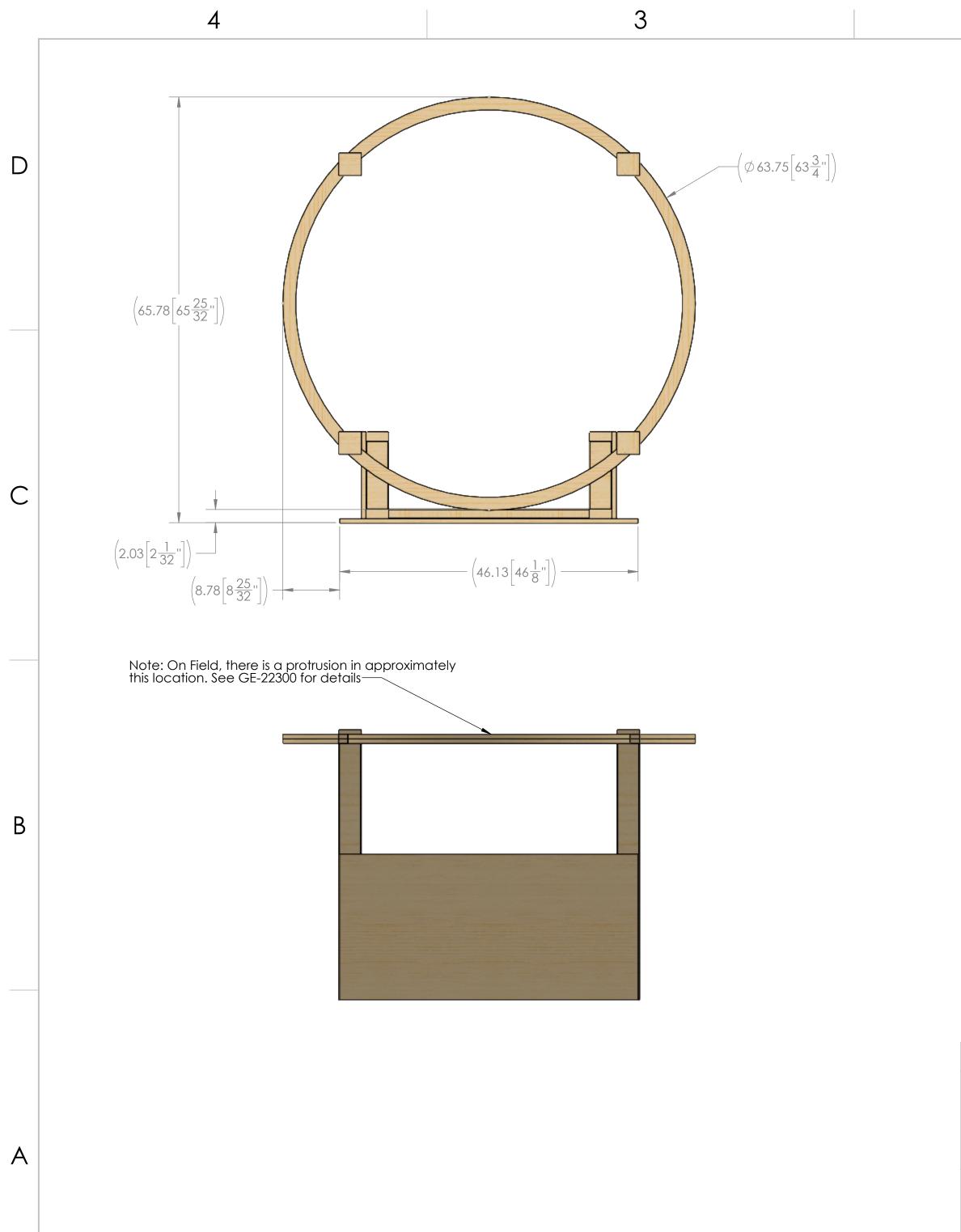
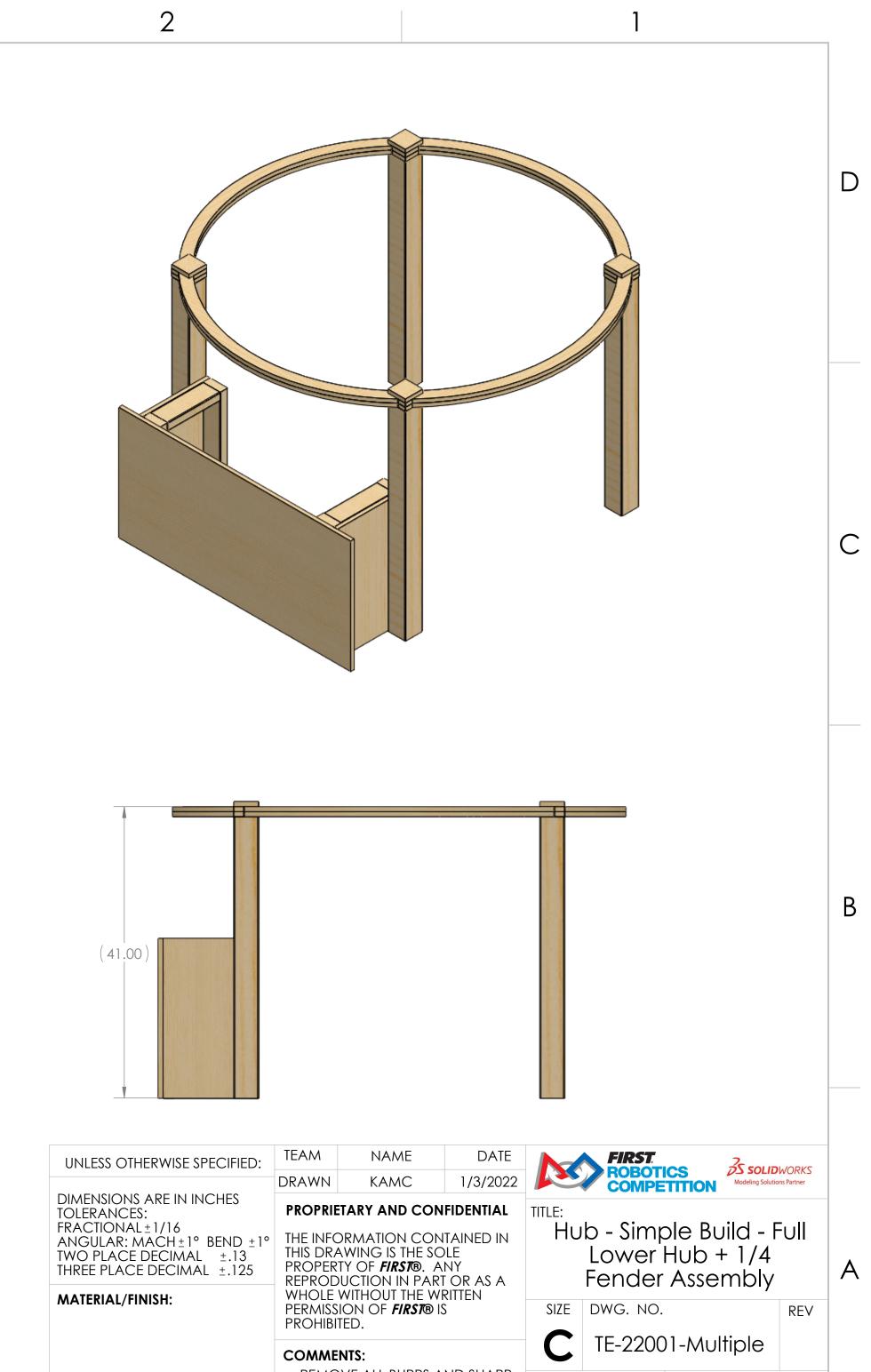


	1	2 12-22020-Molliple		Hub -	Hub - Simple Build - Fender Assembly			
	2				mple Build - I sembly - Mu		1	
UNLESS OTHERWISE SPECIFIED:	TEAM							
	DRAWN				COMPE		g Solutions Partner	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND ±1 TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH:	<ul> <li>THE INFO THIS DRA PROPERT REPRODU</li> </ul>	TARY AND CON DRMATION CON WING IS THE SO IY OF <b>FIRST®</b> . A UCTION IN PART WITHOUT THE WE	TAINED IN DLE NY OR AS A	Hub - Simple Build - Full Lower Hub + 1/4 Fender Assembly				A
MATERIAL/FINISH.	PERMISSI	WHOLE WITHOUT THE WRITTEN PERMISSION OF <i>FIRST</i> ® IS PROHIBITED. COMMENTS:		SIZE	DWG. NO.	1	REV	
				C	C TE-22001-Multip		Ð	
do not scale drawing	REMO	REMOVE ALL BURRS AND SHARP EDGES.			LE: 1:10	SHEET	1 OF 3	



3



SIZE DWG. NO.

SCALE: 1:12

TE-22001-Multiple

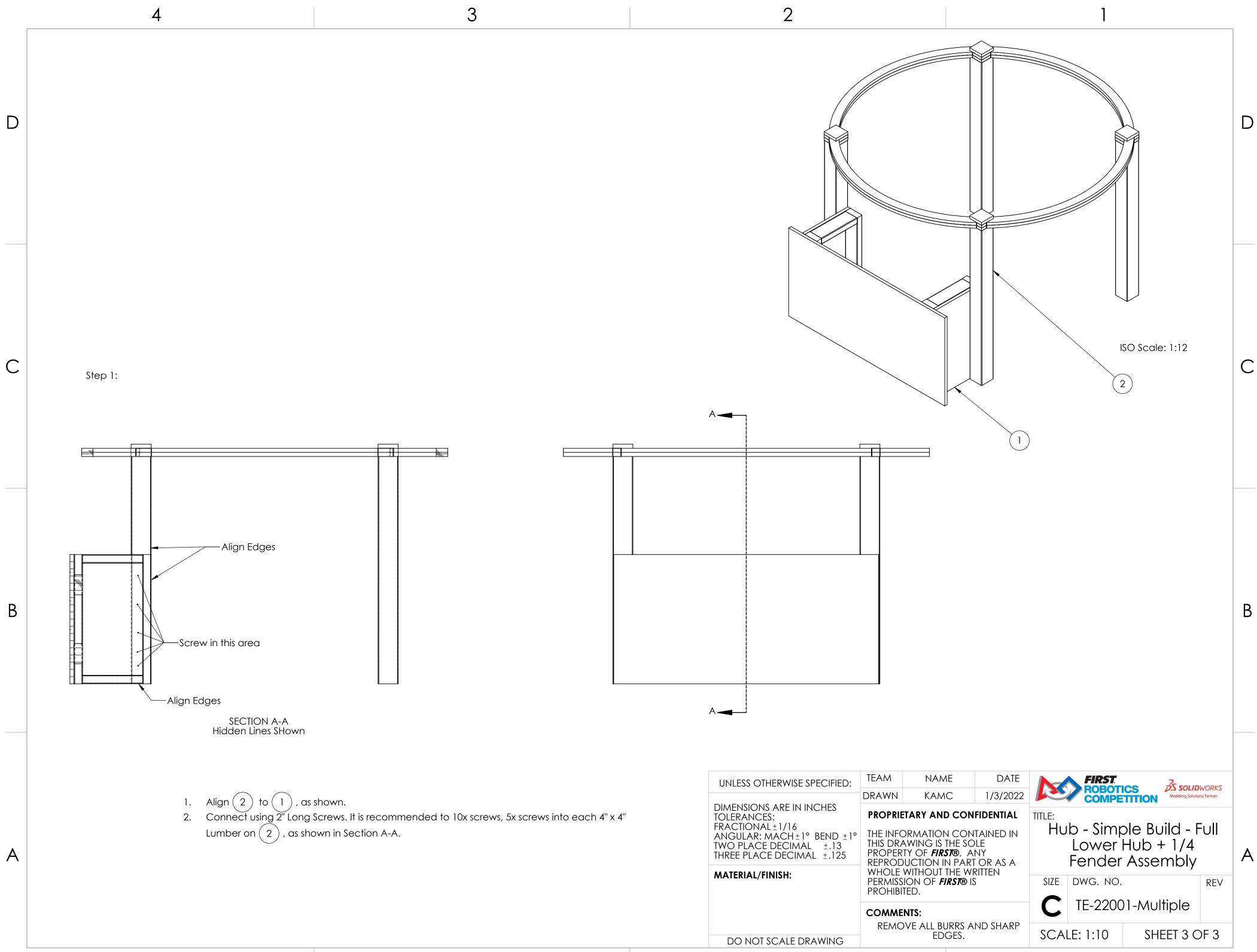
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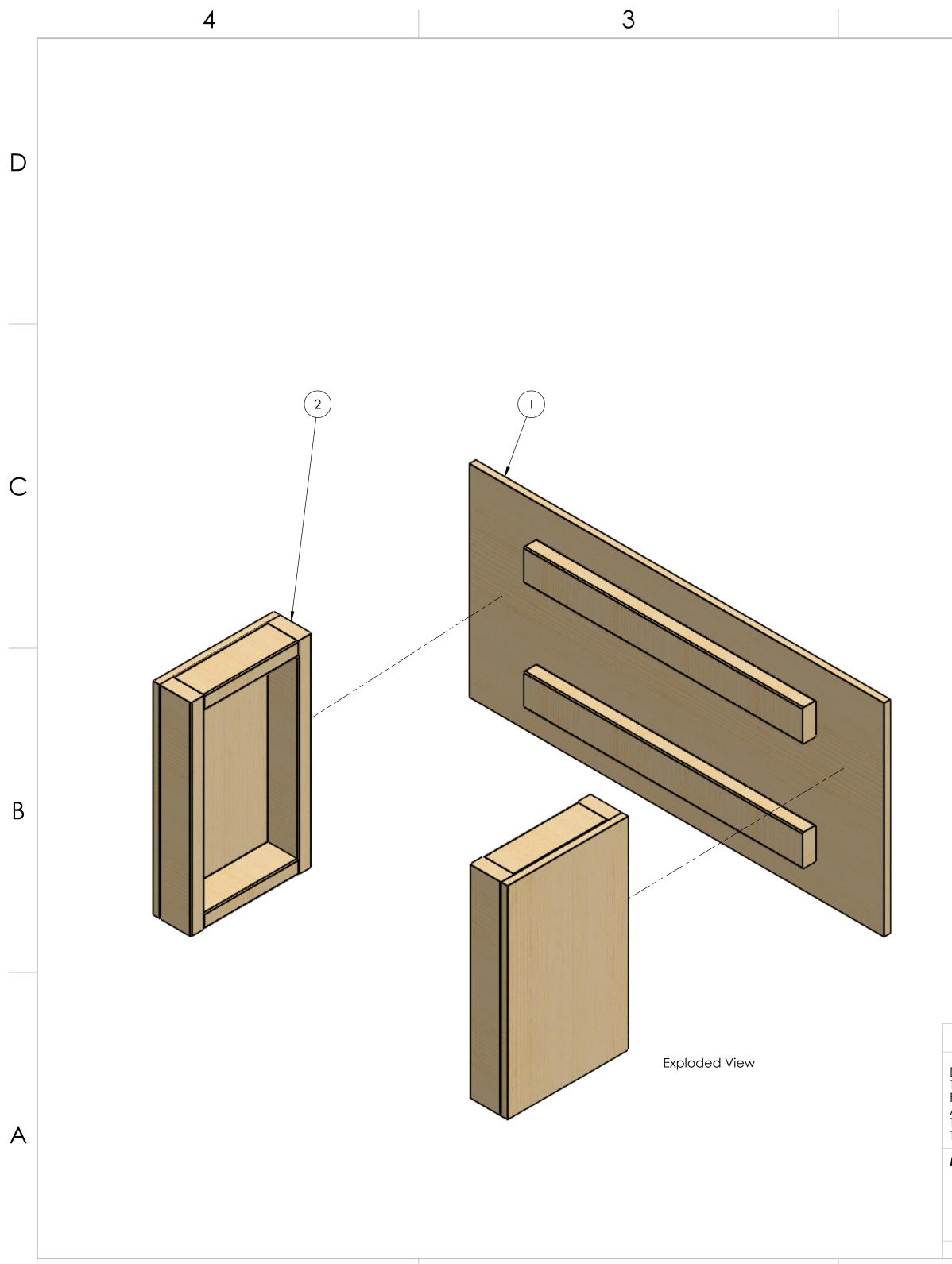
EDGES.

