 AND 10 OF 7

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b>    <b>DO NOT SCALE DRAWING</b>	FIELD	NAME	DATE	  TITLE: <b>Red Ramp Assembly</b>	
	DRAWN	NE	12/27/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST</b> IS PROHIBITED.			SIZE	DWG. NO.
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23294
SCALE: 2:11		SHEET 2 OF 2			



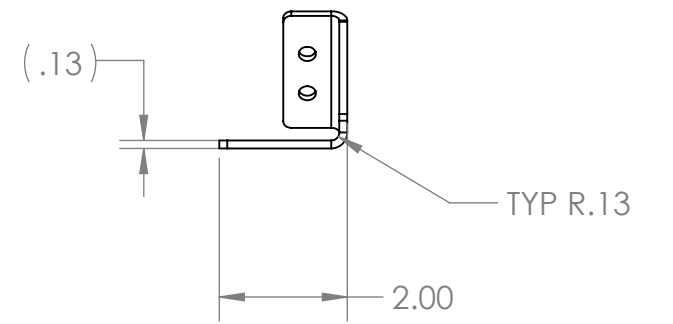
1

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UNLESS OTHERWISE SPECIFIED:		BEND		NAME		DATE	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010		DRAWN		NE		10/13/2022	
		PROPRIETARY AND CONFIDENTIAL					
		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:		COMMENTS:					
8 GA 5052 AL		REMOVE ALL BURRS AND SHARP EDGES.					
DO NOT SCALE DRAWING							



TITLE:

Red Ramp HP  
Side

SIZE

DWG. NO.

REV

C

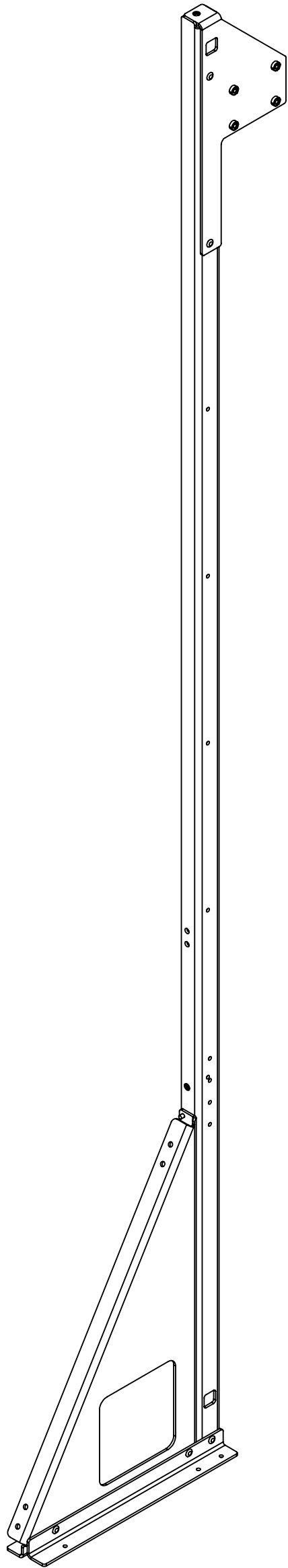
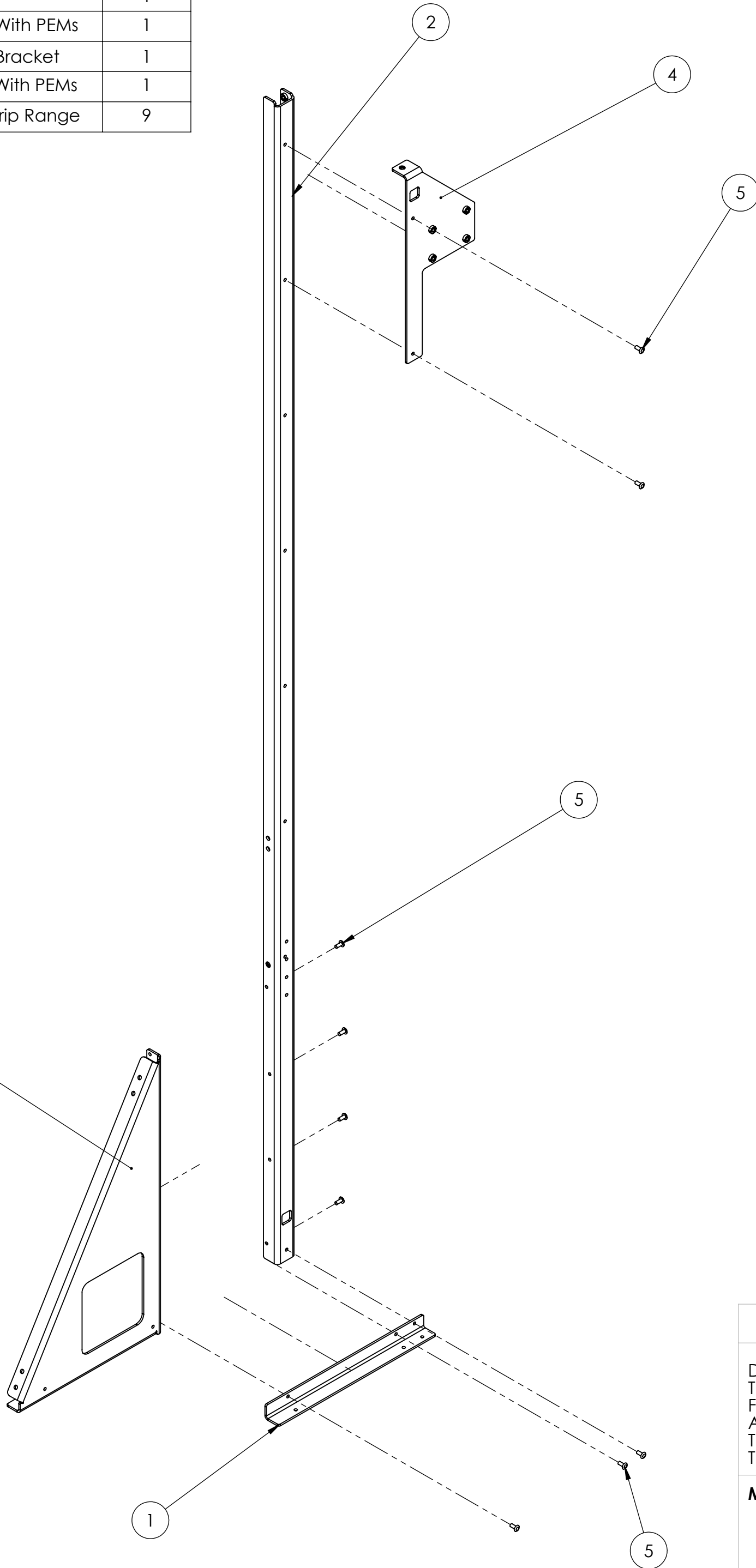
GE-23295-01



SCALE: 1:3

SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23223	Floor Anchor	1
2	GE-23284	Red Primary Vertical With PEMs	1
3	GE-23286	Red Lower Corner Bracket	1
4	GE-23288	Red Tertiary Vertical With PEMs	1
5	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	9



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>    DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div>			
	DRAWN	NE	10/13/2022				
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				TITLE: Red Corner Vertical W/O Pin		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.						
	SIZE		DWG. NO.		REV		
C		GE-23297					
SCALE: 1:6			SHEET 1 OF 1				

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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23283	Red Standard Vertical	1
2	Hook_2_10	2" x 10" Hook, Adhesive Backed	1
3	Hook_1_5	1" x 5" Hook, Adhesive Backed	1

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	1/3/2023

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:

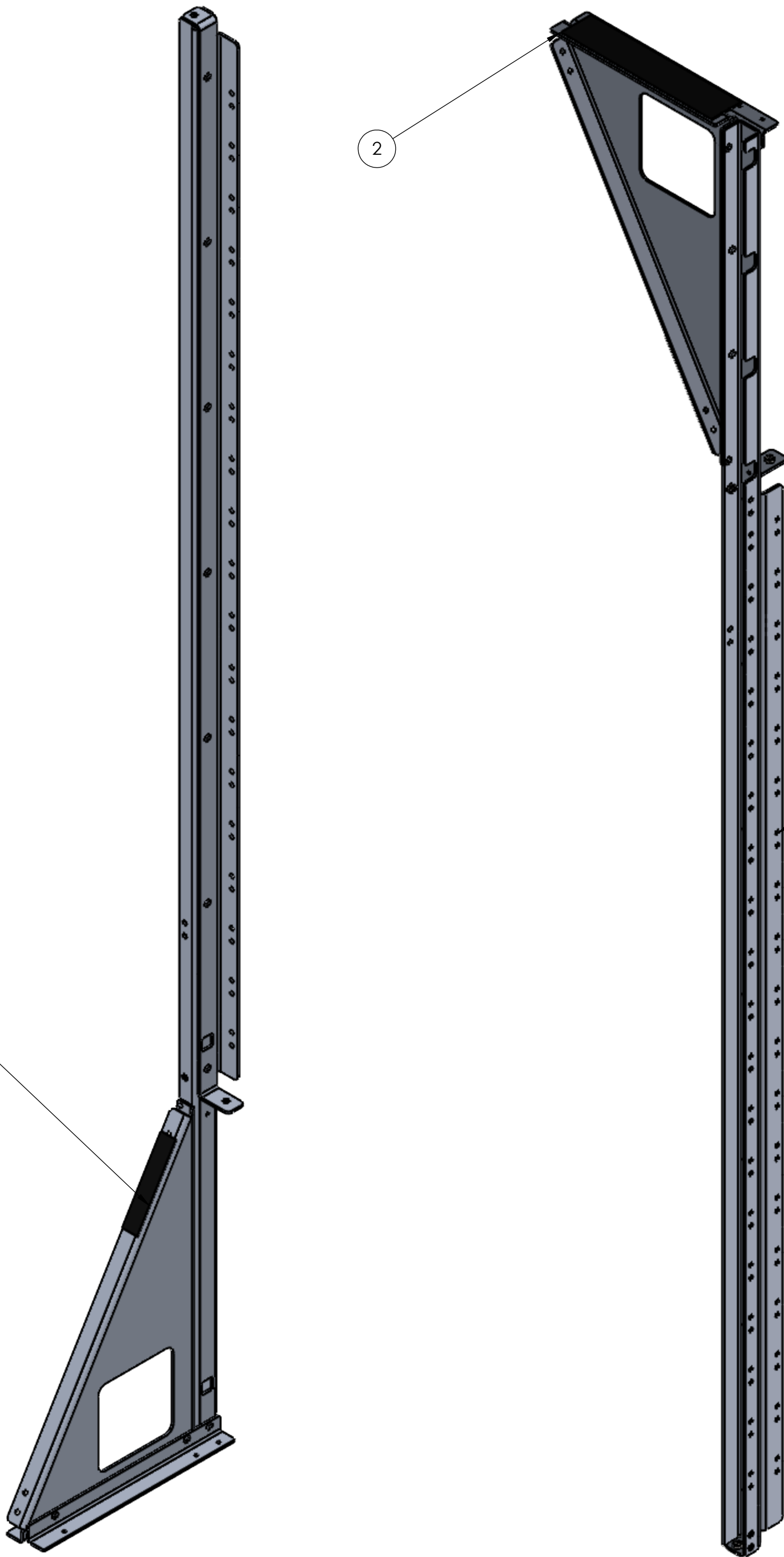
REMOVE ALL BURRS AND SHARP EDGES.



TITLE: Red Standard Vertical With Hook

SIZE	DWG. NO.	REV
C	GE-23298	

SCALE: 1:5 SHEET 1 OF 1

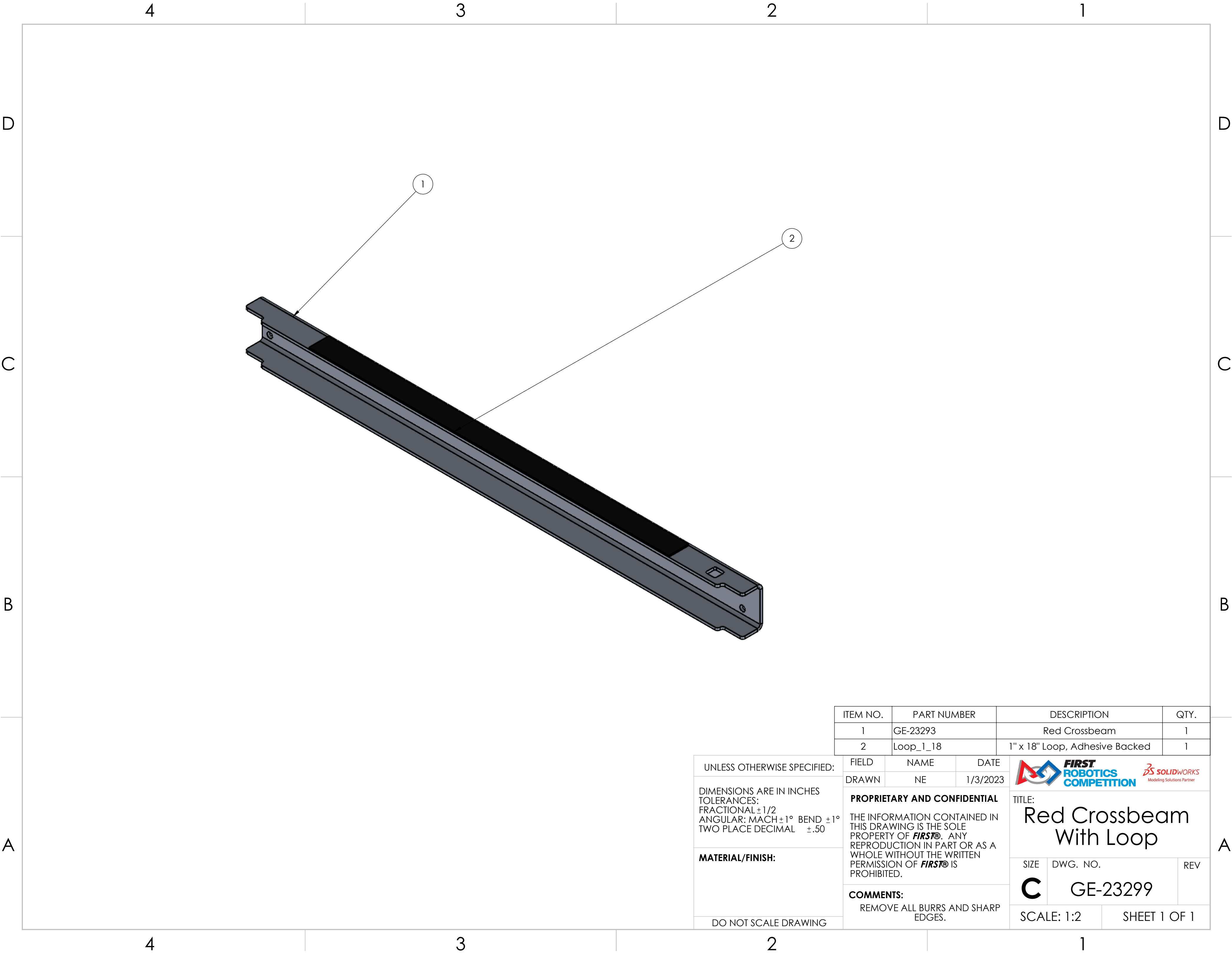


4

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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23293	Red Crossbeam	1
2	Loop_1_18	1" x 18" Loop, Adhesive Backed	1

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	1/3/2023

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**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.

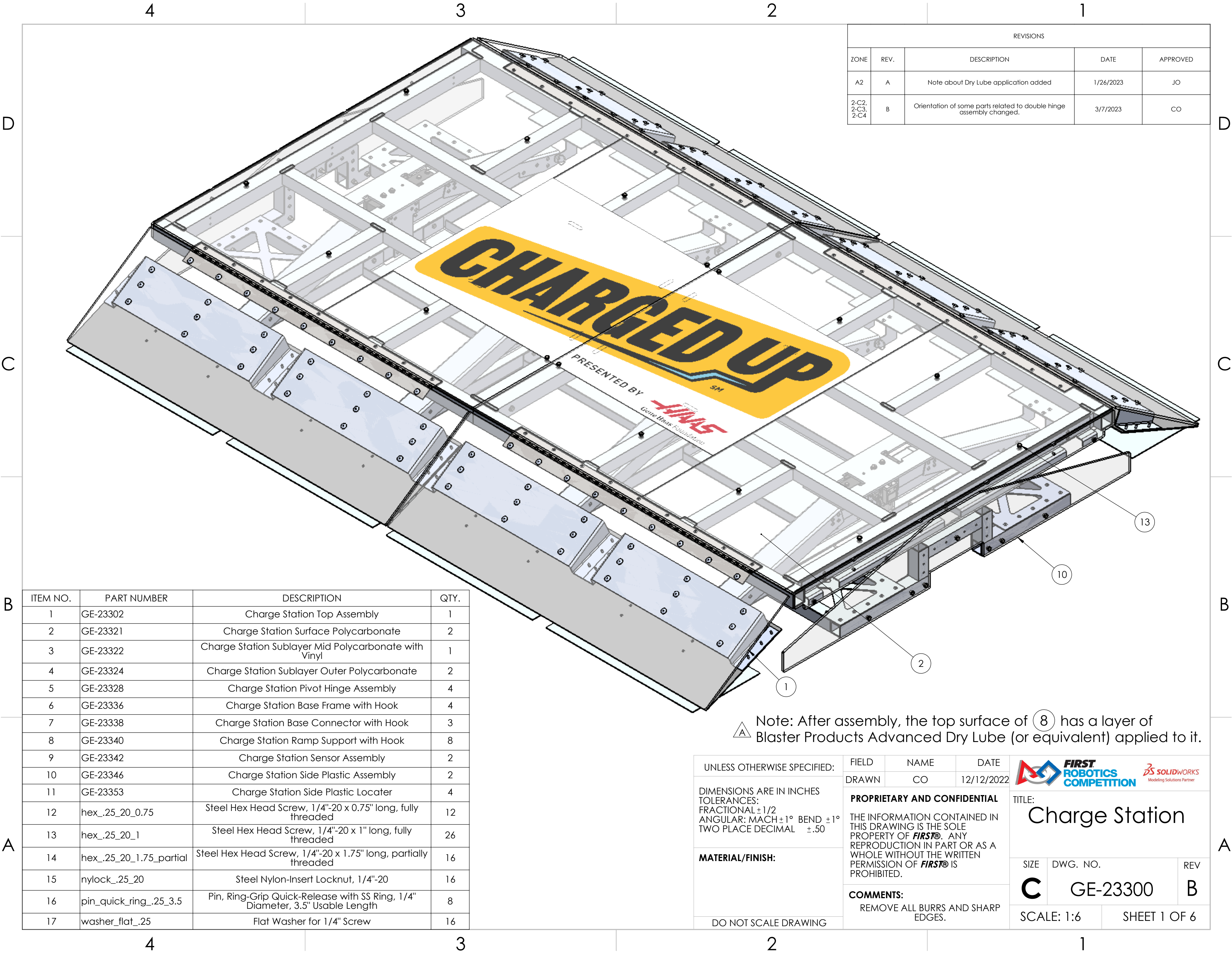


TITLE:  
**Red Crossbeam With Loop**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23299	

SCALE: 1:2      SHEET 1 OF 1





REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2	A	Note about Dry Lube application added	1/26/2023	JO
2-C2, 2-C3, 2-C4	B	Orientation of some parts related to double hinge assembly changed.	3/7/2023	CO

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23302	Charge Station Top Assembly	1
2	GE-23321	Charge Station Surface Polycarbonate	2
3	GE-23322	Charge Station Sublayer Mid Polycarbonate with Vinyl	1
4	GE-23324	Charge Station Sublayer Outer Polycarbonate	2
5	GE-23328	Charge Station Pivot Hinge Assembly	4
6	GE-23336	Charge Station Base Frame with Hook	4
7	GE-23338	Charge Station Base Connector with Hook	3
8	GE-23340	Charge Station Ramp Support with Hook	8
9	GE-23342	Charge Station Sensor Assembly	2
10	GE-23346	Charge Station Side Plastic Assembly	2
11	GE-23353	Charge Station Side Plastic Locater	4
12	hex_.25_20_0.75	Steel Hex Head Screw, 1/4"-20 x 0.75" long, fully threaded	12
13	hex_.25_20_1	Steel Hex Head Screw, 1/4"-20 x 1" long, fully threaded	26
14	hex_.25_20_1.75_partial	Steel Hex Head Screw, 1/4"-20 x 1.75" long, partially threaded	16
15	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	16
16	pin_quick_ring_.25_3.5	Pin, Ring-Grip Quick-Release with SS Ring, 1/4" Diameter, 3.5" Usable Length	8
17	washer_flat_.25	Flat Washer for 1/4" Screw	16

**Note:** After assembly, the top surface of (8) has a layer of Blaster Products Advanced Dry Lube (or equivalent) applied to it.



UNLESS OTHERWISE SPECIFIED:  
  
DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$   
  
MATERIAL/FINISH:  
  
DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	CO	12/12/2022

**PROPRIETARY AND CONFIDENTIAL**

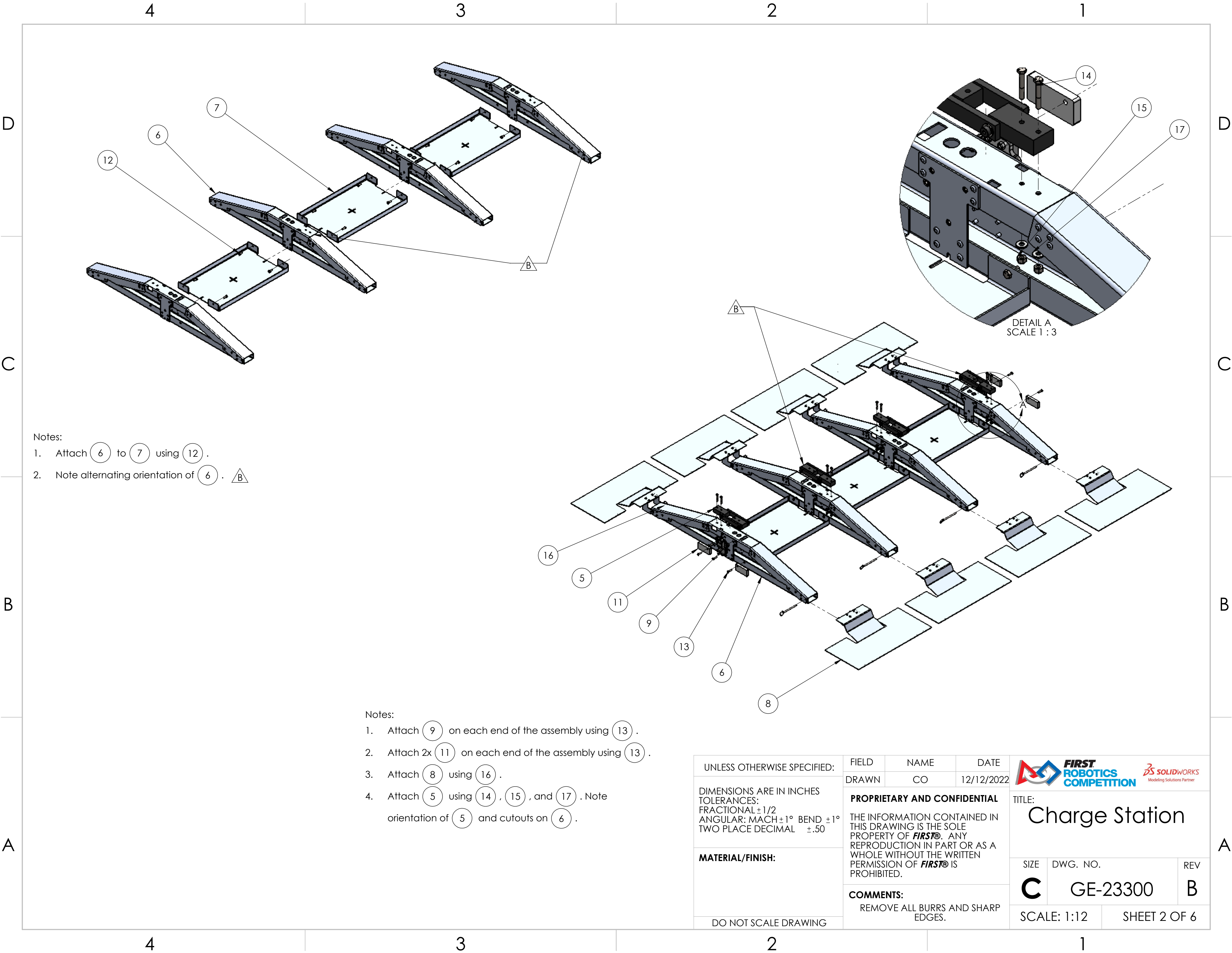
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**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE:  
**Charge Station**

SIZE <b>C</b>	DWG. NO. <b>GE-23300</b>	REV <b>B</b>
SCALE: 1:6		SHEET 1 OF 6



- Notes:
1. Attach (6) to (7) using (12).
  2. Note alternating orientation of (6).

- Notes:
1. Attach (9) on each end of the assembly using (13).
  2. Attach 2x (11) on each end of the assembly using (13).
  3. Attach (8) using (16).
  4. Attach (5) using (14), (15), and (17). Note orientation of (5) and cutouts on (6).

UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	CO	12/12/2022

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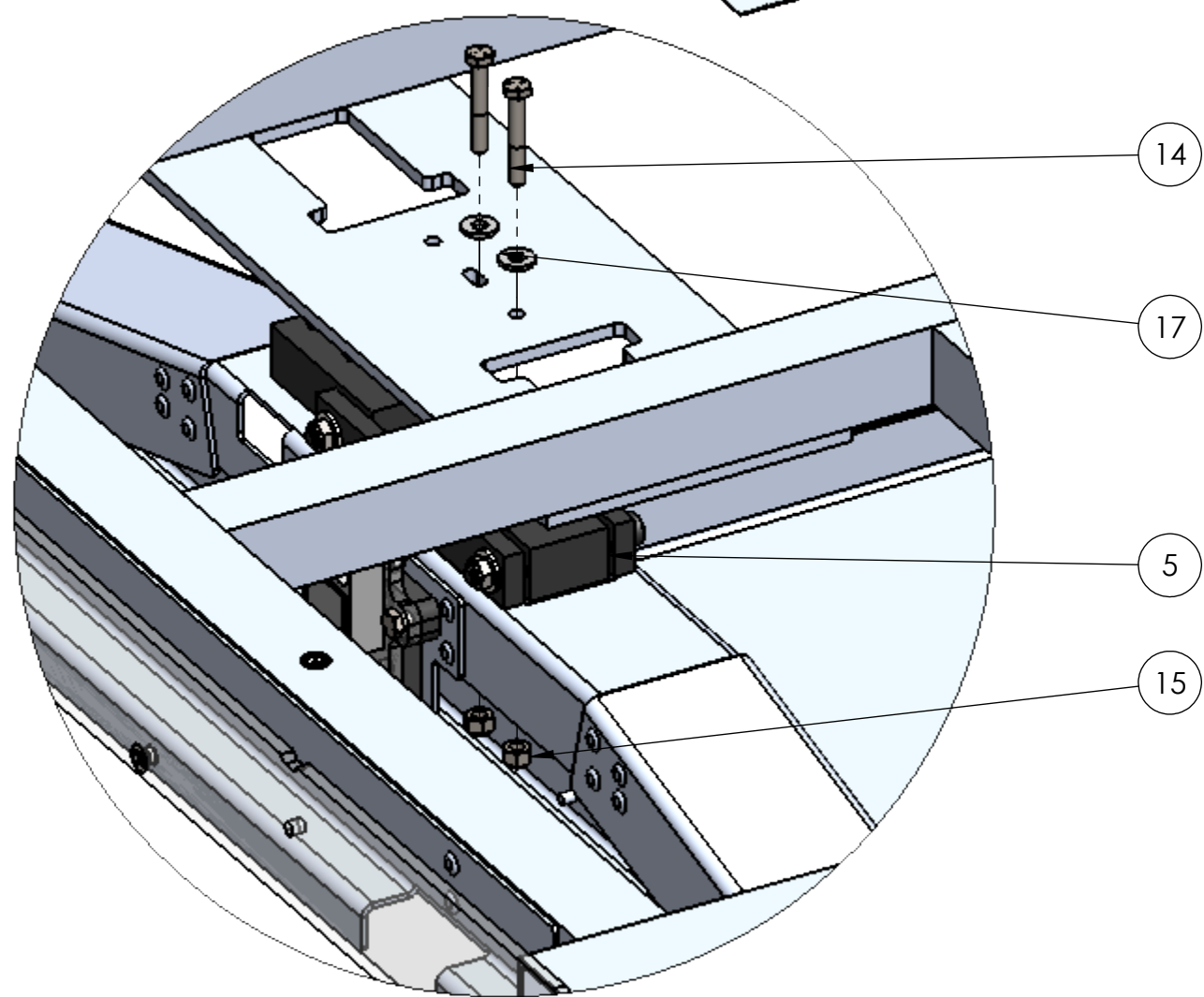
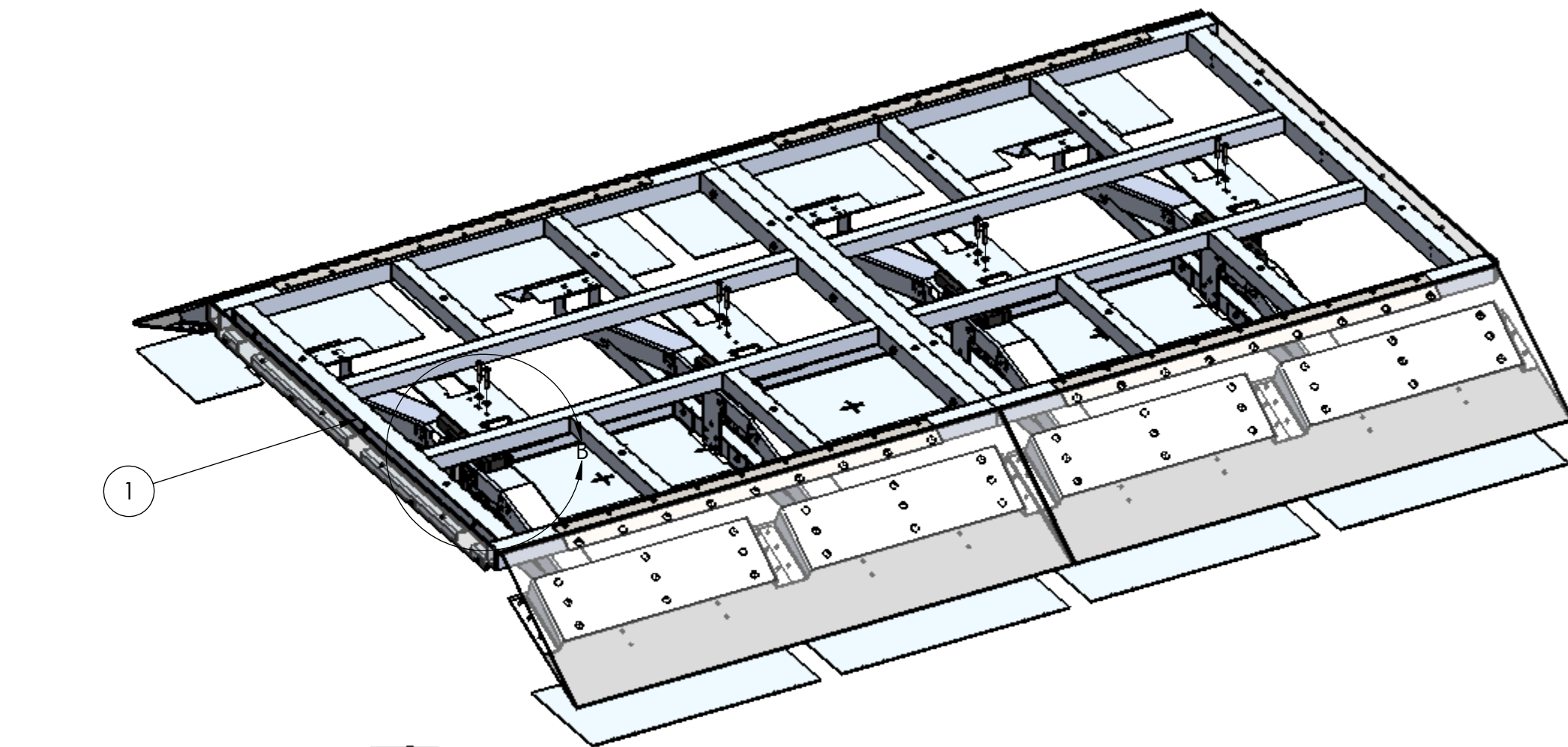


TITLE:  
**Charge Station**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23300	<b>B</b>

SCALE: 1:12 SHEET 2 OF 6

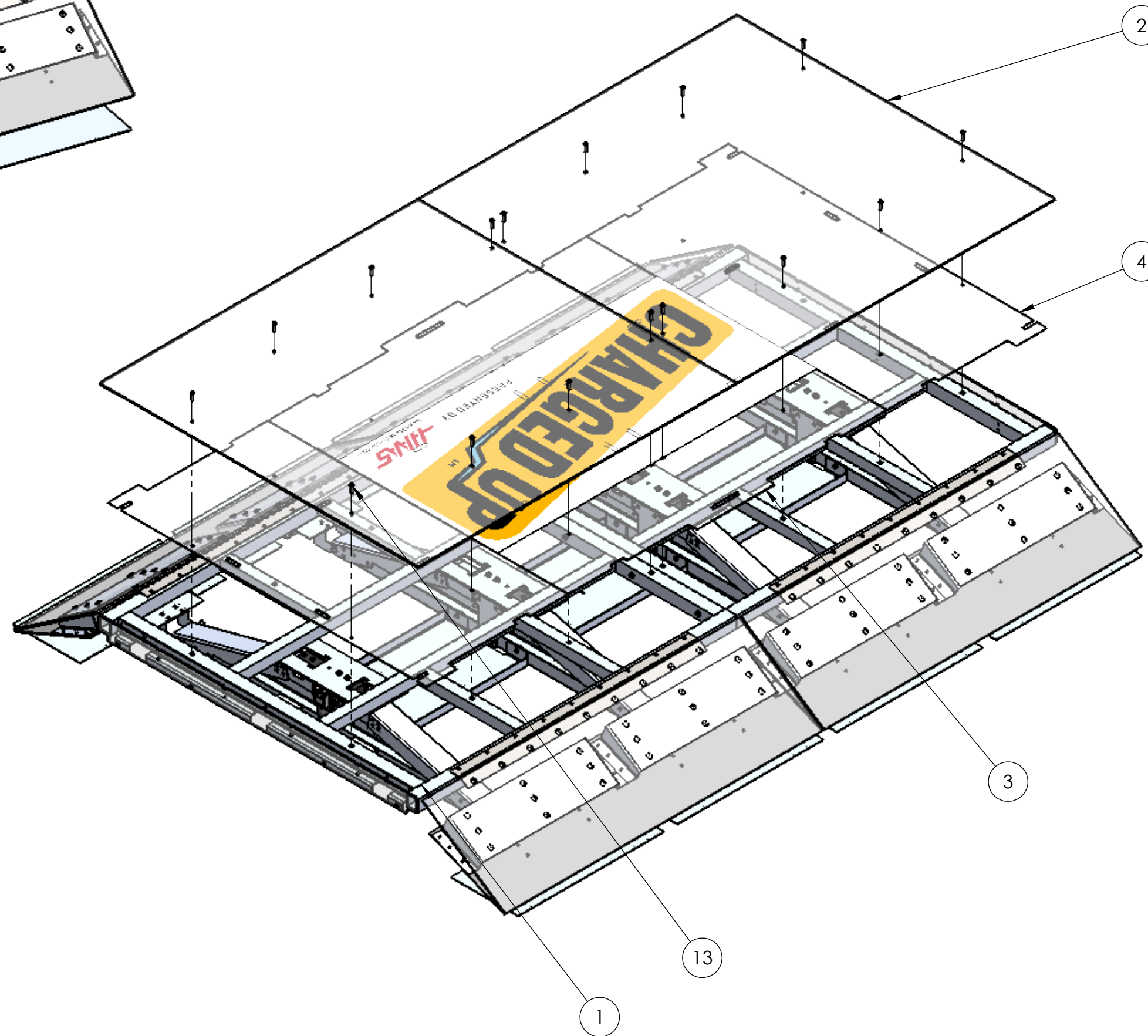




DETAIL B  
SCALE 1 : 3



Notes:

1. Attach (1) to assembly via (5) using (14), (17), and (15).



Notes:

1. Attach (2), (3), and (4) to (1) using (13).

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div>		
	DRAWN	CO	12/12/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	PROPRIETARY AND CONFIDENTIAL			TITLE: <div>Charge Station</div>		
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MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23300	B
DO NOT SCALE DRAWING				SCALE: 1:12		SHEET 3 OF 6

4

3

2

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D

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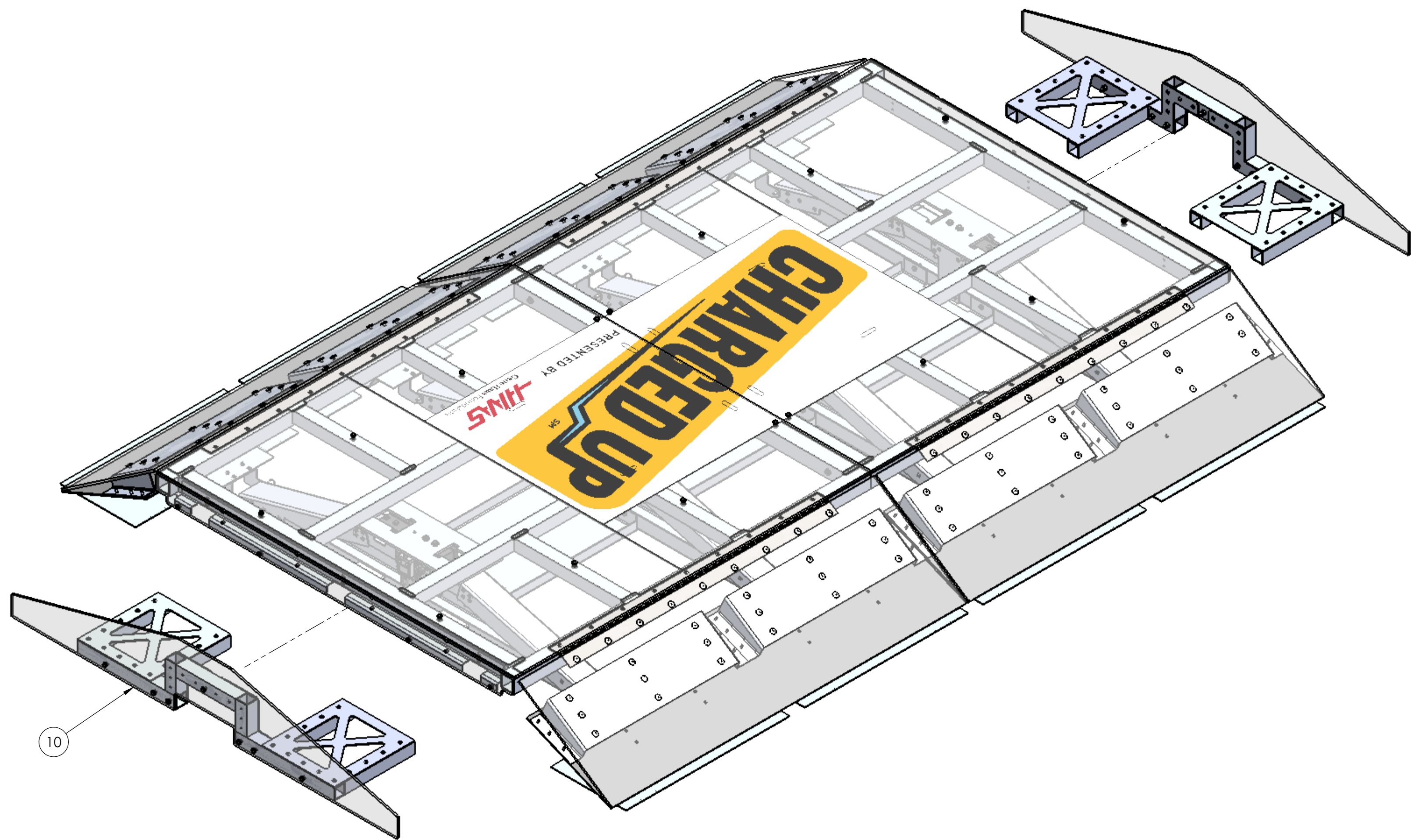
C

B

B

A

A



Notes:  
1. Slide 10 into place on each side of the assembly.

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	CO	12/12/2022

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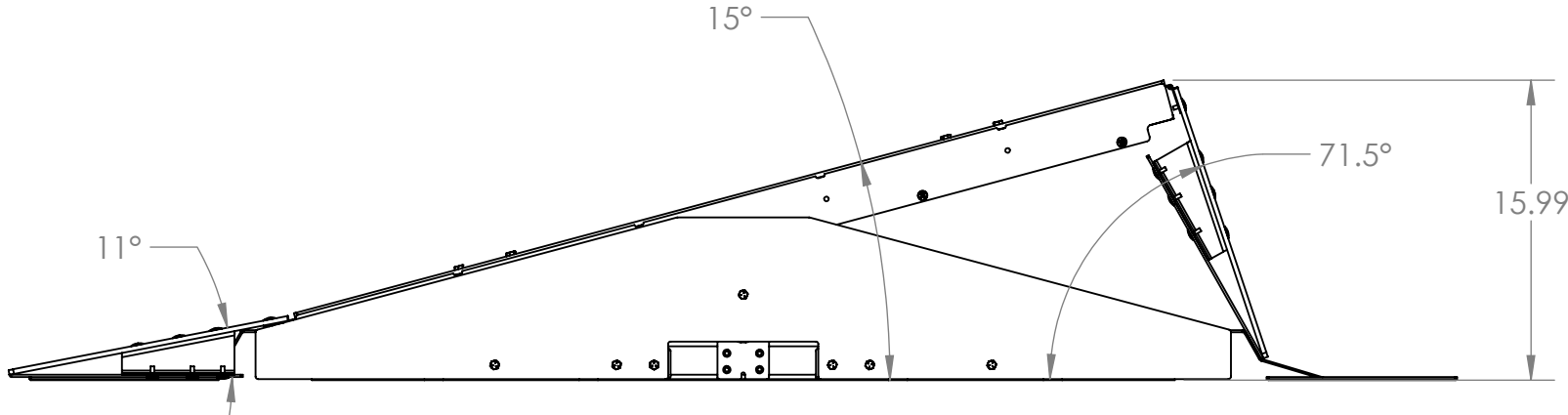
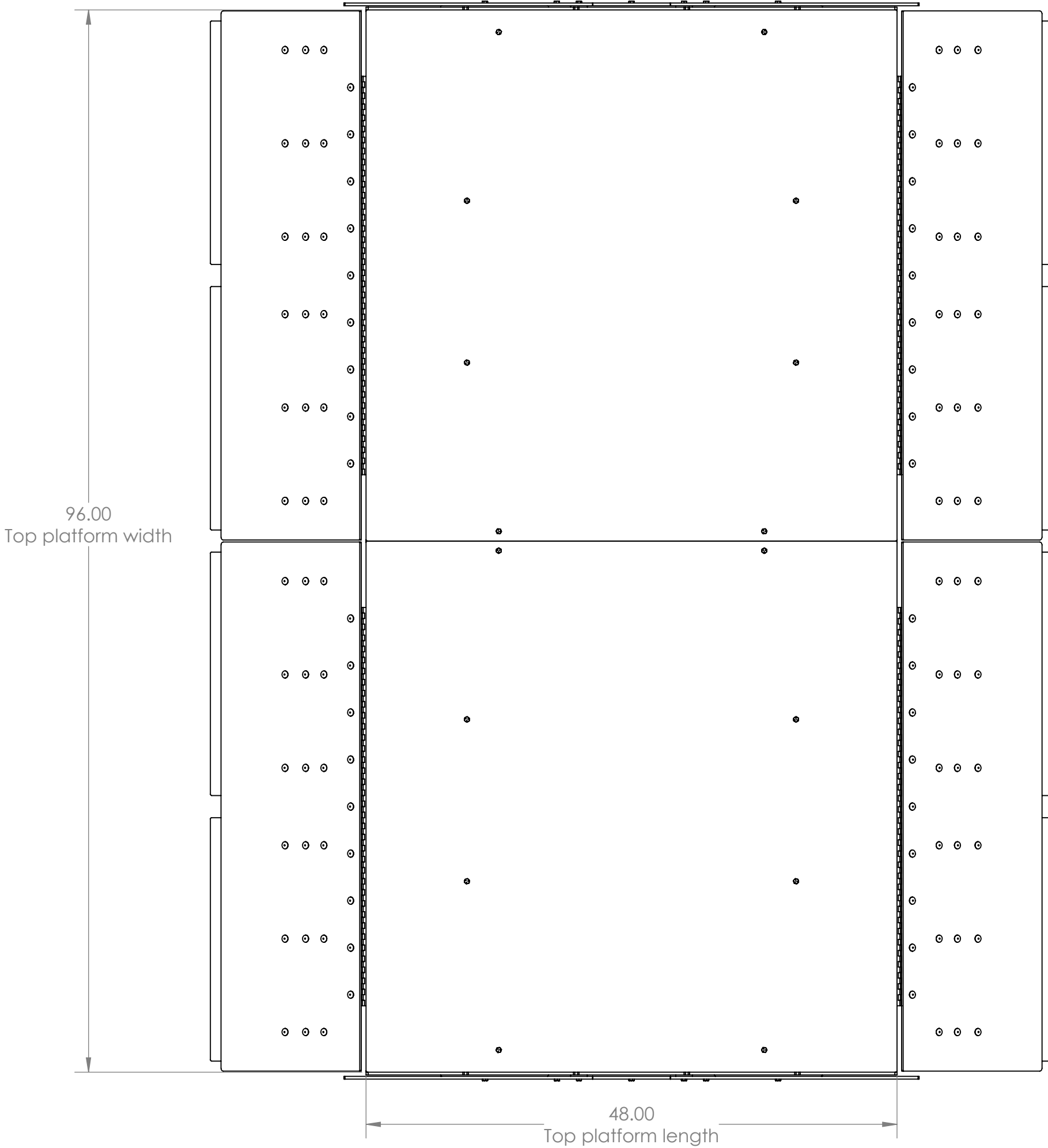
**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.



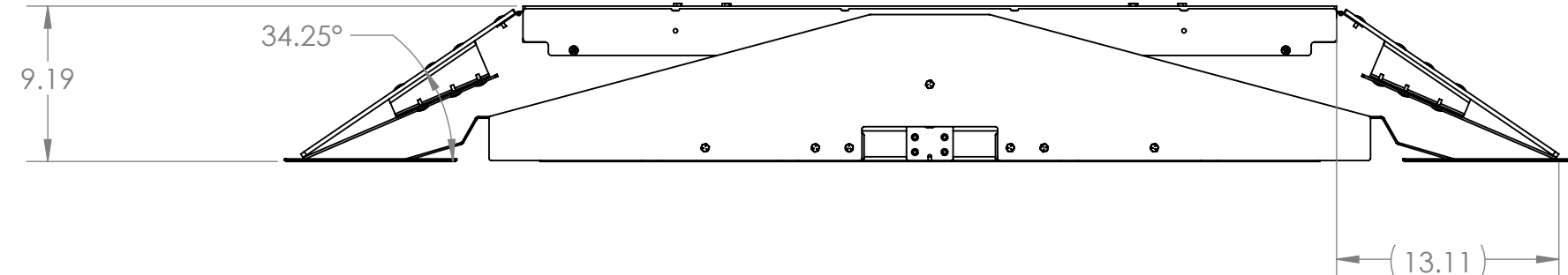
TITLE:  
**Charge Station**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23300	<b>B</b>



SCALE: 1:8 SHEET 4 OF 6



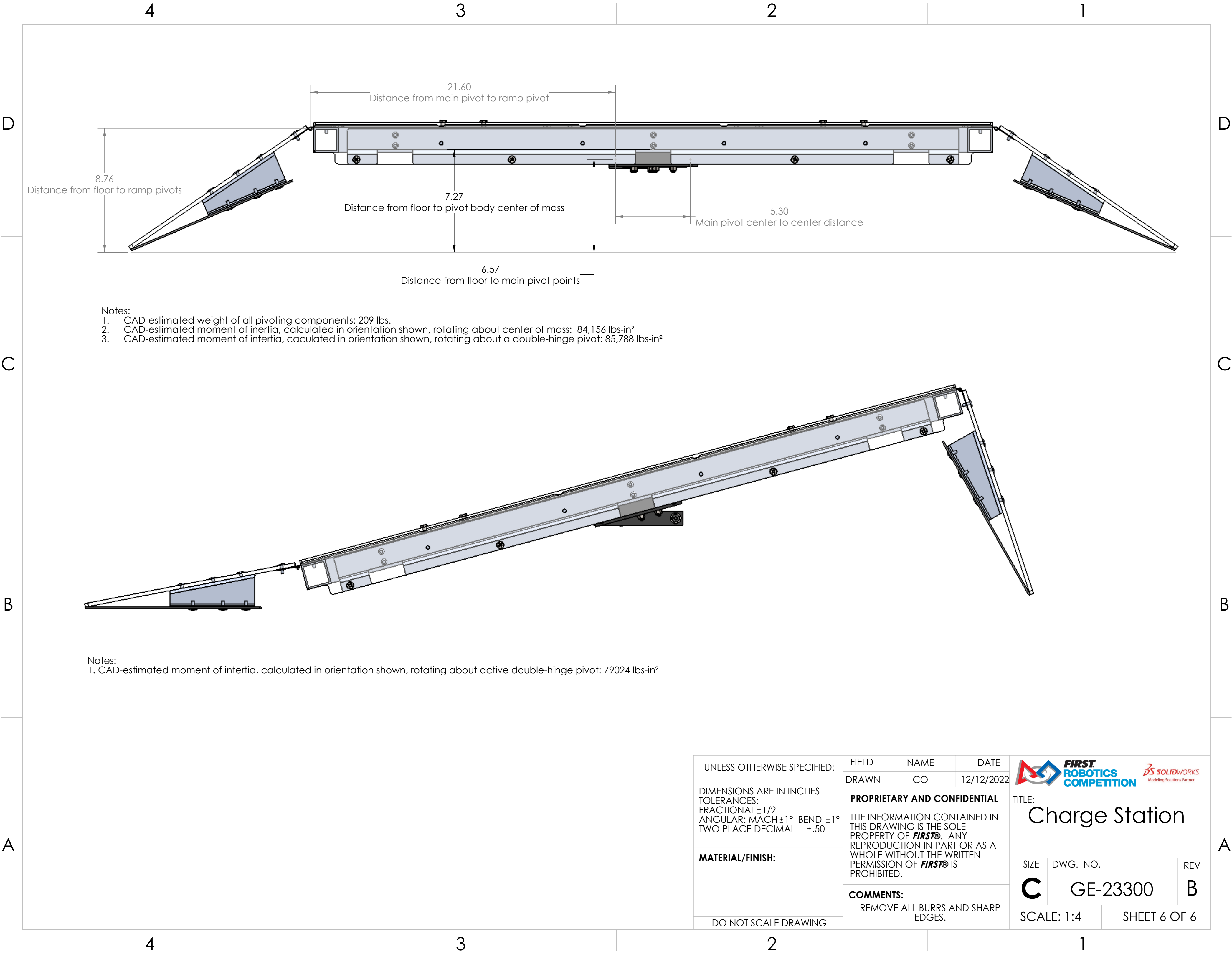
Fully tilted CHARGE STATION



Flat CHARGE STATION



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/2 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .50  <b>MATERIAL/FINISH:</b>     <b>DO NOT SCALE DRAWING</b>	FIELD	NAME	DATE	<div></div> <div>TITLE: <h1>Charge Station</h1></div>			
	DRAWN	CO	12/12/2022			SIZE	DWG. NO.
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				<b>C</b>	GE-23300	B
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				SCALE: 1:10		SHEET 5 OF 6

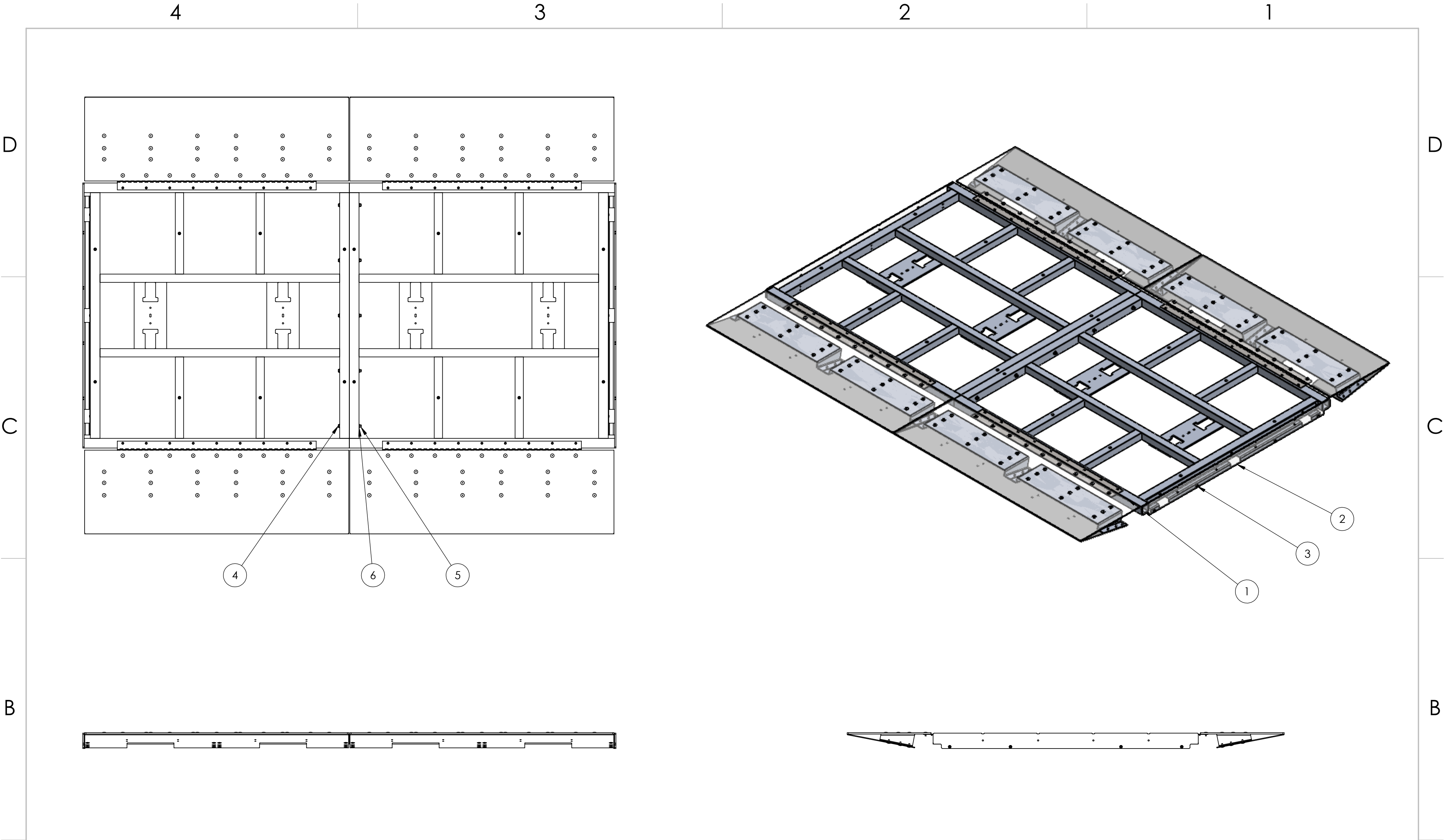




Notes:  
1. CAD-estimated weight of all pivoting components: 209 lbs.  
2. CAD-estimated moment of inertia, calculated in orientation shown, rotating about center of mass: 84,156 lbs-in<sup>2</sup>  
3. CAD-estimated moment of inertia, caculated in orientation shown, rotating about a double-hinge pivot: 85,788 lbs-in<sup>2</sup>

Notes:  
1. CAD-estimated moment of intertia, calculated in orientation shown, rotating about active double-hinge pivot: 79024 lbs-in<sup>2</sup>



UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div>		
	DRAWN	CO	12/12/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE:  Charge Station		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23300	B
DO NOT SCALE DRAWING				SCALE: 1:4		SHEET 6 OF 6



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23303	Charge Station Top Frame with Ramps	2
2	GE-23320	Charge Station Light Cover	2
3	flat_phil_.25_20_.625	Steel Phillips Flat Head Screw, 1/4"x20 x 5/8" long, fully threaded	8
4	hex_.25_20_4_partial	Steel Hex Head Bolt, 1/4-20 x 4", partially threaded	5
5	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	5
6	washer_flat_.25	Flat Washer for 1/4" Screw	10

UNLESS OTHERWISE SPECIFIED:  
  
DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$   
  
**MATERIAL/FINISH:**  
  
  
DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	CO	12/12/2022
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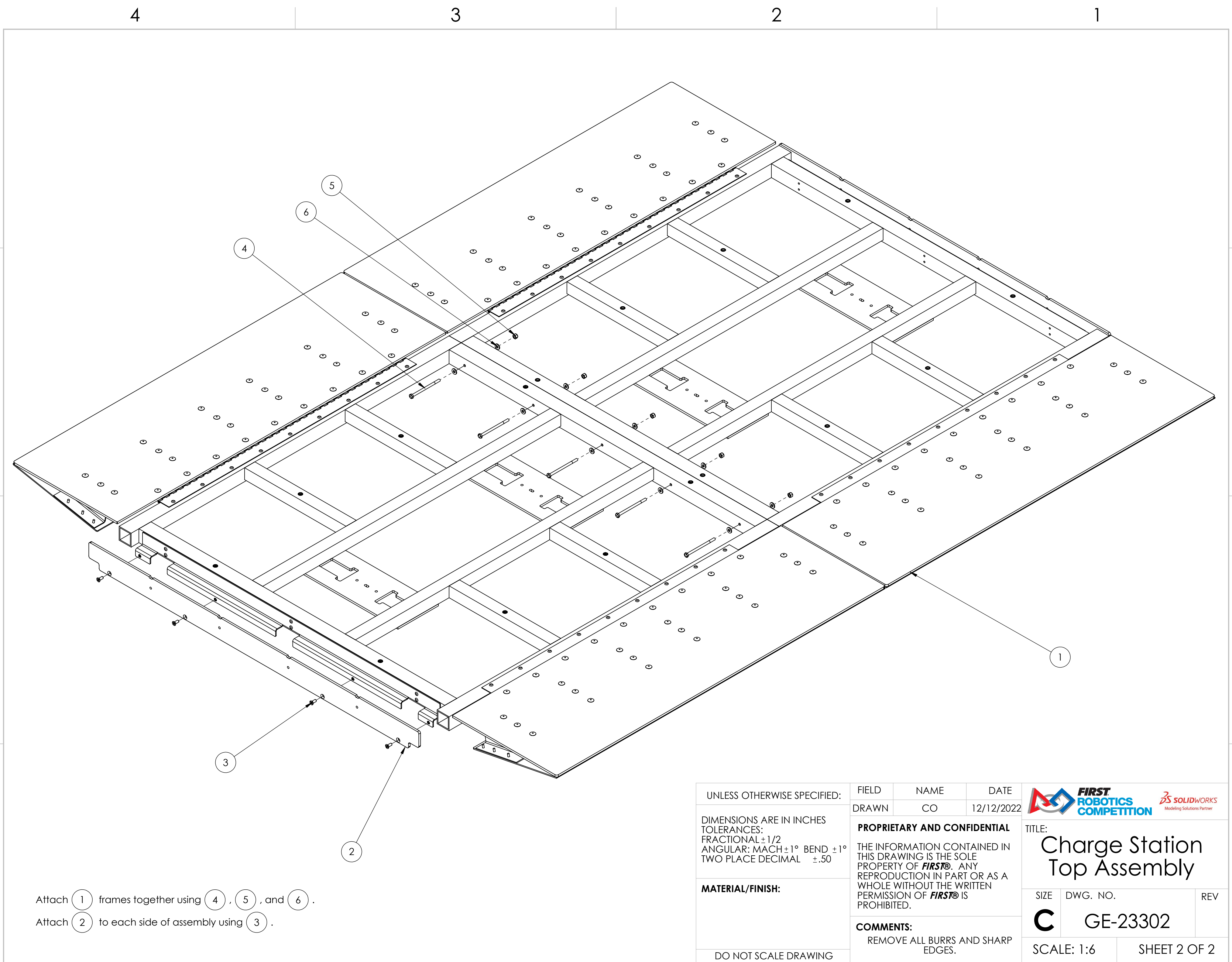


TITLE:  
**Charge Station Top Assembly**



SIZE	DWG. NO.	REV
<b>C</b>	GE-23302	

SCALE: 1:12	SHEET 1 OF 2
-------------	--------------





Attach (1) frames together using (4) , (5) , and (6) .  
Attach (2) to each side of assembly using (3) .

