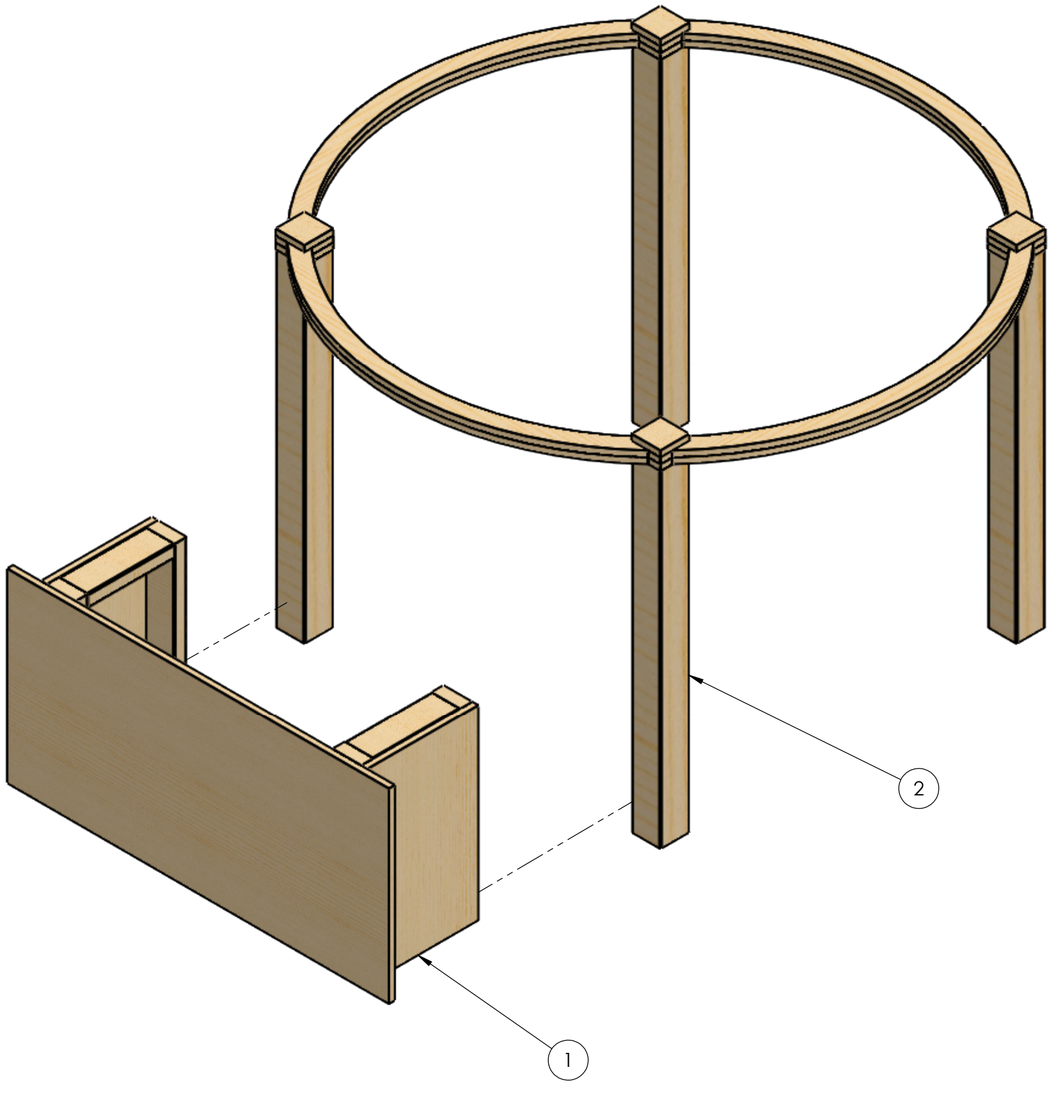
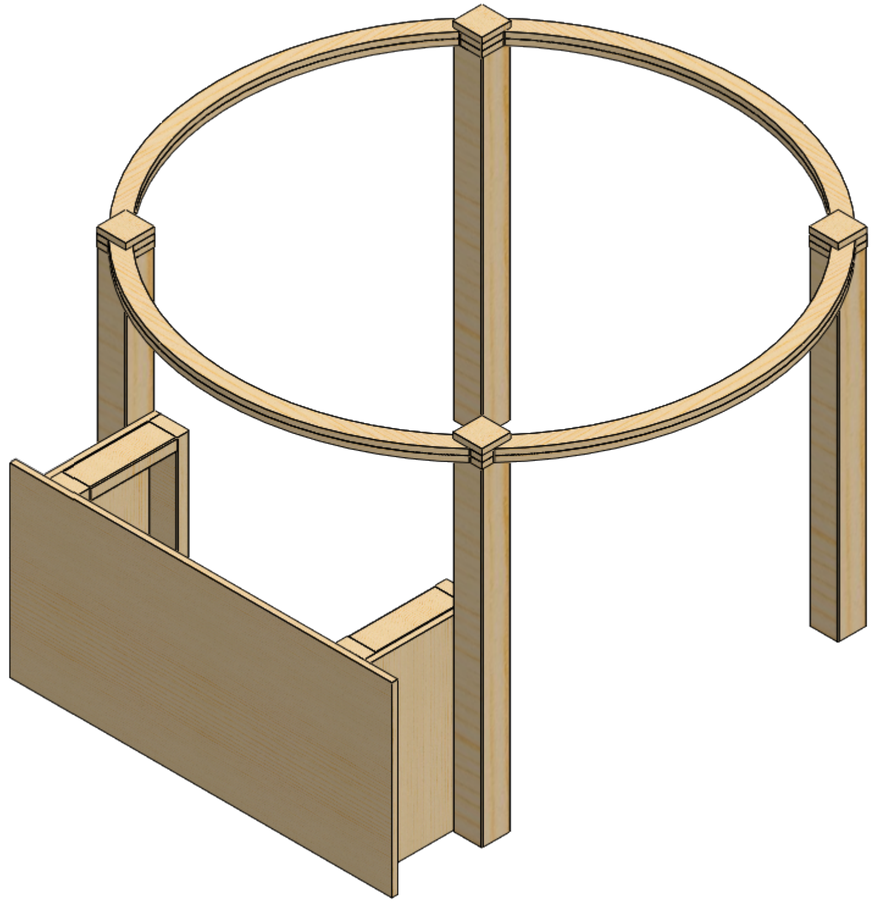




Hardware Needed:
#8 x 2" Long Screw - Qty 10

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-22010	Hub - Simple Build - Fender Assembly	1
2	TE-22020-Multiple	Hub - Simple Build - Lower Hub Assembly - Multiple	1

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

DO NOT SCALE DRAWING

TEAM	NAME	DATE
DRAWN	KAMC	1/3/2022

COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

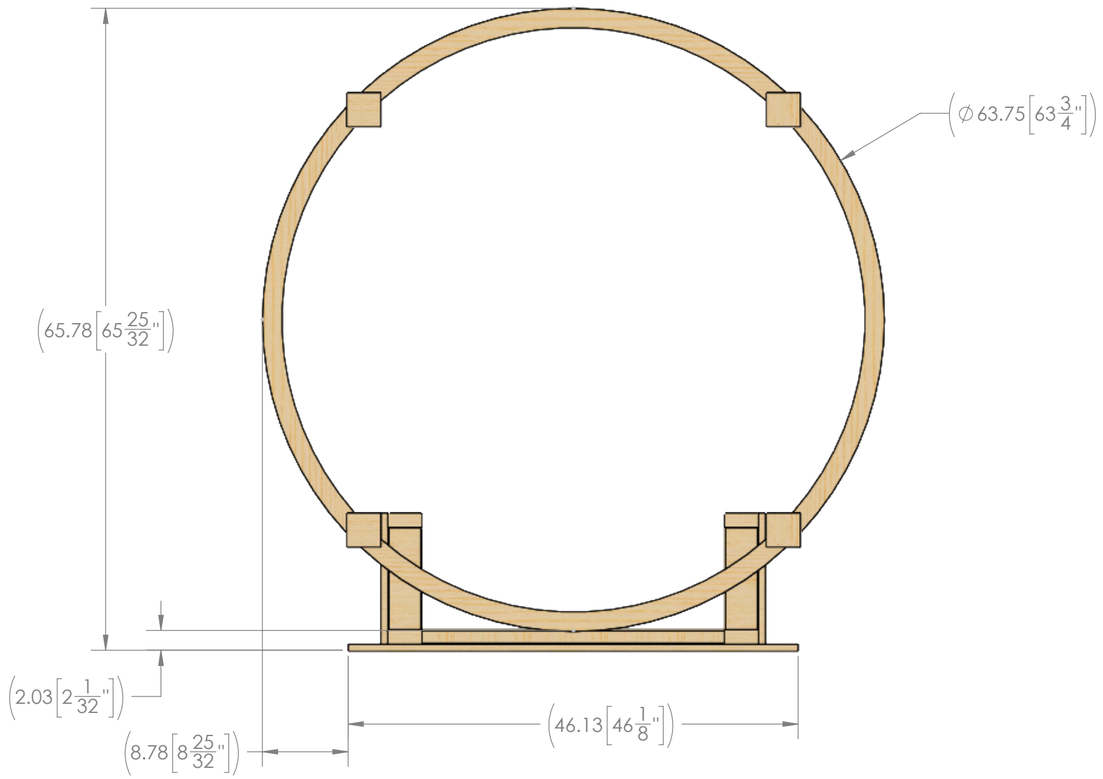
FIRST ROBOTICS COMPETITION
SOLIDWORKS Modeling Solutions Partner

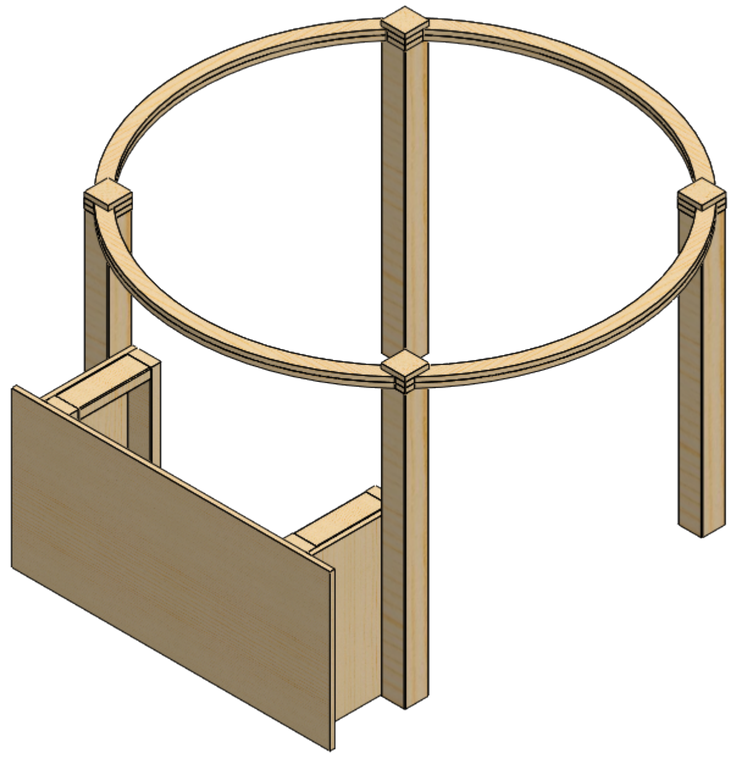
TITLE:
Hub - Simple Build - Full Lower Hub + 1/4 Fender Assembly

SIZE	DWG. NO.	REV
C	TE-22001-Multiple	

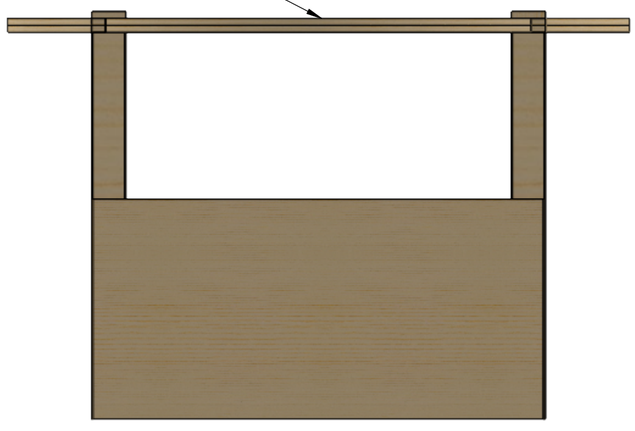
SCALE: 1:10 SHEET 1 OF 3

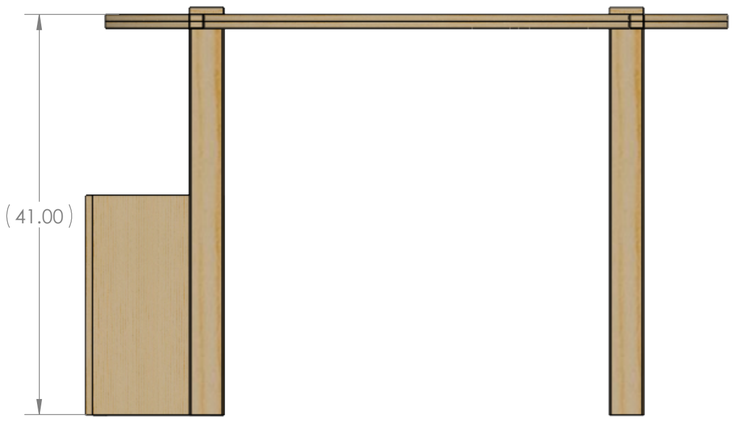
Note: If you are planning to disassemble frequently, you may want to consider using bolted connections instead of screws. It is helpful to consider ability to move assembly through doors before fastening sub-assemblies together.





Note: On Field, there is a protrusion in approximately this location. See GE-22300 for details





UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
	DRAWN	KAMC	1/3/2022

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

DO NOT SCALE DRAWING

COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

FIRST ROBOTICS COMPETITION

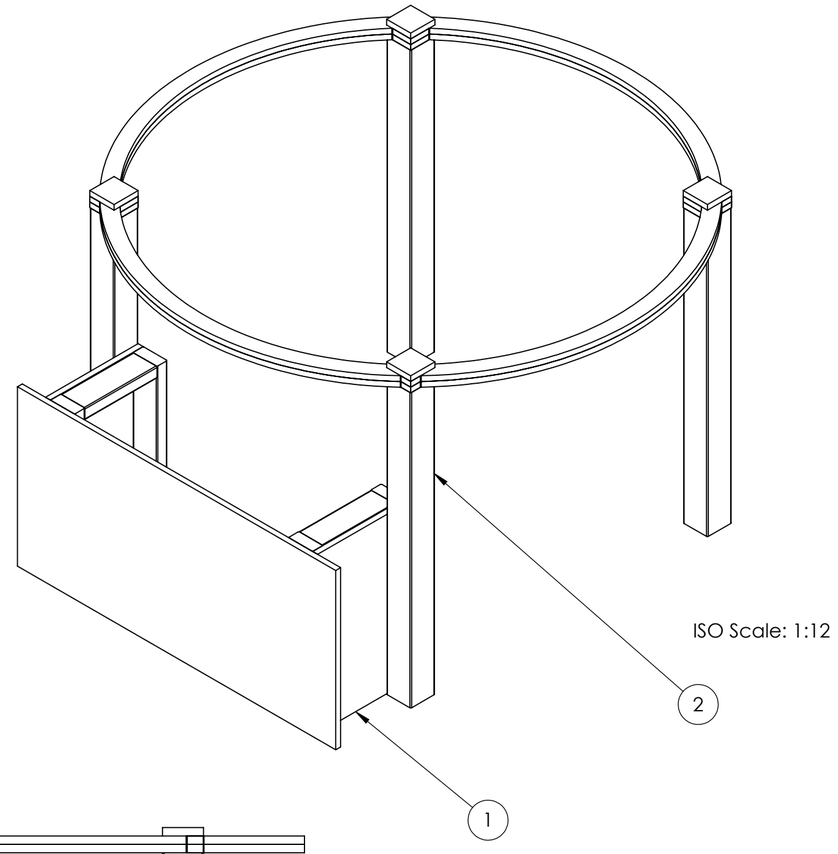
SOLIDWORKS Modeling Solutions Partner

TITLE:

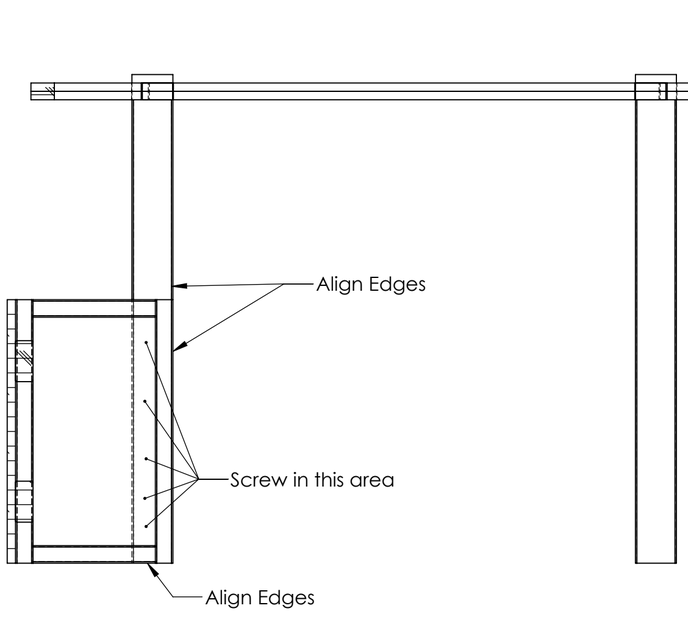
Hub - Simple Build - Full Lower Hub + 1/4 Fender Assembly

SIZE	DWG. NO.	REV
C	TE-22001-Multiple	

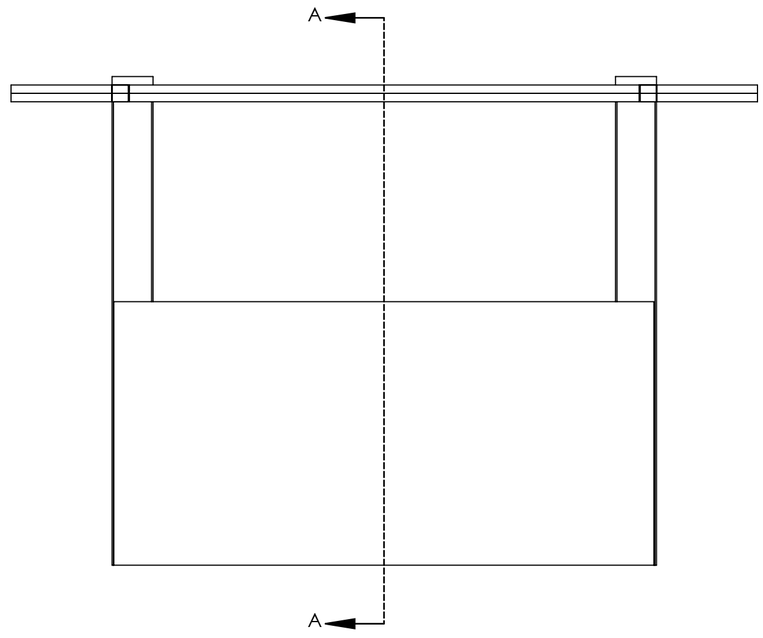
SCALE: 1:12 SHEET 2 OF 3



Step 1:



SECTION A-A
Hidden Lines SHown



1. Align (2) to (1), as shown.
2. Connect using 2" Long Screws. It is recommended to 10x screws, 5x screws into each 4" x 4" Lumber on (2), as shown in Section A-A.

UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
	DRAWN	KAMC	1/3/2022

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

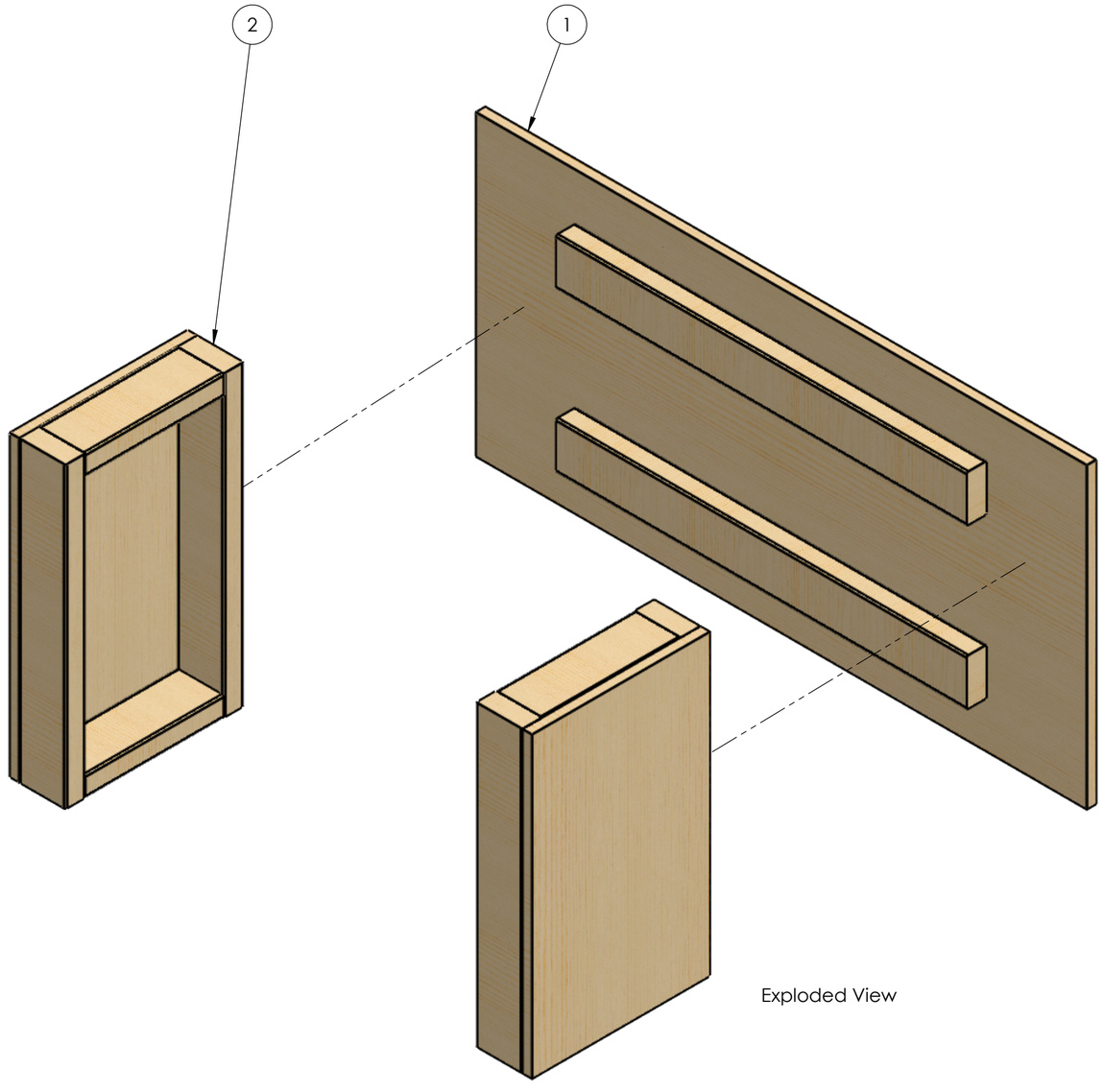
DO NOT SCALE DRAWING

COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

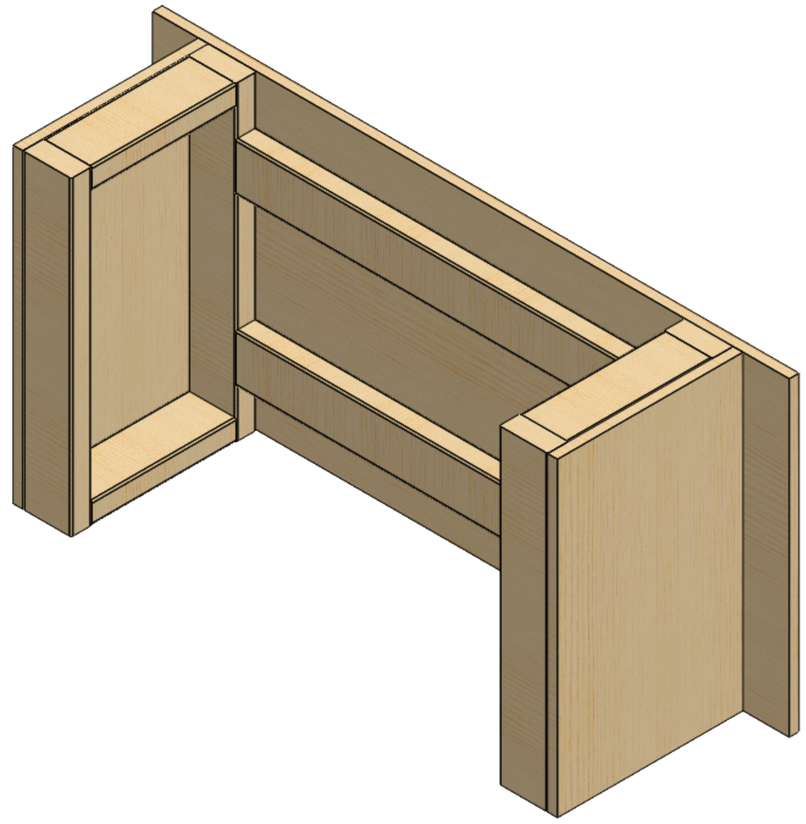
FIRST ROBOTICS COMPETITION
SOLIDWORKS Modeling Solutions Partner

TITLE:
Hub - Simple Build - Full Lower Hub + 1/4 Fender Assembly

SIZE	DWG. NO.	REV
C	TE-22001-Multiple	
SCALE: 1:10	SHEET 3 OF 3	



Exploded View



Hardware Needed:
#8 x 2" Long Screw - Qty 10

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-22013	HUB - Basic Build - Fender Front Assembly	1
2	TE-22017	HUB - Basic Build - Fender Side Assembly	2

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

DO NOT SCALE DRAWING

	TEAM	NAME	DATE
DRAWN		KAMC	12/30/2021

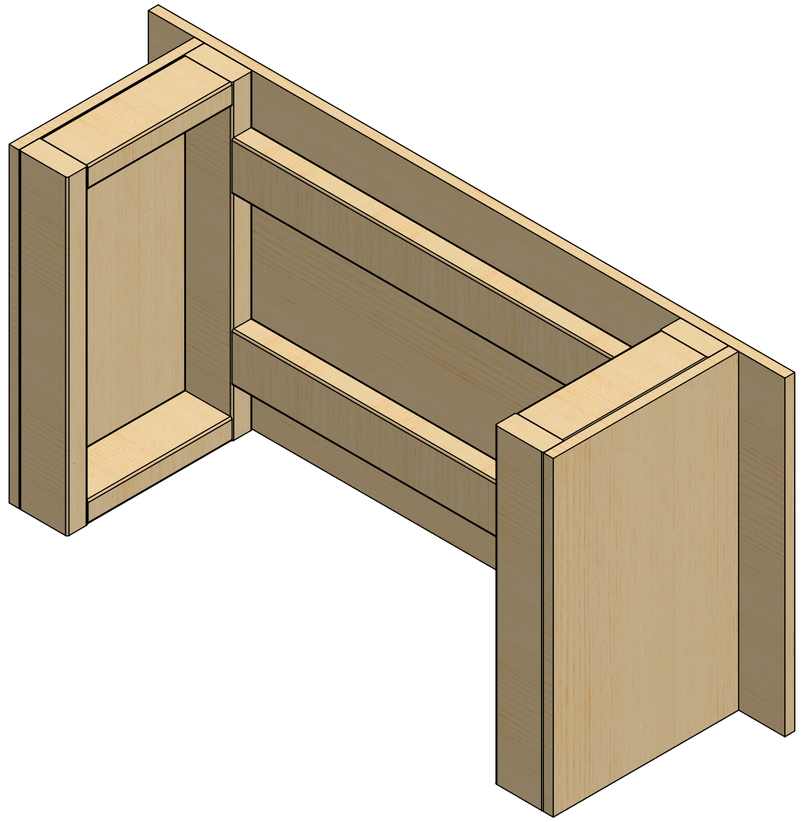
COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

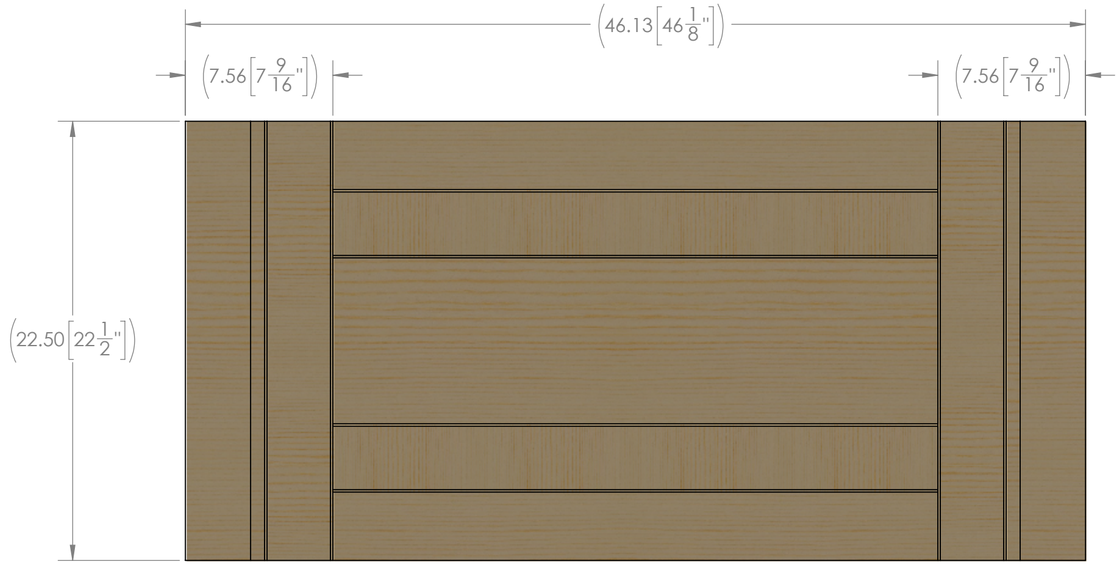
FIRST ROBOTICS COMPETITION
SOLIDWORKS Modeling Solutions Partner

TITLE:
Hub - Simple Build - Fender Assembly

SIZE	DWG. NO.	REV
C	TE-22010	

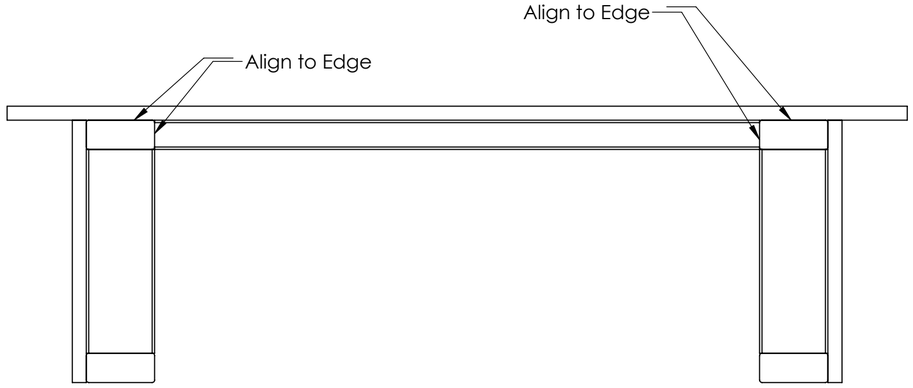
SCALE: 1:6 SHEET 1 OF 3

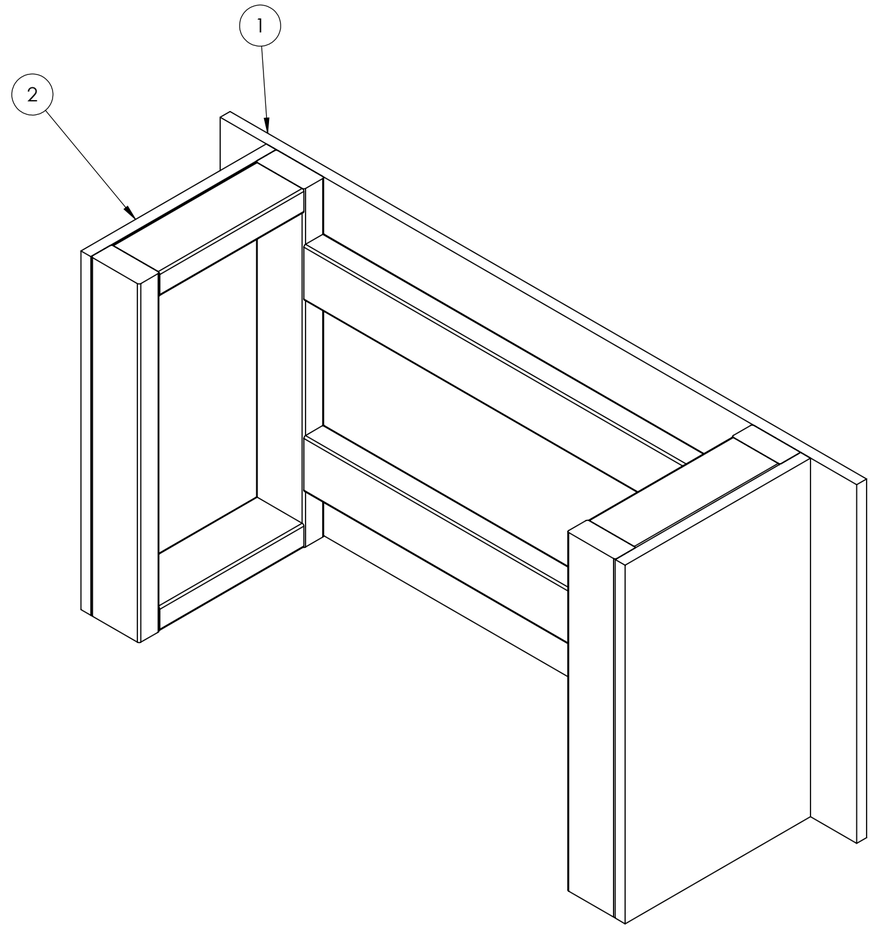




UNLESS OTHERWISE SPECIFIED:	TEAM	NAME / DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	DRAWN	KAMC 12/30/2021
MATERIAL/FINISH:	**PROPRIETARY AND CONFIDENTIAL** THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ***FIRST®***. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ***FIRST®*** IS PROHIBITED.	TITLE: Hub - Simple Build - Fender Assembly
DO NOT SCALE DRAWING	**COMMENTS:** REMOVE ALL BURRS AND SHARP EDGES.	SIZE C / DWG. NO. TE-22010 / REV
		SCALE: 1:6 / SHEET 2 OF 3