REV

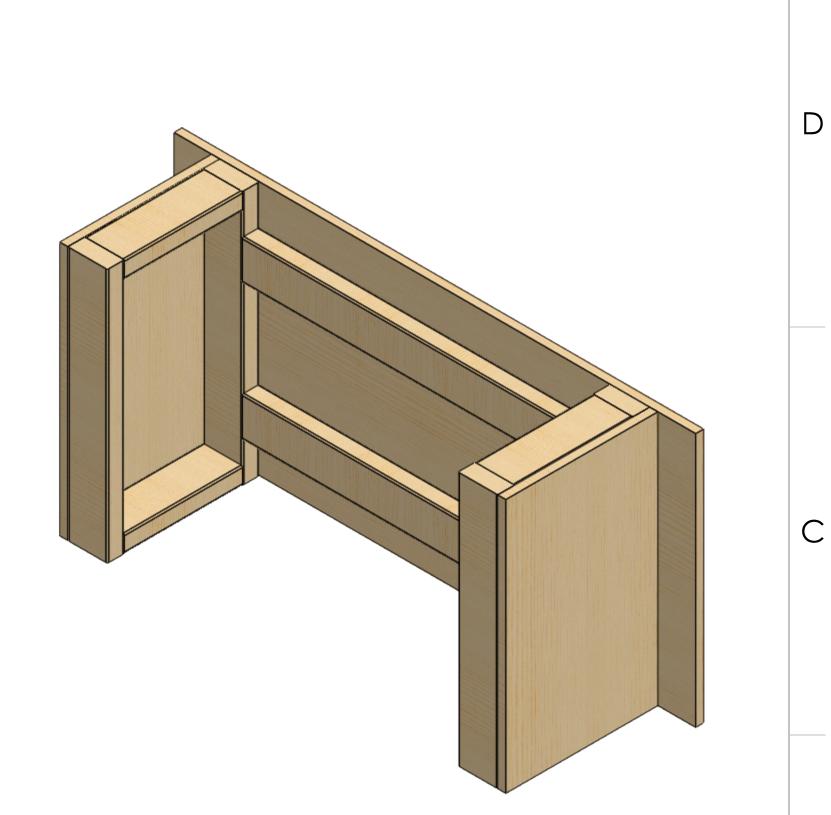
SHEET 2 OF 3

COMMENTS: REMOVE ALL BURRS AND SHARP DO NOT SCALE DRAWING





3

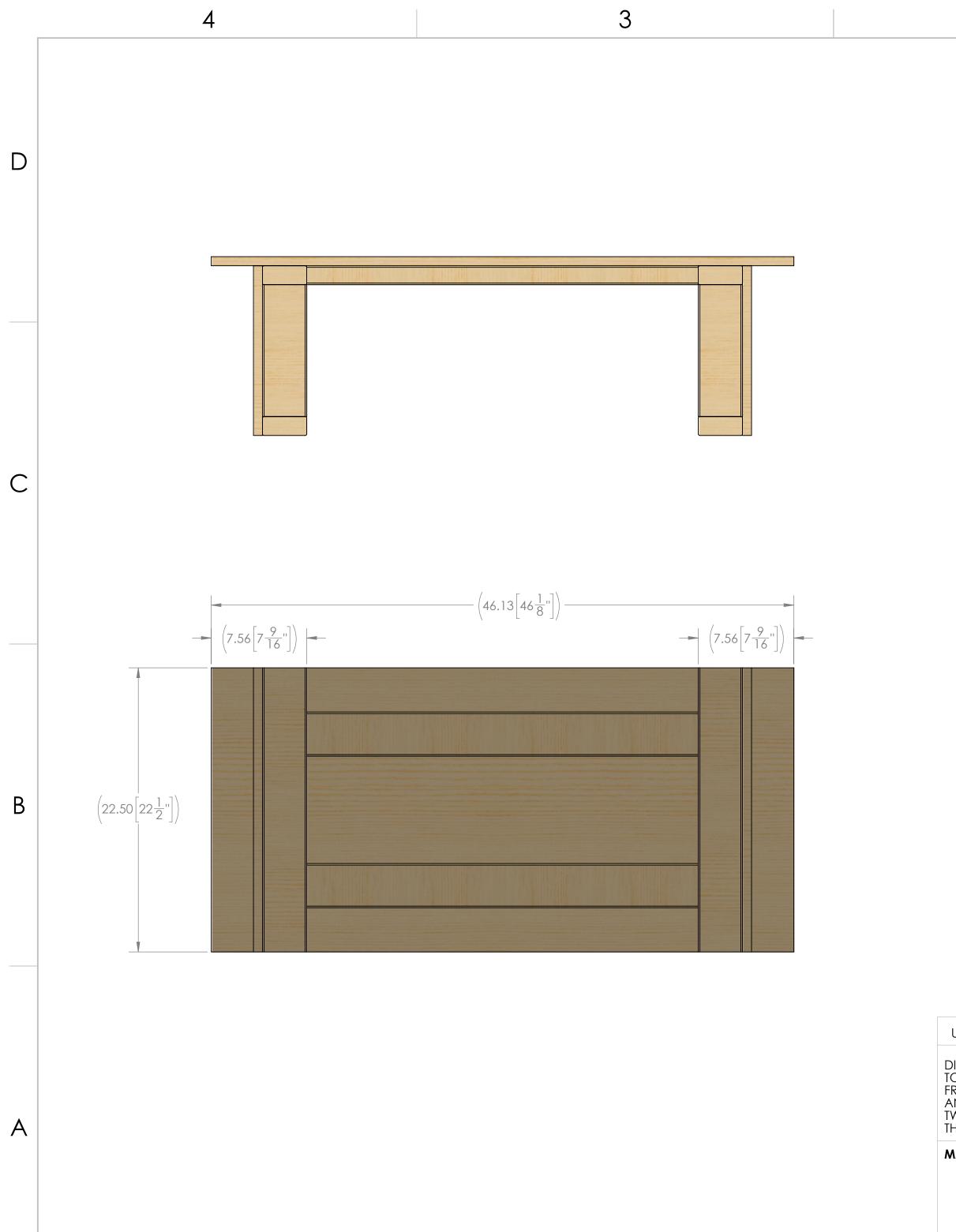


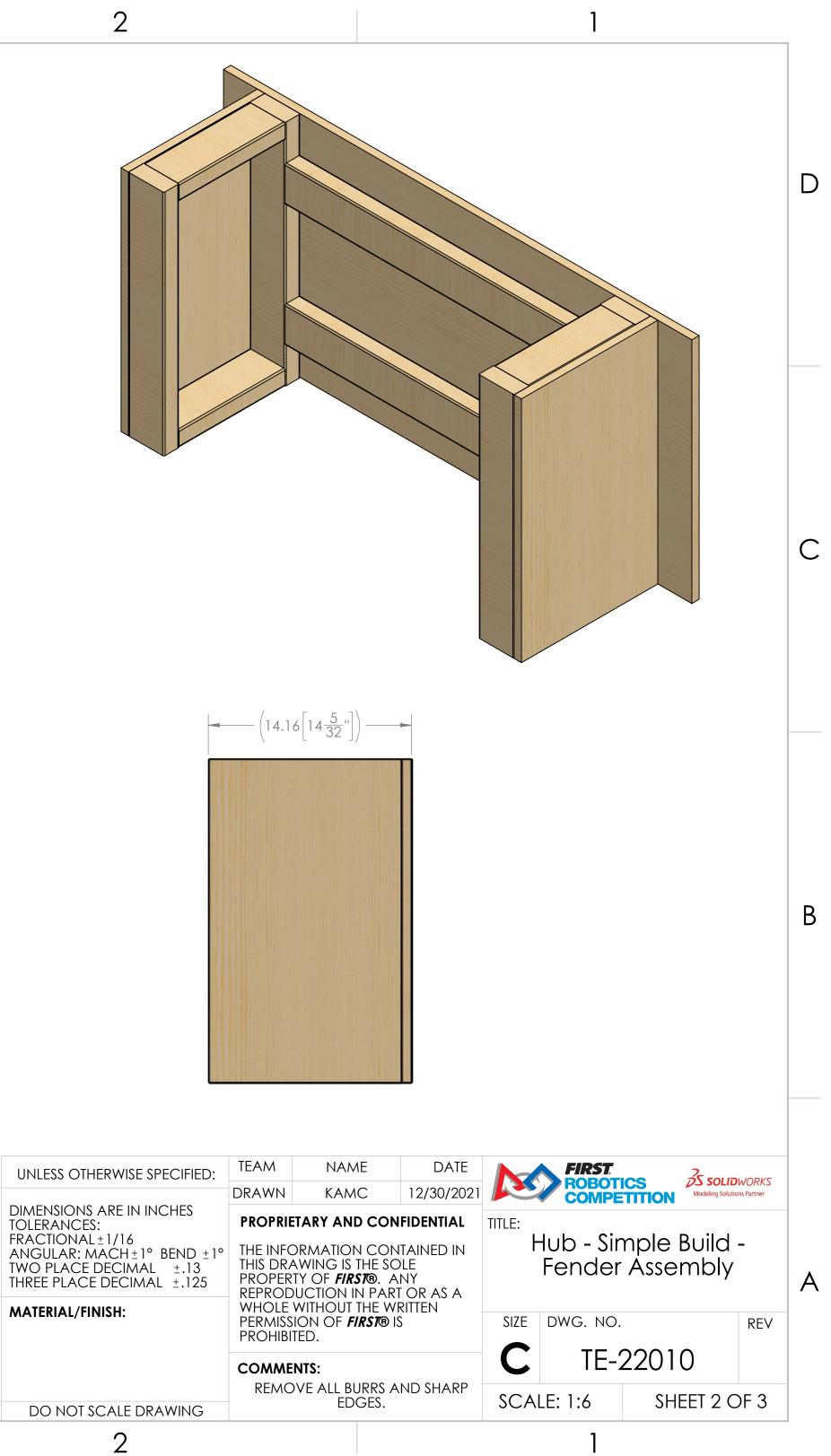
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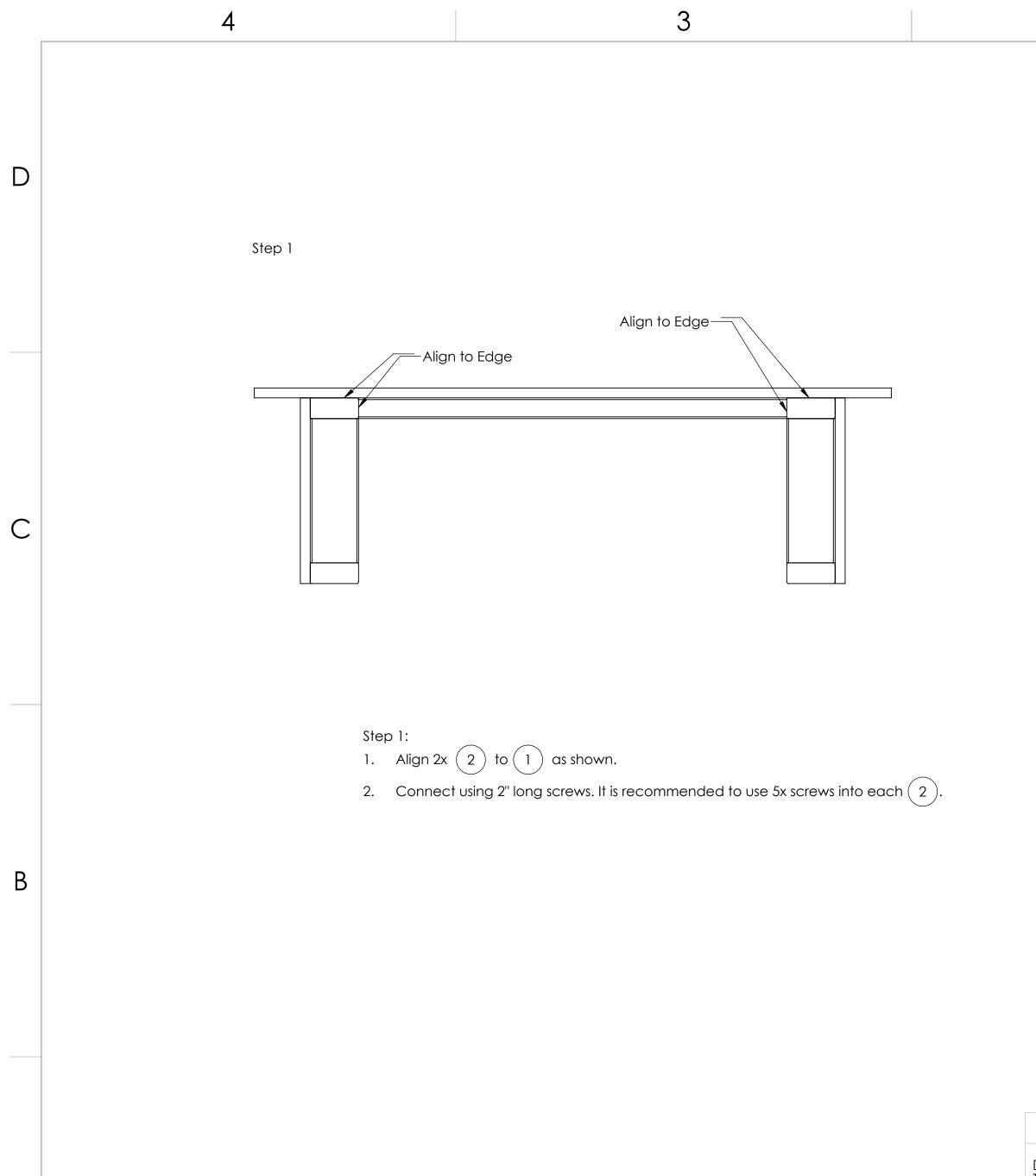
## Hardware Needed: #8 x 2" Long Screw - Qty 10

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								<b>\</b>	1
	ITEM NO.		ABER		DESCRIPTIO	N	(	QTY.	
	1	TE-22013		HUB - Bc	sic Build - Fe Assembly	nder Fror	nt	1	
	2	TE-22017	2017 HU		asic Build - Fe Assembly	nder Side	e	2	
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE		<b>FIRST</b>		2 25 solidi		
	DRAWN	КАМС	12/30/202	1	<b>ROBOTI</b> COMPE		Modeling Solution		
FRACTIONAL±1/16 ANGULAR: MACH±1° BEND±1° TWO PLACE DECIMAL±.13 THREE PLACE DECIMAL±.125 REPRODUC		TARY AND CONFIDENTIAL DRMATION CONTAINED IN WING IS THE SOLE TY OF <i>FIRST</i> ®. ANY UCTION IN PART OR AS A WITHOUT THE WRITTEN		Hub - Simple Bui Fender Assemt				A	
	PERMISSION OF <b>FI</b> PROHIBITED.		)	SIZE	DWG. NO.		_	REV	
COMMENTS:				C	<b>C</b> TE-22010		)		
do not scale drawing	DO NOT SCALE DRAWING REMOVE ALL BURRS AND SHARP EDGES.		SCALE: 1:6 SHEET 1 OF 3			F 3			
2				1				-	
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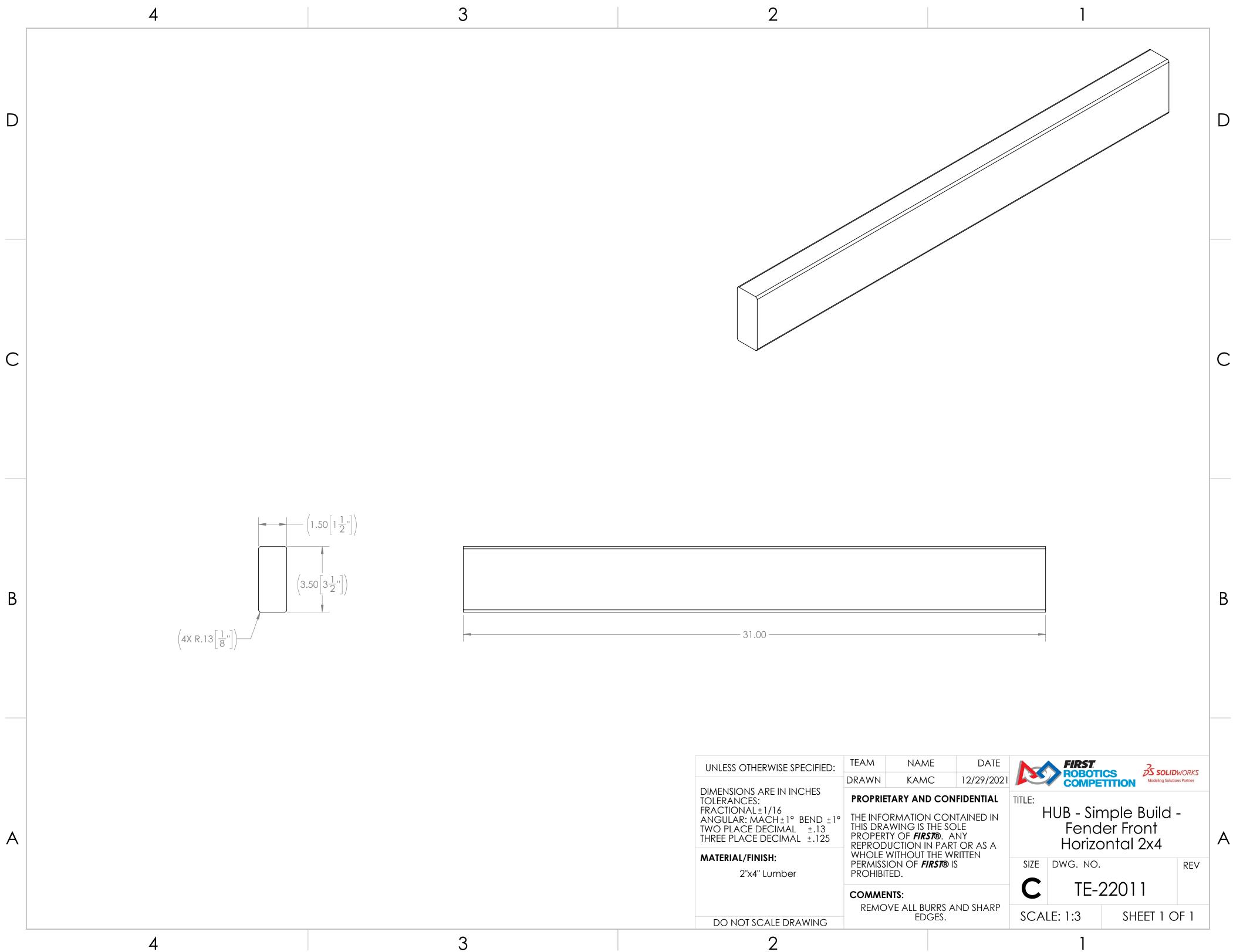


