

DETAILED DRAWINGS FOR DIFFUSIVE MIXING BEAMLINE

Andrea Katz, 2018

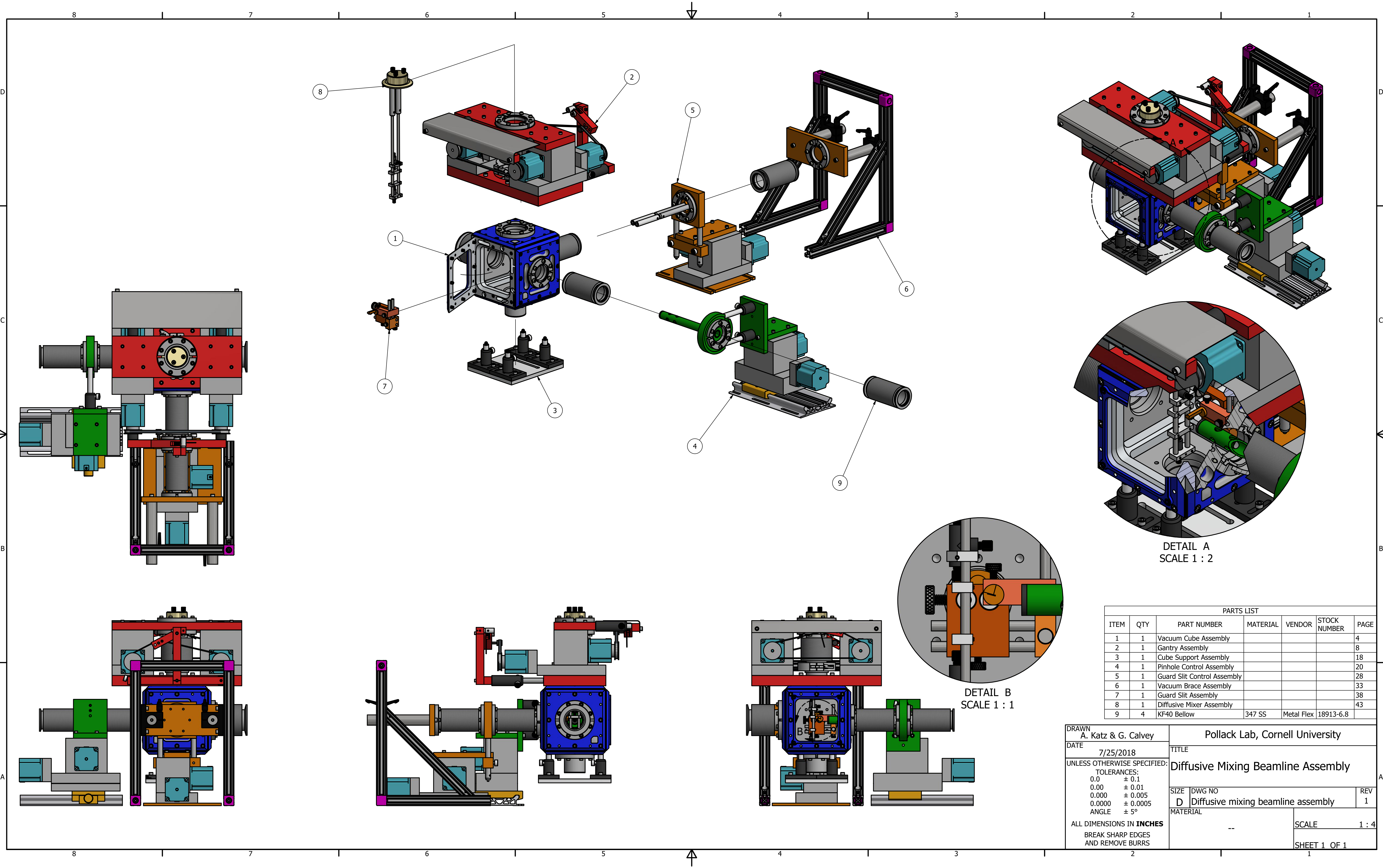
HOW TO USE THIS DOCUMENT

This document is a compilation of drawings for the diffusive mixing beamline assembly described in Chapter 4 of my dissertation.

The first drawing is an overview of the entire assembly. The parts list provides page numbers for detailed drawings of each subassembly.

The parts list of each subassembly drawing provides page numbers for dimensioned drawings of each custom part included in the assembly, along with vendor information and part numbers for commercial parts.

All custom parts described here were designed and drawn by George Calvey and me.



DETAIL A
SCALE 1 : 2

DETAIL B
SCALE 1 : 1

PARTS LIST						
ITEM	QTY	PART NUMBER	MATERIAL	VENDOR	STOCK NUMBER	PAGE
1	1	Vacuum Cube Assembly				4
2	1	Gantry Assembly				8
3	1	Cube Support Assembly				18
4	1	Pinhole Control Assembly				20
5	1	Guard Slit Control Assembly				28
6	1	Vacuum Brace Assembly				33
7	1	Guard Slit Assembly				38
8	1	Diffusive Mixer Assembly				43
9	4	KF40 Bellow	347 SS	Metal Flex	18913-6.8	

DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/25/2018		TITLE	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		Diffusive Mixing Beamline Assembly	
		SIZE D	DWG NO Diffusive mixing beamline assembly
		MATERIAL --	REV 1
		SCALE 1 : 4	
		SHEET 1 OF 1	

8 7 6 5 4 3 2 1

D

D

C

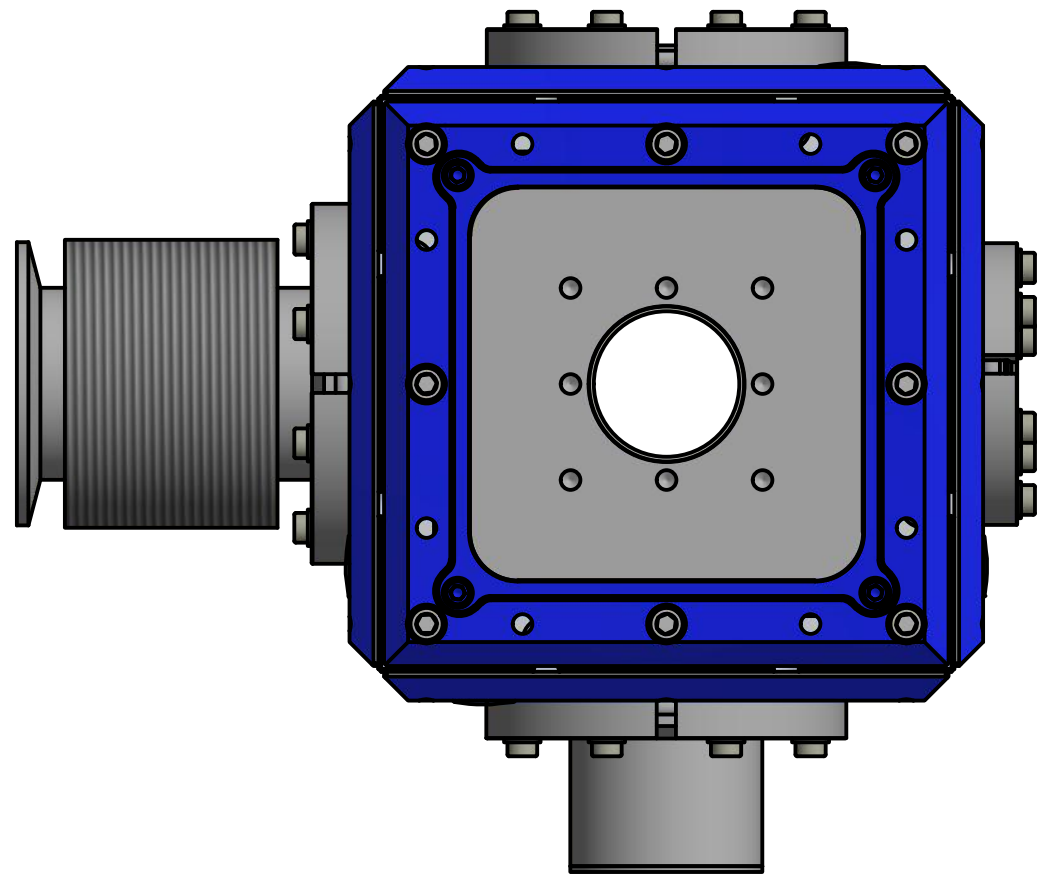
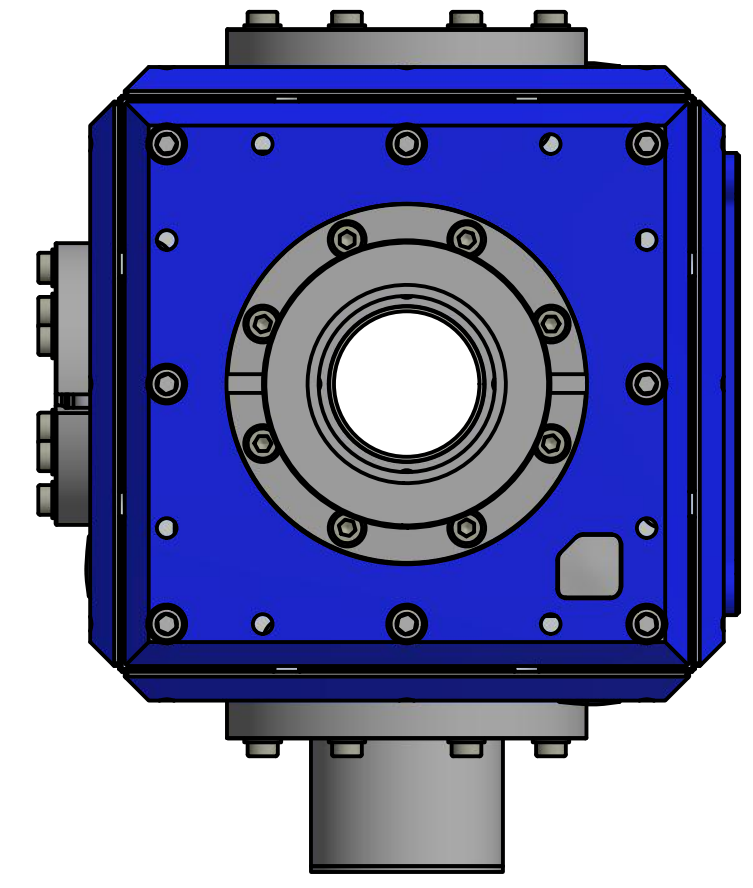
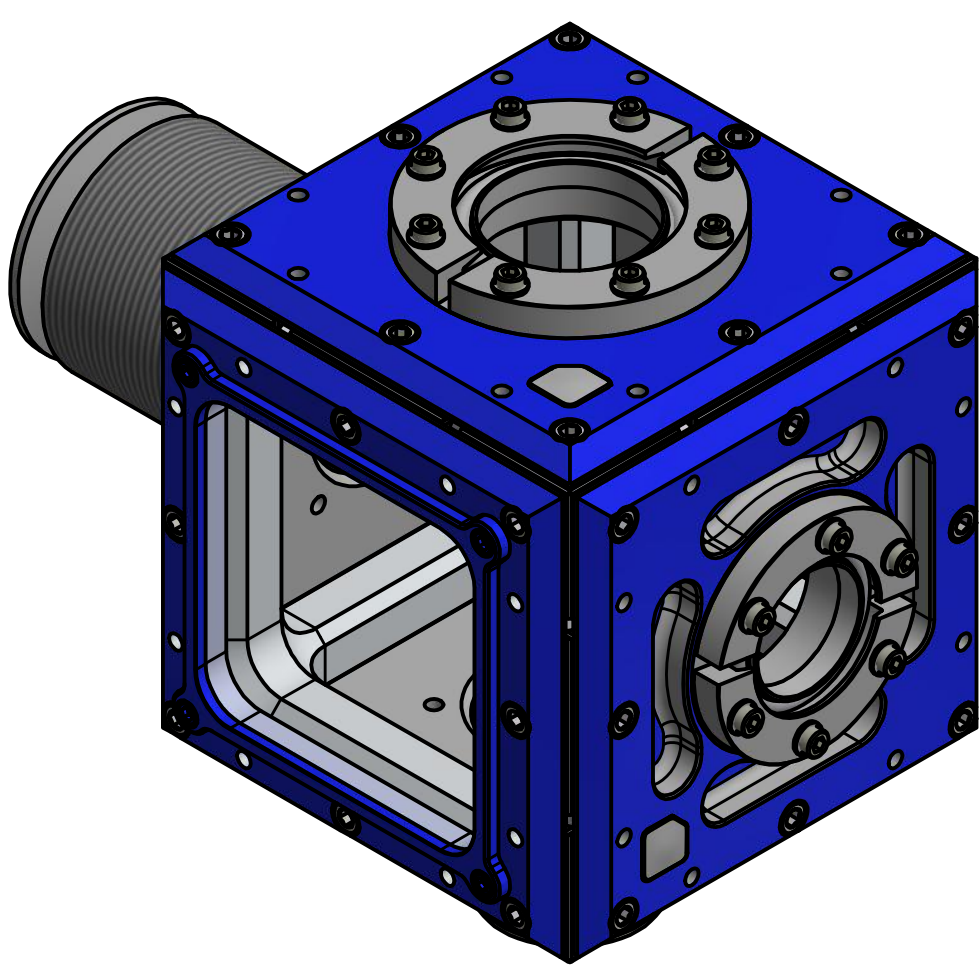
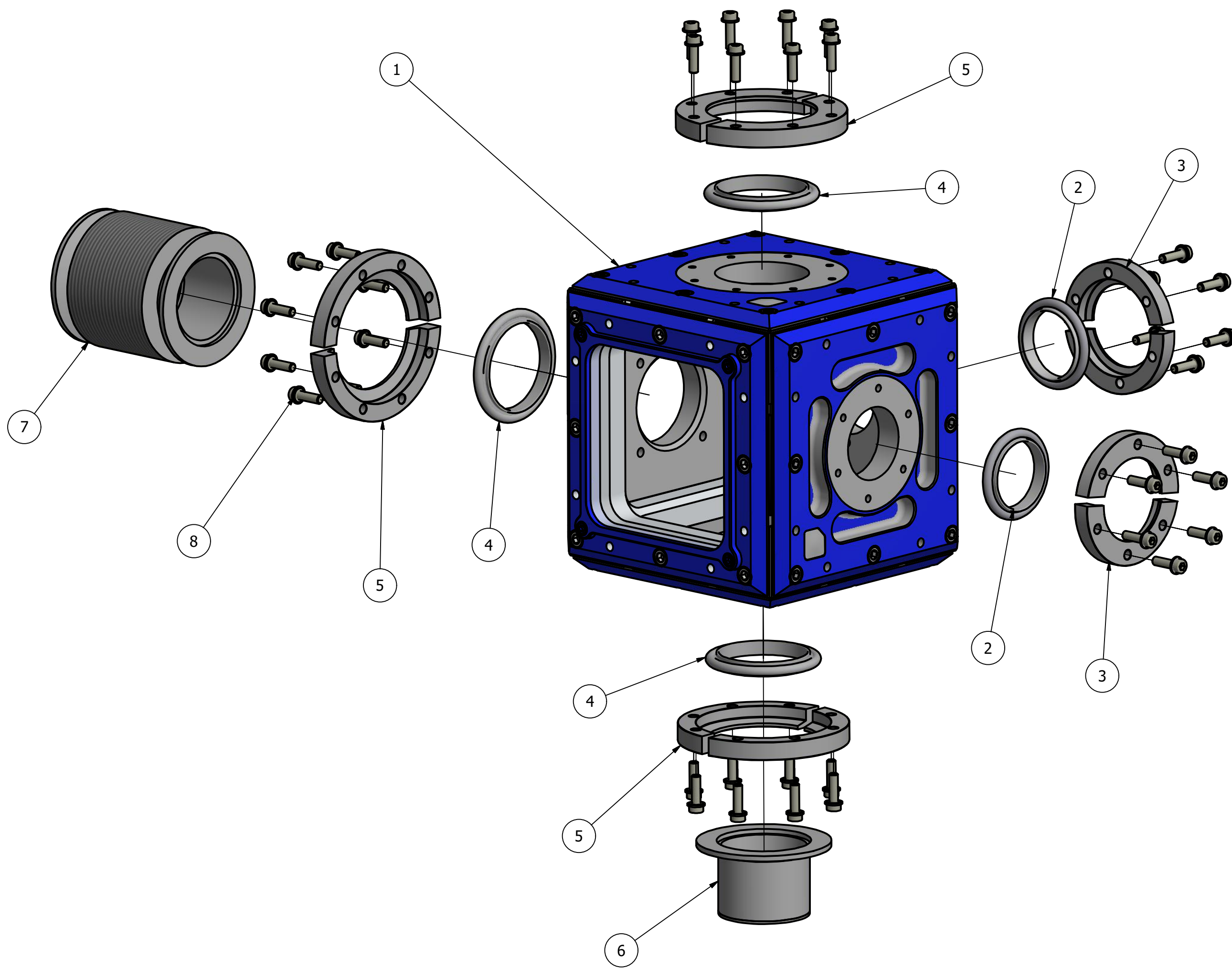
C

B

B

A

A

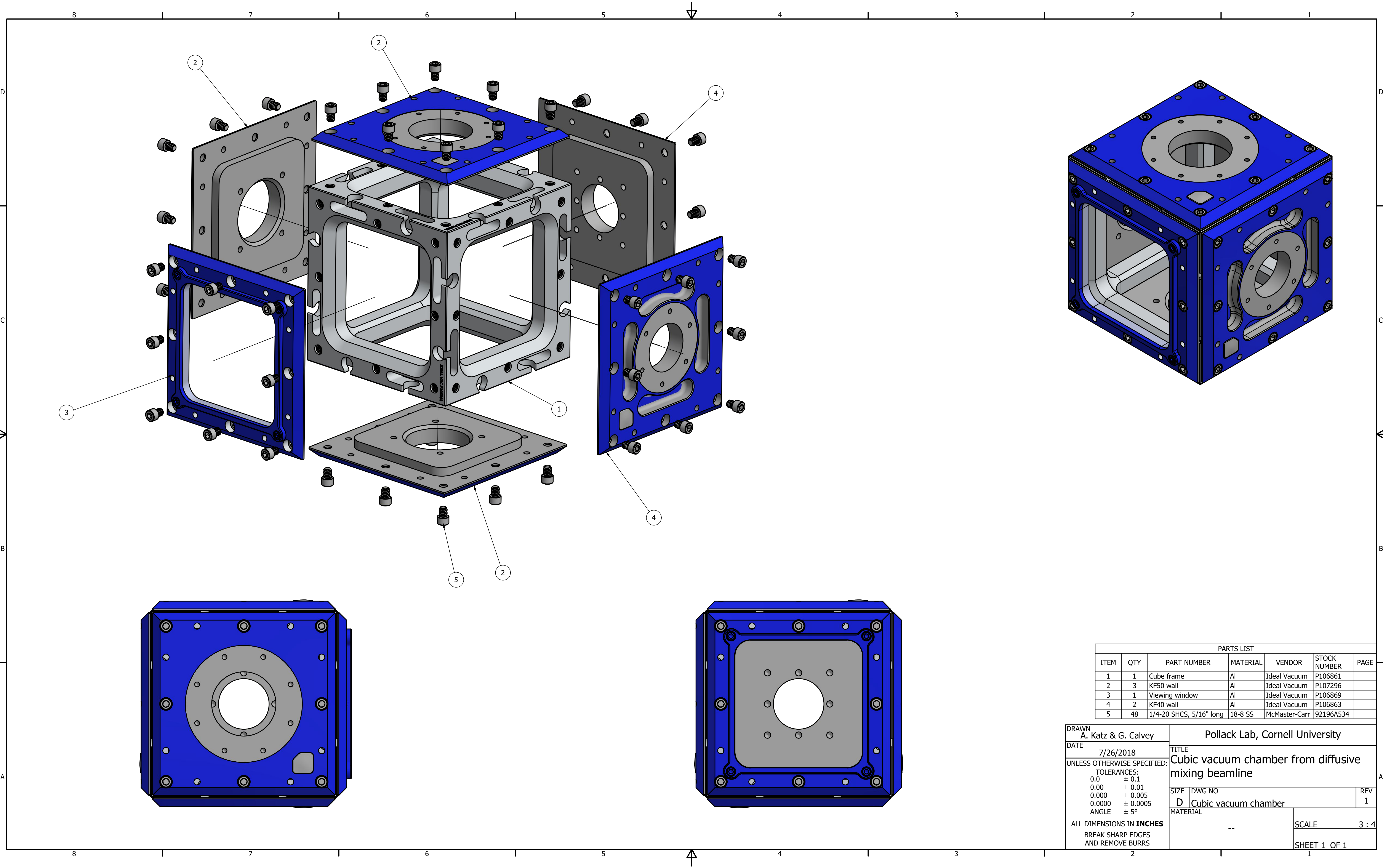


PARTS LIST						
ITEM	QTY	PART NUMBER	MATERIAL	VENDOR	STOCK NUMBER	PAGE
1	1	Cubic vacuum chamber	Al	Ideal Vacuum		5
2	2	KF40 centering ring	Al	Kurt Lesker	QF40-150-ARB	
3	2	KF40 bulkhead clamp	Al	Kurt Lesker	QF40-150-BC	
4	3	KF50 centering ring	Al	Kurt Lesker	QF50-200-ARB	
5	3	KF50 bulkhead clamp	Al	Kurt Lesker	QF50-200-BC	
6	1	KF50 extension	304 SS			6
7	1	KF50 Bellows	347 SS	Metal Flex	32249	
8	36	10-32 SHCS, 5/8" long	18-8 SS	McMaster-Carr	92196A271	

DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/26/2018		TITLE Vacuum cube assembly from diffusive mixing beamline	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5°		SIZE D Vacuum cube assembly	REV 1
ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		MATERIAL --	SCALE 1 : 2 SHEET 1 OF 1

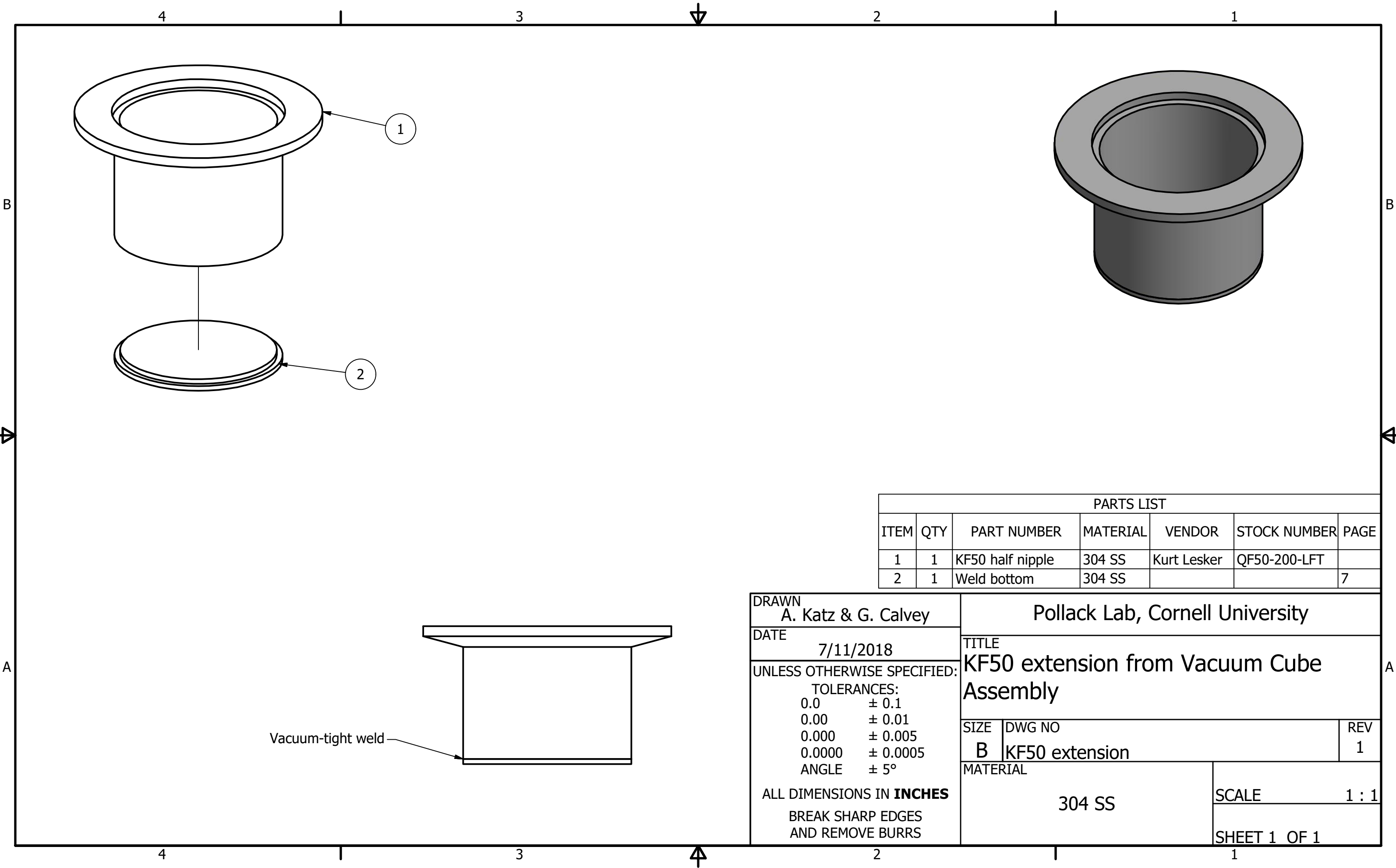
8 7 6 5 4 3 2 1

A



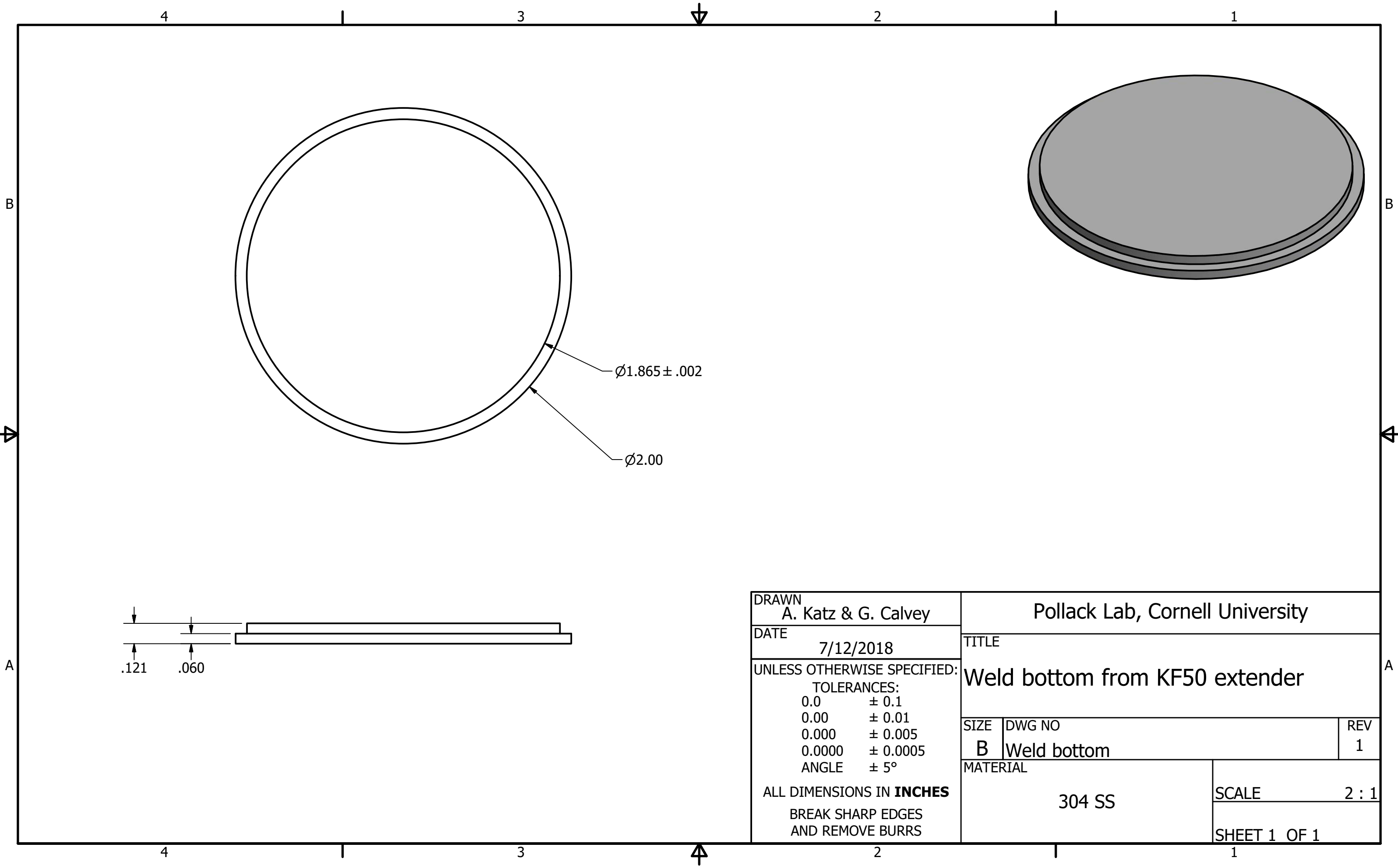
PARTS LIST						
ITEM	QTY	PART NUMBER	MATERIAL	VENDOR	STOCK NUMBER	PAGE
1	1	Cube frame	Al	Ideal Vacuum	P106861	
2	3	KF50 wall	Al	Ideal Vacuum	P107296	
3	1	Viewing window	Al	Ideal Vacuum	P106869	
4	2	KF40 wall	Al	Ideal Vacuum	P106863	
5	48	1/4-20 SHCS, 5/16" long	18-8 SS	McMaster-Carr	92196A534	

DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University		
DATE 7/26/2018		TITLE Cubic vacuum chamber from diffusive mixing beamline		
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5°		SIZE D	DWG NO Cubic vacuum chamber	REV 1
ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		MATERIAL --		SCALE 3 : 4
		SHEET 1 OF 1		

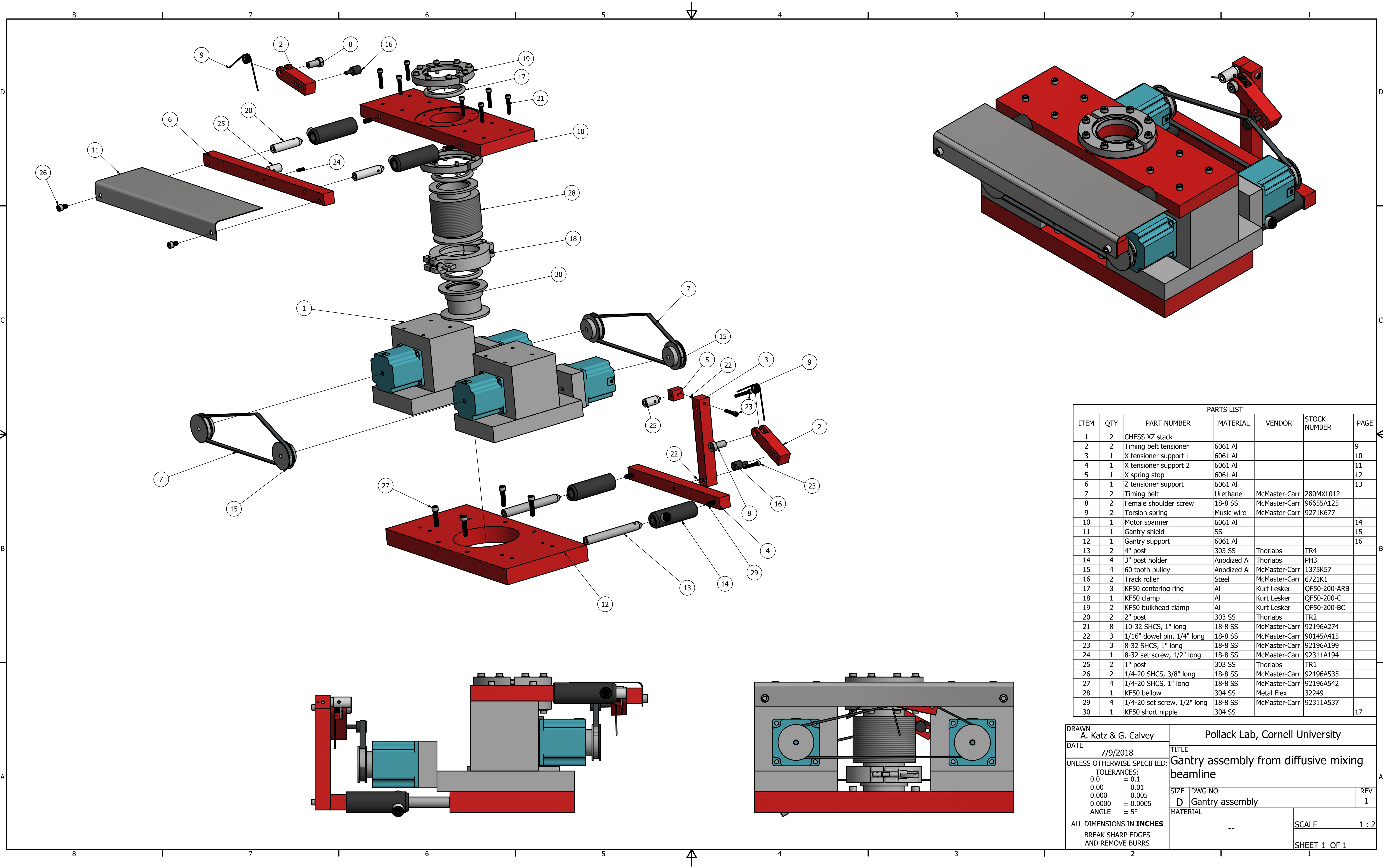


PARTS LIST						
ITEM	QTY	PART NUMBER	MATERIAL	VENDOR	STOCK NUMBER	PAGE
1	1	KF50 half nipple	304 SS	Kurt Lesker	QF50-200-LFT	
2	1	Weld bottom	304 SS			7

DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University		
DATE 7/11/2018		TITLE KF50 extension from Vacuum Cube Assembly		
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO KF50 extension	REV 1
		MATERIAL 304 SS		SCALE 1 : 1
		SHEET 1 OF 1		

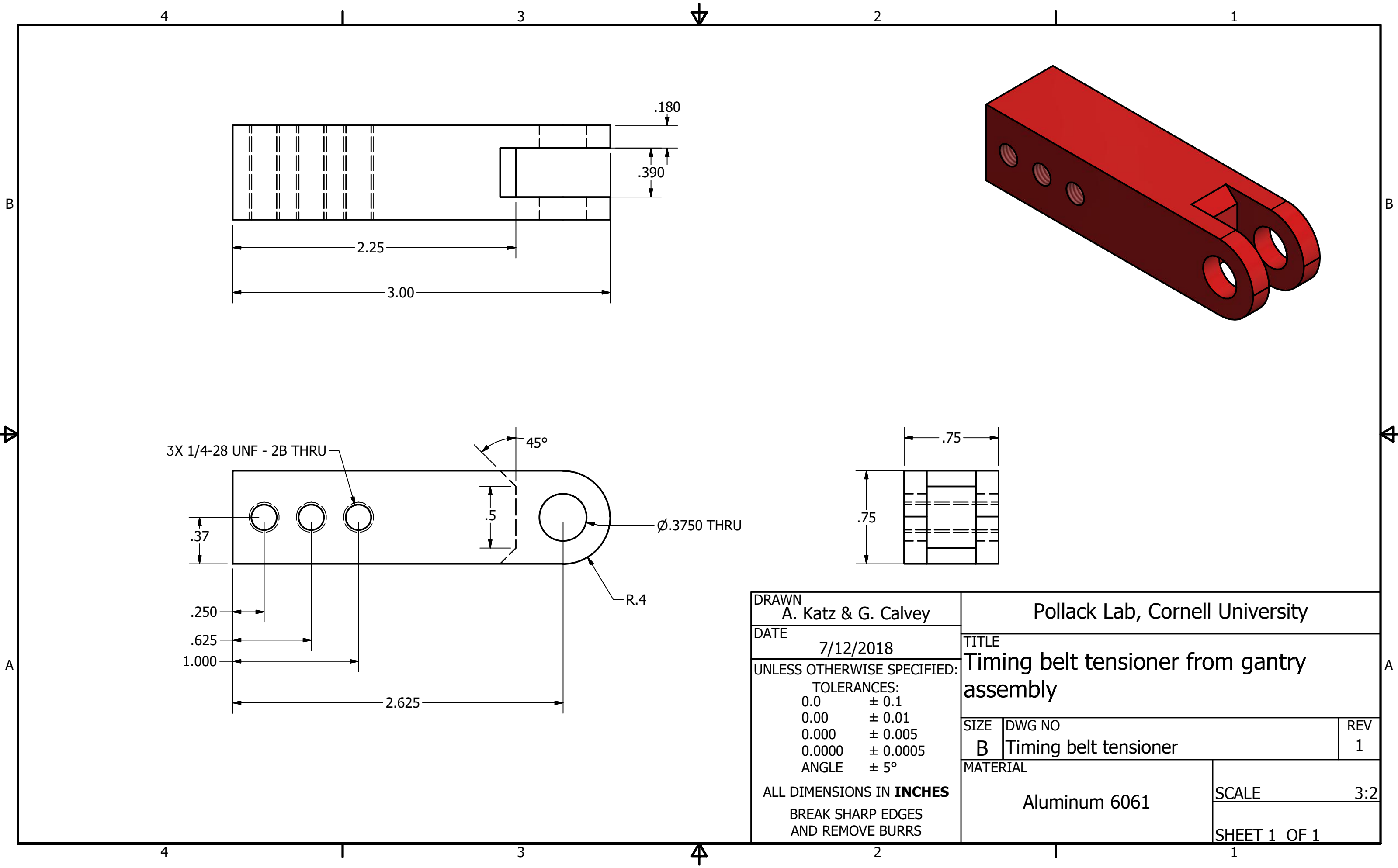


DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/12/2018		TITLE Weld bottom from KF50 extender	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Weld bottom
		REV 1	
		MATERIAL 304 SS	
		SCALE 2 : 1	
		SHEET 1 OF 1	



PARTS LIST						
ITEM	QTY	PART NUMBER	MATERIAL	VENDOR	STOCK NUMBER	PAGE
1	2	CHESX XZ stack				9
2	2	Timing belt tensioner	6061 Al			10
3	1	X tensioner support 1	6061 Al			11
4	1	X tensioner support 2	6061 Al			12
5	1	X spring stop	6061 Al			13
6	1	Z tensioner support	6061 Al			14
7	2	Timing belt	Urethane	McMaster-Carr	280MXL012	
8	2	Female shoulder screw	18-8 SS	McMaster-Carr	96655A125	
9	2	Torsion spring	Music wire	McMaster-Carr	9271K677	
10	1	Motor spanner	6061 Al			15
11	1	Gantry shield	SS			16
12	1	Gantry support	6061 Al			
13	2	4" post	303 SS	Thorlabs	TR4	
14	4	3" post holder	Anodized Al	Thorlabs	PH3	
15	4	60 tooth pulley	Anodized Al	McMaster-Carr	1375K57	
16	2	Track roller	Steel	McMaster-Carr	6721K1	
17	3	KF50 centering ring	Al	Kurt Lesker	QF50-200-ARB	
18	1	KF50 clamp	Al	Kurt Lesker	QF50-200-C	
19	2	KF50 bulkhead clamp	Al	Kurt Lesker	QF50-200-BC	
20	2	2" post	303 SS	Thorlabs	TR2	
21	8	10-32 SHCS, 1" long	18-8 SS	McMaster-Carr	92196A274	
22	3	1/16" dowel pin, 1/4" long	18-8 SS	McMaster-Carr	90145A415	
23	3	8-32 SHCS, 1" long	18-8 SS	McMaster-Carr	92196A199	
24	1	8-32 set screw, 1/2" long	18-8 SS	McMaster-Carr	92311A194	
25	2	1" post	303 SS	Thorlabs	TR1	
26	2	1/4-20 SHCS, 3/8" long	18-8 SS	McMaster-Carr	92196A535	
27	4	1/4-20 SHCS, 1" long	18-8 SS	McMaster-Carr	92196A542	
28	1	KF50 bellow	304 SS	Metal Flex	32249	
29	4	1/4-20 set screw, 1/2" long	18-8 SS	McMaster-Carr	92311A537	
30	1	KF50 short nipple	304 SS			17

DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/9/2018		TITLE Gantry assembly from diffusive mixing beamline	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5°		SIZE D	REV 1
		DWG NO Gantry assembly	
ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		MATERIAL --	SCALE 1 : 2 SHEET 1 OF 1



3X 1/4-28 UNF - 2B THRU

.37

.250

.625

1.000

2.625

45°

.5

Ø.3750 THRU

R.4

.75

.75

DRAWN
A. Katz & G. Calvey

DATE
7/12/2018

UNLESS OTHERWISE SPECIFIED:

TOLERANCES:
0.0 ± 0.1
0.00 ± 0.01
0.000 ± 0.005
0.0000 ± 0.0005
ANGLE ± 5°

ALL DIMENSIONS IN **INCHES**

BREAK SHARP EDGES
AND REMOVE BURRS

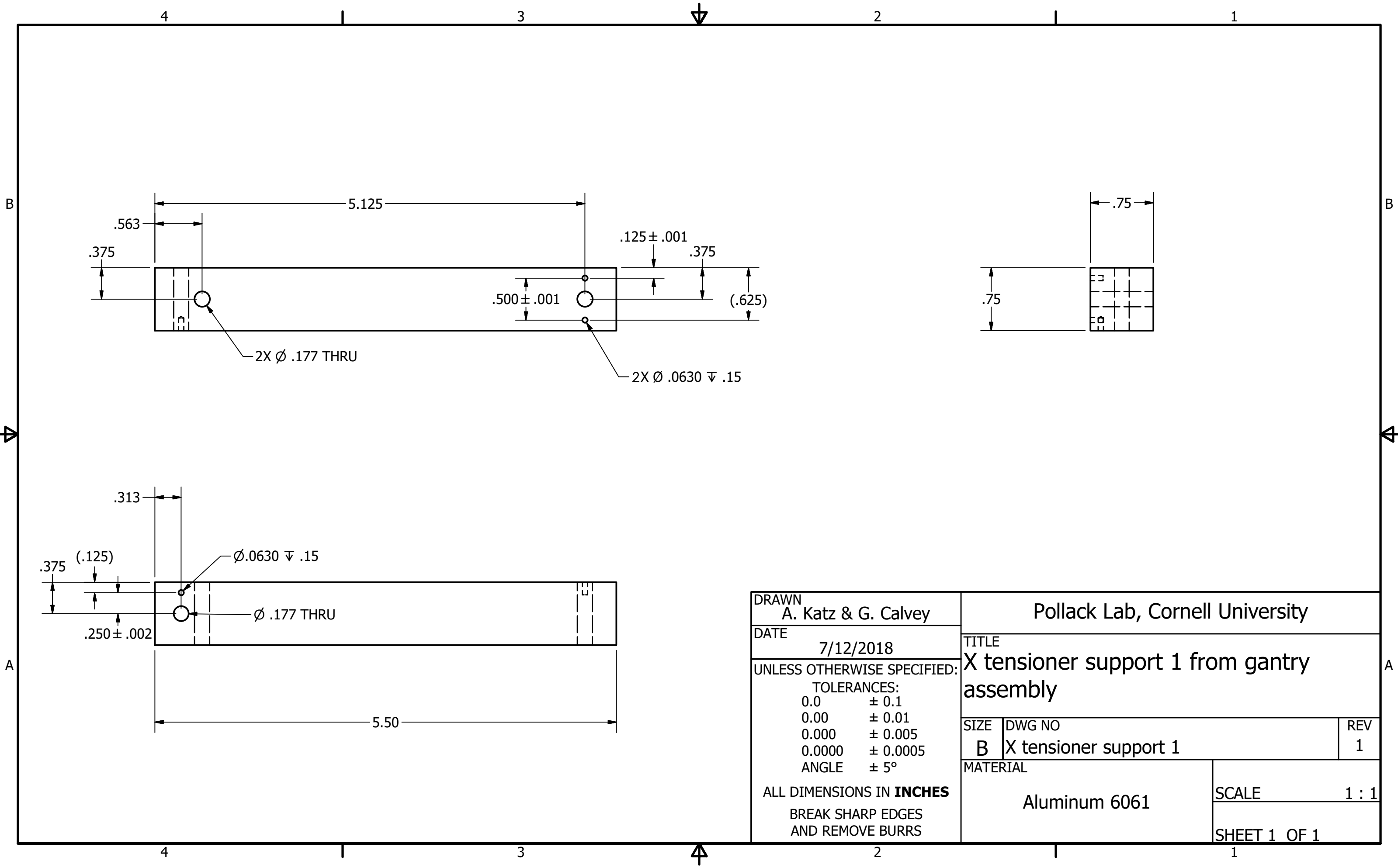
Pollack Lab, Cornell University

TITLE
Timing belt tensioner from gantry
assembly

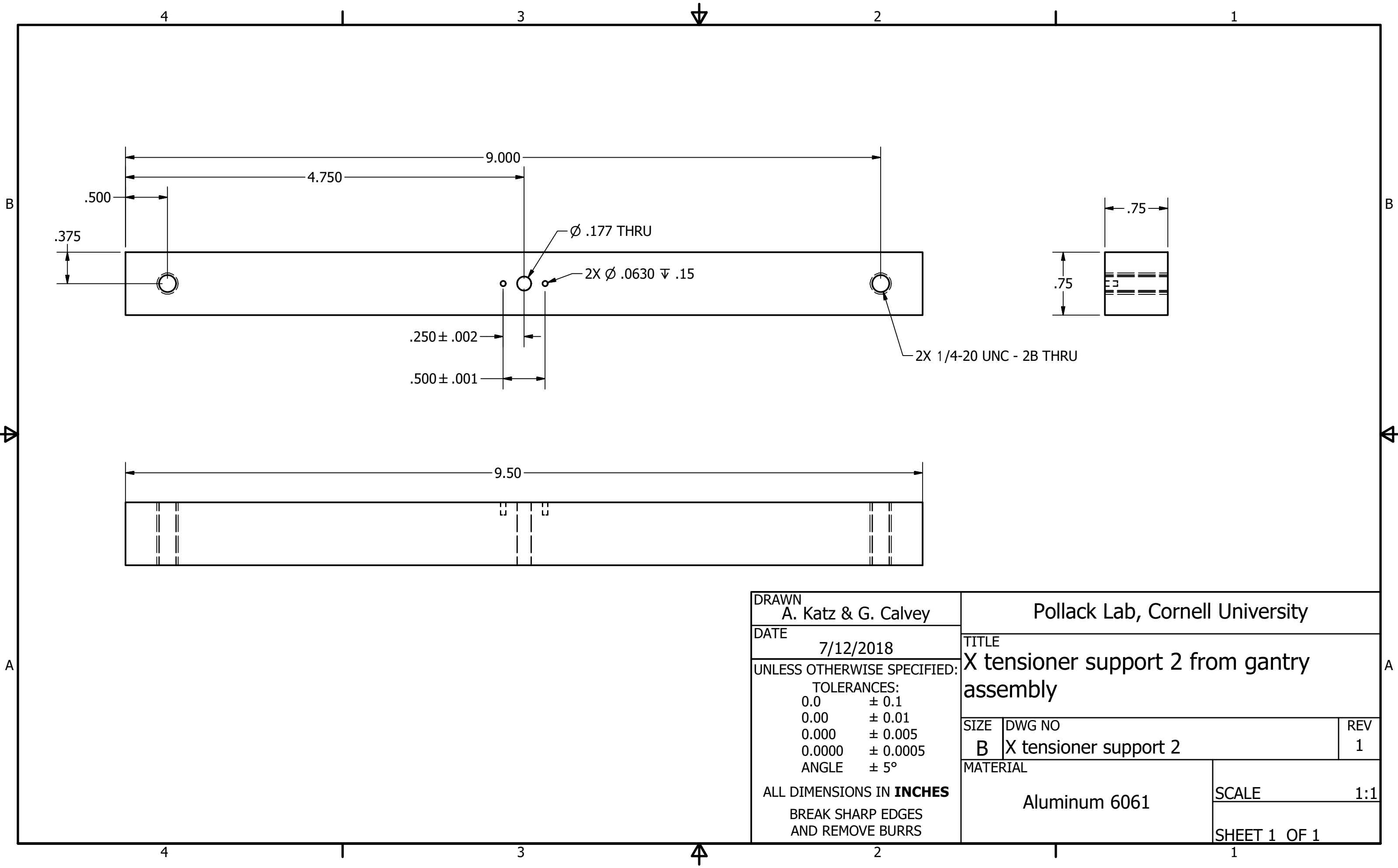
SIZE	DWG NO	REV
B	Timing belt tensioner	1

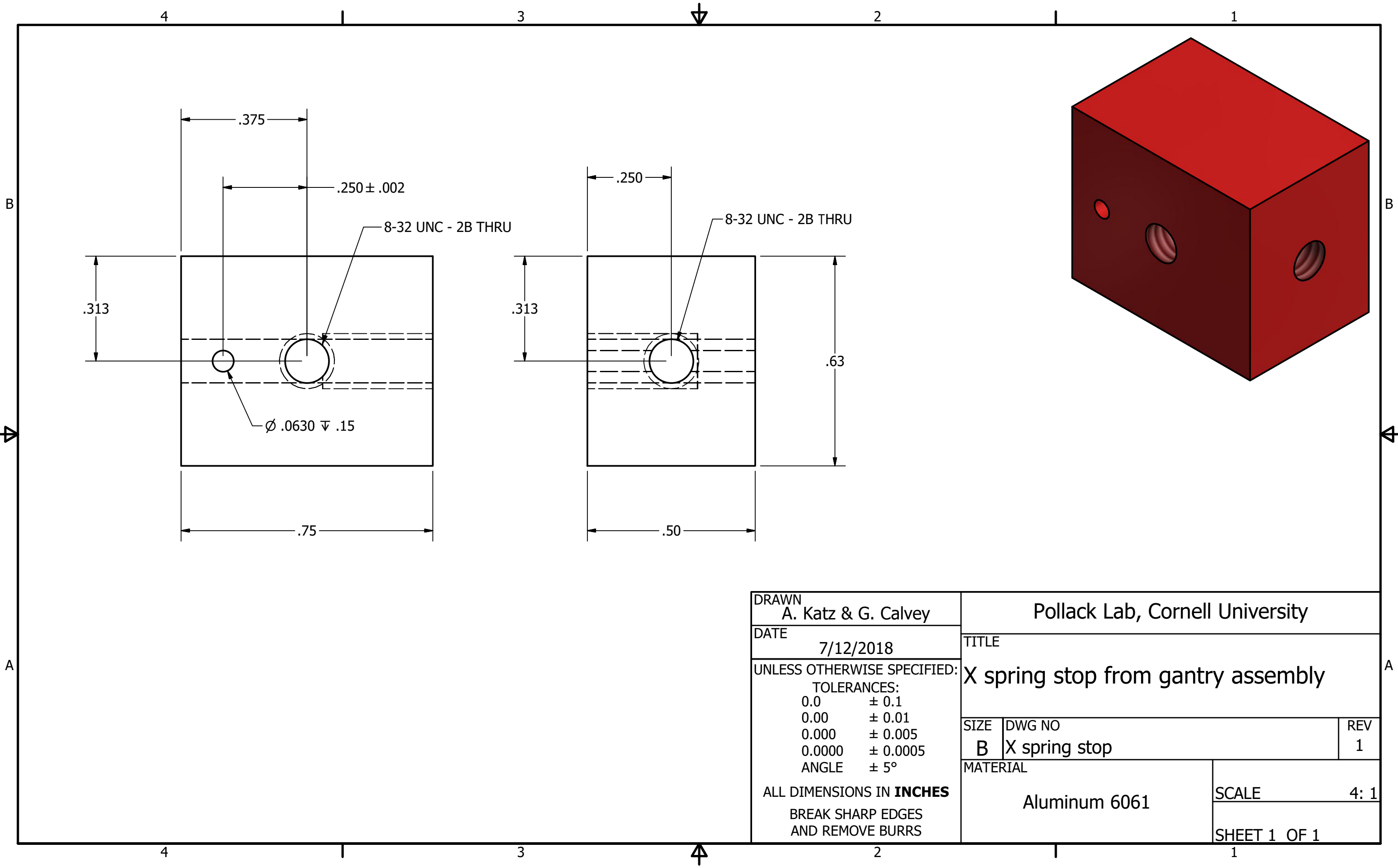
MATERIAL	SCALE
Aluminum 6061	3:2

SHEET 1 OF 1

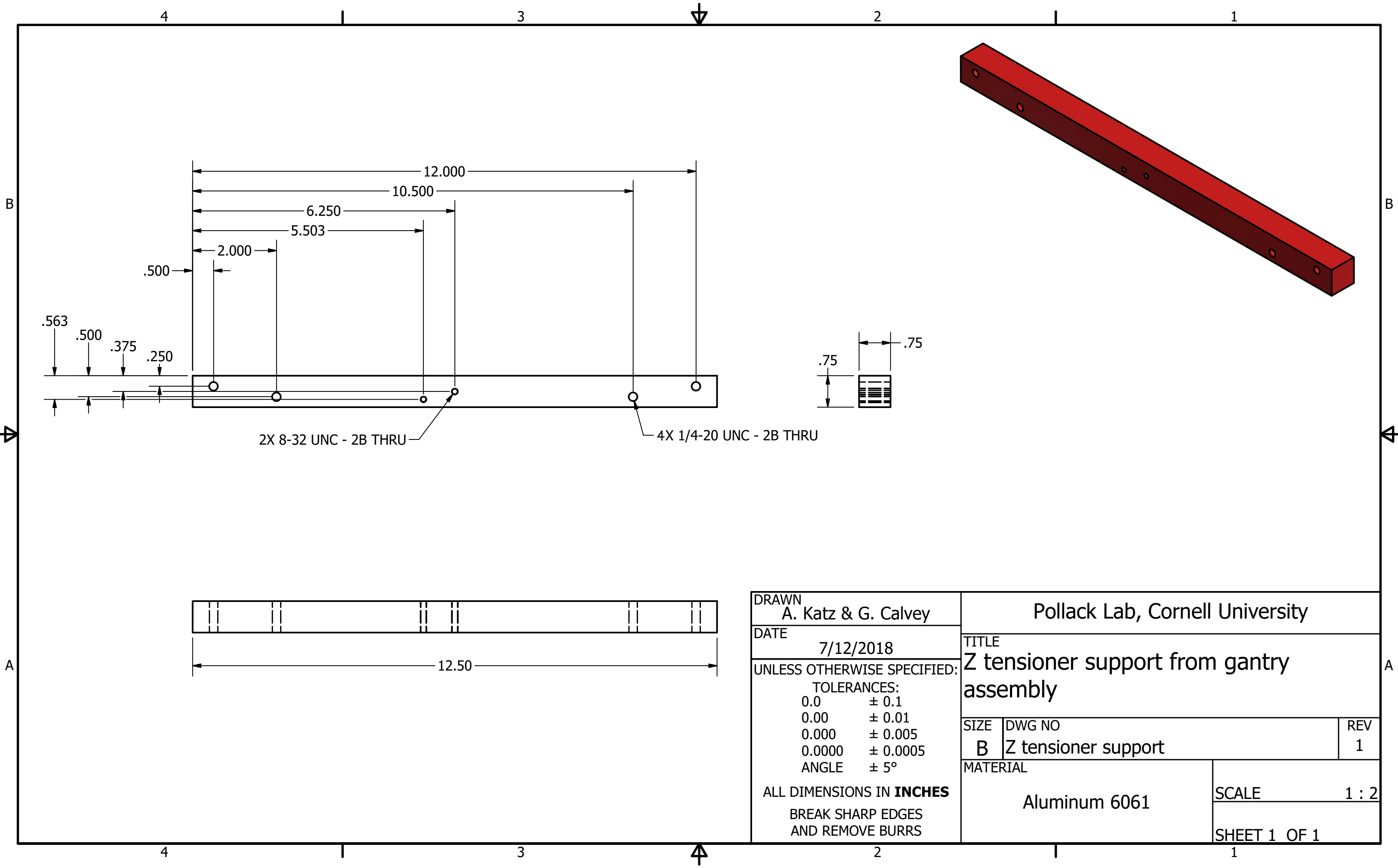


DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/12/2018		TITLE X tensioner support 1 from gantry assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	
		DWG NO X tensioner support 1	
		REV 1	
		MATERIAL Aluminum 6061	
		SCALE 1 : 1	
		SHEET 1 OF 1	

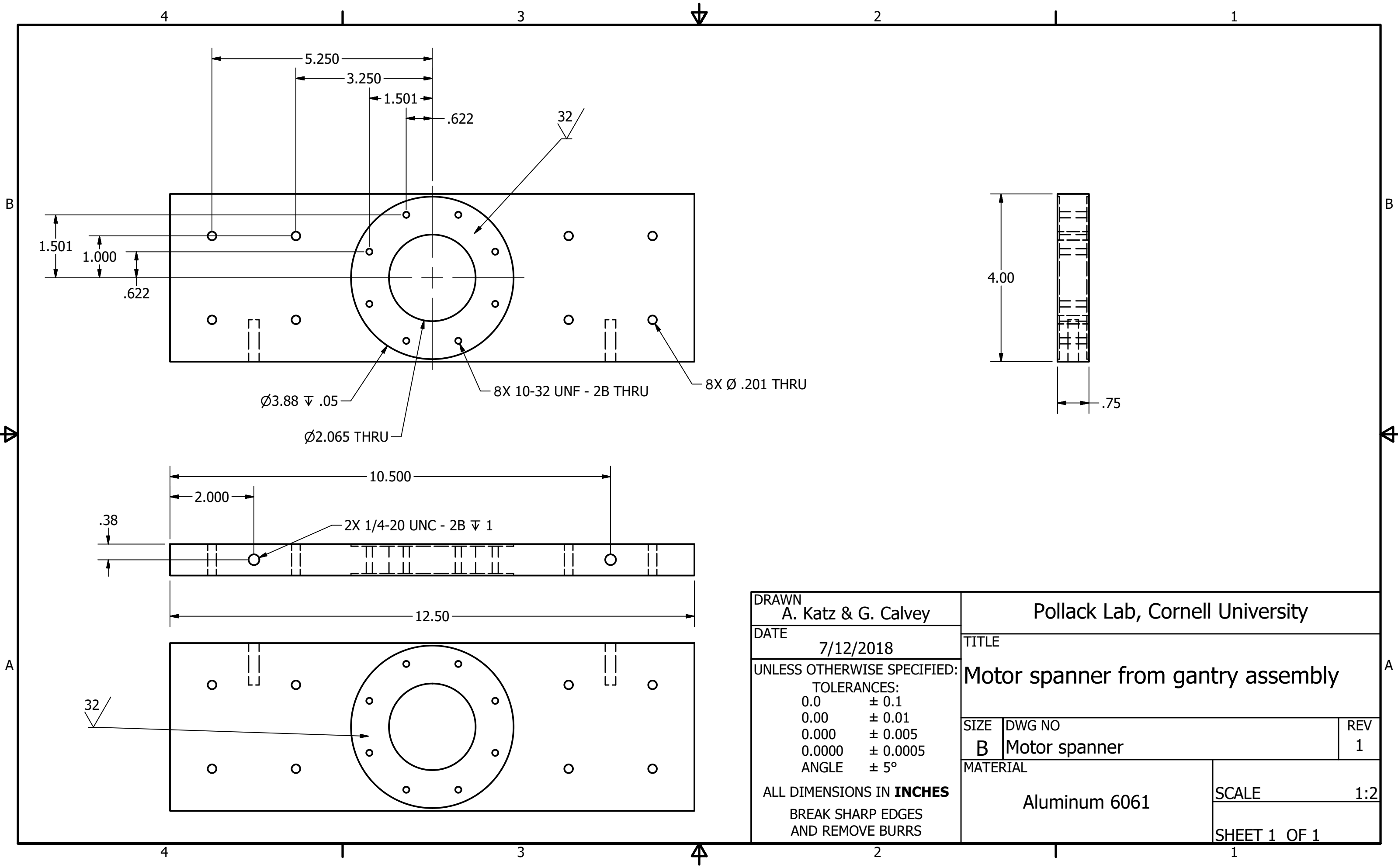




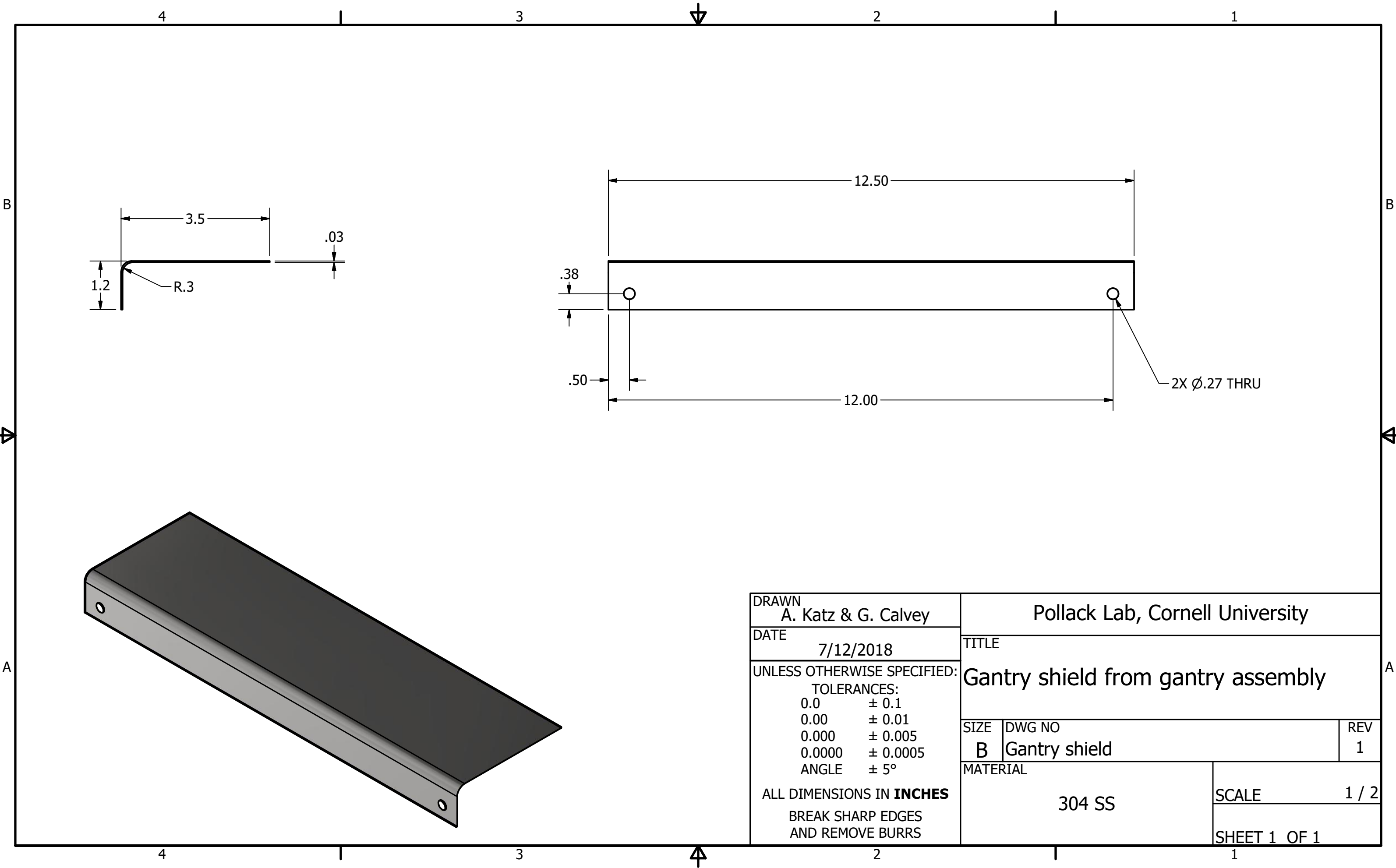
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/12/2018		TITLE X spring stop from gantry assembly	
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		REV 1	
MATERIAL Aluminum 6061		SCALE 4: 1	
		SHEET 1 OF 1	