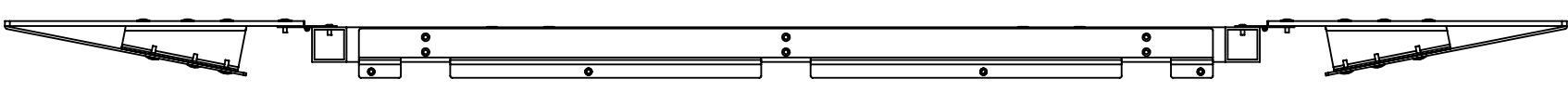
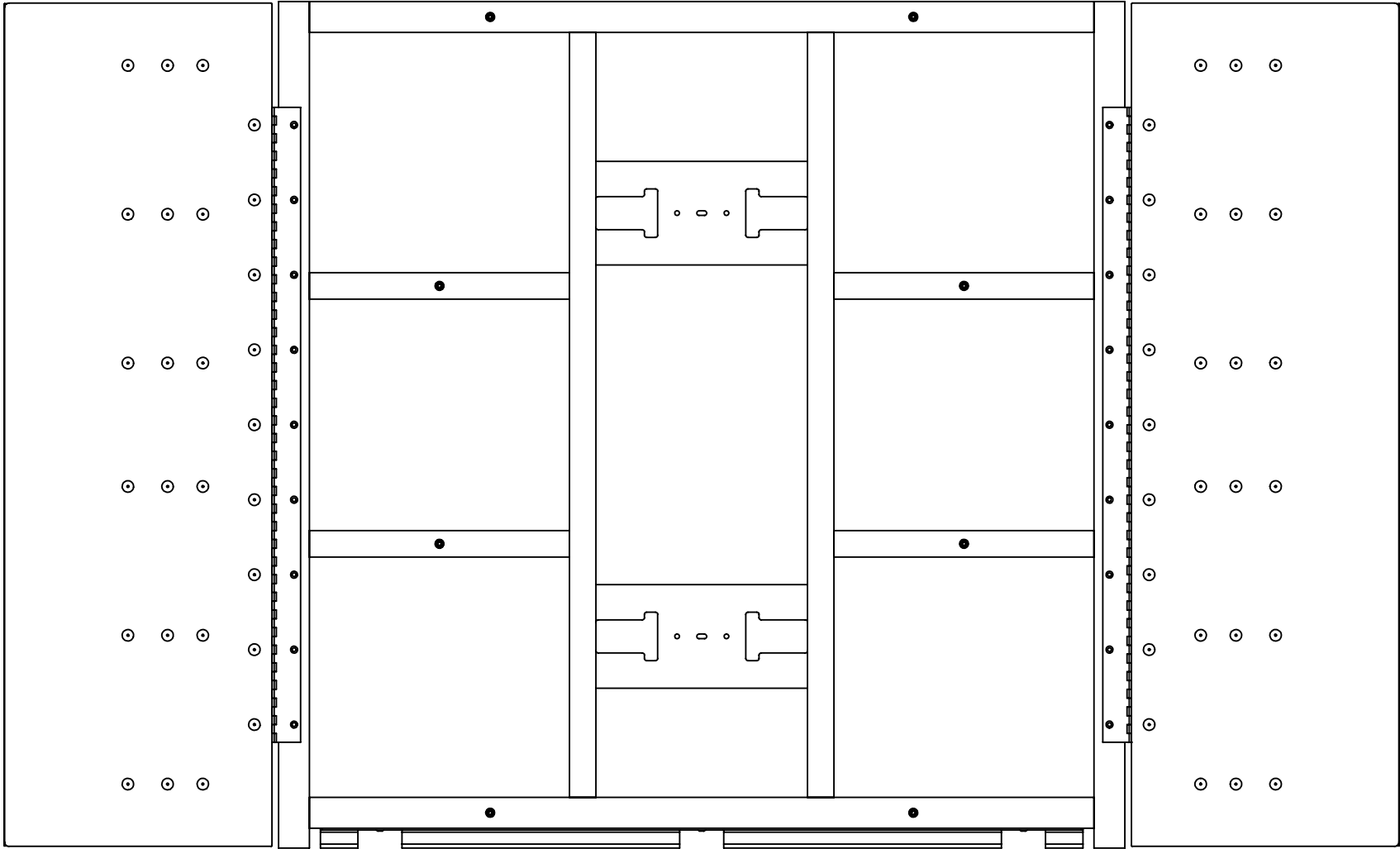
UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 		
	DRAWN	CO	12/12/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	PROPRIETARY AND CONFIDENTIAL			TITLE:  Charge Station Top Assembly		
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MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23302	
DO NOT SCALE DRAWING				SCALE: 1:6		SHEET 2 OF 2

D

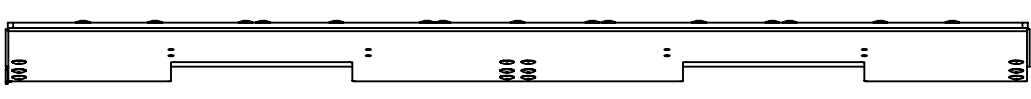
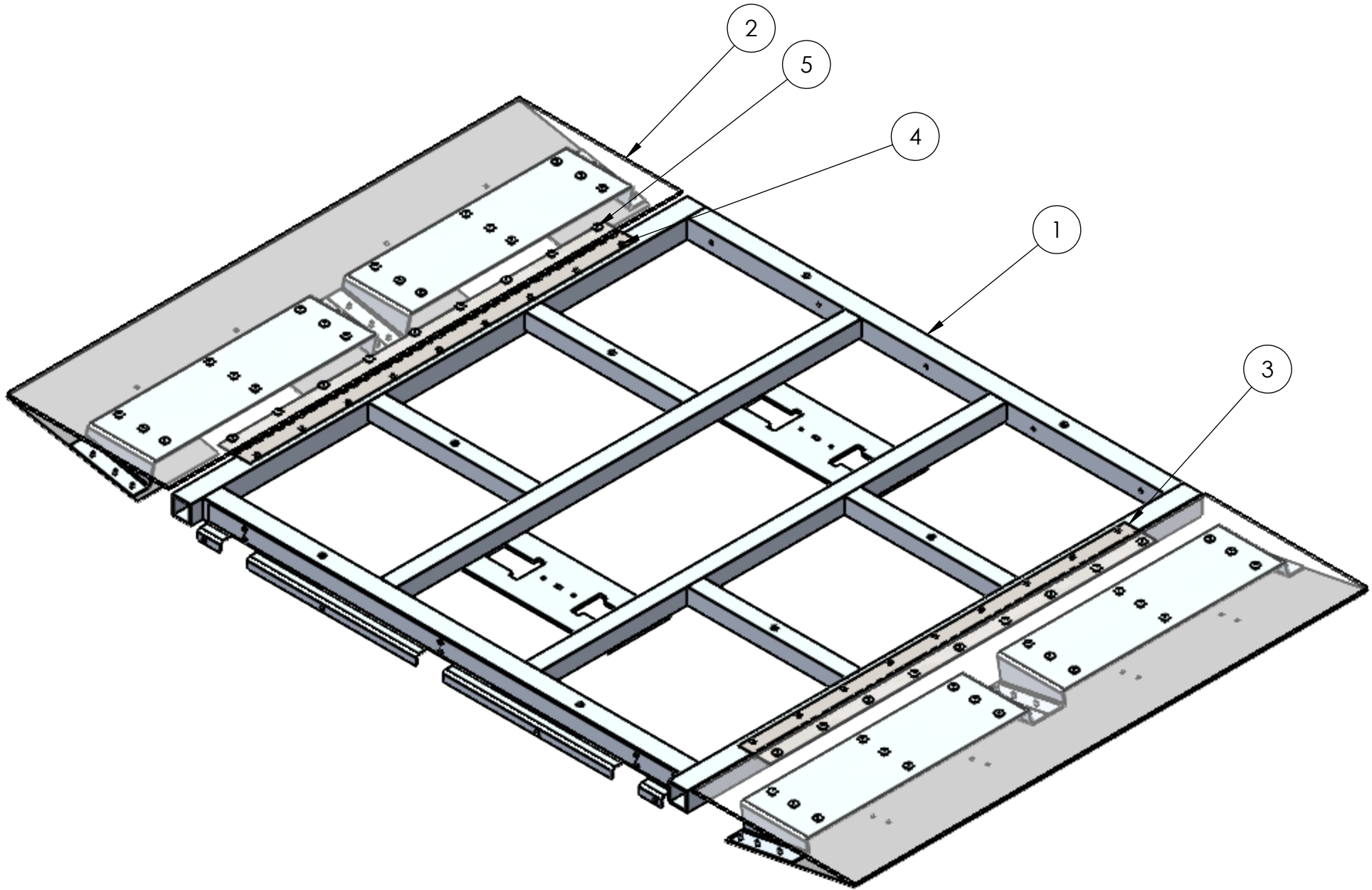
C

B

A



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23305	Charge Station Top Frame	1
2	GE-23314	Charge Station Ramp Assembly	2
3	GE-23318	Charge Station Ramp Hinge	2
4	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	18
5	rivet_.1875_.251-.375_largeHead	3/16" Large Head Aluminum Rivet, .251-.375 Grip Range	18



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD

DRAWN

NAME

CO

DATE

12/12/2022

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.



**FIRST**  
ROBOTICS  
COMPETITION



TITLE: Charge Station  
Top Frame with  
Ramps

SIZE

C

DWG. NO.

GE-23303

REV

SCALE: 1:9

SHEET 1 OF 3

4

3

2

1

D

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C

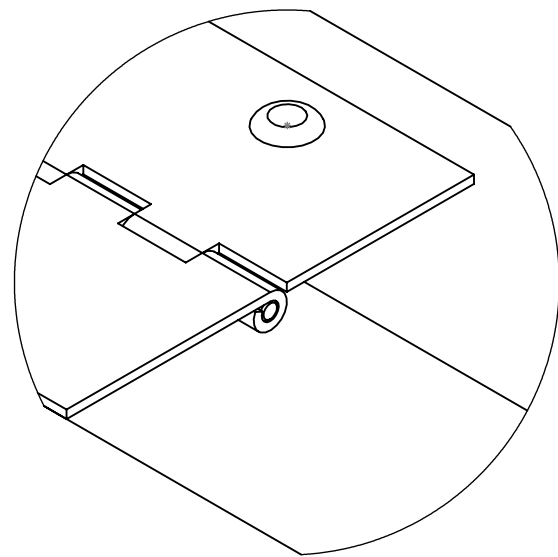
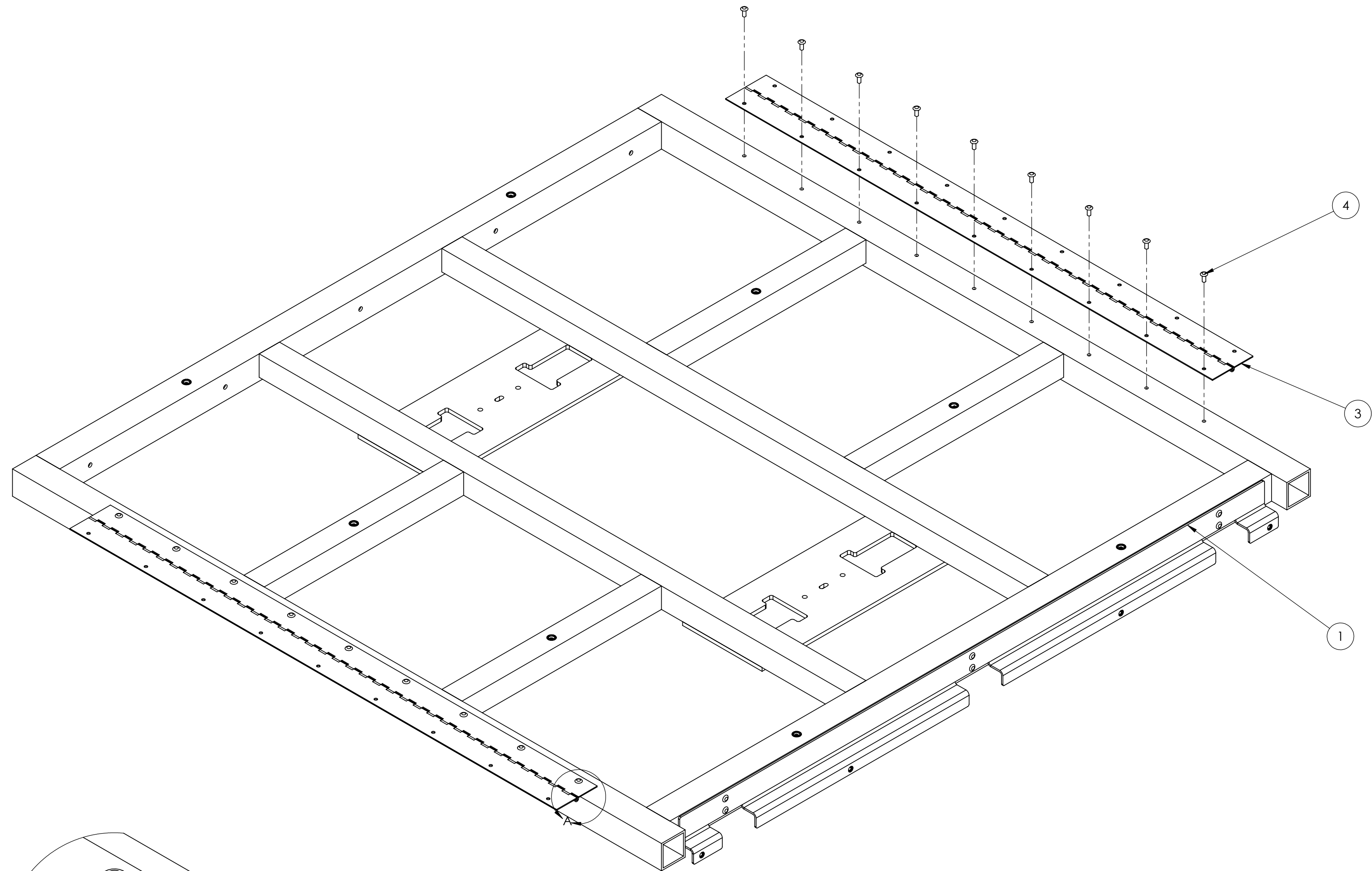
C

B

B

A

A



DETAIL A  
SCALE 1 : 1

Attach 3 to 1 using 4 .  
Note orientation of hinge knuckle.

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	CO	12/12/2022

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COMMENTS:  
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TITLE: Charge Station  
Top Frame with  
Ramps

SIZE	DWG. NO.	REV
C	GE-23303	

SCALE: 1:4 SHEET 2 OF 3



4

3

2

1

D

D

C

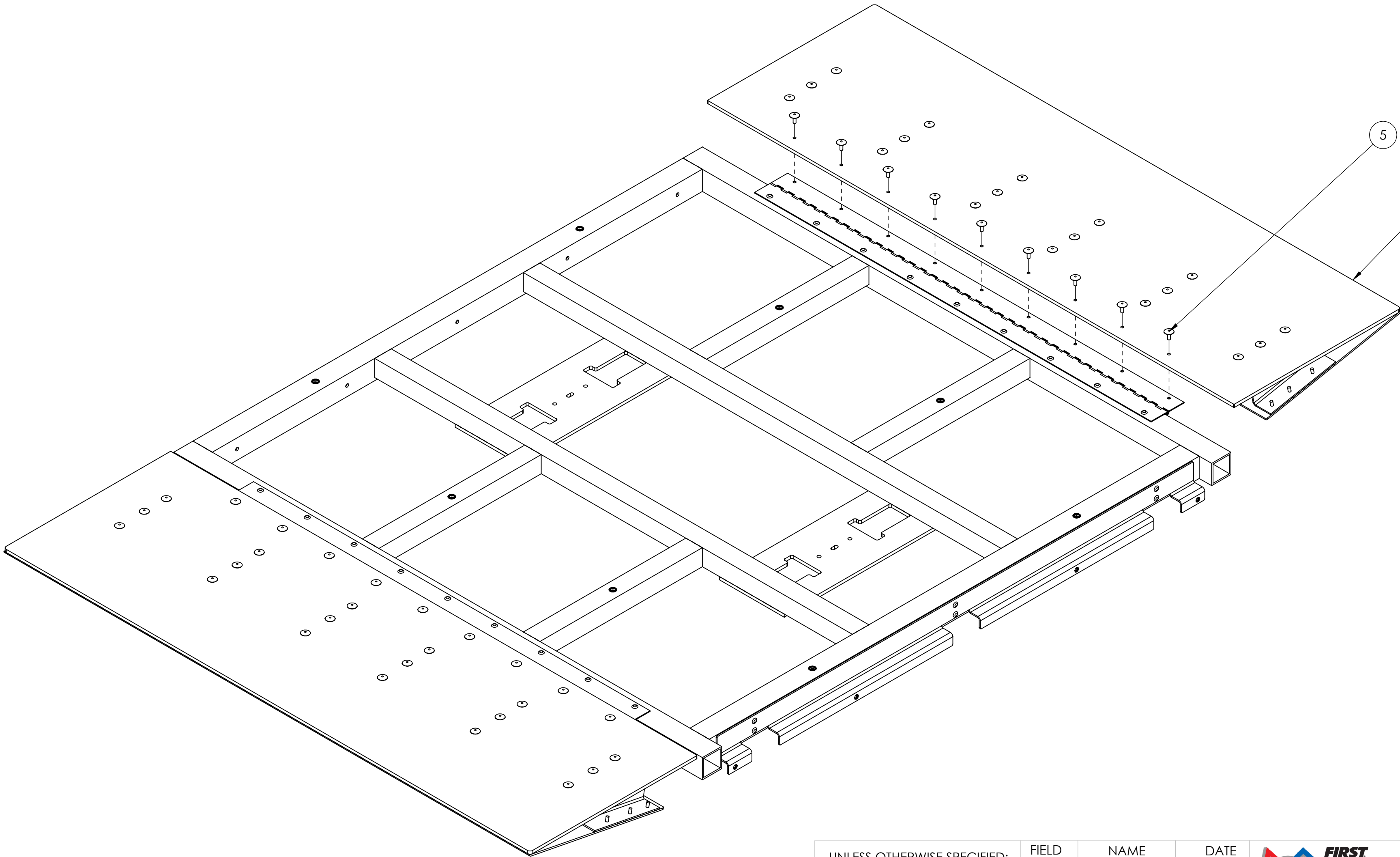
C

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B

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A



Attach 2 to assembly from previous step using 5.

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

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FIELD

NAME

DATE

DRAWN

CO

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COMMENTS:

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FIRST  
ROBOTICS  
COMPETITION



Modeling Solutions Partner

TITLE: Charge Station  
Top Frame with  
Ramps

SIZE

DWG. NO.

REV

C

GE-23303

SCALE: 1:5

SHEET 3 OF 3

4

3

2

1

D

D

C

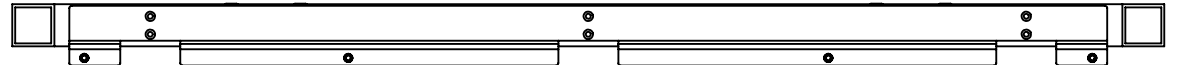
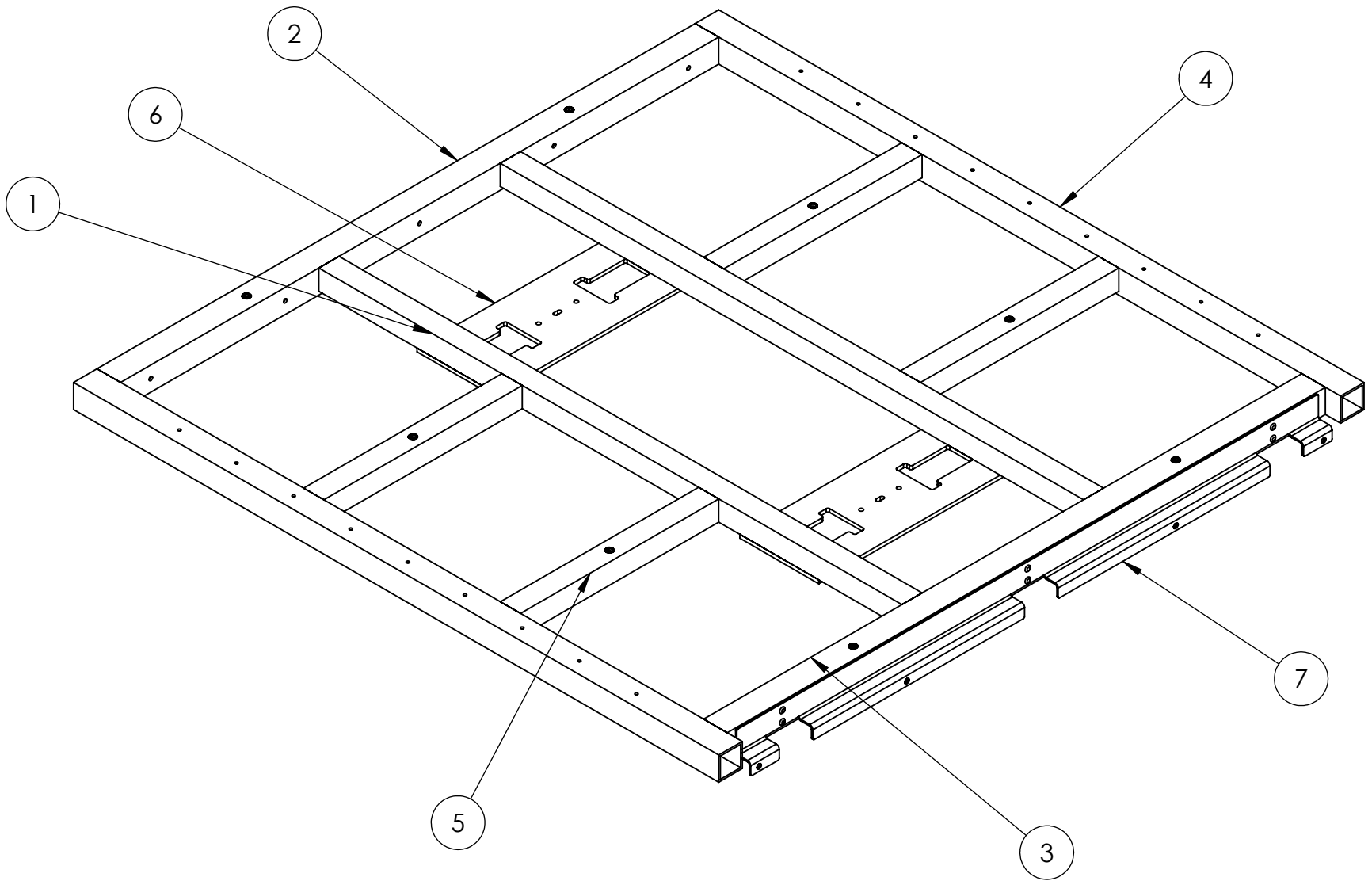
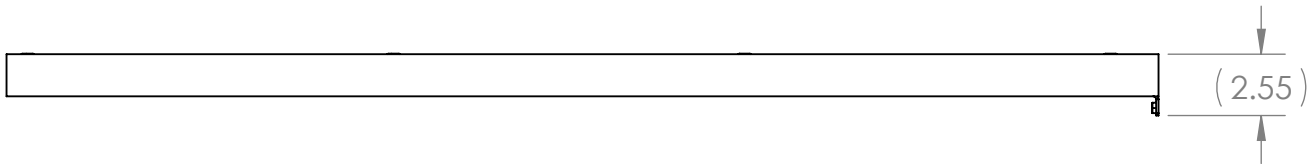
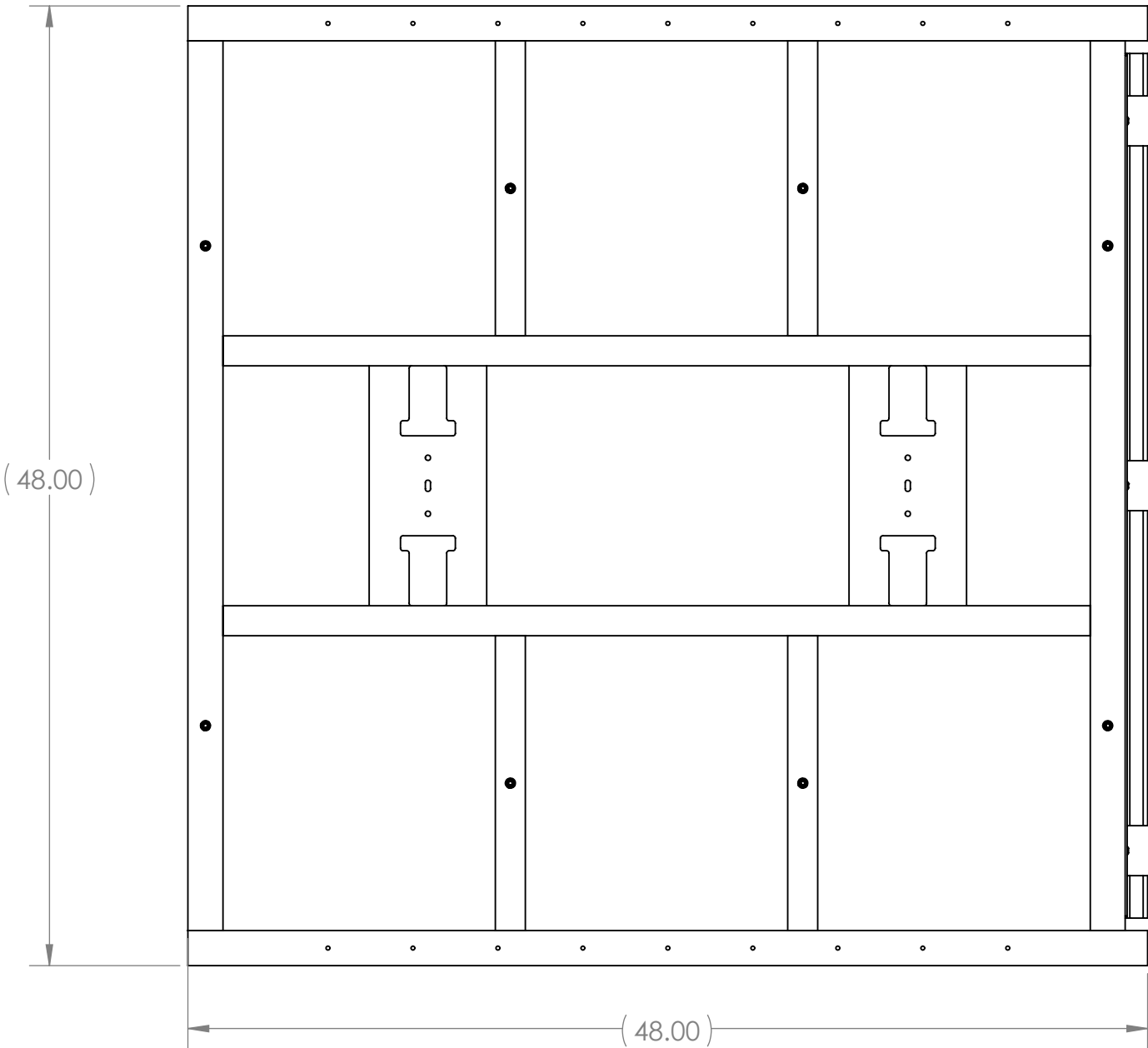
C

B

B

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A



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23305-01	1.5" x .125" thk. Square Tubing, 6061 Aluminum	2
2	GE-23305-02	1.75" x .125" thk. Square Tubing, 6061 Aluminum	1
3	GE-23305-03	1.75" x .125" thk. Square Tubing, 6061 Aluminum	1
4	GE-23305-04	1.75" x .125" thk. Square Tubing, 6061 Aluminum	2
5	GE-23305-05	1.5" x .125" thk. Square Tubing, 6061 Aluminum	4
6	GE-23305-06	1/4" thk. 6061 Aluminum Plate	2
7	GE-23305-07	10 ga. Aluminum 5052	1
8	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	4
9	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	6
10	rivnut_.25_20_.027-.165	Rivnut, 1/4"-20 bolt, material thickness: .027" - .165"	8

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .02$   
THREE PLACE DECIMAL  $\pm .015$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

WELD

DRAWN

NAME

CO

DATE

9/25/2022

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

TITLE:

Charge Station  
Top Frame

SIZE

DWG. NO.

REV

C

GE-23305

SCALE: 1:8

SHEET 1 OF 5

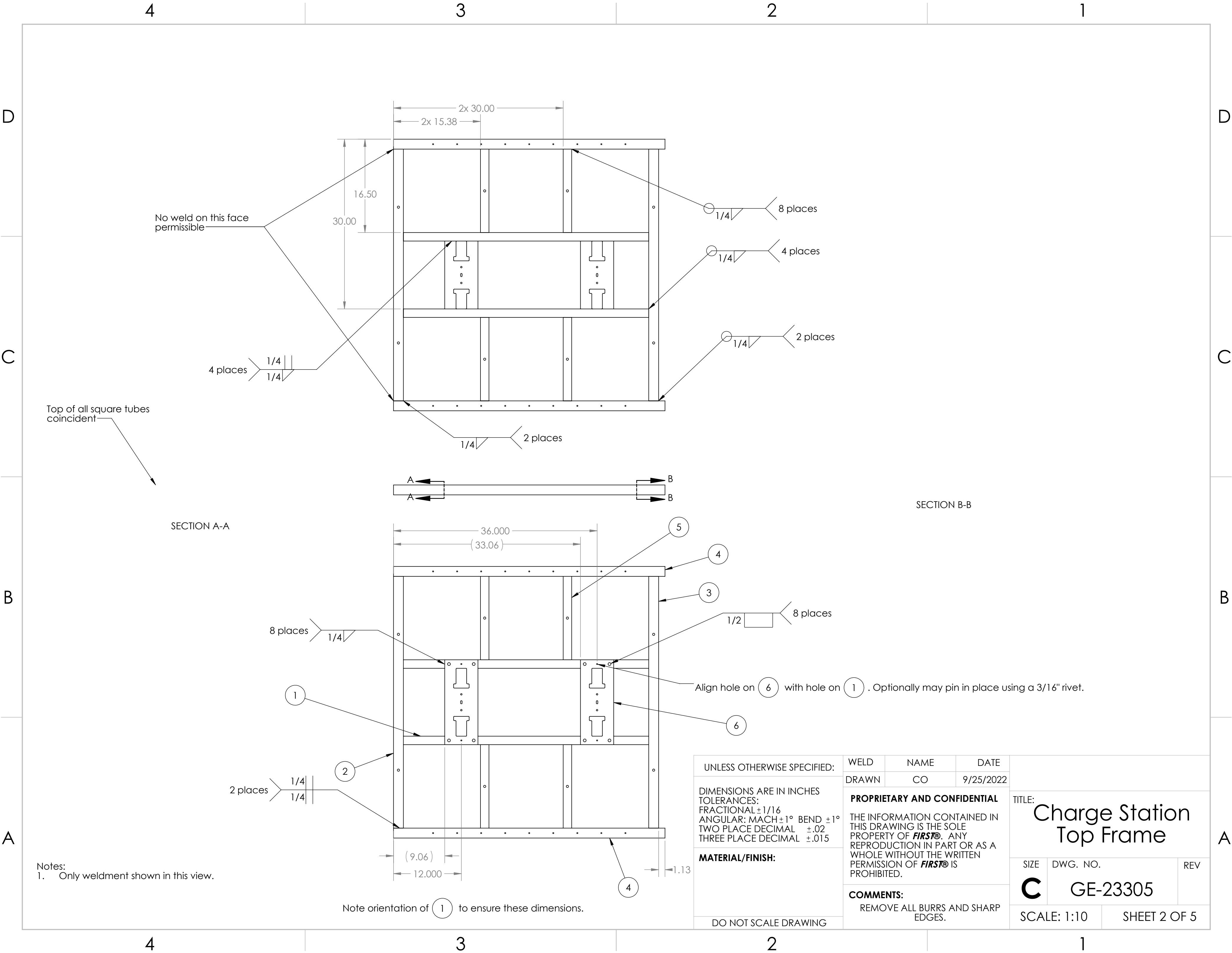
4

3

2

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  $\pm .02$   
THREE PLACE DECIMAL  $\pm .015$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

WELD

DRAWN

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**COMMENTS:**

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NAME

CO

DATE

9/25/2022

TITLE:  
**Charge Station  
Top Frame**

SIZE

**C**

DWG. NO.

**GE-23305**

REV

SCALE: 1:10

SHEET 2 OF 5

4

3

2

1

D

D

C

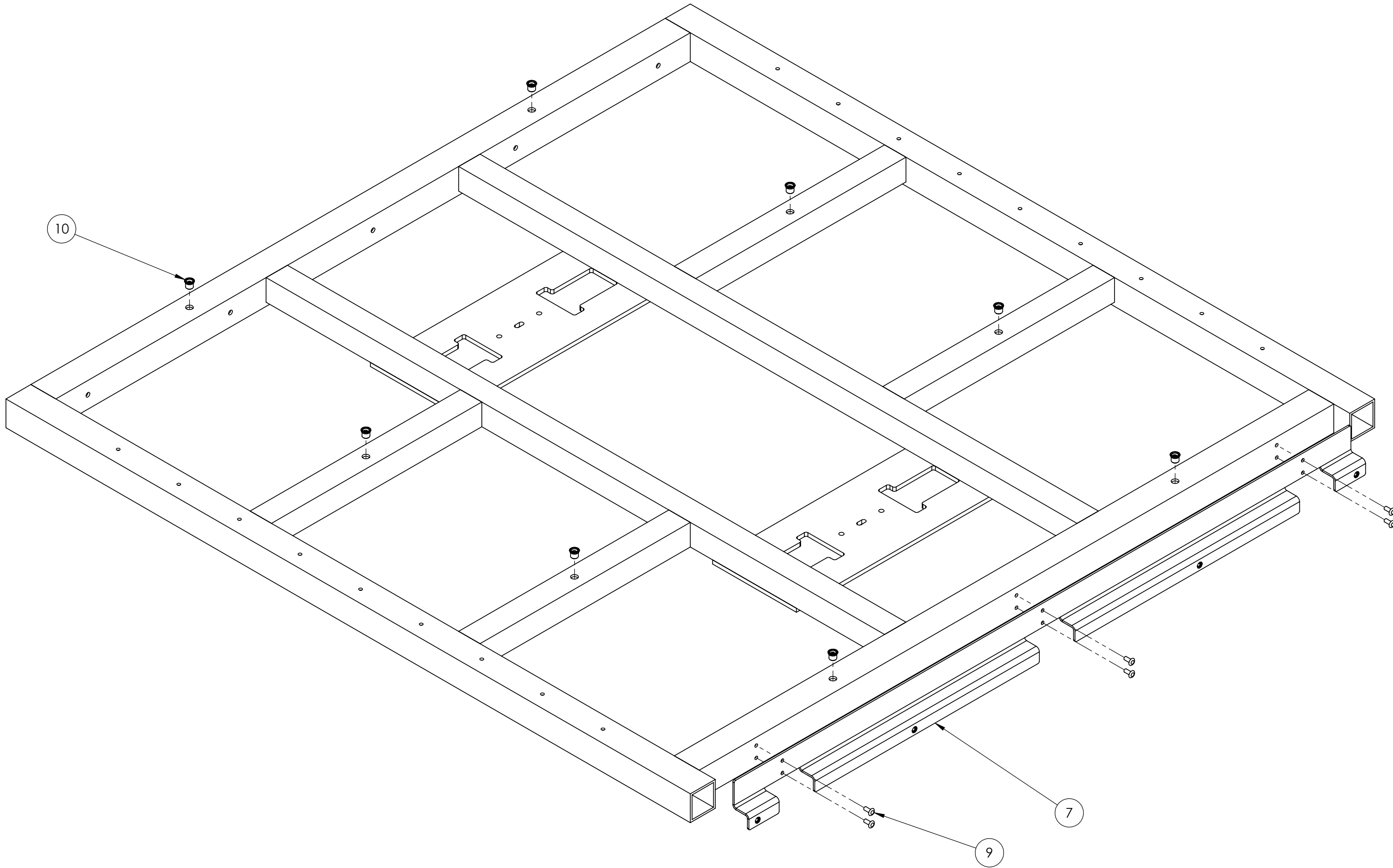
C

B

B

A

A



Notes:

1. Attach 7 to assembly using 9 , oriented as shown.
2. Install 8x 10 in top surface holes as shown.

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .02$   
THREE PLACE DECIMAL  $\pm .015$

MATERIAL/FINISH:

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WELD

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NAME

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DATE

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

TITLE:

Charge Station  
Top Frame

SIZE

C

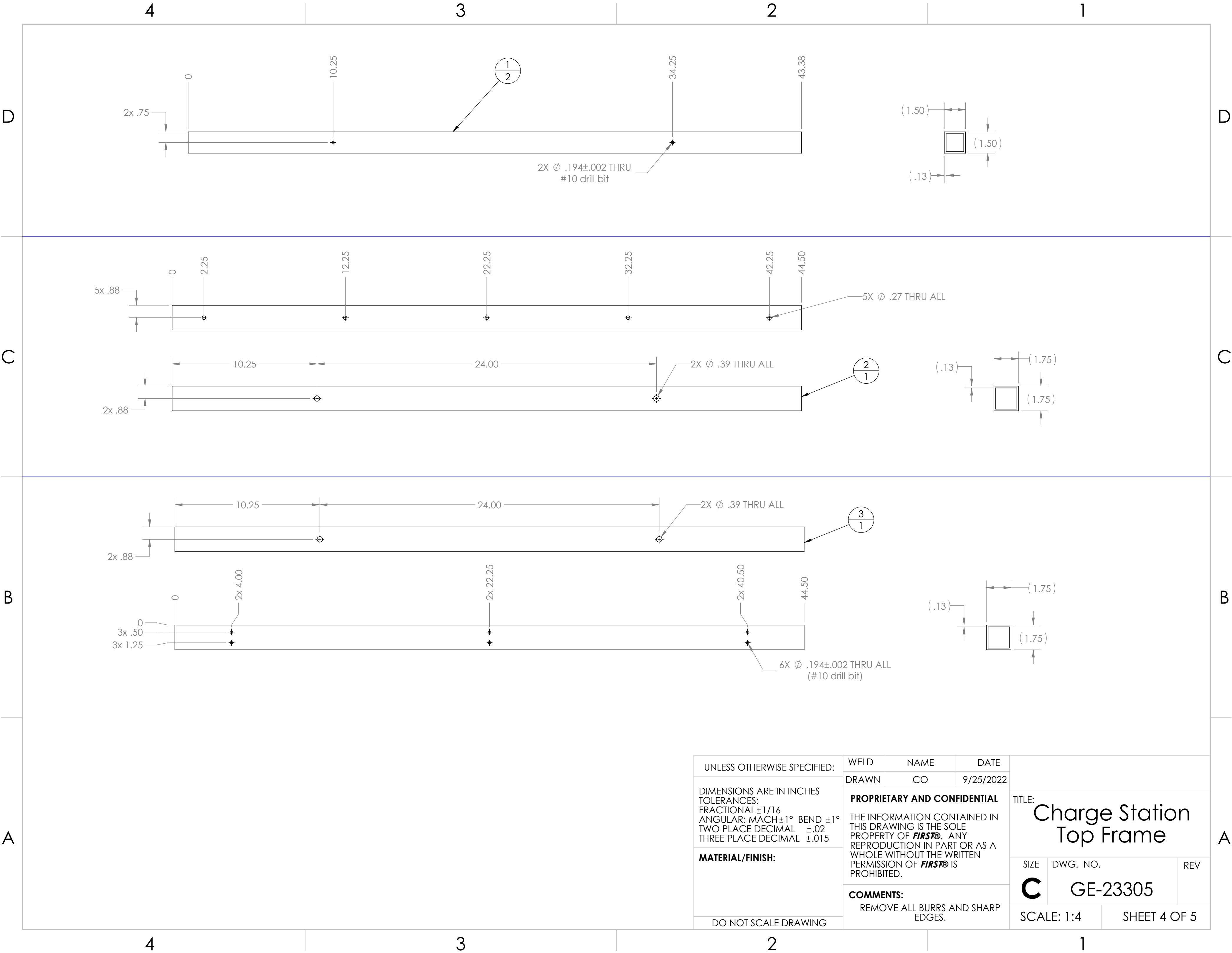
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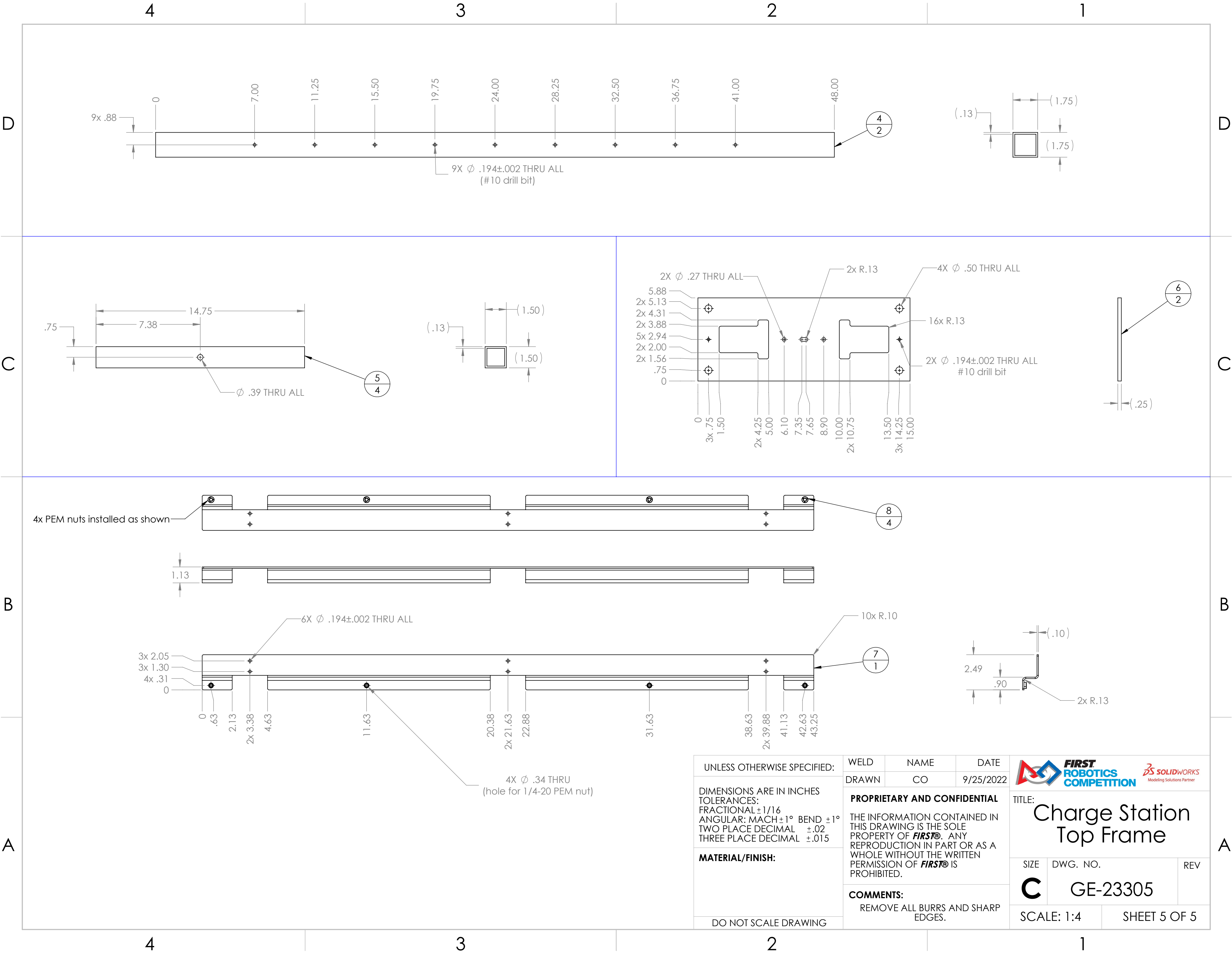
GE-23305

REV

SCALE: 1:4

SHEET 3 OF 5





UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .02$   
THREE PLACE DECIMAL  $\pm .015$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

WELD

DRAWN

NAME

CO

DATE

9/25/2022

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**FIRST**  
ROBOTICS  
COMPETITION

**SOLIDWORKS**  
Modeling Solutions Partner

TITLE:

Charge Station  
Top Frame

SIZE

**C**

DWG. NO.