Step 1





Step 1:

1. Align 2x (2) to (1) as shown.
2. Connect using 2" long screws. It is recommended to use 5x screws into each (2).

UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
	DRAWN	KAMC	12/30/2021

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

DO NOT SCALE DRAWING

COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

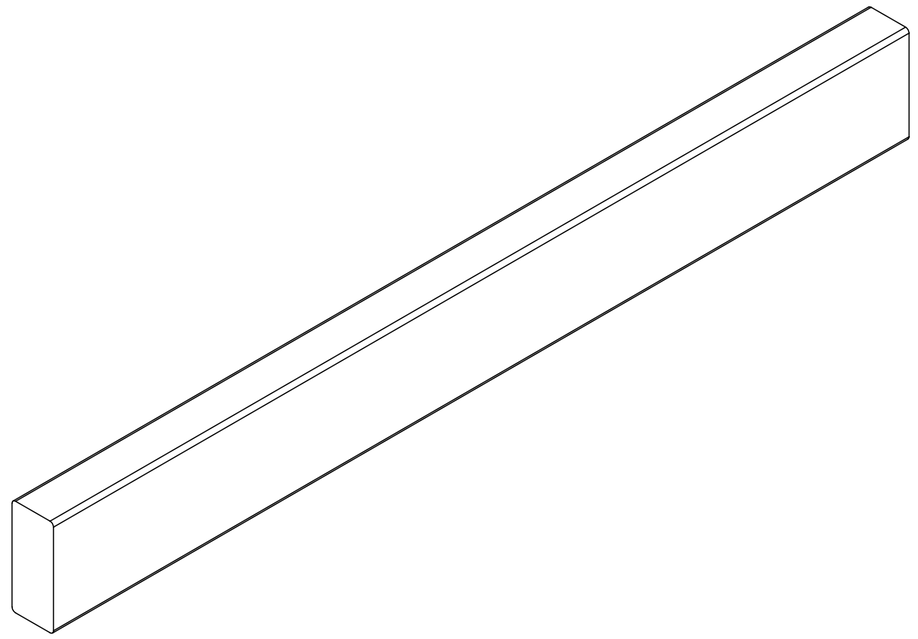
FIRST ROBOTICS COMPETITION

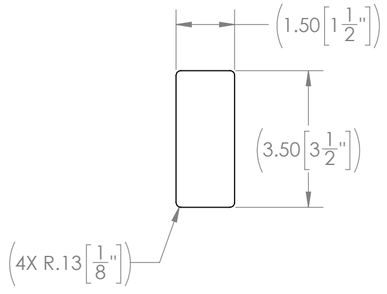
SOLIDWORKS Modeling Solutions Partner

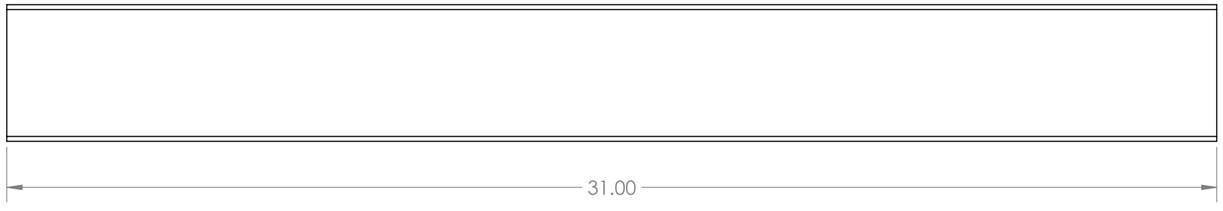
TITLE:

Hub - Simple Build - Fender Assembly

SIZE	DWG. NO.	REV
C	TE-22010	
SCALE: 1:6	SHEET 3 OF 3	







UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	DRAWN	KAMC	12/29/2021

MATERIAL/FINISH:

2"x4" Lumber

DO NOT SCALE DRAWING

COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

FIRST ROBOTICS COMPETITION

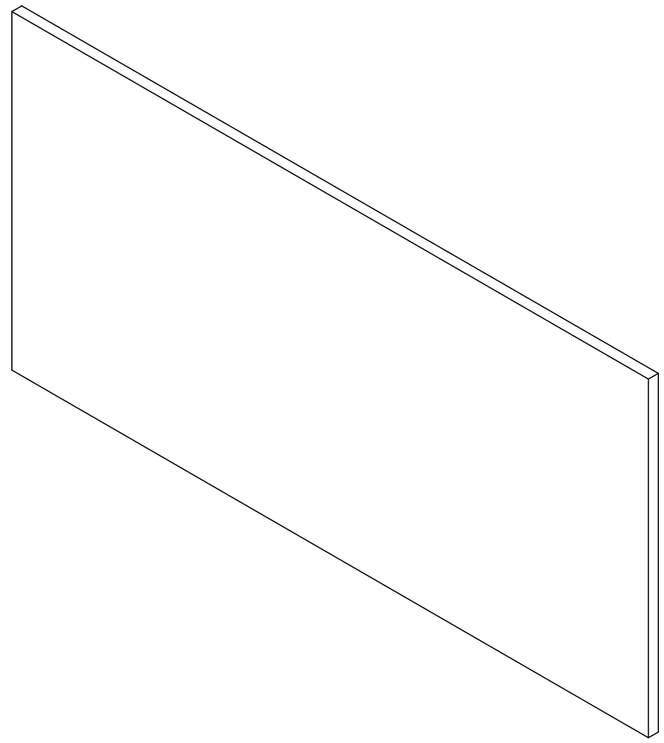
SOLIDWORKS Modeling Solutions Partner

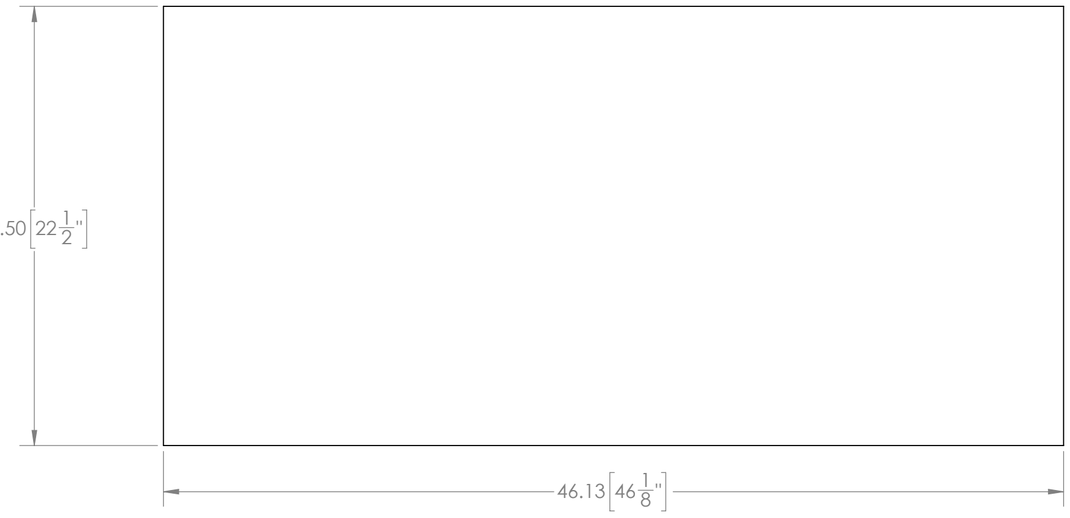
TITLE:

HUB - Simple Build - Fender Front Horizontal 2x4

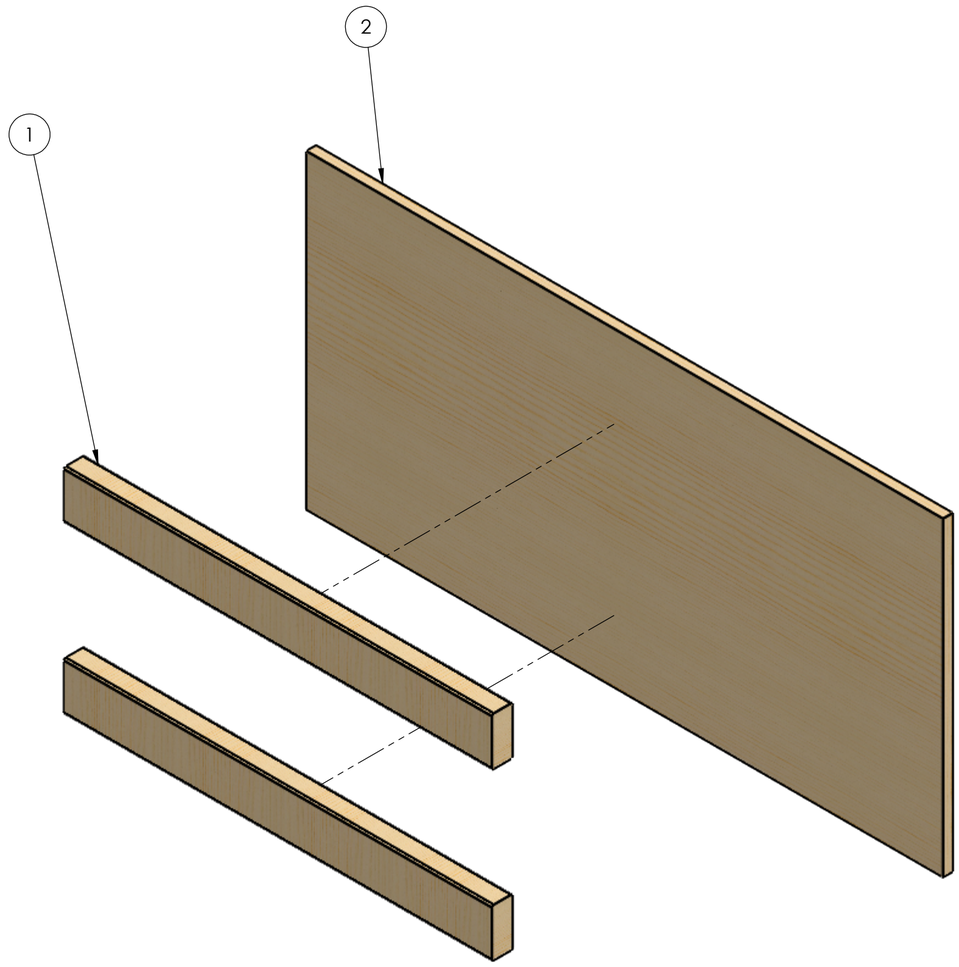
SIZE	DWG. NO.	REV
C	TE-22011	

SCALE: 1:3 | SHEET 1 OF 1

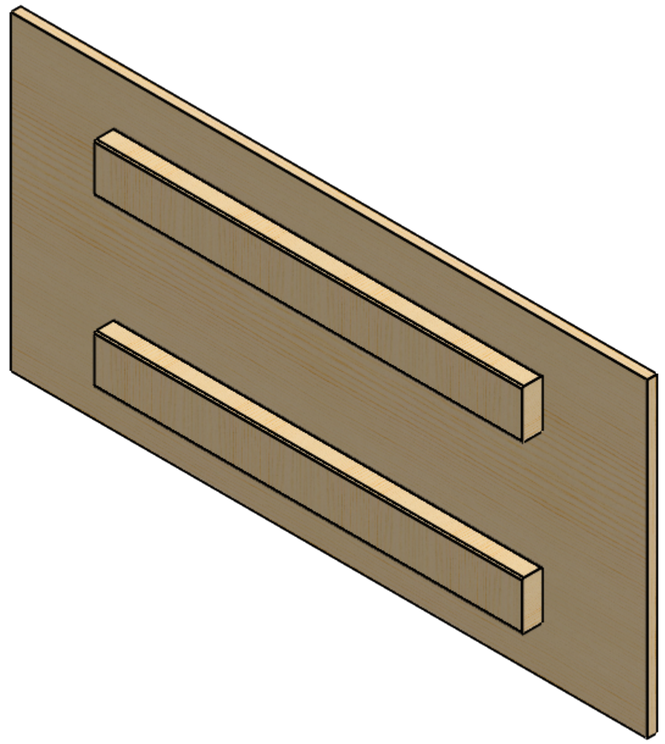




UNLESS OTHERWISE SPECIFIED:	TEAM	NAME / DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	DRAWN	KAMC 12/29/2021
MATERIAL/FINISH: 3/4" Plywood	**PROPRIETARY AND CONFIDENTIAL** THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ***FIRST®***. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ***FIRST®*** IS PROHIBITED.	FIRST ROBOTICS COMPETITION SOLIDWORKS Modeling Solutions Partner
DO NOT SCALE DRAWING	**COMMENTS:** REMOVE ALL BURRS AND SHARP EDGES.	TITLE: HUB - Simple Build - Fender Front
		SIZE: C DWG. NO.: TE-22012 REV:
		SCALE: 1:6 SHEET 1 OF 1



Exploded View



Hardware Needed:
#8 x 2" Long Screws - Qty 14

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-22011	HUB - Simple Build - Fender Front Horizontal 2x4	2
2	TE-22012	HUB - Simple Build - Fender Front	1

Step 1:

1. Align 2x (1) to (2) as shown, using dimensions provided on Sheet 2.
2. Connect using 2" long screws. It is recommended to 7x screws into each (1) .