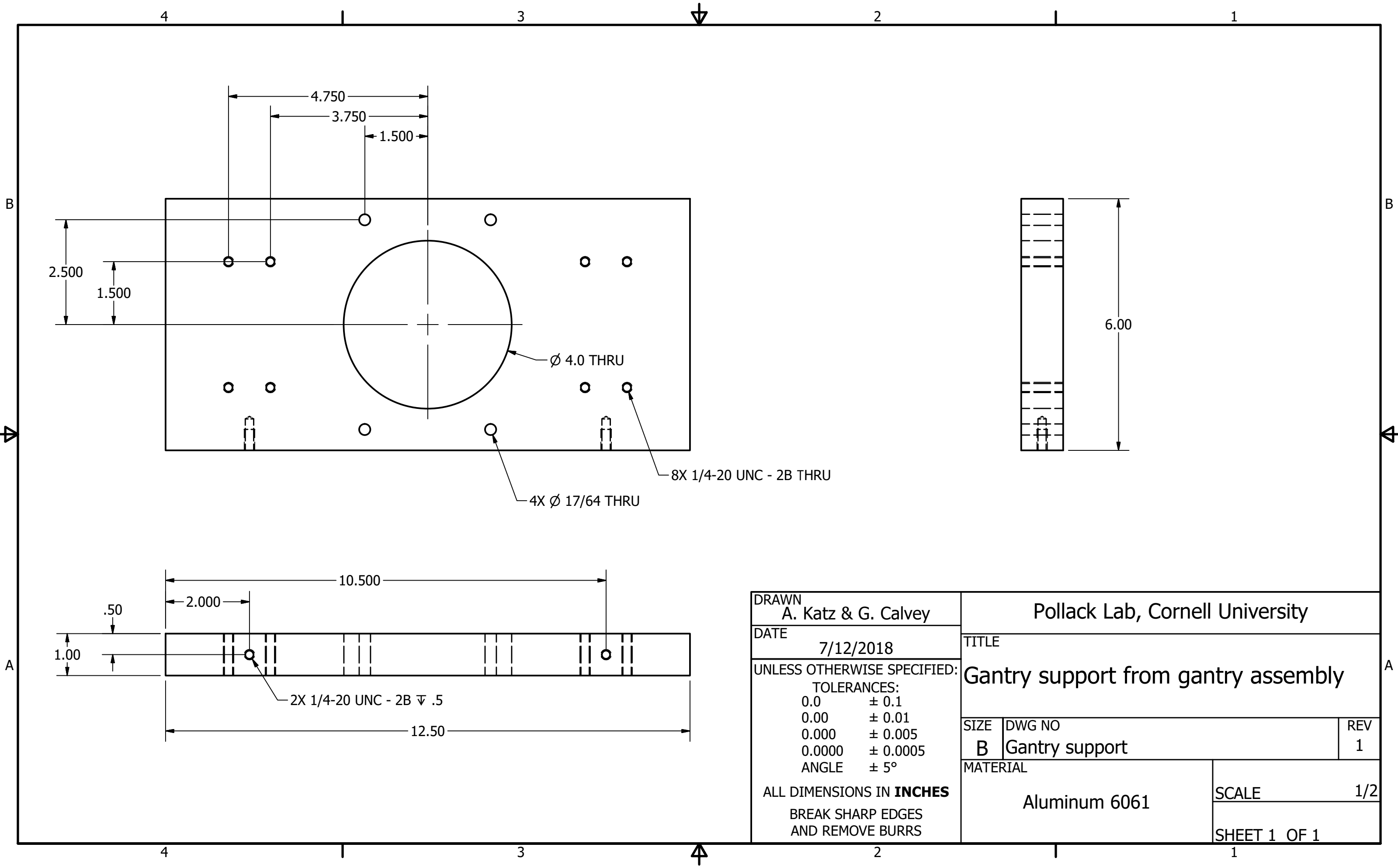


DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/12/2018		TITLE Z tensioner support from gantry assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE DWG NO REV B Z tensioner support 1	
		MATERIAL Aluminum 6061	
		SCALE 1 : 2	
		SHEET 1 OF 1	



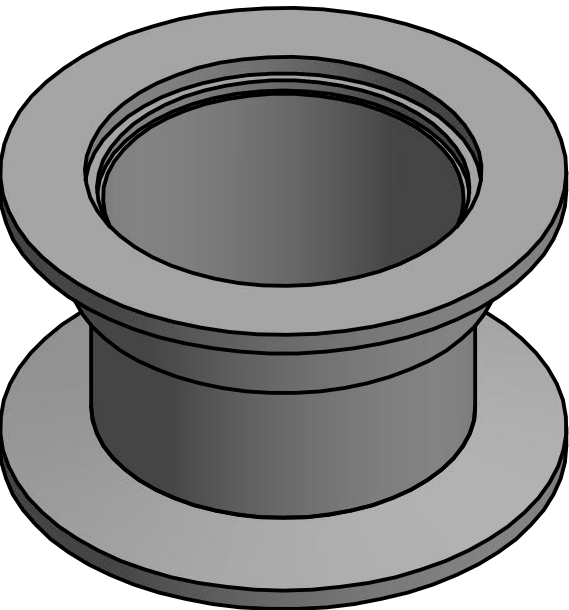
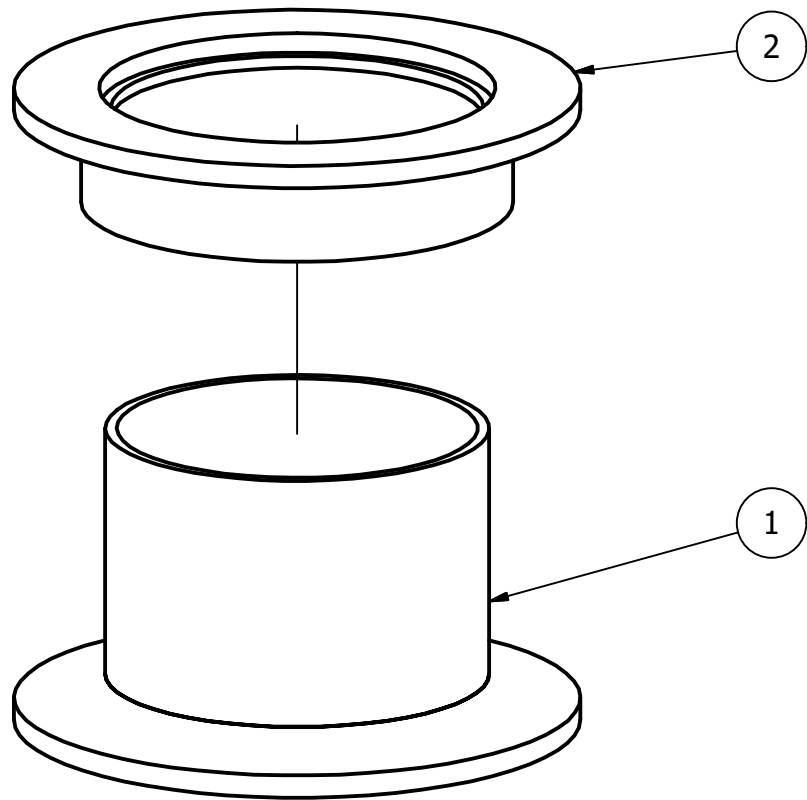
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/12/2018		TITLE Motor spanner from gantry assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 $\pm$ 0.1 0.00 $\pm$ 0.01 0.000 $\pm$ 0.005 0.0000 $\pm$ 0.0005 ANGLE $\pm$ 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Motor spanner
		REV 1	
MATERIAL Aluminum 6061		SCALE 1:2	
		SHEET 1 OF 1	





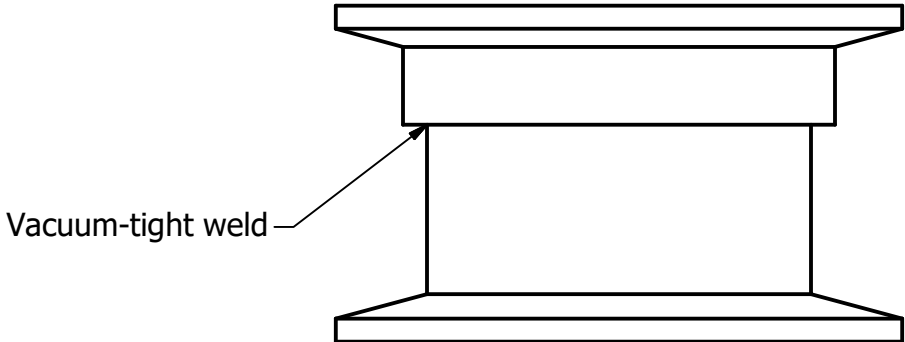
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/12/2018		TITLE Gantry support from gantry assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Gantry support
		REV 1	
MATERIAL Aluminum 6061		SCALE 1/2	
		SHEET 1 OF 1	

4 3 2 1

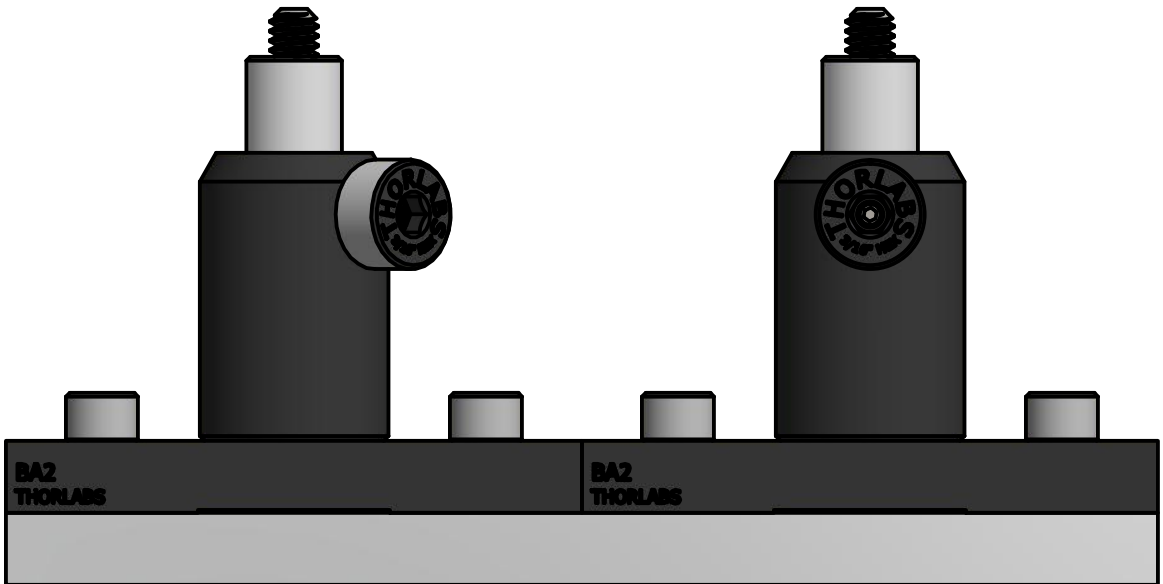
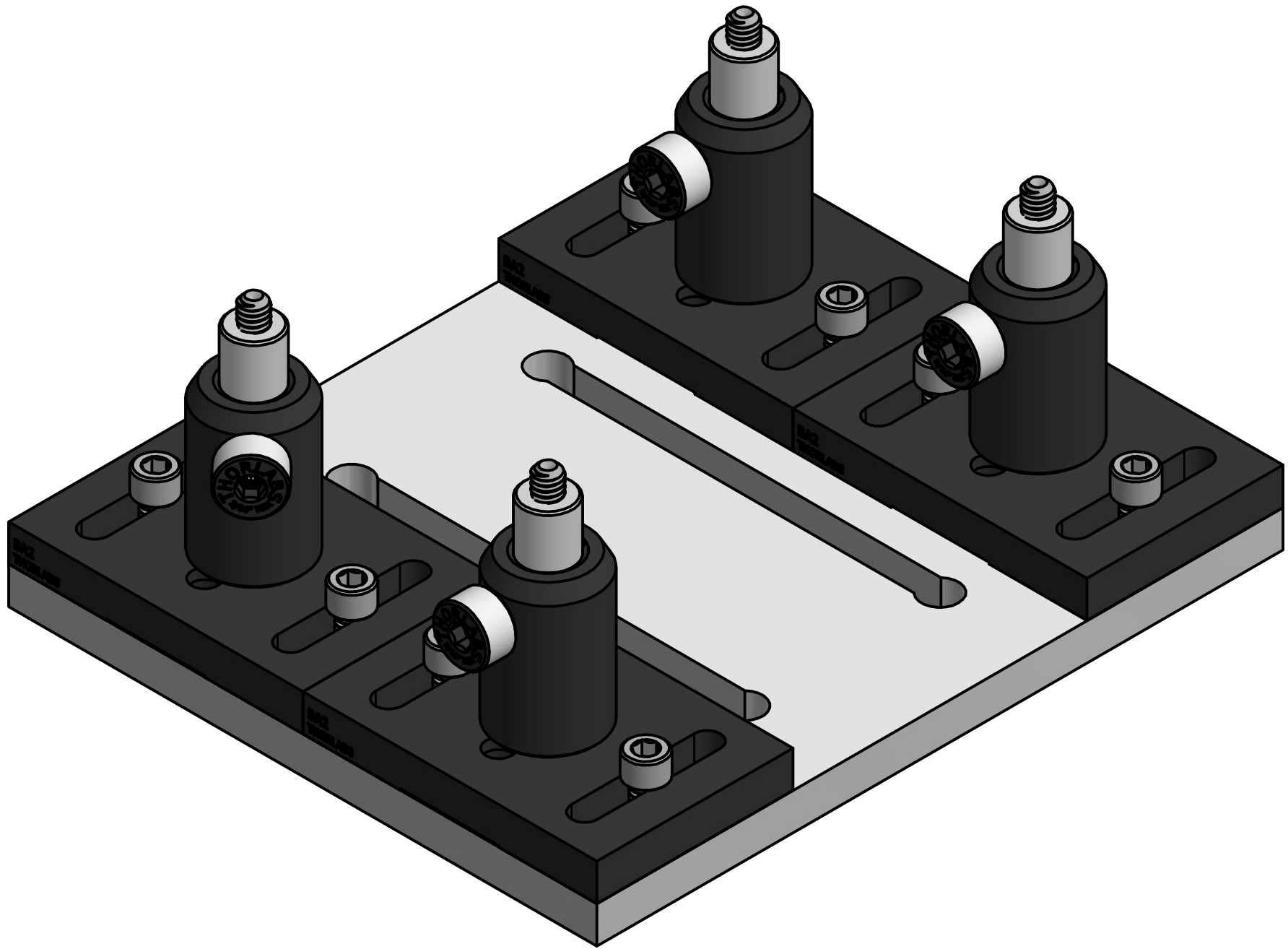
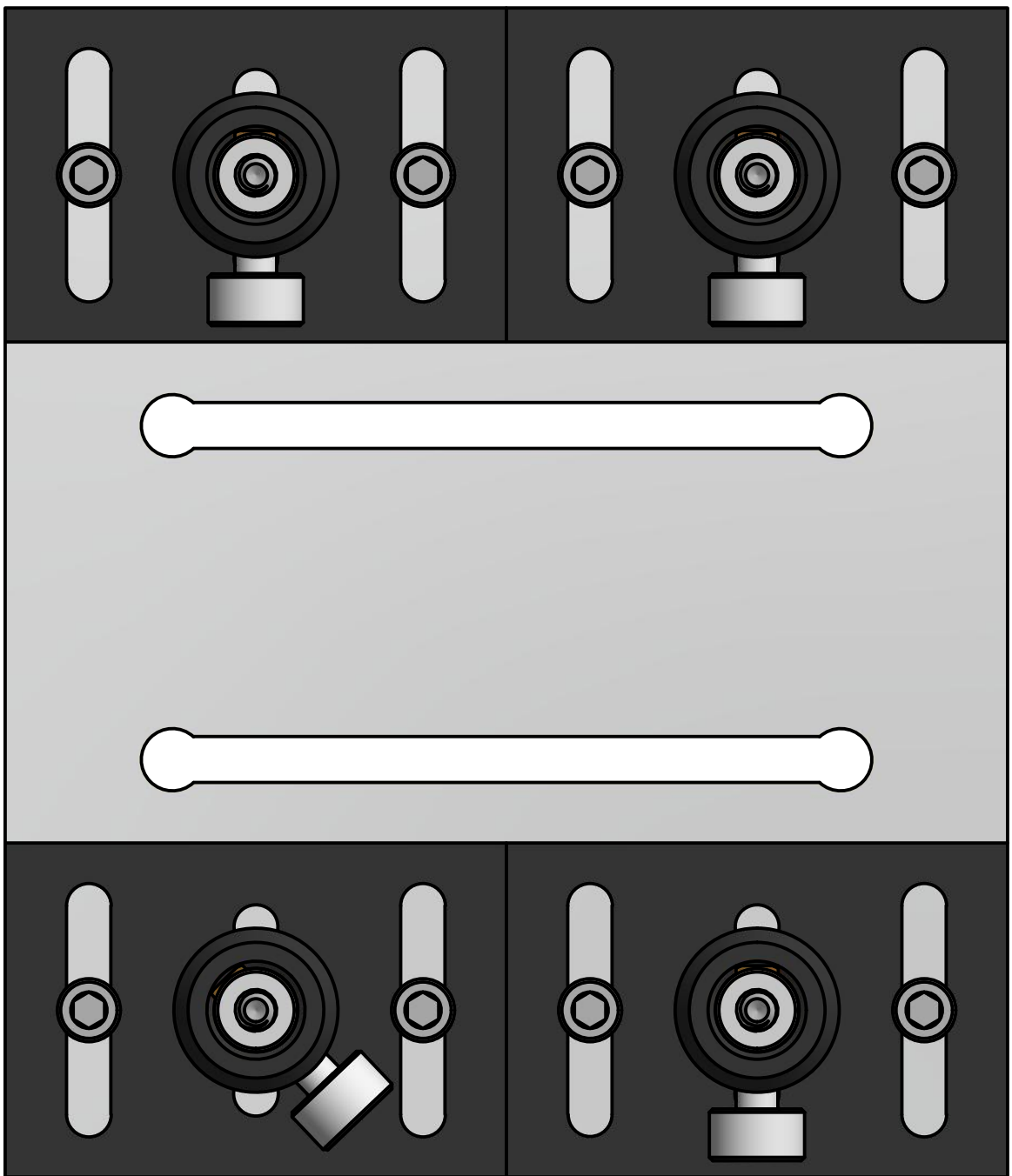
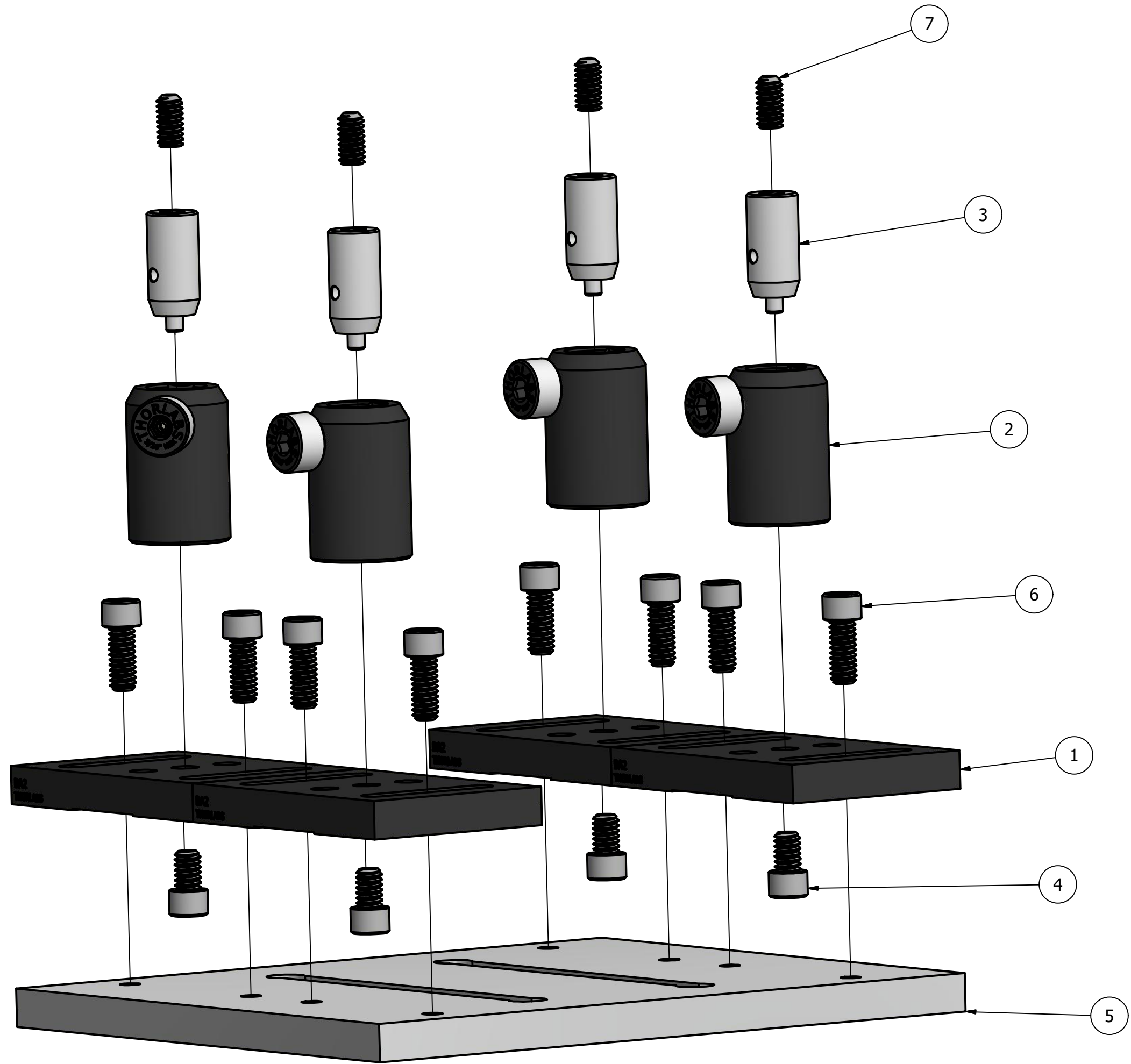