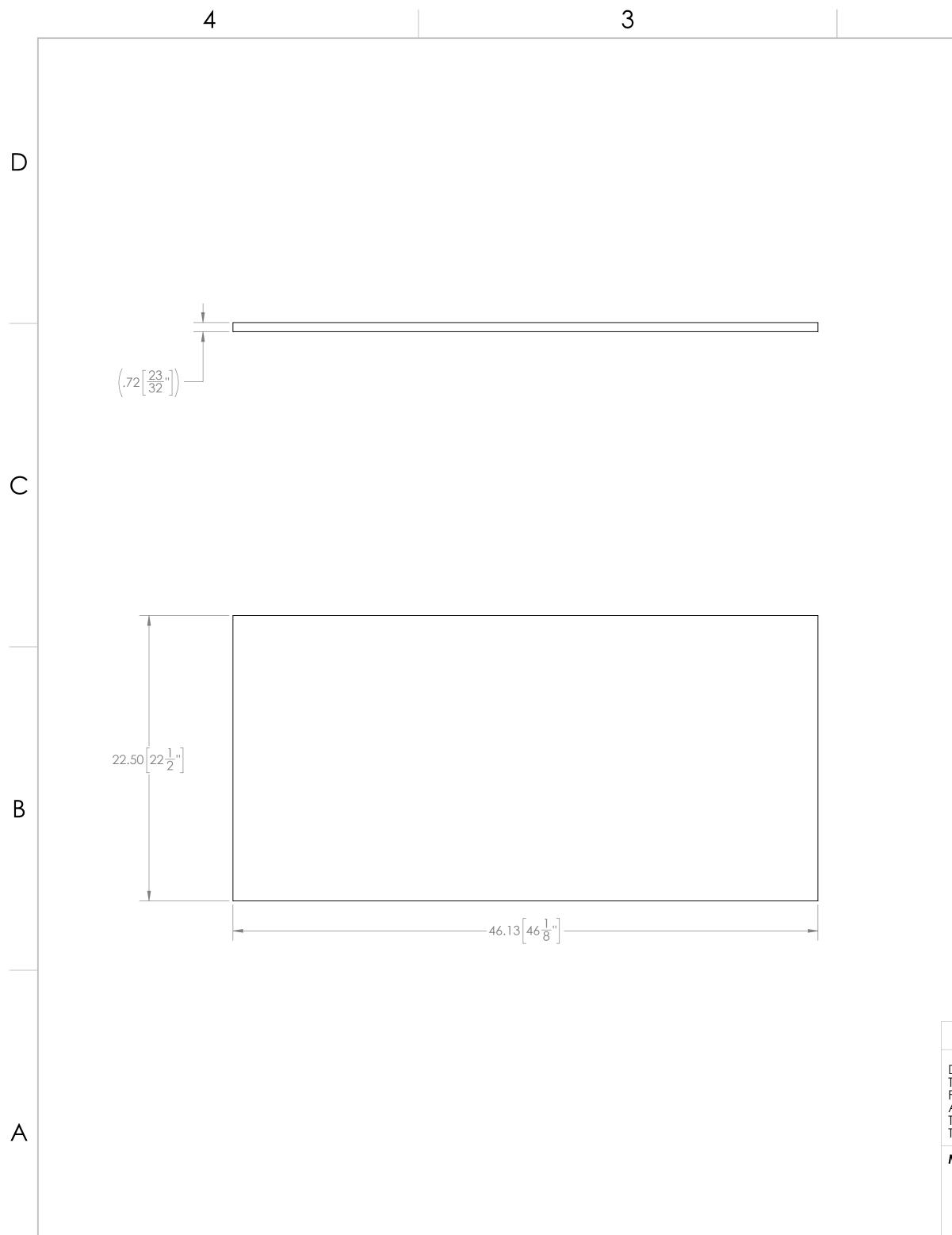




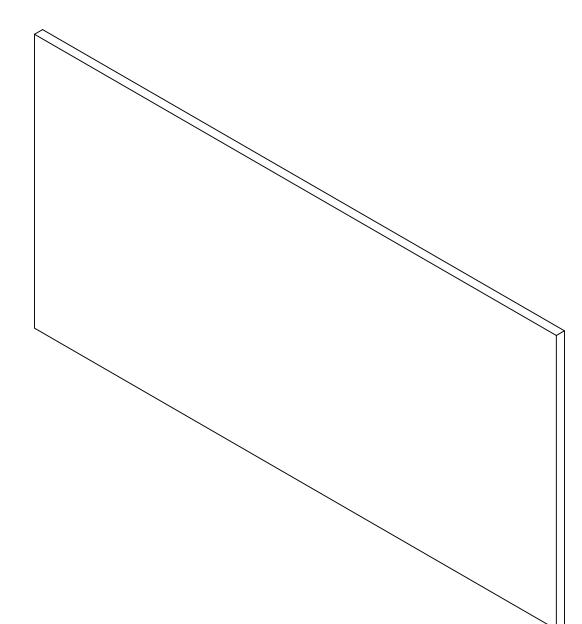
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UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES	TEAM NAN DRAWN KAM		FIRST. ROBOTIC COMPET	S SOLIDWORKS Modeling Solutions Partner	-
TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	PROPRIETARY AN THE INFORMATION THIS DRAWING IS PROPERTY OF <i>FIR</i> REPRODUCTION I	N CONTAINED IN THE SOLE <b>ST®</b> . ANY N PART OR AS A	Hub - Sim Fender A	ple Build - Assembly	A
MATERIAL/FINISH:	WHOLE WITHOUT PERMISSION OF <b>F</b> PROHIBITED.	ITTE VYKIIIEN V <b>IRST</b> ® IS	SIZE DWG. NO.	REV	-
do not scale drawing		urrs and sharp Ges.	SCALE: 1:6	SHEET 3 OF 3	-
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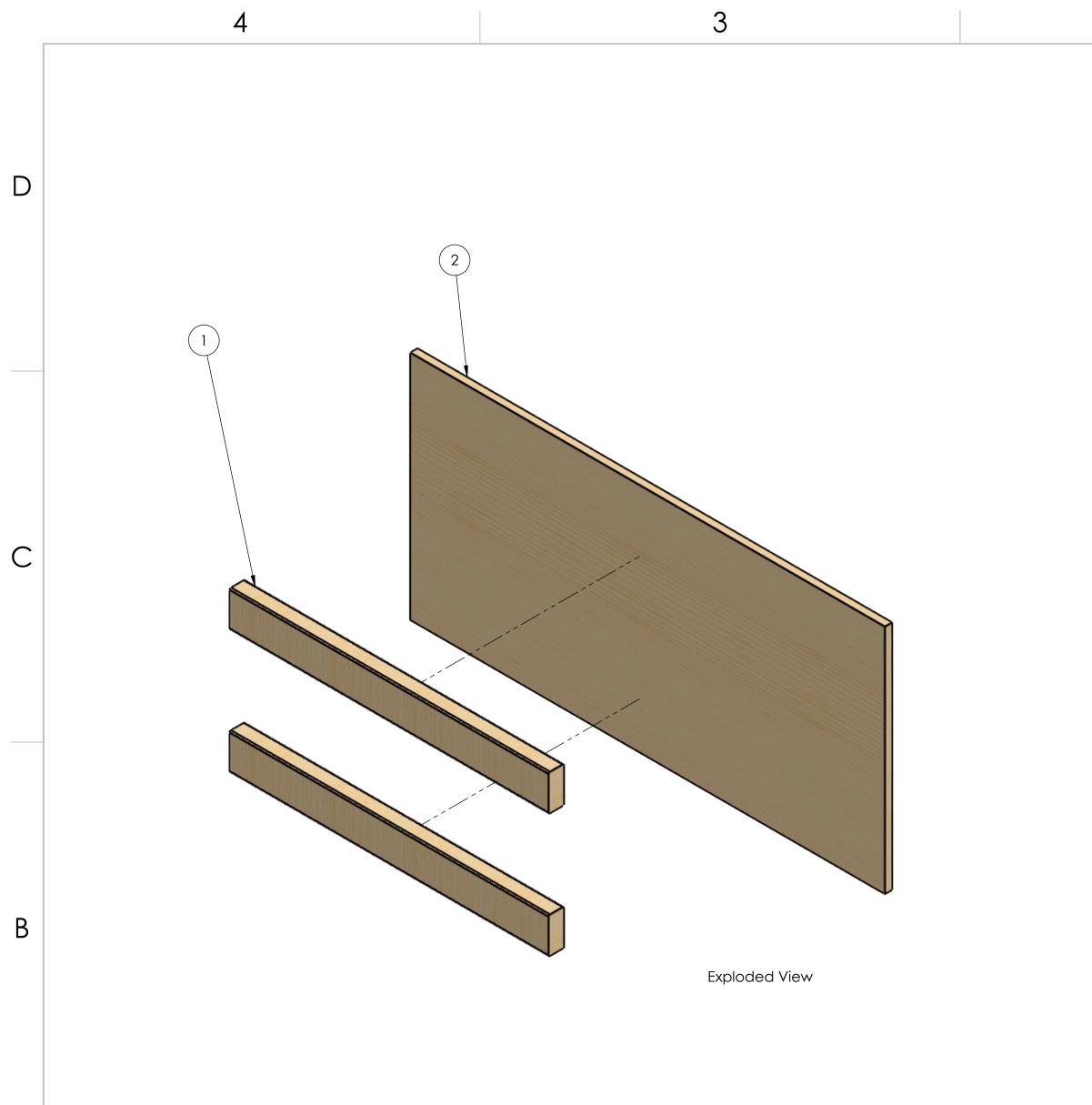


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UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE		<b>FIRST</b>		25 50117		
	DRAWN	КАМС	12/29/2021		ROBOT	ics TITION		WORKS	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND±1° TWO PLACE DECIMAL±.13 THREE PLACE DECIMAL±.125	THE INFO THIS DRA PROPER REPROD	TARY AND CON DRMATION CON AWING IS THE SC TY OF <i>FIRST</i> ®. A DUCTION IN PART WITHOUT THE WE	TAINED IN DLE NY I OR AS A	HUB - Simple Build - Fender Front					A
MATERIAL/FINISH: 3/4" Plywood		ION OF <i>FIRST</i> ® IS		SIZE	DWG. NO.		•	REV	
	COMME	NTS:		C	IE-	2201	2		
do not scale drawing	REMC	VE ALL BURRS A EDGES.	ND SHARP	SCA	_E: 1:6	SH	IEET 1 C	DF 1	
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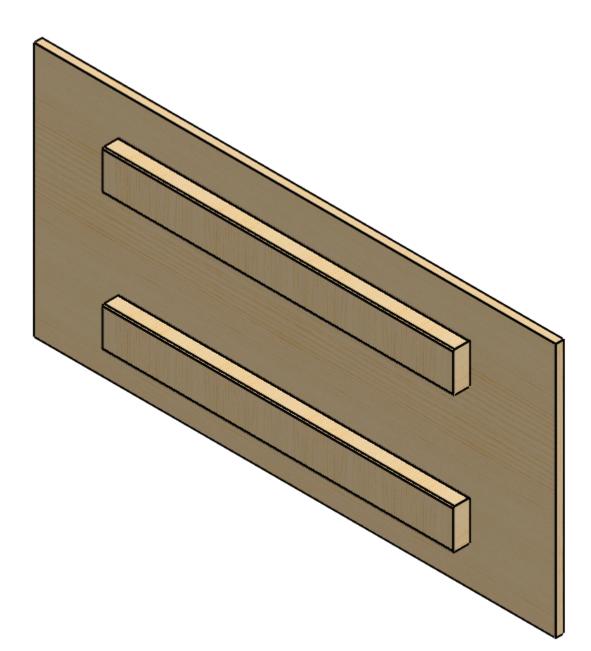


Step 1:

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

3



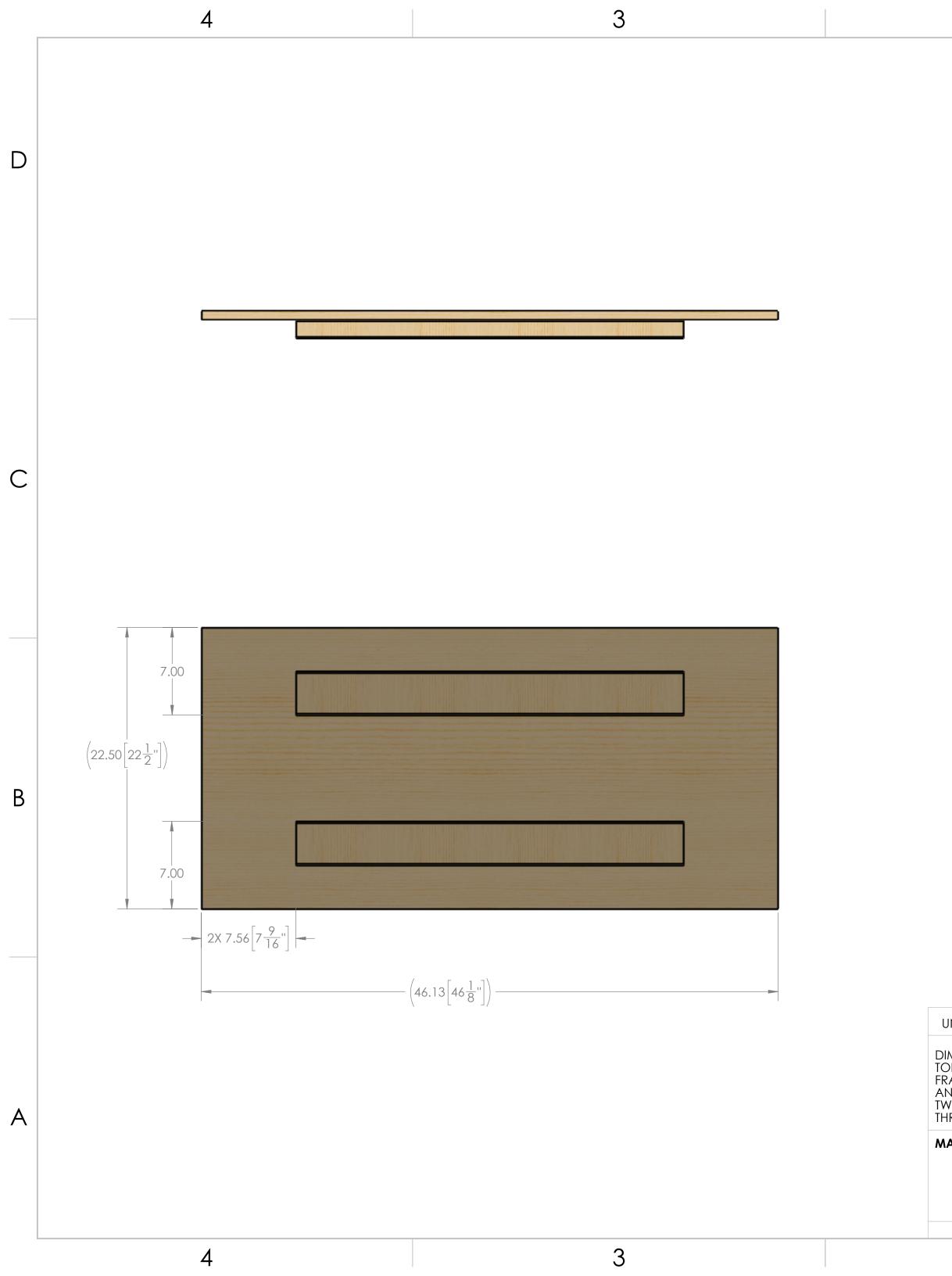
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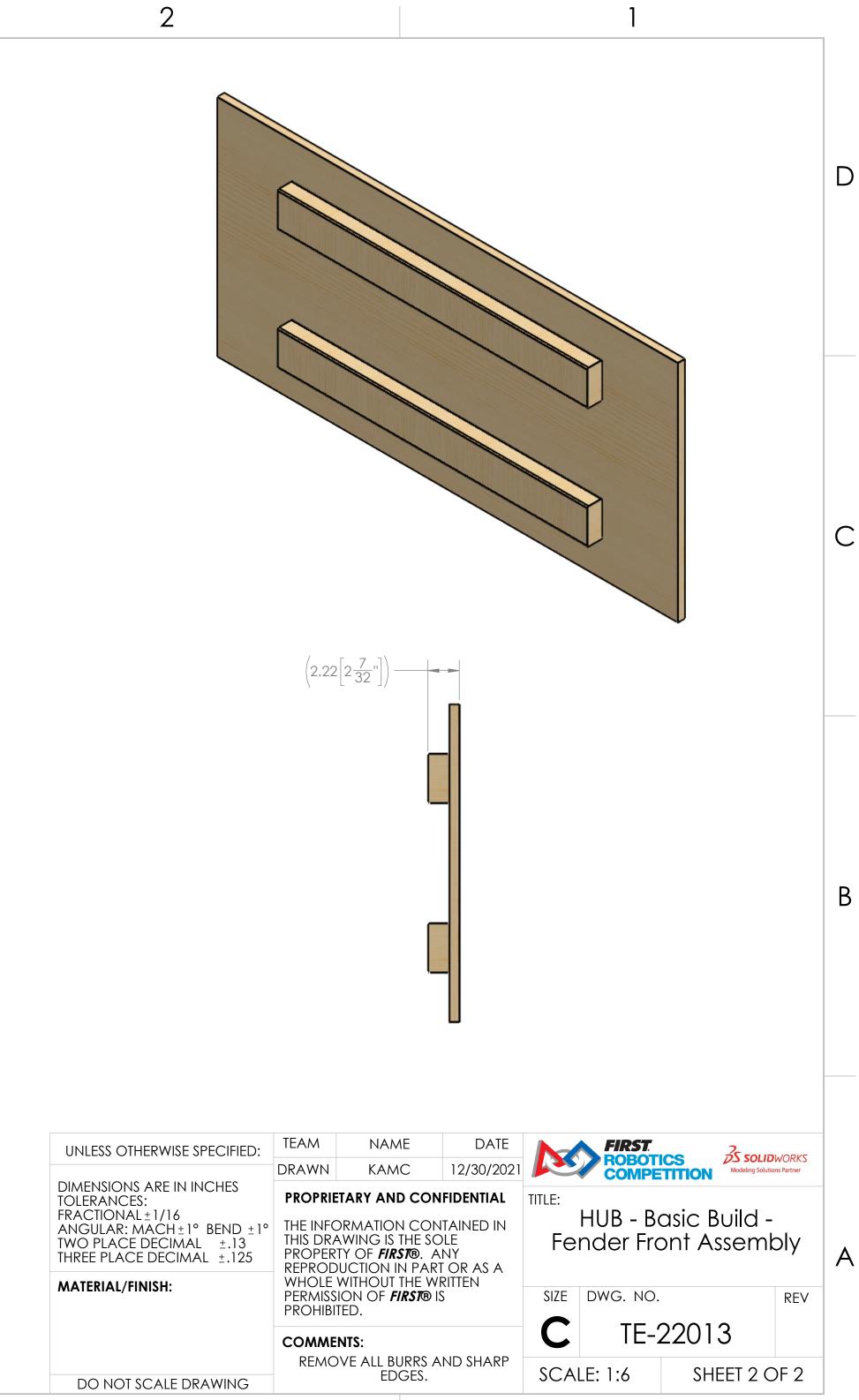
## Hardware Needed: #8 x 2" Long Screws - Qty 14