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

DO NOT SCALE DRAWING

	TEAM	NAME	DATE
DRAWN		KAMC	12/30/2021

COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

FIRST ROBOTICS COMPETITION

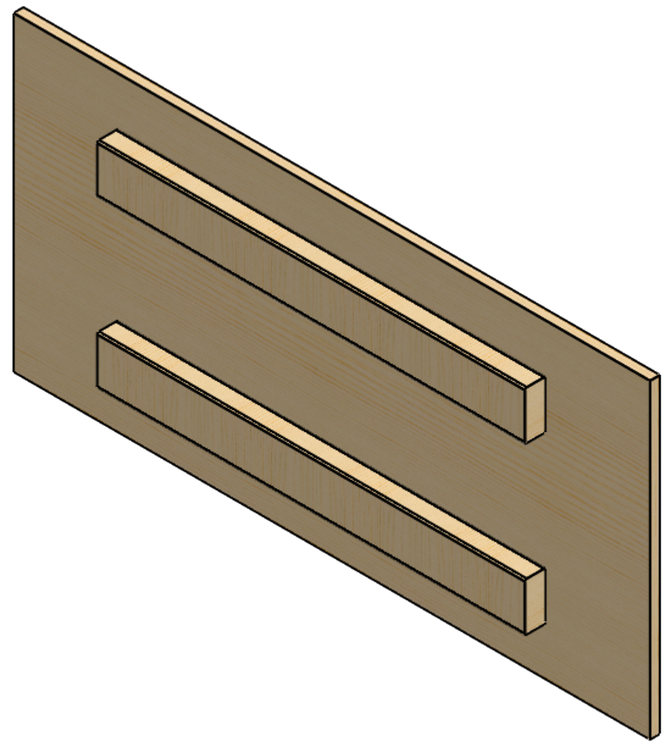
SOLIDWORKS Modeling Solutions Partner

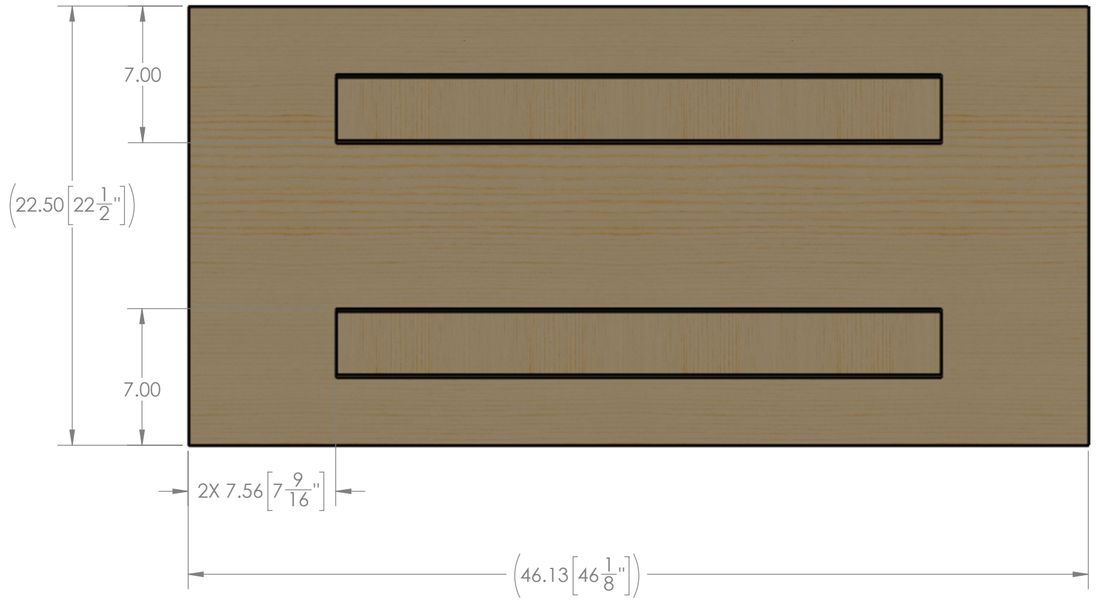
TITLE:

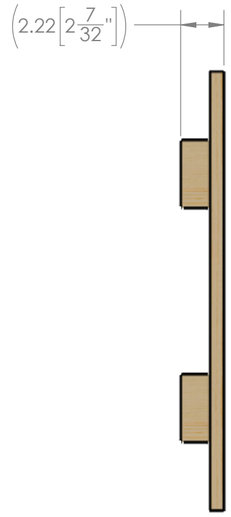
HUB - Basic Build - Fender Front Assembly

SIZE	DWG. NO.	REV
C	TE-22013	

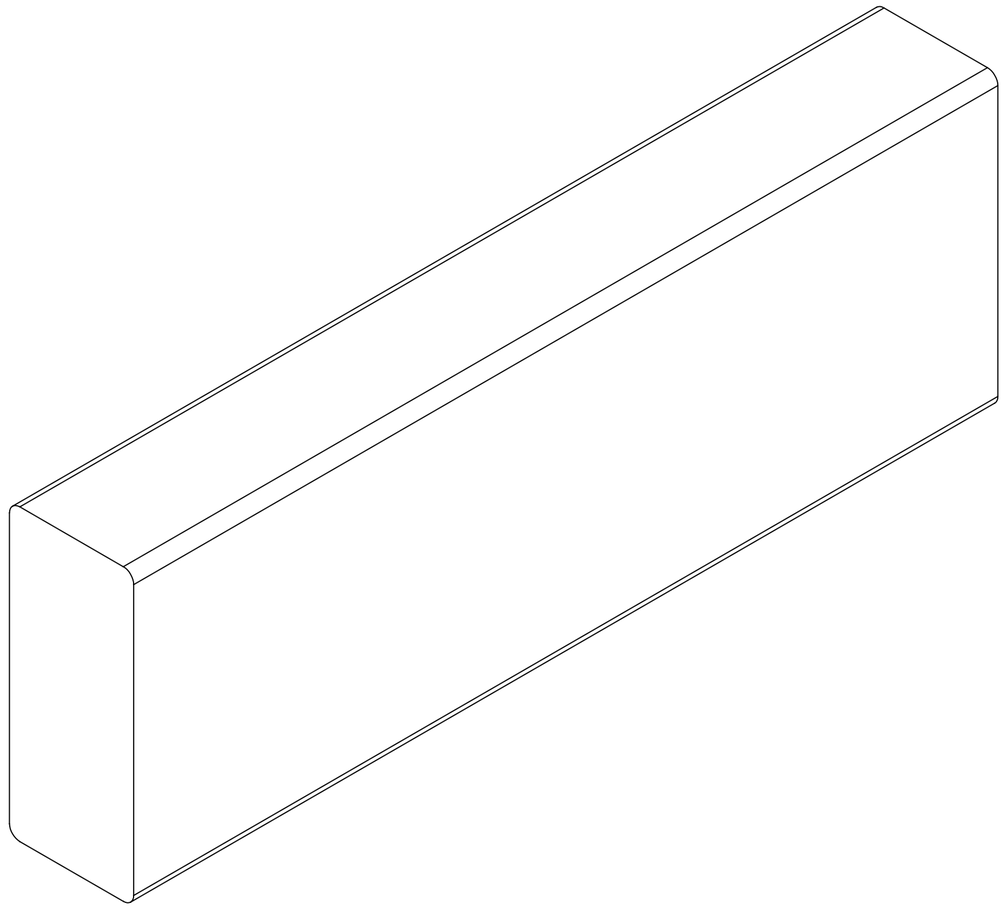
SCALE: 1:6 SHEET 1 OF 2

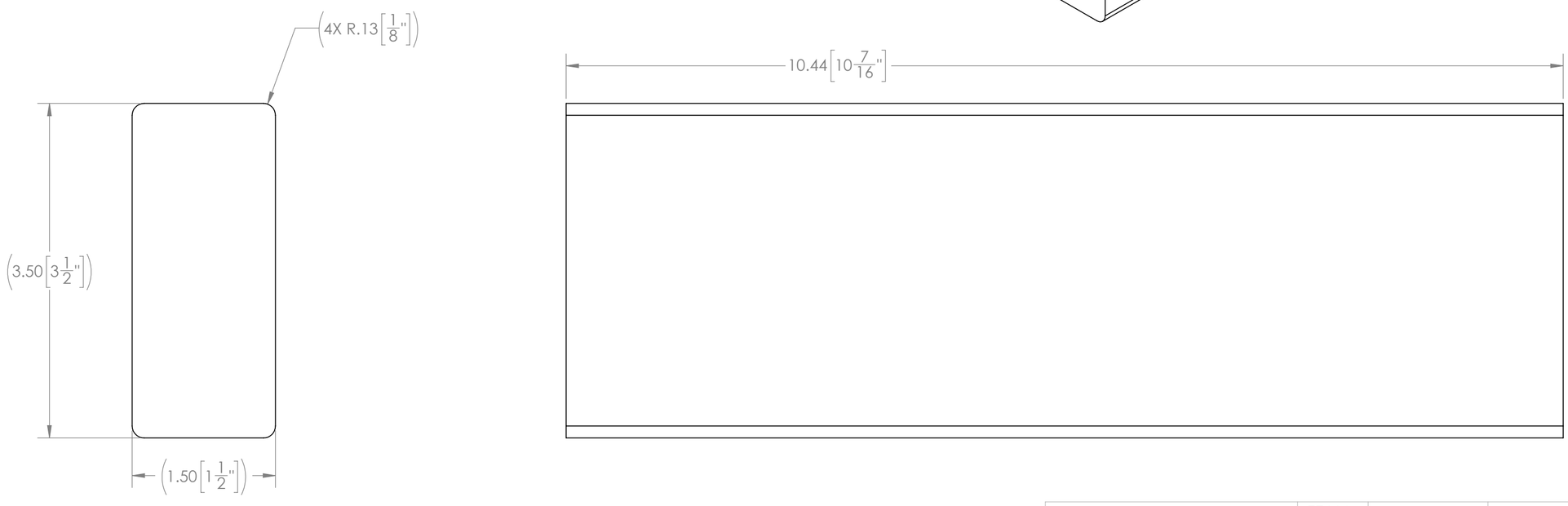






UNLESS OTHERWISE SPECIFIED:	TEAM	NAME / DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	DRAWN	KAMC 12/30/2021
MATERIAL/FINISH:	**PROPRIETARY AND CONFIDENTIAL** THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ***FIRST®***. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ***FIRST®*** IS PROHIBITED.	TITLE: HUB - Basic Build - Fender Front Assembly
DO NOT SCALE DRAWING	**COMMENTS:** REMOVE ALL BURRS AND SHARP EDGES.	SIZE: C · DWG. NO.: TE-22013 · REV: SCALE: 1:6 · SHEET 2 OF 2





UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
	DRAWN	KAMC	12/29/2021

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

2"x4" Lumber

DO NOT SCALE DRAWING

COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

FIRST ROBOTICS COMPETITION

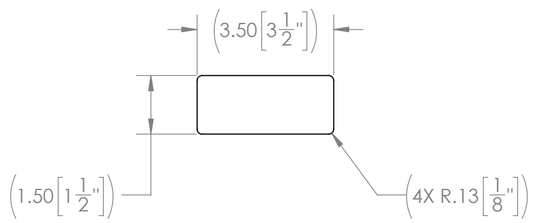
SOLIDWORKS Modeling Solutions Partner

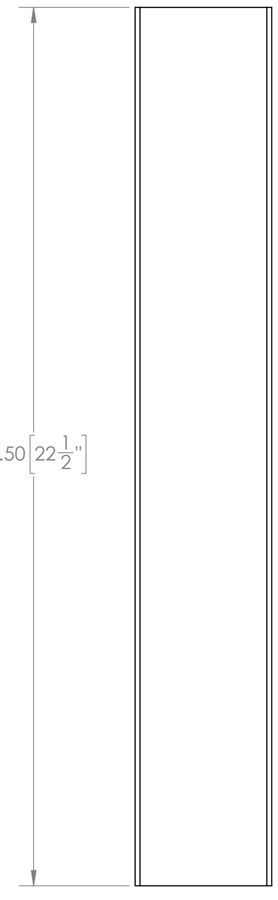
TITLE:

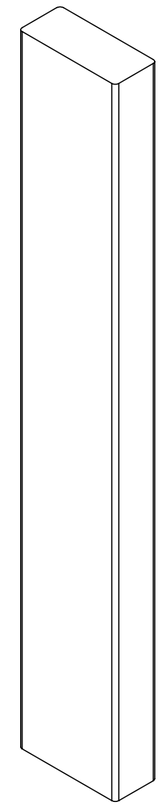
HUB - Simple Build - Fender Side Horizontal 2x4

SIZE	DWG. NO.	REV
C	TE-22014	

SCALE: 1:1 SHEET 1 OF 1





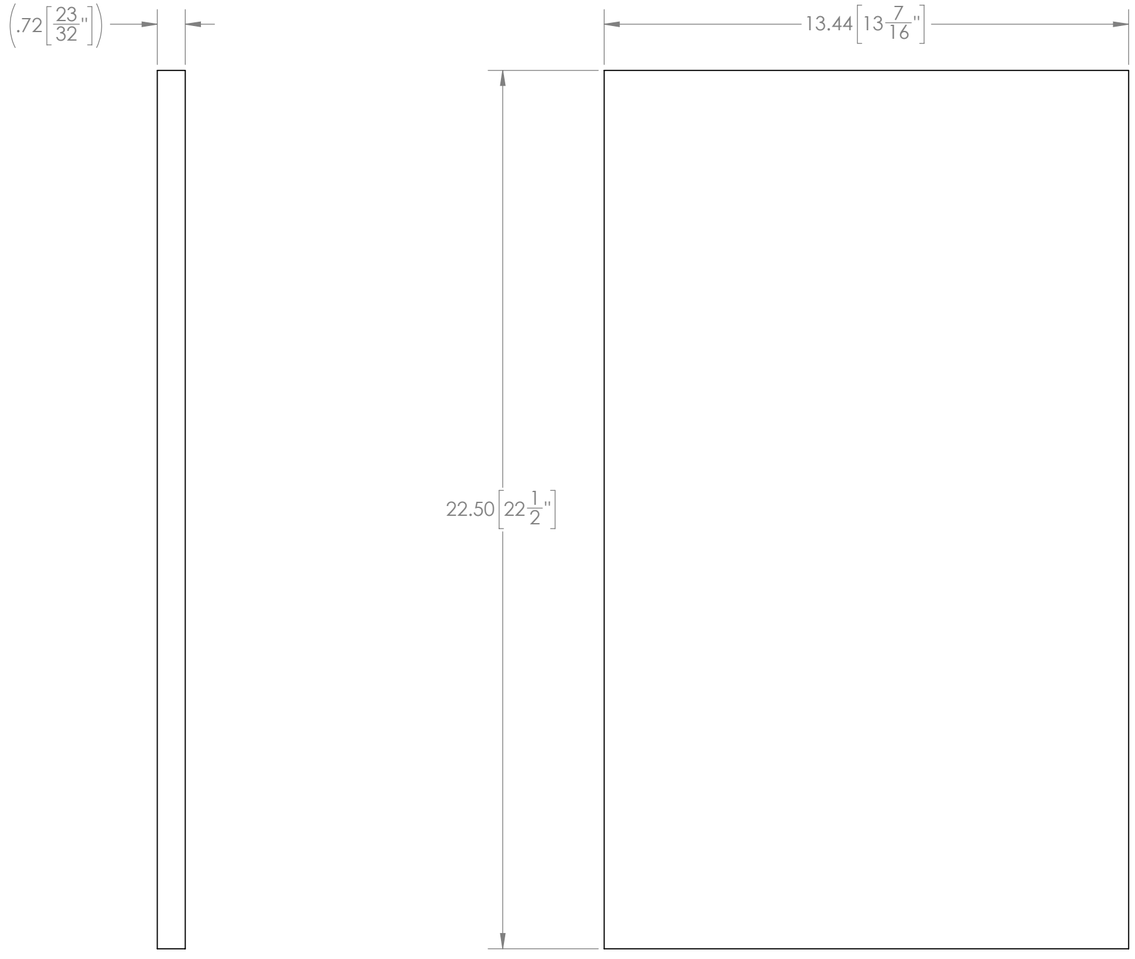


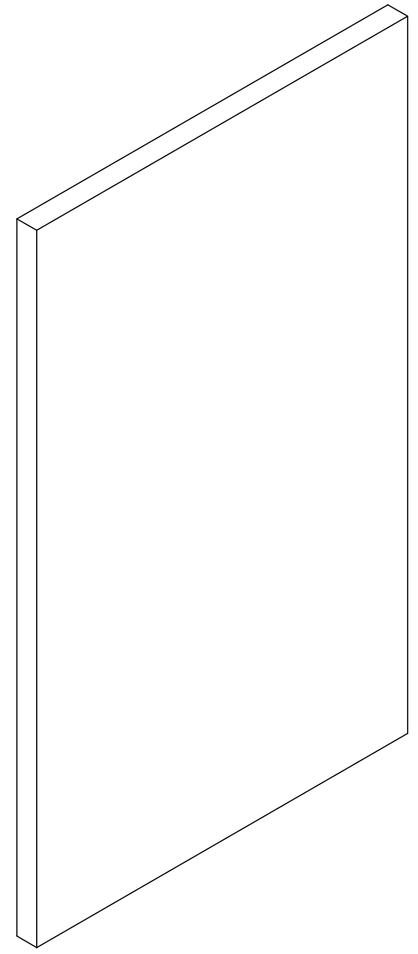
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME / DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	DRAWN	KAMC 12/29/2021
MATERIAL/FINISH: 2"x4" Lumber	**PROPRIETARY AND CONFIDENTIAL** THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ***FIRST®***. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ***FIRST®*** IS PROHIBITED.	
DO NOT SCALE DRAWING	**COMMENTS:** REMOVE ALL BURRS AND SHARP EDGES.	