4 3 2 1

PARTS LIST						
ITEM	QTY	PART NUMBER	MATERIAL	VENDOR	STOCK NUMBER	PAGE
1	1	KF50 half nipple	304 SS	Kurt Lesker	QF50-200-LFT	
2	1	KF50 weld flange	304 SS	Kurt Lesker	QF50-200-SF	

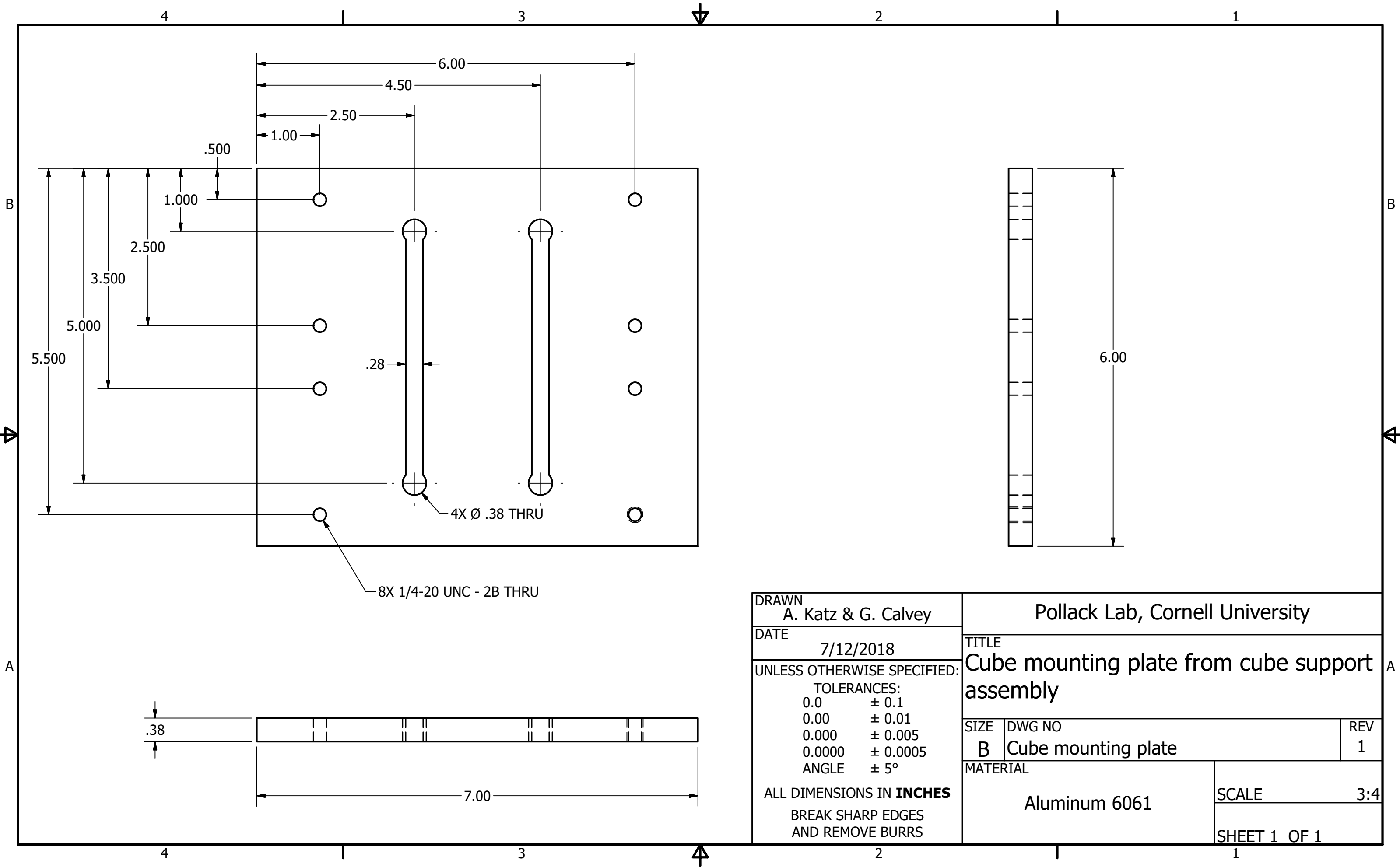


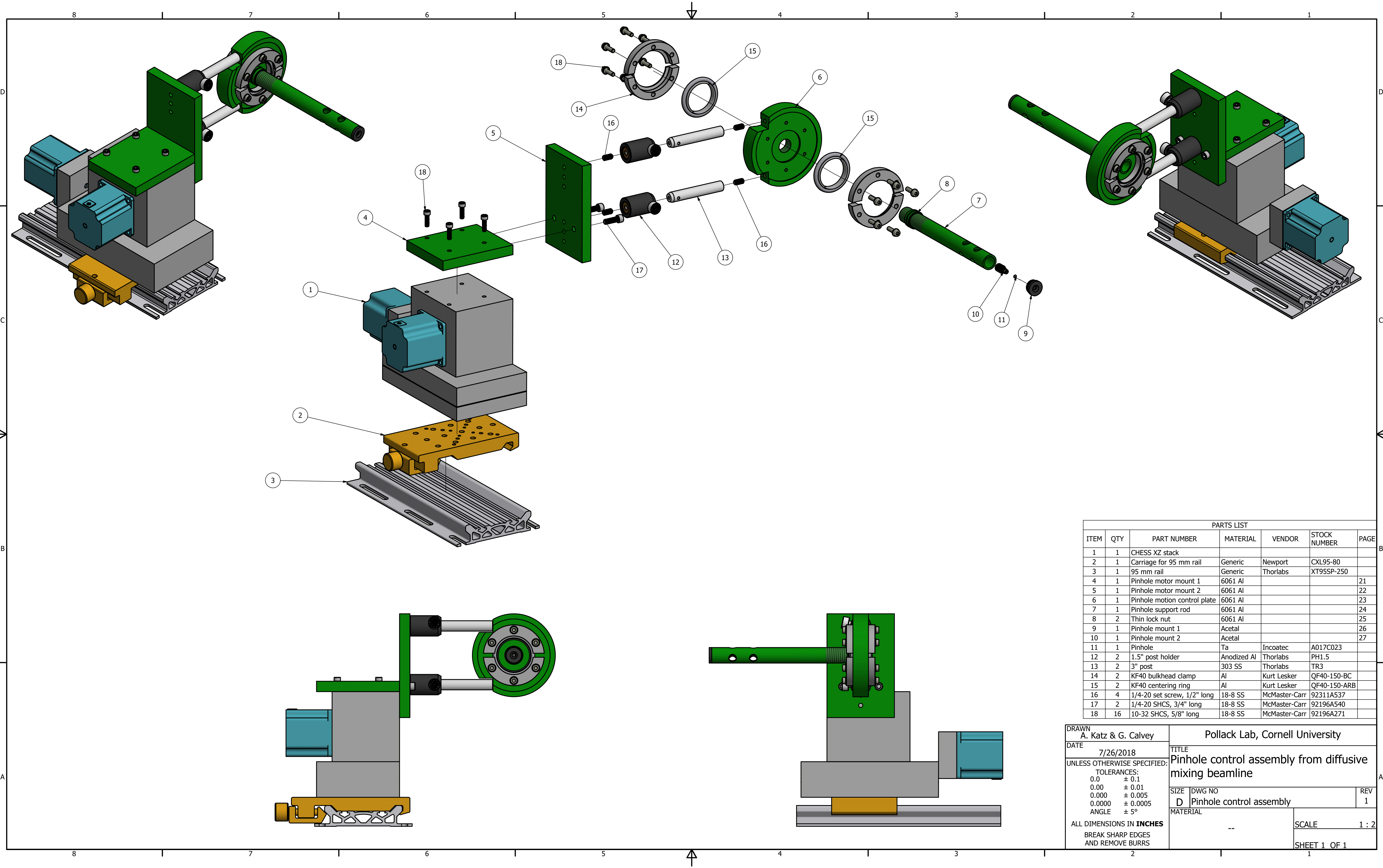
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University		
DATE 7/11/2018		TITLE KF50 short nipple from gantry assembly		
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO KF50 short nipple	REV 1
		MATERIAL 304 SS		SCALE 1 : 1
		SHEET 1 OF 1		



PARTS LIST						
ITEM	QTY	PART NUMBER	MATERIAL	VENDOR	STOCK NUMBER	PAGE
1	4	Optics mounting base	Anodized Al	Thorlabs	BA2	
2	4	1.5" post holder	Anodized Al	Thorlabs	PH1.5	
3	4	1" post	303 SS	Thorlabs	TR1	
4	4	1/4-20 SHCS, 3/8" long	18-8 SS	McMaster-Carr	92196A535	
5	1	Cube mounting plate	6061 Al			19
6	8	1/4-20 SHCS, 5/8" long	18-8 SS	McMaster-Carr	92196A539	
7	4	1/4-20 set screw, 1/2" long	18-8 SS	McMaster-Carr	92311A537	

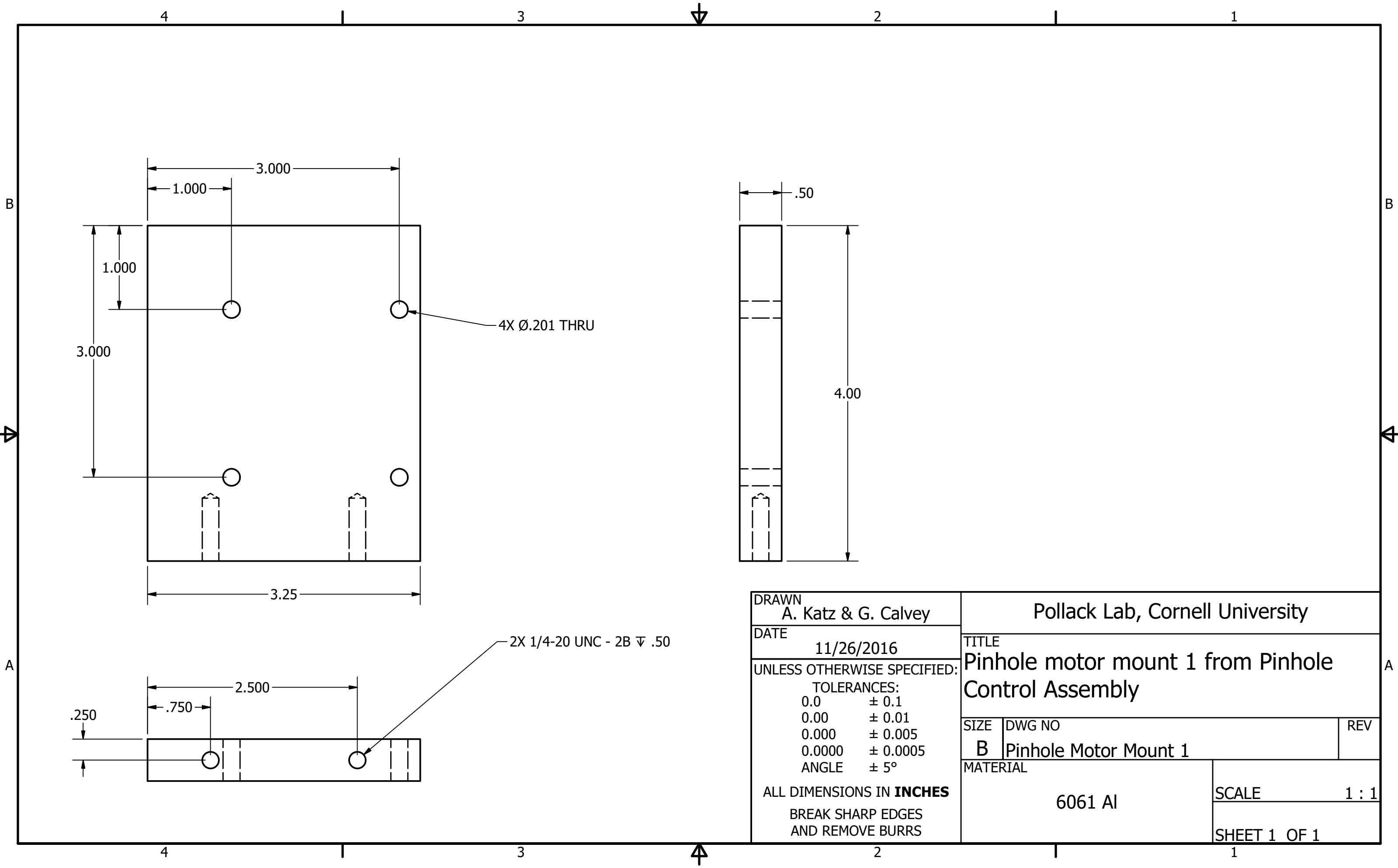
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/10/2018		TITLE Cube support assembly from diffusive mixing beamline	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5°		SIZE D	REV 1
ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		MATERIAL --	SCALE 1 : 1
		SHEET 1 OF 1	



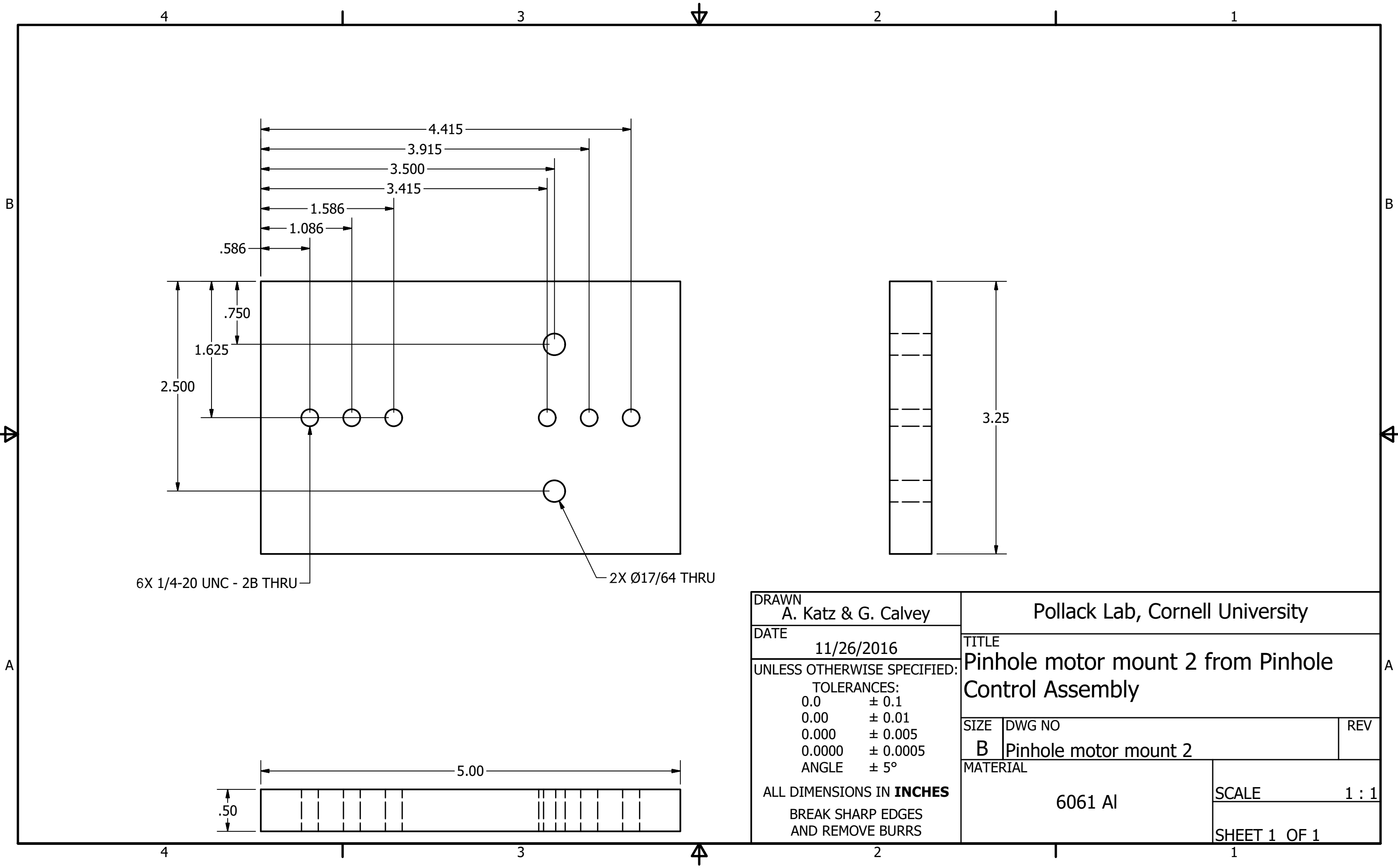


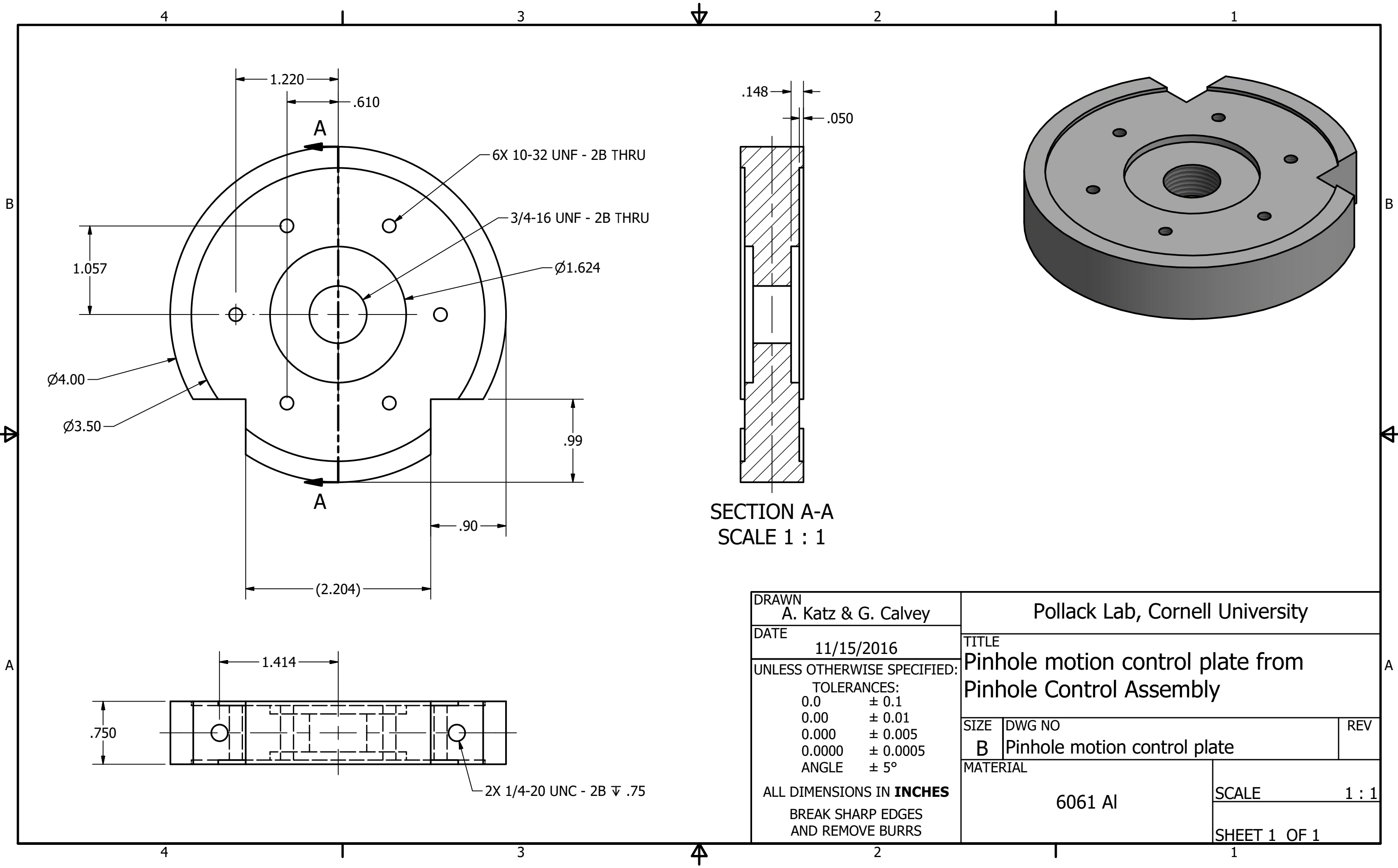
PARTS LIST						
ITEM	QTY	PART NUMBER	MATERIAL	VENDOR	STOCK NUMBER	PAGE
1	1	CHESS XZ stack				
2	1	Carriage for 95 mm rail	Generic	Newport	CXL95-80	
3	1	95 mm rail	Generic	Thorlabs	XT95SP-250	
4	1	Pinhole motor mount 1	6061 Al			21
5	1	Pinhole motor mount 2	6061 Al			22
6	1	Pinhole motion control plate	6061 Al			23
7	1	Pinhole support rod	6061 Al			24
8	2	Thin lock nut	6061 Al			25
9	1	Pinhole mount 1	Acetal			26
10	1	Pinhole mount 2	Acetal			27
11	1	Pinhole	Ta	Incoatec	A017C023	
12	2	1.5" post holder	Anodized Al	Thorlabs	PH1.5	
13	2	3" post	303 SS	Thorlabs	TR3	
14	2	KF40 bulkhead clamp	Al	Kurt Lesker	QF40-150-BC	
15	2	KF40 centering ring	Al	Kurt Lesker	QF40-150-ARB	
16	4	1/4-20 set screw, 1/2" long	18-8 SS	McMaster-Carr	92311A537	
17	2	1/4-20 SHCS, 3/4" long	18-8 SS	McMaster-Carr	92196A540	
18	16	10-32 SHCS, 5/8" long	18-8 SS	McMaster-Carr	92196A271	

DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/26/2018		TITLE Pinhole control assembly from diffusive mixing beamline	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5°		SIZE D	REV 1
ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		MATERIAL --	SCALE 1 : 2 SHEET 1 OF 1



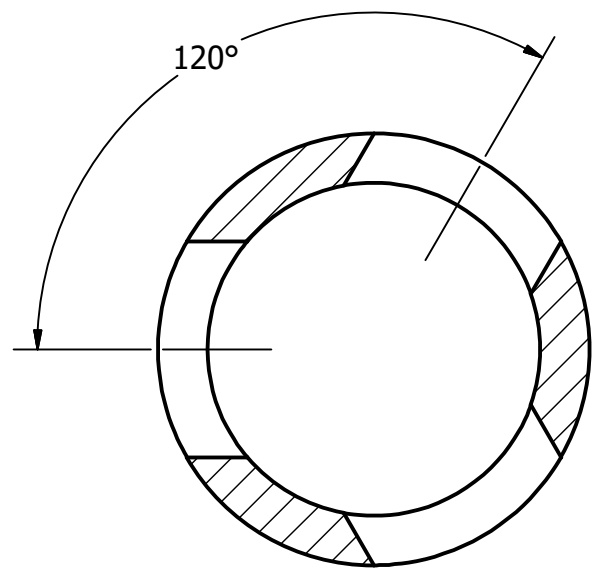
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 11/26/2016		TITLE Pinhole motor mount 1 from Pinhole Control Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Pinhole Motor Mount 1
		REV	
MATERIAL 6061 Al		SCALE 1 : 1	
		SHEET 1 OF 1	



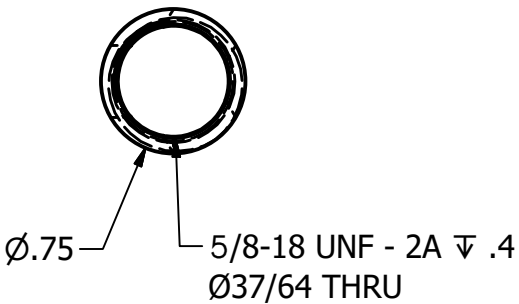
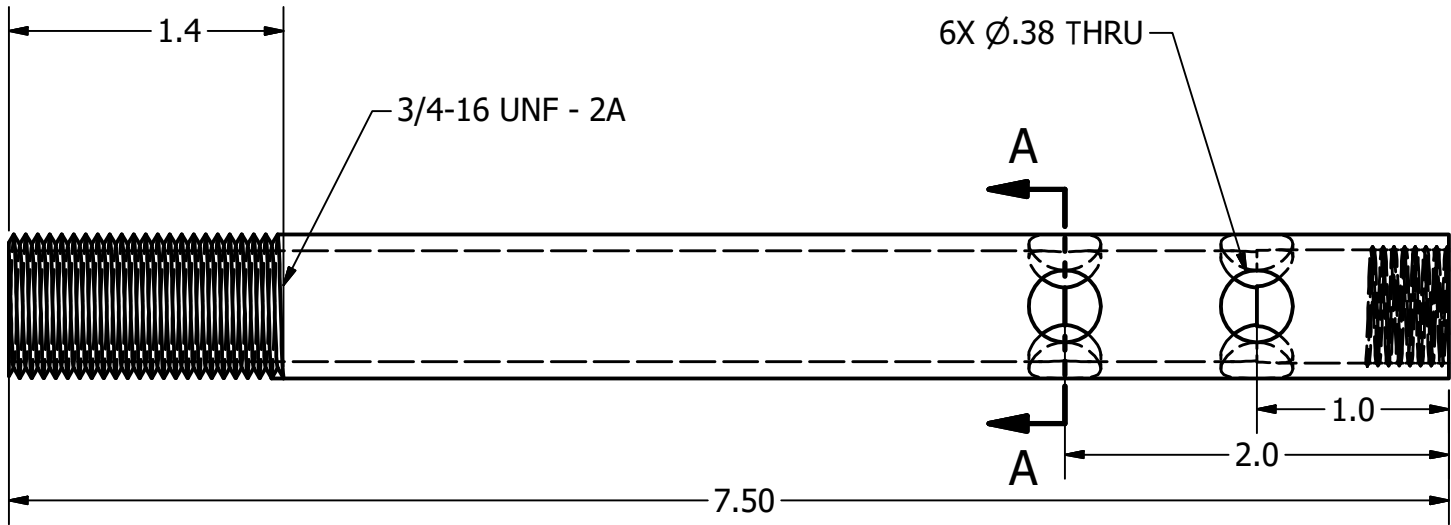


SECTION A-A
SCALE 1 : 1

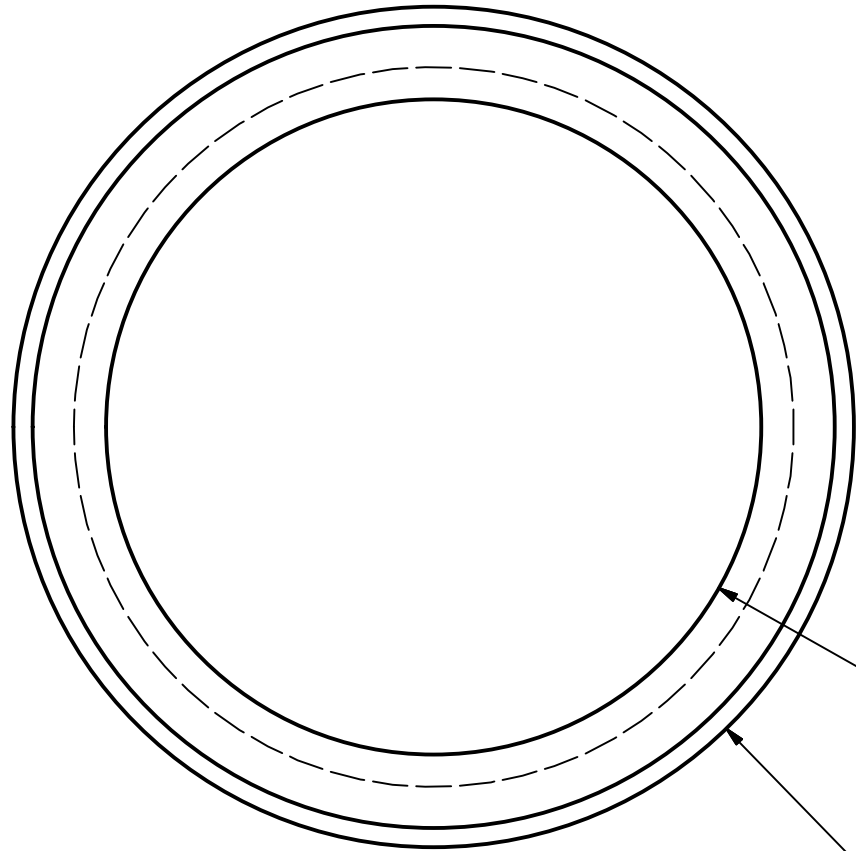
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 11/15/2016		TITLE Pinhole motion control plate from Pinhole Control Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Pinhole motion control plate
		REV	
MATERIAL 6061 Al		SCALE 1 : 1	
		SHEET 1 OF 1	



SECTION A-A
SCALE 3 : 1

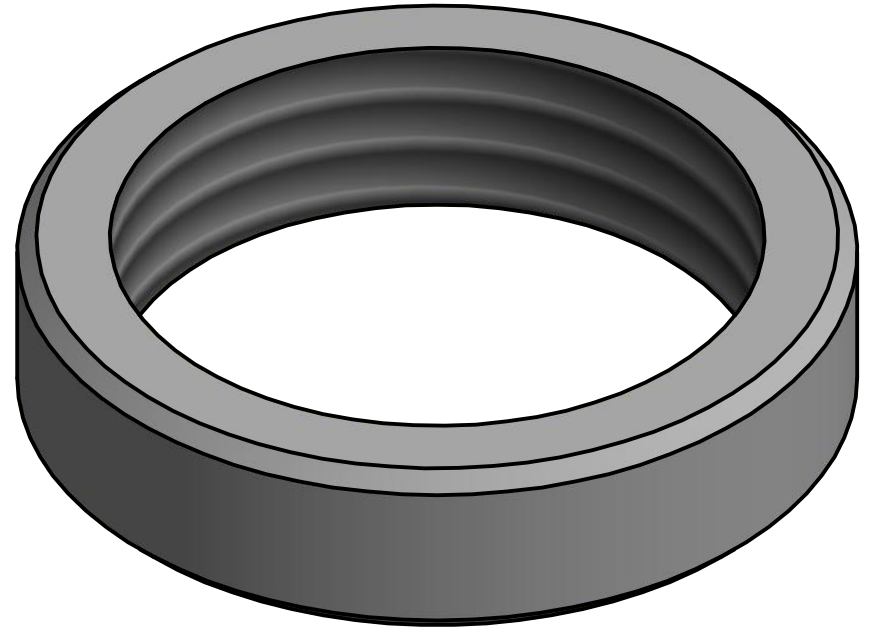


DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/30/2018		TITLE Pinhole support rod from Pinhole Control Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Pinhole support rod
		REV 1	
MATERIAL Aluminum 6061		SCALE 1 : 1	
		SHEET 1 OF 1	



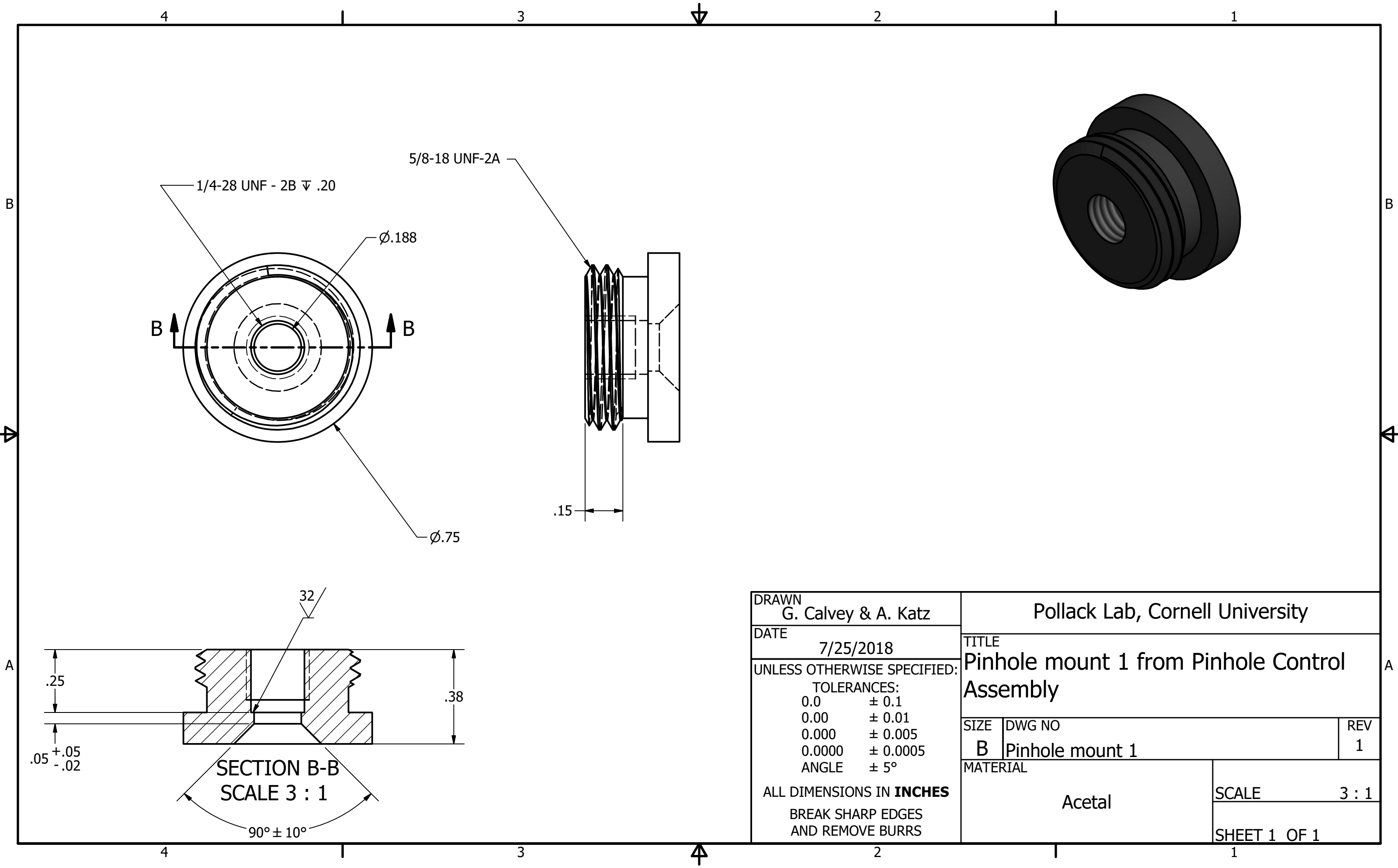
3/4-16 UNF - 2B THRU

Ø.88

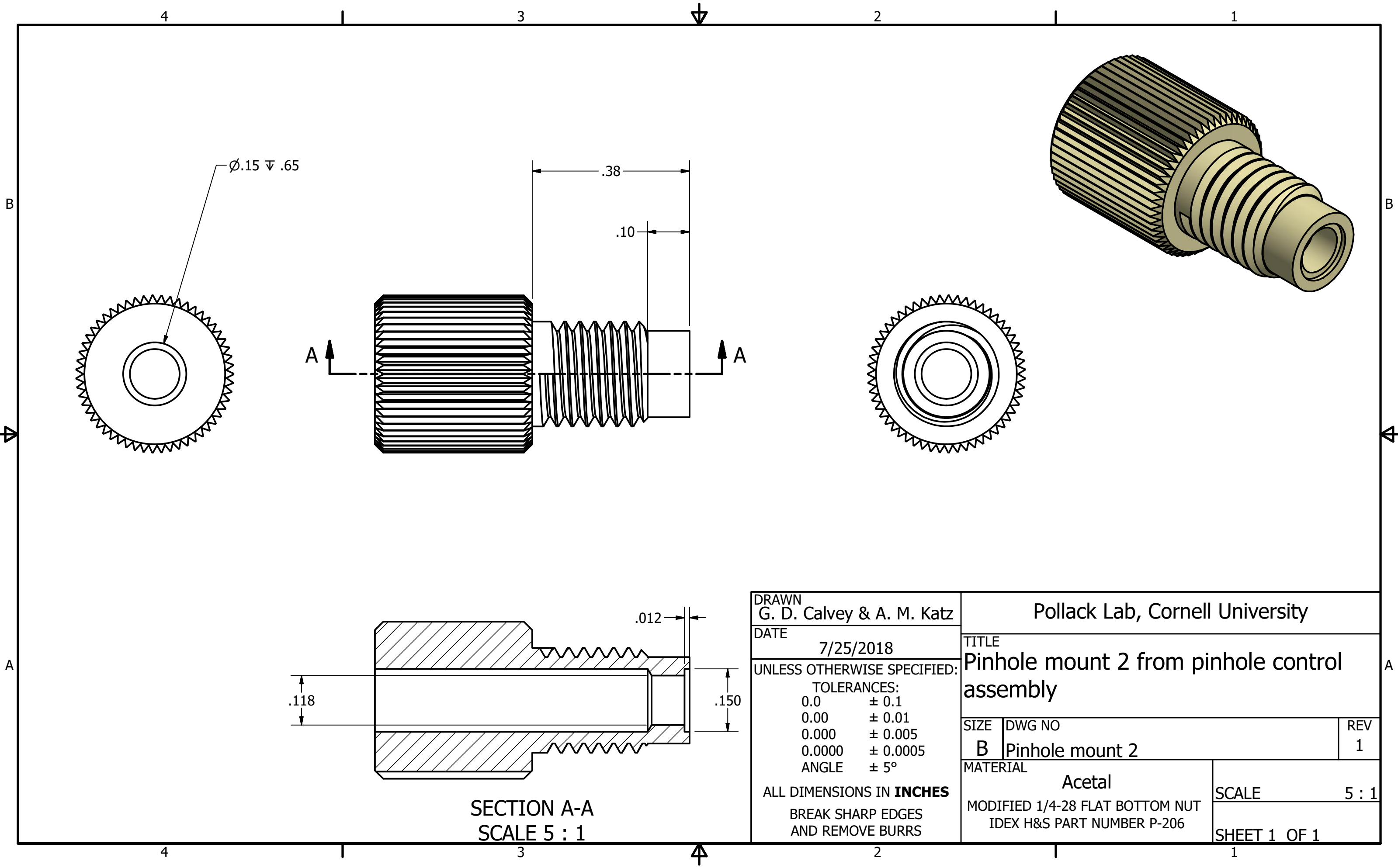


KNURL FOR GRIP

DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/30/2018		TITLE Thin lock nut from Pinhole Control Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	REV 1
		MATERIAL Aluminum 6061	
		SCALE 5 : 1	
		SHEET 1 OF 1	



DRAWN G. Calvey & A. Katz		Pollack Lab, Cornell University	
DATE 7/25/2018		TITLE Pinhole mount 1 from Pinhole Control Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE $\pm 5^\circ$ ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Pinhole mount 1
		REV 1	
MATERIAL Acetal		SCALE 3 : 1	
		SHEET 1 OF 1	



DRAWN
G. D. Calvey & A. M. Katz

DATE
7/25/2018

UNLESS OTHERWISE SPECIFIED:

TOLERANCES:

0.0 ± 0.1

0.00 ± 0.01

0.000 ± 0.005

0.0000 ± 0.0005

ANGLE $\pm 5^\circ$

ALL DIMENSIONS IN **INCHES**

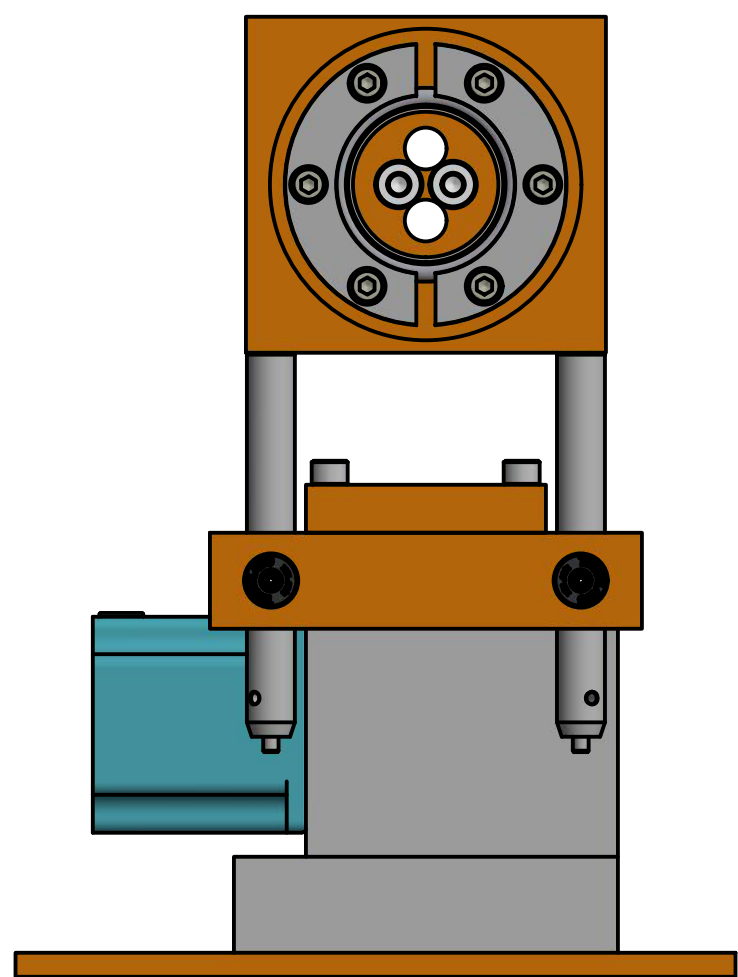
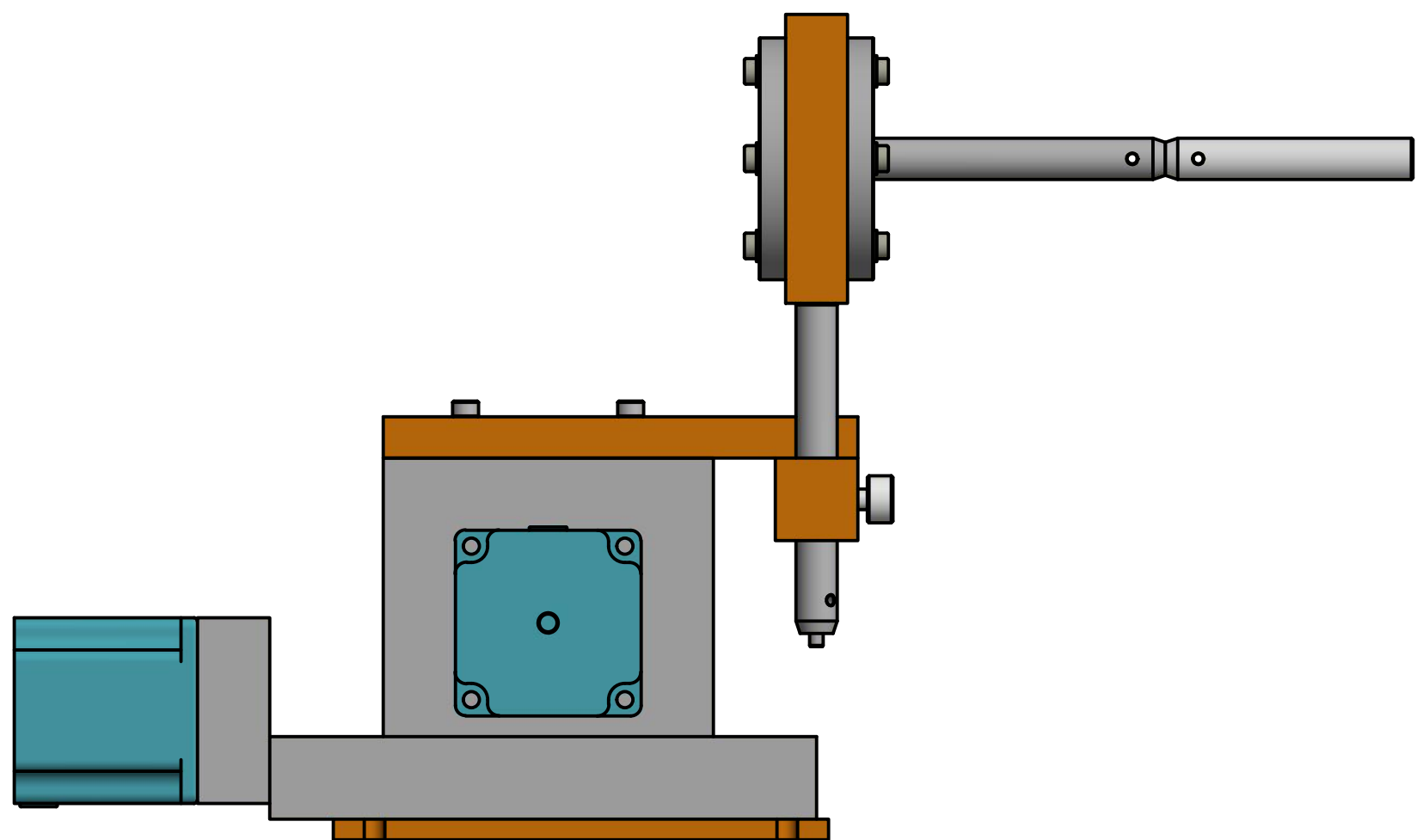
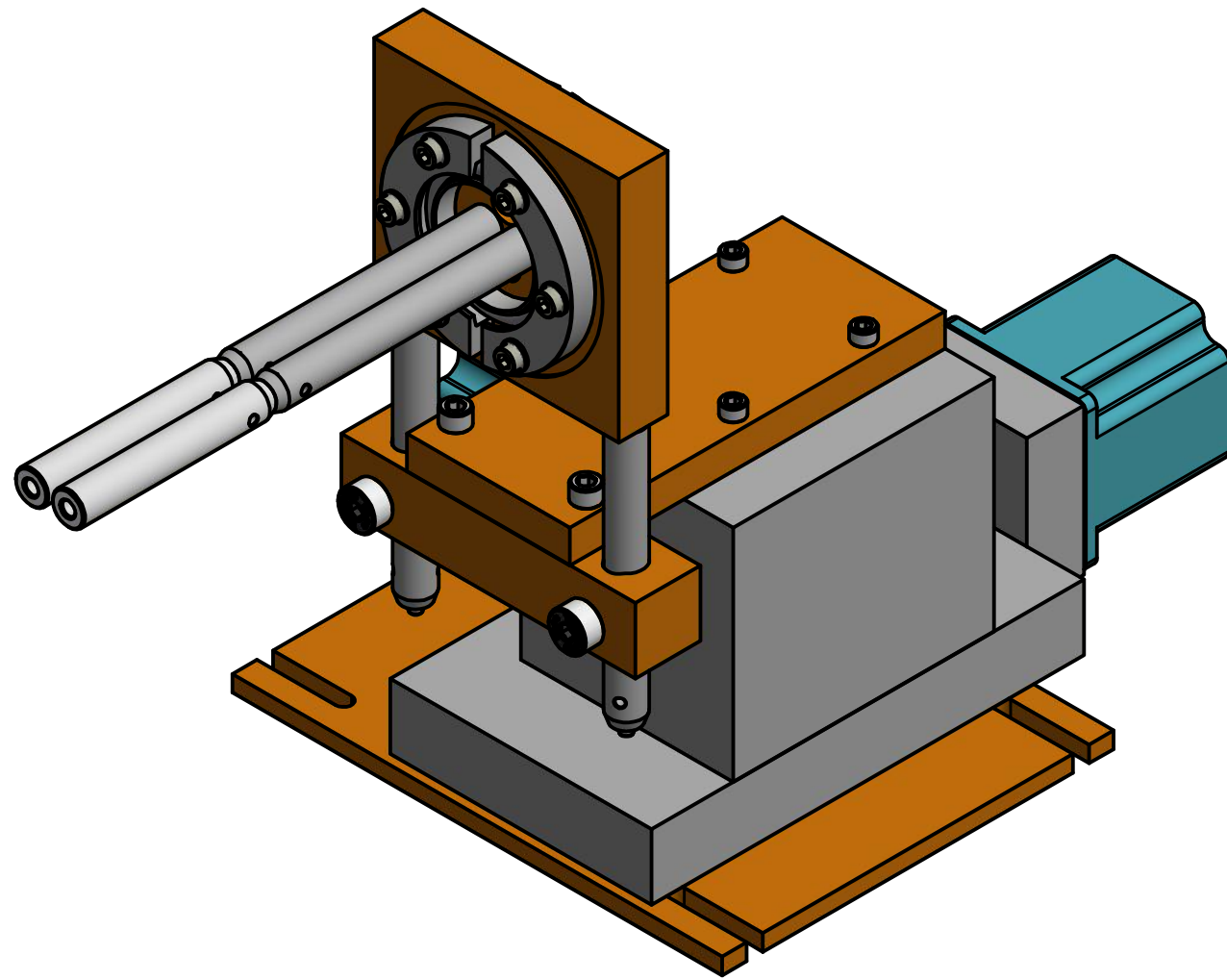
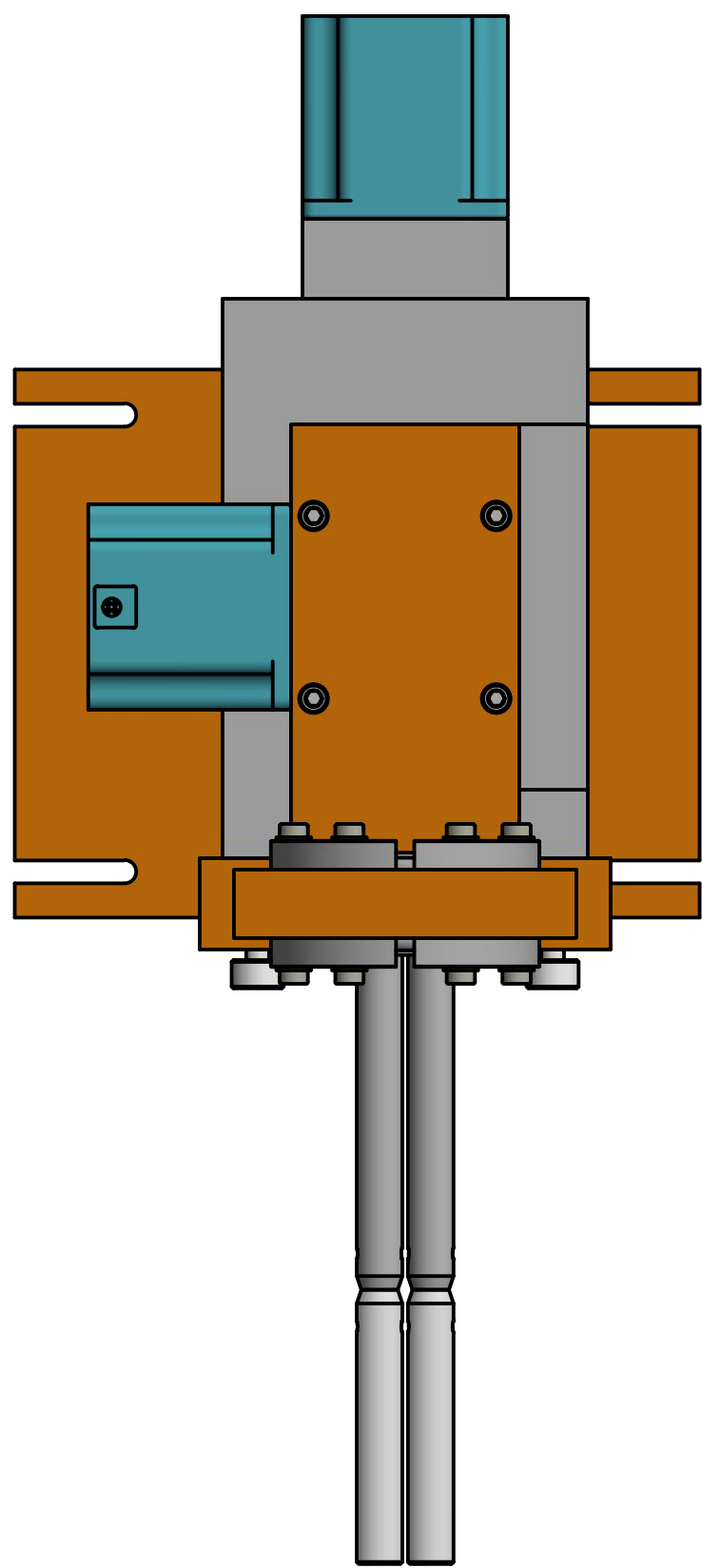
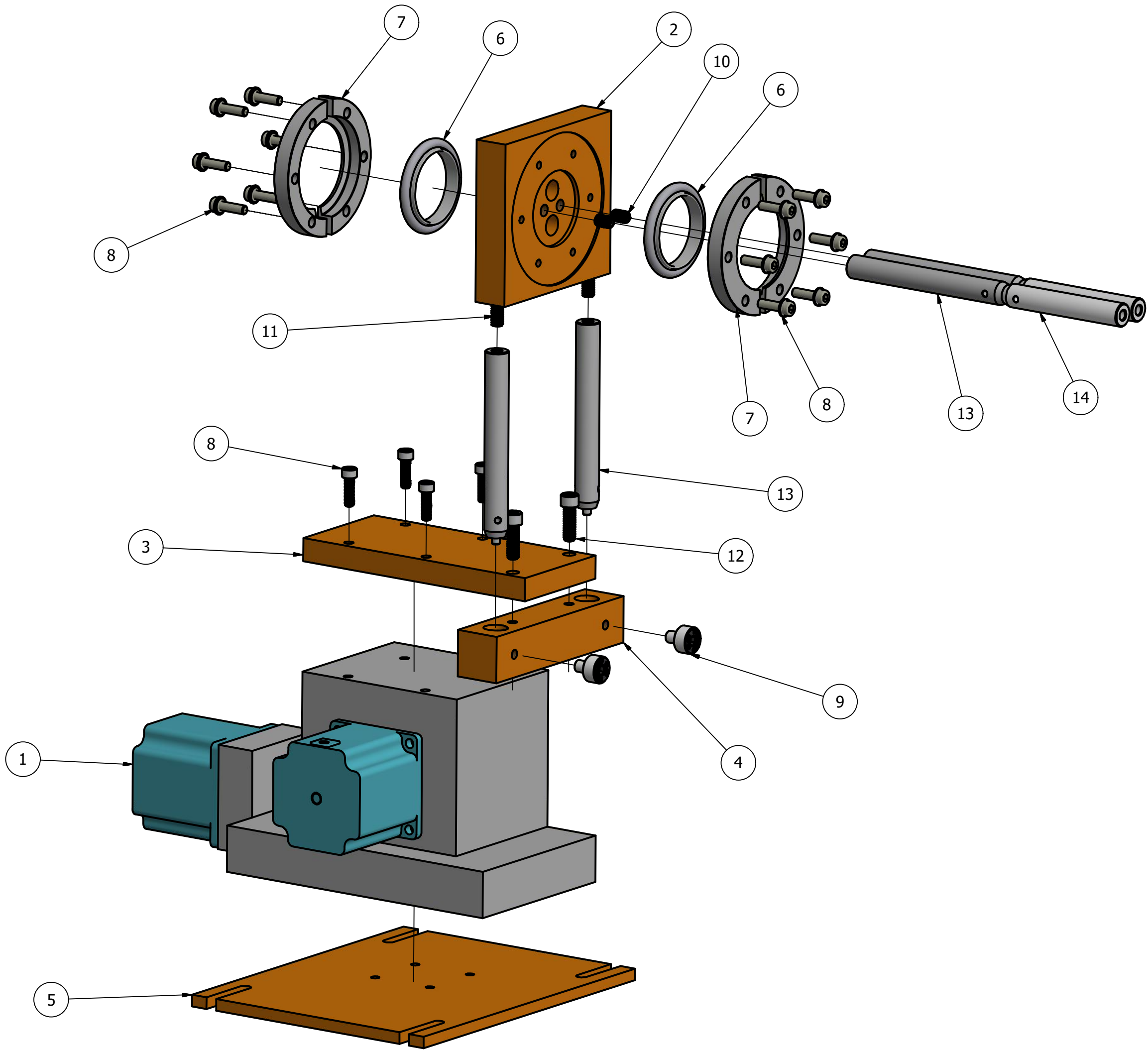
BREAK SHARP EDGES
AND REMOVE BURRS