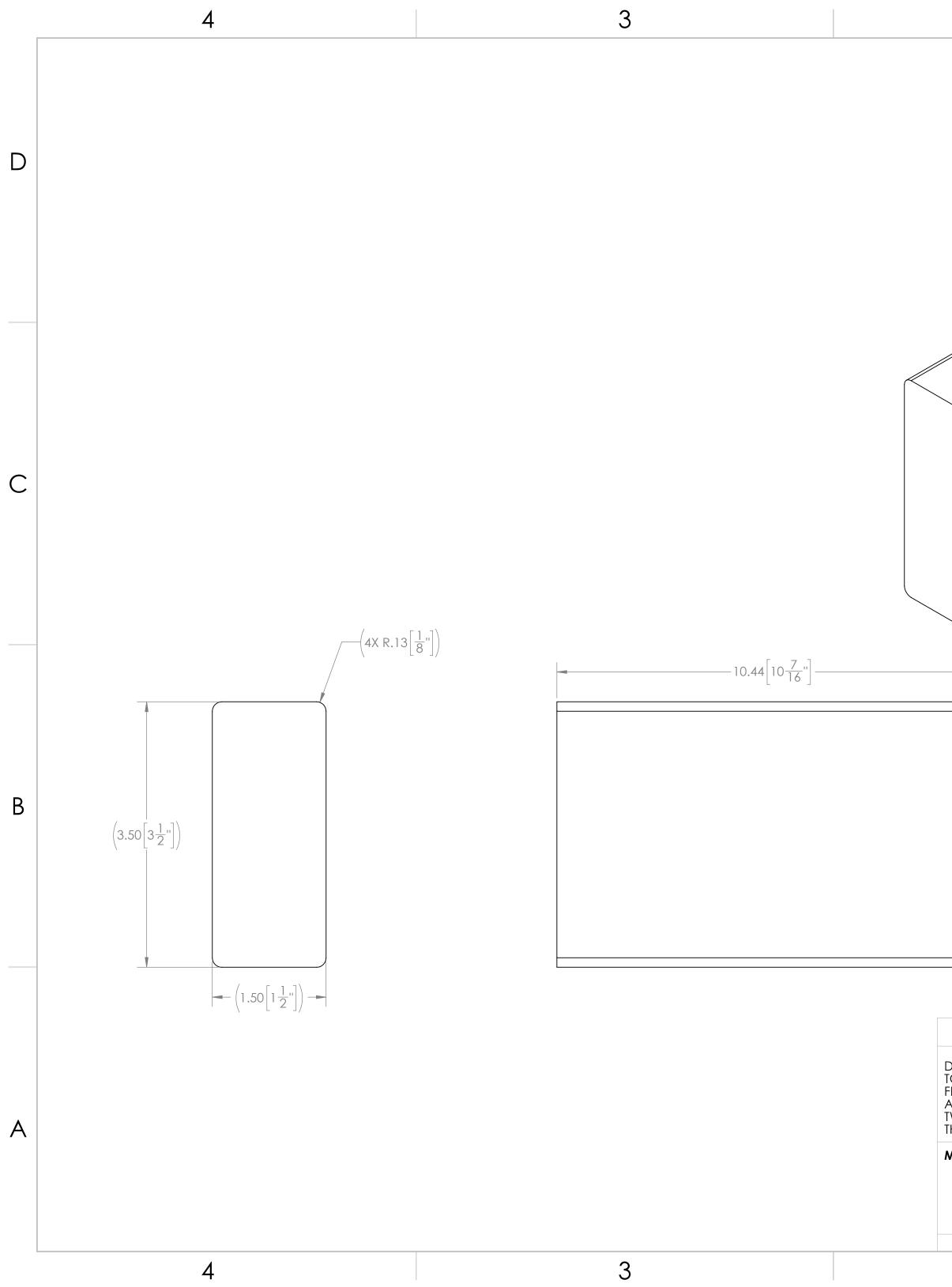
								_
	ITEM NO.	M NO. PART NUMBER DESCRIPTION				Ν	QTY.	
	1	TE-22011		HUB - Si	HUB - Simple Build - Fender Front Horizontal 2x4			
	2	TE-22012		HUB - Si	HUB - Simple Build - Fender Front			
UNLESS OTHERWISE SPECIFIED	TEAM	NAME	DATE		<b>FIRST</b>	350	<b>OLID</b> WORKS	-
	DRAWN	КАМС	12/30/20	21 尾	ROBOT COMPE		ng Solutions Partner	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND ± TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH:	THE INFC THIS DRA PROPERT REPROD WHOLE V	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <i>FIRST®</i> . ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN			HUB - Basic Buil Fender Front Asse			A
	PERMISSI PROHIBIT	ION OF <b>FIRST®</b> IS TED.	S	SIZE	DWG. NO.		REV	
					TE-	22013		
DO NOT SCALE DRAWING	KLMO	EDGES.	IND SHAKI	SC	ALE: 1:6	SHEET	1 OF 2	
2					1	1		_

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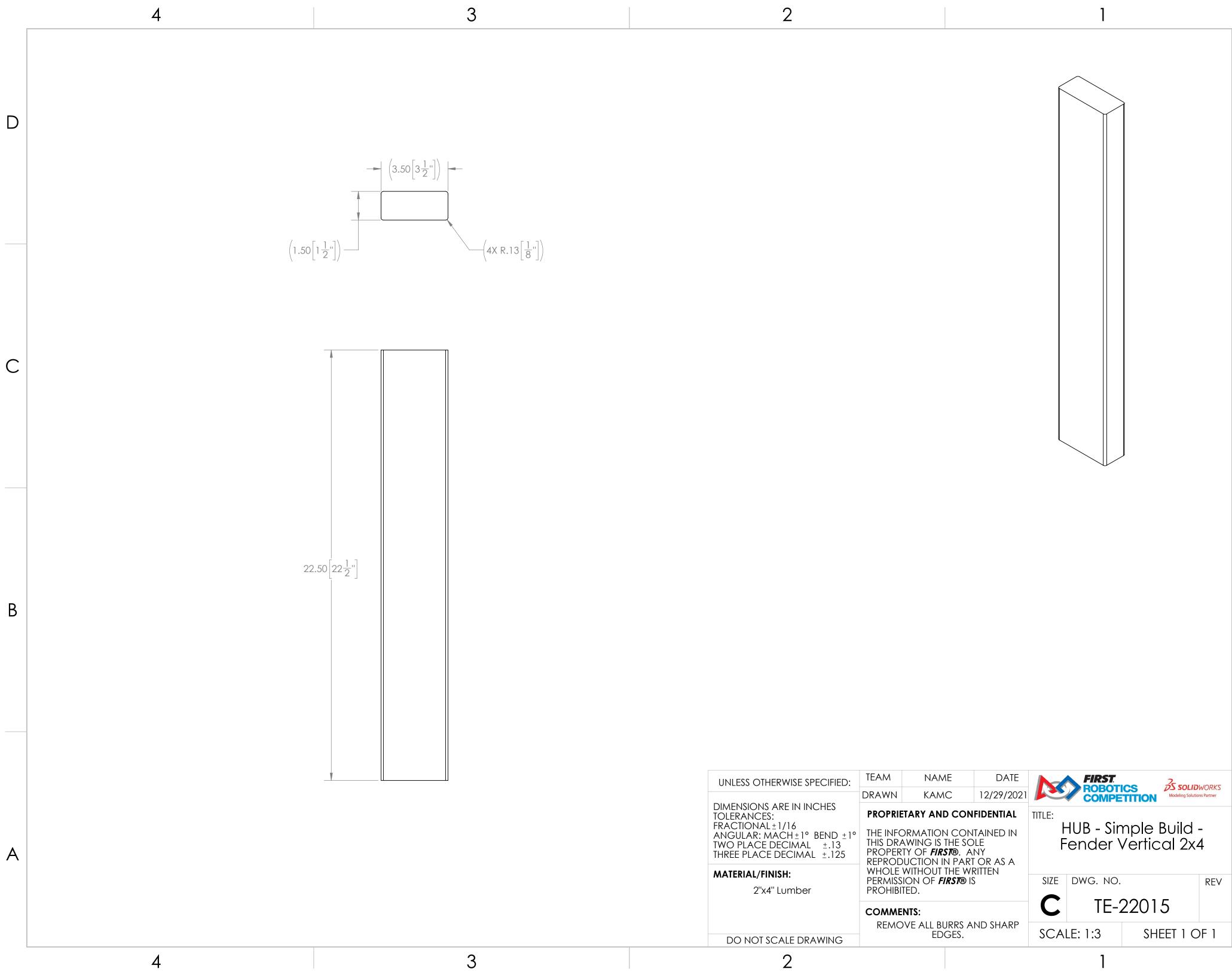
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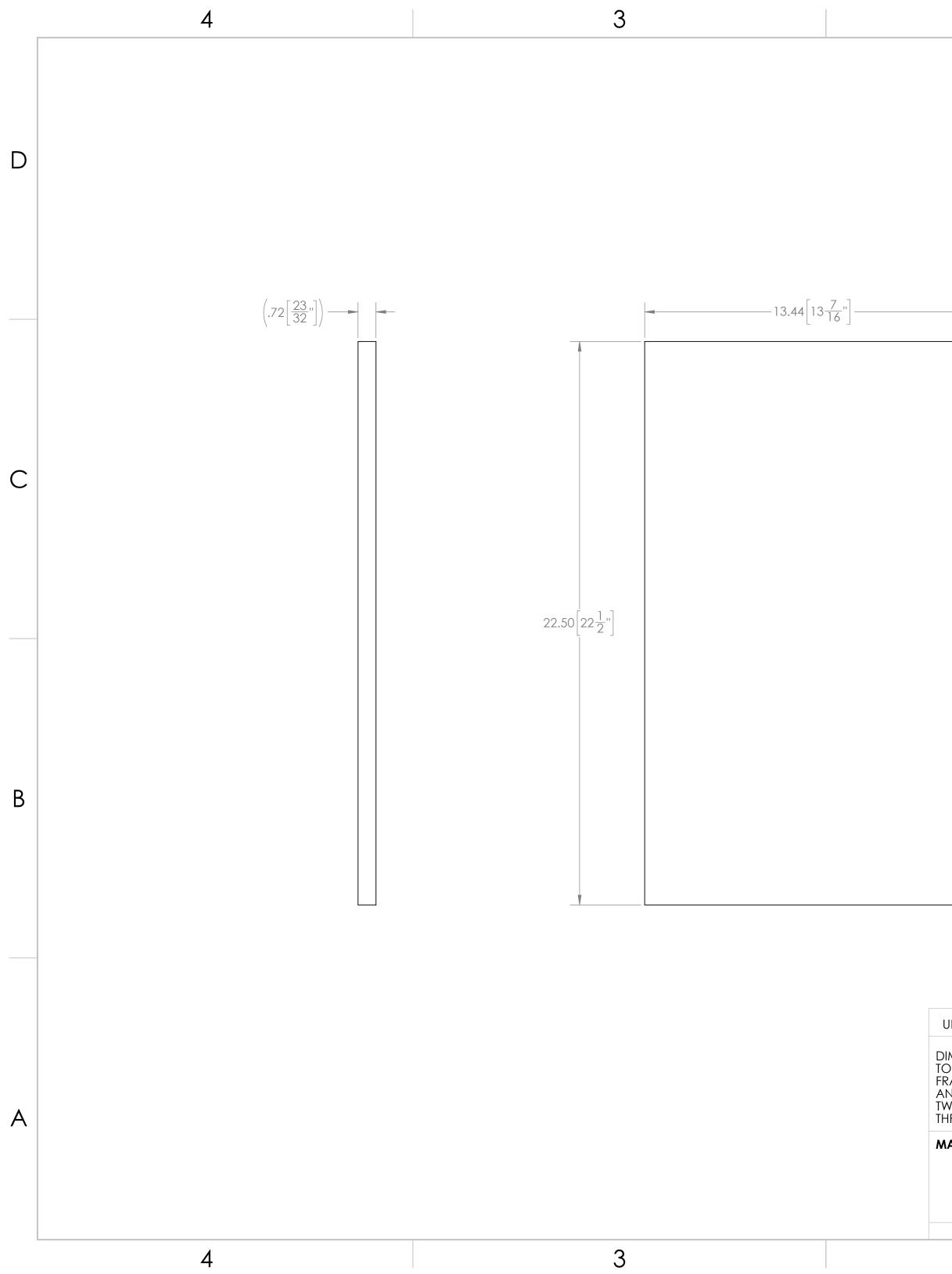
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UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE	FIRST ROBO	TICS	<b>S SOLID</b> WORKS	
DIMENSIONS ARE IN INCHES			12/29/2021		ETITION	Modeling Solutions Partner	-
TOLERANCES: FRACTIONAL±1/16		<b>ARY AND CON</b> RMATION CON		TITLE: HUB - S	imple	Build -	
ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ±.13	THIS DRAV	VING IS THE SC ( OF <b>FIRST</b> ®. A	LE	HUB - S Fender S	ide Ho	prizontal	•
THREE PLACE DECIMAL ±.125	reprodu	CTION IN PART	OR AS A		2x4		A
MATERIAL/FINISH: 2"x4" Lumber	PERMISSIO	ON OF <b>FIRST</b> ® IS		SIZE DWG. NO	Э.	REV	
	COMMEN			C TE	-2201	4	
		'E ALL BURRS A	ND SHARP				_
DO NOT SCALE DRAWING		EDGES.		SCALE: 1:1	SH	EET 1 OF 1	
2				1			