GE-23305

REV

SCALE: 1:4

SHEET 5 OF 5

D

C

B

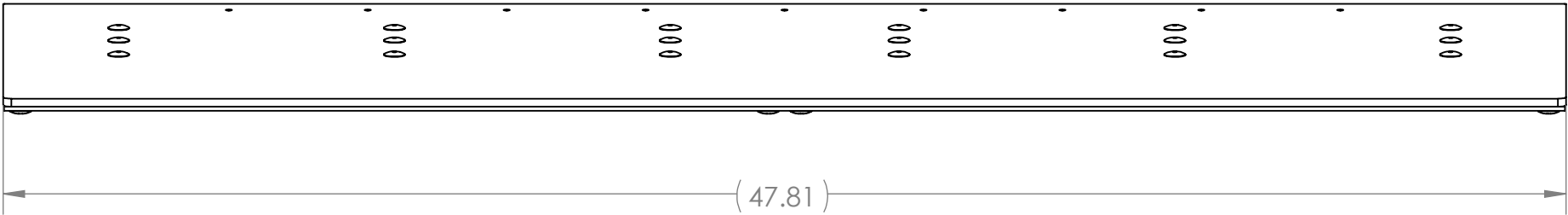
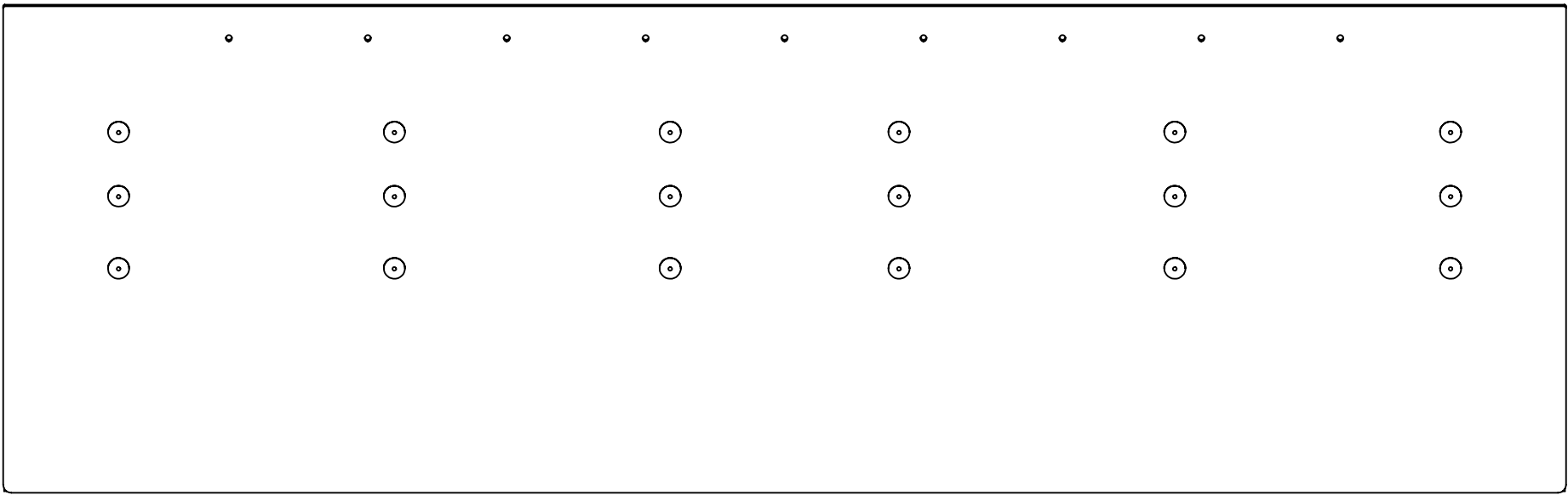
A

D

C

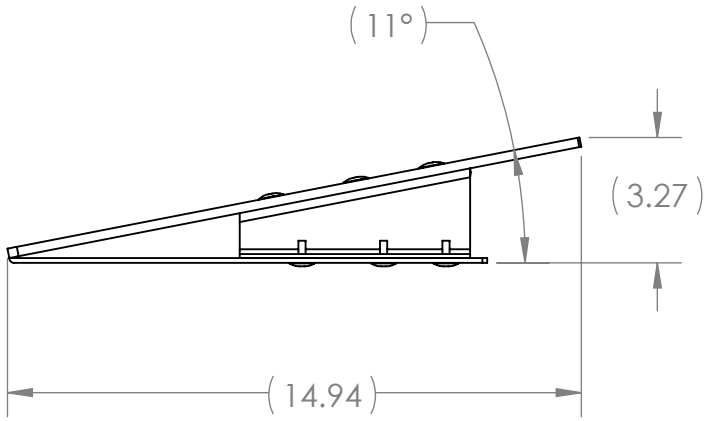
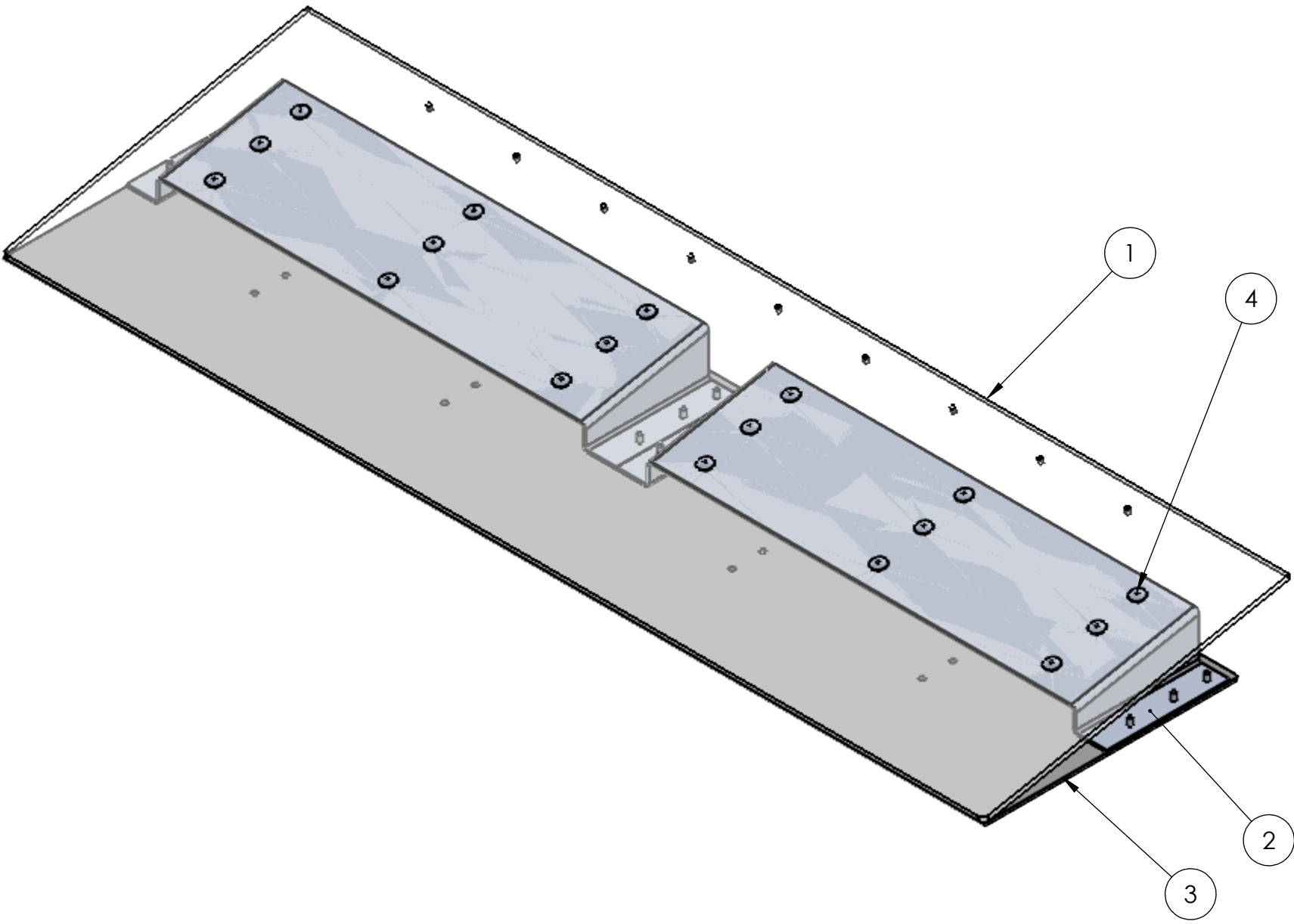
B

A



Notes:  
1. Approximate weight: 13.33 lbs

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23315	Charge Station Ramp Polycarbonate	1
2	GE-23316	Charge Station Ramp Brace	2
3	GE-23317	Charge Station Ramp HDPE	1
4	rivet_.1875_.251-.375_largeHead	3/16" Large Head Aluminum Rivet, .251-.375 Grip Range	30



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD

DRAWN

**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.

NAME

CO

DATE

12/12/2022



**FIRST**  
**ROBOTICS**  
**COMPETITION**



Modeling Solutions Partner

TITLE:

Charge Station  
Ramp Assembly

SIZE

C

DWG. NO.

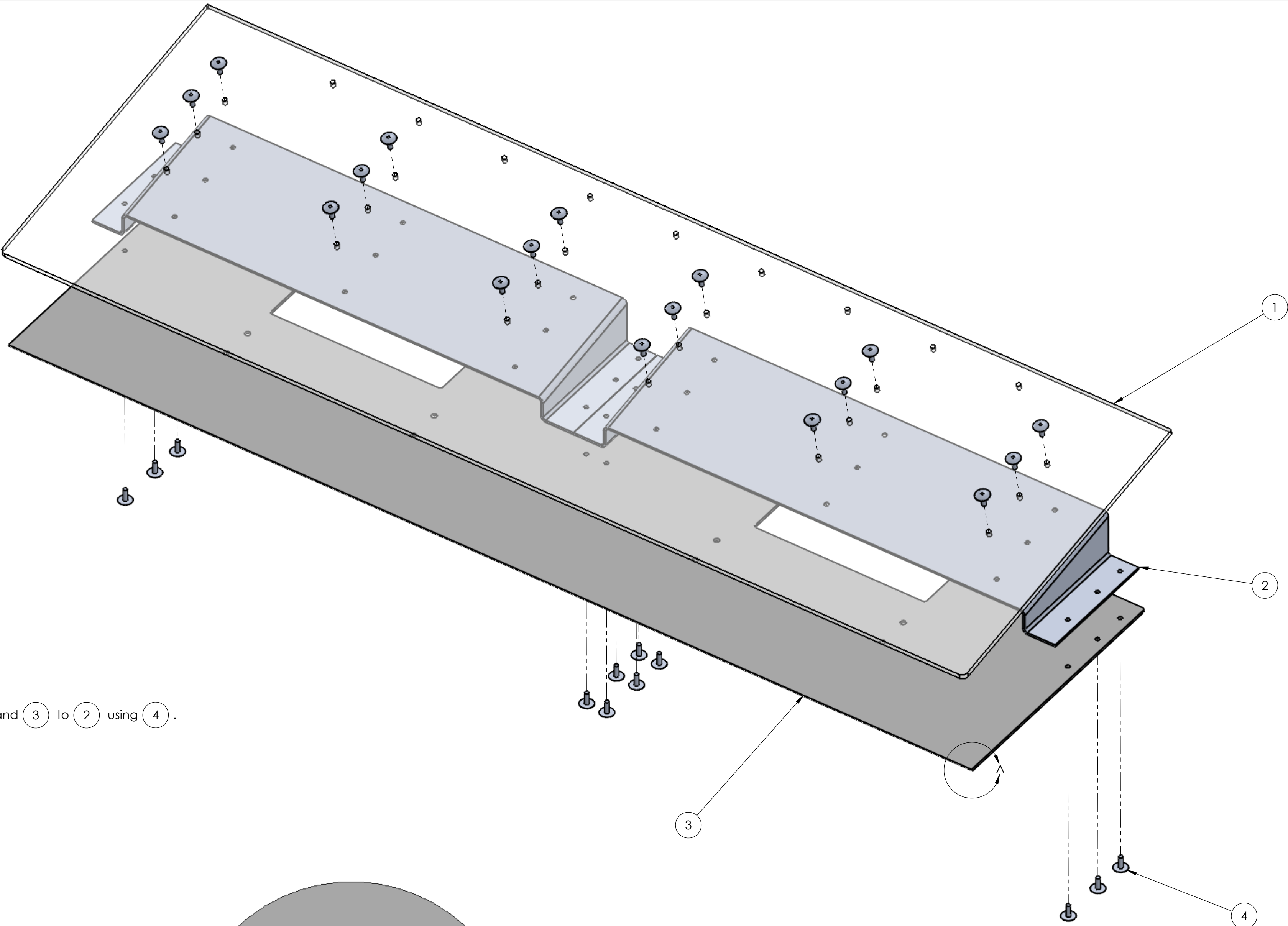
GE-23314

REV

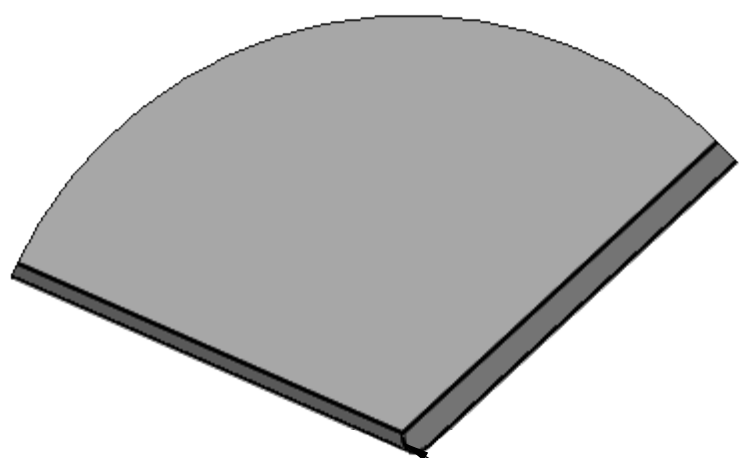
SCALE: 1:5

SHEET 1 OF 2





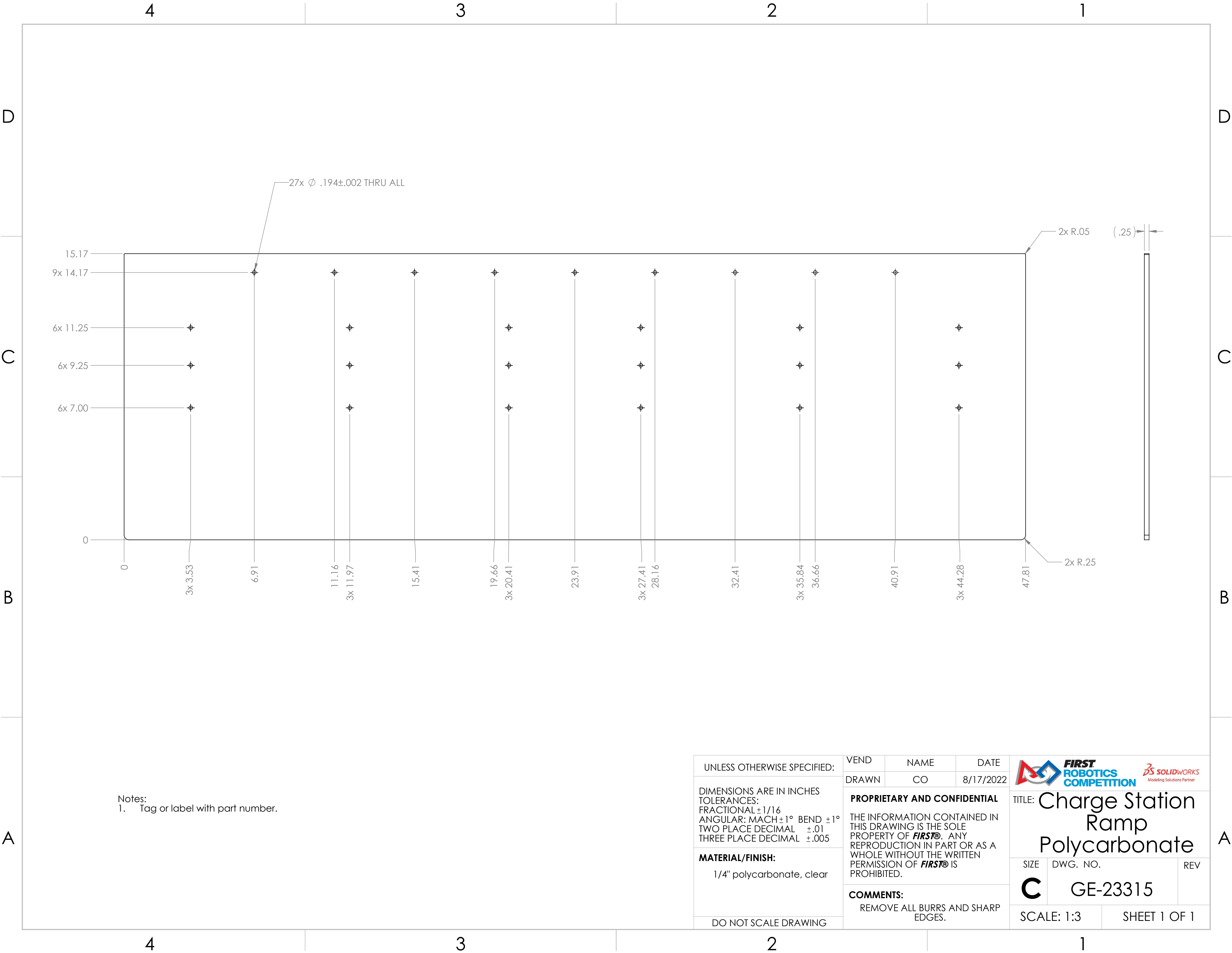


Notes:  
Attach 1 and 3 to 2 using 4.



DETAIL A  
SCALE 2 : 1  
Ensure filleted edge is facing down as shown.

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div><div>FIRST ROBOTICS COMPETITION</div><div><div>SOLIDWORKS Modeling Solutions Partner</div></div></div>		
	DRAWN	CO	12/12/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$	PROPRIETARY AND CONFIDENTIAL			TITLE: <div>Charge Station Ramp Assembly</div>		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
DO NOT SCALE DRAWING				C	GE-23314	
				SCALE: 1:3		SHEET 2 OF 2



Notes:  
1. Tag or label with part number.

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

**MATERIAL/FINISH:**  
1/4" polycarbonate, clear

DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	CO	8/17/2022

**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.

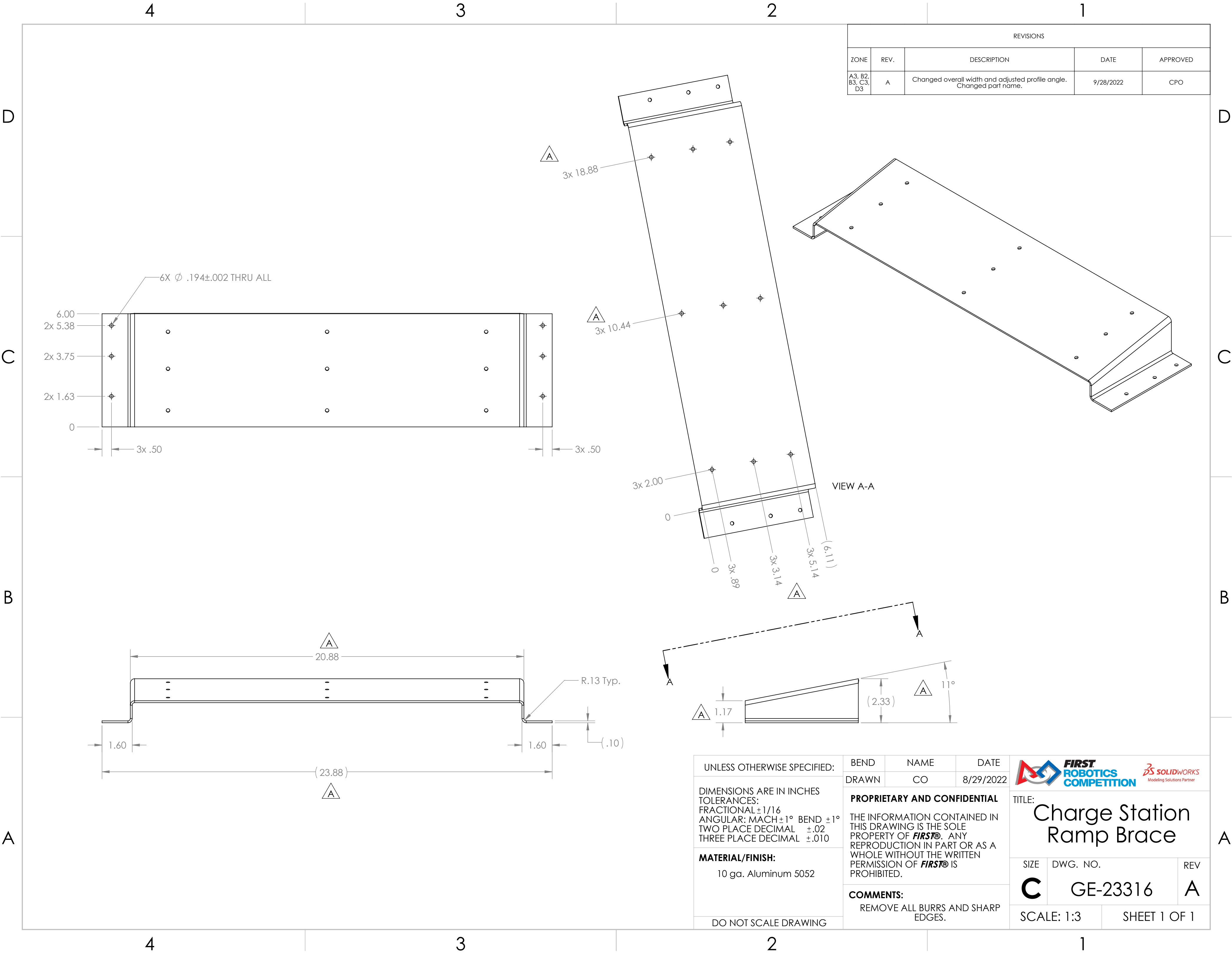
**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE: Charge Station Ramp Polycarbonate



SIZE	DWG. NO.	REV
<b>C</b>	GE-23315	

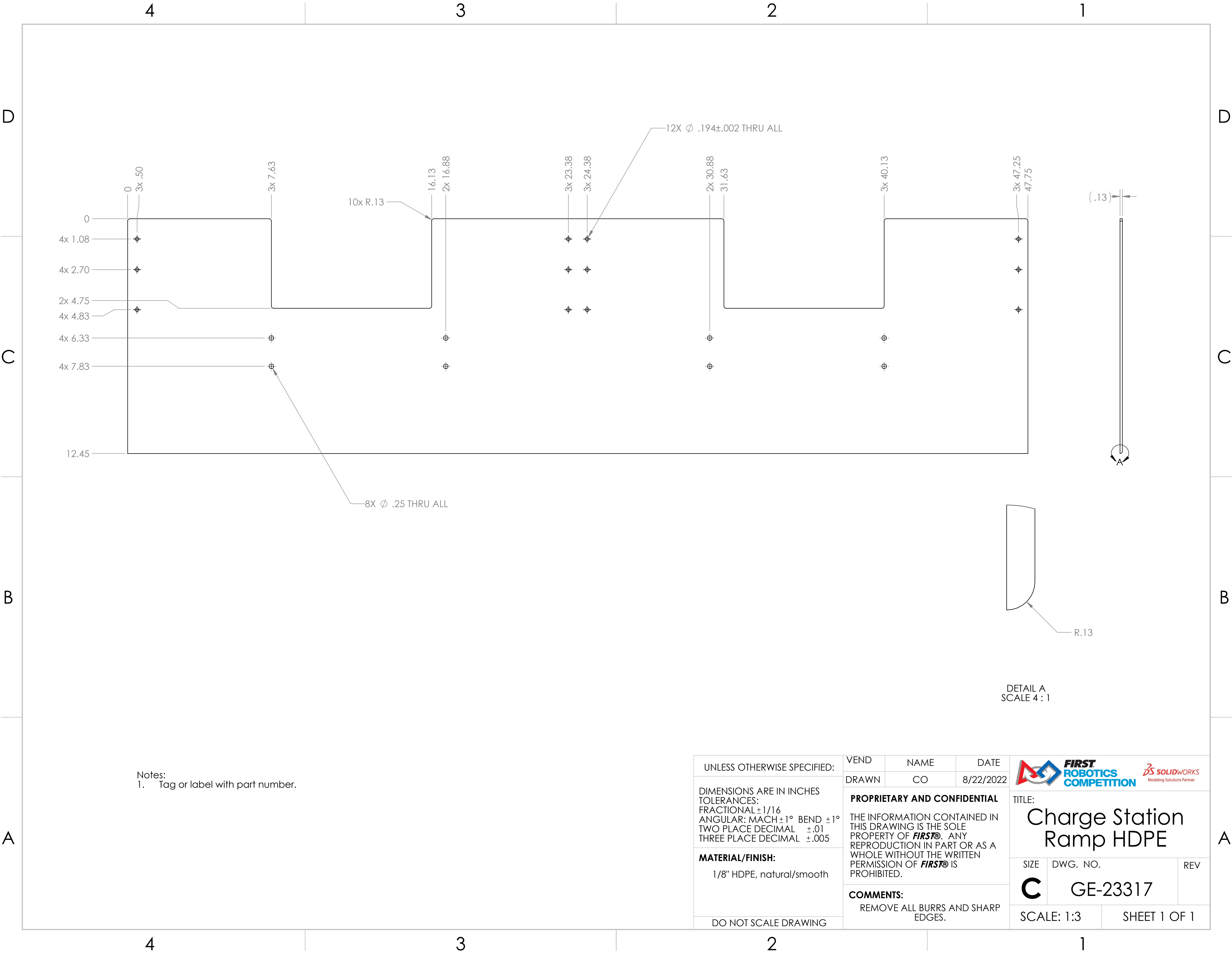
SCALE: 1:3	SHEET 1 OF 1
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B2, B3, C3, D3	A	Changed overall width and adjusted profile angle. Changed part name.	9/28/2022	CPO

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010  <b>MATERIAL/FINISH:</b>  10 ga. Aluminum 5052  DO NOT SCALE DRAWING	BEND	NAME	DATE
	DRAWN	CO	8/29/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		

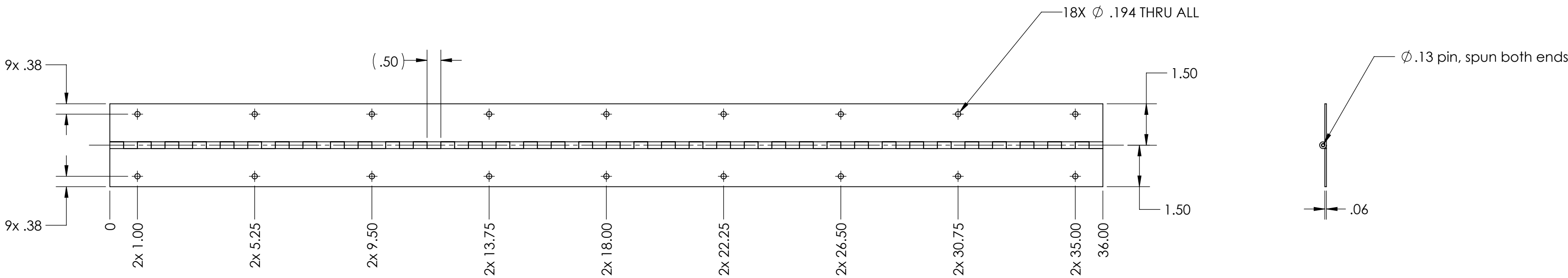
 		
TITLE: <b>Charge Station Ramp Brace</b>		
SIZE <b>C</b>	DWG. NO. <b>GE-23316</b>	REV <b>A</b>
SCALE: 1:3		SHEET 1 OF 1





Notes:  
1. Tag or label with part number.

UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>	
	DRAWN	CO	8/22/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	PROPRIETARY AND CONFIDENTIAL			TITLE:  Charge Station Ramp HDPE	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
	MATERIAL/FINISH:  1/8" HDPE, natural/smooth	COMMENTS:  REMOVE ALL BURRS AND SHARP EDGES.			SIZE  C
DO NOT SCALE DRAWING				SCALE: 1:3	
			SHEET 1 OF 1		

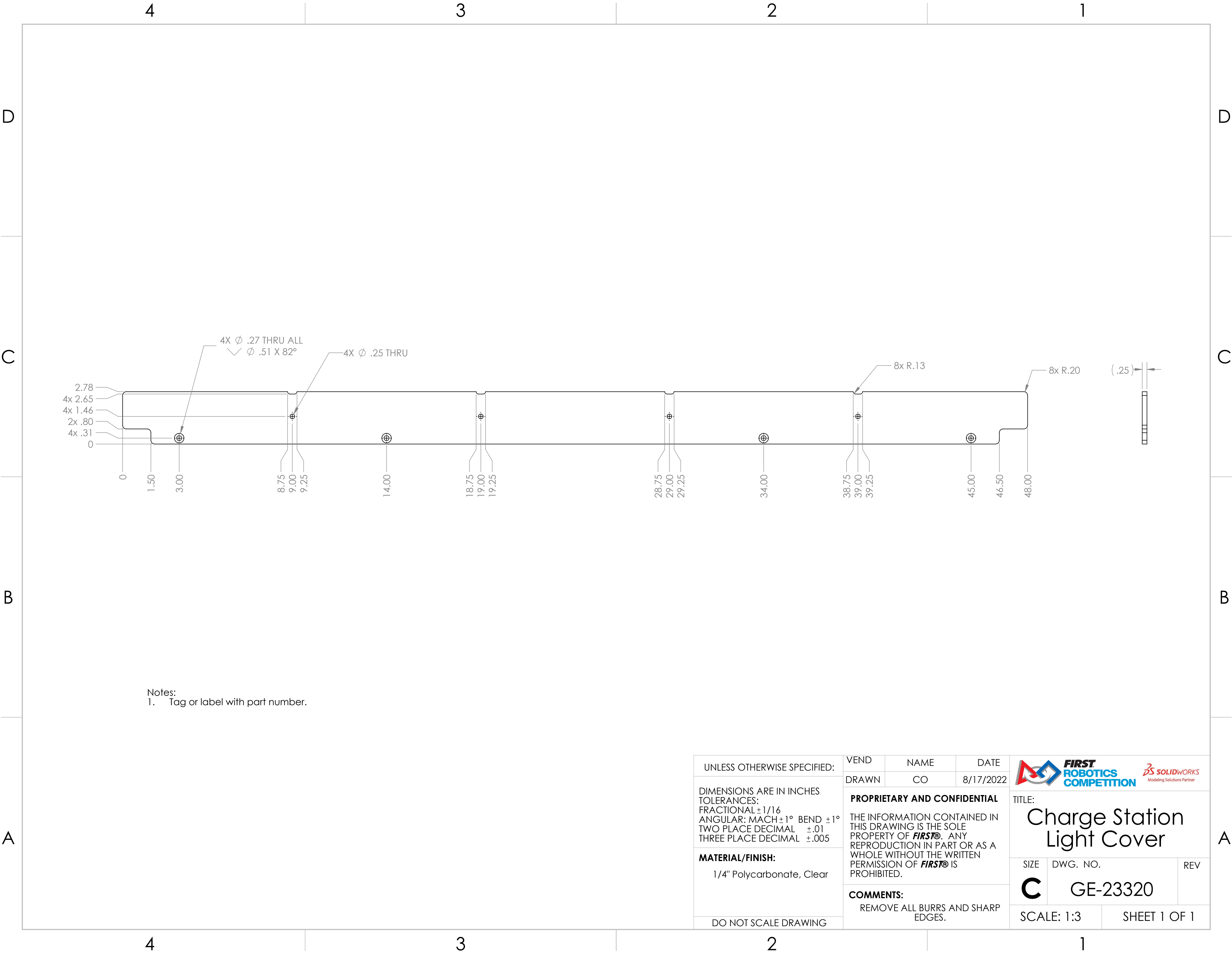
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A4	A	Added Note	1/9/2023	JO





Note: This is a custom hinge and not available as a COTS item.  
McMaster part numbers 1608A54 or 12145A25 can be modified by drilling holes to match the drawing above.

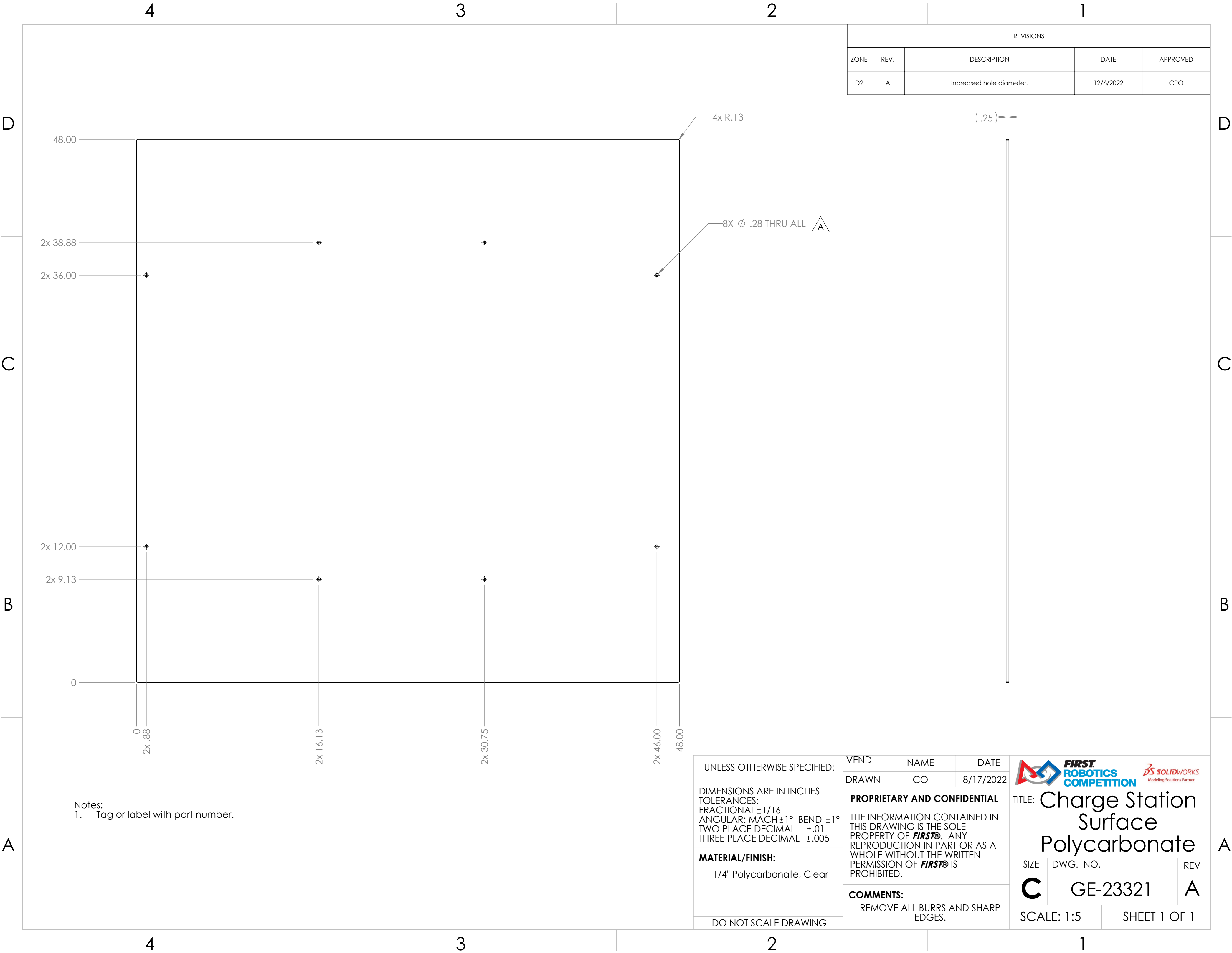
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>  Plated Steel  <b>DO NOT SCALE DRAWING</b>	VEND	NAME	DATE	<div></div> <div>TITLE: <b>Charge Station Ramp Hinge</b></div> <div><div>SIZE</div><div>DWG. NO.</div><div>REV</div><div><b>C</b>GE-23318<b>A</b></div><div>SCALE: 1:3</div><div>SHEET 1 OF 1</div></div>	
	DRAWN	CO	12/30/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				







Notes:  
1. Tag or label with part number.

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>  1/4" Polycarbonate, Clear   DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div>	
	DRAWN	CO	8/17/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:  Charge Station Light Cover	
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
C				GE-23320	
SCALE: 1:3				SHEET 1 OF 1	

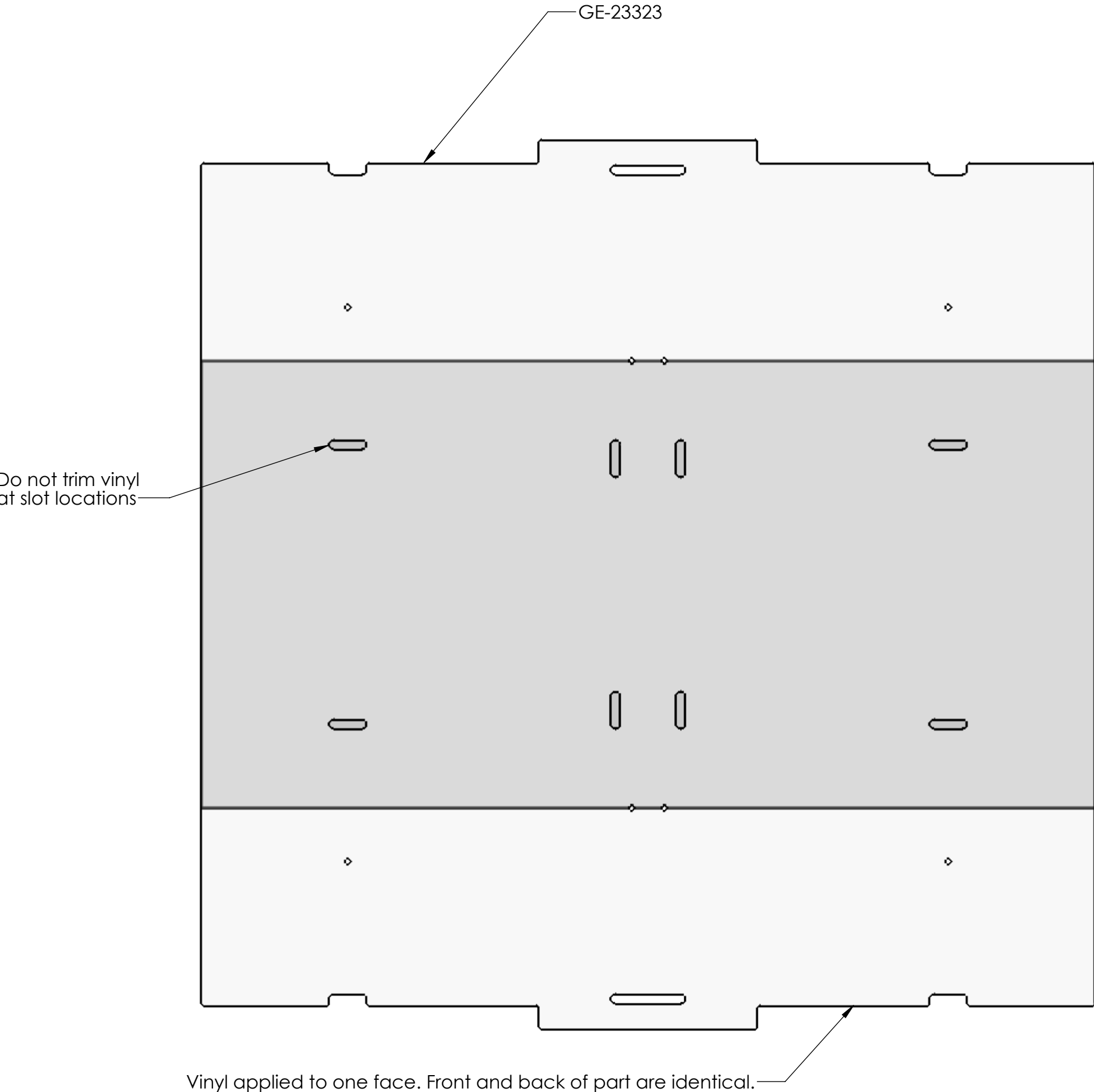
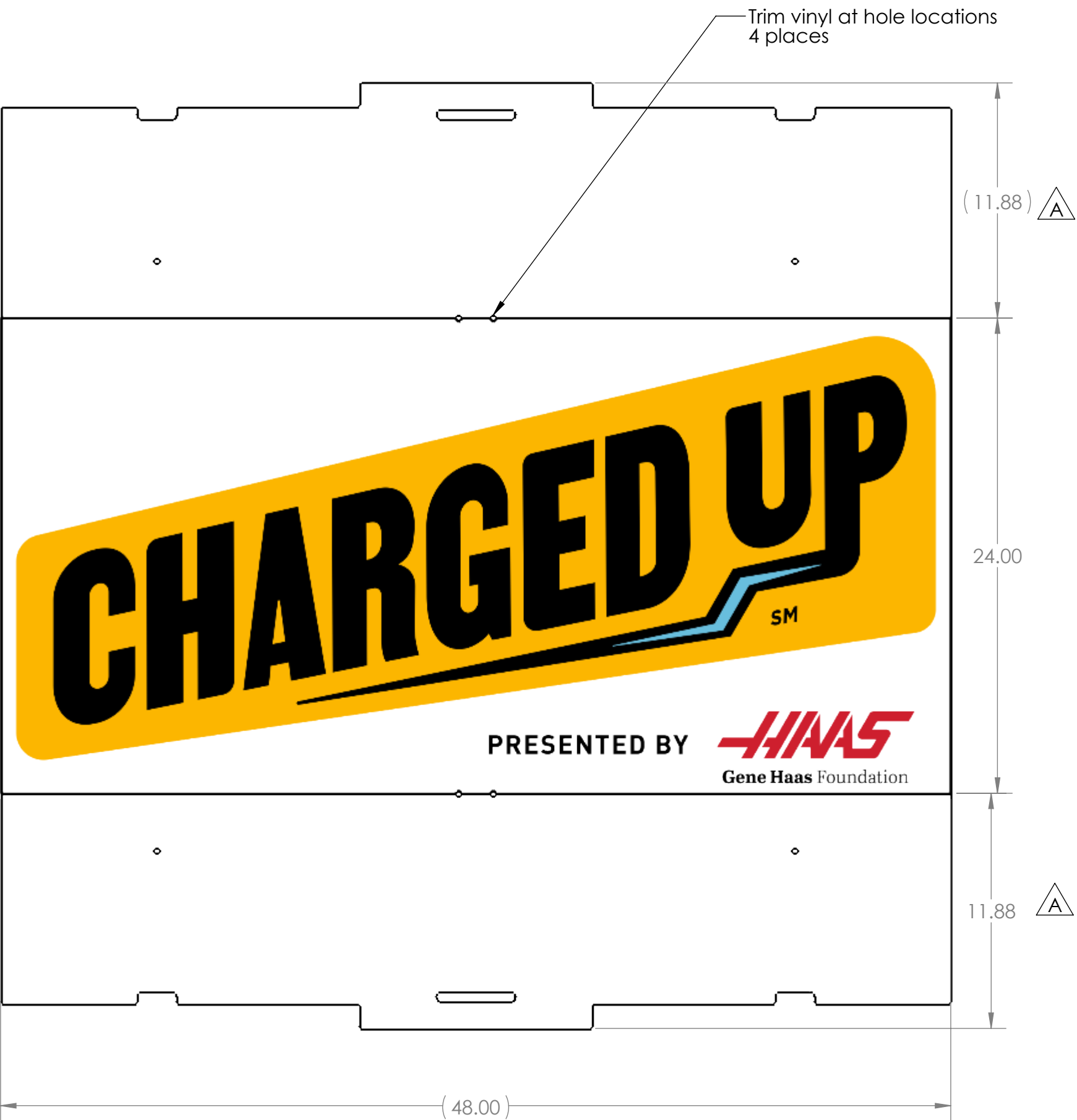


REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
D2	A	Increased hole diameter.	12/6/2022	CPO



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  1/4" Polycarbonate, Clear    DO NOT SCALE DRAWING	VEND	NAME	DATE
	DRAWN	CO	8/17/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		

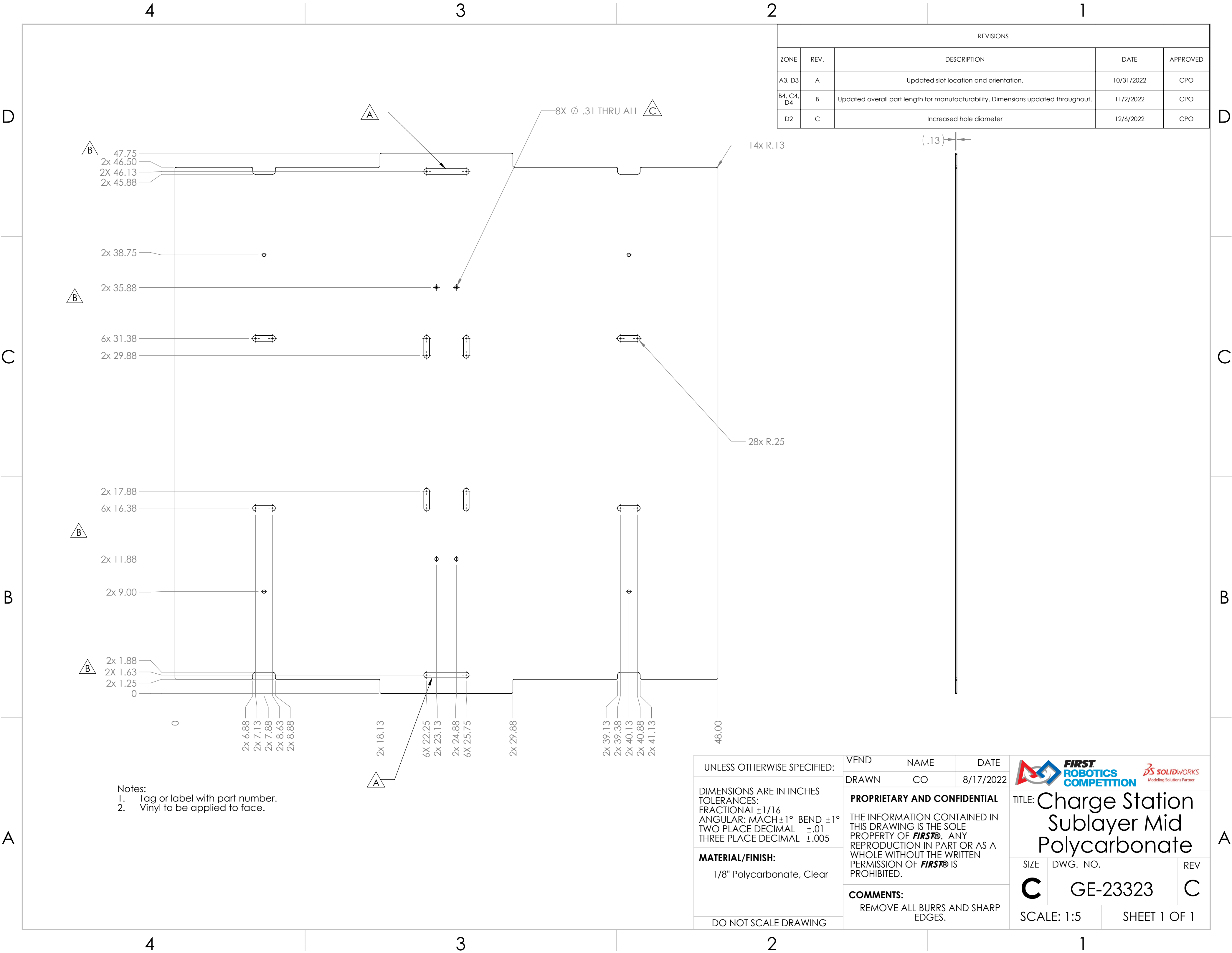
 		
TITLE: Charge Station Surface Polycarbonete		
SIZE <b>C</b>	DWG. NO. GE-23321	REV A
SCALE: 1:5		SHEET 1 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, C3	A	Dimensions updated to match change made to base plastic part.	11/2/2022	CPO



Notes:  
1. QTY per field: 2

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50  <b>MATERIAL/FINISH:</b>     <b>DO NOT SCALE DRAWING</b>	FIELD	NAME	DATE	<div></div> <div>TITLE: Charge Station Sublayer Mid Polycarbonate with Vinyl</div>			
	DRAWN	CO	10/31/2022				
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				C	GE-23322	A
				SCALE: 1:6		SHEET 1 OF 1	



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, D3	A	Updated slot location and orientation.	10/31/2022	CPO
B4, C4, D4	B	Updated overall part length for manufacturability. Dimensions updated throughout.	11/2/2022	CPO
D2	C	Increased hole diameter	12/6/2022	CPO

Notes:  
1. Tag or label with part number.  
2. Vinyl to be applied to face.

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

**MATERIAL/FINISH:**  
1/8" Polycarbonate, Clear

DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	CO	8/17/2022

**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.

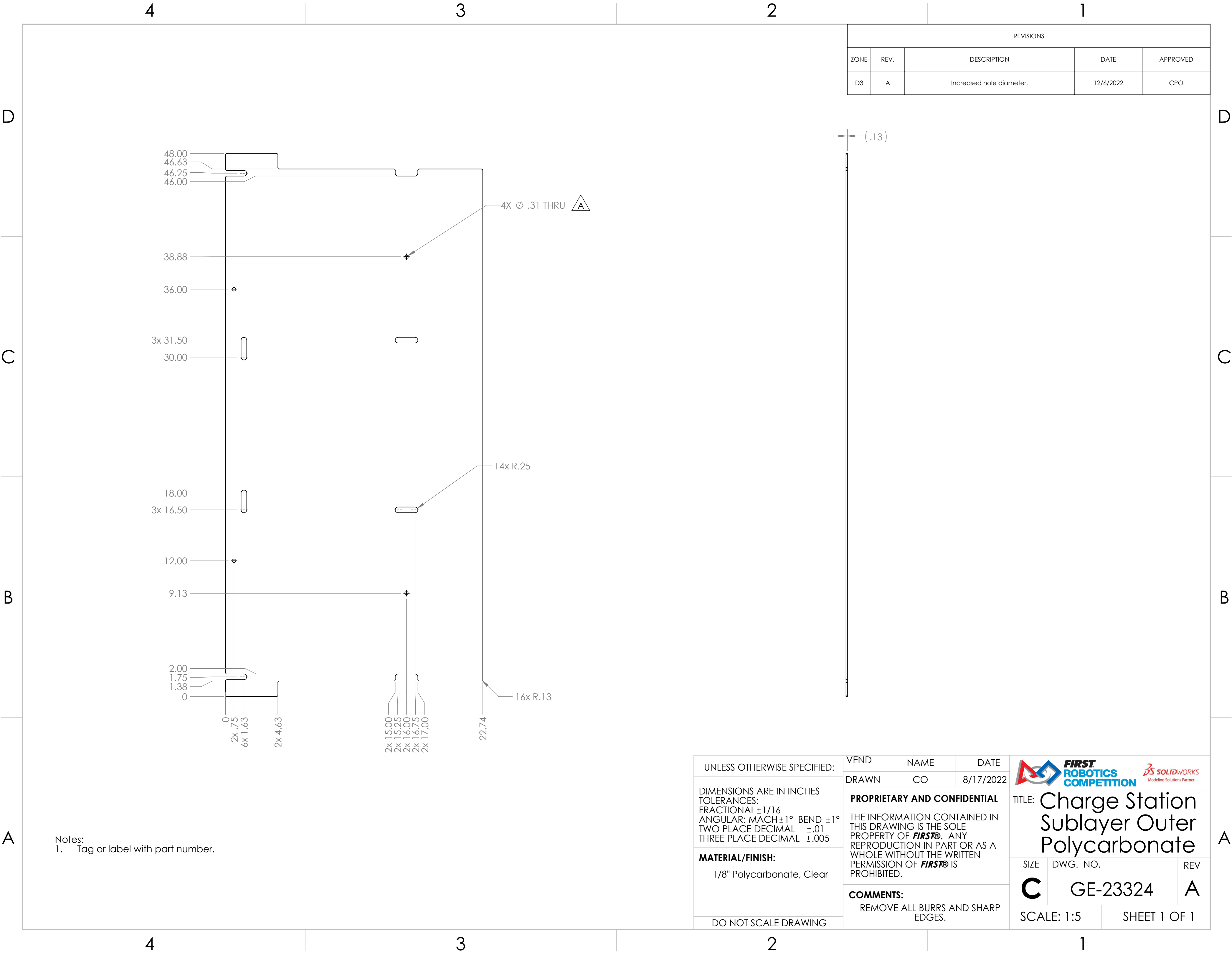
**COMMENTS:**  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE: Charge Station  
Sublayer Mid  
Polycarbonate



SIZE	DWG. NO.	REV
<b>C</b>	GE-23323	<b>C</b>

SCALE: 1:5 SHEET 1 OF 1

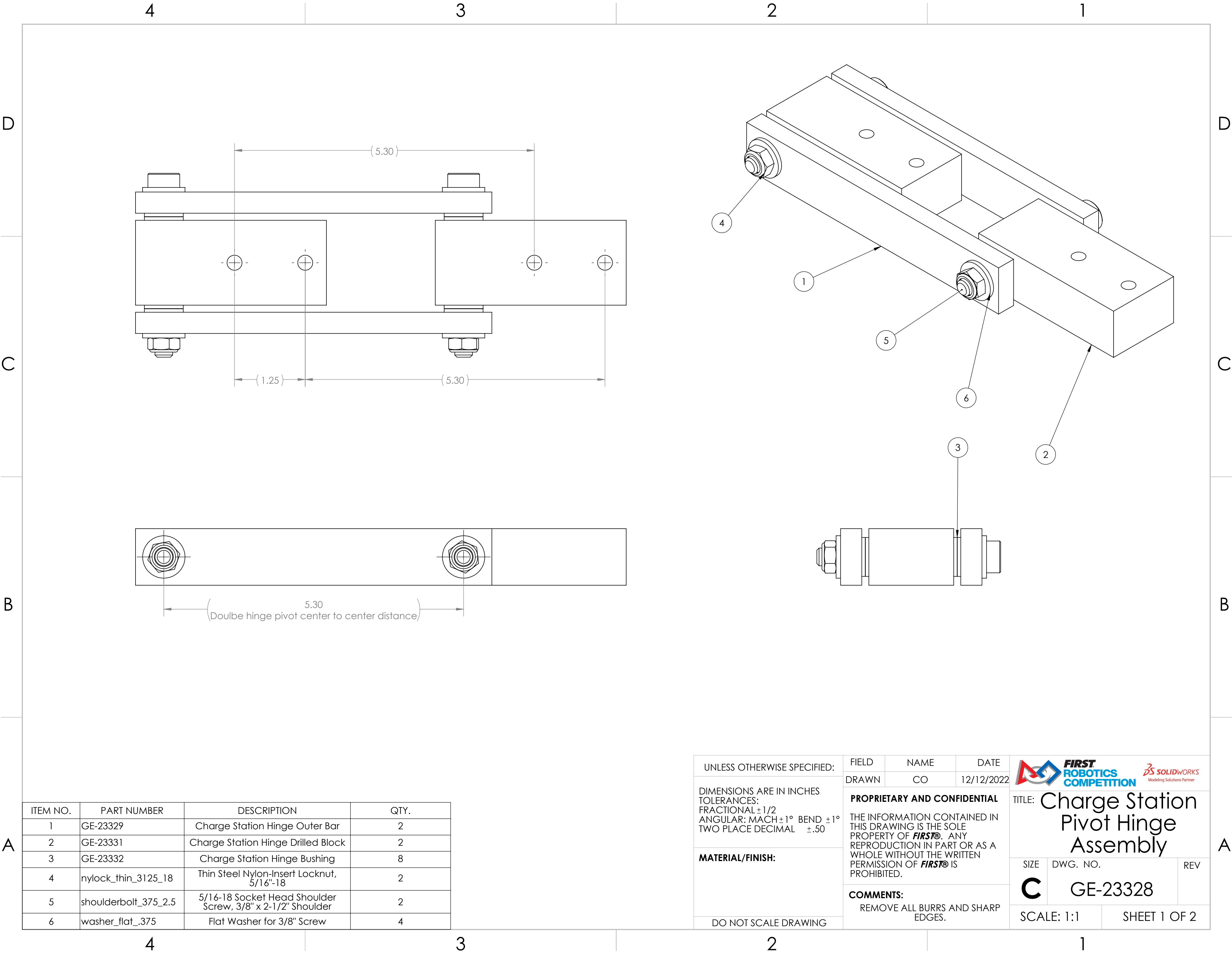


REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
D3	A	Increased hole diameter.	12/6/2022	CPO



Notes:  
1. Tag or label with part number.