FIRST ROBOTICS COMPETITION — SOLIDWORKS Modeling Solutions Partner

TITLE:
HUB - Simple Build - Fender Vertical 2x4

SIZE	DWG. NO.	REV
C	TE-22015	
SCALE: 1:3	SHEET 1 OF 1	





UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
	DRAWN	KAMC	12/29/2021

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

3/4" Plywood

DO NOT SCALE DRAWING

COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

FIRST ROBOTICS COMPETITION

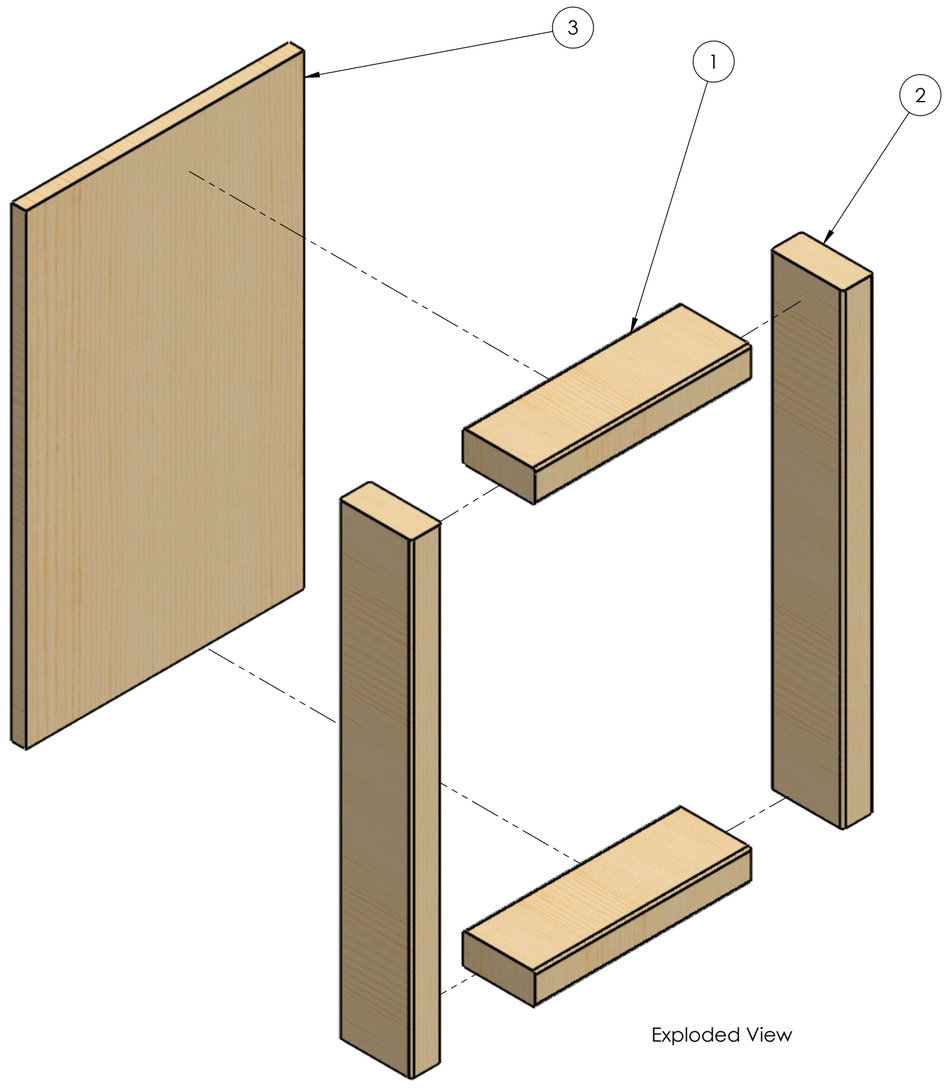
SOLIDWORKS Modeling Solutions Partner

TITLE:

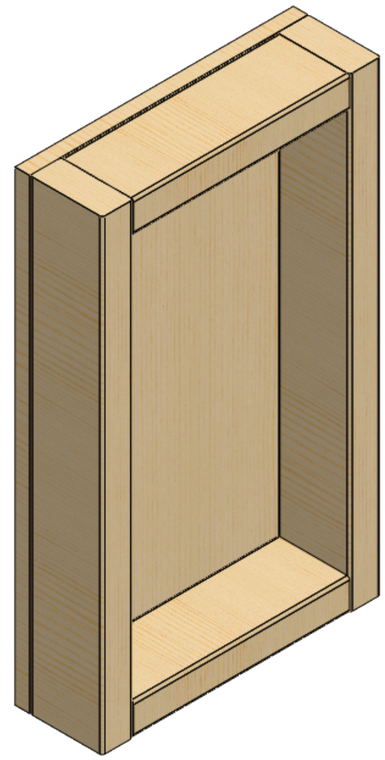
HUB - Simple Build - Fender Side

SIZE	DWG. NO.	REV
C	TE-22016	

SCALE: 1:3 | SHEET 1 OF 1



Exploded View



Hardware:
#8 x 2" Long Screw - Qty 16
#8 x 2.5" Long Screw - Qty 8

ITEM NO.	PART NUMBER	DESCRIPTION	
1	TE-22014	HUB - Simple Build - Fender Side Horizontal 2x4	2
2	TE-22015	HUB - Simple Build - Fender Vertical 2x4	2
3	TE-22016	HUB - Simple Build - Fender Side	1

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

DO NOT SCALE DRAWING

TEAM	NAME	DATE
DRAWN	KAMC	12/30/2021

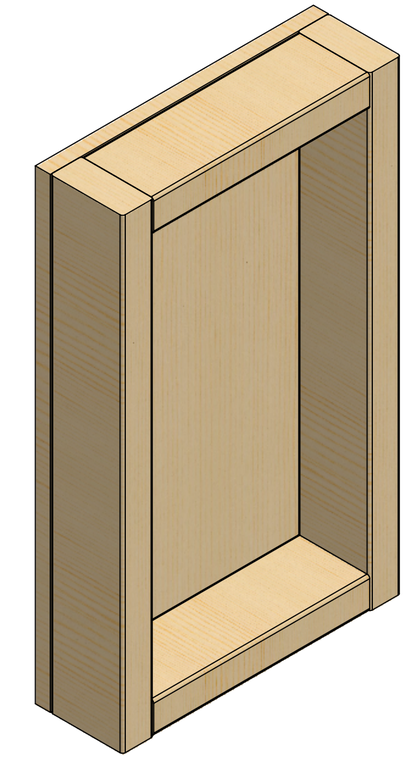
COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

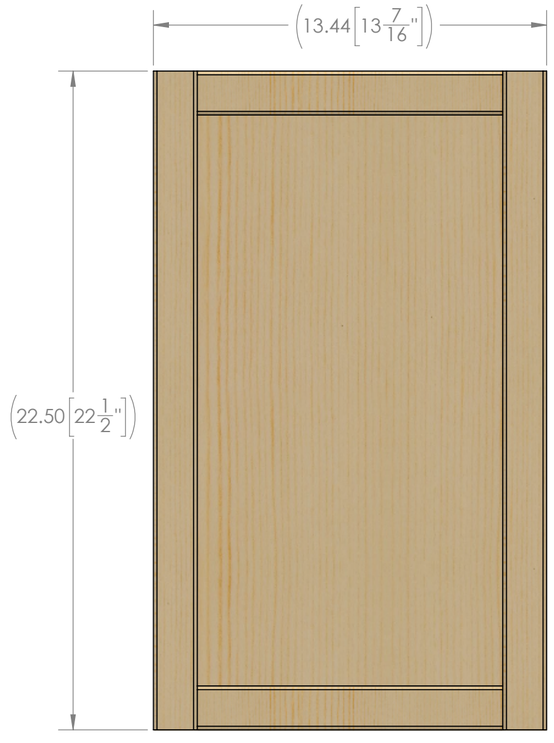
FIRST ROBOTICS COMPETITION
SOLIDWORKS Modeling Solutions Partner

TITLE:
HUB - Basic Build - Fender Side Assembly

SIZE	DWG. NO.	REV
C	TE-22017	

SCALE: 1:4 SHEET 1 OF 3





UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	DRAWN	KAMC	12/30/2021
MATERIAL/FINISH:	**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.		
DO NOT SCALE DRAWING	**COMMENTS:** REMOVE ALL BURRS AND SHARP EDGES.		

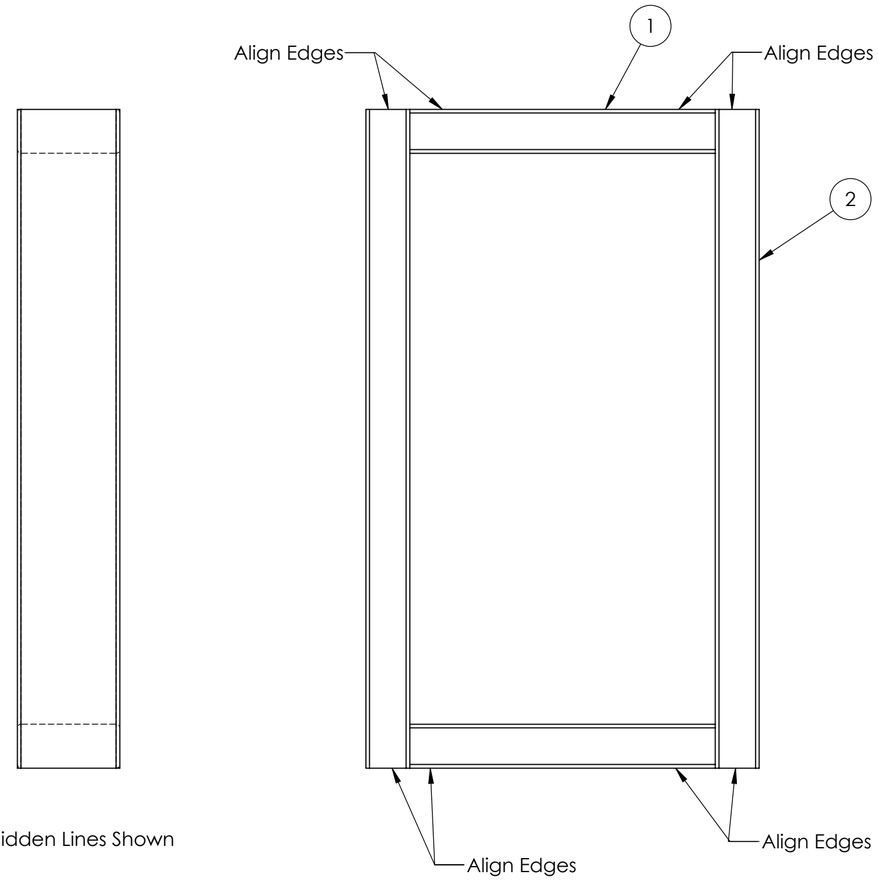
FIRST ROBOTICS COMPETITION — SOLIDWORKS Modeling Solutions Partner

TITLE:

HUB - Basic Build - Fender Side Assembly

SIZE	DWG. NO.	REV
C	TE-22017	
SCALE: 1:4	SHEET 2 OF 3	

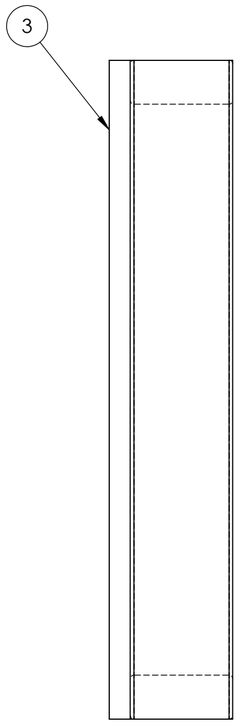
Step 1



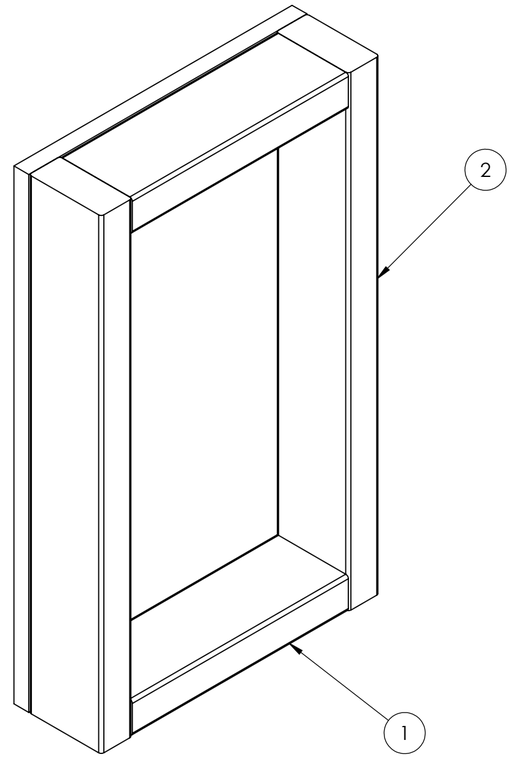
Hidden Lines Shown

1. Align 2x (1) and 2x (2), as shown.
2. Attach using 2.5" long screws. It is recommended to use 2x screws into each interface between a (2) and (1).

Step 2



Hidden Lines Shown



1. Align (3) to the assembly made in Step 1, as shown.
2. Attach using 2" Long Screws. It is recommended to use 5x screws into each (2) and 3x screws into each (1).

UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
	DRAWN	KAMC	12/30/2021

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

DO NOT SCALE DRAWING

COMMENTS:

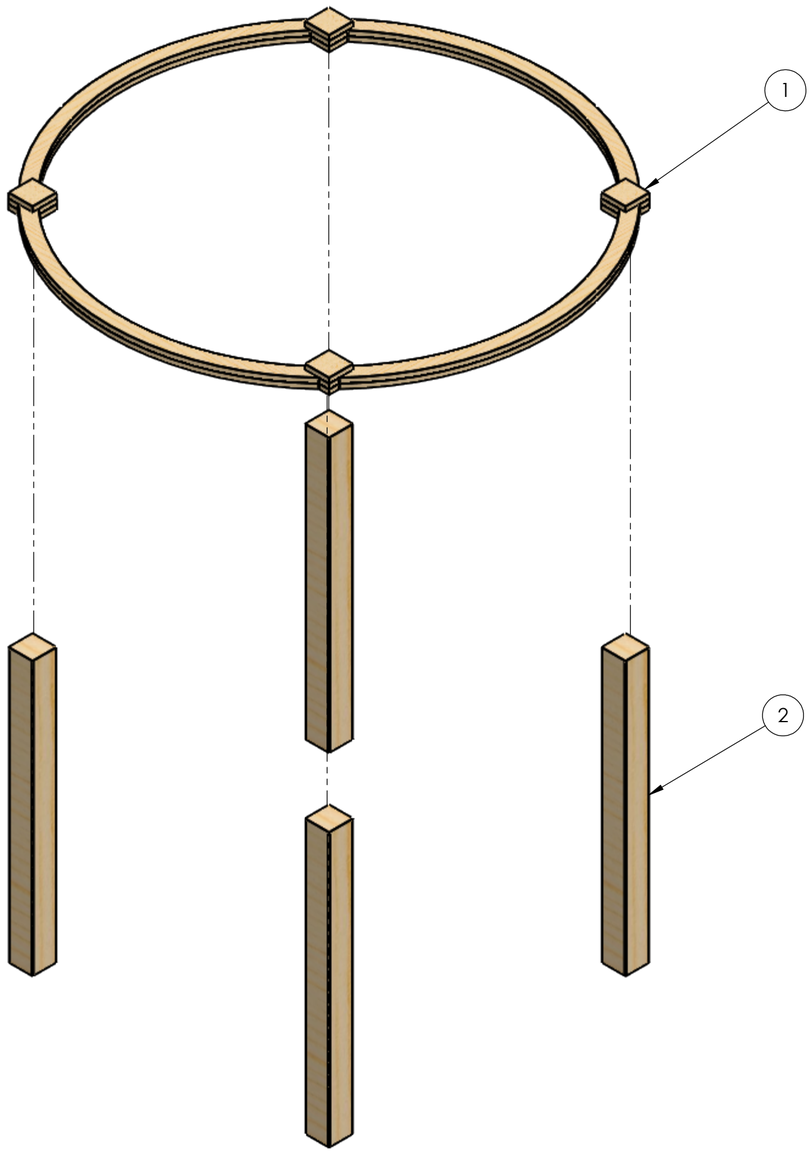
REMOVE ALL BURRS AND SHARP EDGES.