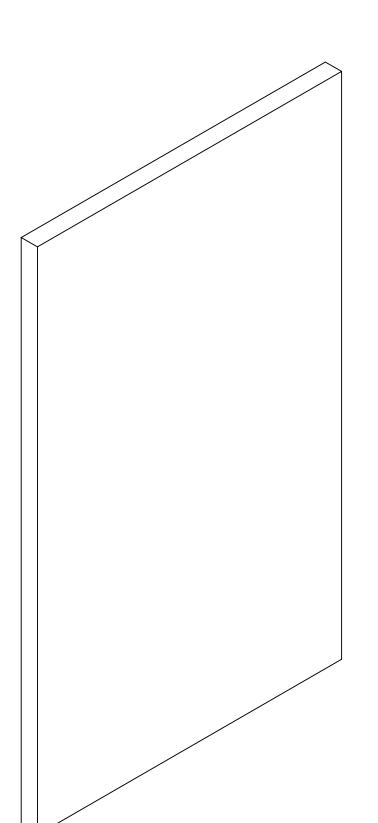


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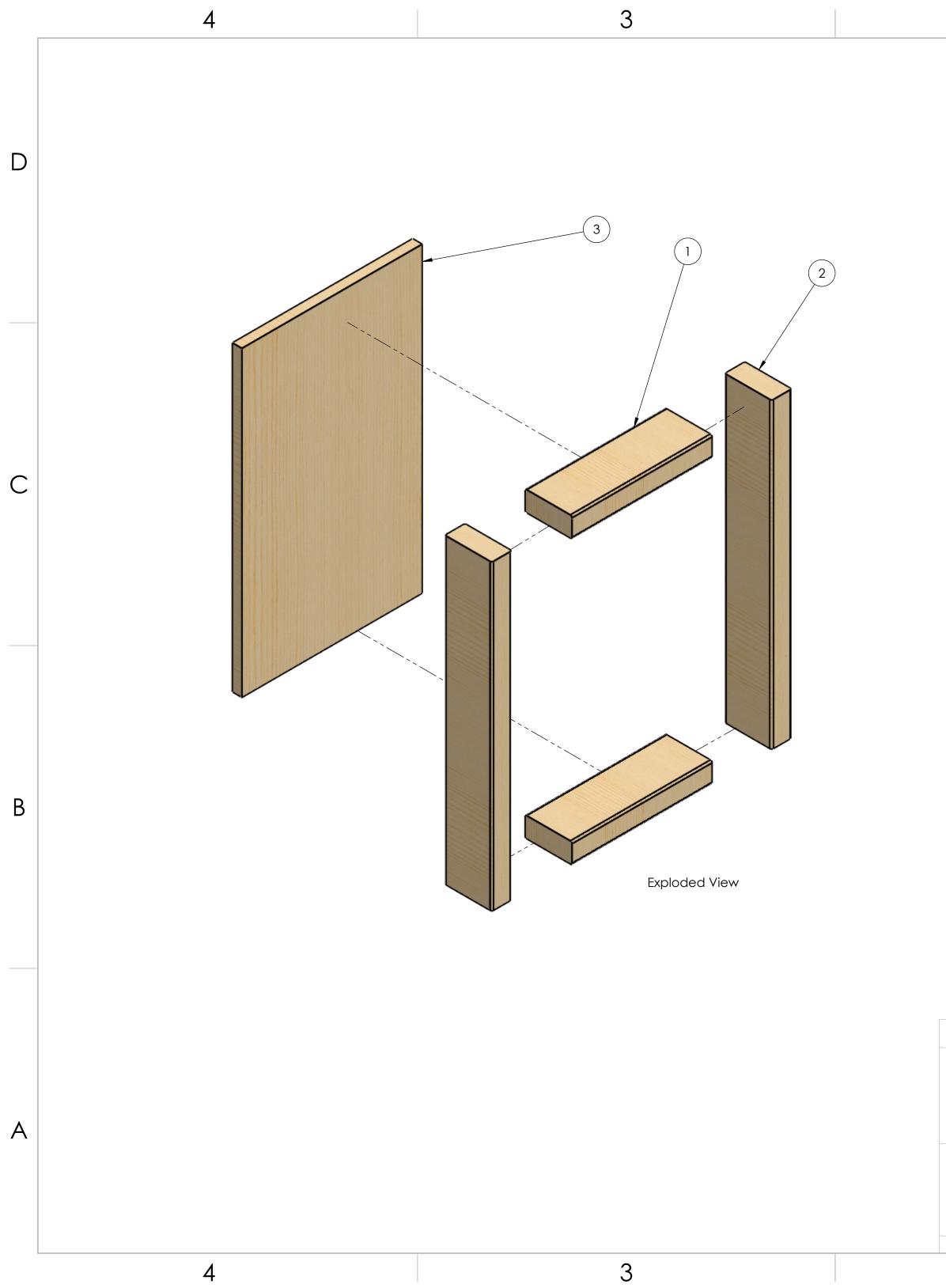
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE		FIRST.		<b>S SOLID</b> WORKS	
	DRAWN	КАМС	12/29/2021		ROBOTI	CS TITION	Modeling Solutions Partner	
DIMENSIONS ARE IN INCHES OLERANCES: RACTIONAL±1/16 ANGULAR: MACH±1° BEND ±1° WO PLACE DECIMAL ±.13 HREE PLACE DECIMAL ±.125	THE INFC THIS DRA PROPER REPROD	TARY AND CON DRMATION CON AWING IS THE SC TY OF <i>FIRST</i> ®. A DUCTION IN PART WITHOUT THE WI	ITAINED IN DLE .NY T OR AS A	TITLE:	HUB - Sir Fenc	nple E ler Sic	Build - de	A
AATERIAL/FINISH: 3/4'' Plywood	-	ION OF FIRST® IS		SIZE	DWG. NO.		REV	_
				C	TE-2	2201	6	_
	REMO	VE ALL BURRS A EDGES.	IND SHARP	SCA	LE: 1:3	SHF	et 1 of 1	
DO NOT SCALE DRAWING								

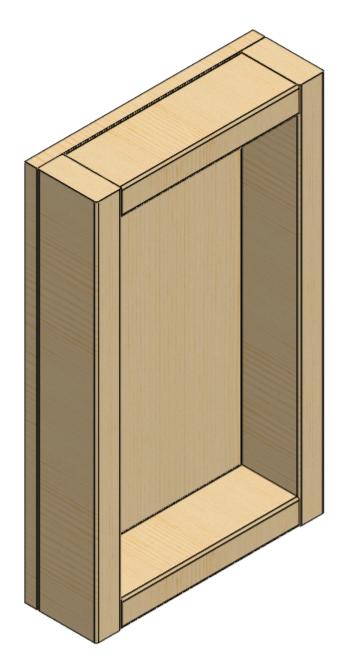
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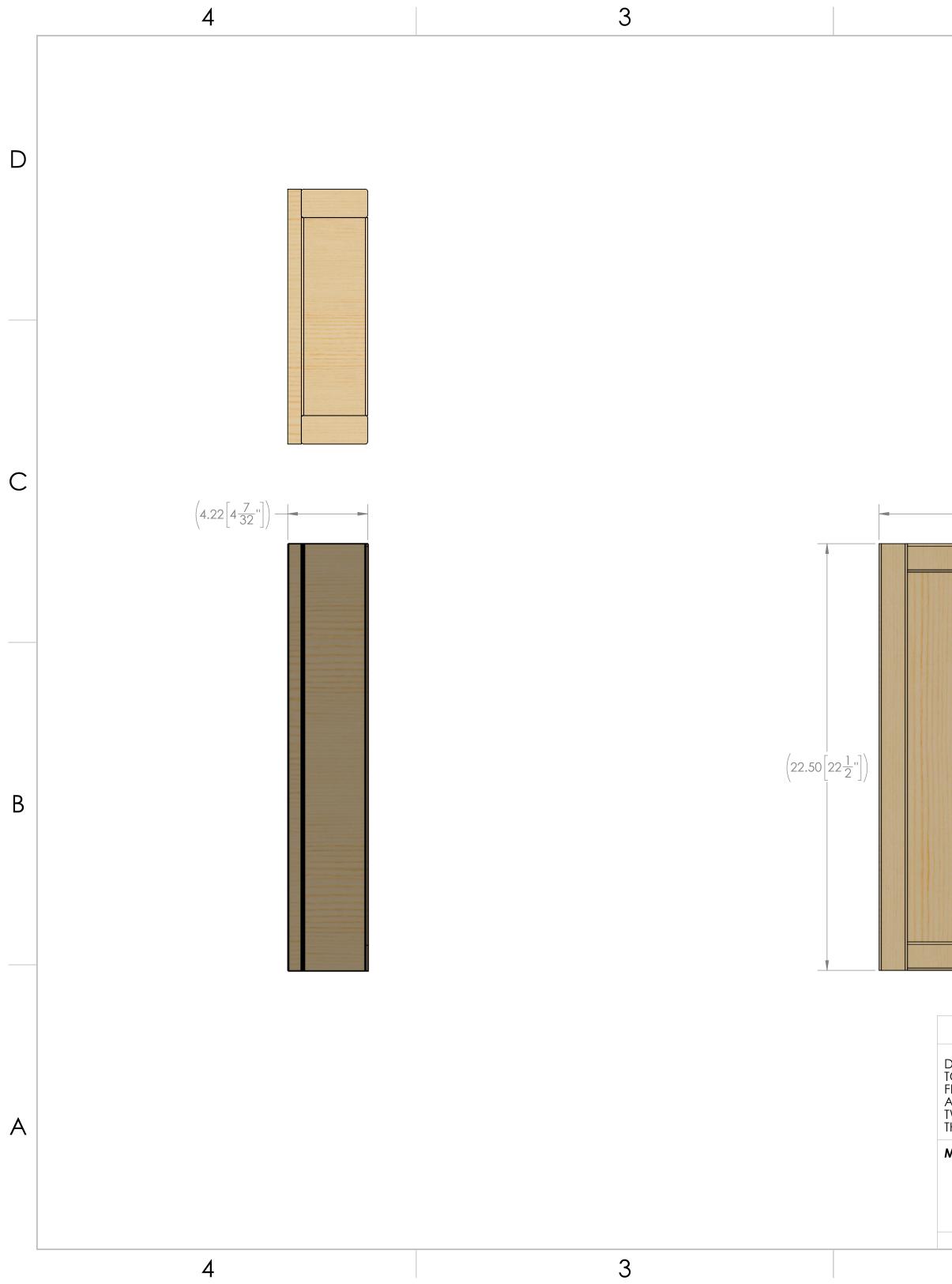


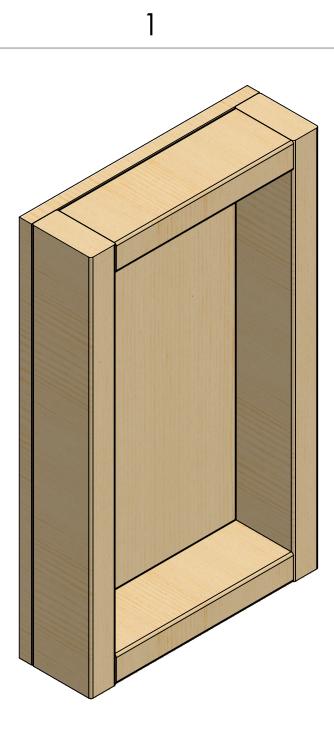
## Hardware: #8 x 2" Long Screw - Qty 16 #8 x 2.5" Long Screw - Qty 8

		- T	,					4
	ITEM NO.	PART NUM	/BER		DESCRIPTIO	N		
	1	TE-22014		HUB - Sirr	nple Build - Fe Horizontal 2>	ender Side 4	2	
	2	2 TE-22015 HUB -		HUB - Simp	le Build - Fer 2x4	der Vertical	2	
	3	TE-22016	016		HUB - Simple Build - Fender Side			]
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE		FIRST.	25-		1
	DRAWN	КАМС	12/30/20	)21	ROBOTI		<b>DLID</b> WORKS g Solutions Partner	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1 TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	<ul> <li>THE INFO THIS DRA PROPERT REPRODU</li> </ul>	THIS DRAWING IS THE SOLE PROPERTY OF <b>FIRST®</b> . ANY REPRODUCTION IN PART OR AS A			HUB - Basic Build Fender Side Asser		•	A
MATERIAL/FINISH:	PERMISSI	WHOLE WITHOUT THE WRITTEN PERMISSION OF <b>FIRST®</b> IS PROHIBITED.		SIZE	DWG. NO.		REV	-
	COMMEN	NTS:		C	IE-2	22017		
do not scale drawing	REMO	MOVE ALL BURRS AND SHARP EDGES.		SCA	CALE: 1:4 SHEET		OF 3	
2	2				1			-

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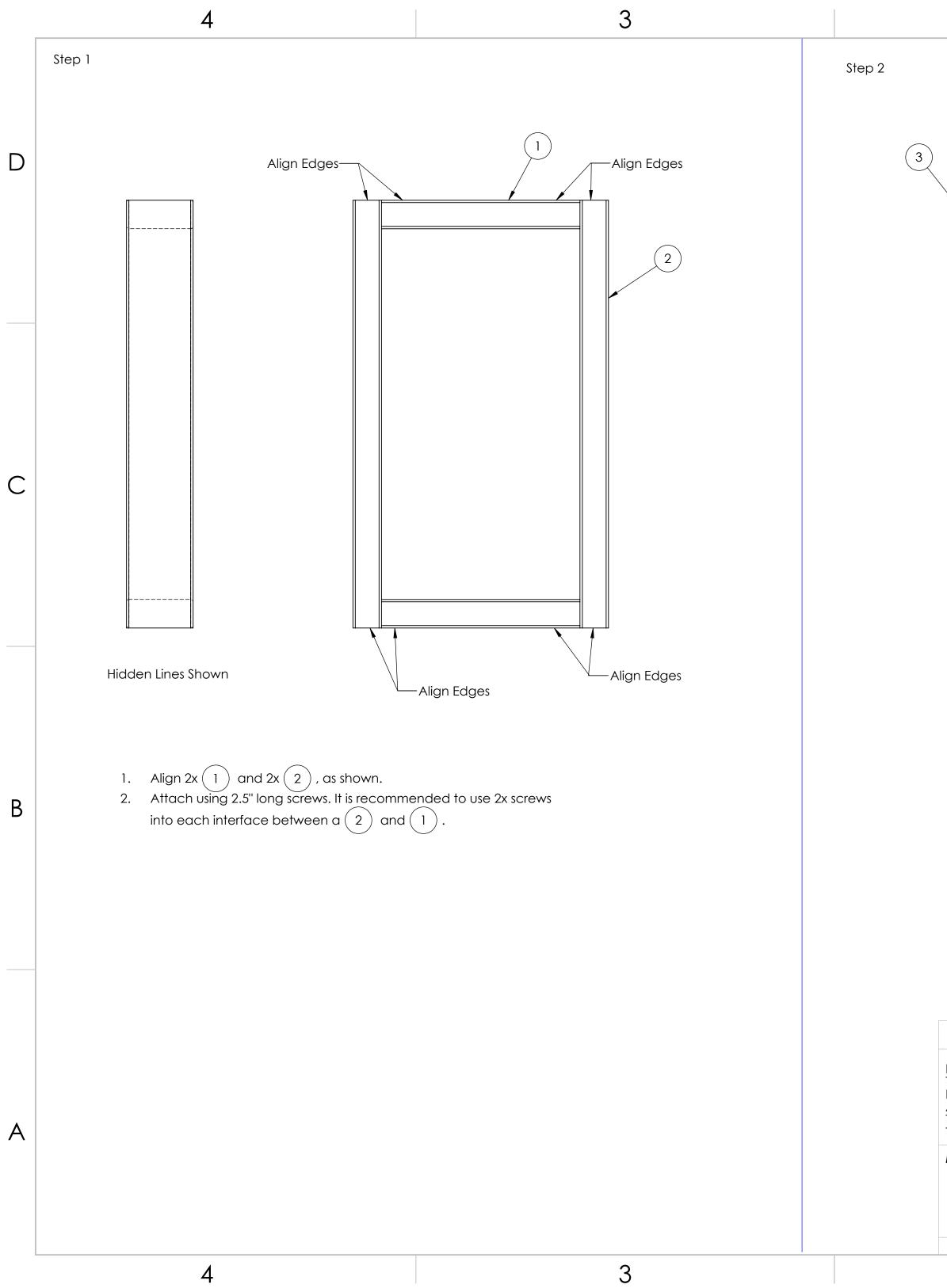