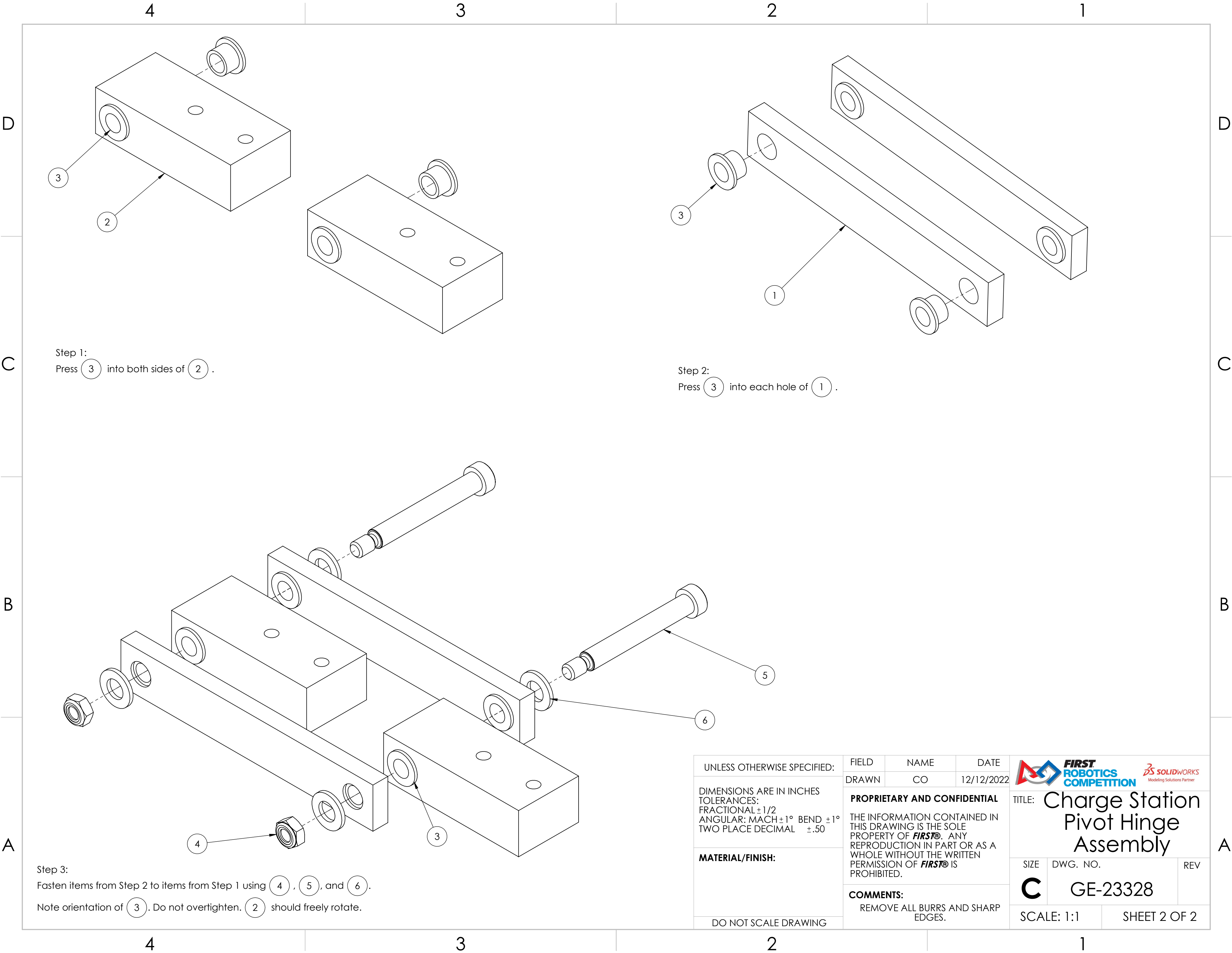
UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div> <div>TITLE: Charge Station Sublayer Outer Polycarbonate</div>	
	DRAWN	CO	8/17/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	PROPRIETARY AND CONFIDENTIAL			SIZE DWG. NO. REV C GE-23324 A	
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				
MATERIAL/FINISH:	COMMENTS:			SCALE: 1:5 SHEET 1 OF 1	
1/8" Polycarbonate, Clear	REMOVE ALL BURRS AND SHARP EDGES.				
DO NOT SCALE DRAWING					





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23329	Charge Station Hinge Outer Bar	2
2	GE-23331	Charge Station Hinge Drilled Block	2
3	GE-23332	Charge Station Hinge Bushing	8
4	nylock_thin_3125_18	Thin Steel Nylon-Insert Locknut, 5/16"-18	2
5	shoulderbolt_375_2.5	5/16-18 Socket Head Shoulder Screw, 3/8" x 2-1/2" Shoulder	2
6	washer_flat_.375	Flat Washer for 3/8" Screw	4



UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	
	DRAWN	CO	12/12/2022	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			
	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			
<b>MATERIAL/FINISH:</b>	<div><div></div><div>TITLE: Charge Station Pivot Hinge Assembly</div></div>			
	SIZE	DWG. NO.		REV
	C	GE-23328		
DO NOT SCALE DRAWING	SCALE: 1:1		SHEET 1 OF 2	

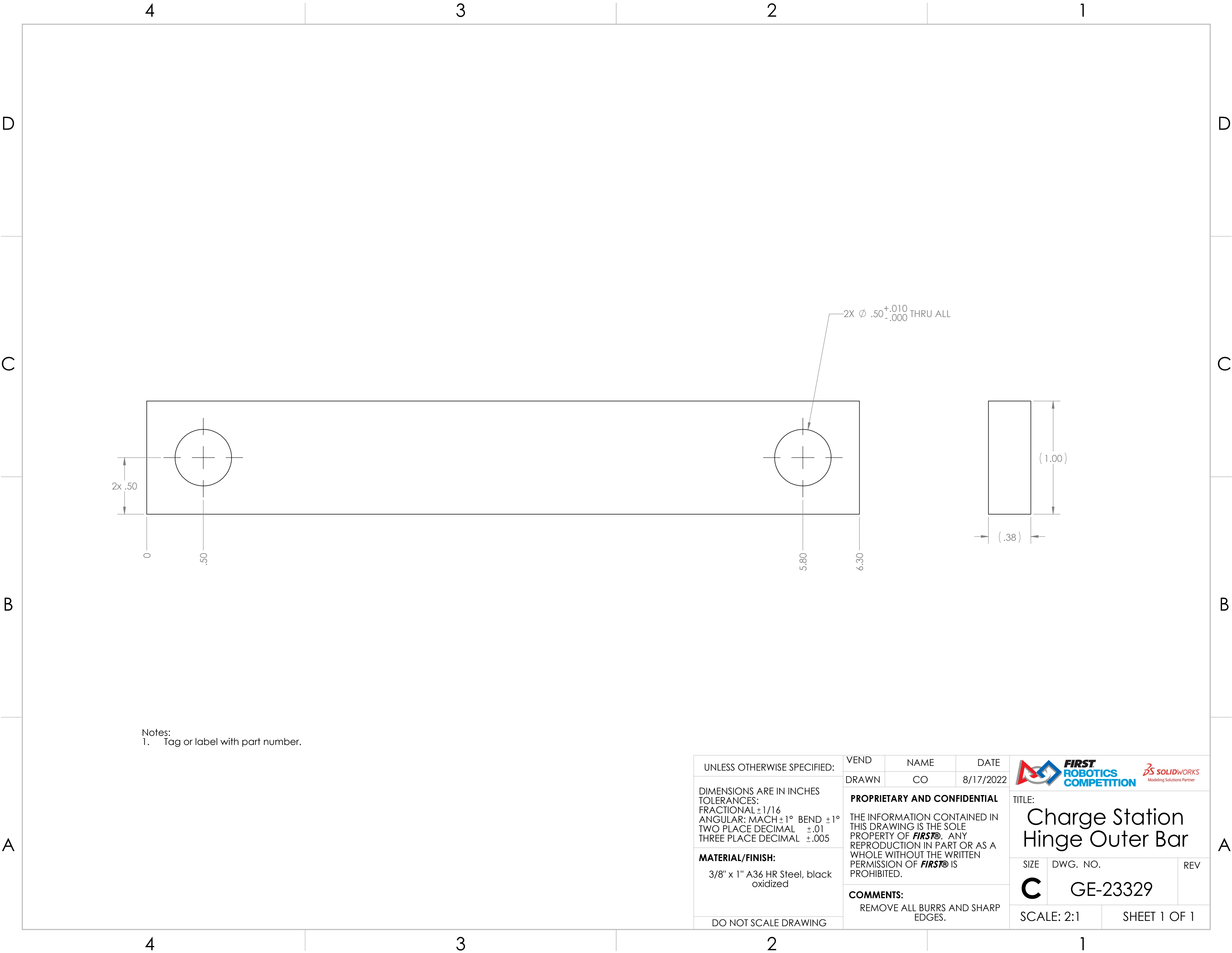


Step 1:  
Press (3) into both sides of (2) .

Step 2:  
Press (3) into each hole of (1) .

Step 3:  
Fasten items from Step 2 to items from Step 1 using (4) , (5) , and (6) .  
Note orientation of (3) . Do not overtighten. (2) should freely rotate.

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	<div></div> <div>TITLE: Charge Station Pivot Hinge Assembly</div>	
	DRAWN	CO	12/12/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23328
MATERIAL/FINISH:				REV	
DO NOT SCALE DRAWING				SCALE: 1:1	
			SHEET 2 OF 2		



2x .50

0

.50

5.80



6.30

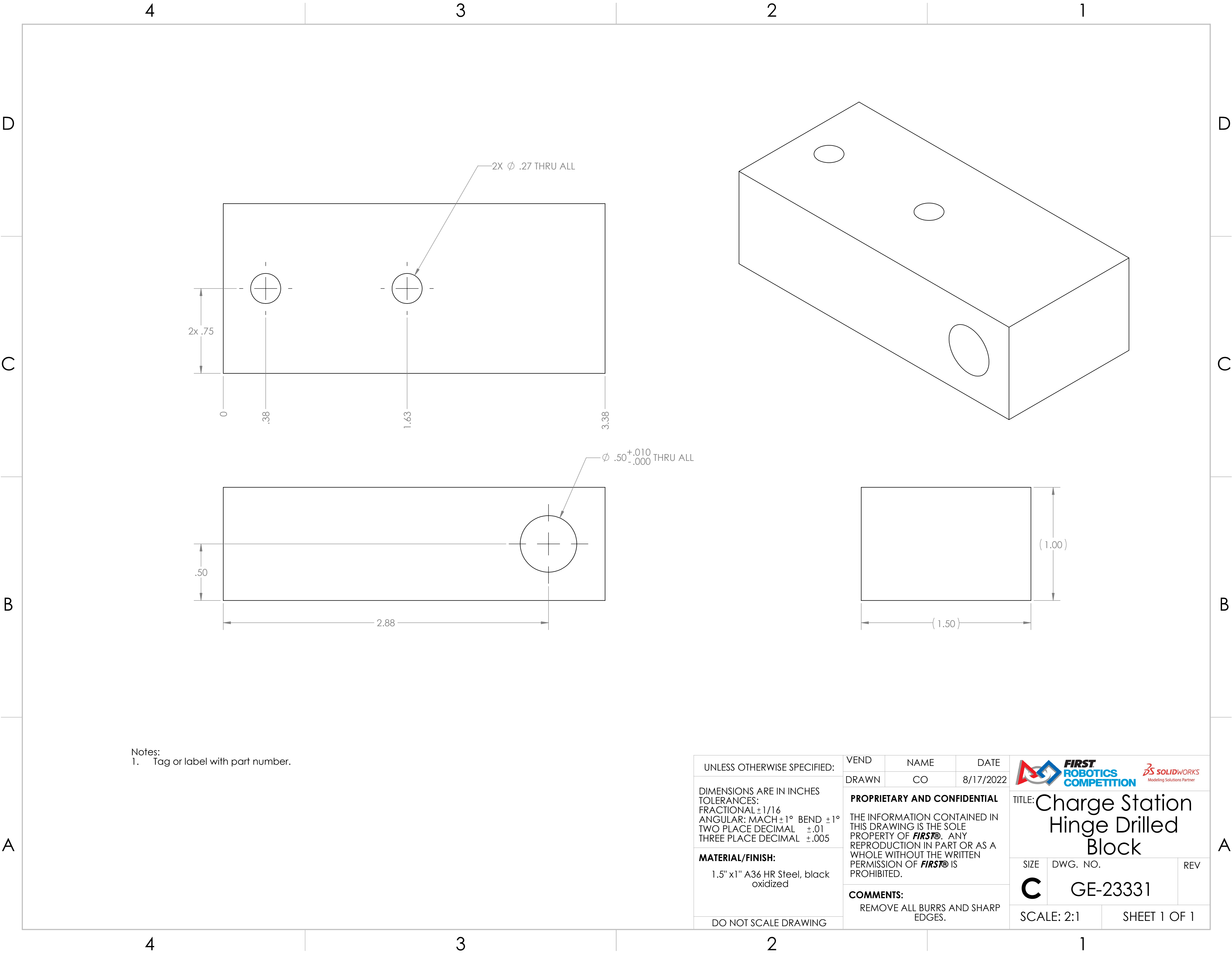
( 1.00 )

( .38 )



2X Ø .50<sup>+.010</sup><sub>-.000</sub> THRU ALL

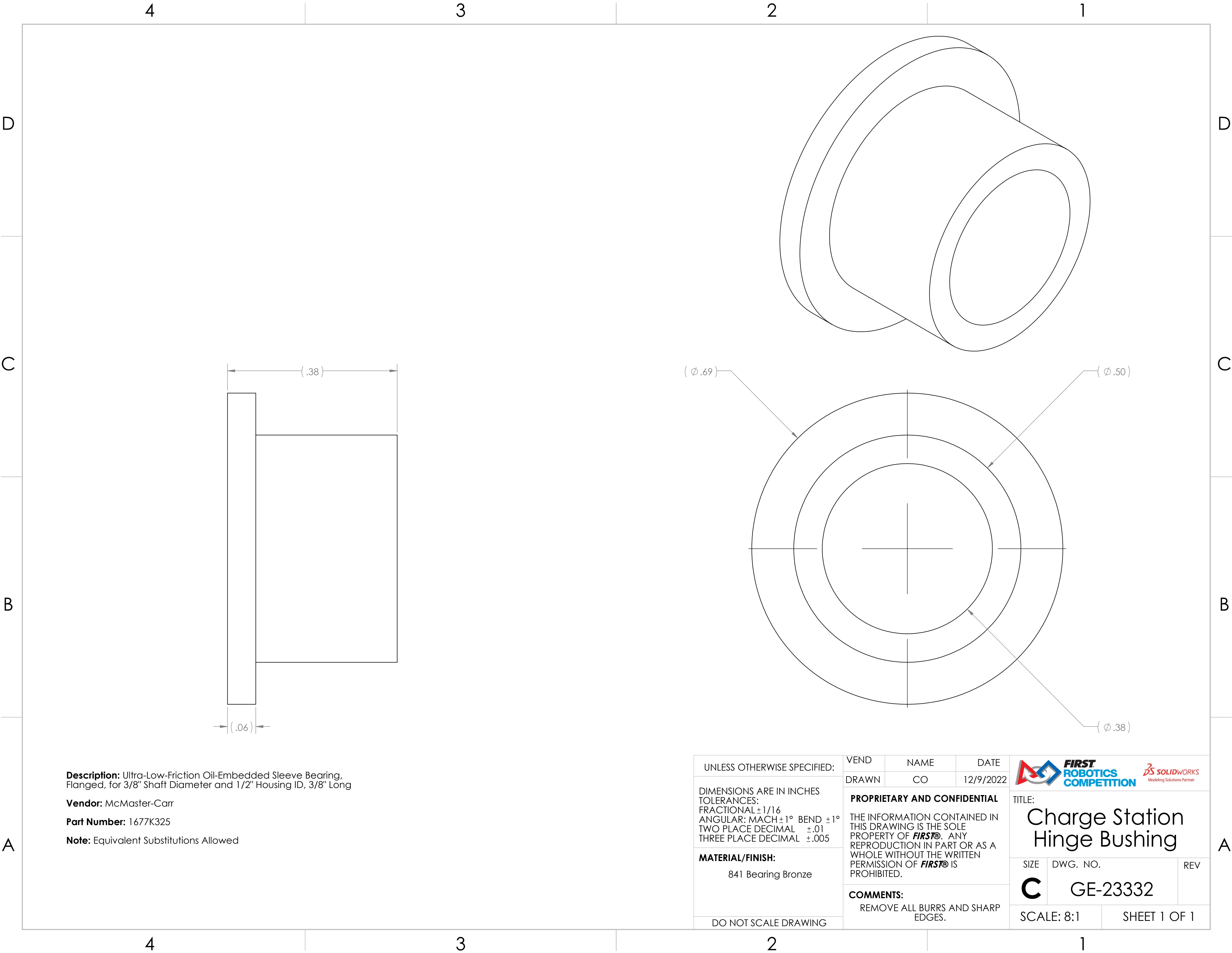
Notes:  
1. Tag or label with part number.

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .01 THREE PLACE DECIMAL ± .005  <b>MATERIAL/FINISH:</b>  3/8" x 1" A36 HR Steel, black oxidized  DO NOT SCALE DRAWING	VEND	NAME	DATE	 	
	DRAWN	CO	8/17/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				TITLE: <b>Charge Station Hinge Outer Bar</b>
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		SIZE <b>C</b>	DWG. NO. <b>GE-23329</b>	REV
SCALE: 2:1		SHEET 1 OF 1			



Notes:  
1. Tag or label with part number.

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  1.5" x 1" A36 HR Steel, black oxidized  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: Charge Station Hinge Drilled Block</div>		
	DRAWN	CO	8/17/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23331	
SCALE: 2:1		SHEET 1 OF 1				





4

3

2

1

D

D

C

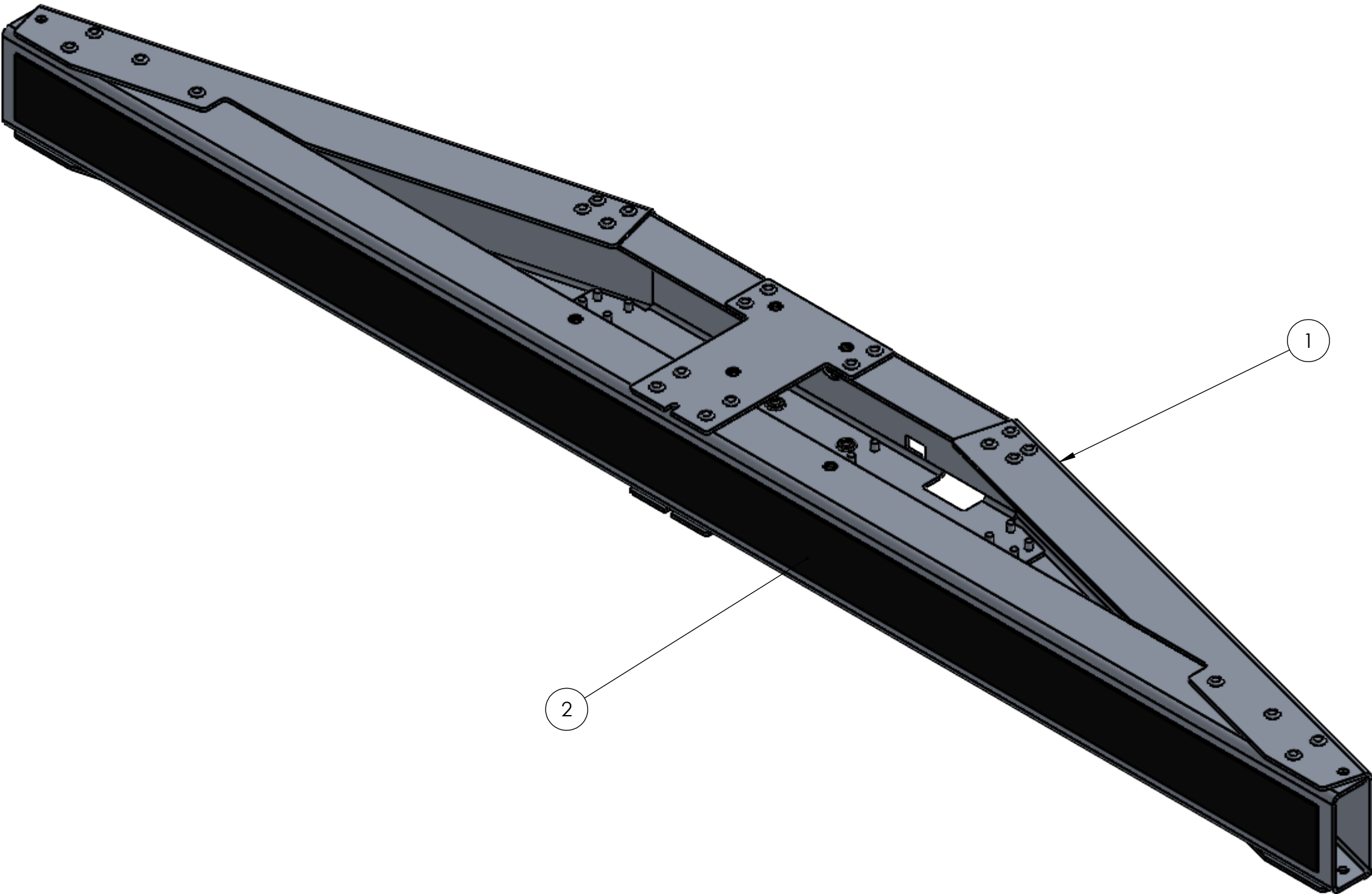
C

B

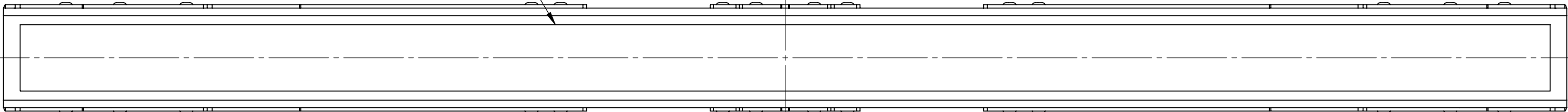
B

A

A



2 Centered on bottom of 1.



- Notes:
- 1. Make sure surface of 1 is clean prior to hook application.
  - 2. Attach 2 to 1 in locations shown.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23337	Charge Station Base Frame	1
2	Hook_2_46	2" X 46" Hook, Adhesion Backed	1

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD

NAME

DATE

DRAWN

CO

12/9/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.



**FIRST**  
ROBOTICS  
COMPETITION



Modeling Solutions Partner

TITLE: Charge Station  
Base Frame  
with Hook

SIZE

DWG. NO.

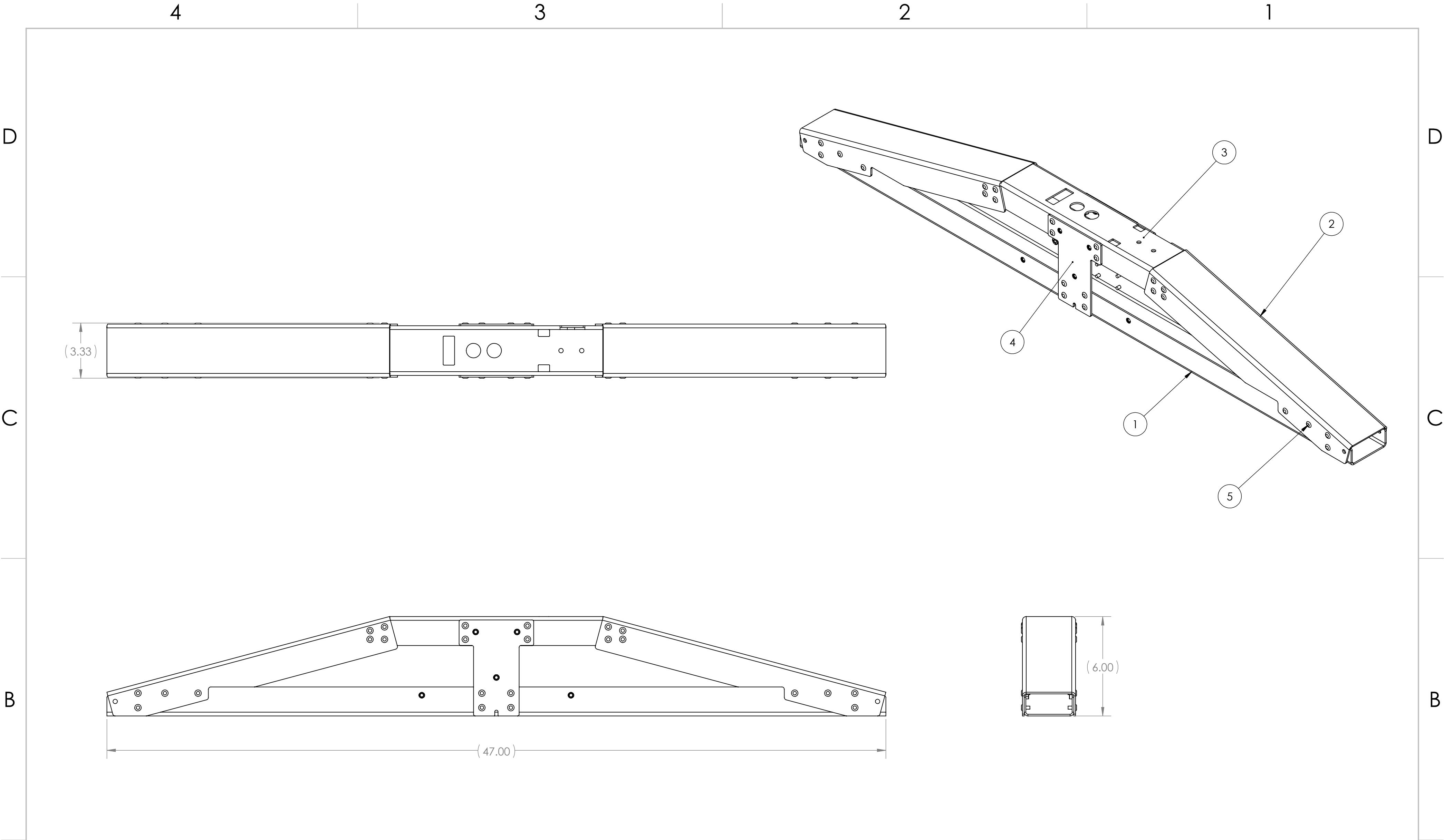
REV

C

GE-23336

SCALE: 1:3



SHEET 1 OF 1



A

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23337-01	Charge Station Base Bot	1
2	GE-23337-03	Charge Station Base Diag	2
3	GE-23337-05	Charge Station Base Top	1
4	GE-23337-06	Charge Station Base Support	2
5	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	48

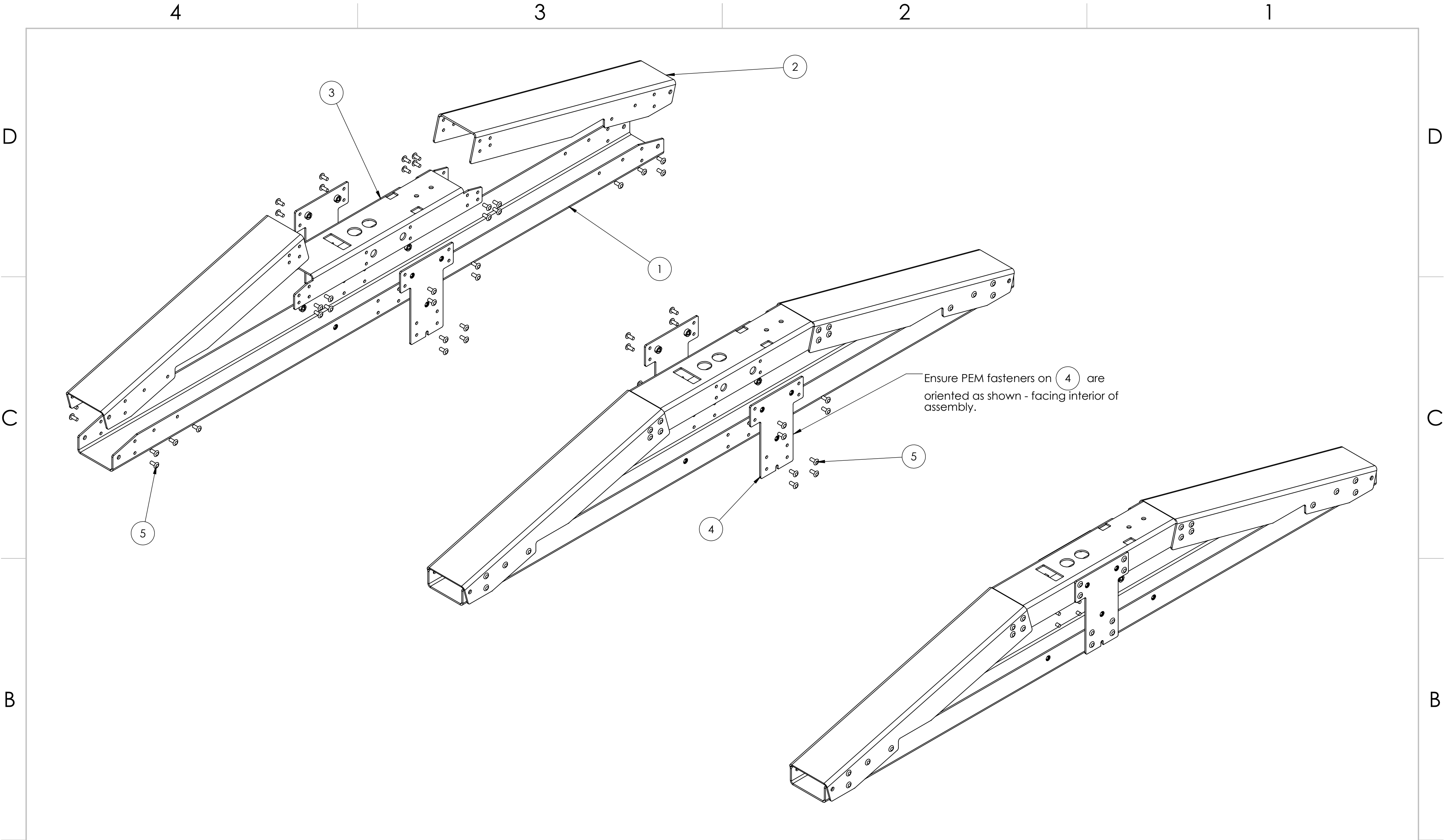
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b>    DO NOT SCALE DRAWING	BEND	NAME	DATE
	DRAWN	CO	9/29/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		



TITLE:  
**Charge Station Base Frame**

SIZE	DWG. NO.	REV
<b>C</b>	<b>GE-23337</b>	
SCALE: 1:4		SHEET 1 OF 2

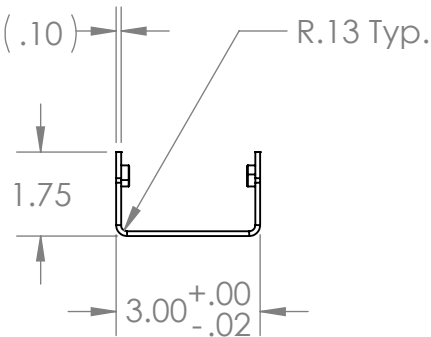
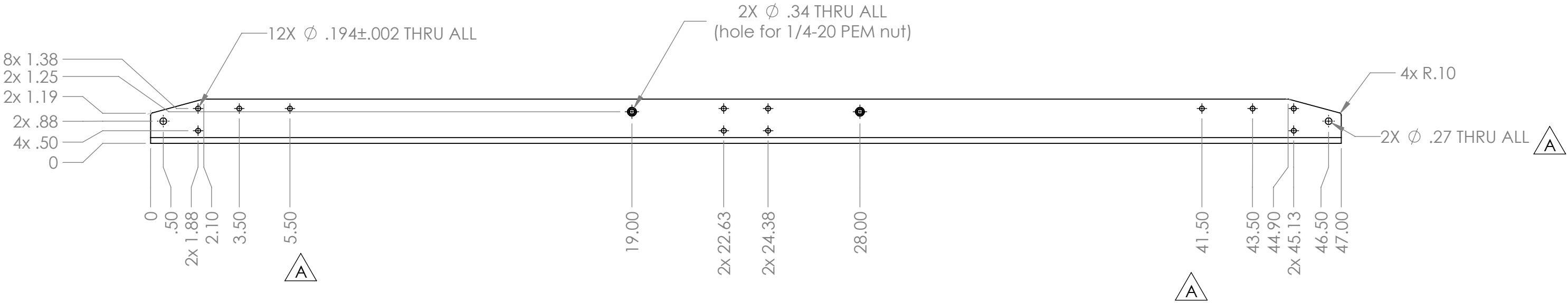
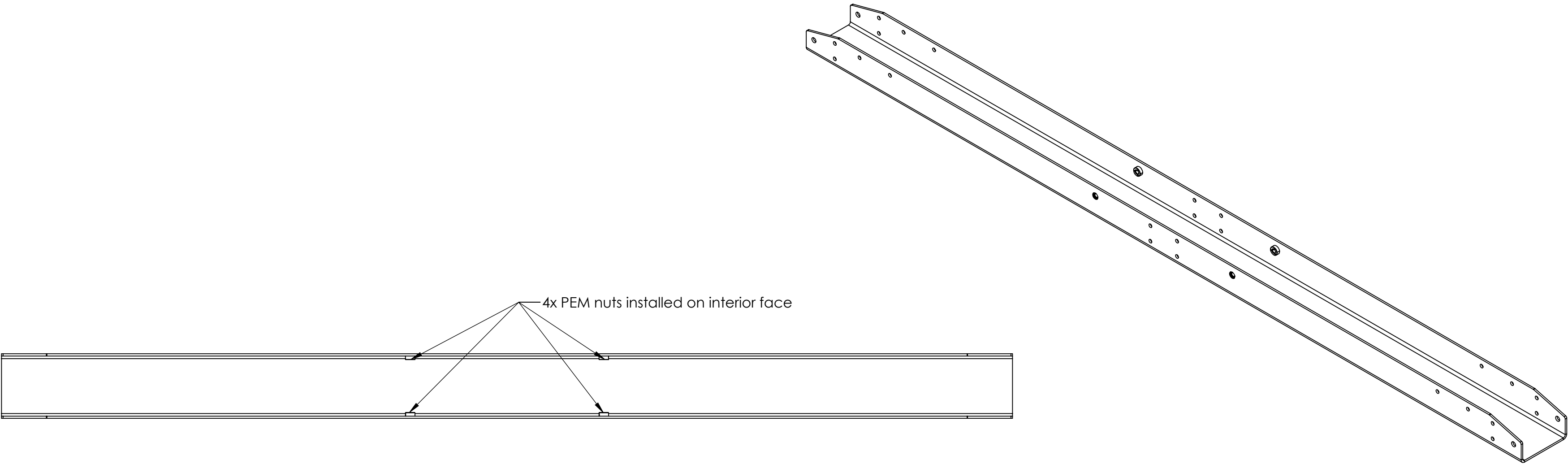
A



UNLESS OTHERWISE SPECIFIED:		BEND	NAME	DATE
		DRAWN	CO	9/29/2022
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
<b>MATERIAL/FINISH:</b>		<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		
DO NOT SCALE DRAWING				
		TITLE: <b>Charge Station Base Frame</b>		
		SIZE <b>C</b>	DWG. NO. GE-23337	REV
		SCALE: 1:4		SHEET 2 OF 2





REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, A4, B2	A	Removed 2x .27" holes. Some hole locations updated. Part name changed.	9/29/2022	CPO



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23337-02	10 ga. Aluminum 5052	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	4

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b> 10 ga. Aluminum 5052  DO NOT SCALE DRAWING	BEND	NAME	DATE
	DRAWN	CO	8/29/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		



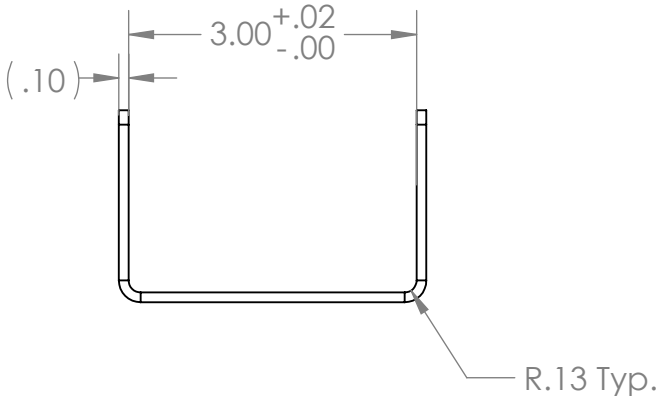
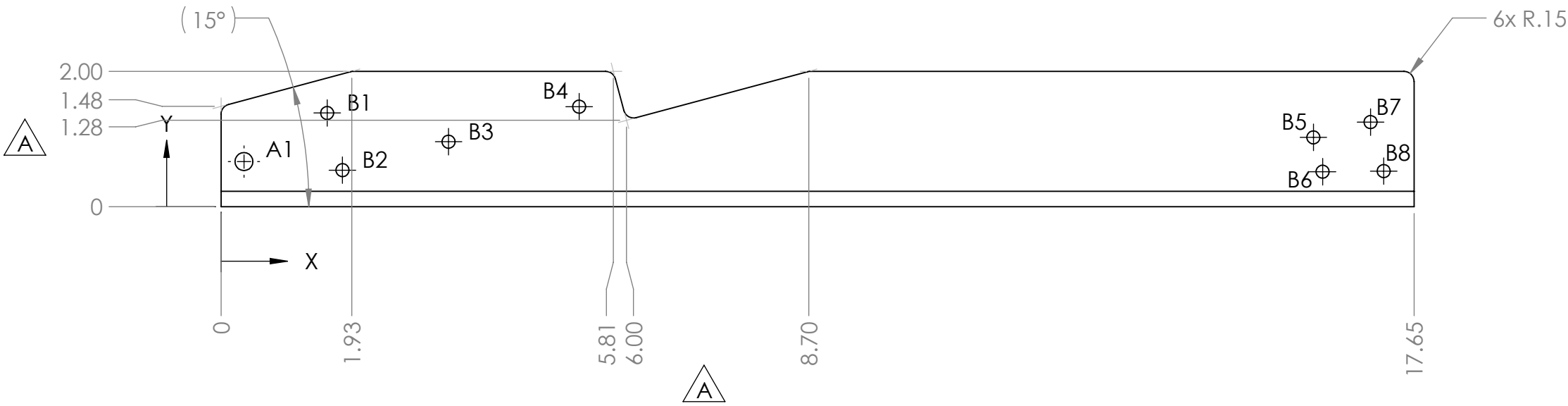
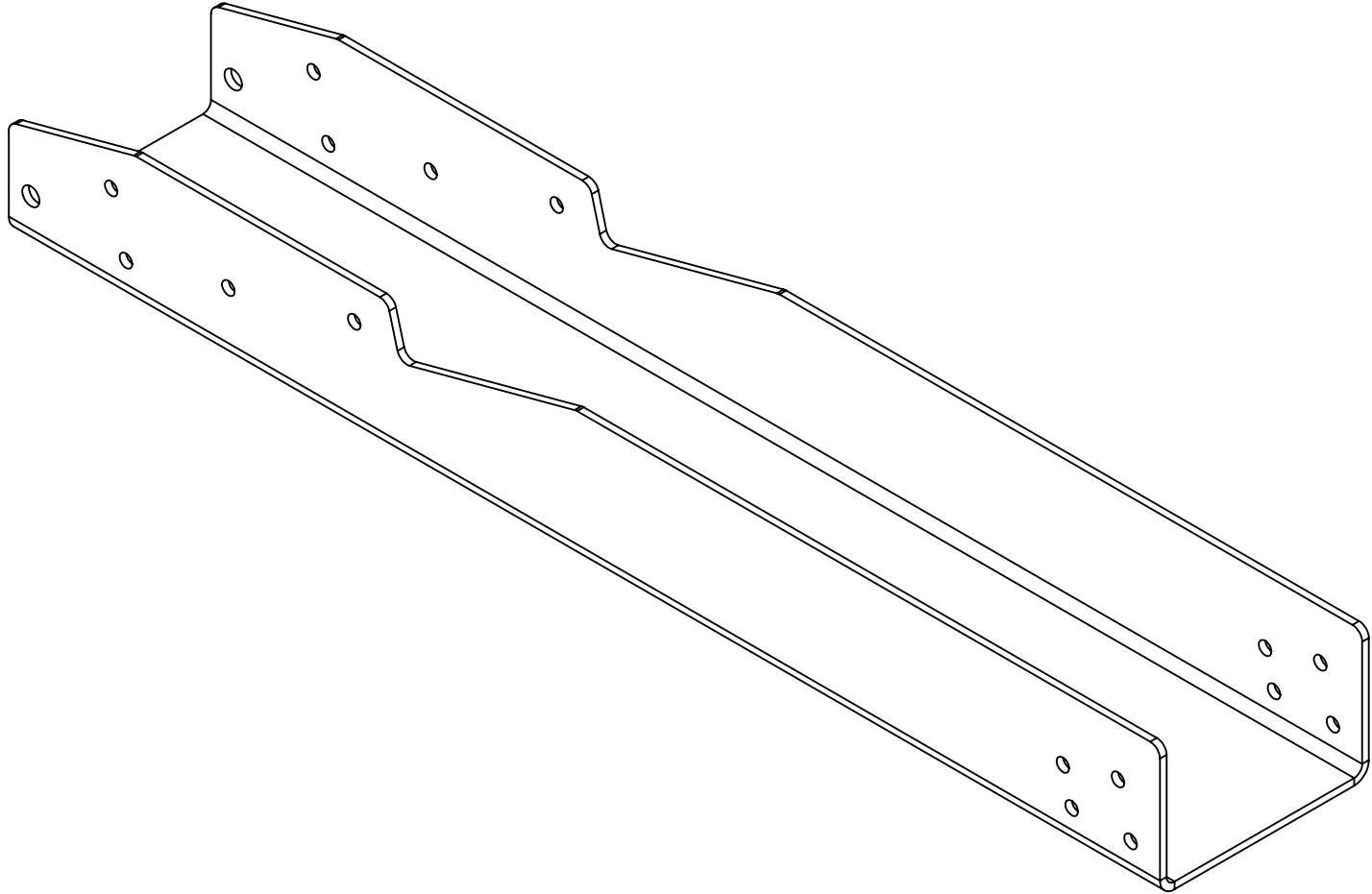
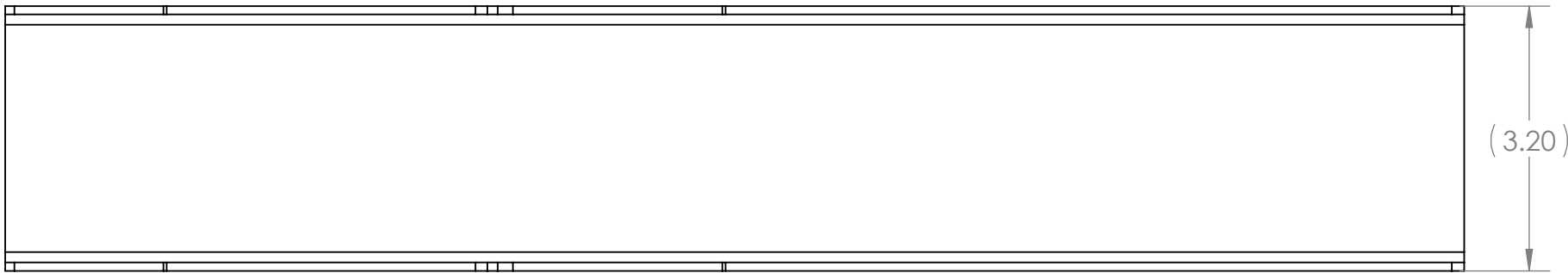
TITLE:  
**Charge Station  
Base Bot**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23337-01	<b>A</b>

SCALE: 1:4	SHEET 1 OF 1
------------	--------------



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B3, B4	A	Notch location moved. Location of hole B4 updated. File name updated.	9/29/2022	CPO



TAG	X LOC	Y LOC	SIZE
A1	.34	.67	$\varnothing$ .27 THRU ALL
B1	1.57	1.38	$\varnothing$ .194 $\pm$ .002 THRU ALL
B2	1.80	.54	$\varnothing$ .194 $\pm$ .002 THRU ALL
B3	3.37	.96	$\varnothing$ .194 $\pm$ .002 THRU ALL
B4	5.30	1.48	$\varnothing$ .194 $\pm$ .002 THRU ALL
B5	16.16	1.02	$\varnothing$ .194 $\pm$ .002 THRU ALL
B6	16.30	.52	$\varnothing$ .194 $\pm$ .002 THRU ALL
B7	17.01	1.25	$\varnothing$ .194 $\pm$ .002 THRU ALL
B8	17.20	.53	$\varnothing$ .194 $\pm$ .002 THRU ALL

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .02$   
THREE PLACE DECIMAL  $\pm .010$

**MATERIAL/FINISH:**  
10 ga. Aluminum 5052

DO NOT SCALE DRAWING

BEND	NAME	DATE
DRAWN	CO	8/29/2022

**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.



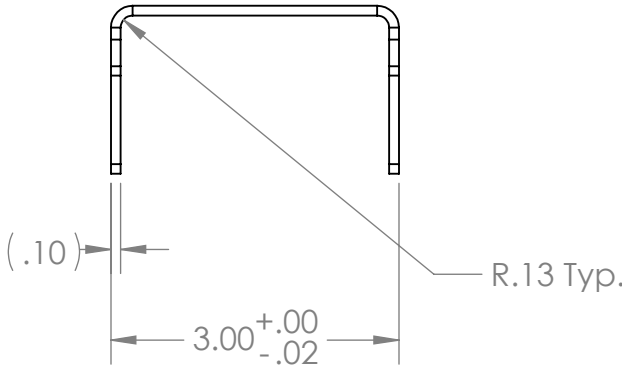
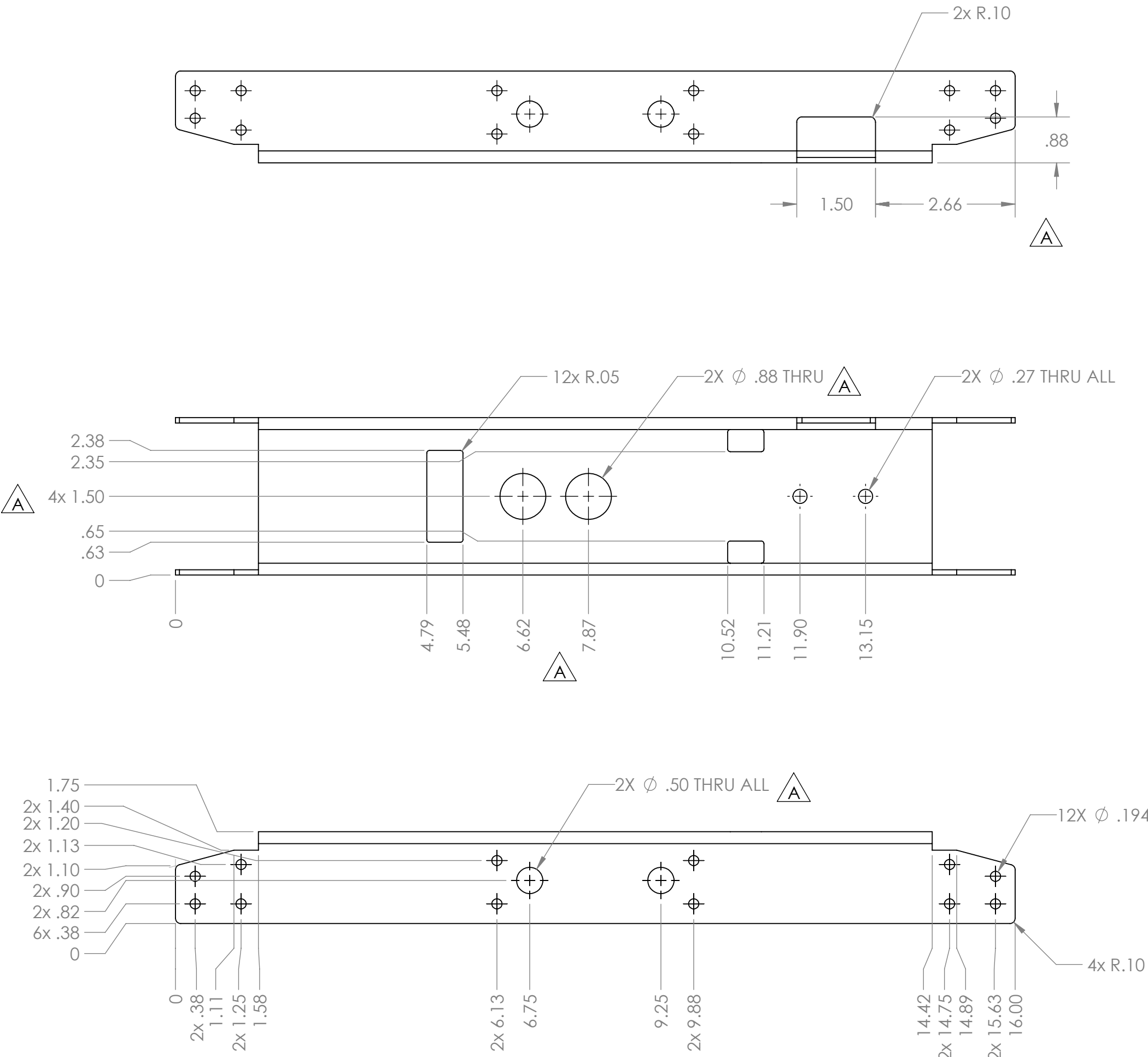
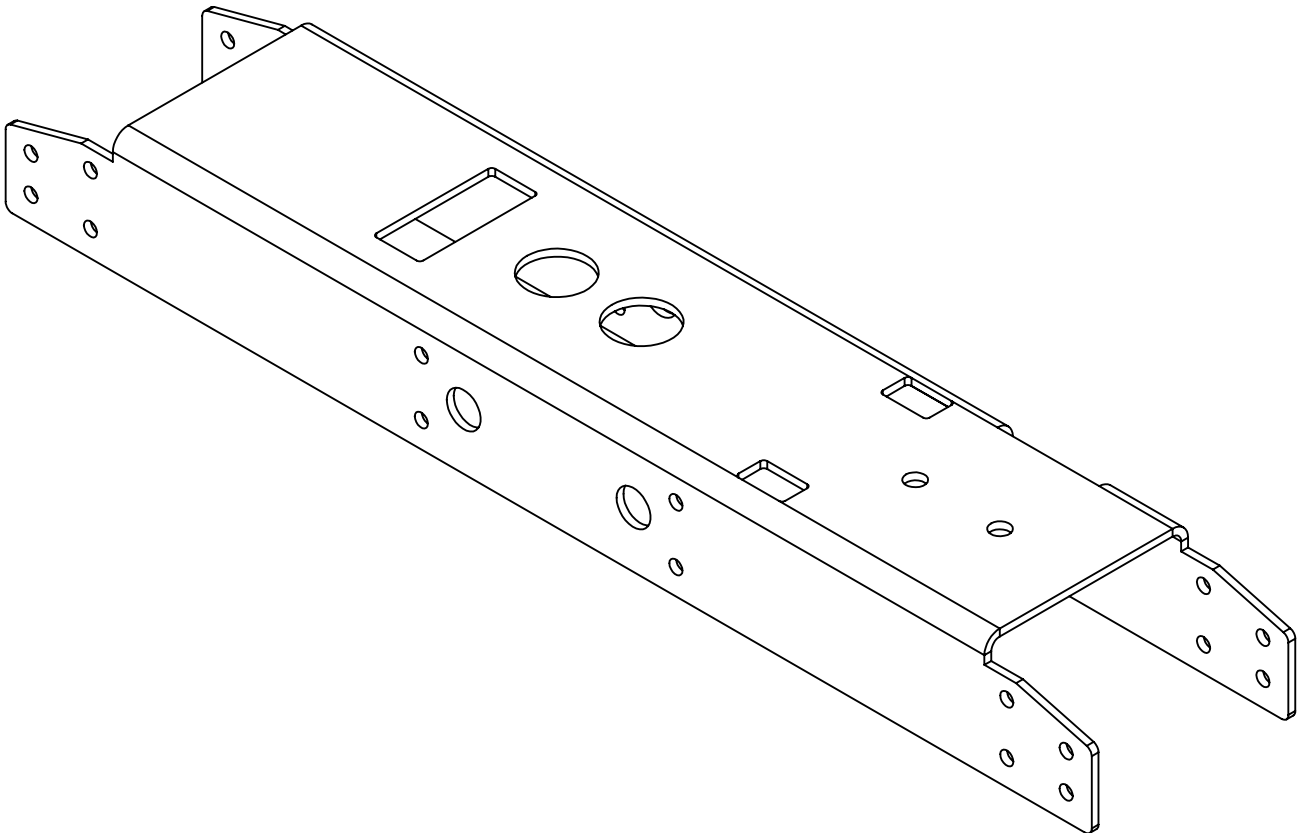
TITLE:  
**Charge Station Base Diag**



SIZE	DWG. NO.	REV
<b>C</b>	GE-23337-03	<b>A</b>

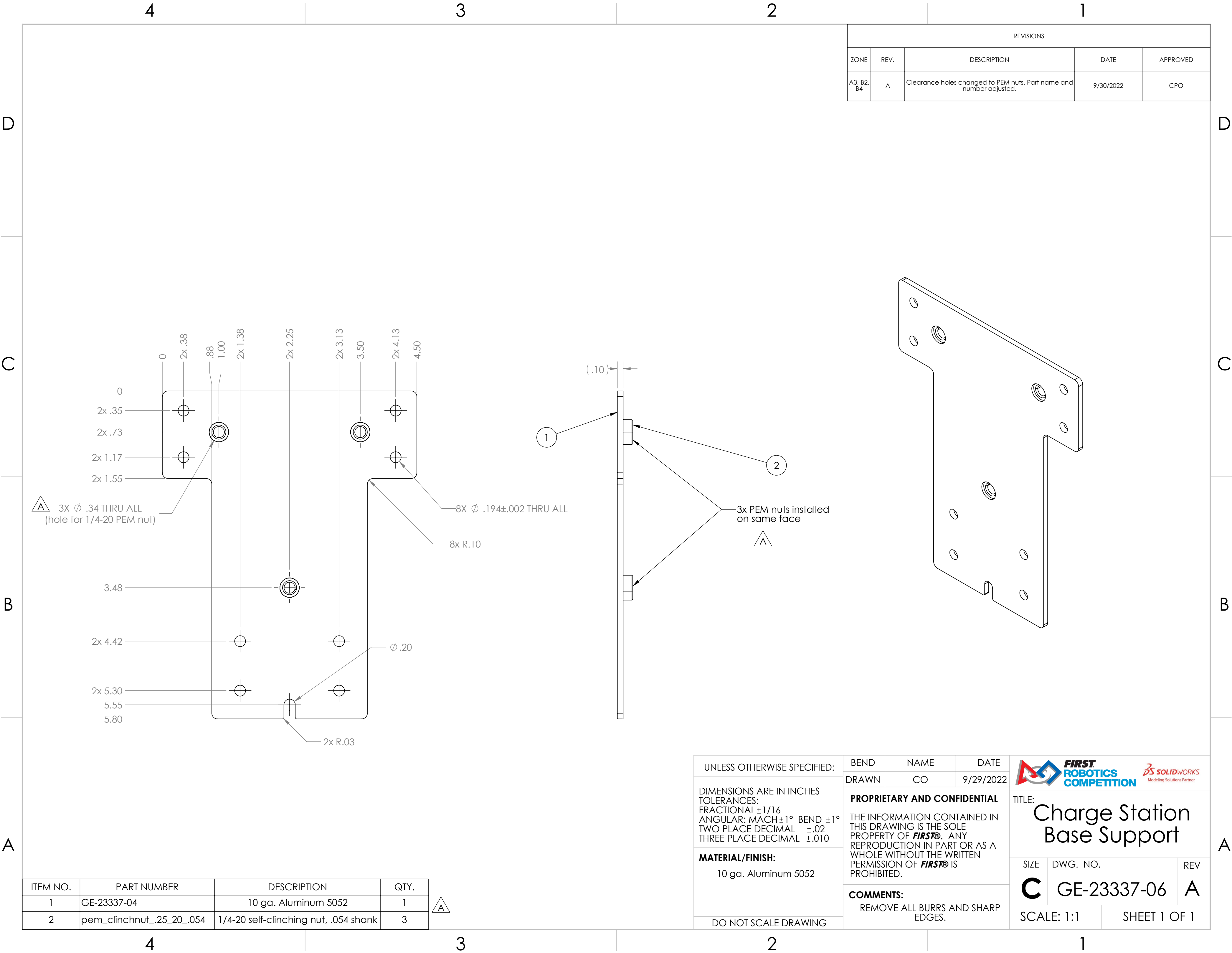
SCALE: 1:2      SHEET 1 OF 1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B3, C2, C3, C4	A	Hole diameters of some holes updated. New .88" diameter holes added on face. Cutout added. Part name updated.	9/29/2022	CPO





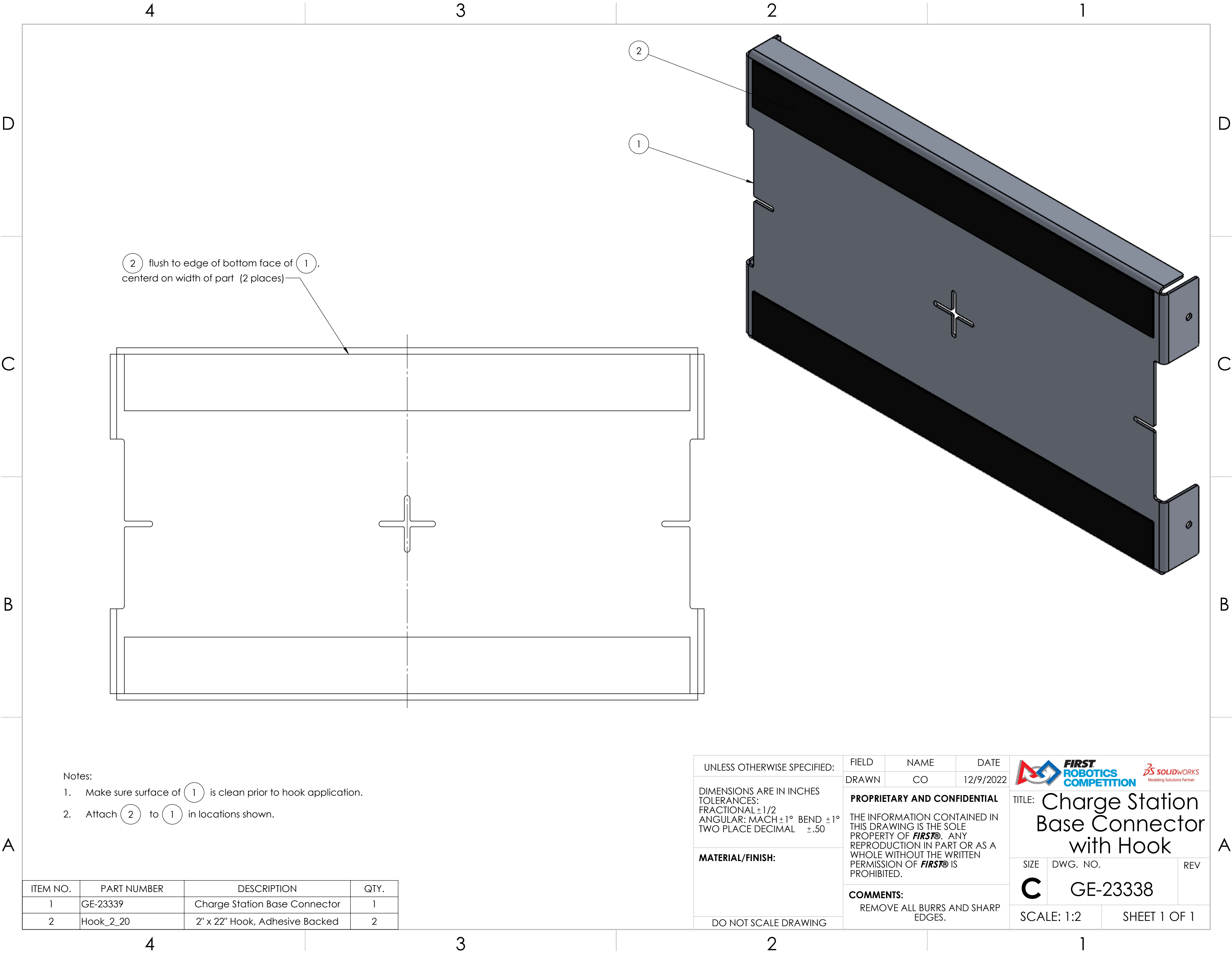
UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div> <div>TITLE: Charge Station Base Top</div>		
	DRAWN	CO	8/29/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			SIZE C GE-23337-05 SCALE: 1:2		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS:			DWG. NO.		REV
10 ga. Aluminum 5052	REMOVE ALL BURRS AND SHARP EDGES.			A		A
DO NOT SCALE DRAWING				SHEET 1 OF 1		



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, B2, B4	A	Clearance holes changed to PEM nuts. Part name and number adjusted.	9/30/2022	CPO

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23337-04	10 ga. Aluminum 5052	1
2	pem_clinchnut_.25_20_.054	1/4-20 self-clinching nut, .054 shank	3



UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	  TITLE: <div>Charge Station Base Support</div>
	DRAWN	CO	9/29/2022	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			
MATERIAL/FINISH:  10 ga. Aluminum 5052	COMMENTS:			SIZE
	REMOVE ALL BURRS AND SHARP EDGES.			DWG. NO.
DO NOT SCALE DRAWING				REV
				C
			GE-23337-06	A
			SCALE: 1:1	SHEET 1 OF 1



- Notes:
1. Make sure surface of 1 is clean prior to hook application.
  2. Attach 2 to 1 in locations shown.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23339	Charge Station Base Connector	1
2	Hook_2_20	2" x 22" Hook, Adhesive Backed	2

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	FIELD	NAME	DATE
	DRAWN	CO	12/9/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
<b>MATERIAL/FINISH:</b>	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		
	DO NOT SCALE DRAWING		



TITLE: Charge Station Base Connector with Hook

SIZE

DWG. NO.