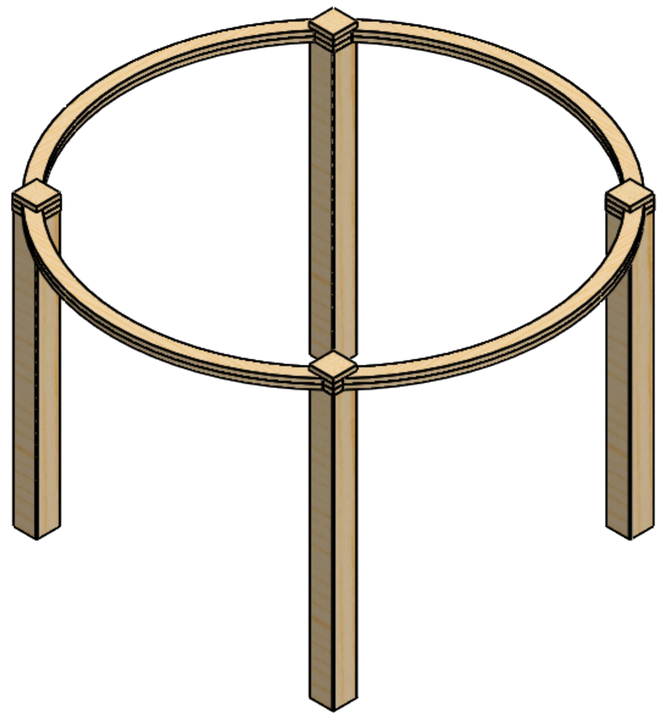
FIRST ROBOTICS COMPETITION — SOLIDWORKS Modeling Solutions Partner

TITLE:

HUB - Basic Build - Fender Side Assembly

SIZE	DWG. NO.	REV
C	TE-22017	
SCALE: 1:4	SHEET 3 OF 3	





Step 1:

1. Align 4x (2) to (1), as shown on Sheet 2.
2. Connect using 3.5" long screws. It is recommended to use 4x screws into each .
   Note: Be careful not to place screws too close to the edges of (2).

Note: Use TE-22020-Single if you are only forming 1/4 ring.

Hardware Needed:
#10 x 3.5" Long Screws - Qty 16

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-22024	Hub - Simple Build - Lower Hub Ring Full Assembly - Multiple	1
2	TE-22025	HUB - Simple Build - Vertical for Lower Hub Ring 4x4	4

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

DO NOT SCALE DRAWING

TEAM	NAME	DATE
DRAWN	KAMC	12/30/2021

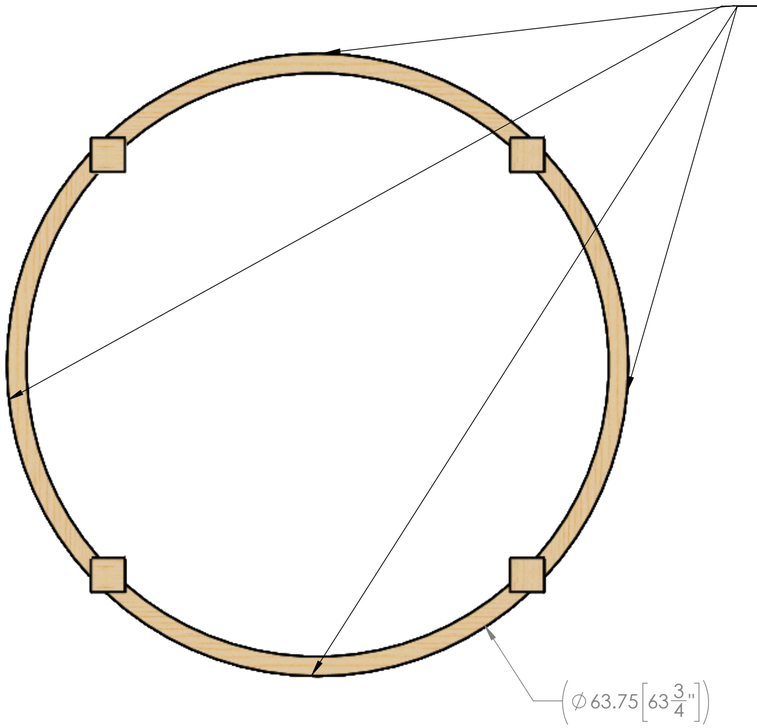
COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

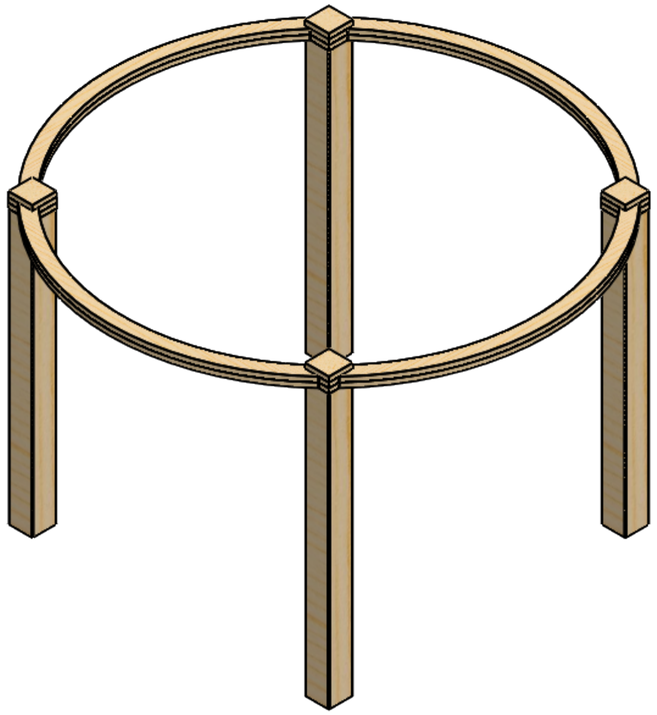
FIRST ROBOTICS COMPETITION
SOLIDWORKS Modeling Solutions Partner

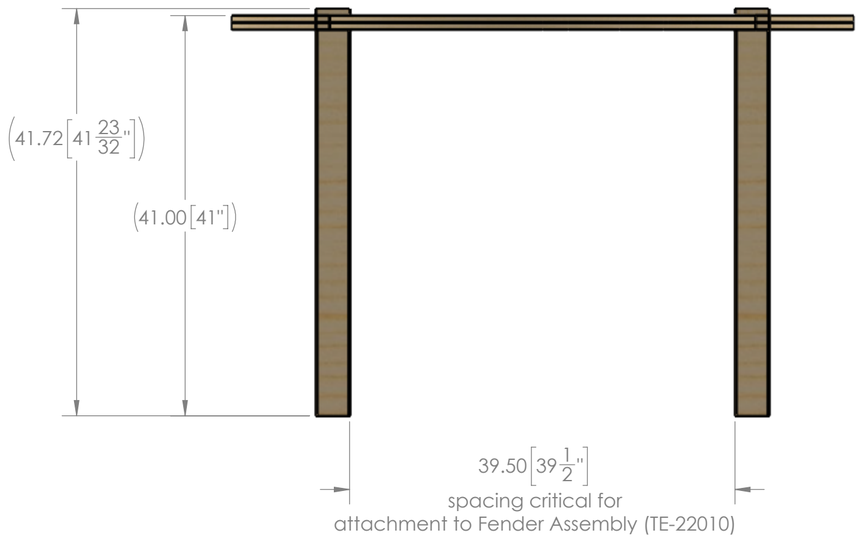
TITLE:
Hub - Simple Build - Lower Hub Assembly - Multiple

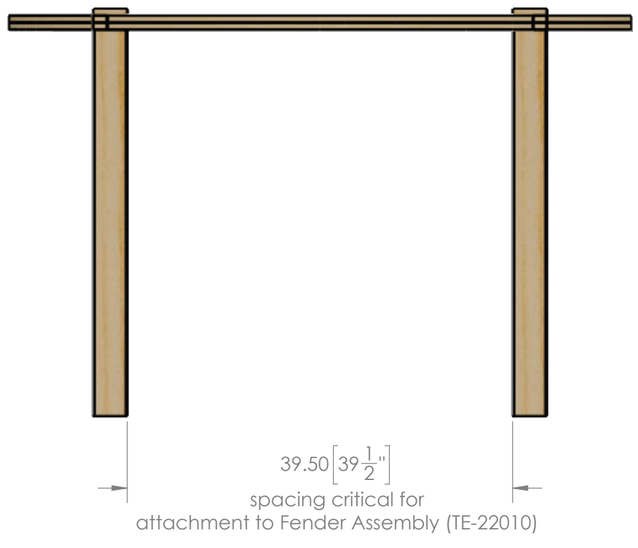
SIZE	DWG. NO.	REV
C	TE-22020-Multiple	

SCALE: 1:12 SHEET 1 OF 2









UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
	DRAWN	KAMC	12/30/2021

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

DO NOT SCALE DRAWING

COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

FIRST ROBOTICS COMPETITION

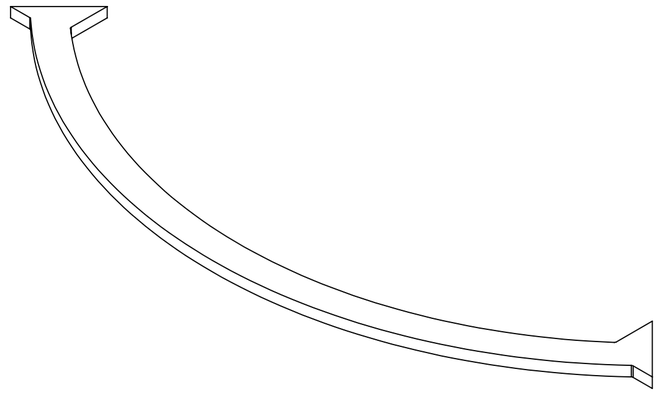
SOLIDWORKS Modeling Solutions Partner

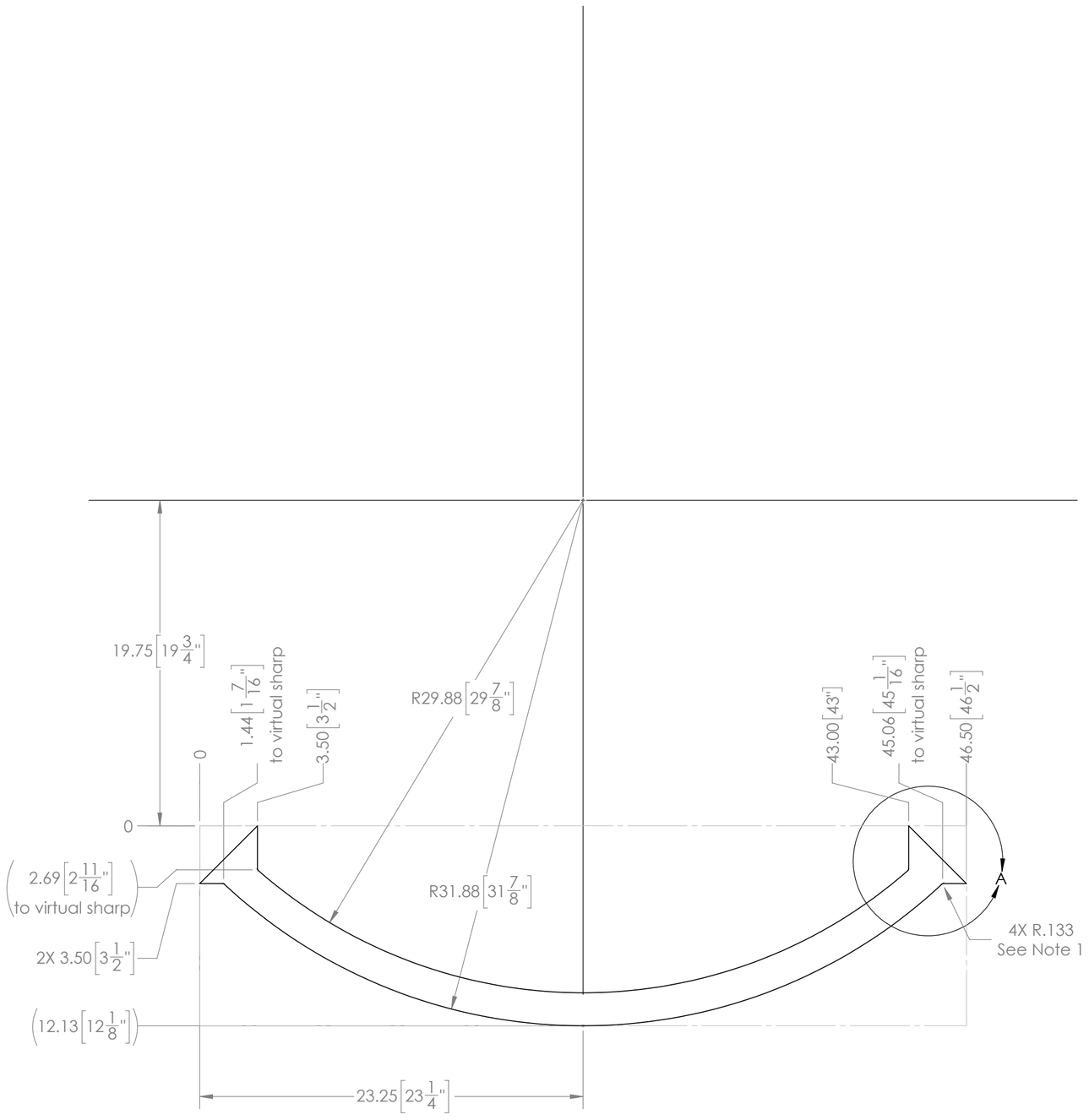
TITLE:

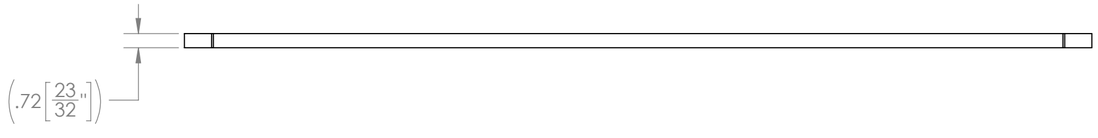
Hub - Simple Build - Lower Hub Assembly - Multiple

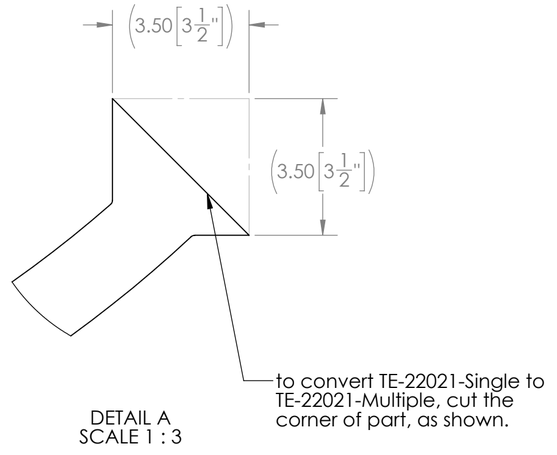
SIZE	DWG. NO.	REV
C	TE-22020-Multiple	

SCALE: 1:12 SHEET 2 OF 2









DETAIL A
SCALE 1 : 3

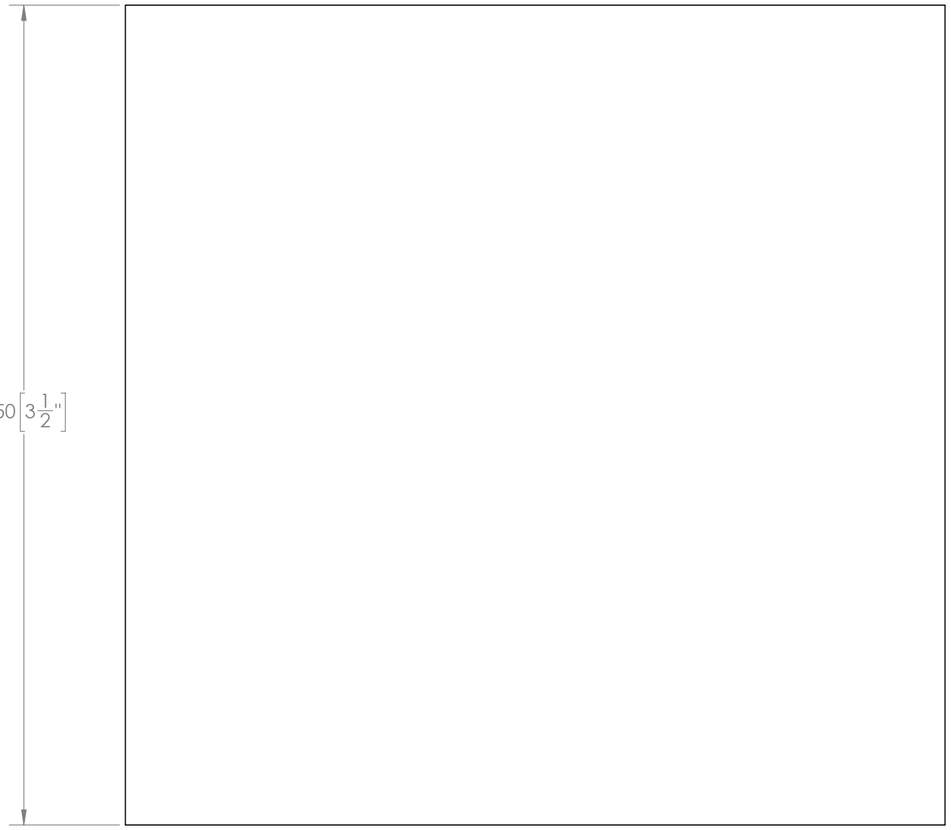
Note:
1. Radii located at internal corners are provided predominately for teams making parts with a router. A 90 degree angle is sufficient clearance.
2. Use TE-22021-Single if you are forming only 1/4 ring.