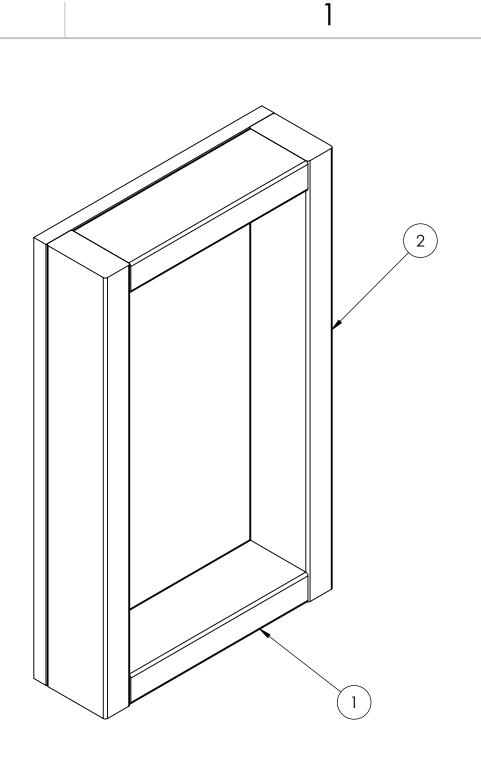
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$\left(13.44\left[13\frac{7}{16}''\right]\right)$	-

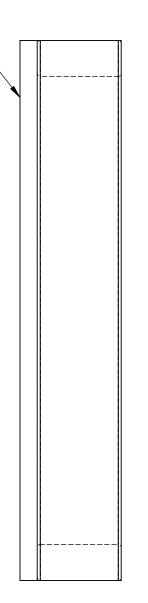
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE		FIRST.		S SOLID		
	DRAWN	KAMC	12/30/2021		ROBOT	TITION	Mark In Caller		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND±1° TWO PLACE DECIMAL±.13 THREE PLACE DECIMAL±.125 MATERIAL/FINISH:	THE INFO THIS DRA PROPER REPROD WHOLE	TARY AND CON DRMATION CON WING IS THE SC TY OF <i>FIRST</i> ®. A UCTION IN PAR WITHOUT THE W ION OF <i>FIRST</i> ®	NTAINED IN DLE ANY IT OR AS A (RITTEN	TITLE: HUB - Basic Build - Fender Side Assembly SIZE DWG. NO.					А
	PROHIBI		-	<b>C</b> TE-22017					
	COMME						/		
	REMO	VE ALL BURRS A EDGES.	and sharp	SCA	LE: 1:4	SH	EET 2 C	)F 3	
do not scale drawing									
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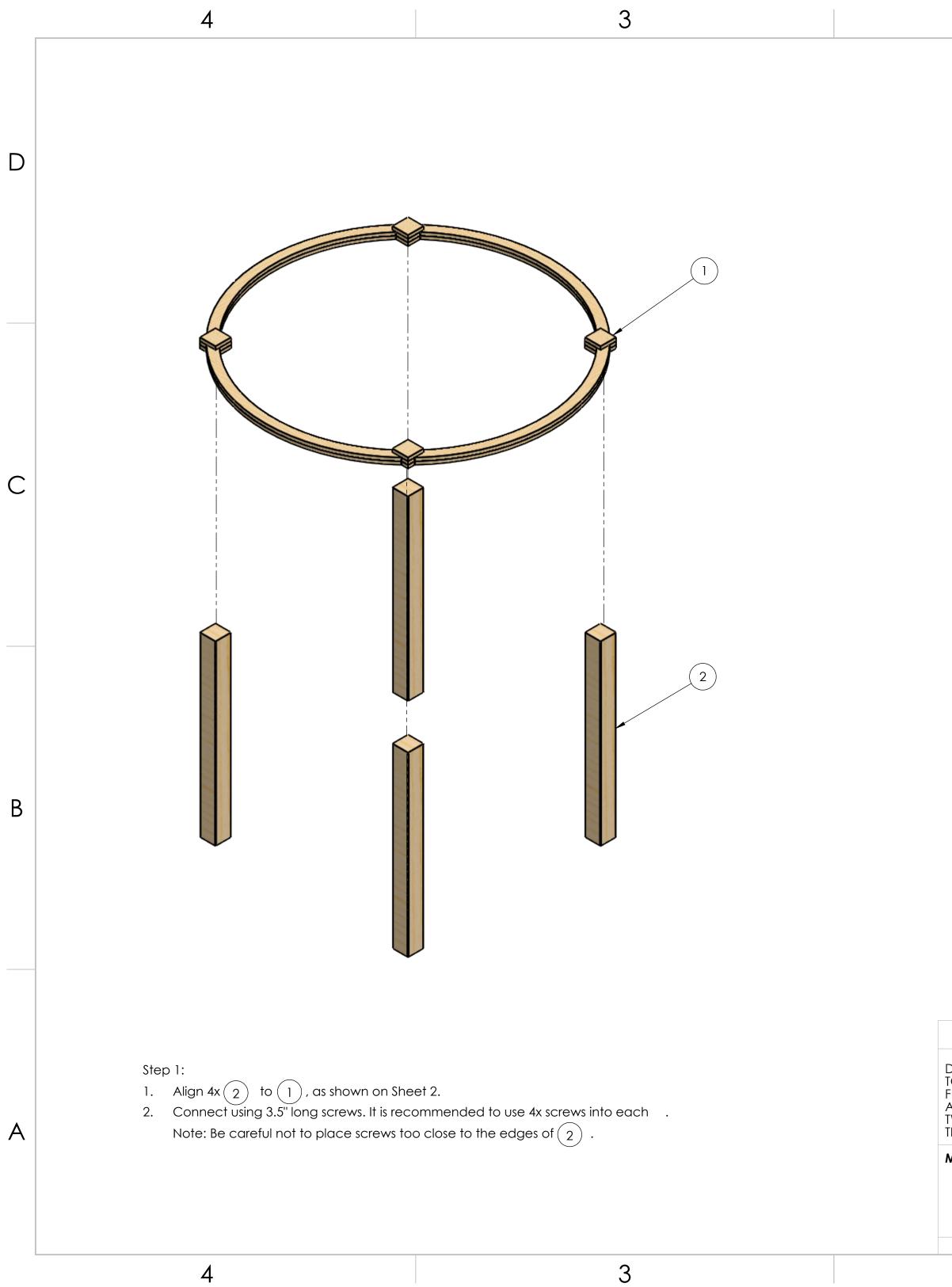


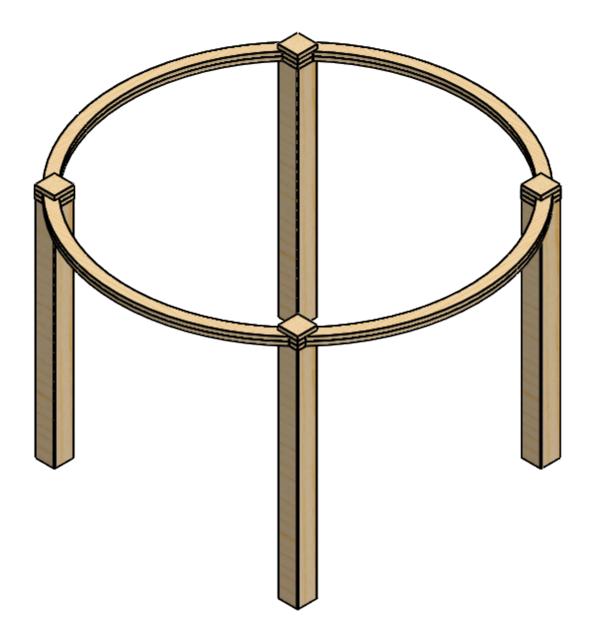
2

Hidden Lines Shown

- Align 3 to the assembly made in Step 1, as shown.
   Attach using 2" Long Screws. It is recommended to use 5x screws into
- 2. Attach using 2" Long Screws. It is recommended to use 5x screws into each  $\begin{pmatrix} 2 \end{pmatrix}$  and 3x screws into each  $\begin{pmatrix} 1 \end{pmatrix}$ .

UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE		FIRST.	35.50		
	DRAWN	КАМС	12/30/2021		ROBOTI		LIDWORKS Solutions Partner	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125	THE INFO THIS DRA PROPERT REPRODI	<b>TARY AND CON</b> RMATION CON WING IS THE SC Y OF <b>FIRST</b> ®. A JCTION IN PAR	NTAINED IN DLE ANY T OR AS A			asic Build de Assem		
MATERIAL/FINISH:	L/FINISH: WHOLE WITHOU PERMISSION OF PROHIBITED.		iout the written of <b>first</b> ® is		SIZE DWG. NO.		REV	-
	COMMEN	NTS:			IE-2	22017		
do not scale drawing	REMO'	VE ALL BURRS A EDGES.	and sharp	SCAL	E: 1:4	SHEET 3	OF 3	
2					1			_





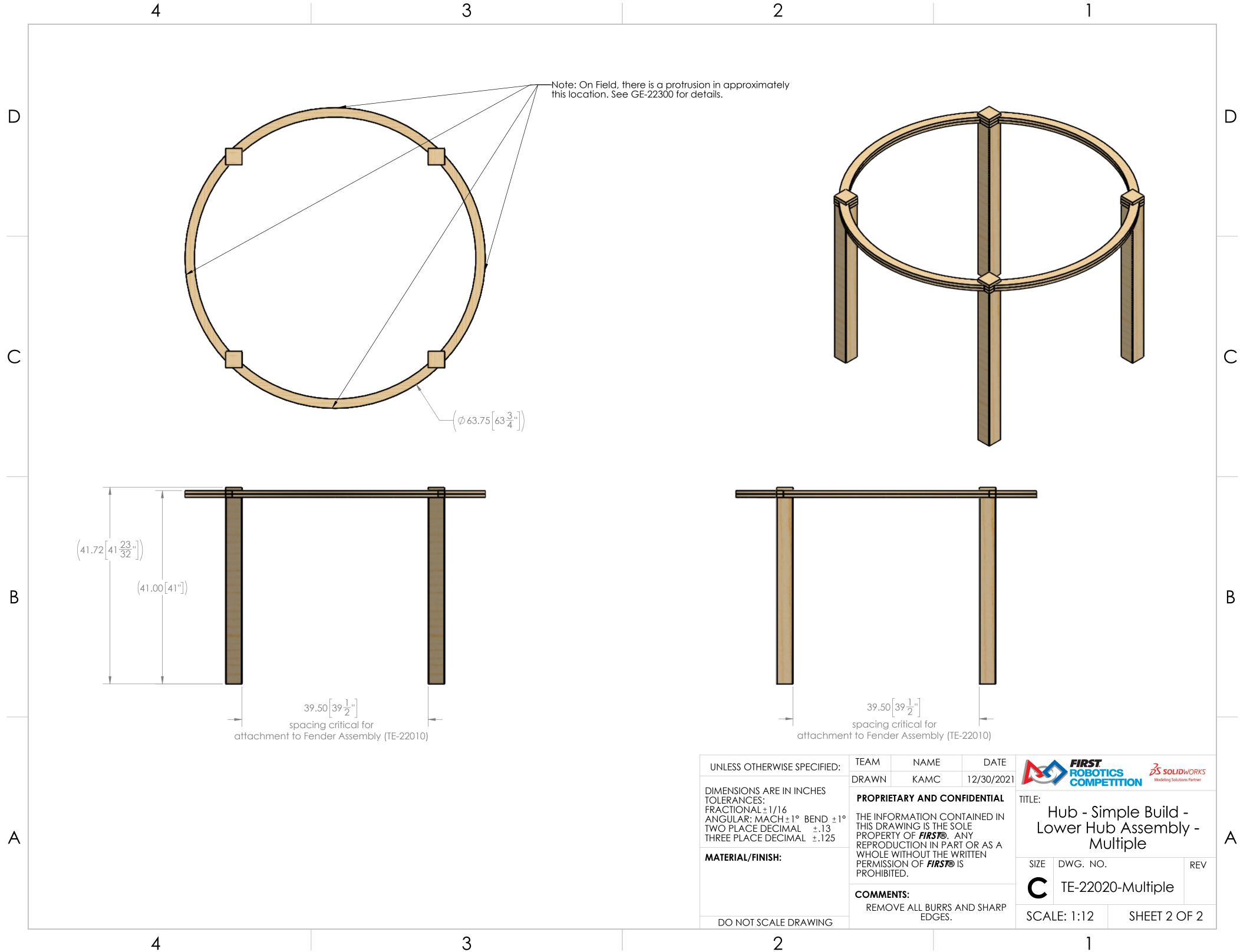
Note: Use TE-22020-Single if you are only forming 1/4 ring.

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

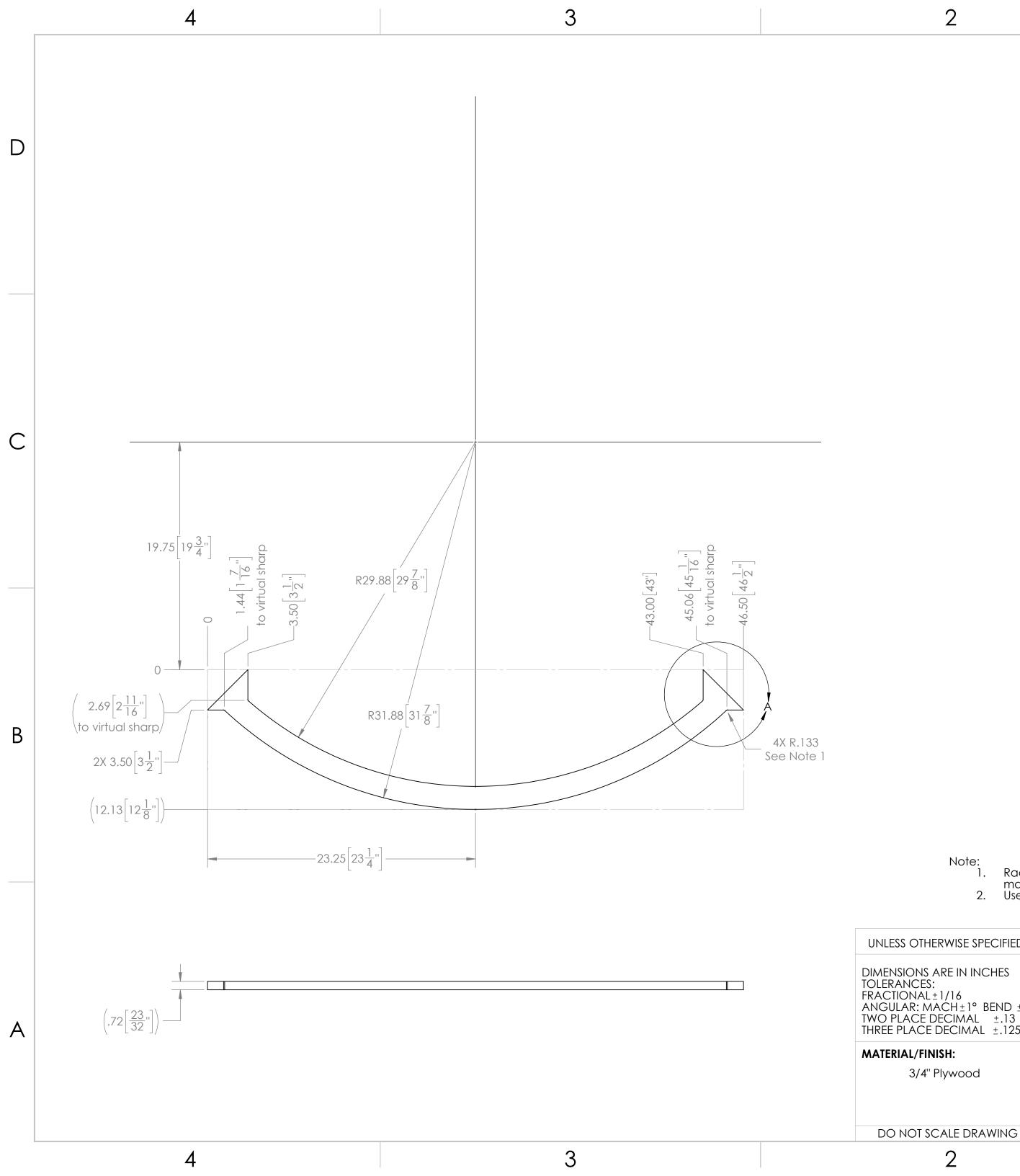
	ITEM NO.	PART	NUMBER		DESCRIPTIO	N	QTY.	
	1	TE-22024			ole Build - Lov Assembly - N	ver Hub Ring Nultiple	1	$\left  \right $
	2	2 TE 22025 HUB - Sir			HUB - Simple Build - Vertical for Lower Hub Ring 4x4			
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DAT		FIRST.			]
	DRAWN	КАМС	12/30/20	)21 🏴				
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND ±1 TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH:	• THE INFO THIS DRA PROPERT REPRODI WHOLE V	RMATION C WING IS THE Y OF <b>FIRST®</b> JCTION IN P WITHOUT THE ON OF <b>FIRS</b>	9. ANY PART OR AS A E WRITTEN		DWER HUI MU DWG. NO.	nple Build o Assemb JItiple		<b>A</b>
	COMMEN REMO		s and shar			0-Multiple		_
DO NOT SCALE DRAWING		EDGES.			LE: 1:12	SHEET 1 (	JF 2	
2					1			