REV

C

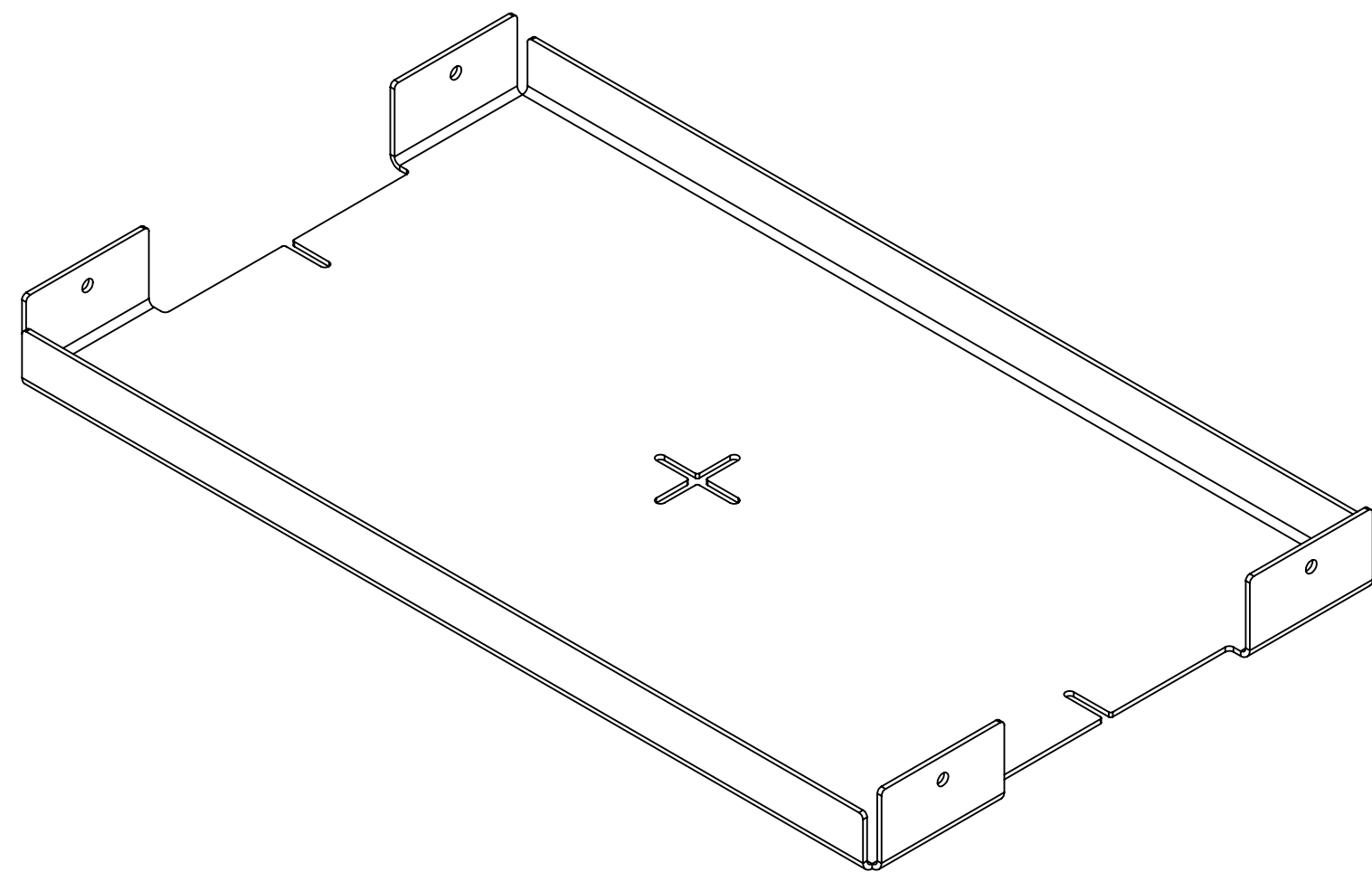
GE-23338

SCALE: 1:2

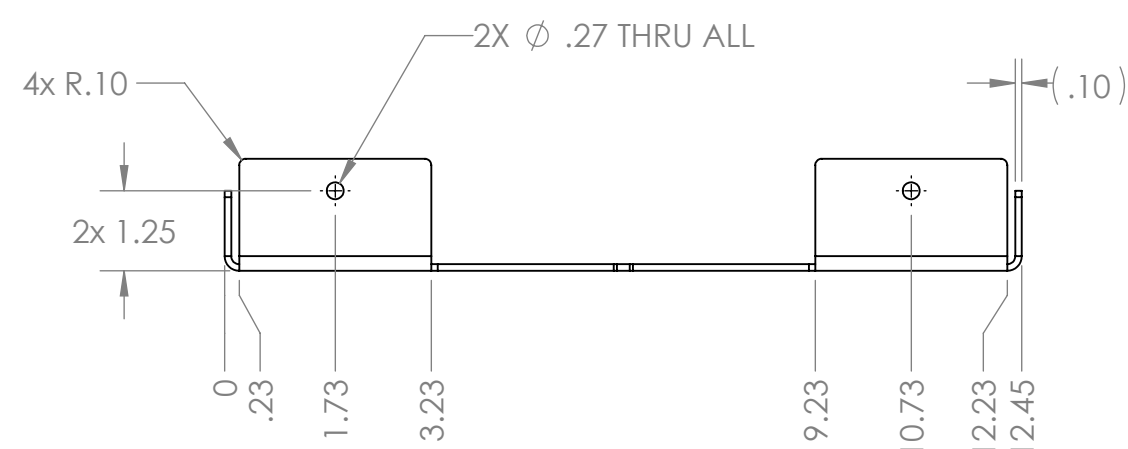
SHEET 1 OF 1

1

D





C



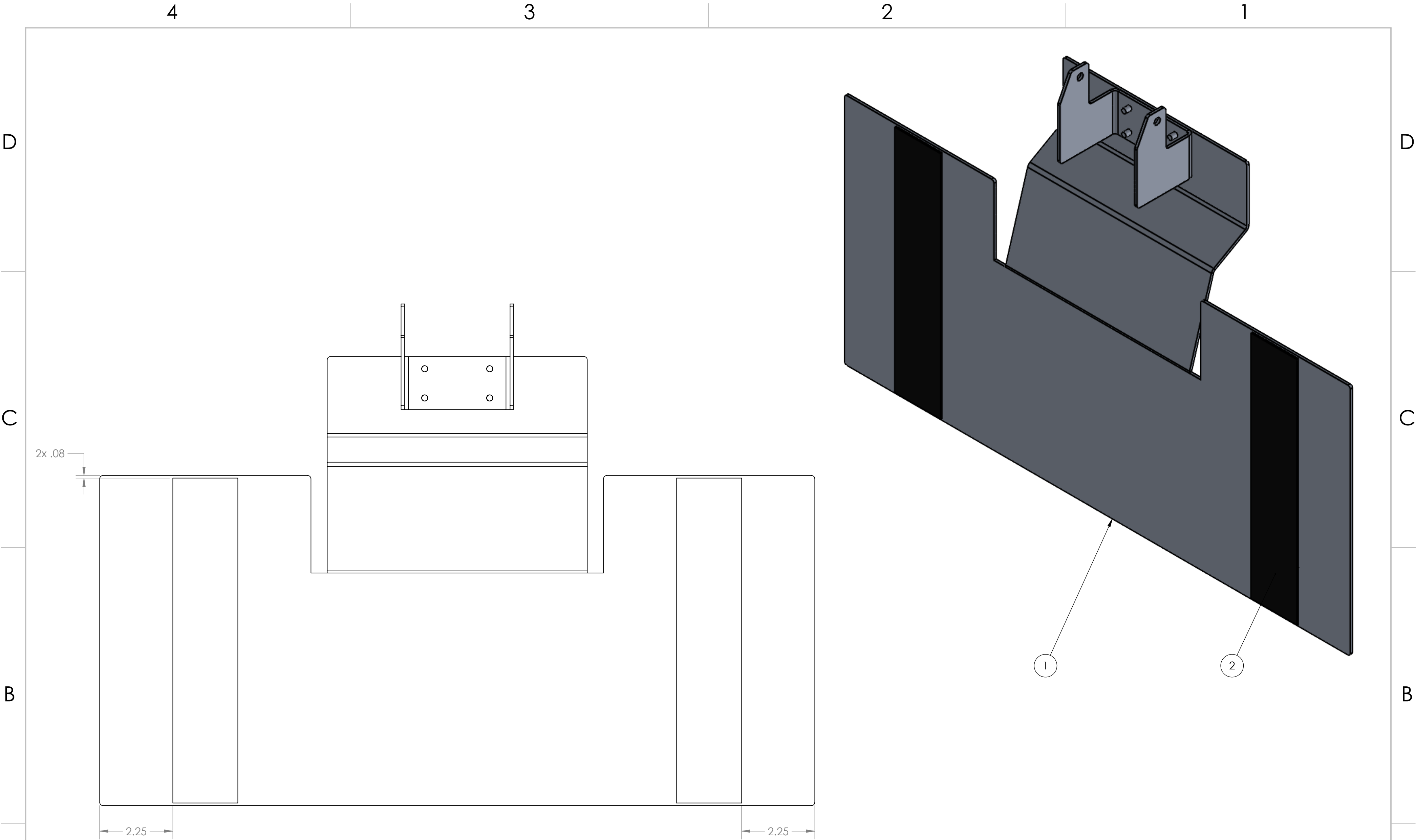
B

1. Tag or label with part number.

UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>		
	DRAWN	CO	8/18/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$	PROPRIETARY AND CONFIDENTIAL			TITLE:  Charge Station Base Connector		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
	MATERIAL/FINISH:  10 ga. Aluminum 5052	COMMENTS:  REMOVE ALL BURRS AND SHARP EDGES.			SIZE  C	DWG. NO.  GE-23339
DO NOT SCALE DRAWING				SCALE: 1:3		SHEET 1 OF 1

A

1





A

- Notes:
- 1. Make sure surface of (1) is clean prior to hook application.
  - 2. Attach (2) to (1) in locations shown.

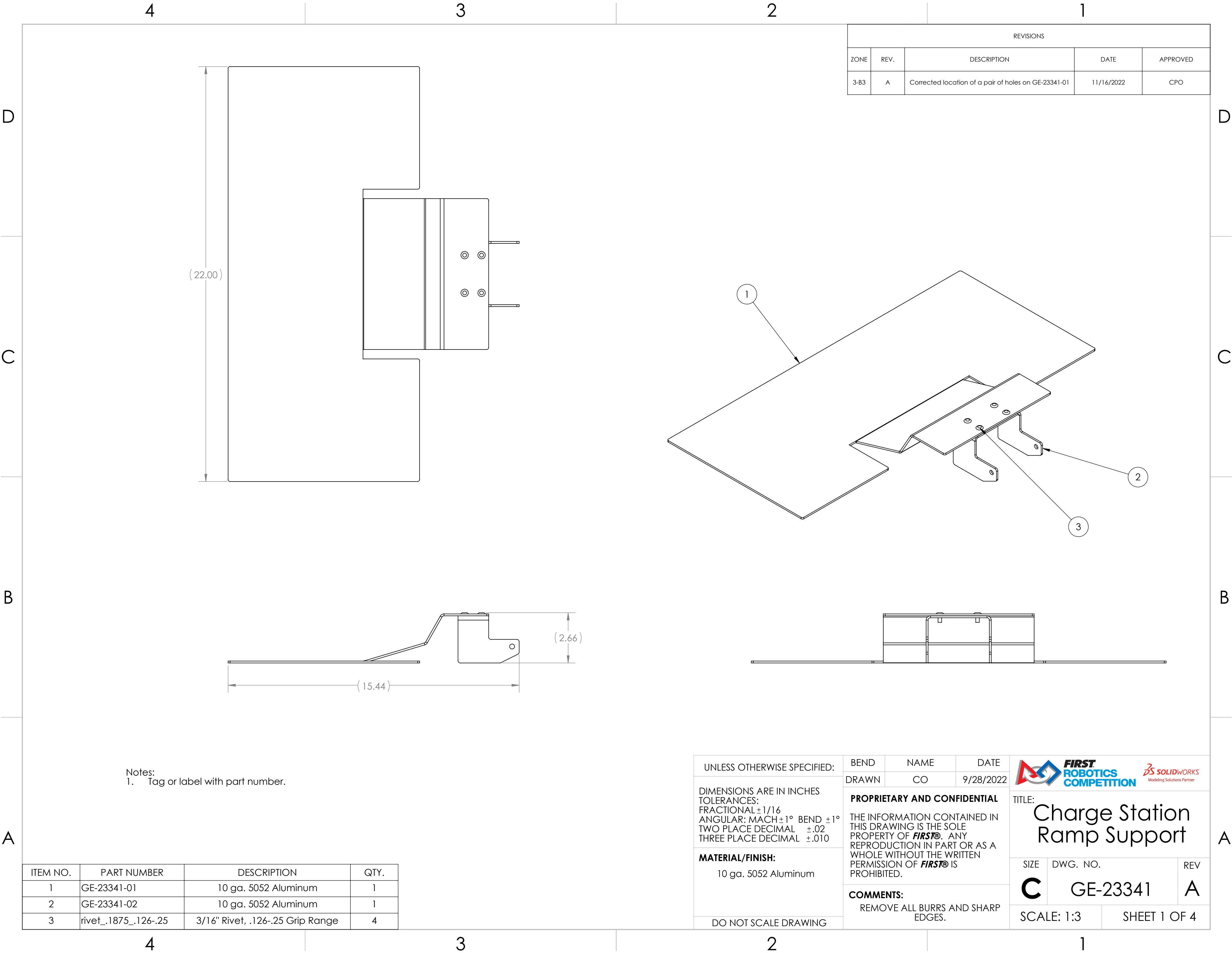
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23341	Charge Station Ramp Support	1
2	Hook_2_10	2" x 10" Hook, Adhesive Backed	2

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b>    DO NOT SCALE DRAWING	FIELD	NAME	DATE
	DRAWN	CO	12/9/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		

 		
TITLE: Charge Station Ramp Support with Hook		
SIZE	DWG. NO.	REV
<b>C</b>	GE-23340	
SCALE: 1:2		SHEET 1 OF 1

A







REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
3-B3	A	Corrected location of a pair of holes on GE-23341-01	11/16/2022	CPO

Notes:  
1. Tag or label with part number.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23341-01	10 ga. 5052 Aluminum	1
2	GE-23341-02	10 ga. 5052 Aluminum	1
3	rivet_.1875_.126-.25	3/16" Rivet, .126-.25 Grip Range	4

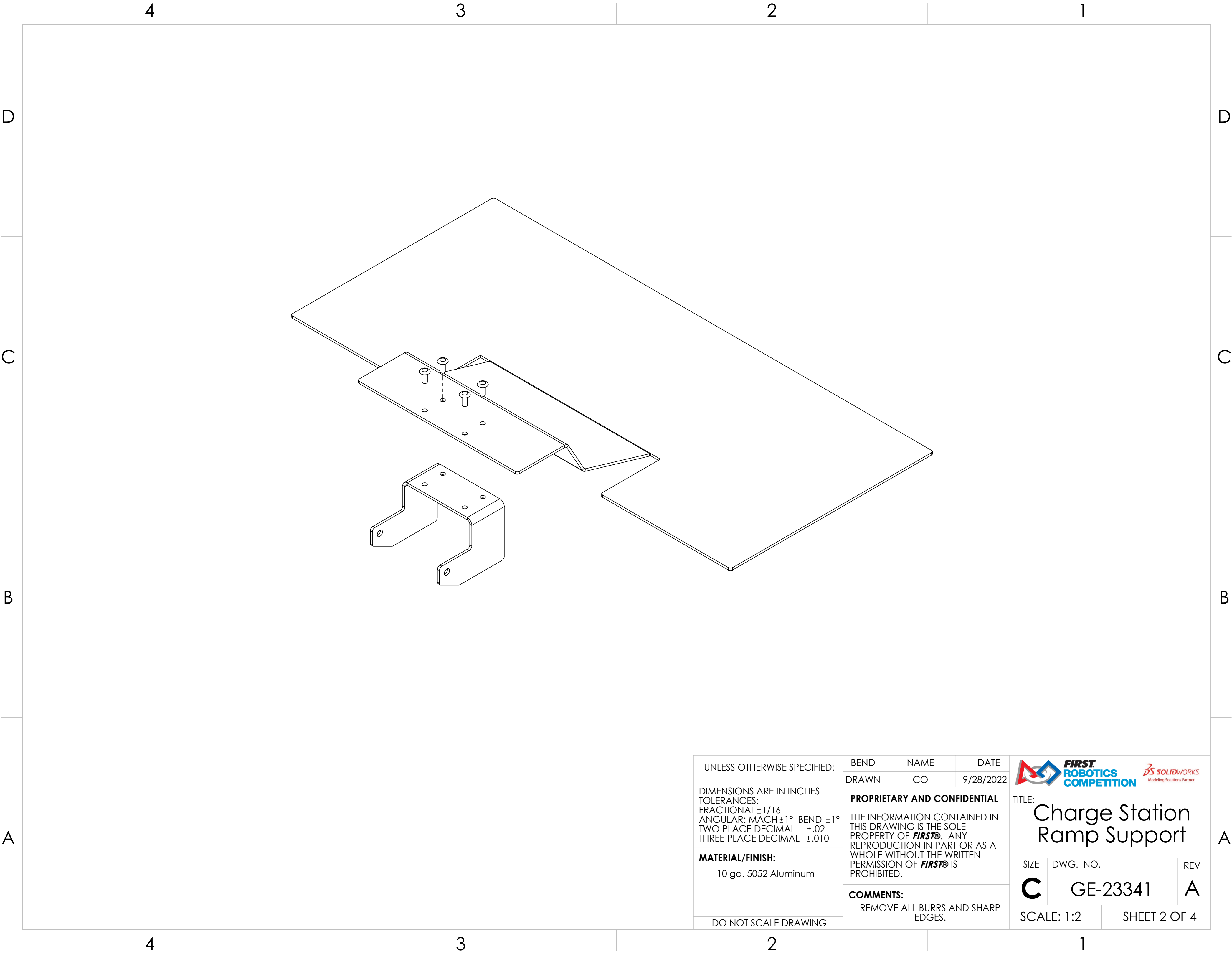
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010  <b>MATERIAL/FINISH:</b>  10 ga. 5052 Aluminum          <b>DO NOT SCALE DRAWING</b>	BEND	NAME	DATE
	DRAWN	CO	9/28/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		



TITLE: Charge Station Ramp Support

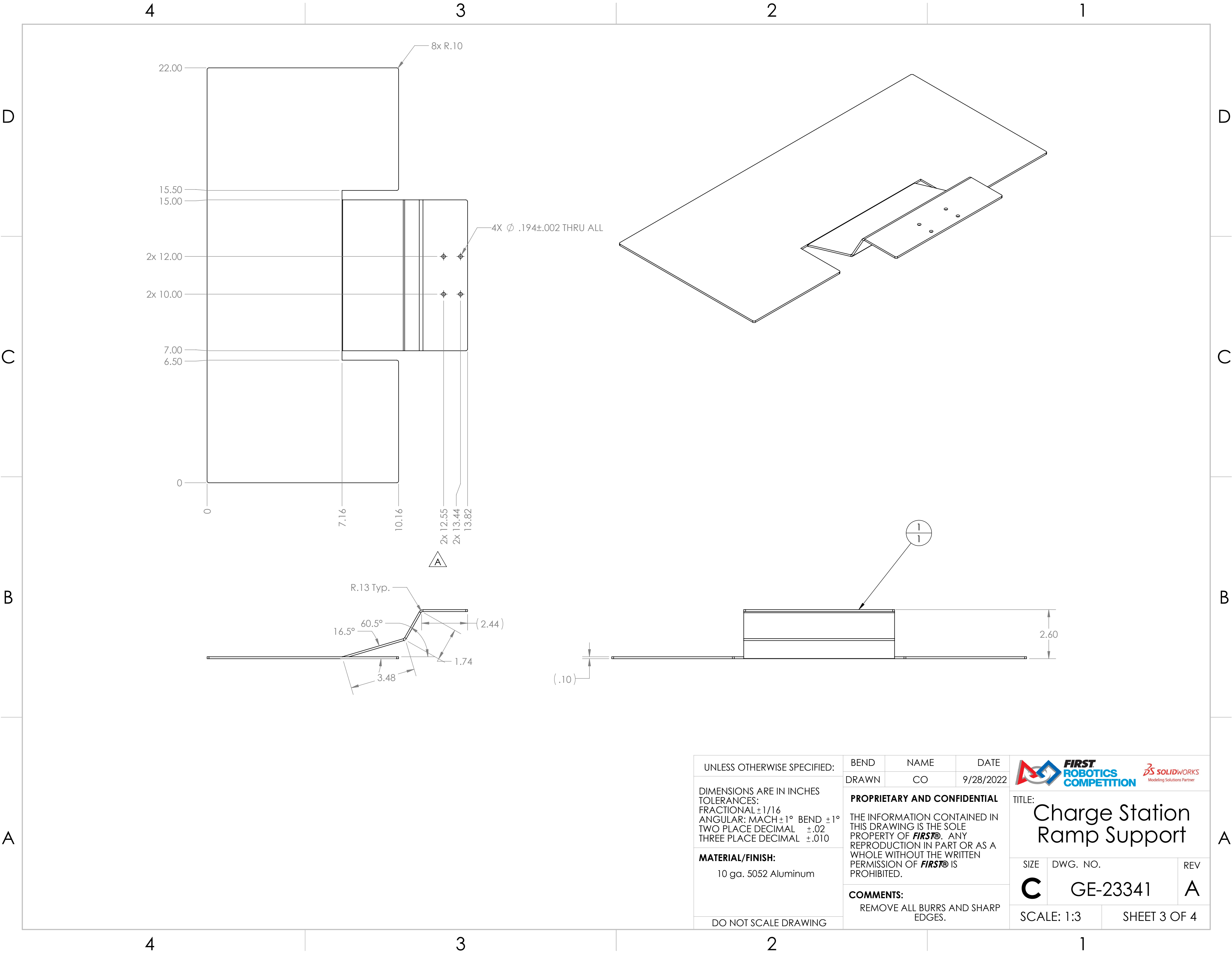
SIZE	DWG. NO.	REV
<b>C</b>	GE-23341	<b>A</b>



SCALE: 1:3 SHEET 1 OF 4

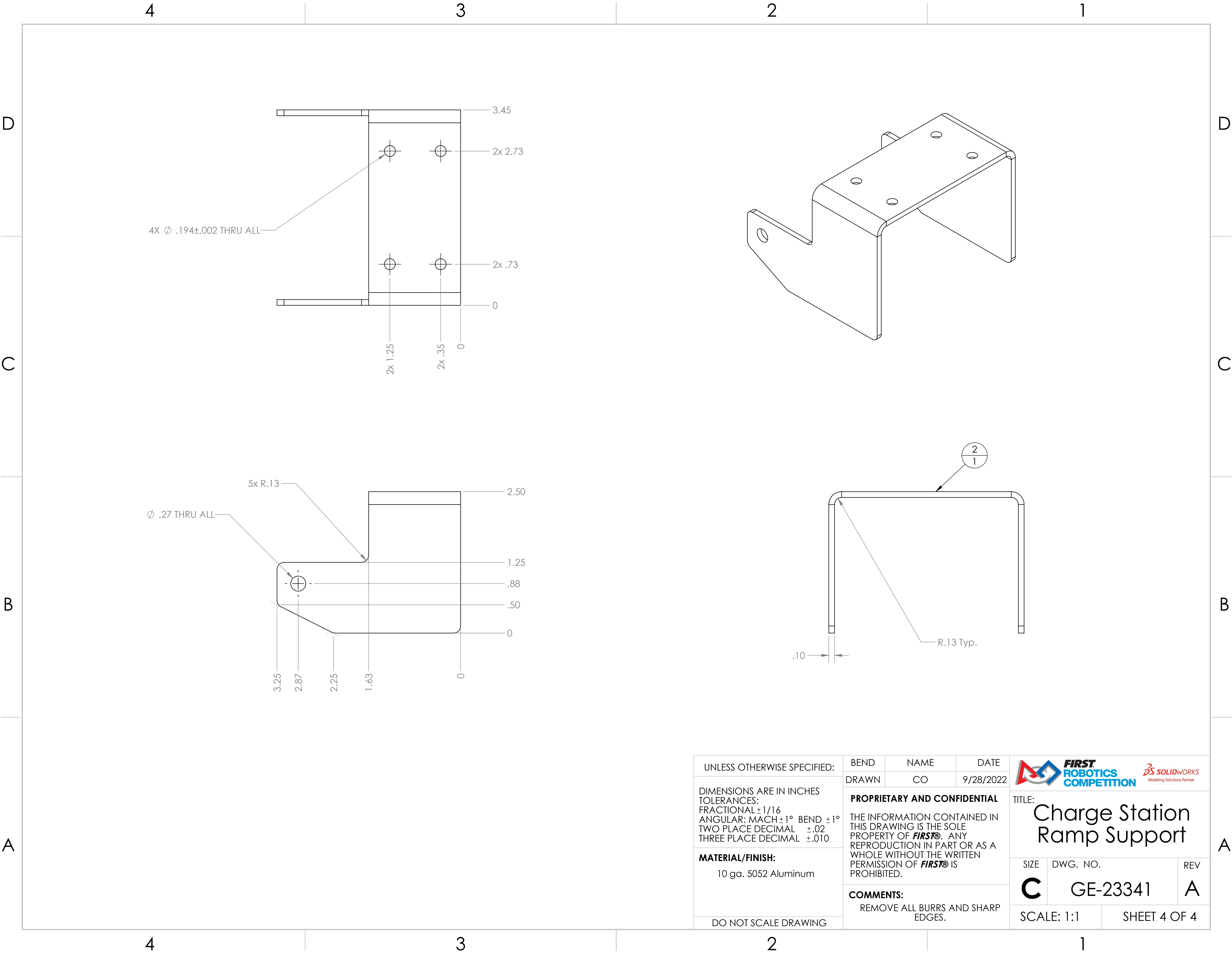




UNLESS OTHERWISE SPECIFIED:		BEND	NAME	DATE
		DRAWN	CO	9/28/2022
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
		<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		
MATERIAL/FINISH: 10 ga. 5052 Aluminum		TITLE: Charge Station Ramp Support		
DO NOT SCALE DRAWING		SIZE <b>C</b>	DWG. NO. GE-23341	REV A
		SCALE: 1:2		SHEET 2 OF 4





UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .010$  <b>MATERIAL/FINISH:</b> 10 ga. 5052 Aluminum  DO NOT SCALE DRAWING	BEND	NAME	DATE	<div></div> <div>TITLE: Charge Station Ramp Support</div>		
	DRAWN	CO	9/28/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23341	<b>A</b>
SCALE: 1:3		SHEET 3 OF 4				



UNLESS OTHERWISE SPECIFIED:	BEND	NAME	DATE	<div></div>		
	DRAWN	CO	9/28/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.010	PROPRIETARY AND CONFIDENTIAL			TITLE: <div>Charge Station Ramp Support</div>		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:  10 ga. 5052 Aluminum	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23341	A
DO NOT SCALE DRAWING				SCALE: 1:1		SHEET 4 OF 4

4

3

2

1

D

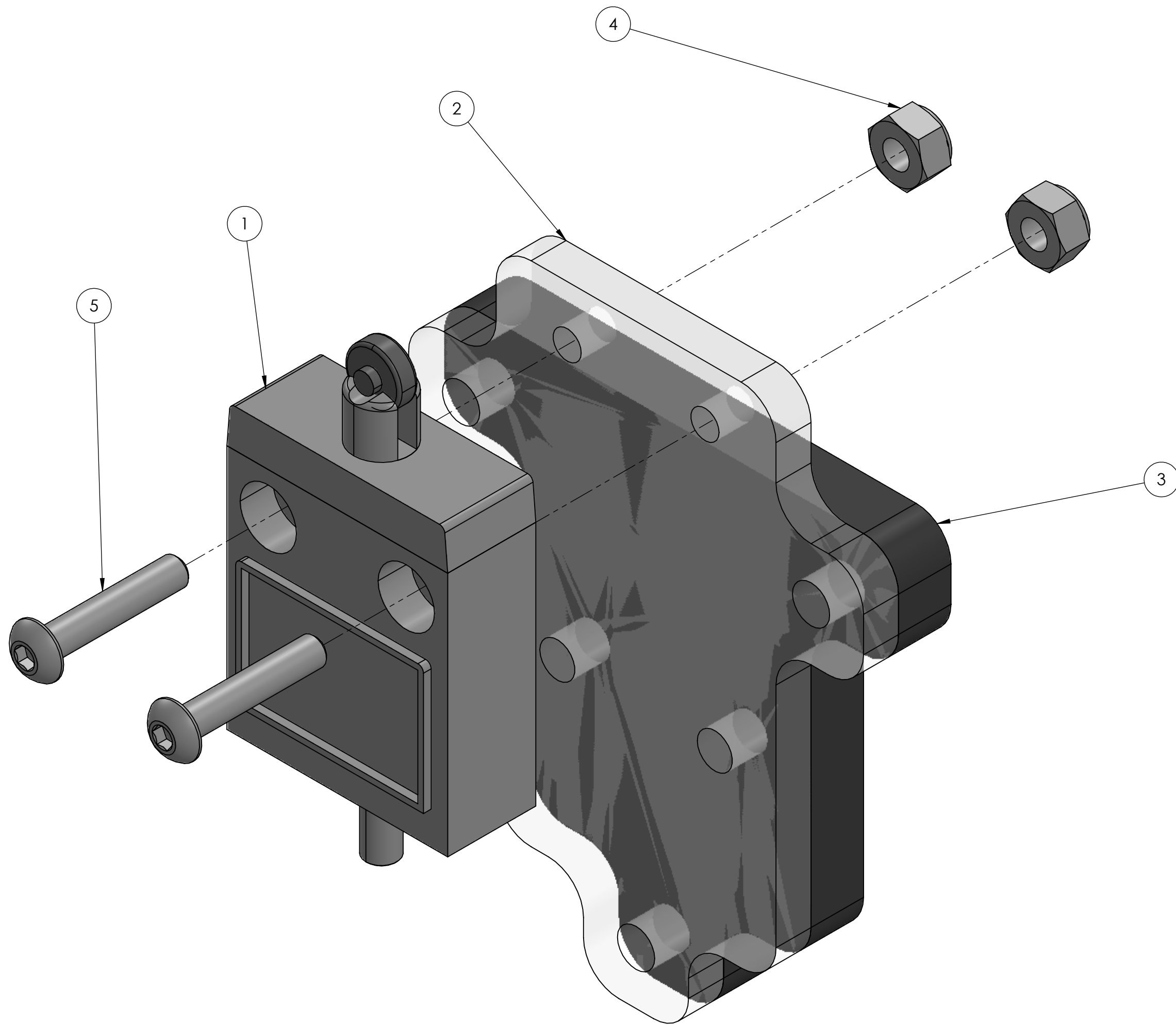
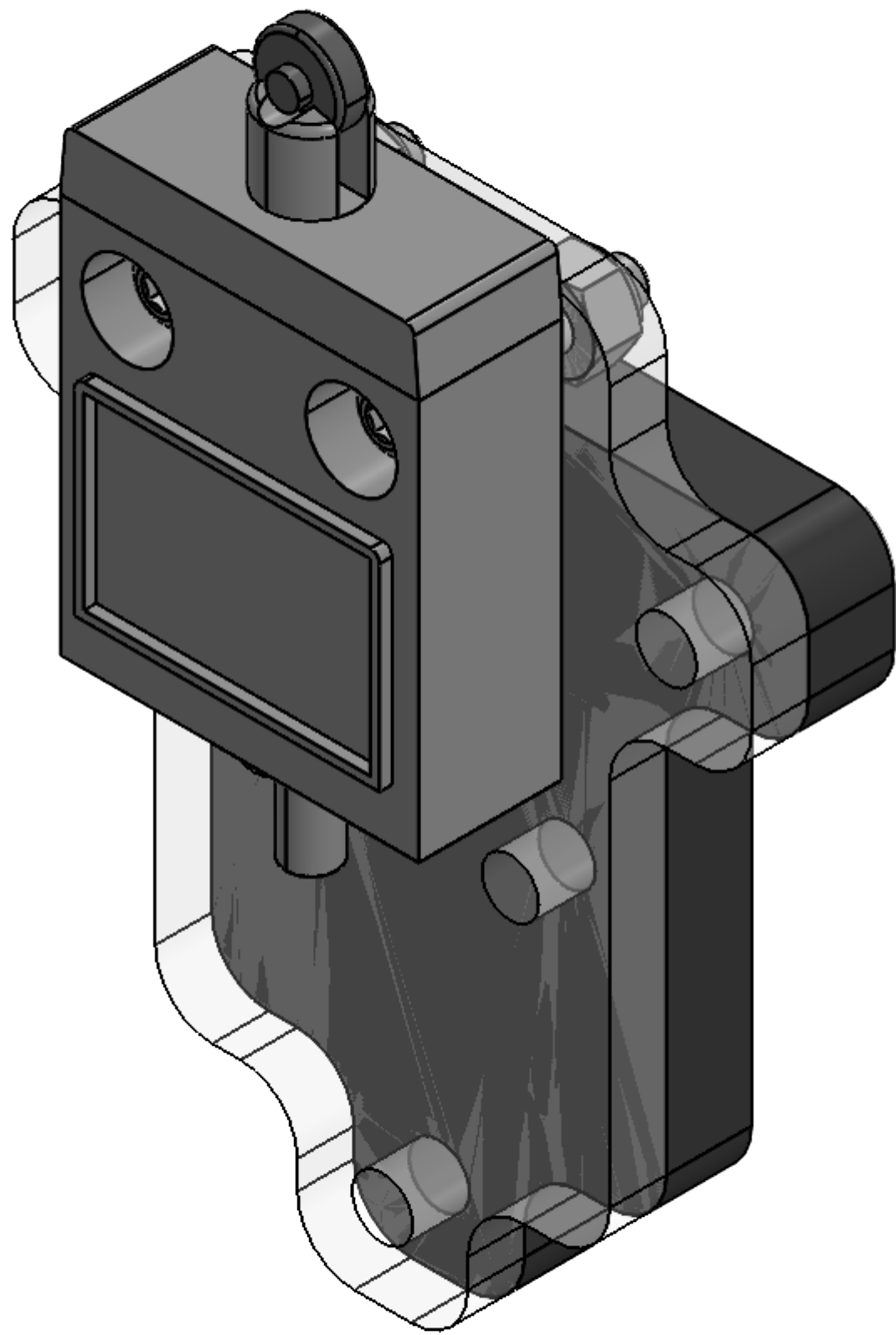
D

C

C



B

B



- Notes:
1. Attach (2) to (3) using 50 lb. cable tie in center two holes.
  2. Attach (1) to (2) using (5) and (4) .

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	802BLimitSwitch	Limit Switch	1
2	GE-23343	Charge Station Sensor Mount	1
3	GE-23344	Charge Station Sensor Spacer	1
4	nylock_10_32	Low-Strength Steel Nylon-Insert Locknut, Zinc-Plated, 10-32 Thread Size	2
5	round_hex_10_32_1_full	Round Head Hex, 10-32 x 1.00" long, fully threaded	2

UNLESS OTHERWISE SPECIFIED:	FIELD	NAME	DATE	 
	DRAWN	CO	12/9/2022	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: Charge Station Sensor Assembly
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			
MATERIAL/FINISH:				SIZE DWG. NO. REV
				C GE-23342
DO NOT SCALE DRAWING				SCALE: 2:1 SHEET 1 OF 1

4

3

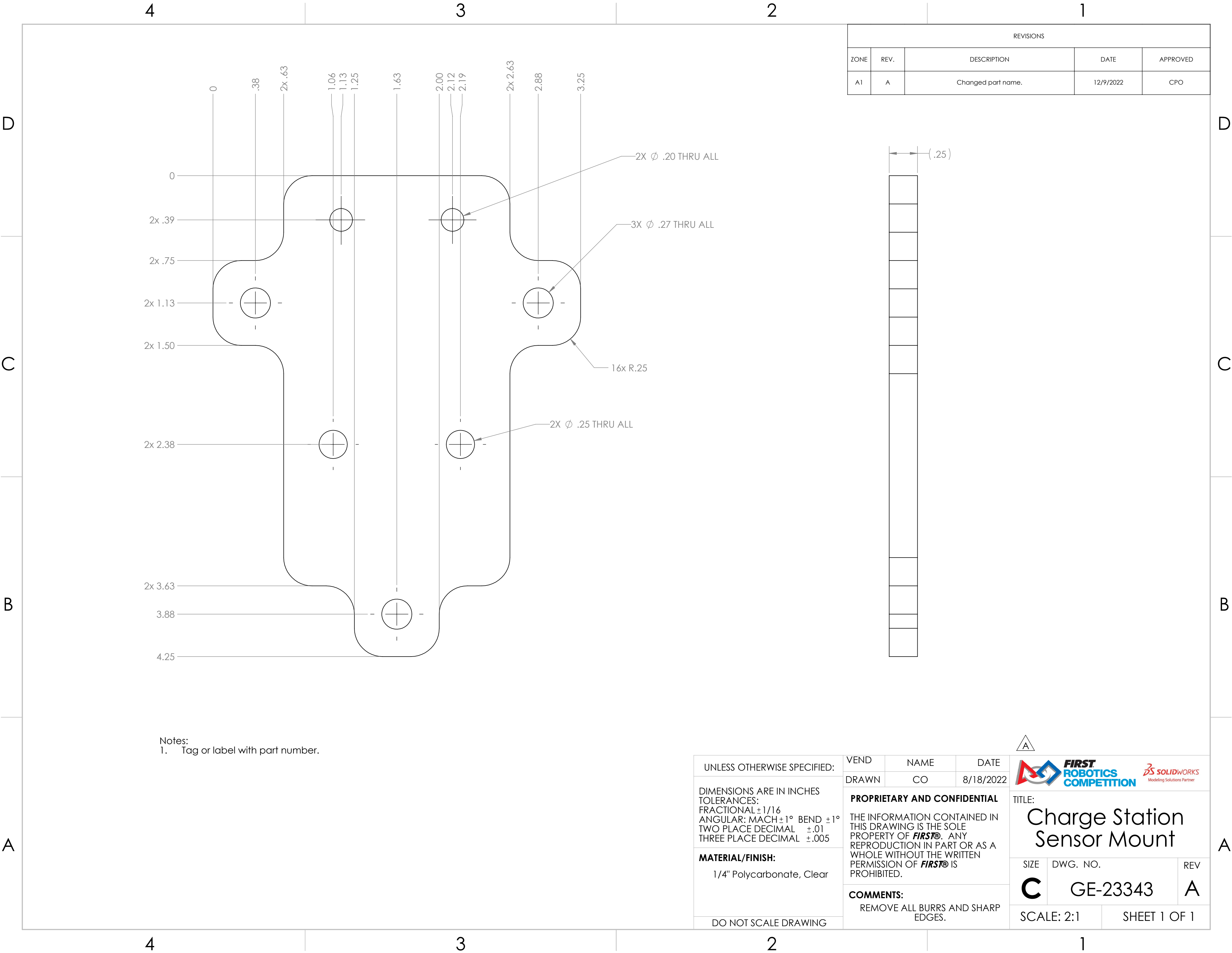
2

1

A

A





Notes:  
1. Tag or label with part number.

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  1/4" Polycarbonate, Clear  <b>DO NOT SCALE DRAWING</b>	VEND	NAME	DATE	<div><div><div></div></div><div><b>FIRST</b> ROBOTICS COMPETITION</div><div><b>SOLIDWORKS</b> Modeling Solutions Partner</div></div>
	DRAWN	CO	8/18/2022	
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST</b> IS PROHIBITED.			
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			
TITLE: <b>Charge Station Sensor Mount</b>				
SIZE <b>C</b>		DWG. NO. <b>GE-23343</b>		REV <b>A</b>
SCALE: 2:1			SHEET 1 OF 1	

4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A1	A	Changed part name.	12/9/2022	CPO

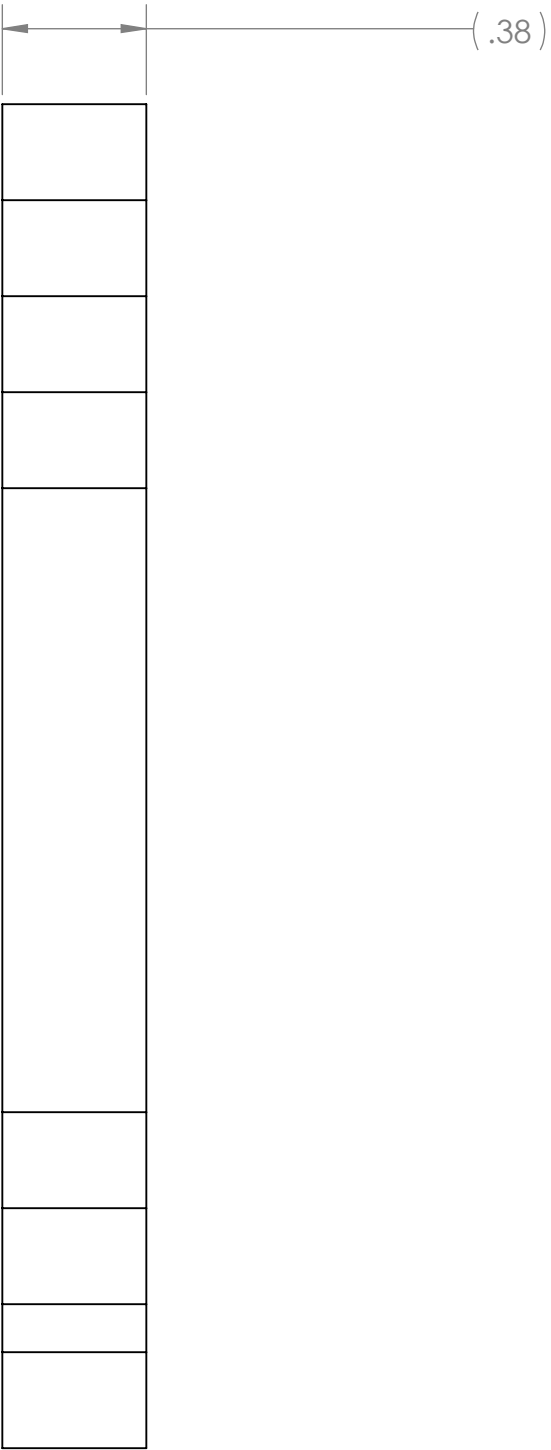
Technical drawing of a mechanical part, likely a bracket or plate, showing dimensions and feature callouts.

**Dimensions:**

- Overall width: 3.50
- Overall height: 3.13
- Top horizontal edge: 0 (left), 0.38, 0.63, 1.06, 1.25, 1.63, 2.00, 2.19, 2.63, 2.88, 3.25 (right)
- Left vertical edge: 0 (top), 2x .38, 2x .75, 2x 1.63, 2x 2.88, 3.13, 3.50 (bottom)

**Feature Callouts:**

- 2X Ø .25 THRU ALL (pointing to the central hole)
- 3X Ø .27 THRU ALL (pointing to the three outer holes)
- 12x R.25 (pointing to the rounded corners)



Notes:  
1. Tag or label with part number.

UNLESS OTHERWISE SPECIFIED:		VEND		NAME		DATE		
		DRAWN		CO		8/18/2022		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005		PROPRIETARY AND CONFIDENTIAL				TITLE:		
		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.				<div>Charge Station Sensor Spacer</div>		
MATERIAL/FINISH:						SIZE	DWG. NO.	REV
3/8" HDPE, black, smooth						C	GE-23344	A
DO NOT SCALE DRAWING		COMMENTS:				SCALE: 2:1		SHEET 1 OF 1
		REMOVE ALL BURRS AND SHARP EDGES.						