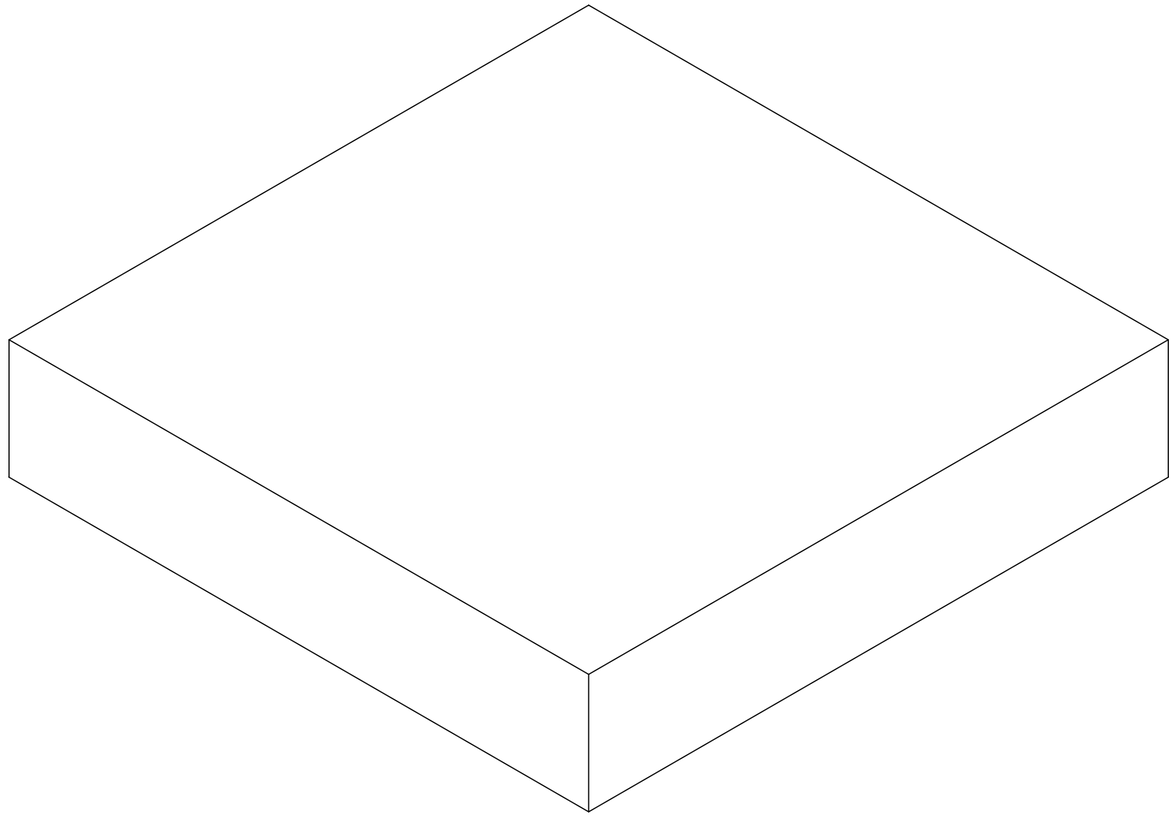
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	DRAWN	KAMC	12/29/2021
MATERIAL/FINISH: 3/4" Plywood	**PROPRIETARY AND CONFIDENTIAL** THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ***FIRST®***. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ***FIRST®*** IS PROHIBITED.		
DO NOT SCALE DRAWING	**COMMENTS:** REMOVE ALL BURRS AND SHARP EDGES.		

FIRST ROBOTICS COMPETITION — SOLIDWORKS Modeling Solutions Partner

TITLE:
Hub - Simple Build - Lower Hub Ring - Multiple

SIZE	DWG. NO.	REV
C	TE-22021-Multiple	
SCALE: 1:6	SHEET 1 OF 1	





UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
	DRAWN	KAMC	12/29/2021

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

3/4" Plywood

DO NOT SCALE DRAWING

COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

FIRST ROBOTICS COMPETITION

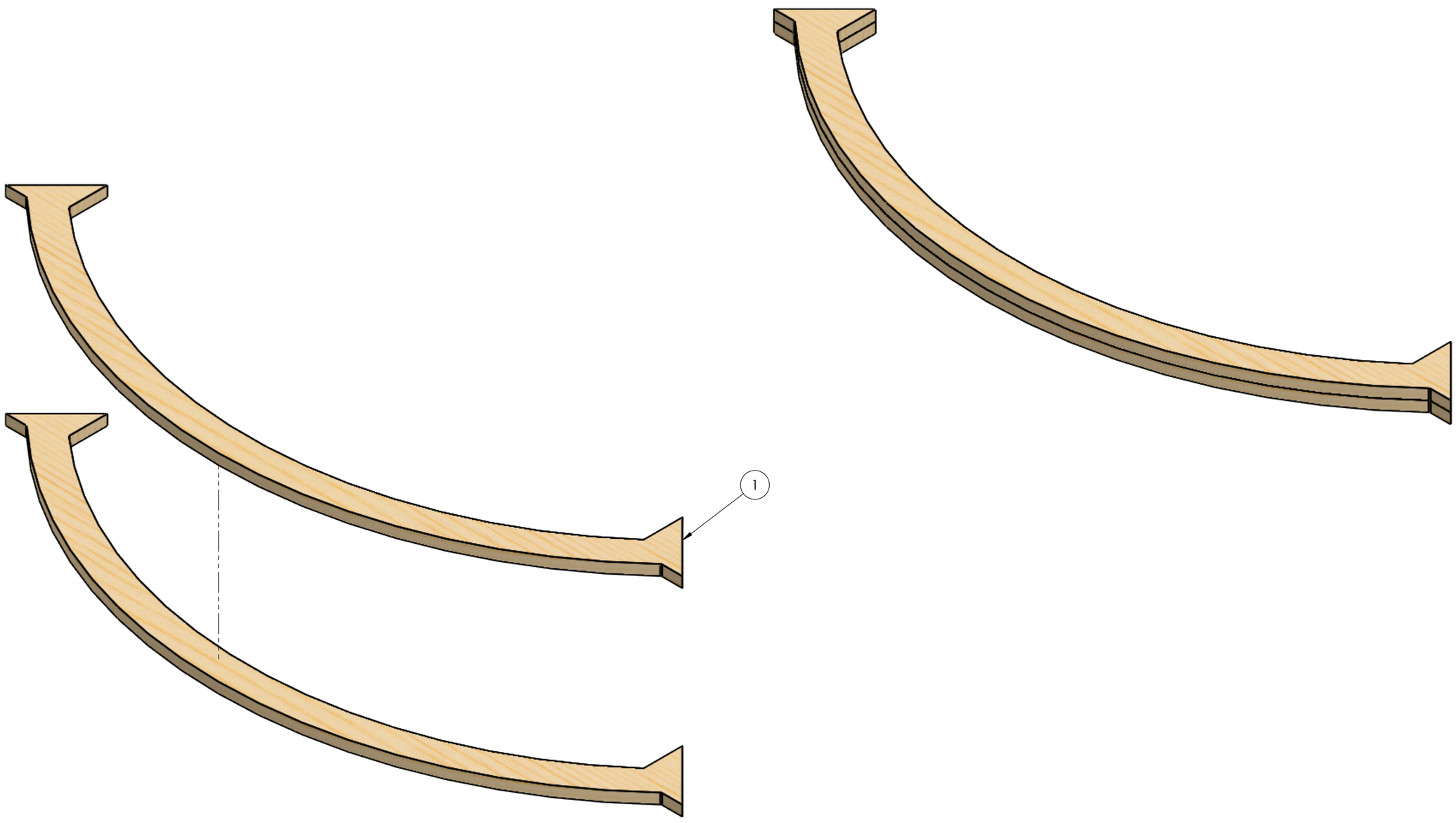
SOLIDWORKS Modeling Solutions Partner

TITLE:

Hub - Simple Build - Lower Hub Ring Connection Plate

SIZE	DWG. NO.	REV
C	TE-22022	

SCALE: 2:1 SHEET 1 OF 1



Step 1:

1. Align 2x (1) as shown.
2. Connect using 1.25" long screws. It is recommended to use 8x screws. Screws should ONLY be placed around the arc. Avoid placing screws on the triangular ends.

Note: Use TE-22023-Single if you are only forming a 1/4 ring.

Hardware:
#8 x 1.25" Long Screw - Qty 8

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-22021-Multiple	Hub - Simple Build - Lower Hub Ring - Multiple	2

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

DO NOT SCALE DRAWING

TEAM	NAME	DATE
DRAWN	KAMC	12/30/2021

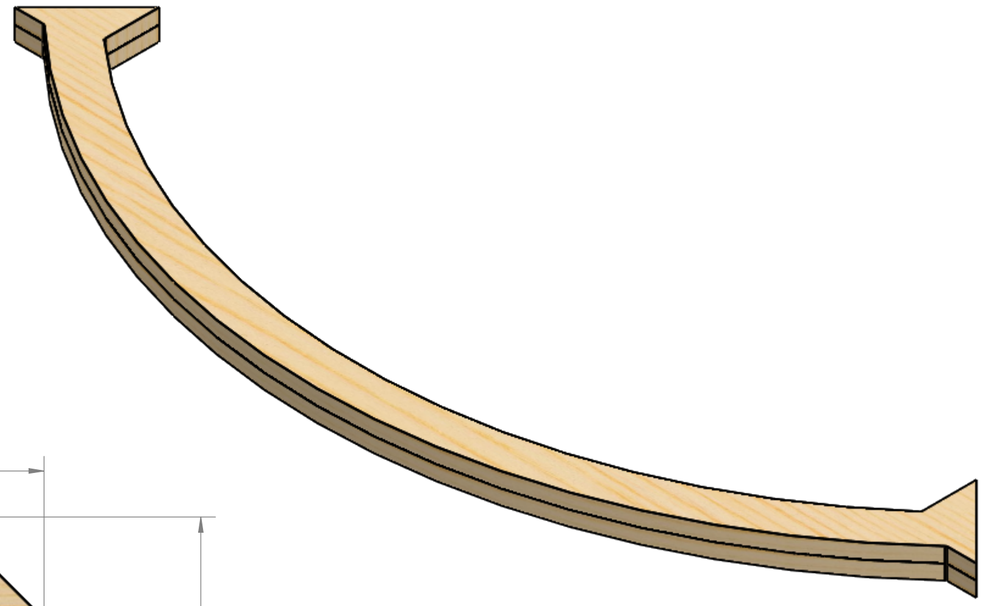
COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

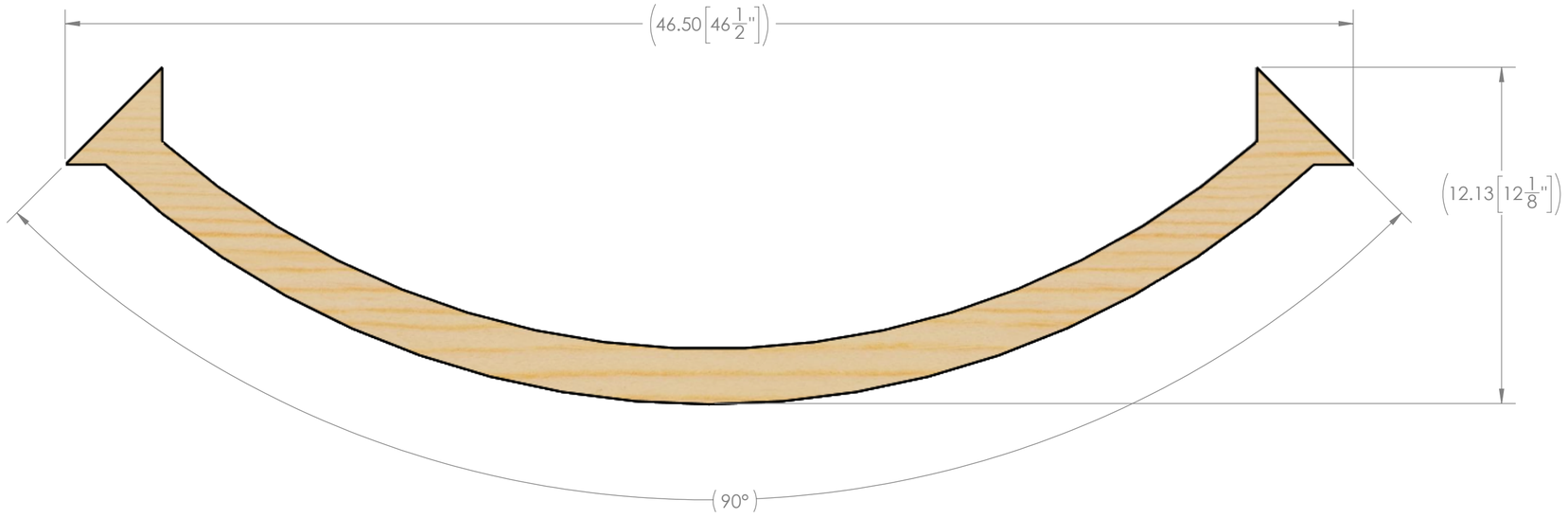
FIRST ROBOTICS COMPETITION
SOLIDWORKS Modeling Solutions Partner

TITLE:
Hub - Simple Build - Lower Hub Ring Assembly - Multiple

SIZE	DWG. NO.	REV
C	TE-22023-Multiple	

SCALE: 1:4 SHEET 1 OF 2





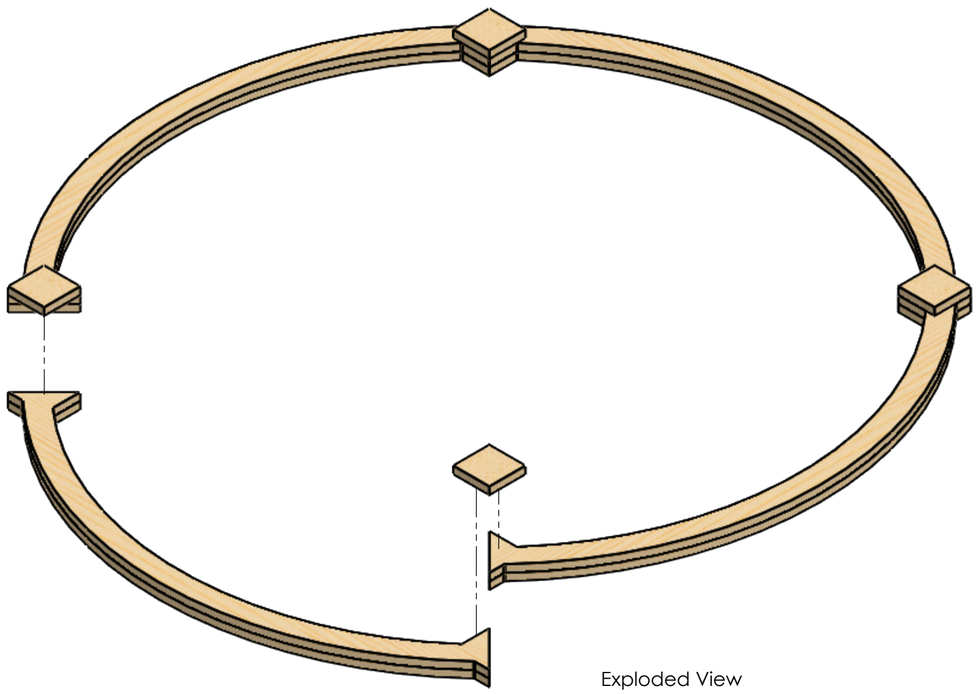
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	DRAWN	KAMC	12/30/2021
MATERIAL/FINISH:	**PROPRIETARY AND CONFIDENTIAL** THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ***FIRST®***. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ***FIRST®*** IS PROHIBITED.		
DO NOT SCALE DRAWING	**COMMENTS:** REMOVE ALL BURRS AND SHARP EDGES.		