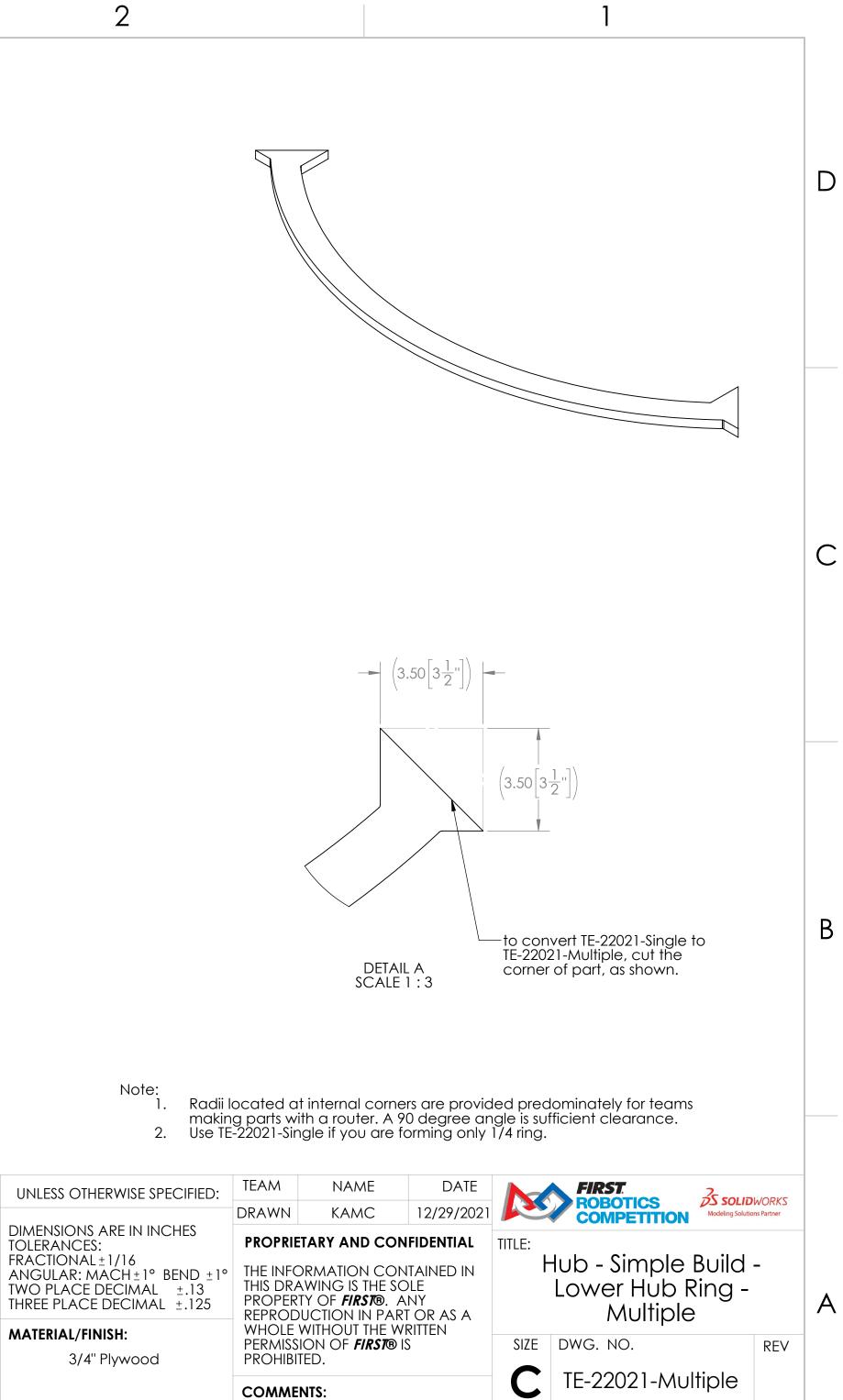
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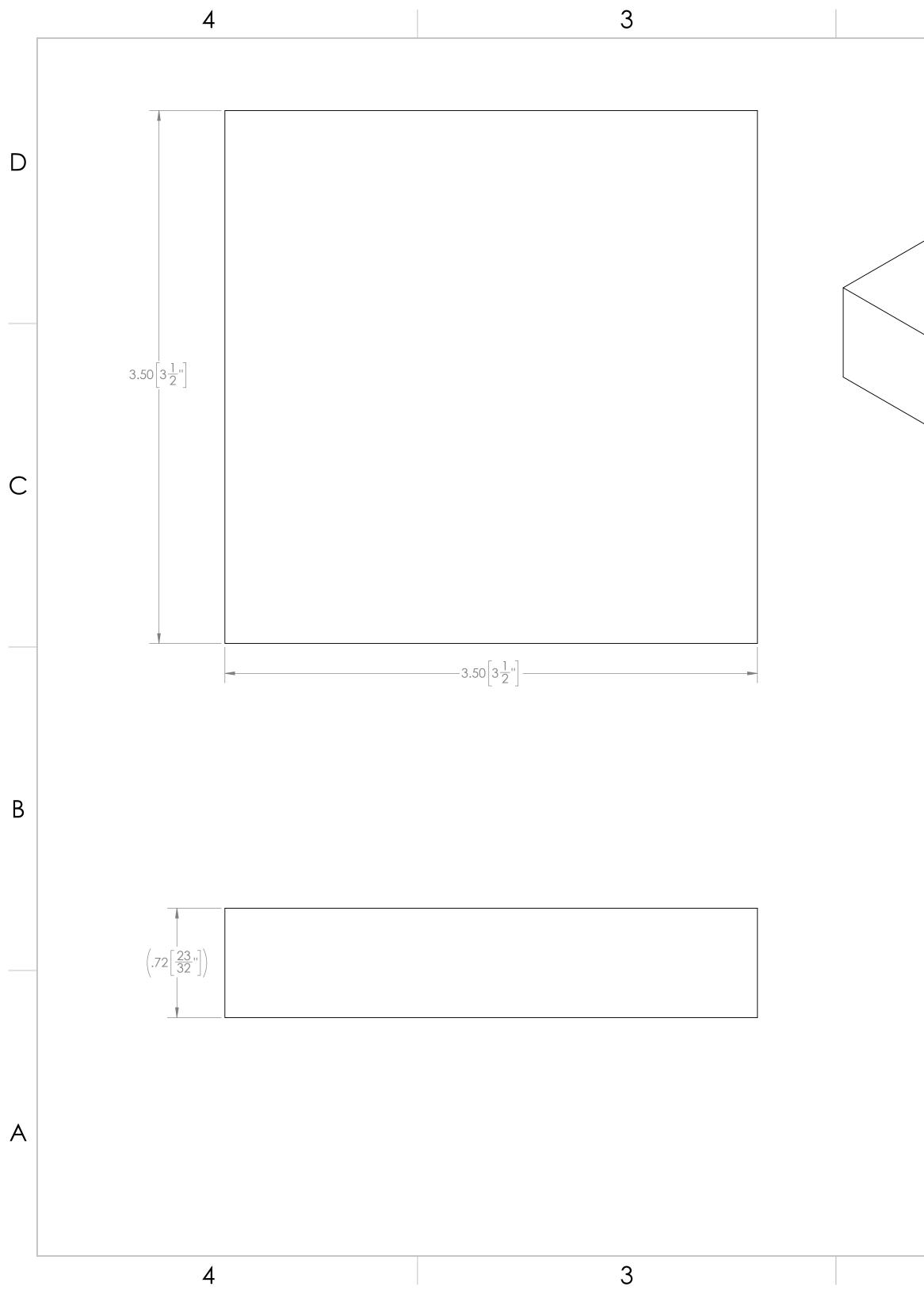
REMOVE ALL BURRS AND SHARP

EDGES.

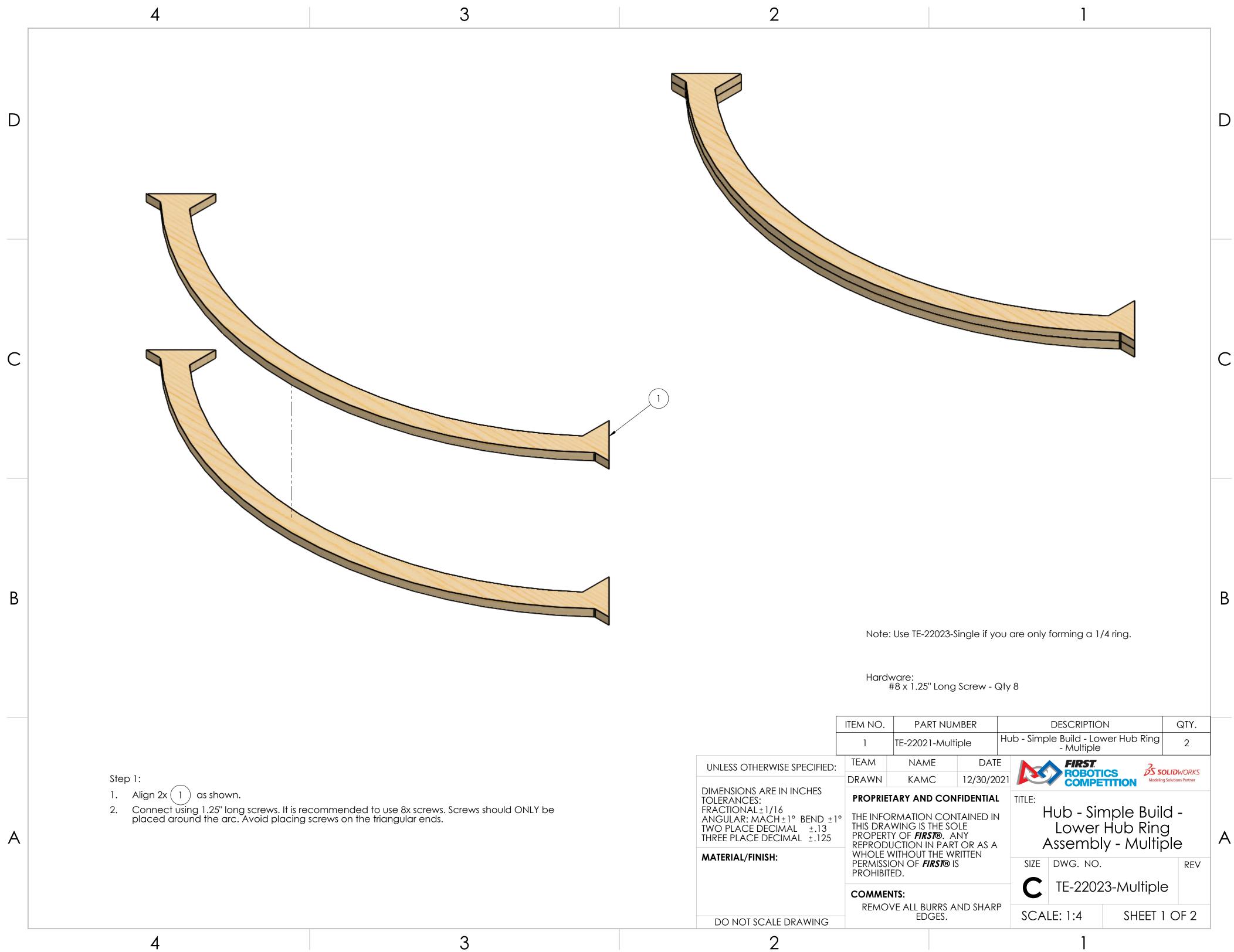
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SHEET 1 OF 1

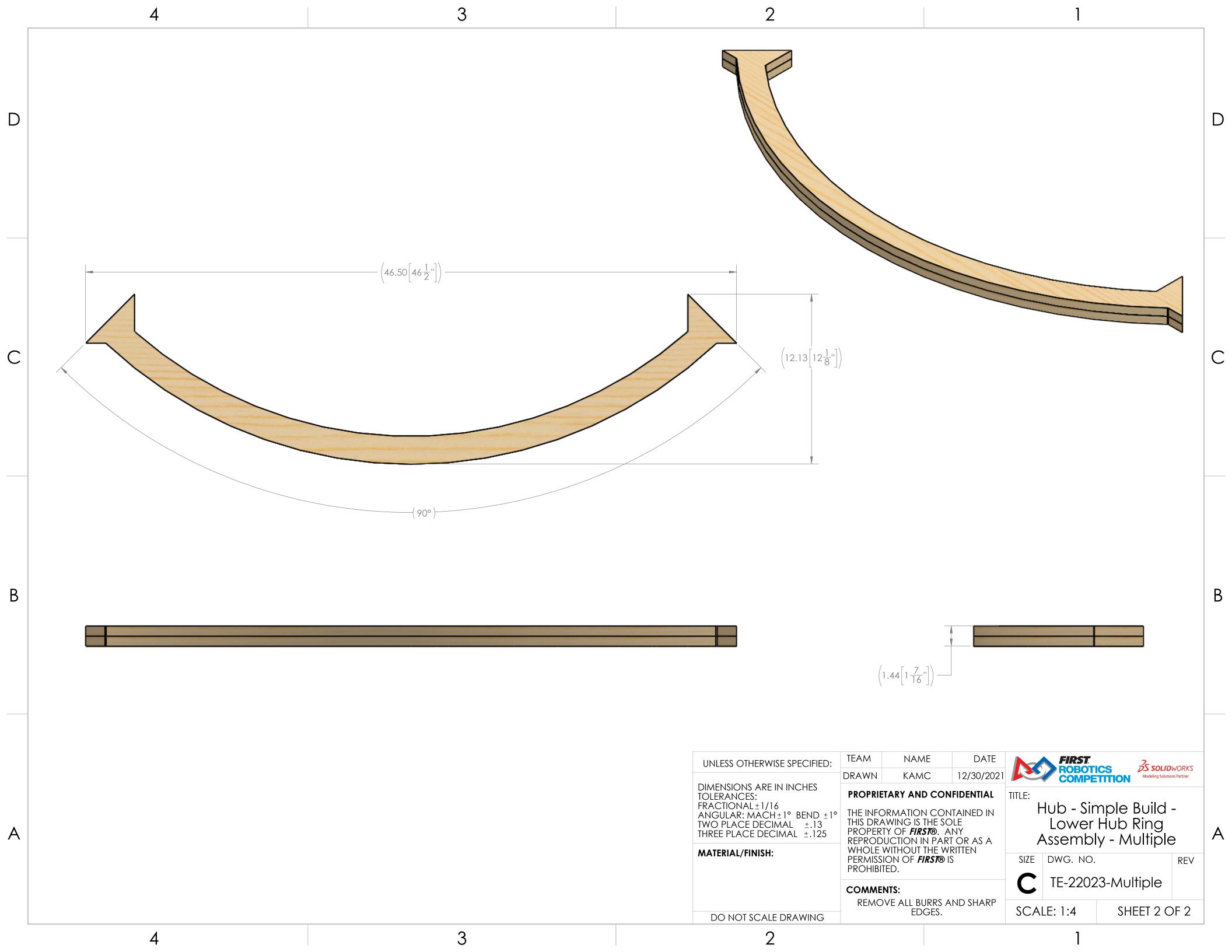
SCALE: 1:6

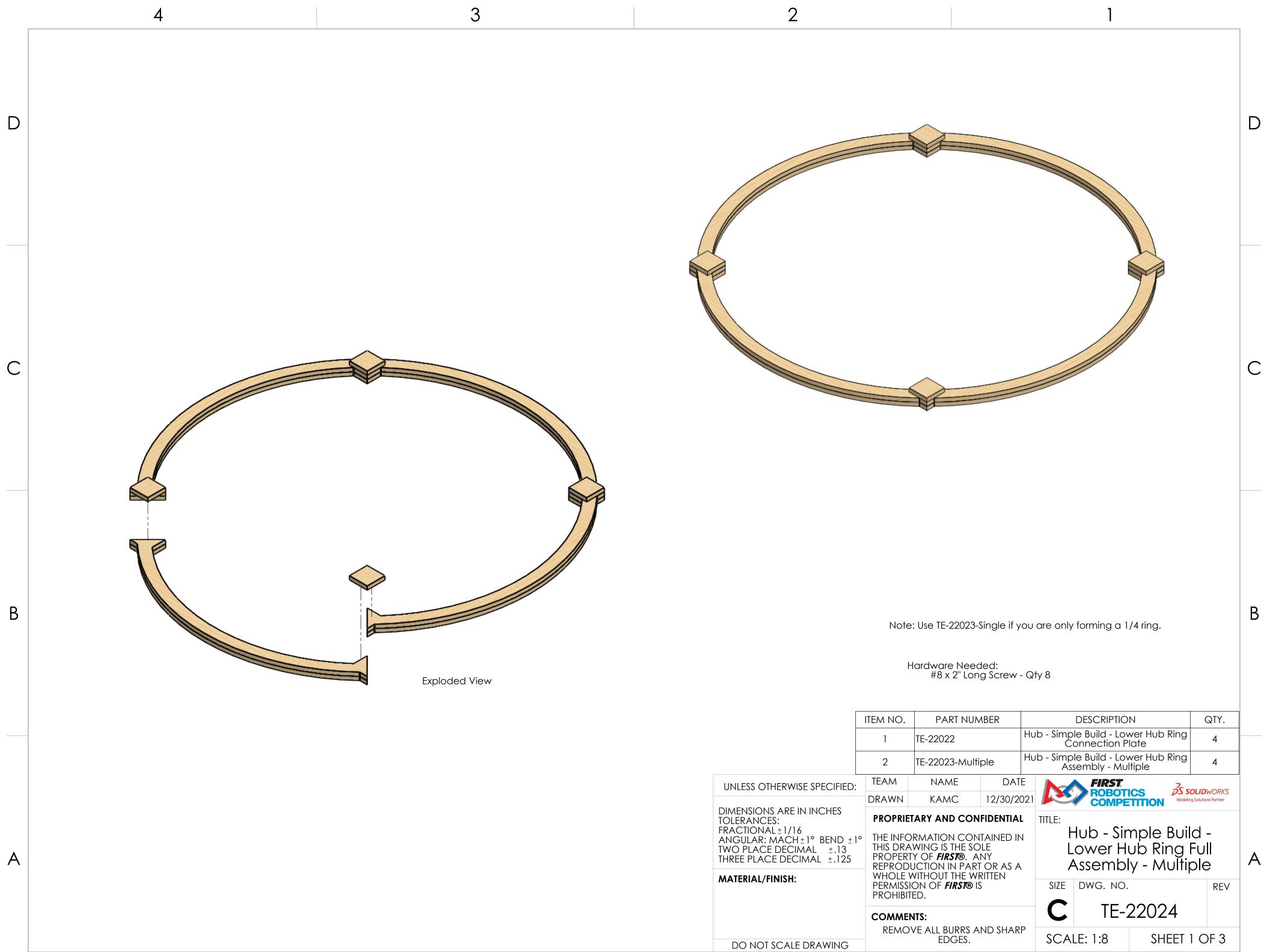


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UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16 ANGULAR: MACH ± 1° BEND ± 1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH: 3/4" Plywood DO NOT SCALE DRAWING	DRAWN PROPRIETARY THE INFORMATING DRAWIN PROPERTY O REPRODUCTI WHOLE WITH PERMISSION PROHIBITED. COMMENTS:	ATION CON G IS THE SO F <b>FIRST®</b> . AI ON IN PART OUT THE WR	TAINED IN LE NY OR AS A RITTEN	Immeter   Hub - Simple Build -   Lower Hub Ring   Lower Hub Ring   Connection Plate     SIZE   DWG. NO.   REV   C   TE-22022     SCALE: 2:1     SHEET 1 OF 1	A