4

3

2

1

D

C

B

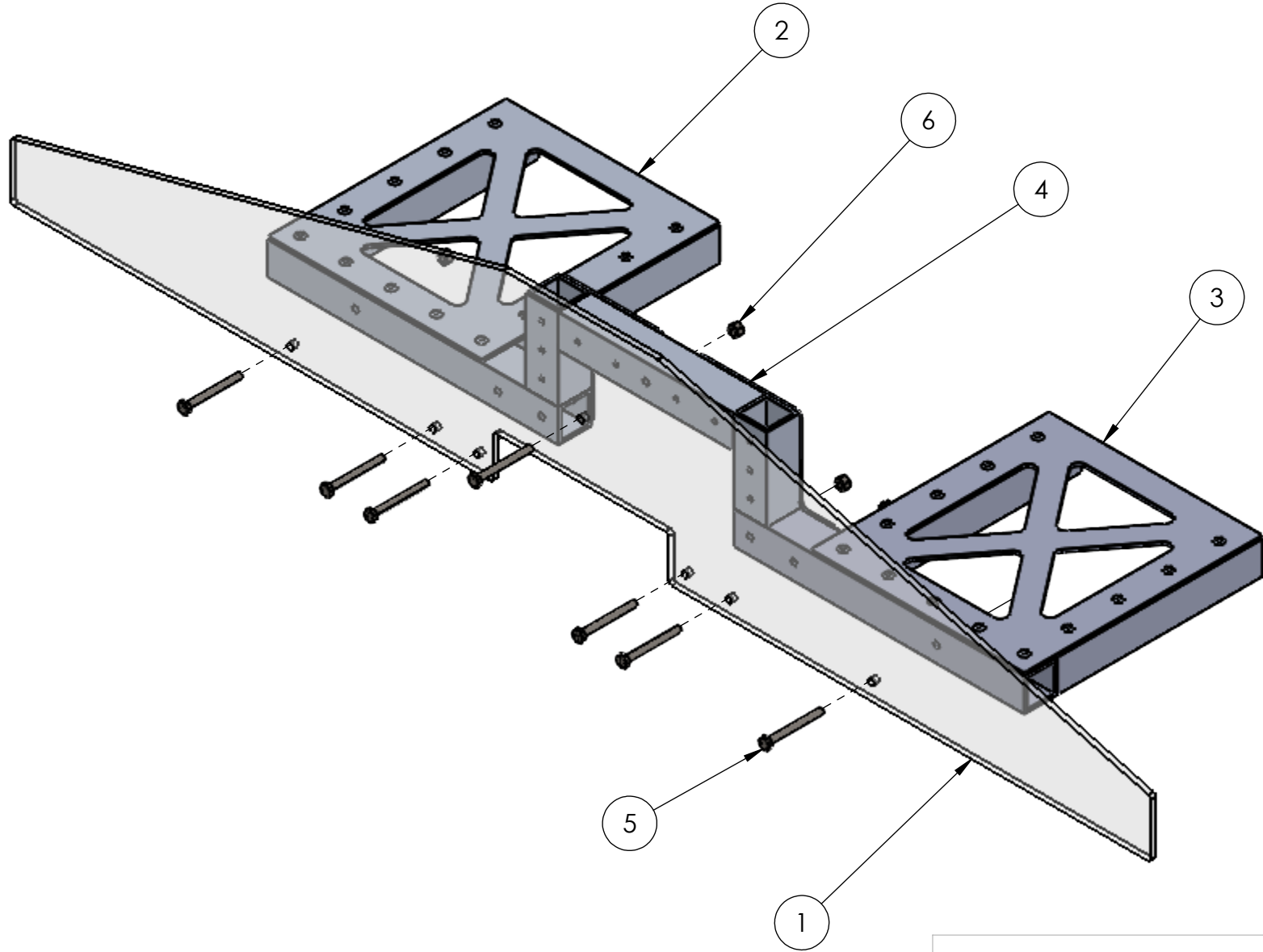
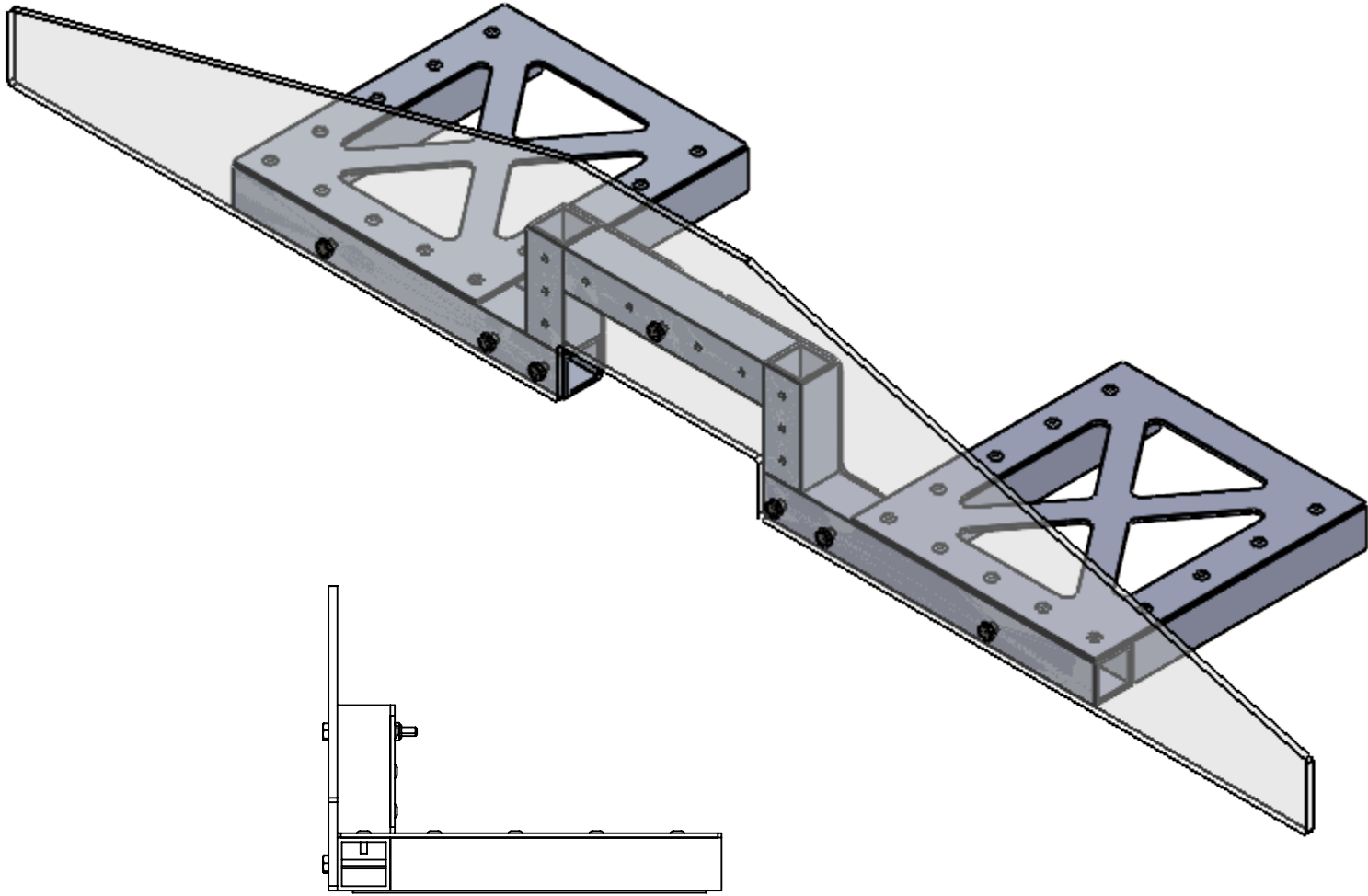
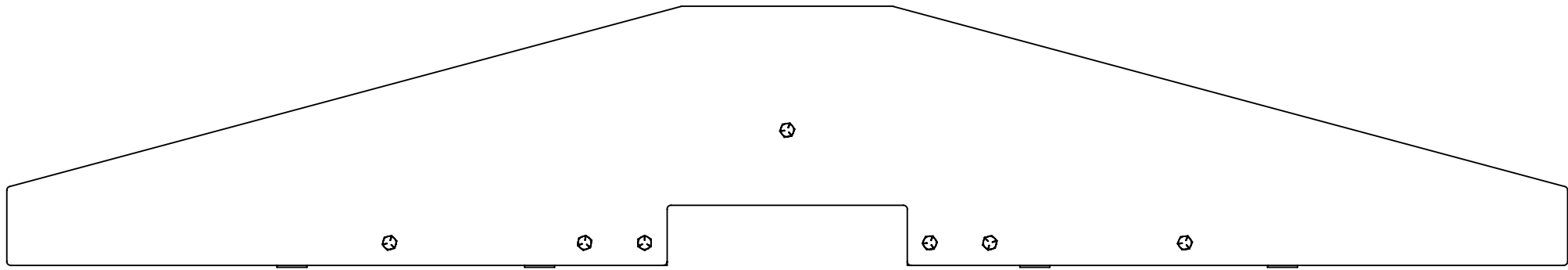
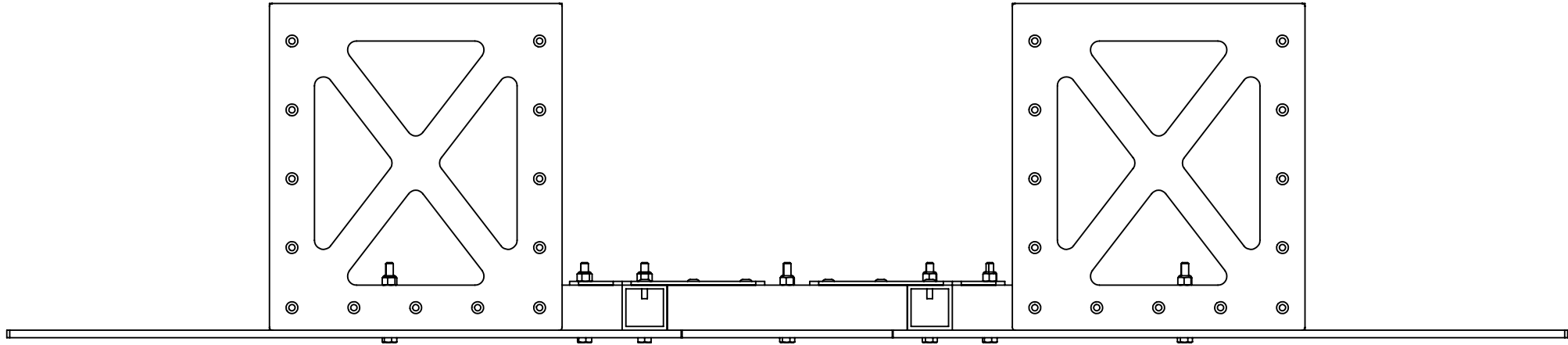
A

D

C

B

A



Attach 1, 2, 3, and 4  
to each other using 5 and 6.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23347	Charge Station Side Plastic	1
2	GE-23348	Charge Station Side Left Brace with Hook	1
3	GE-23350	Charge Station Side Right Brace with Hook	1
4	GE-23352	Charge Station Side Top Brace	1
5	hex_.25_20_2.5_partial	Steel Hex Head Screw, 1/4"-20 x 2-1/2" long, partially threaded	7
6	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	7

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	CO	12/12/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:  
REMOVE ALL BURRS AND SHARP EDGES.

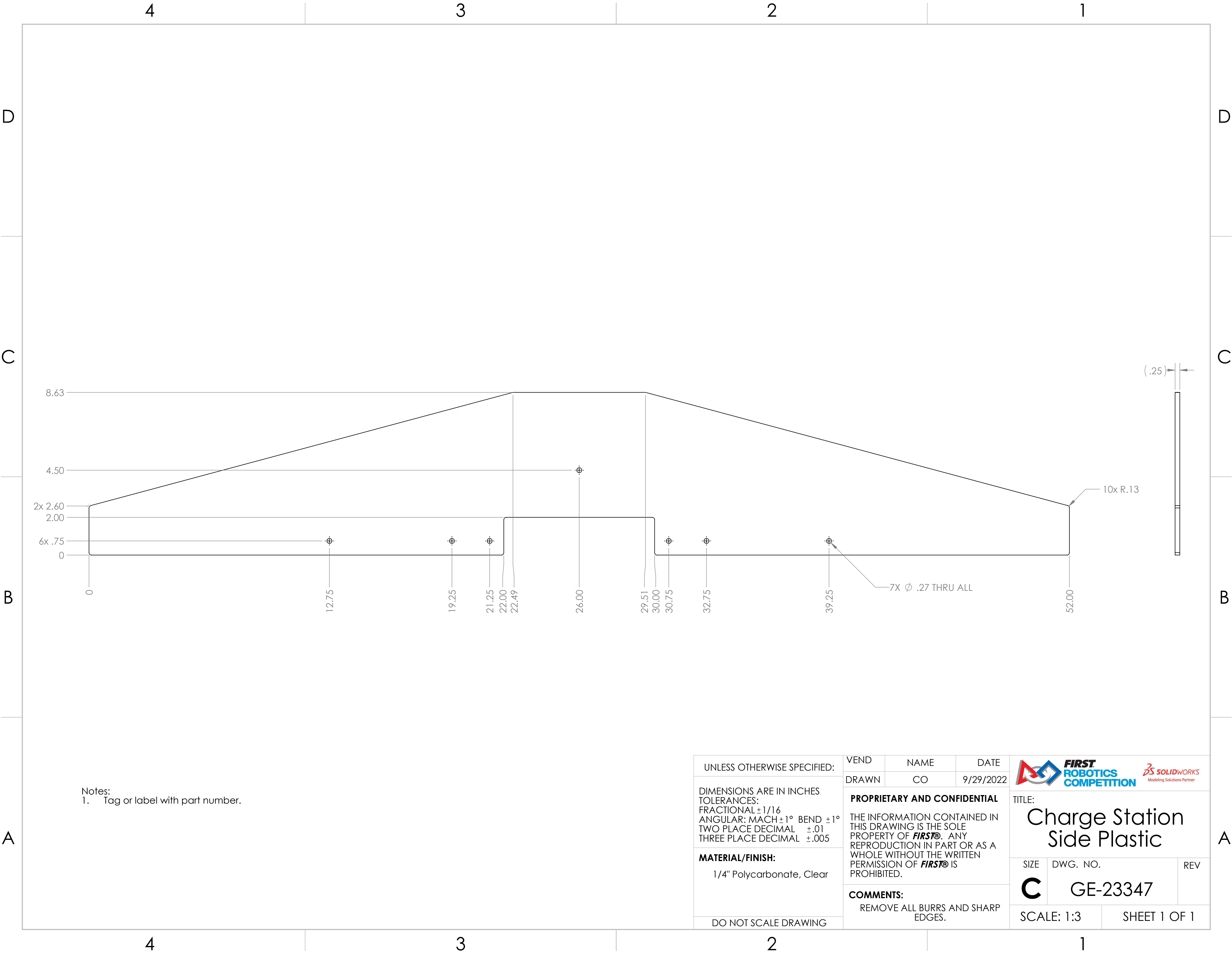


TITLE: Charge Station Side Plastic Assembly



SIZE DWG. NO. REV

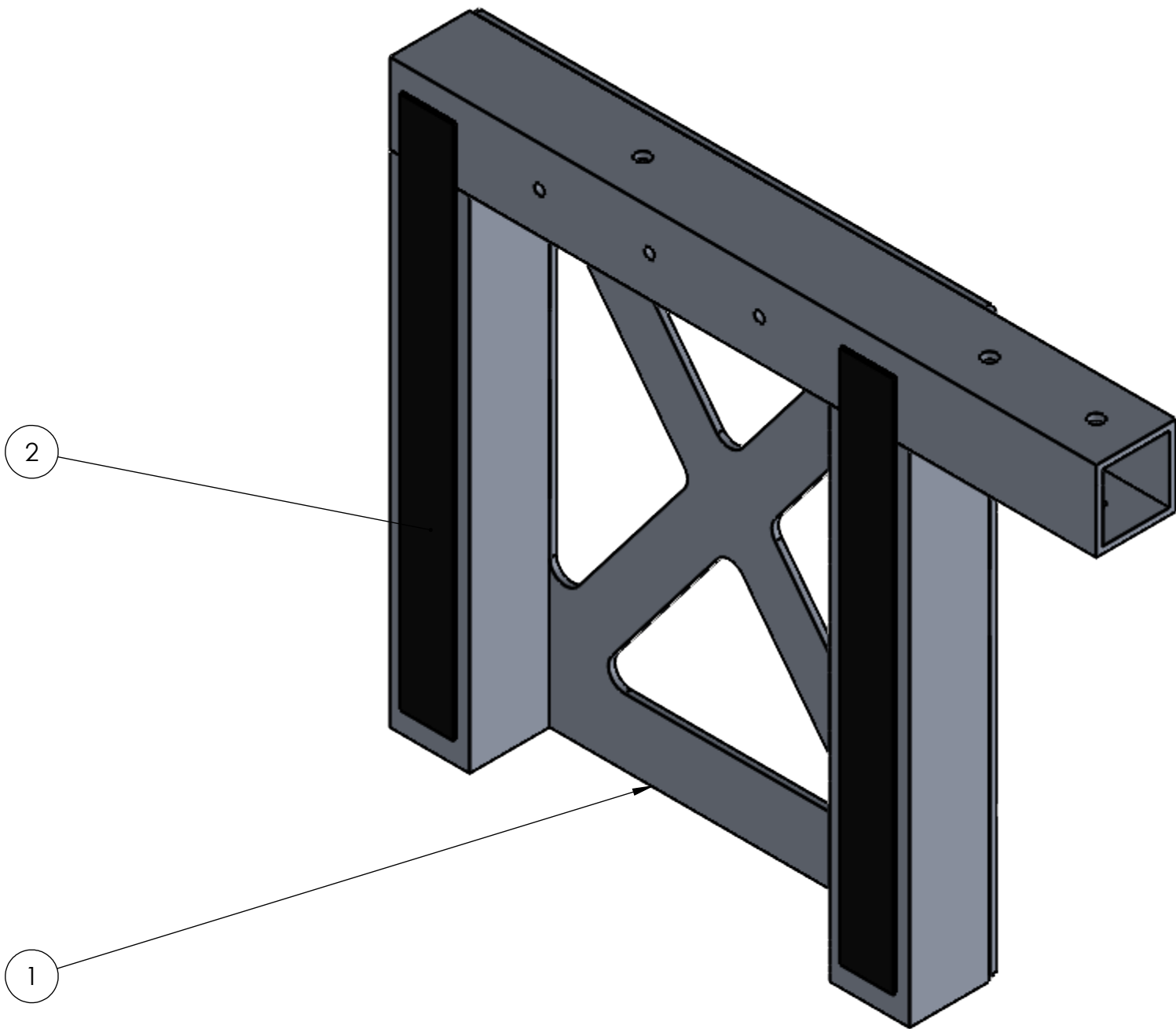
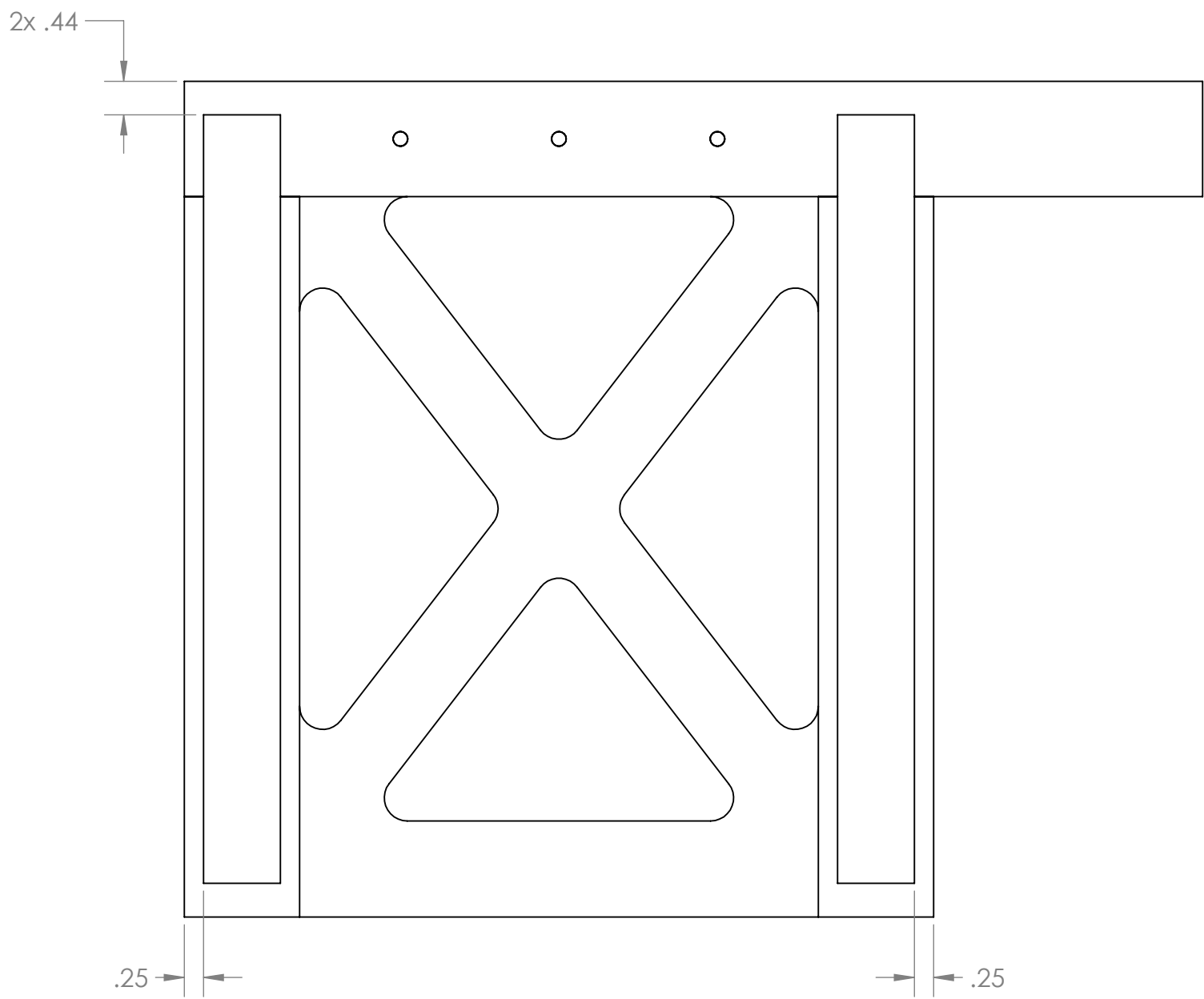
C GE-23346

SCALE: 1:5 SHEET 1 OF 1





Notes:  
1. Tag or label with part number.

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  <b>MATERIAL/FINISH:</b>  1/4" Polycarbonate, Clear   DO NOT SCALE DRAWING	VEND	NAME	DATE	 		
	DRAWN	CO	9/29/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				TITLE:  Charge Station Side Plastic	
				SIZE	DWG. NO.	REV
				C	GE-23347	
				SCALE: 1:3		SHEET 1 OF 1

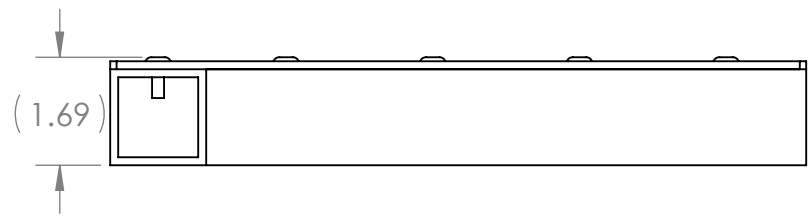
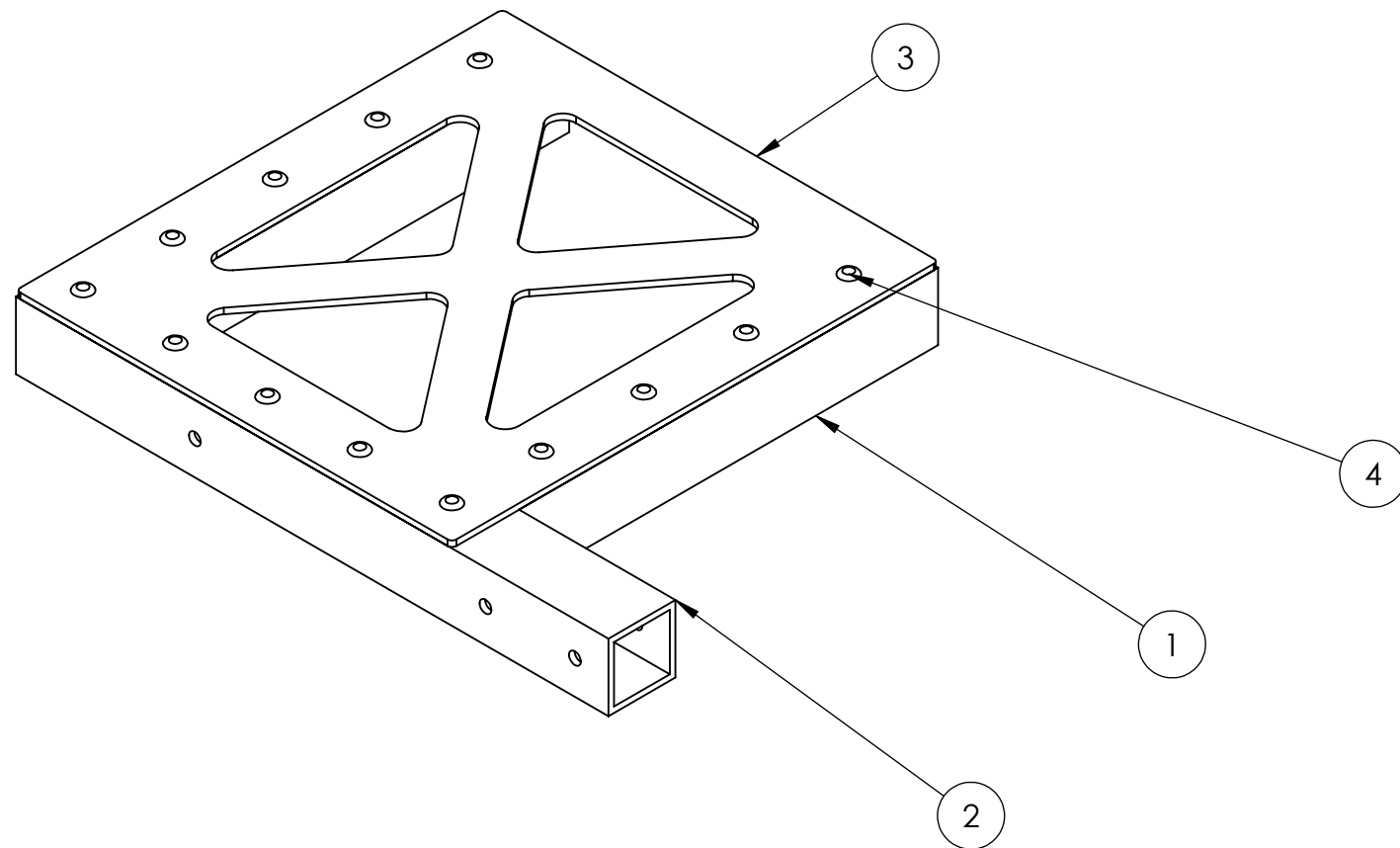
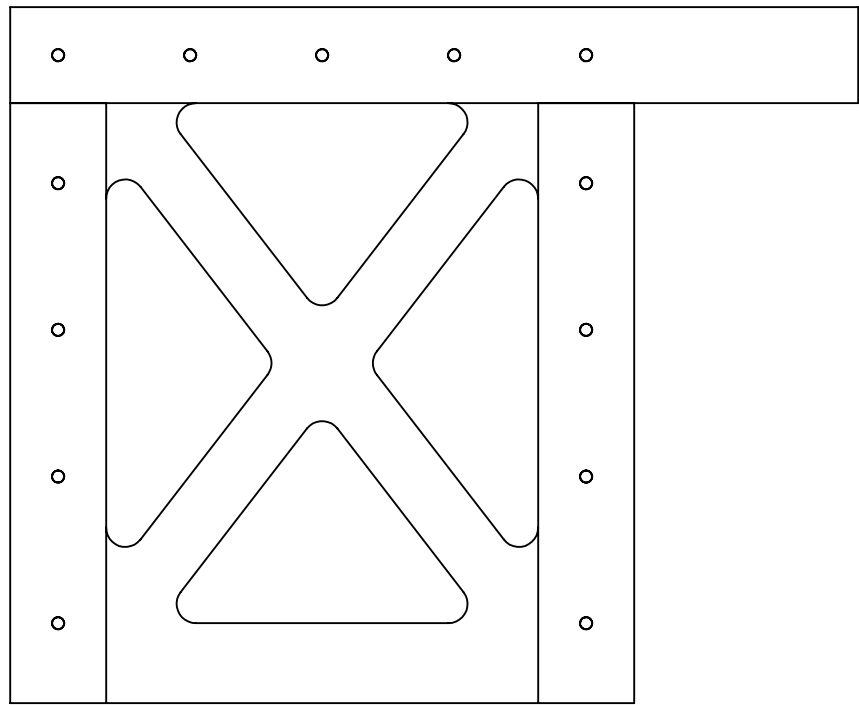
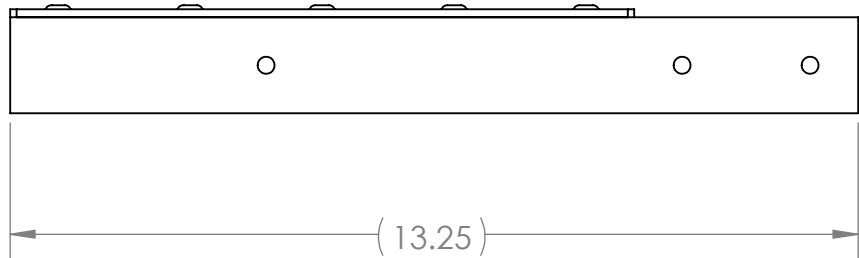
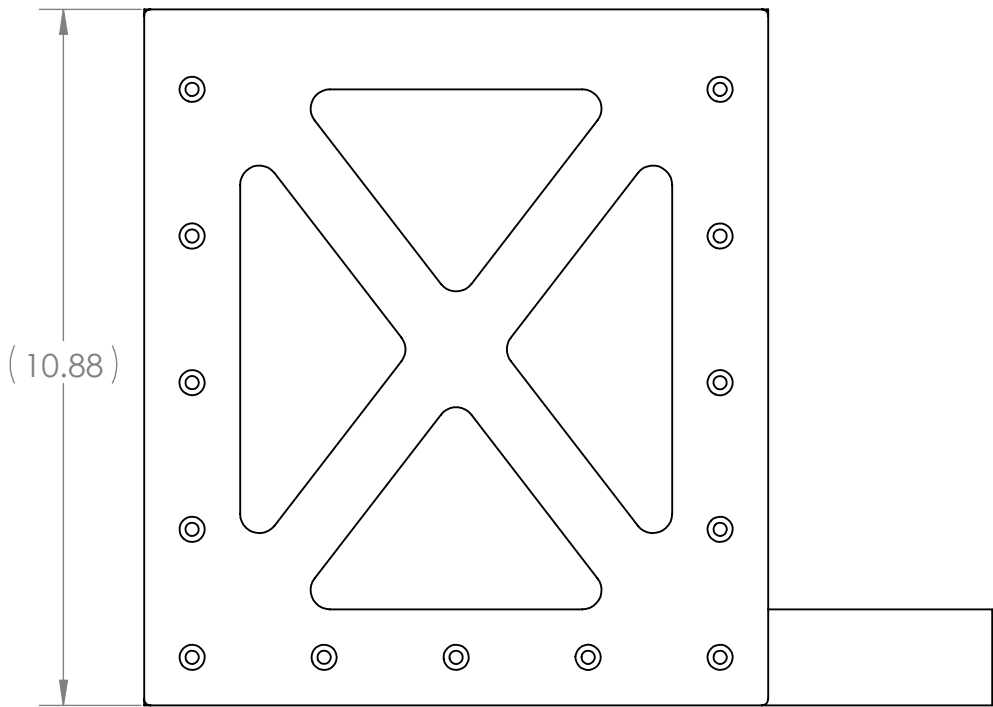


- Notes:
- 1. Make sure surface of ① is clean prior to hook application.
  - 2. Attach ② to ① in locations shown.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23349	Charge Station Side Left Brace	1
2	Hook_1_10	1" x 10" Hook, Adhesive Backed	2

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/2 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ± .50  <b>MATERIAL/FINISH:</b>    DO NOT SCALE DRAWING	FIELD	NAME	DATE
	DRAWN	CO	12/9/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		
<div><div></div><div>TITLE: Charge Station Side Left Brace with Hook</div><div><div>SIZE</div><div>DWG. NO.</div><div>REV</div></div><div><div>C</div><div>GE-23348</div></div><div><div>SCALE: 1:2</div><div>SHEET 1 OF 1</div></div></div>			





Notes:  
1. Tag or label with part number.  
2. Assembly is a mirror of GE-23351. Parts are the same, assembly orientation differs.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23349-01	1.5" x .125" thk. Square Tube, 6061 Aluminum	2
2	GE-23349-02	1.5" x .125" thk. Square Tube, 6061 Aluminum	1
3	GE-23349-03	.125" thk. 6061 Aluminum Plate	1
4	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	13

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

VEND

NAME

DATE

DRAWN



CO

9/29/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:  
REMOVE ALL BURRS AND SHARP EDGES.



TITLE:  
**Charge Station  
Side Left Brace**

SIZE

DWG. NO.

REV

**C**

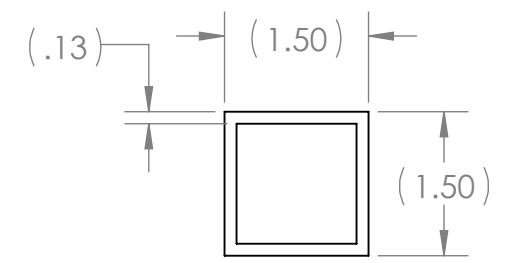
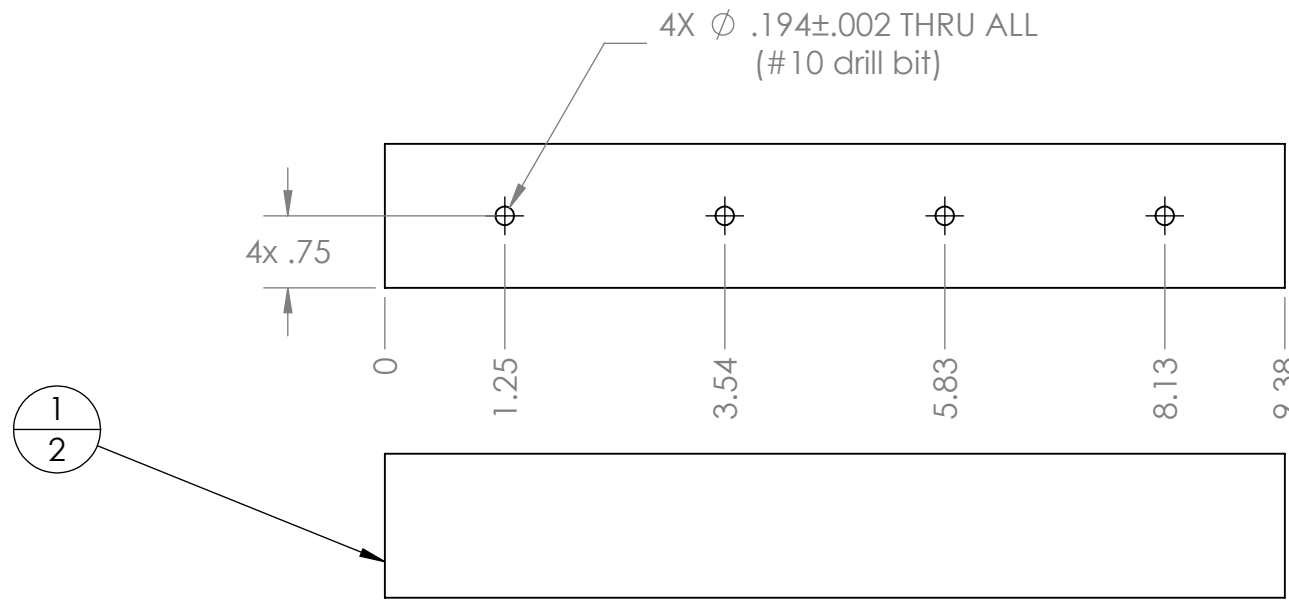
GE-23349

SCALE: 1:3

SHEET 1 OF 2

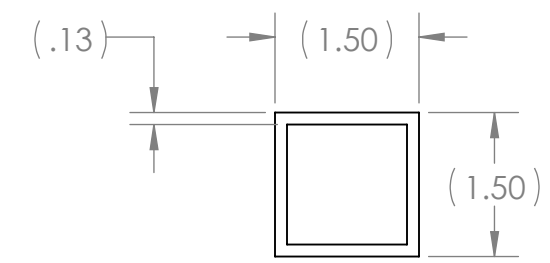
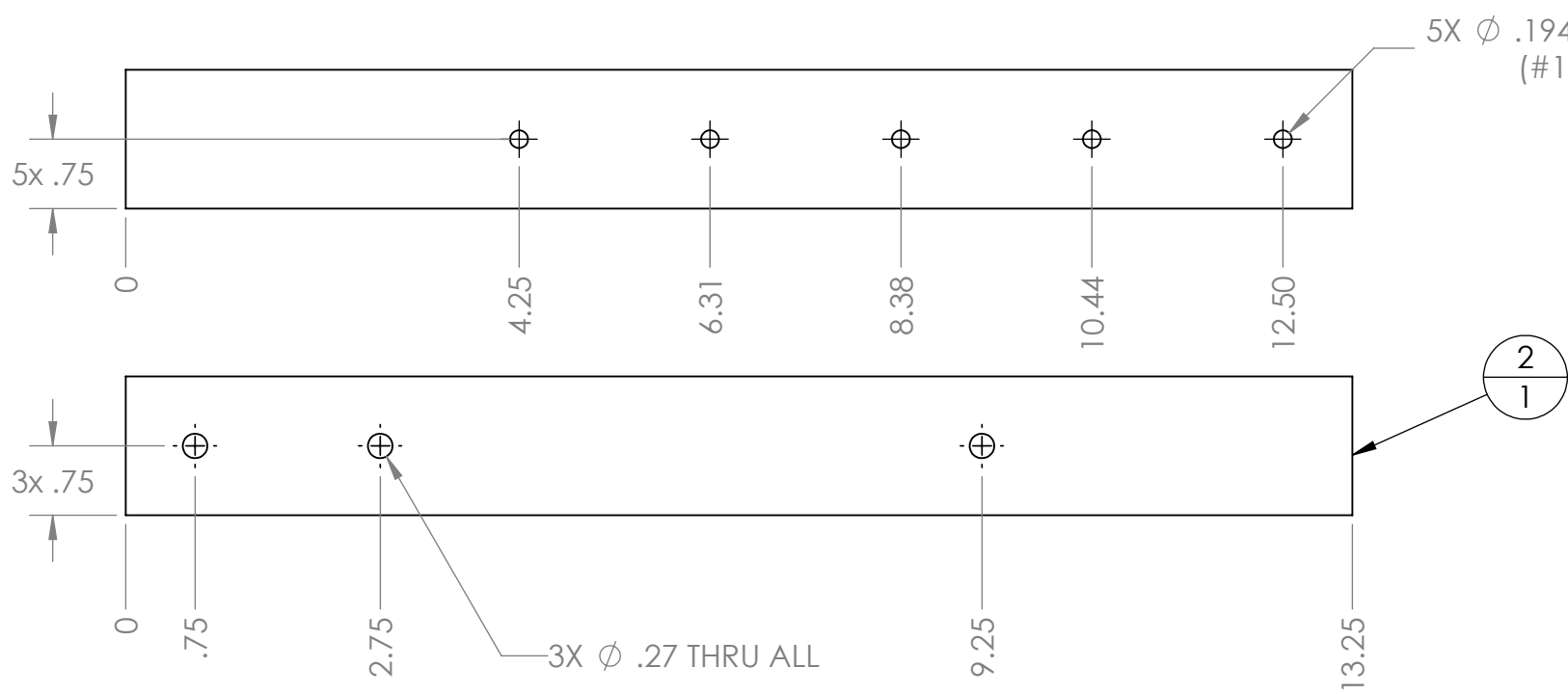
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D



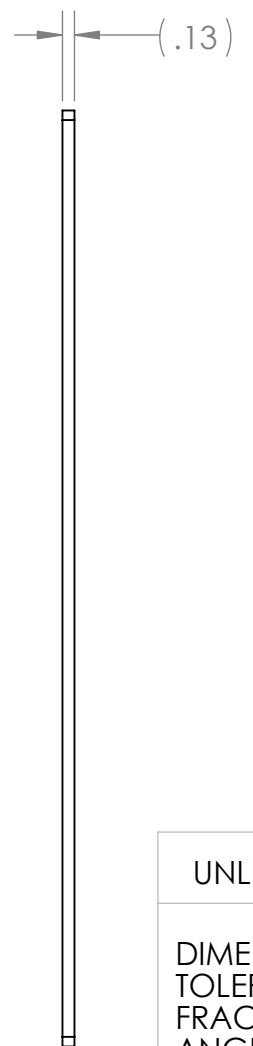
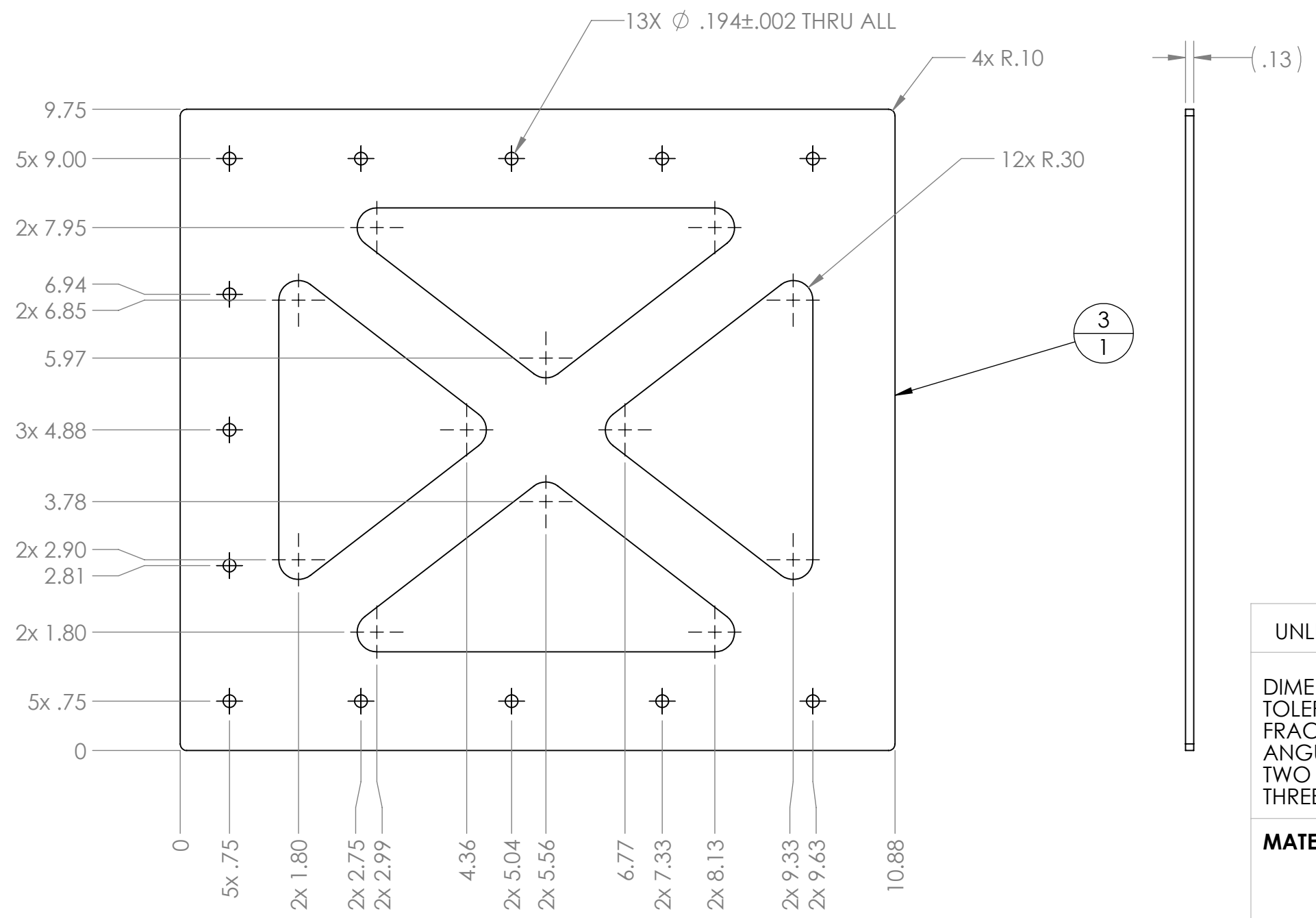
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C






B

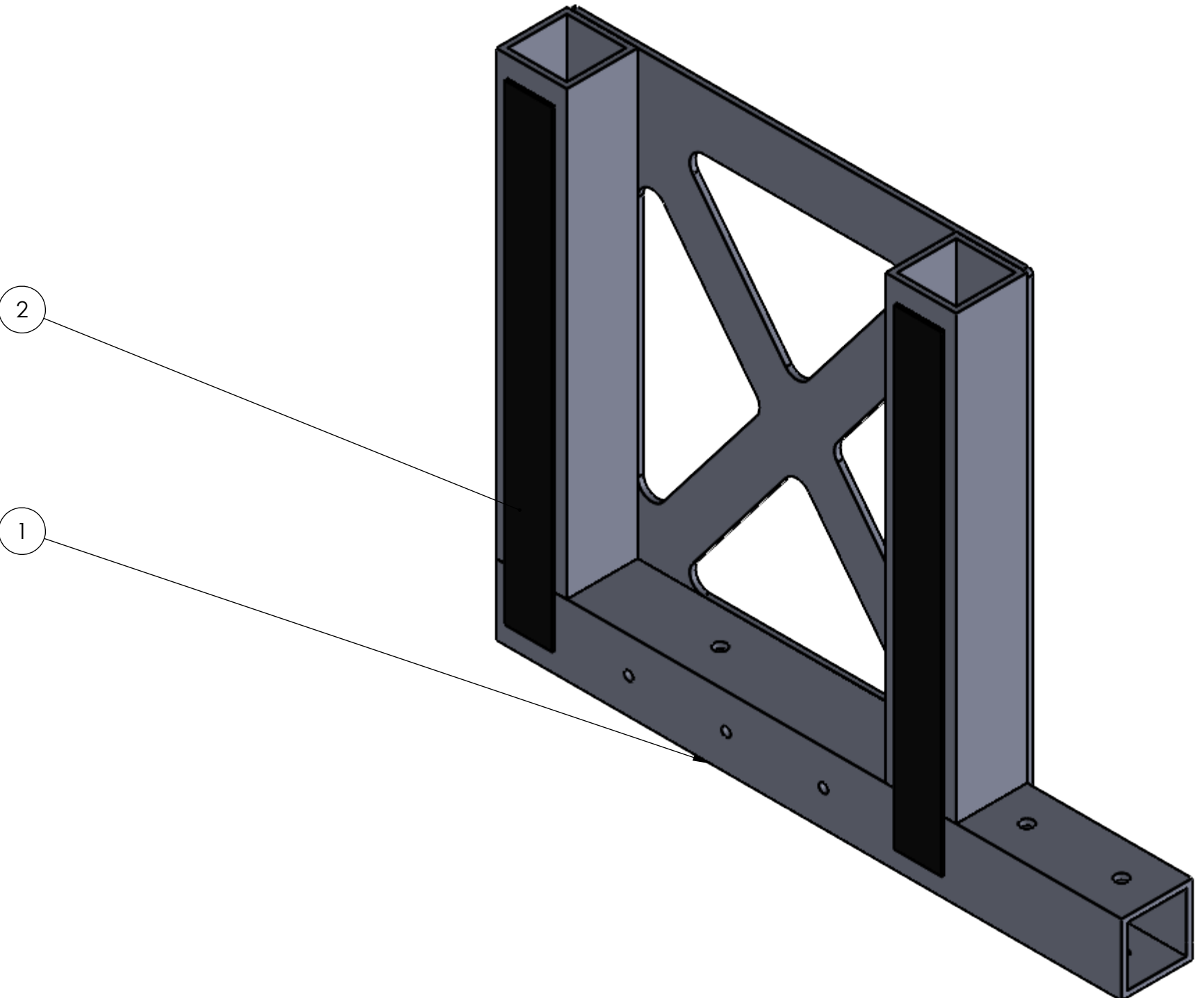
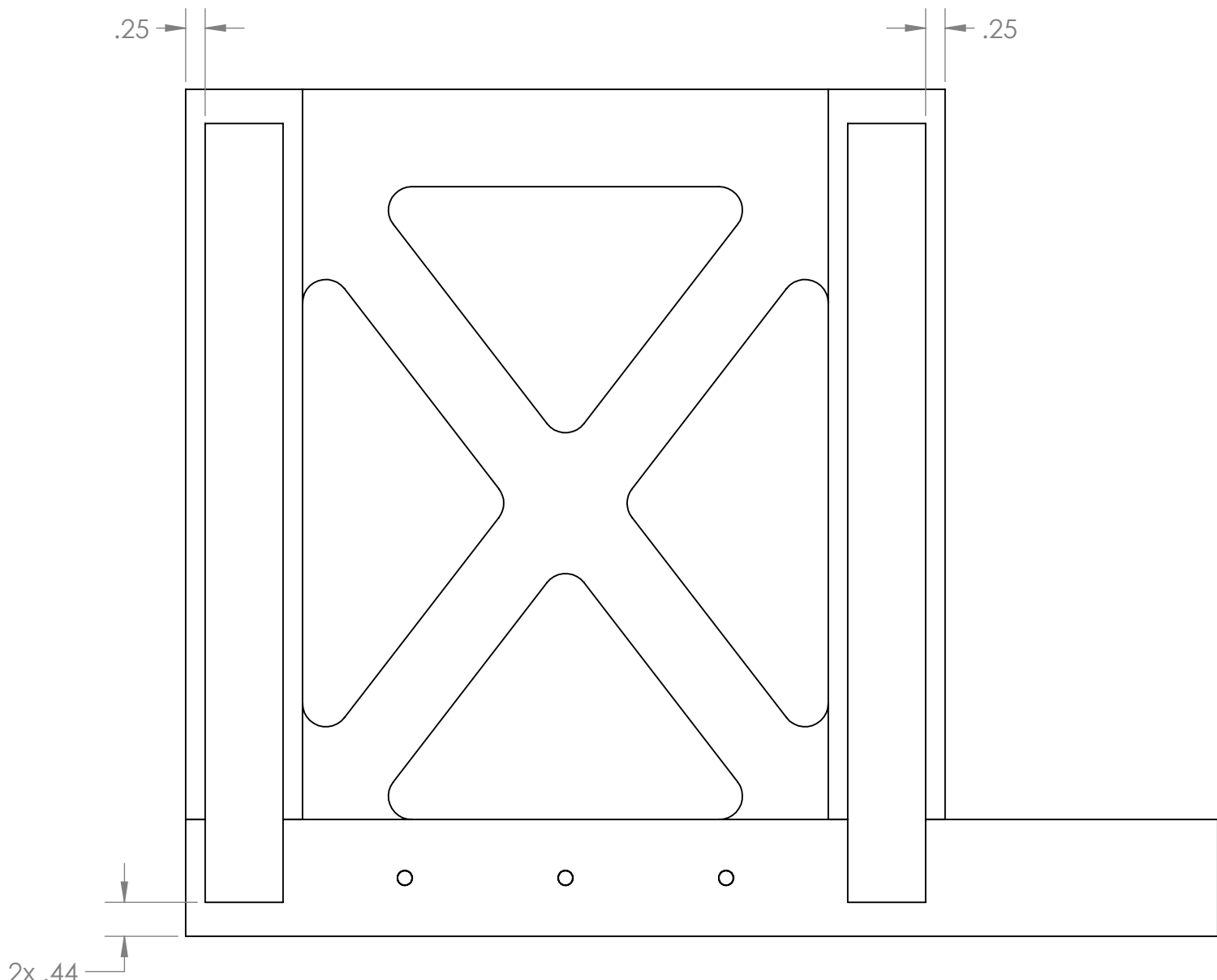
B



A

A



UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	  		
	DRAWN	CO	9/29/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	PROPRIETARY AND CONFIDENTIAL			TITLE:  Charge Station Side Left Brace		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
MATERIAL/FINISH:	COMMENTS:			SIZE	DWG. NO.	REV
	REMOVE ALL BURRS AND SHARP EDGES.			C	GE-23349	
DO NOT SCALE DRAWING				SCALE: 1:2		SHEET 2 OF 2



- Notes:
1. Make sure surface of (1) is clean prior to hook application.
  2. Attach (2) to (1) in locations shown.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23351	Charge Station Side Right Brace	1
2	Hook_1_10	1" x 10" Hook, Adhesive Backed	2

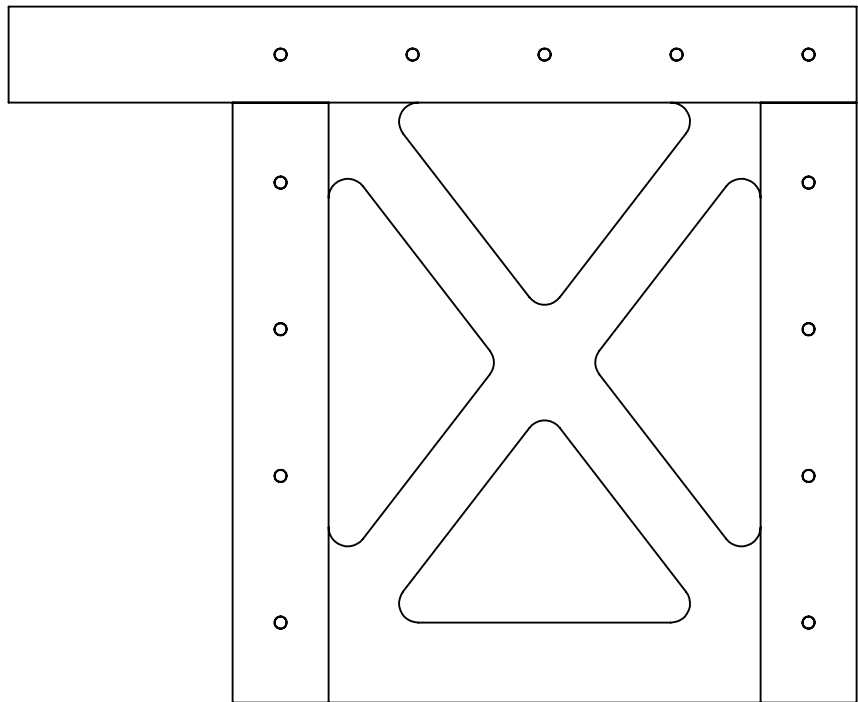
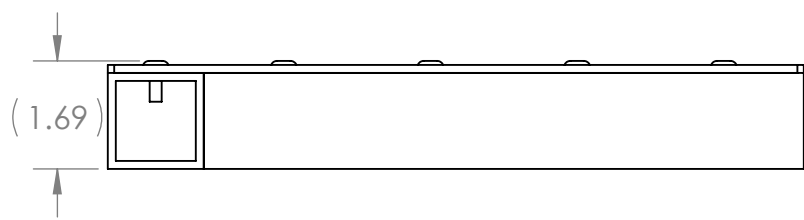
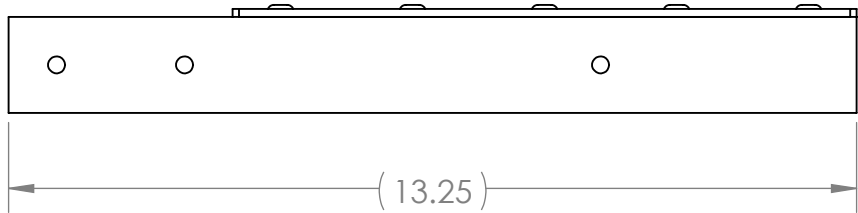
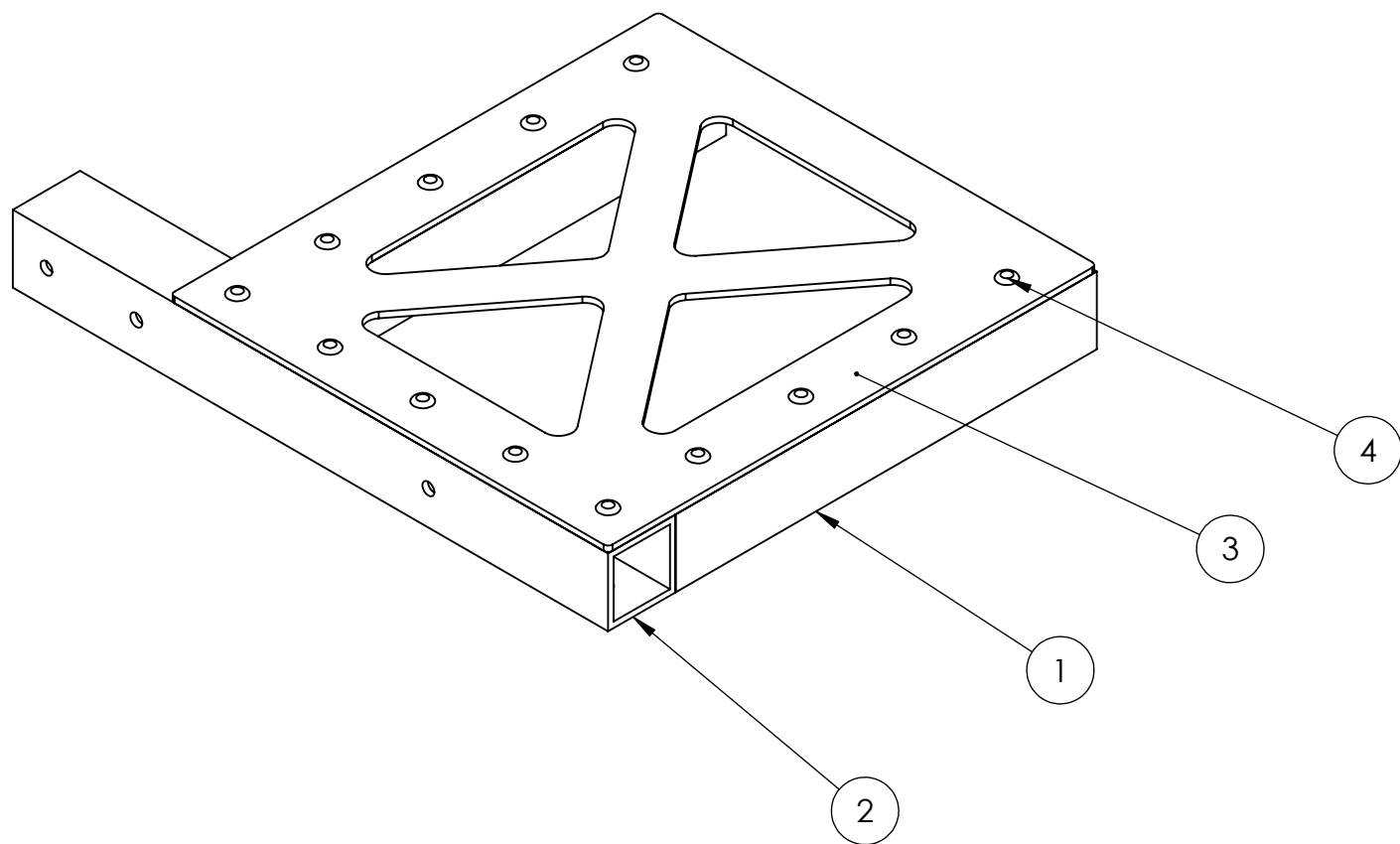
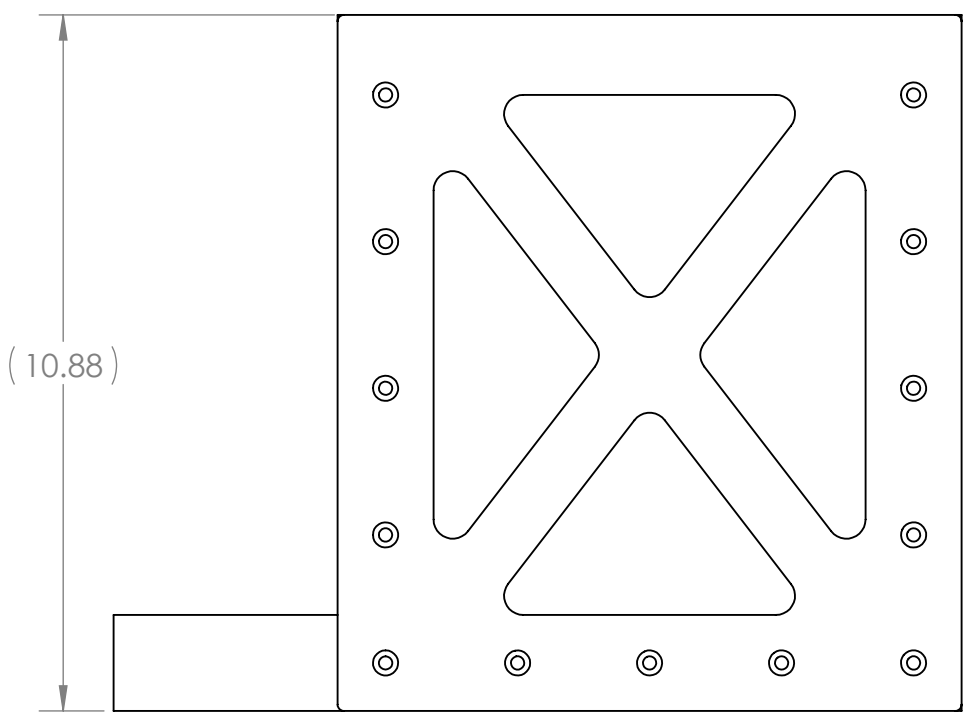
UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b>    DO NOT SCALE DRAWING	FIELD	NAME	DATE
	DRAWN	CO	12/9/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		