FIRST ROBOTICS COMPETITION — SOLIDWORKS Modeling Solutions Partner

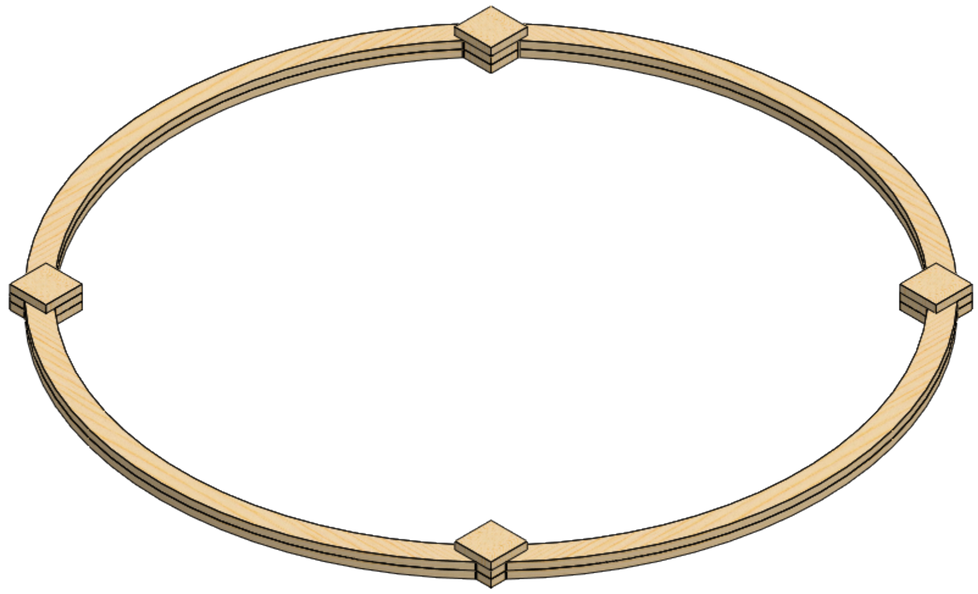
TITLE:

Hub - Simple Build - Lower Hub Ring Assembly - Multiple

SIZE	DWG. NO.	REV
C	TE-22023-Multiple	
SCALE: 1:4	SHEET 2 OF 2	



Exploded View



Note: Use TE-22023-Single if you are only forming a 1/4 ring.

Hardware Needed:
#8 x 2" Long Screw - Qty 8

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	TE-22022	Hub - Simple Build - Lower Hub Ring Connection Plate	4
2	TE-22023-Multiple	Hub - Simple Build - Lower Hub Ring Assembly - Multiple	4

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

DO NOT SCALE DRAWING

TEAM	NAME	DATE
DRAWN	KAMC	12/30/2021

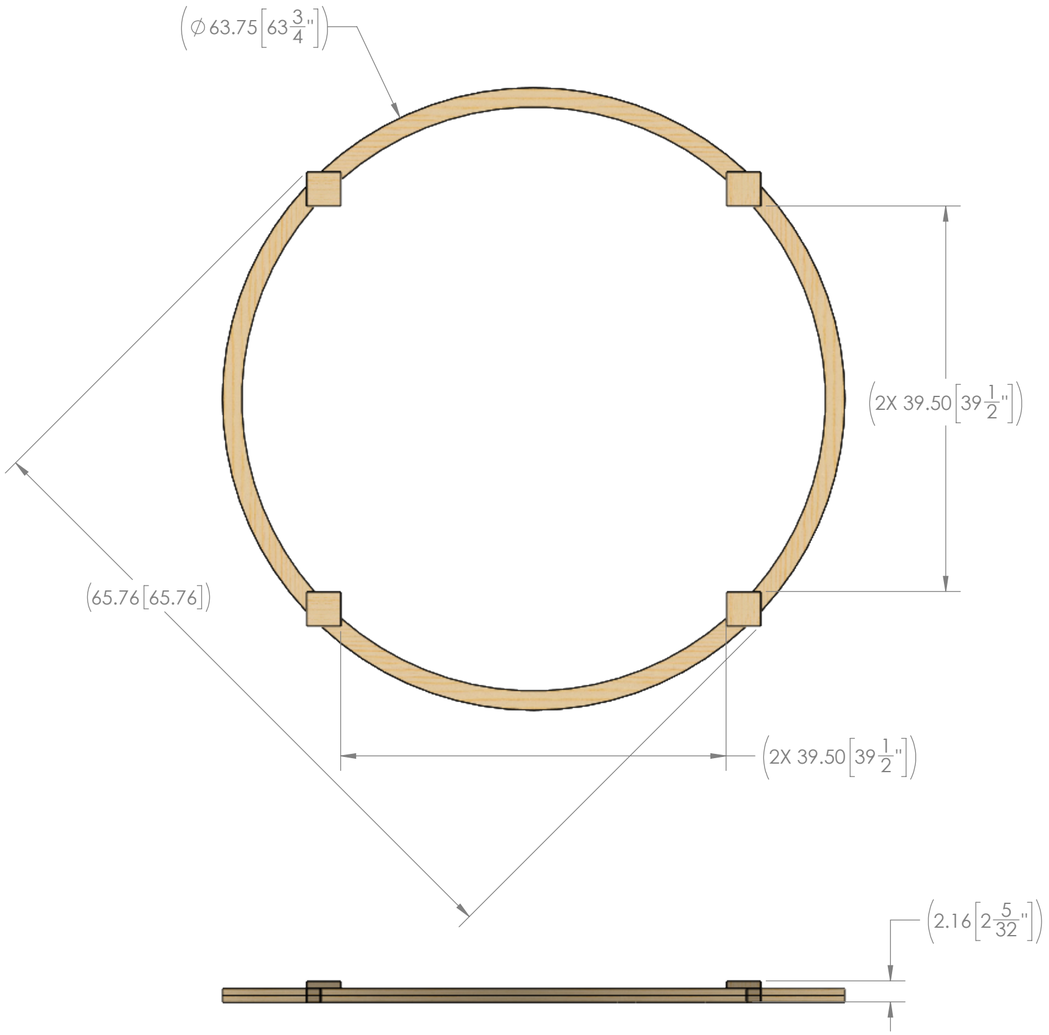
COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

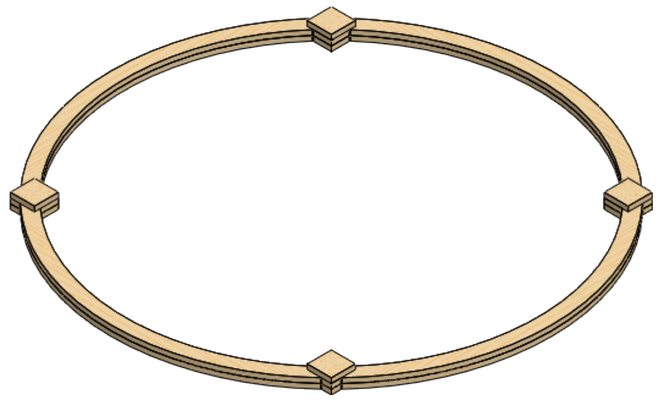
FIRST ROBOTICS COMPETITION
SOLIDWORKS Modeling Solutions Partner

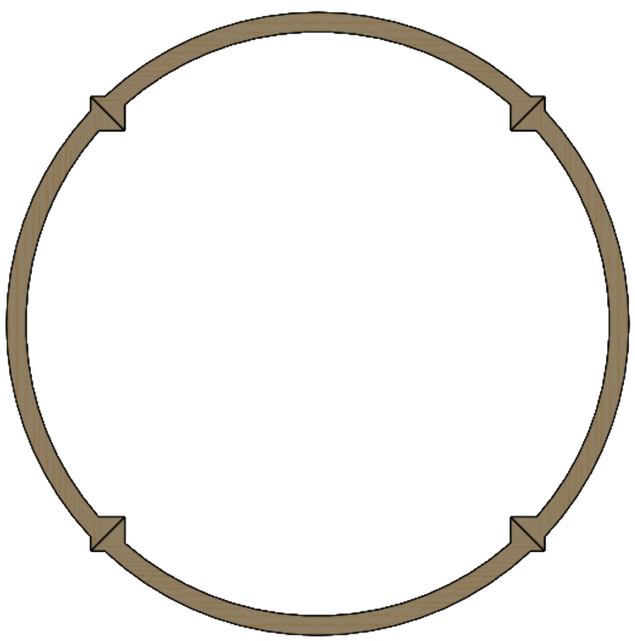
TITLE:
Hub - Simple Build - Lower Hub Ring Full Assembly - Multiple

SIZE	DWG. NO.	REV
C	TE-22024	

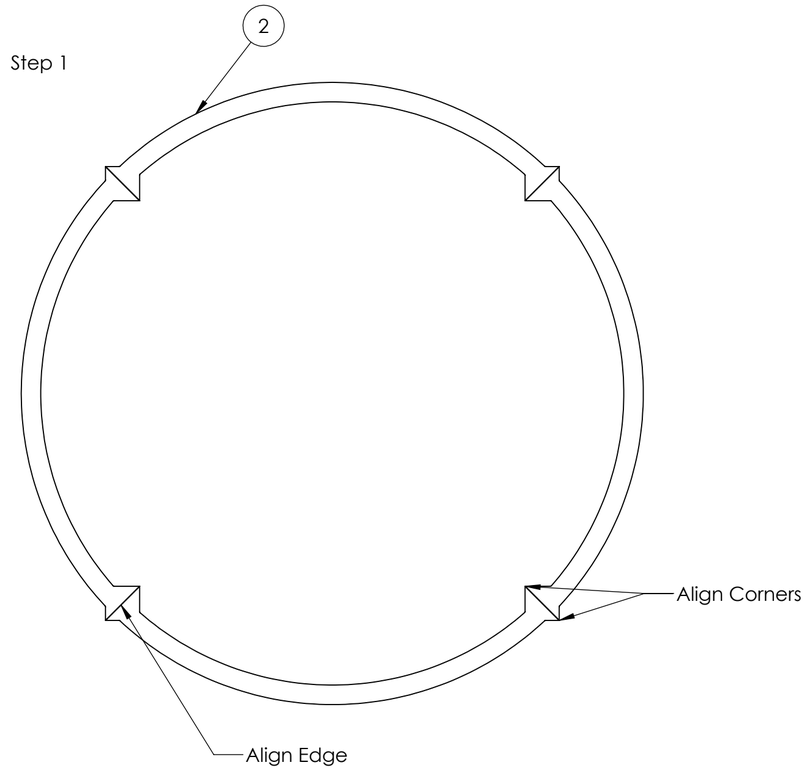
SCALE: 1:8 SHEET 1 OF 3



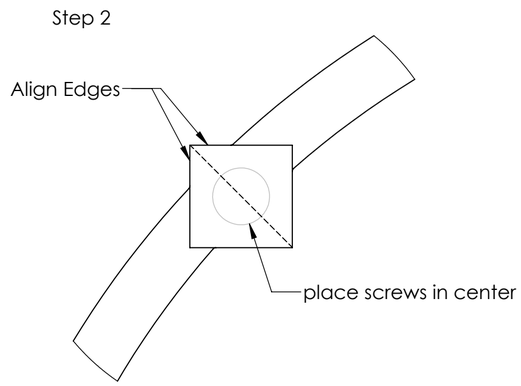




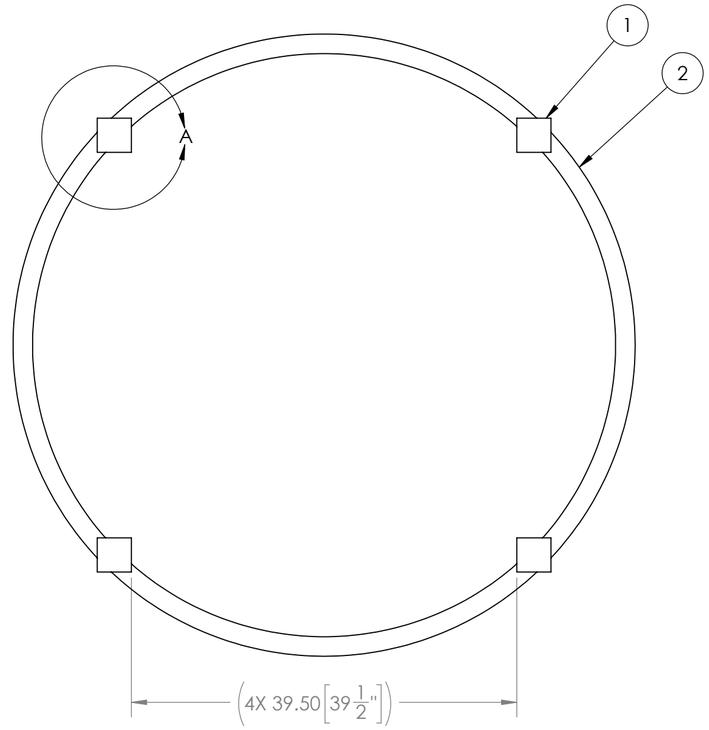
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME / DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	DRAWN	KAMC / 12/30/2021
MATERIAL/FINISH:	**PROPRIETARY AND CONFIDENTIAL** THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ***FIRST®***. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ***FIRST®*** IS PROHIBITED.	TITLE: Hub - Simple Build - Lower Hub Ring Full Assembly - Multiple
DO NOT SCALE DRAWING	**COMMENTS:** REMOVE ALL BURRS AND SHARP EDGES.	SIZE: C / DWG. NO.: TE-22024 / REV: / SCALE: 1:12 / SHEET 2 OF 3



1. Align 4x (2), as shown. Attachment will happen in next step



DETAIL A
SCALE 1 : 4
Hidden Lines Shown



1. Align 4x (1) onto the ring formed in Step 1, as shown.
2. Connect using 2" long screws. It is recommended to use only 2x screws towards the center of (1), 1x into each (1). This will ensure there is room for connection when added to TE-22020-Multiple.

UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
	DRAWN	KAMC	12/30/2021

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/16
ANGULAR: MACH ±1° BEND ±1°
TWO PLACE DECIMAL ±.13
THREE PLACE DECIMAL ±.125

MATERIAL/FINISH:

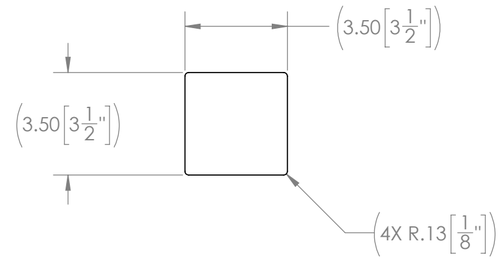
DO NOT SCALE DRAWING

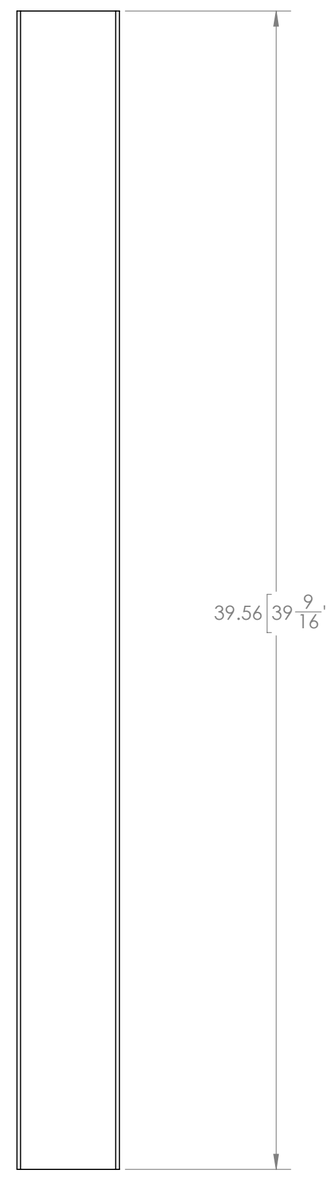
COMMENTS:
REMOVE ALL BURRS AND SHARP EDGES.

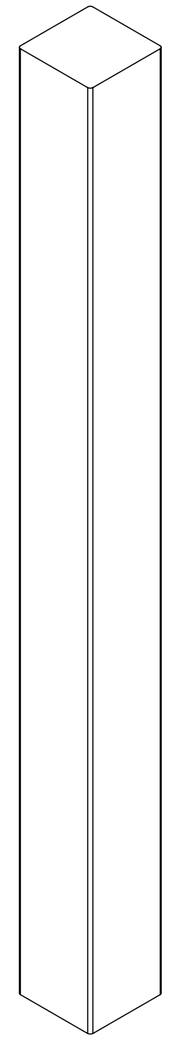
FIRST ROBOTICS COMPETITION
SOLIDWORKS Modeling Solutions Partner

TITLE:
Hub - Simple Build - Lower Hub Ring Full Assembly - Multiple

SIZE	DWG. NO.	REV
C	TE-22024	
SCALE: 1:12	SHEET 3 OF 3	







UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ±1/16 ANGULAR: MACH ±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	DRAWN	KAMC	12/29/2021

MATERIAL/FINISH:

4"x4" Lumber

DO NOT SCALE DRAWING

PROPRIETARY AND CONFIDENTIAL

COMMENTS:

REMOVE ALL BURRS AND SHARP EDGES.

FIRST ROBOTICS COMPETITION

SOLIDWORKS Modeling Solutions Partner

TITLE:

HUB - Simple Build - Vertical for Lower Hub Ring 4x4

SIZE	DWG. NO.	REV
C	TE-22025	

SCALE: 1:4 SHEET 1 OF 1