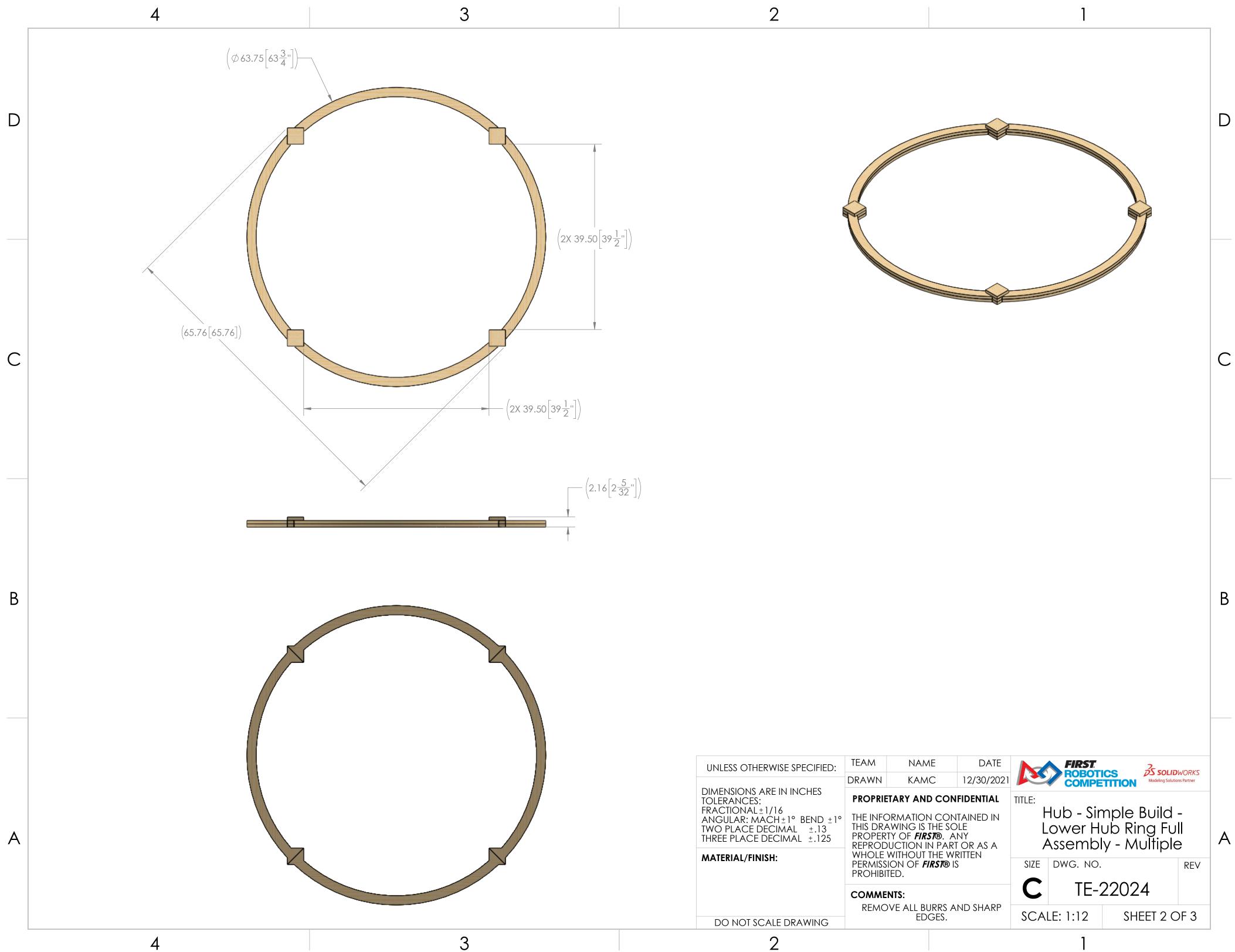


		-									
	ITEM NO.	PAR	ART NUMBER			DESCRIPTION				QTY.	
	1	1 TE-22021-Multi			Hub - Simple Build - Lower Hu - Multiple			ver Hub	Ring	2	
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	=	DATE		FIRST.			S Solidworks		]
	DRAWN	КАМС	2	12/30/20			ROBOTI COMPE			tions Partner	
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND ±1 TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH:	<ul> <li>THE INFO THIS DRA PROPERT REPRODI WHOLE V PERMISSI</li> </ul>	<ul> <li>PROPRIETARY AND CONFIDENTIAL</li> <li>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <i>FIRST</i><sup>®</sup>. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <i>FIRST</i><sup>®</sup> IS PROHIBITED.</li> <li>COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.</li> </ul>				TITLE: Hub - Simple Build - Lower Hub Ring Assembly - Multiple				A	
	COMME				SC		ΓE-2202 : 1:4		tiple EET 1 (	DF 2	
do not scale drawing											
2							1				

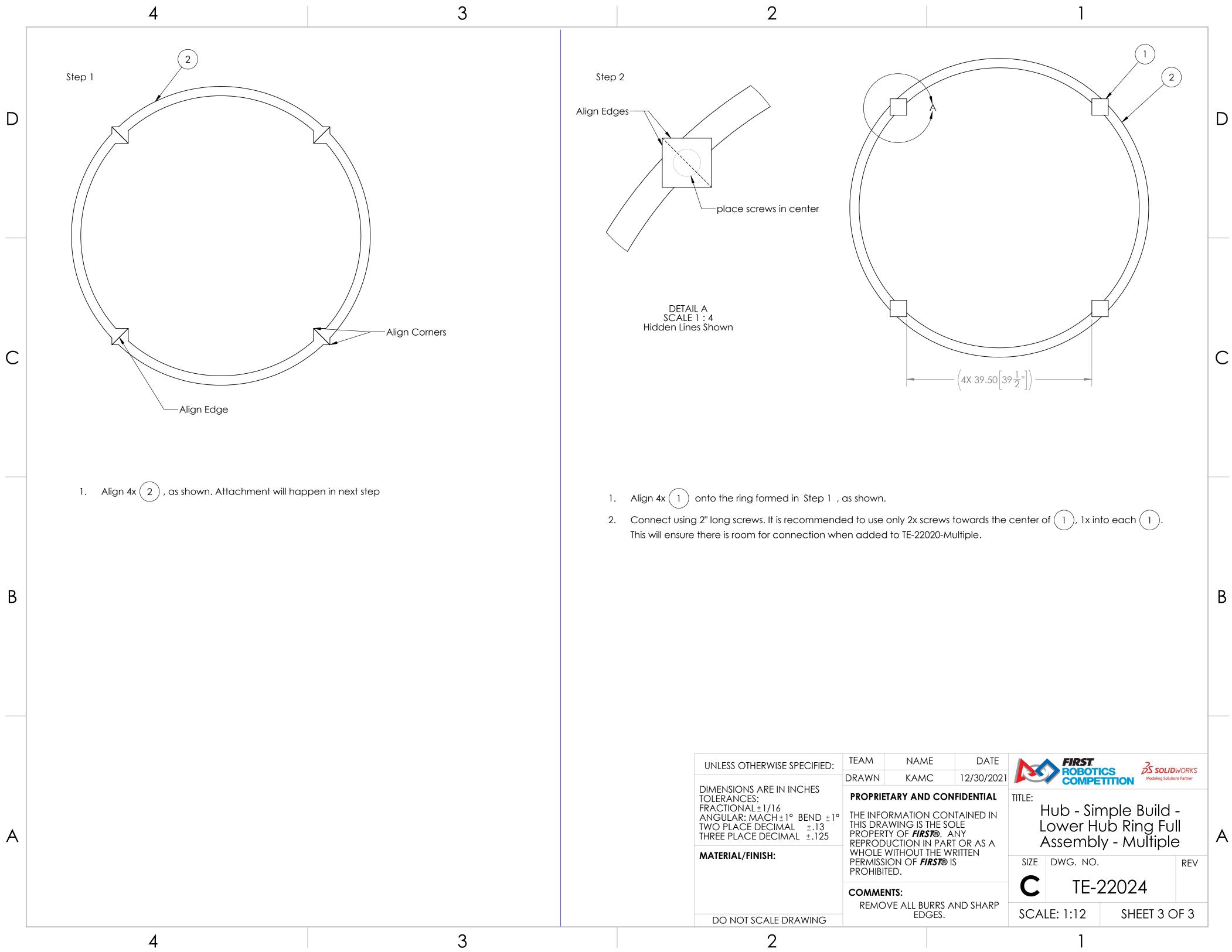




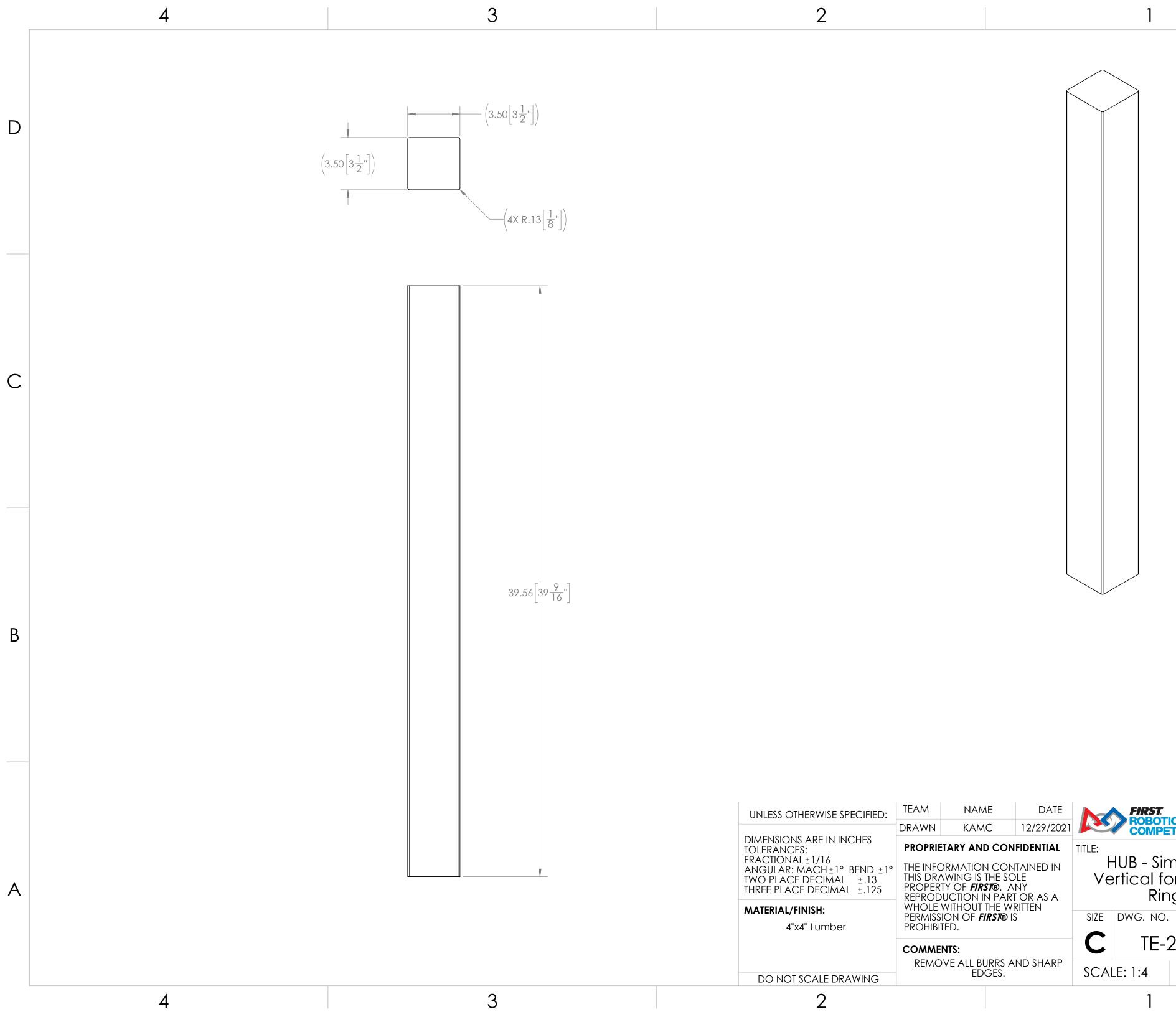
1										_
	ITEM NO.				DESCRIPTION				QTY.	
	1			Ηυ	Hub - Simple Build - Lower Hub Ring Connection Plate			lub Ring	4	
	2	TE-22023-Multiple		Hυ	lub - Simple Build - Lower Hub Ring Assembly - Multiple				4	
UNLESS OTHERWISE SPECIFIED:	TEAM	NAME				25				
	DRAWN	КАМС	KAMC 12/30/2021 ROBOTICS			SOLIDWORKS				
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND ±1 TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 MATERIAL/FINISH:	<ul> <li>THE INFO THIS DRA PROPERT REPRODU</li> </ul>	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.			Hub - Simple Build Lower Hub Ring F Assembly - Multip				Ξυll	Д
MATERIAL/FINISH.	PERMISSI								REV	
	COMMEN	COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.					E-220	)24		
do not scale drawing	REMO				SCALE: 1:8 SHEET		SHEET 1	OF 3		
2						-				







UNLESS OTHERWISE SPECIFIED:	TEAM	NAME	DATE		FIRST.		25 50110		
	DRAWN	KAMC	12/30/2021				Modeling Solutio		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND±1° TWO PLACE DECIMAL±.13 THREE PLACE DECIMAL±.125	THE INFC THIS DRA PROPERT REPROD	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <i>FIRST</i> ®. ANY REPRODUCTION IN PART OR AS A			Hub - Simple Build - Lower Hub Ring Full Assembly - Multiple				
MATERIAL/FINISH:	WHOLE WITHOUT THE WRITTEN PERMISSION OF <i>FIRST</i> ® IS PROHIBITED. COMMENTS: REMOVE ALL BURRS AND SHARP EDGES.			SIZE	DWG. NO.			REV	
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UNLESS OTHERWISE SPECIFIED:	IEAM	NAME	DAIE		FIRST.		S SOLID	LIOPKE	
	DRAWN	КАМС	12/29/2021		ROBOT	TITION	Modeling Solution		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL±1/16 ANGULAR: MACH±1° BEND ±1° TWO PLACE DECIMAL ±.13 THREE PLACE DECIMAL ±.125 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			HUB - Simple Build - Vertical for Lower Hub Ring 4x4					A
4"x4" Lumber	PERMISS	ssion of <b>first</b> ® is Bited.		SIZE	DWG. NO.			REV	
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