TITLE: Charge Station Side Right Brace with Hook

SIZE	DWG. NO.	REV
<b>C</b>	GE-23350	



SCALE: 1:2	SHEET 1 OF 1
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Notes:  
1. Tag or label with part number.  
2. Assembly is a mirror of GE-23349. Parts are the same, assembly orientation differs.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23351-01	1.5" x .125" thk. Square Tube, 6061 Aluminum	2
2	GE-23351-02	1.5" x .125" thk. Square Tube, 6061 Aluminum	1
3	GE-23351-03	.125" thk. 6061 Aluminum Plate	1
4	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	13

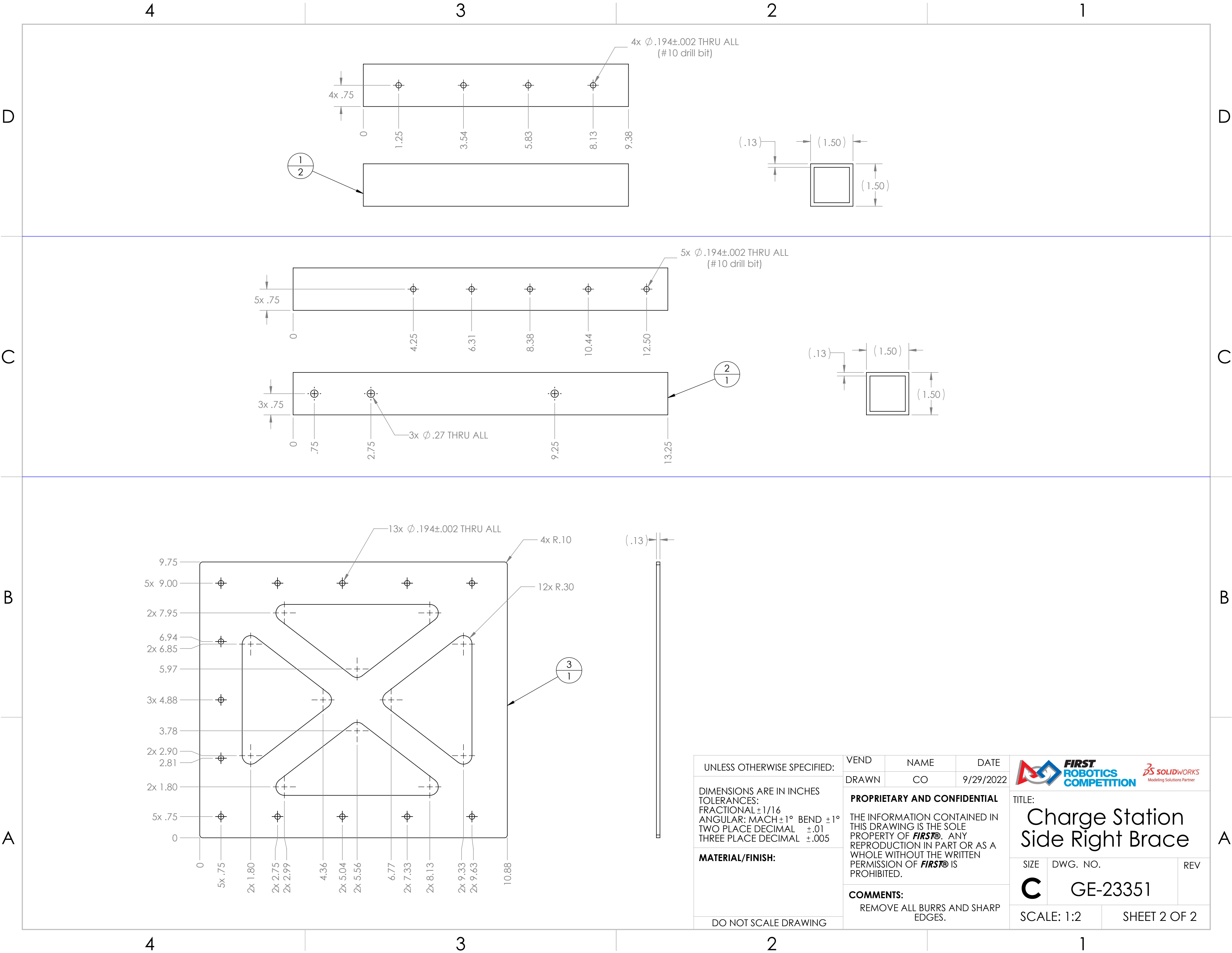
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	DRAWN	CO	9/29/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		



TITLE:  
**Charge Station  
Side Right Brace**

SIZE	DWG. NO.	REV
<b>C</b>	GE-23351	

SCALE: 1:3	SHEET 1 OF 2
------------	--------------



UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/16$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

VEND

DRAWN

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

NAME

CO

DATE

9/29/2022



**FIRST**  
ROBOTICS  
COMPETITION



Modeling Solutions Partner

TITLE:

Charge Station  
Side Right Brace

SIZE

**C**

DWG. NO.

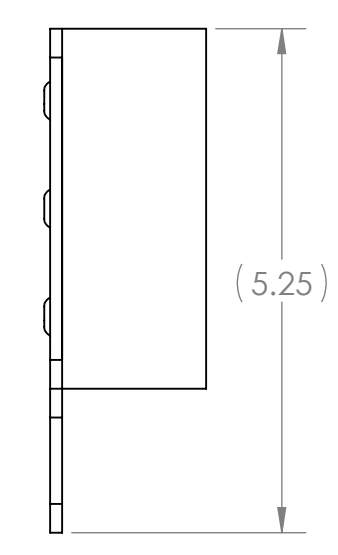
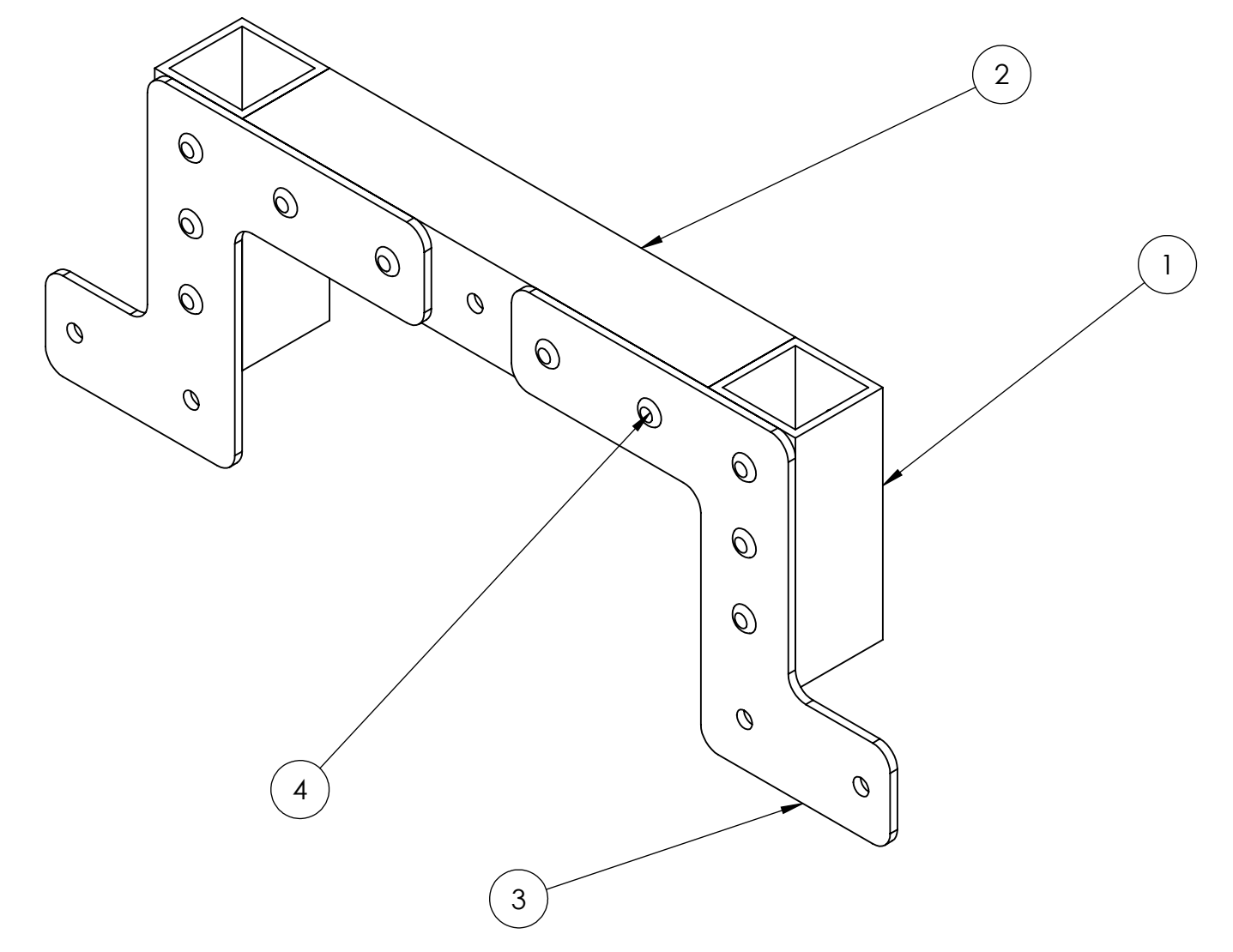
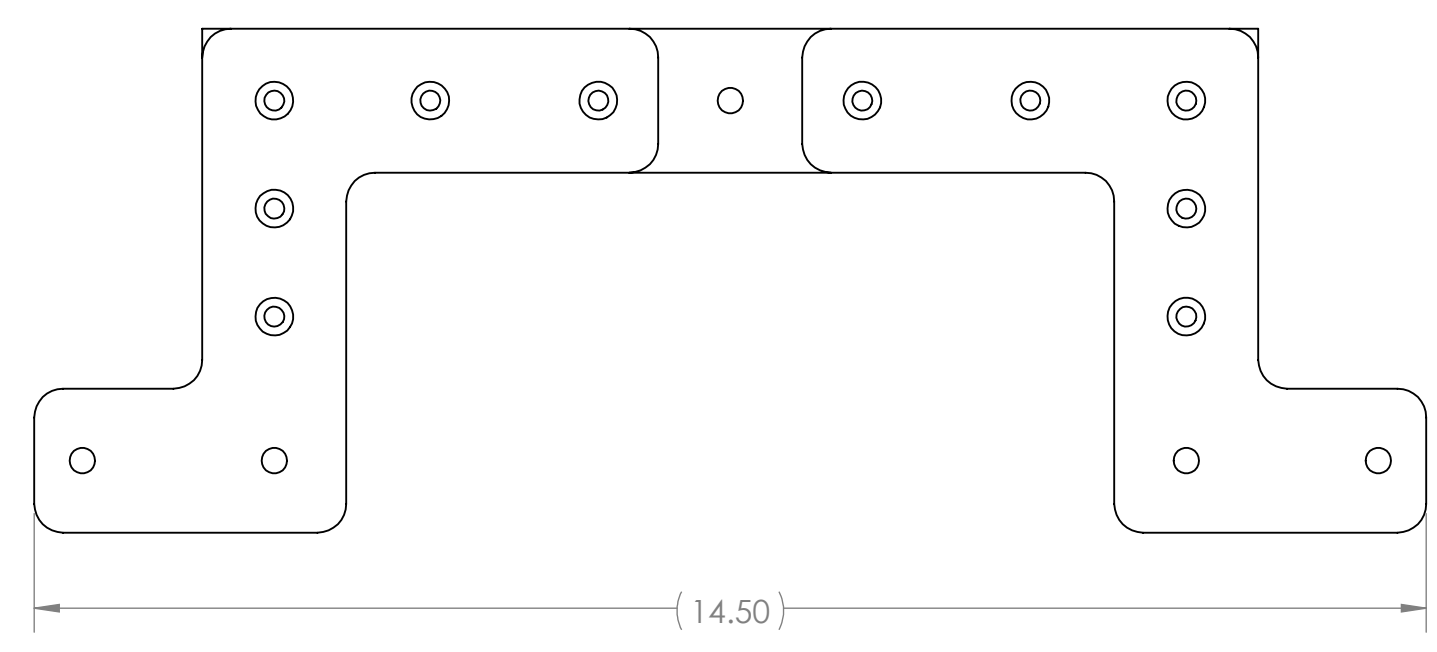
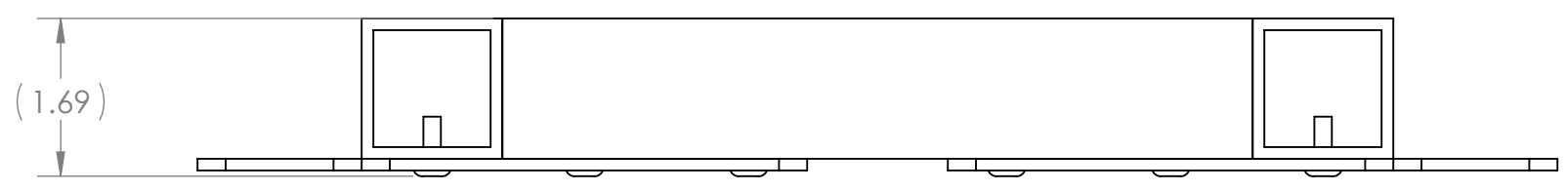
GE-23351

REV

SCALE: 1:2



SHEET 2 OF 2

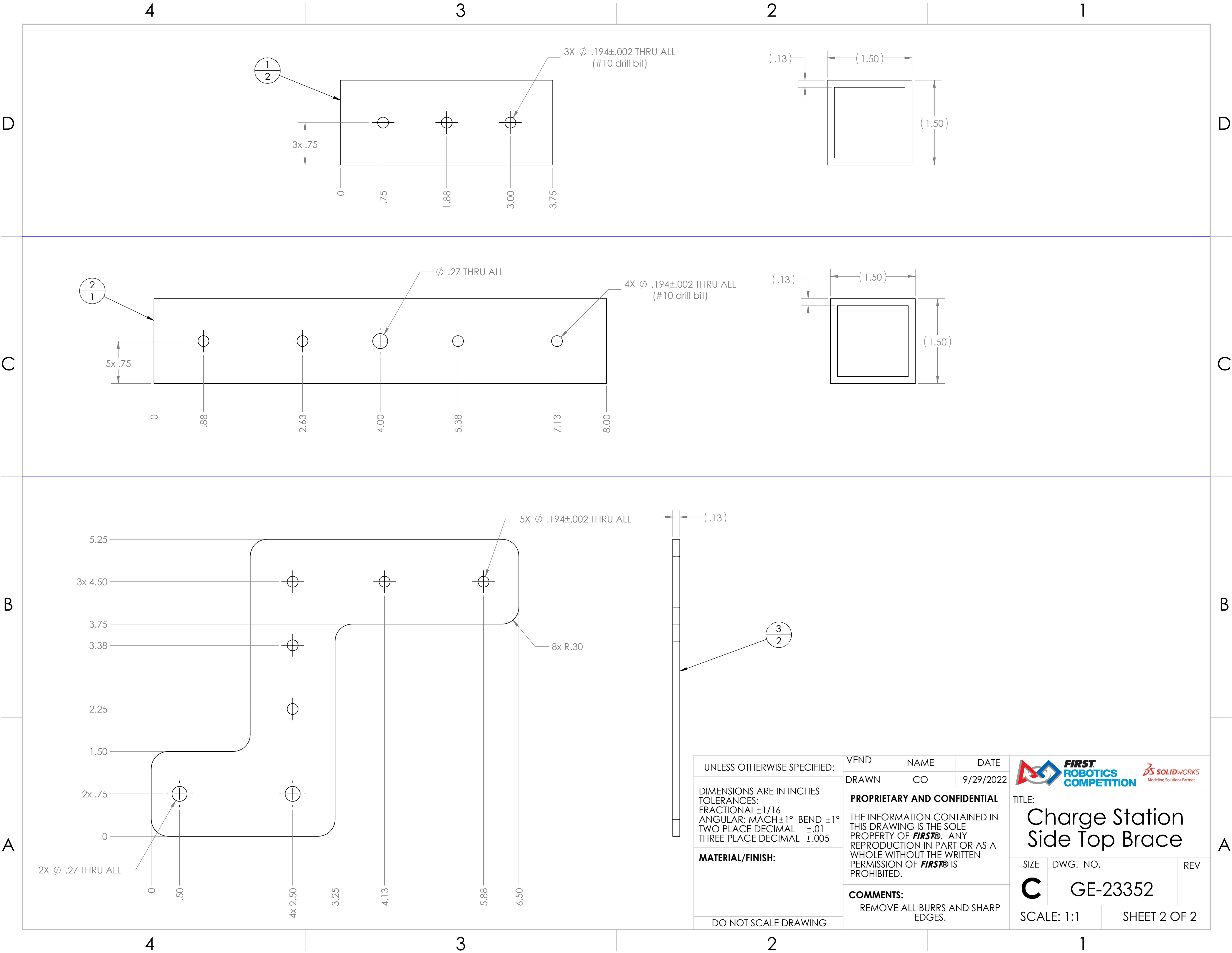


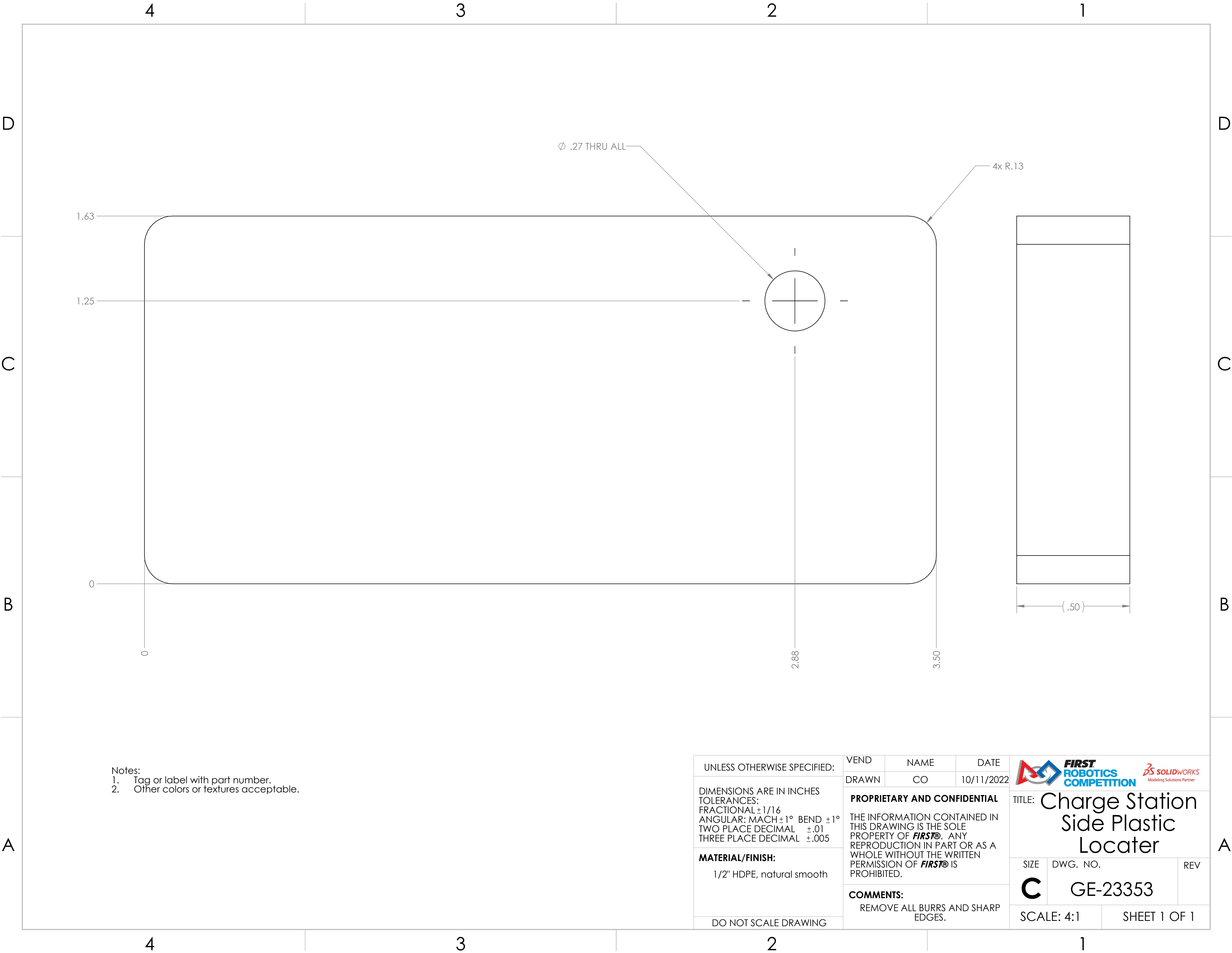


Notes:  
1. Tag or label with part number



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23352-01	1.5" x .125" thk. Square Tube, 6061 Aluminum	2
2	GE-23352-02	1.5" x .125" thk. Square Tube, 6061 Aluminum	1
3	GE-23352-03	.125" thk. 6061 Aluminum Plate	2
4	rivet_.1875_.251-.375	3/16" Aluminum Rivet, .251-.375 Grip Range	10

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>    DO NOT SCALE DRAWING	VEND	NAME	DATE	 		
	DRAWN	CO	9/29/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: <b>Charge Station Side Top Brace</b>		
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			SIZE <b>C</b>	DWG. NO. <b>GE-23352</b>	REV
				SCALE: 1:2		SHEET 1 OF 2





Notes:  
1. Tag or label with part number.  
2. Other colors or textures acceptable.

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  1/2" HDPE, natural smooth  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: Charge Station Side Plastic Locator</div>		
	DRAWN	CO	10/11/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23353	
		SCALE: 4:1		SHEET 1 OF 1		

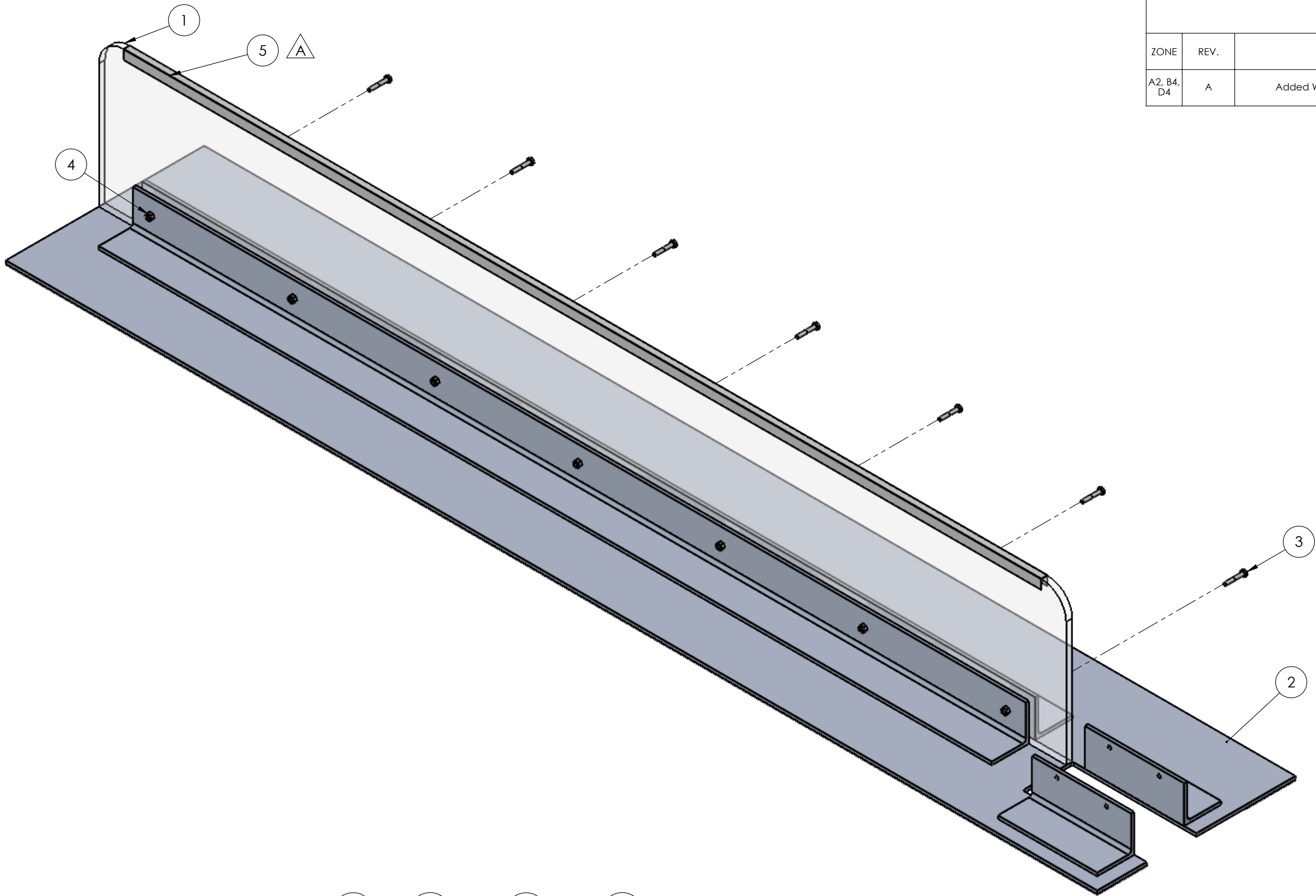
4

3

2

1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, B4, D4	A	Added White Gaffer Tape to assembly	2/23/2023	JO



Attach 1 to 2 with 3 and 4 .

Attach 5 across the top edge of 1 , so that it is folded over both sides evenly.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23402	Plastic Wall	1
2	GE-23403	Red Divider Wall Weldment with Hook	1
3	hex_.25_20_1.5_partial	Steel Hex Head Screw, 1/4"-20 x 1-1/2" long, partially threaded	7
4	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	7
5	Barrier Tape	2" x 74" White Gaffer Tape	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  $\pm .01$   
THREE PLACE DECIMAL  $\pm .005$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	JO	8/23/2022

PROPRIETARY AND CONFIDENTIAL

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COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.



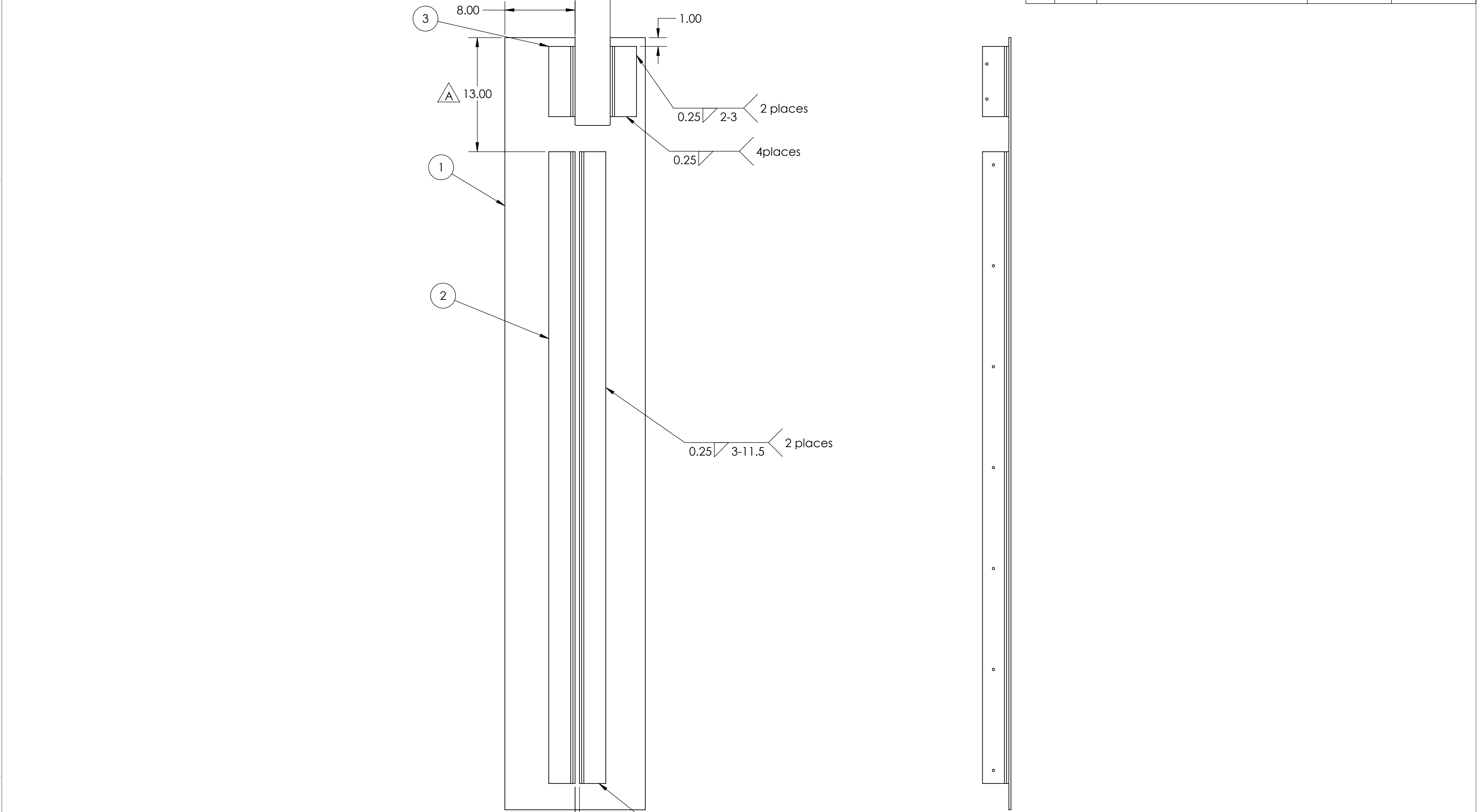
TITLE:  
Red Divider Wall

SIZE	DWG. NO.	REV
C	GE-23400	A

SCALE: 1:12 SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23401-01	Base Plate	1
2	GE-23401-02	Wall Angle	2
3	GE-23401-03	Goal Angle	2

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, D3	A	Moved Dimensions to more useful side for welding, added width dimension for wider spaced angle brackets	11/9/2022	JO

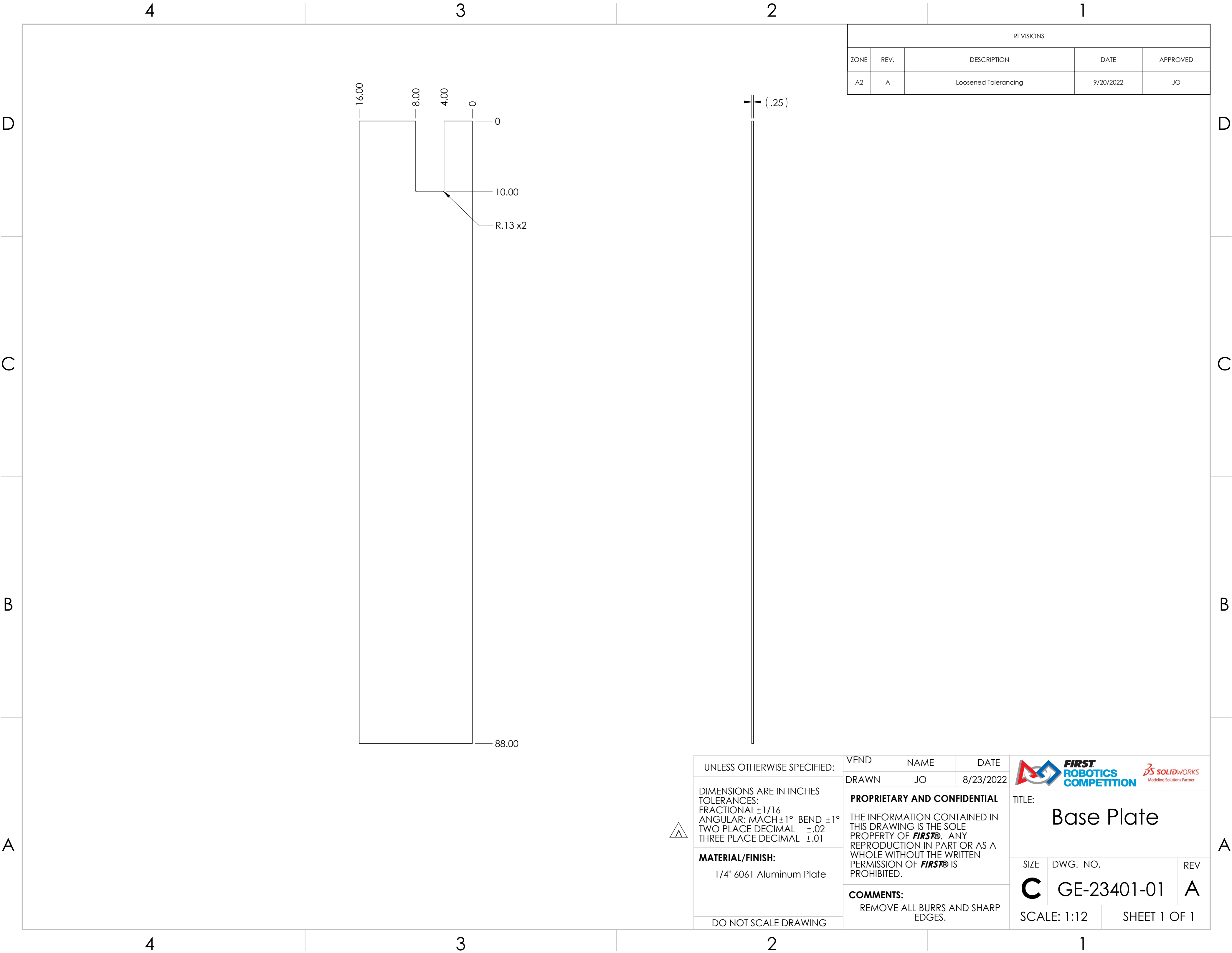


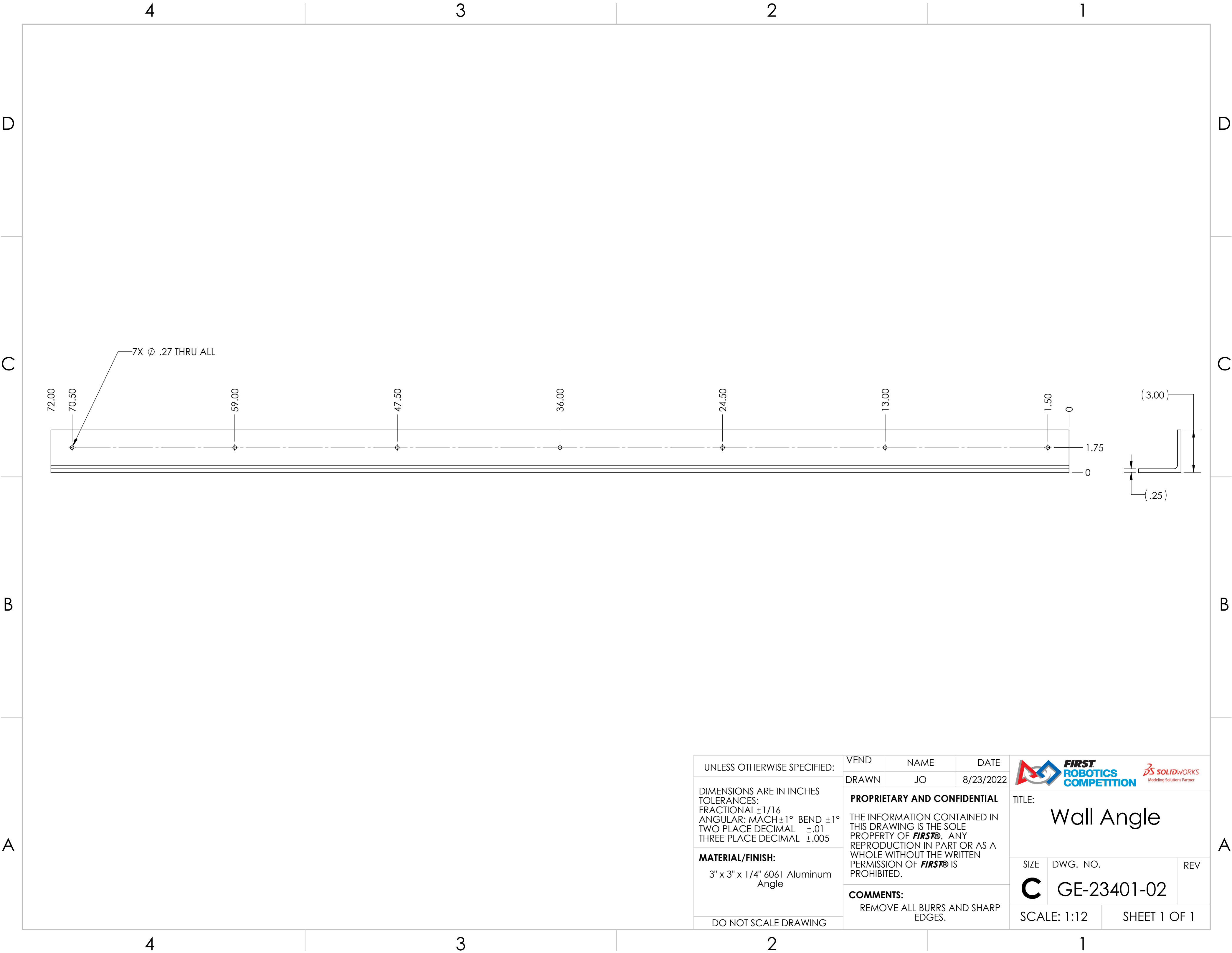
Notes:  
1. Tag or Label with Part Number



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .02$ THREE PLACE DECIMAL $\pm .015$  <b>MATERIAL/FINISH:</b>    DO NOT SCALE DRAWING	WELD	NAME	DATE
	DRAWN	JO	8/23/2022
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.		

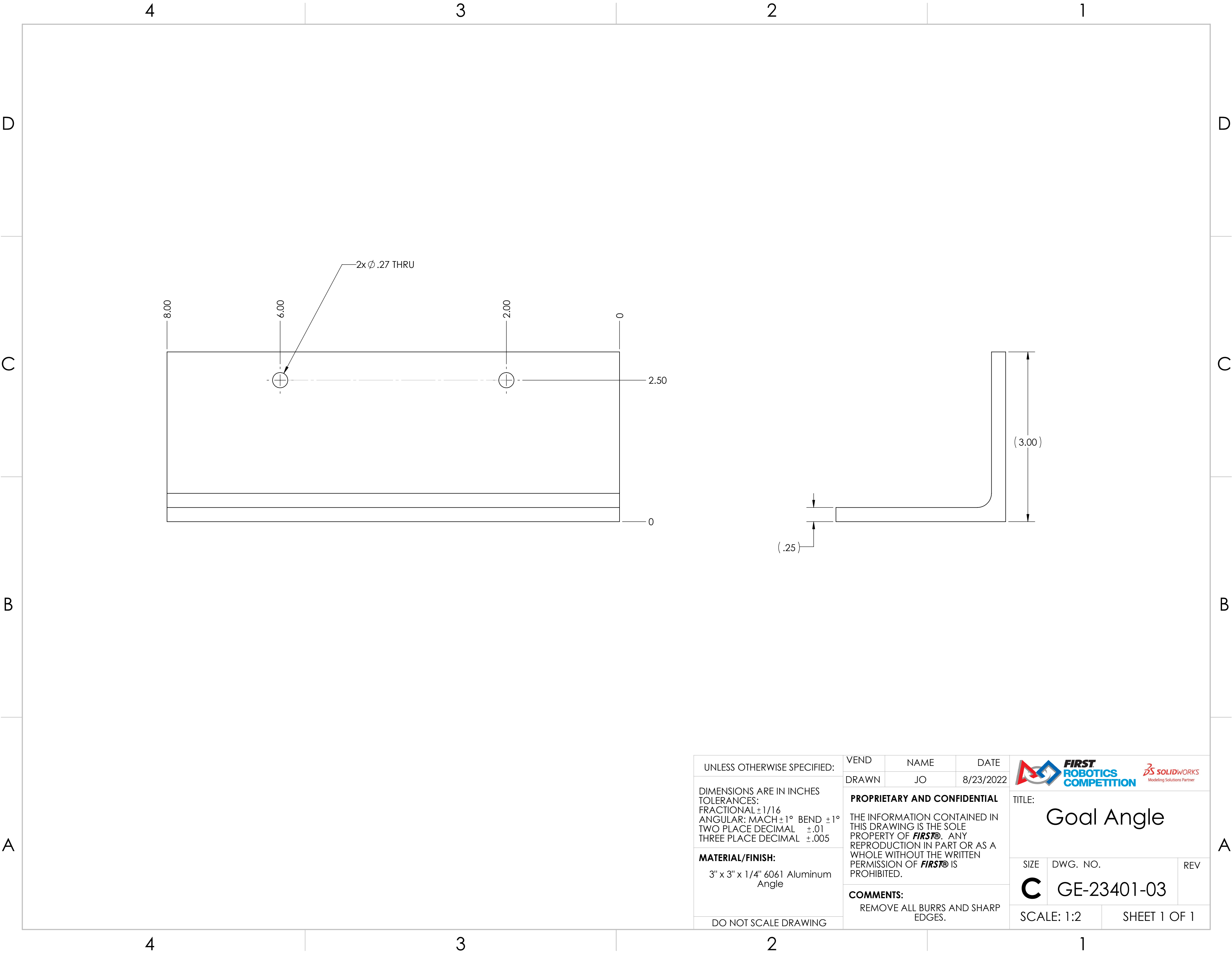
 		
TITLE: Red Divider Wall Weldement		
SIZE C	DWG. NO. GE-23401	REV A
SCALE: 1:12		SHEET 1 OF 1

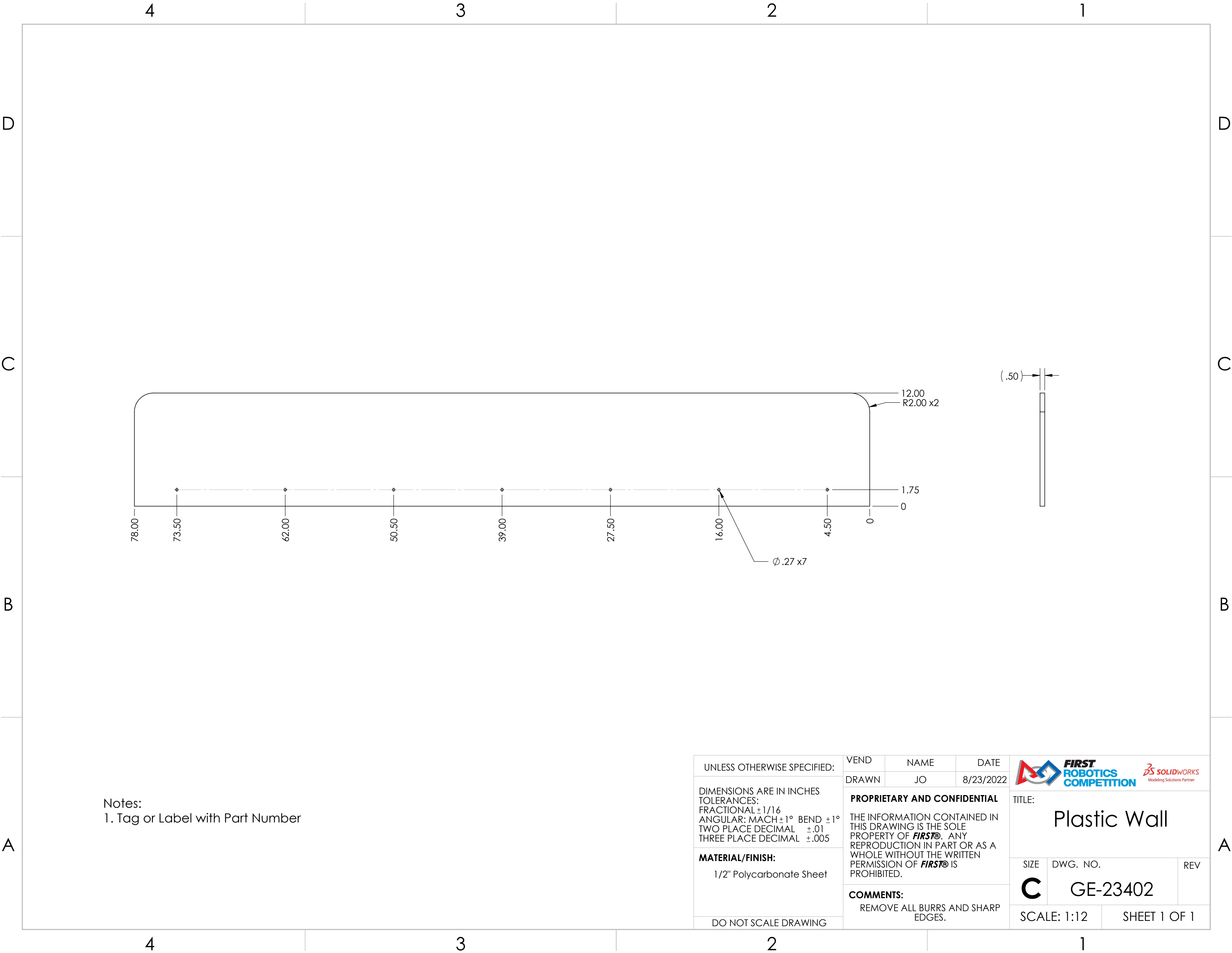








UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>		
	DRAWN	JO	8/23/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE:		
				Wall Angle		
	<b>MATERIAL/FINISH:</b>  3" x 3" x 1/4" 6061 Aluminum Angle	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.
C					GE-23401-02	
DO NOT SCALE DRAWING				SCALE: 1:12		SHEET 1 OF 1





Notes:  
1. Tag or Label with Part Number

UNLESS OTHERWISE SPECIFIED:	VEND	NAME	DATE	<div></div>		
	DRAWN	JO	8/23/2022			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005	<b>PROPRIETARY AND CONFIDENTIAL</b>			TITLE:		
	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			Plastic Wall		
<b>MATERIAL/FINISH:</b>  1/2" Polycarbonate Sheet	<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.	REV
				C	GE-23402	
DO NOT SCALE DRAWING				SCALE: 1:12		SHEET 1 OF 1

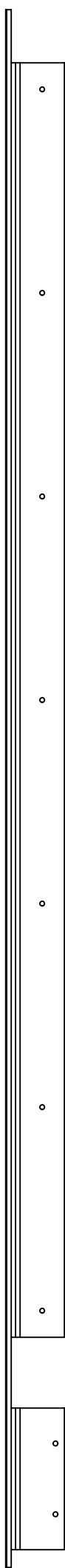
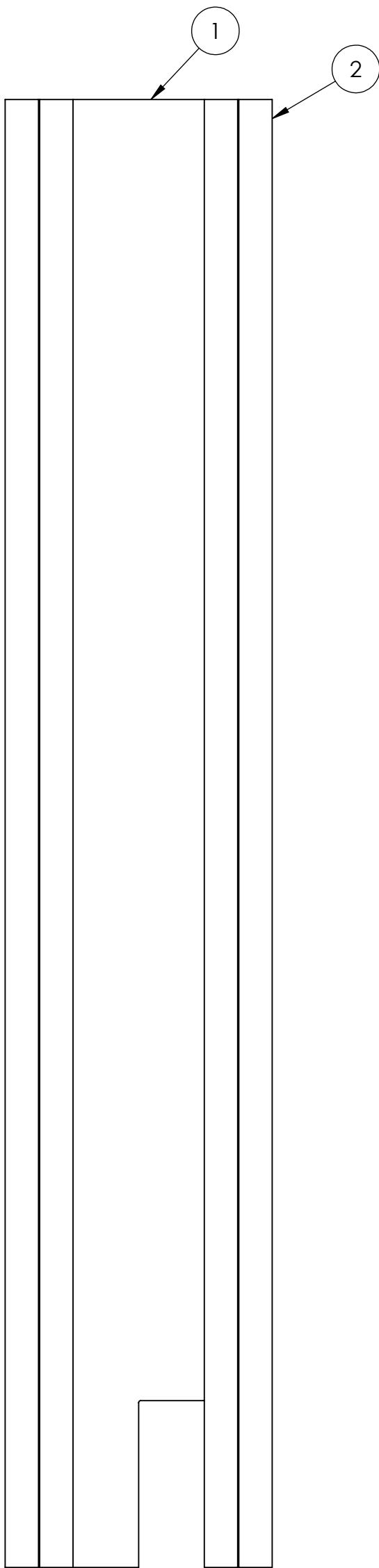
4

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1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23401	Red Divider Wall Weldement	1
2	Hook_2_88	2" x 88" Hook, Adhesive Backed	4



Apply Hook as shown. 4" wide hook is also acceptable.

UNLESS OTHERWISE SPECIFIED:		VEND		NAME		DATE	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$		DRAWN		JO		8/23/2022	
		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
		<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.					
DO NOT SCALE DRAWING							

 		
TITLE:  <h1>Red Divider Wall Weldement with Hook</h1>		
SIZE	DWG. NO.	REV
C	GE-23403	
SCALE: 1:12		SHEET 1 OF 1

4

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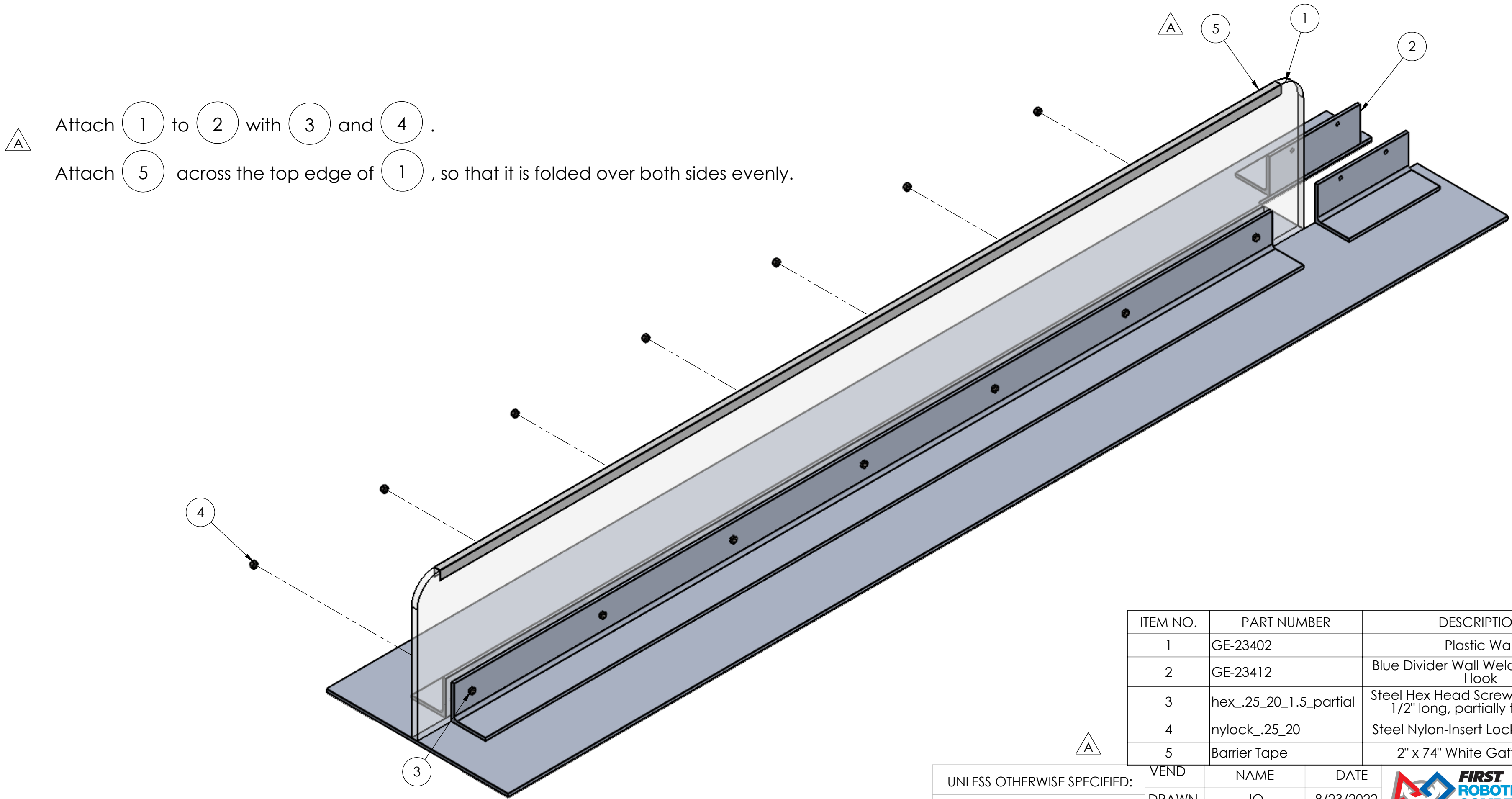
B

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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A2, C4, D2	A	Added White Gaff Tape to assembly	2/23/2023	JO




Attach 1 to 2 with 3 and 4 .  
Attach 5 across the top edge of 1 , so that it is folded over both sides evenly.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23402	Plastic Wall	1
2	GE-23412	Blue Divider Wall Weldement with Hook	1
3	hex_.25_20_1.5_partial	Steel Hex Head Screw, 1/4"-20 x 1-1/2" long, partially threaded	7
4	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	7
5	Barrier Tape	2" x 74" White Gaffer Tape	1

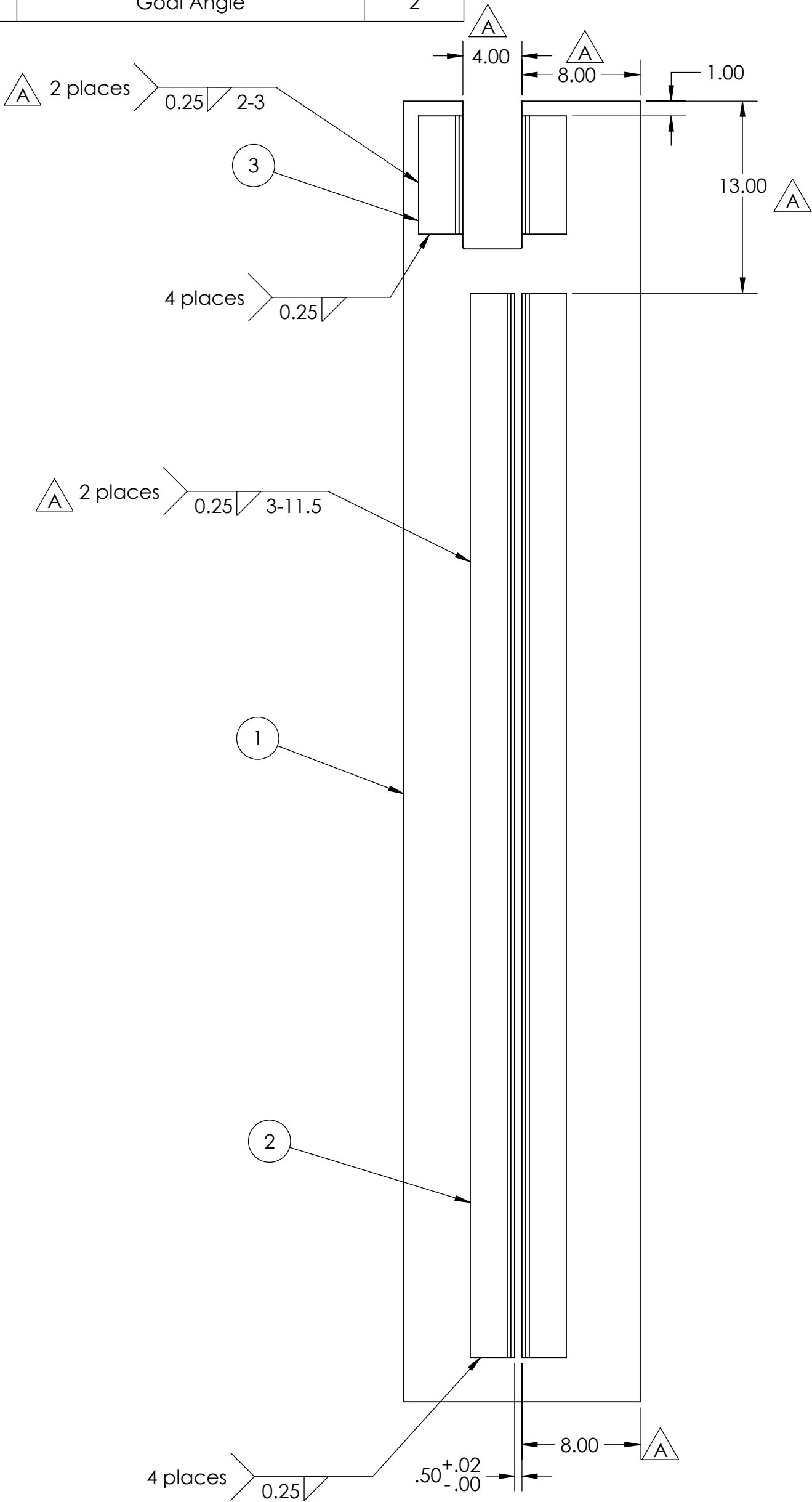
UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$
MATERIAL/FINISH:
DO NOT SCALE DRAWING

VEND	NAME	DATE
DRAWN	JO	8/23/2022
PROPRIETARY AND CONFIDENTIAL		
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COMMENTS:		
REMOVE ALL BURRS AND SHARP EDGES.		



			
TITLE:			
Blue Divider Wall			
SIZE	DWG. NO.		REV
C	GE-23410		A
SCALE: 1:12		SHEET 1 OF 1	

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23401-01	Base Plate	1
2	GE-23401-02	Wall Angle	2
3	GE-23401-03	Goal Angle	2

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A3, C4, D3, D4	A	Moved Dimensions to more useful side for welding, added width dimension for wider spaced angle brackets. two weld quantities added (previously missing)	11/9/2022	JO



Notes:  
1. Tag or Label with Part Number

UNLESS OTHERWISE SPECIFIED:	WELD	NAME	DATE	<div></div>
	DRAWN	JO	8/23/2022	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.02 THREE PLACE DECIMAL ±.015	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			TITLE: <div>Blue Divider Wall Weldment</div>
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			
<b>MATERIAL/FINISH:</b>	SIZE		DWG. NO.	REV
	<b>C</b>		GE-23411	<b>A</b>
DO NOT SCALE DRAWING	SCALE: 1:12		SHEET 1 OF 1	

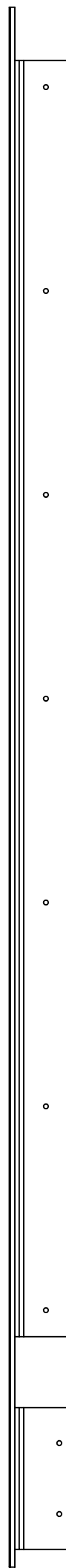
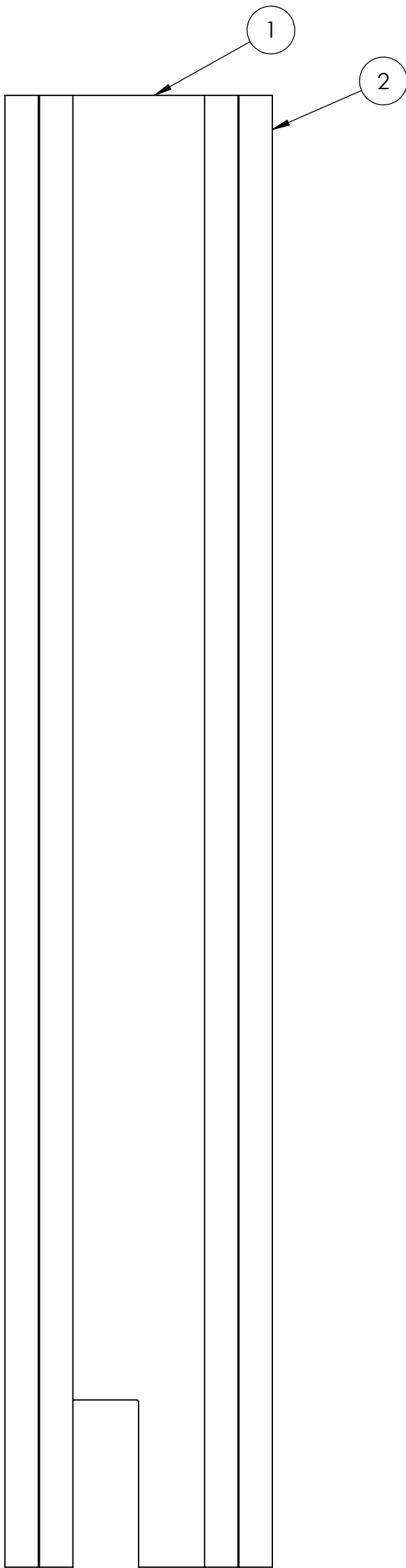
4

3

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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23411	Blue Divider Wall Weldement	1
2	Hook_2_88	2" x 88" Hook, Adhesive Backed	4



Apply Hook as shown. 4" wide hook is also acceptable.

UNLESS OTHERWISE SPECIFIED:		VEND		NAME		DATE	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$		DRAWN		JO		8/23/2022	
		<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.					
		<b>COMMENTS:</b>  REMOVE ALL BURRS AND SHARP EDGES.					
DO NOT SCALE DRAWING							

**FIRST**  
**ROBOTICS**  
**COMPETITION**

**SOLIDWORKS**  
Modeling Solutions Partner

TITLE:  <div style="text-align: center; font-size: 24px; margin-top: 20px;">Blue Divider Wall Weldement with Hook</div>		
SIZE	DWG. NO.  <div style="font-size: 36px; margin-top: 10px;">C GE-23412</div>	REV
SCALE: 1:12		SHEET 1 OF 1

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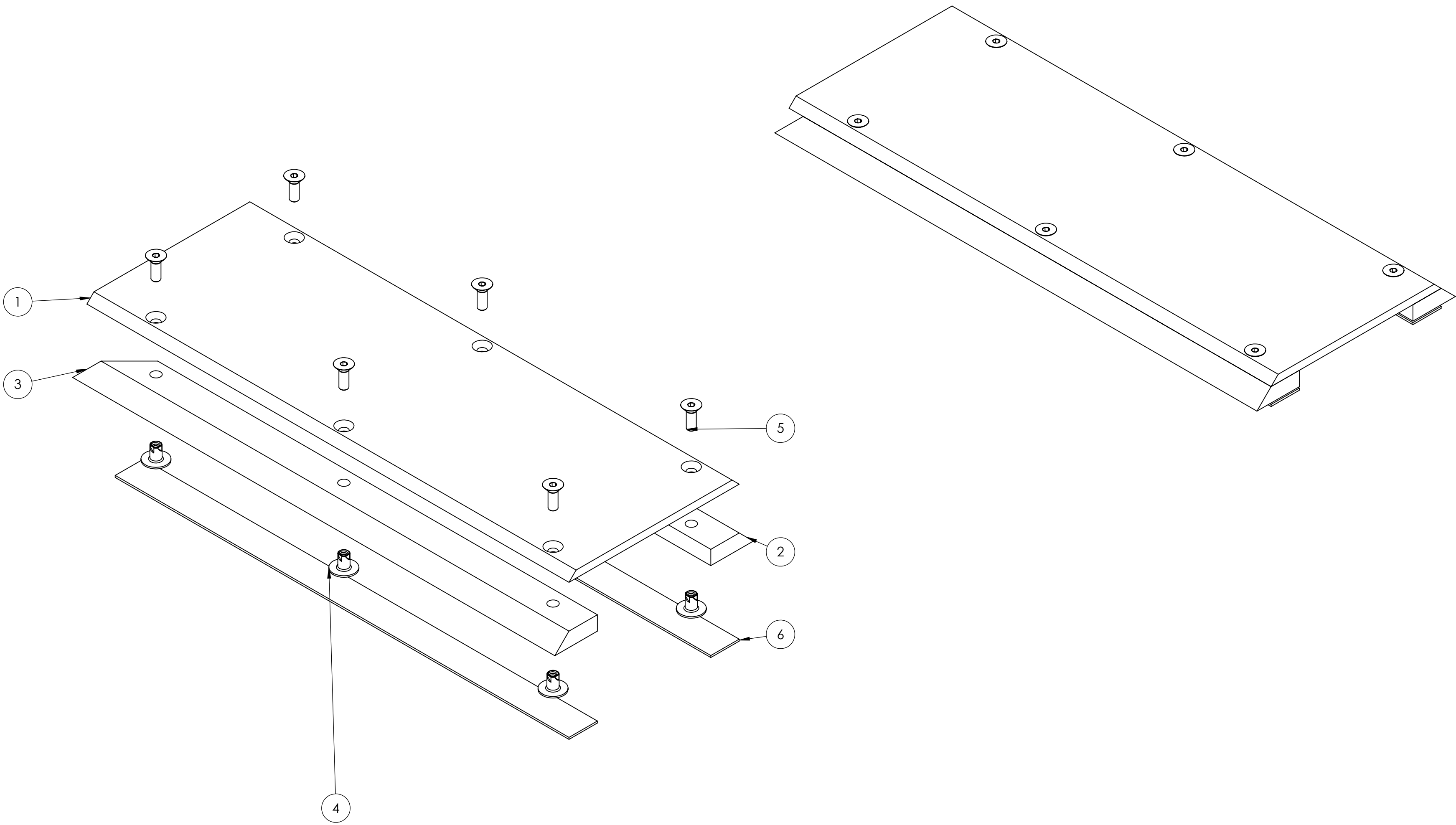
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23501	2023 protector top	1
2	GE-23502	2023 protector right side	1
3	GE-23503	2023 protector left side	1
4	TeeNut_ultra_split_rst_.25_20	.25-20 TeeNut ultra split resistant	6
5	Flat Hex .25_20_.75	Flat Hex .25_20_.75	6
6	Hook_1_16	1" x 16" Hook, Adhesive Backed	2



- Notes:
- 1. Insert (4) into predrilled holes in (2) and (3) .
  - 2. Attach (1) to (2) and (3) with (5) .
  - 3. Apply (6) post production.

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.01 THREE PLACE DECIMAL ±.005  MATERIAL/FINISH:   DO NOT SCALE DRAWING	VEND	NAME	DATE	 		
	DRAWN	NW	9/28/2022			
	PROPRIETARY AND CONFIDENTIAL			THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		
	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.					
TITLE: 2023 cable protector section		SIZE C	DWG. NO. GE-23500		REV	
SCALE: 1:2			SHEET 1 OF 1			

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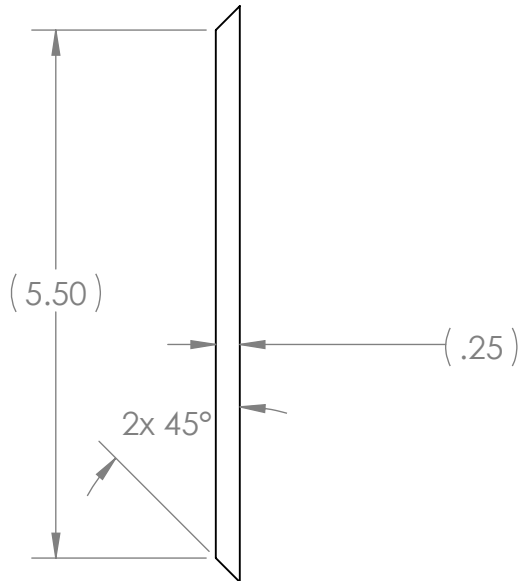
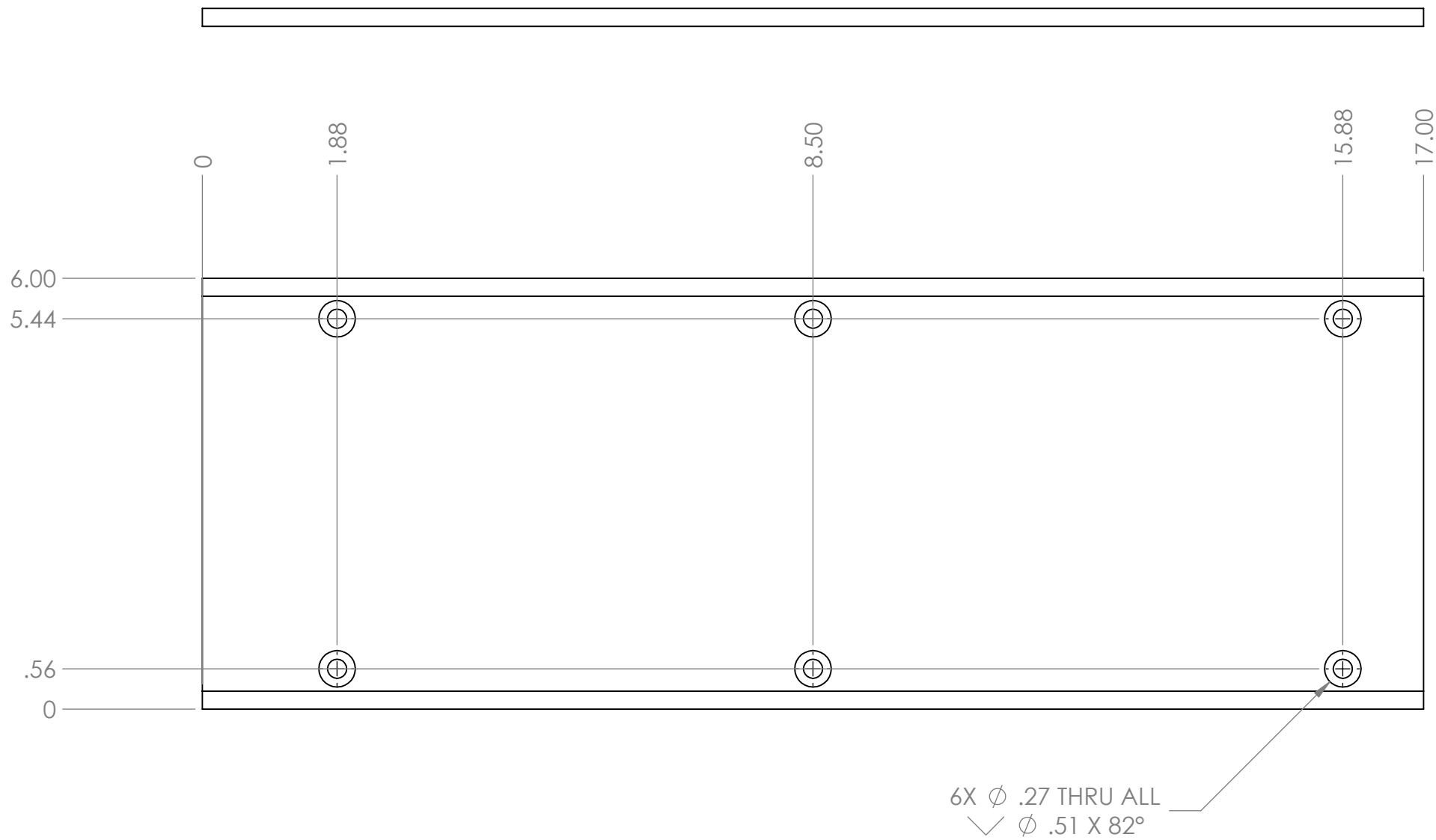
C



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UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  .25" HDPE, smooth black  DO NOT SCALE DRAWING	VEND	NAME	DATE	  TITLE: <b>2023 protector top</b>		
	DRAWN	NW	9/28/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.	REV
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23501	
SCALE: 1:2		SHEET 1 OF 1				

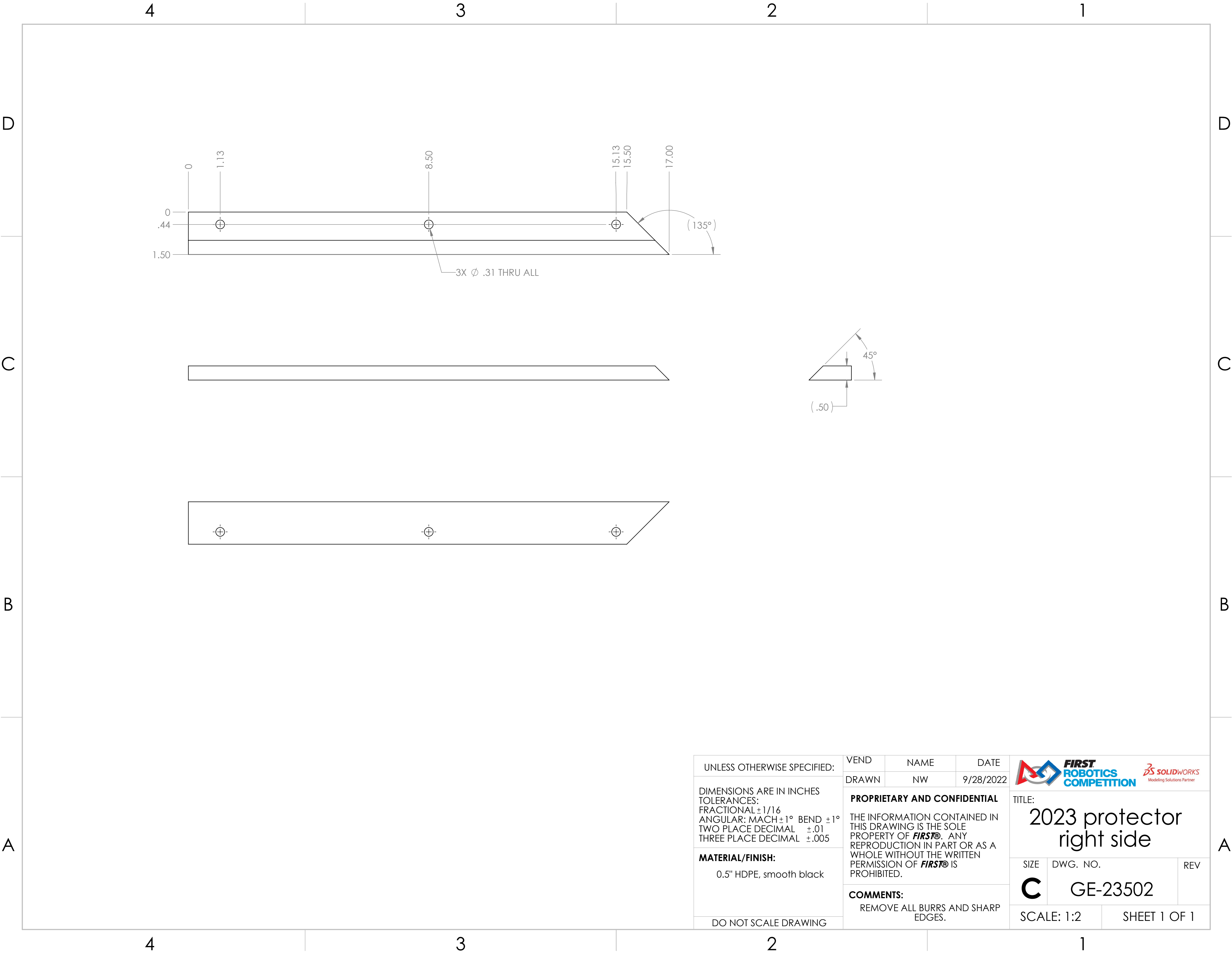
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3

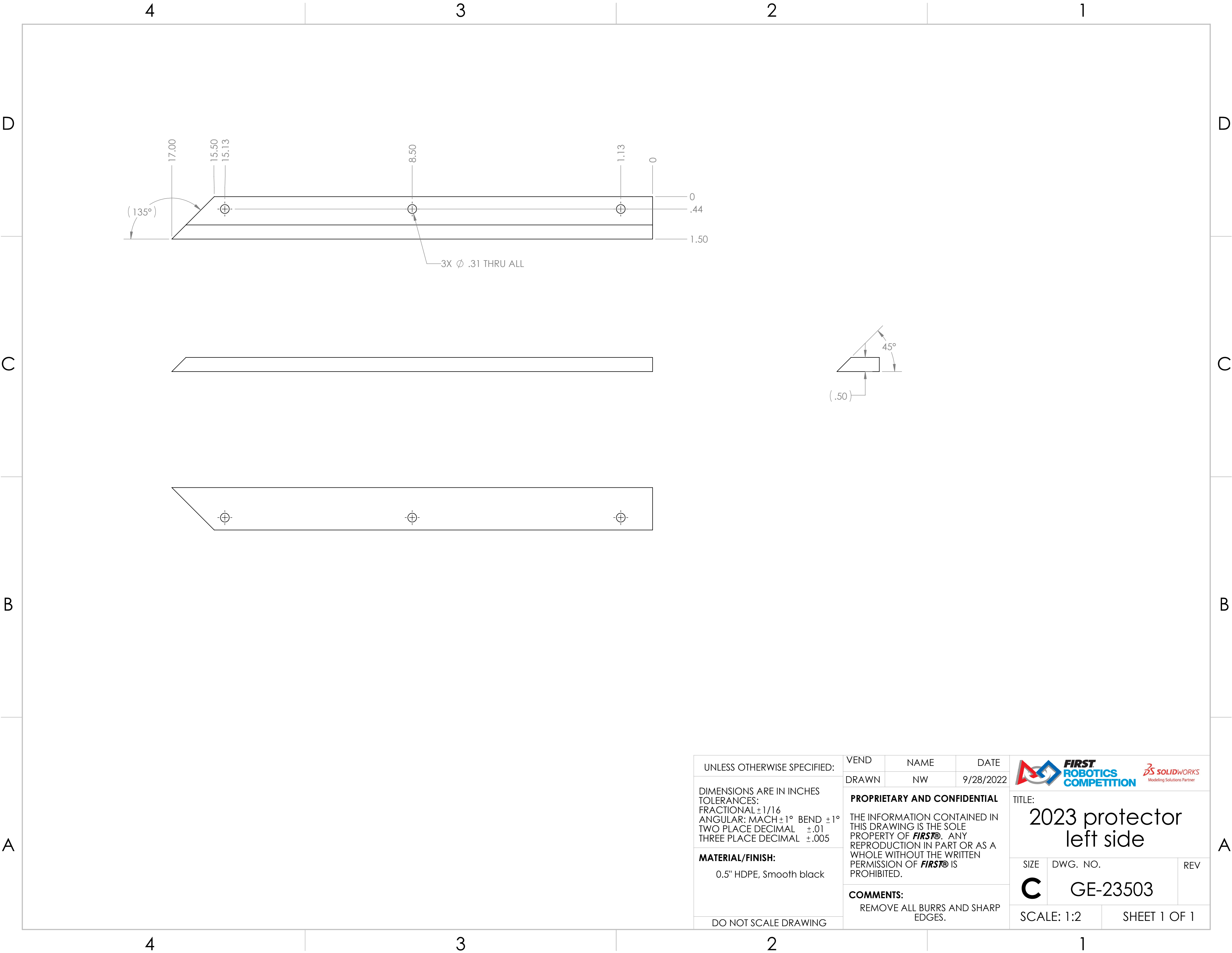
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1

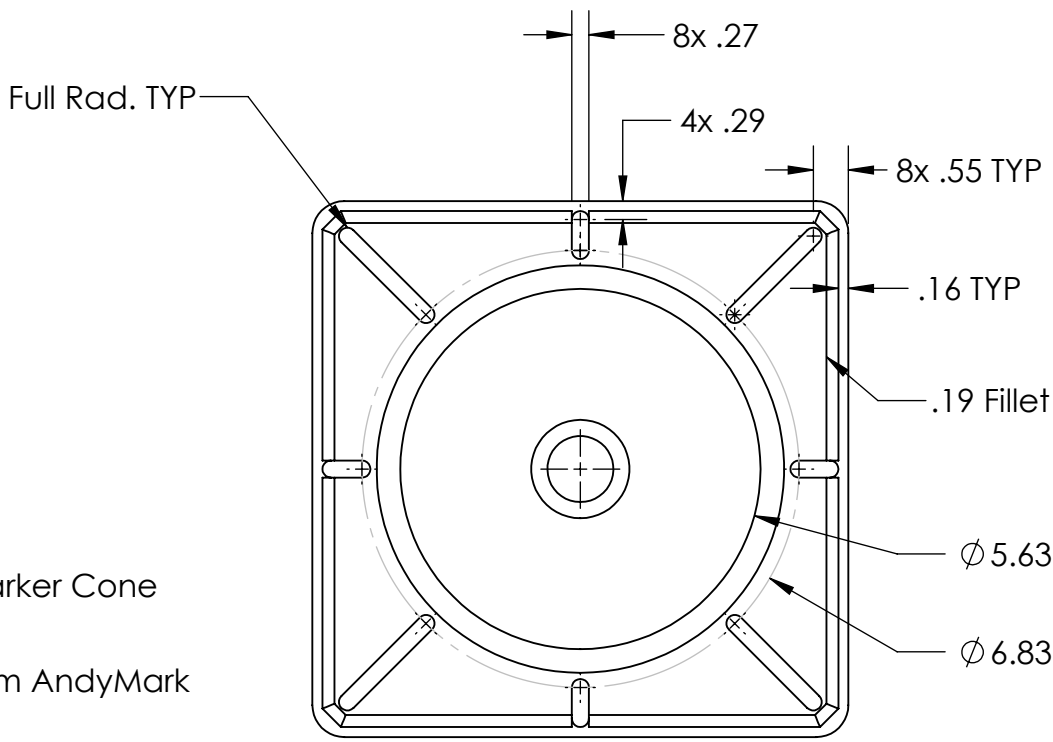
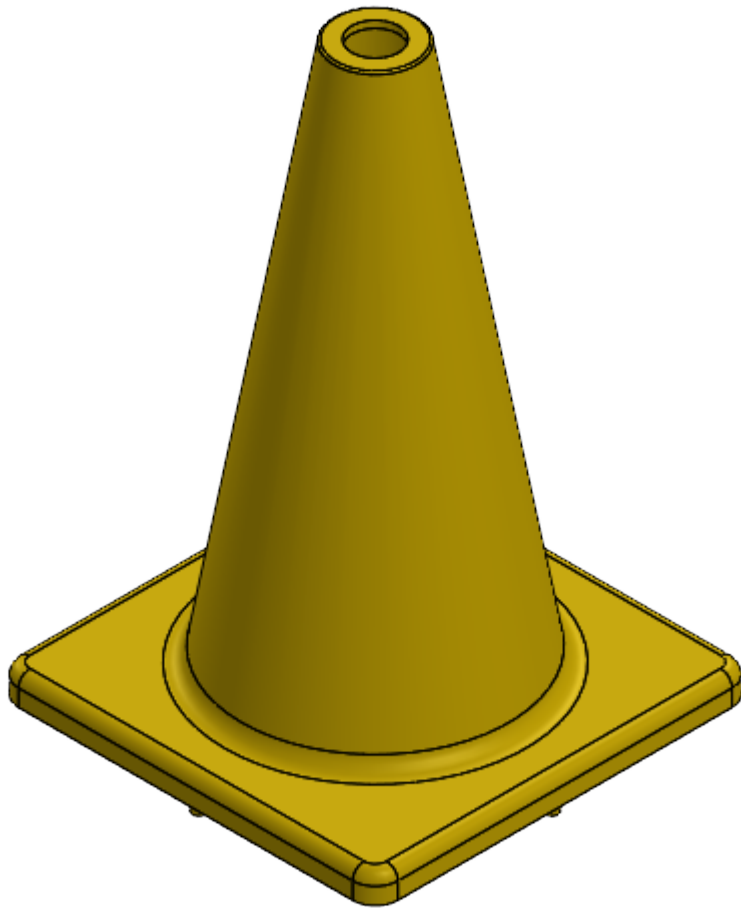
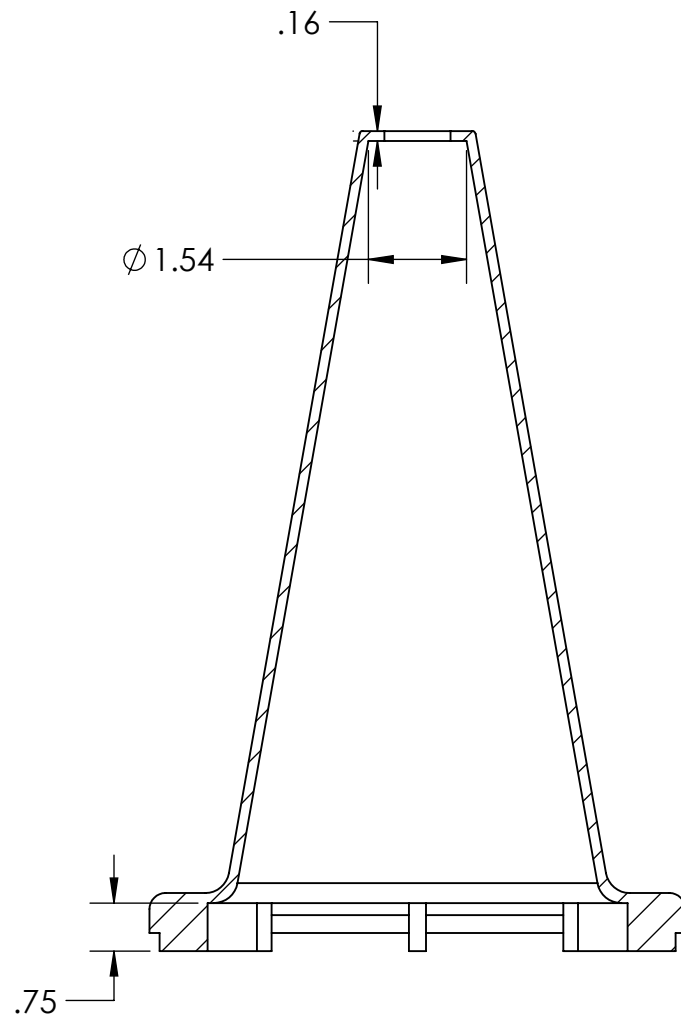
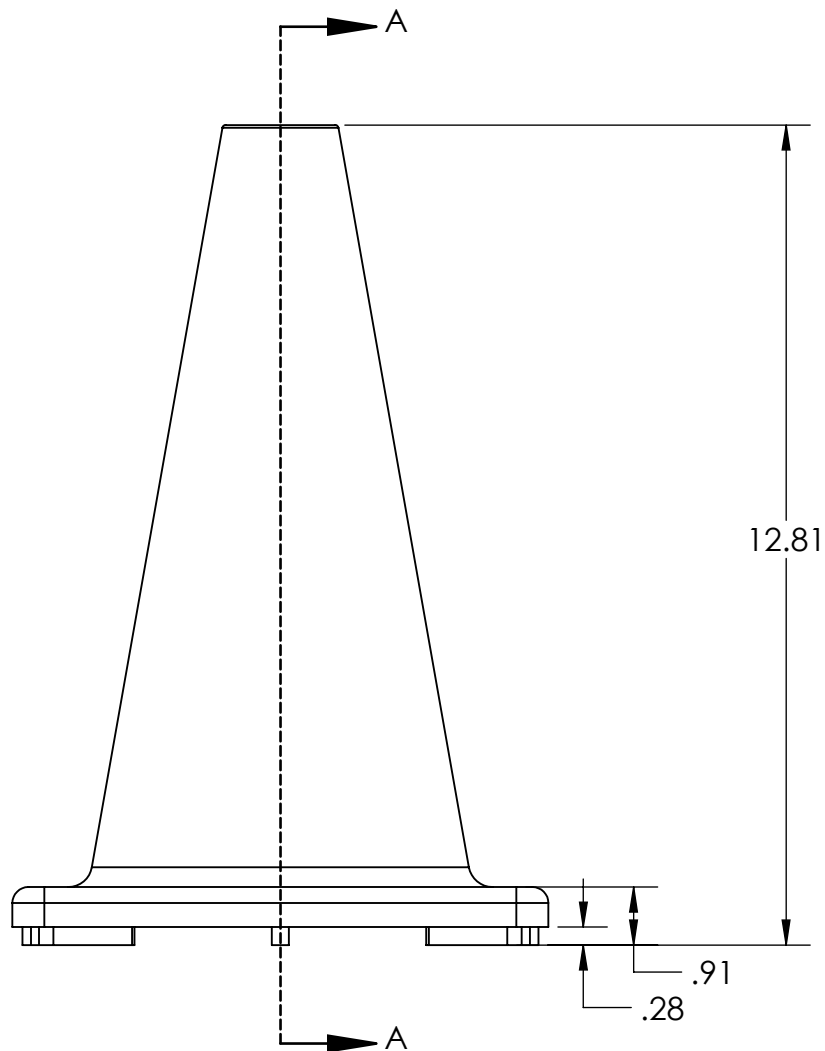
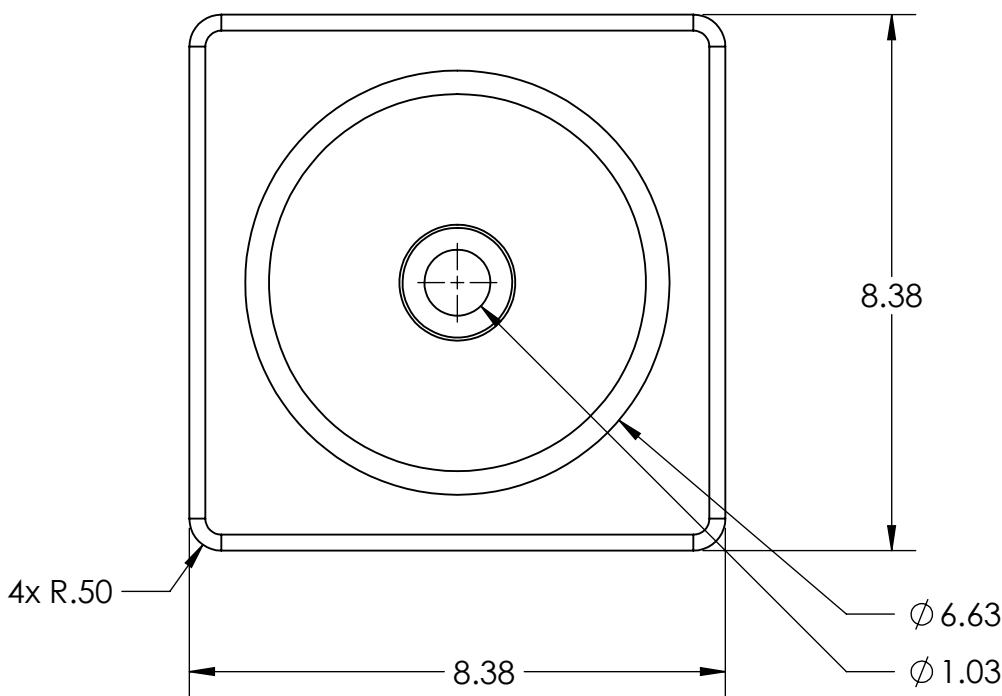




UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  0.5" HDPE, smooth black  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: <b>2023 protector right side</b></div>		
	DRAWN	NW	9/28/2022			
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.  <b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.				SIZE <b>C</b>	DWG. NO. <b>GE-23502</b>
SCALE: 1:2		SHEET 1 OF 1				REV



UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .01$ THREE PLACE DECIMAL $\pm .005$  <b>MATERIAL/FINISH:</b>  0.5" HDPE, Smooth black  DO NOT SCALE DRAWING	VEND	NAME	DATE	<div></div> <div>TITLE: <b>2023 protector left side</b></div>		
	DRAWN	NW	9/28/2022			
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SCALE: 1:2		SHEET 1 OF 1				



- Notes:
1. Description: 1ft. 13/16in. tall Rubber Marker Cone
  2. Source: Flaghouse
  3. Closest Item# sold by Flaghouse: 4158
  4. Availavle to teams as am-4700\_sync from AndyMark

UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

MATERIAL/FINISH:

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	JO	12/28/2022

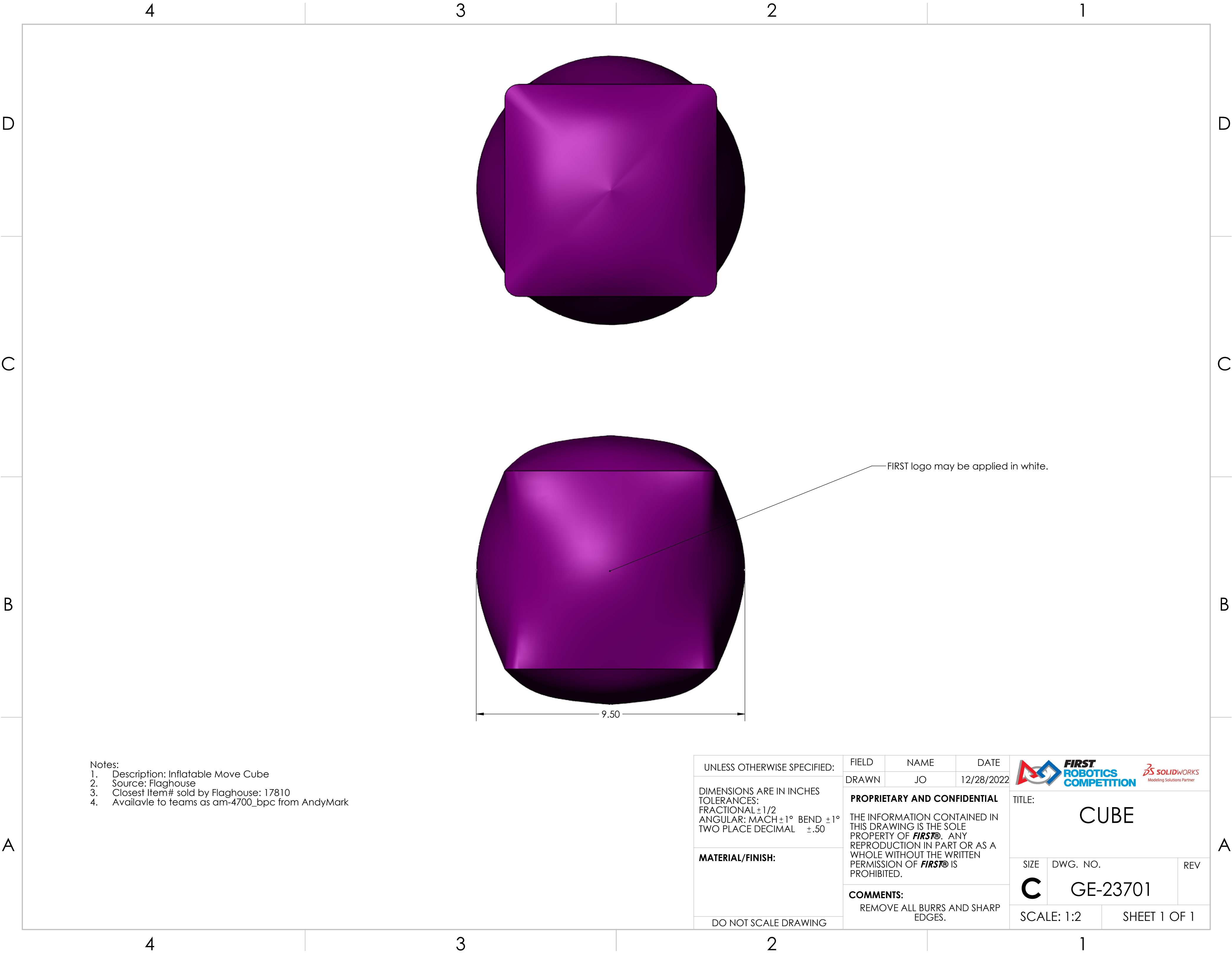
PROPRIETARY AND CONFIDENTIAL

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COMMENTS:  
REMOVE ALL BURRS AND SHARP EDGES.



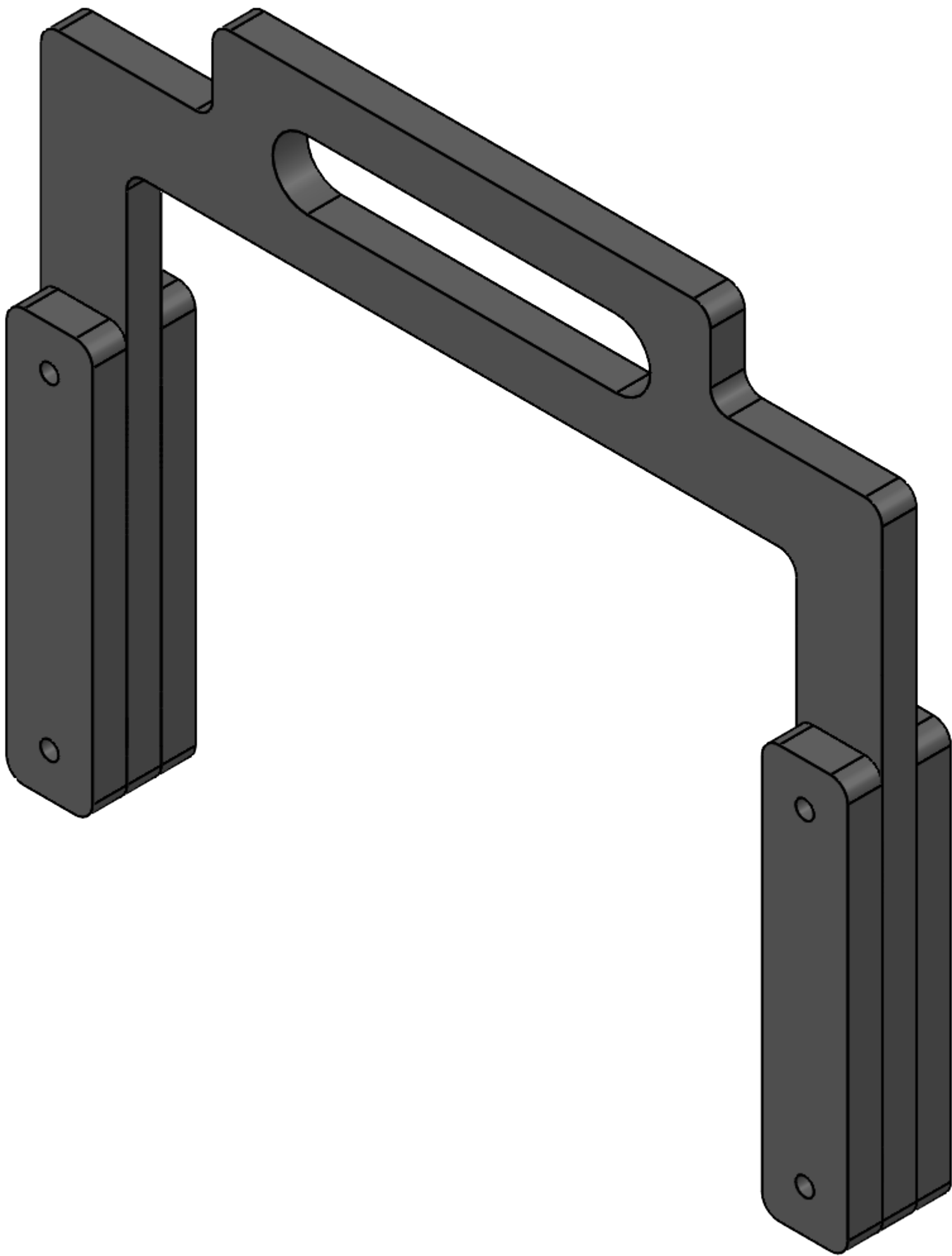
TITLE: <b>CONE</b>		
SIZE <b>C</b>	DWG. NO. <b>GE-23700</b>	REV
SCALE: 1:3		SHEET 1 OF 1



- Notes:
- 1. Description: Inflatable Move Cube
  - 2. Source: Flaghouse
  - 3. Closest Item# sold by Flaghouse: 17810
  - 4. Availavle to teams as am-4700\_bpc from AndyMark

UNLESS OTHERWISE SPECIFIED:		FIELD	NAME	DATE	 <b>FIRST ROBOTICS COMPETITION</b>		 <b>SOLIDWORKS</b> Modeling Solutions Partner	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/2 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.50		DRAWN	JO	12/28/2022	TITLE:  CUBE			
		PROPRIETARY AND CONFIDENTIAL  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.						
		MATERIAL/FINISH:		COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE C	DWG. NO. GE-23701
DO NOT SCALE DRAWING					SCALE: 1:2		SHEET 1 OF 1	





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	GE-23703	CMJ Middle	1
2	GE-23704	CMJ Side	4
3	hex_.25_20_1.75_parti al	Steel Hex Head Screw, 1/4"-20 x 1.75" long, partially threaded	4
4	nylock_.25_20	Steel Nylon-Insert Locknut, 1/4"-20	4

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES  
TOLERANCES:  
FRACTIONAL  $\pm 1/2$   
ANGULAR: MACH  $\pm 1^\circ$  BEND  $\pm 1^\circ$   
TWO PLACE DECIMAL  $\pm .50$

**MATERIAL/FINISH:**

DO NOT SCALE DRAWING

FIELD	NAME	DATE
DRAWN	NE	12/30/2022

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**COMMENTS:**  
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EDGES.



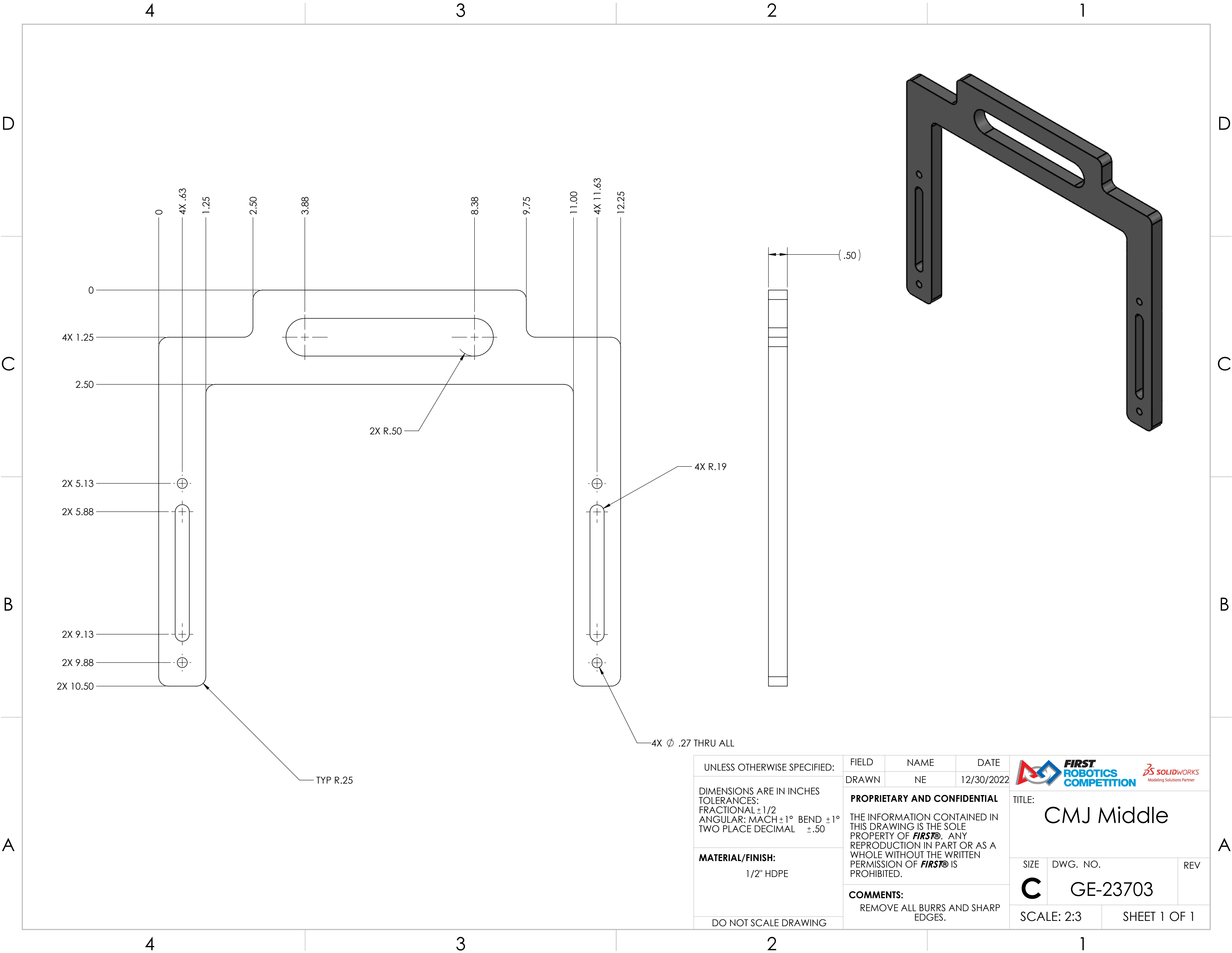
TITLE:  
**Cube  
Measuring Jig**



SIZE	DWG. NO.	REV
<b>C</b>	GE-23702	

SCALE: 4:5 SHEET 1 OF 2







UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/2$ ANGULAR: MACH $\pm 1^\circ$ BEND $\pm 1^\circ$ TWO PLACE DECIMAL $\pm .50$  <b>MATERIAL/FINISH:</b>  1/2" HDPE  DO NOT SCALE DRAWING	FIELD	NAME	DATE	<div></div> <div>TITLE: CMJ Middle</div>	
	DRAWN	NE	12/30/2022		
	<b>PROPRIETARY AND CONFIDENTIAL</b>  THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.			SIZE	DWG. NO.
	<b>COMMENTS:</b> REMOVE ALL BURRS AND SHARP EDGES.			<b>C</b>	GE-23703
SCALE: 2:3		SHEET 1 OF 1			