Pollack Lab, Cornell University

TITLE
Pinhole mount 2 from pinhole control
assembly

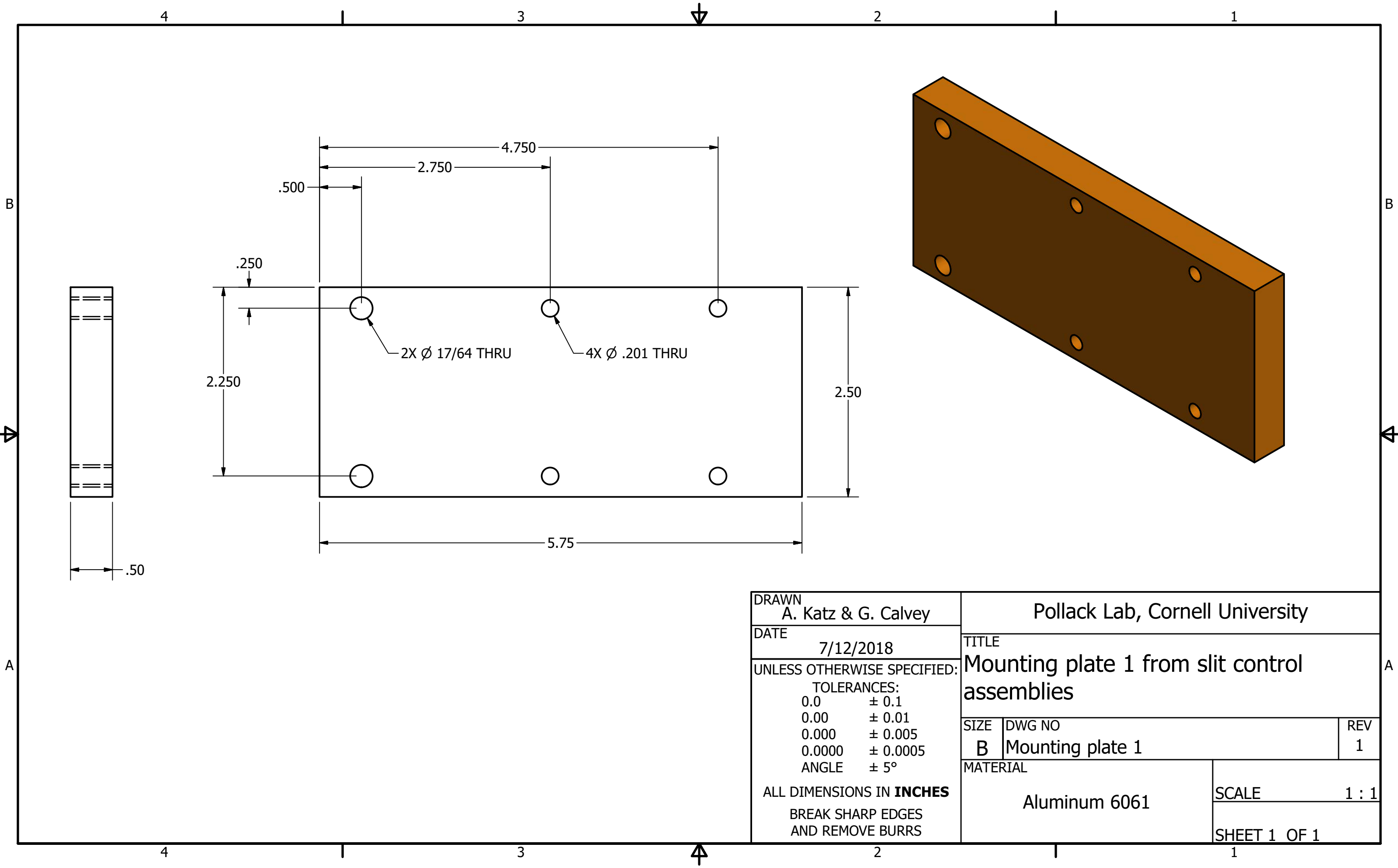
SIZE	DWG NO	REV
B	Pinhole mount 2	1

MATERIAL	SCALE
Acetal	5 : 1
MODIFIED 1/4-28 FLAT BOTTOM NUT IDEX H&S PART NUMBER P-206	
SHEET 1 OF 1	

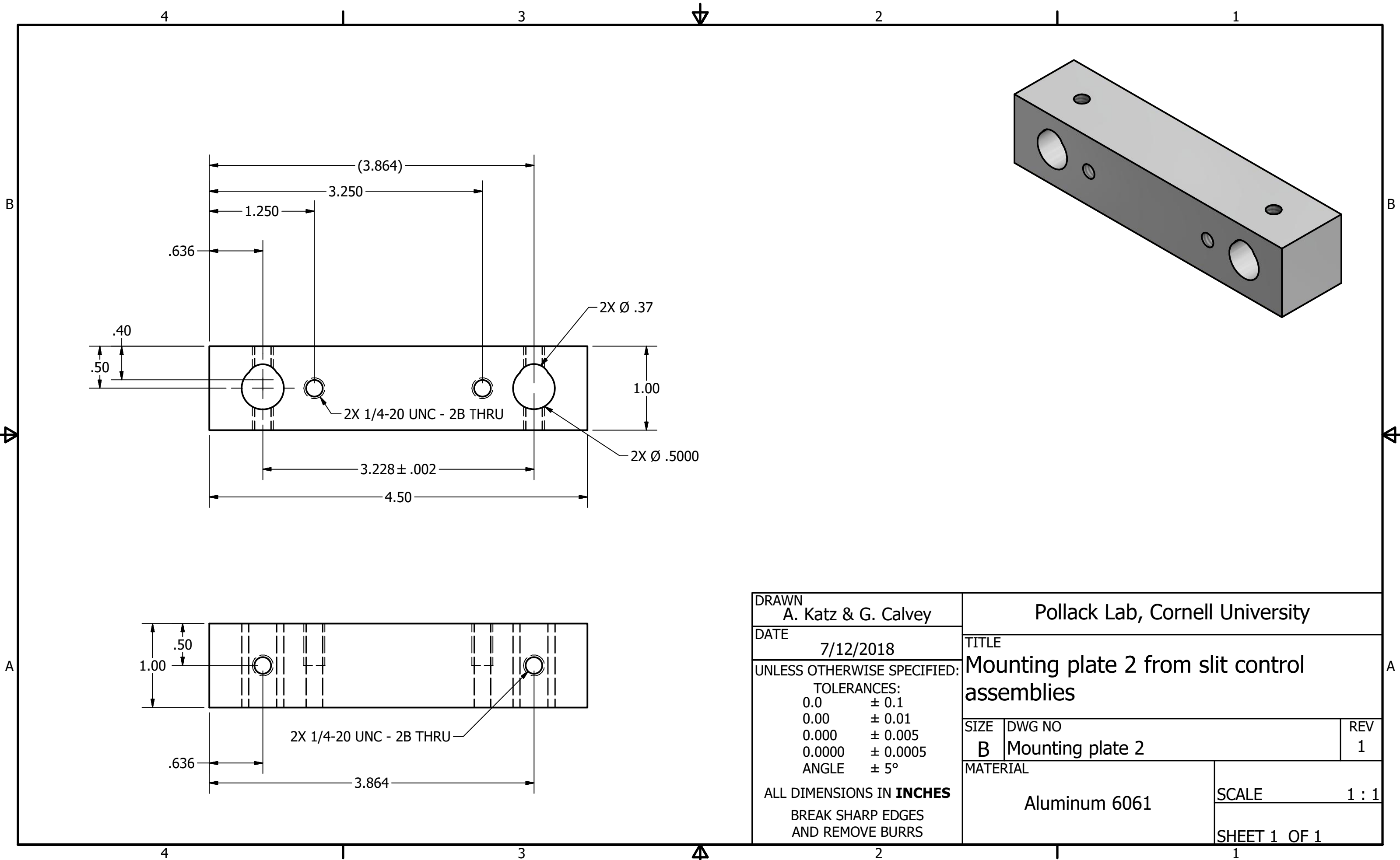


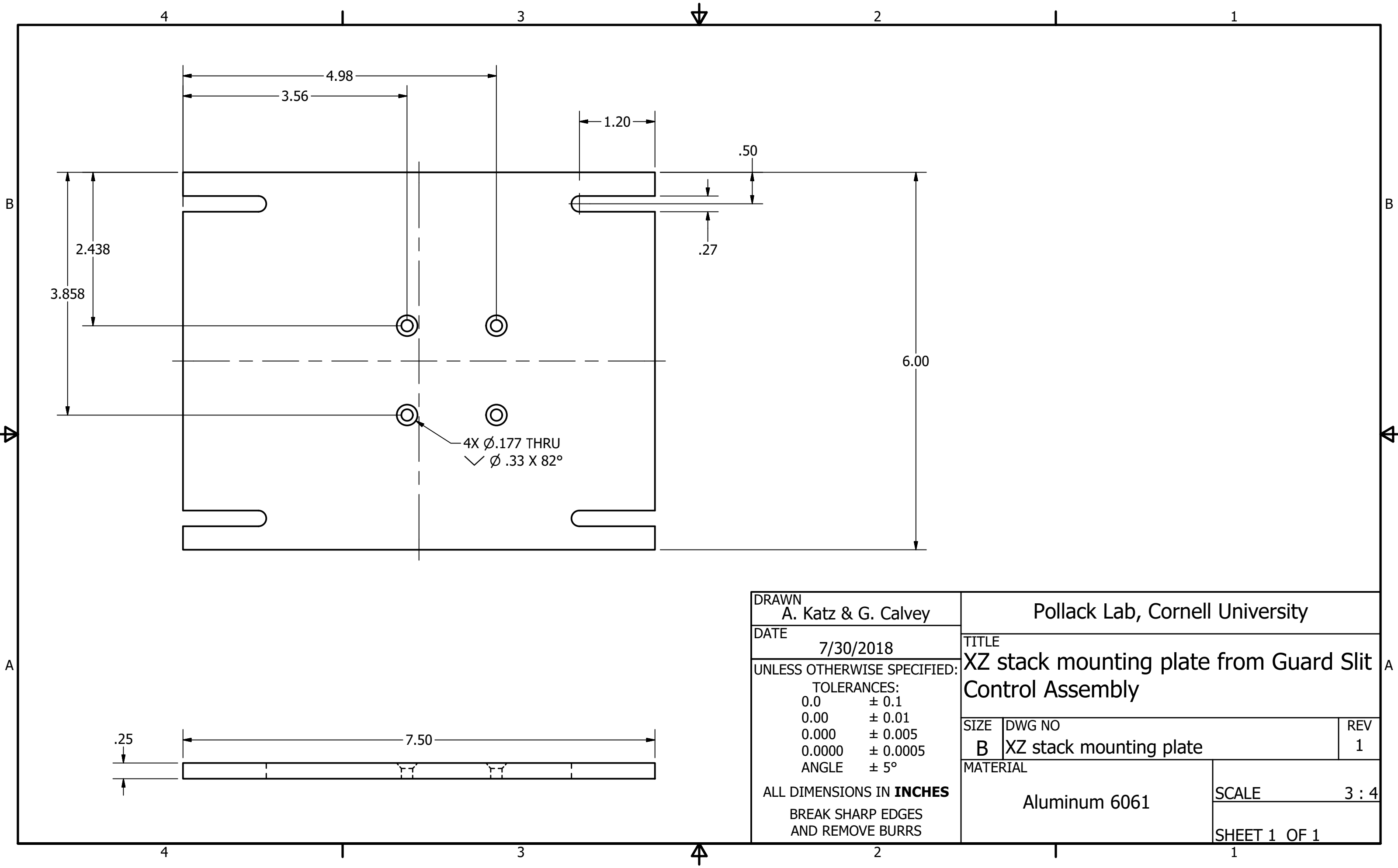
PARTS LIST						
ITEM	QTY	PART NUMBER	MATERIAL	VENDOR	STOCK NUMBER	PAGE
1	1	CHESS XZ stack				
2	1	Motion control Plate	6061 Al			29
3	1	Mounting plate 1	6061 Al			30
4	1	Mounting plate 2	6061 Al			31
5	1	XZ stack mount plate	6061 Al			32
6	2	KF40 centering ring	Al	Kurt Lesker	qf40-150-arb	
7	2	KF40 bulkhead clamp	Al	Kurt Lesker	qf40-150-bc	
8	16	10-32 SHCS, 5/8" long	18-8 SS	McMaster-Carr	92196A271	
9	2	1/4-20 thumbscrew	Anodized Al	Thorlabs	TS25H	
10	2	1/4-20 vented set screw, 1/2" long	18-8 SS	McMaster-Carr	91979A658	
11	2	1/4-20 set screw, 1/2" long	18-8 SS	McMaster-Carr	92311A537	
12	2	1/4-20 SHCS, 3/4" long	18-8 SS	McMaster-Carr	92196A540	
13	4	4" post	303 SS	Thorlabs	TR4	
14	2	3" post	303 SS	Thorlabs	TR3	

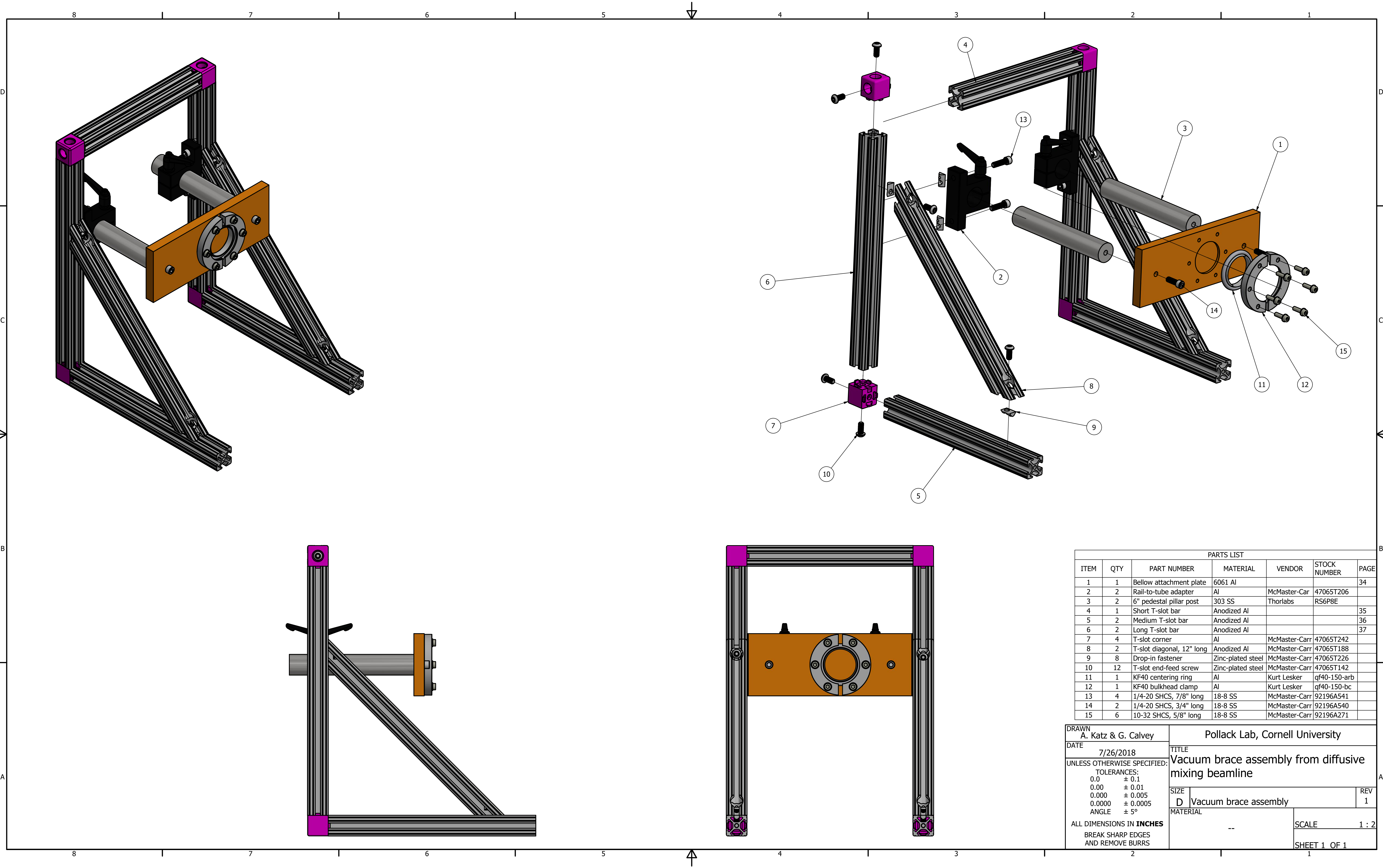
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/9/2018		TITLE Guard slit control assembly from diffusive mixing beamline	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5°		SIZE D	DWG NO Guard slit control assembly REV 1
ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		MATERIAL --	SCALE 1 : 2 SHEET 1 OF 1



DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/12/2018		TITLE Mounting plate 1 from slit control assemblies	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Mounting plate 1
		REV 1	
		MATERIAL Aluminum 6061	
		SCALE 1 : 1	
		SHEET 1 OF 1	

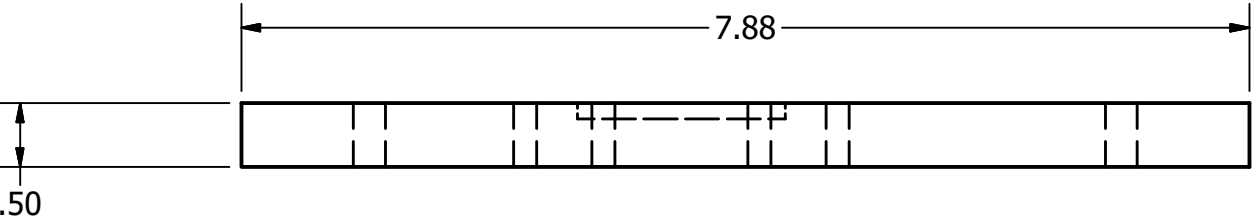
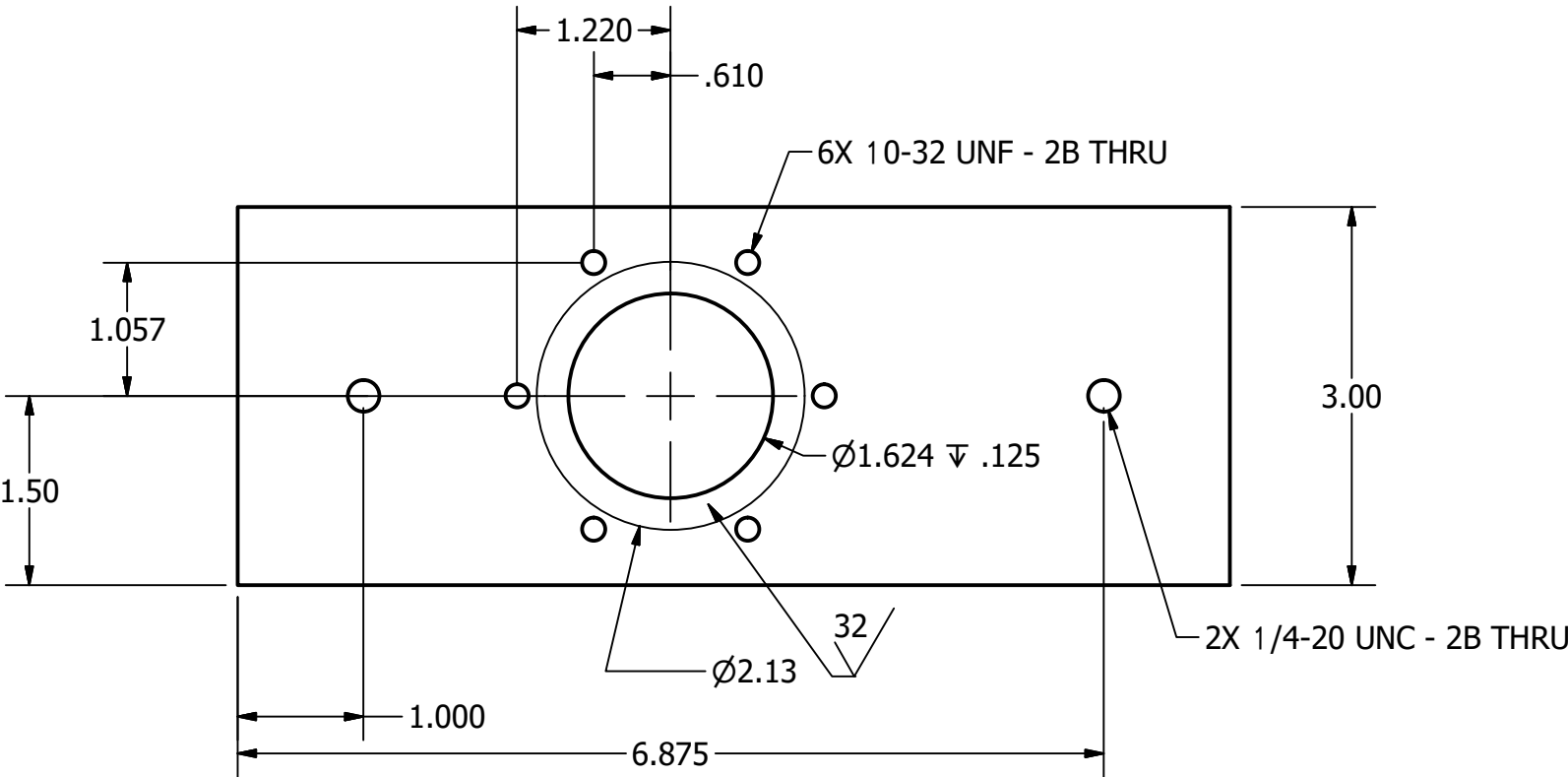
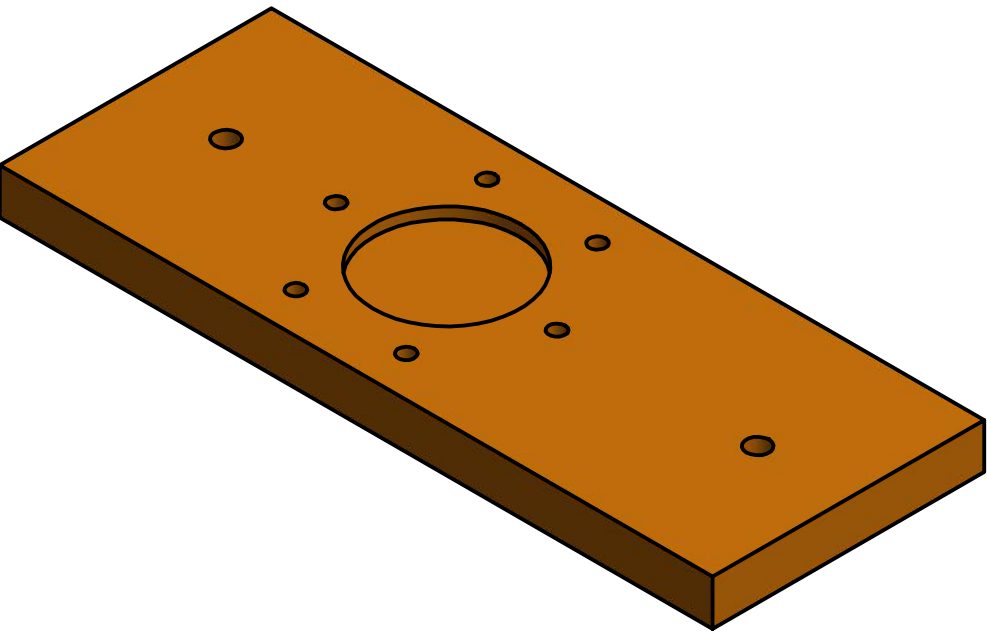




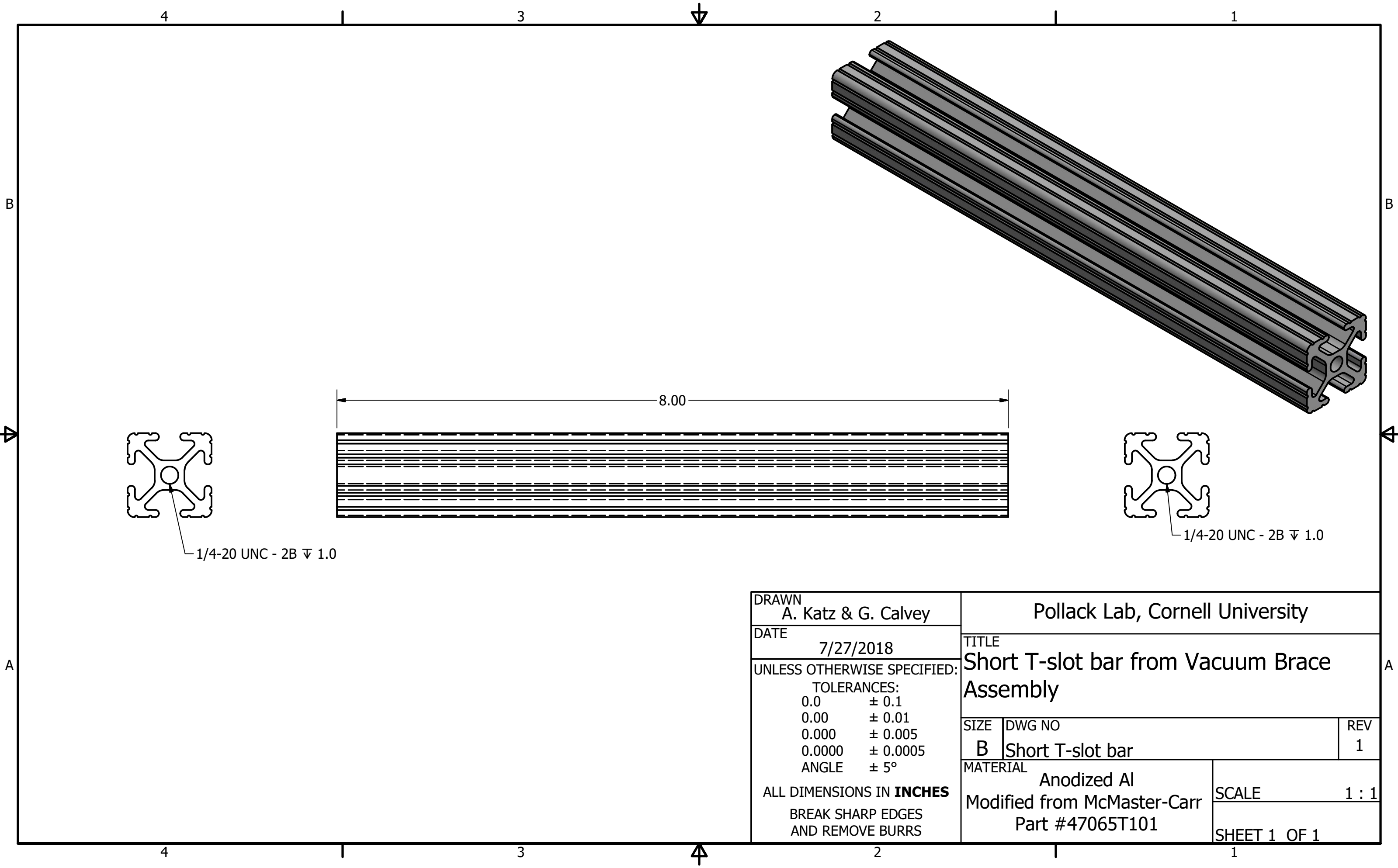


PARTS LIST						
ITEM	QTY	PART NUMBER	MATERIAL	VENDOR	STOCK NUMBER	PAGE
1	1	Bellow attachment plate	6061 Al			34
2	2	Rail-to-tube adapter	Al	McMaster-Car	47065T206	
3	2	6" pedestal pillar post	303 SS	Thorlabs	RS6P8E	
4	1	Short T-slot bar	Anodized Al			35
5	2	Medium T-slot bar	Anodized Al			36
6	2	Long T-slot bar	Anodized Al			37
7	4	T-slot corner	Al	McMaster-Carr	47065T242	
8	2	T-slot diagonal, 12" long	Anodized Al	McMaster-Carr	47065T188	
9	8	Drop-in fastener	Zinc-plated steel	McMaster-Carr	47065T226	
10	12	T-slot end-feed screw	Zinc-plated steel	McMaster-Carr	47065T142	
11	1	KF40 centering ring	Al	Kurt Lesker	qf40-150-arb	
12	1	KF40 bulkhead clamp	Al	Kurt Lesker	qf40-150-bc	
13	4	1/4-20 SHCS, 7/8" long	18-8 SS	McMaster-Carr	92196A541	
14	2	1/4-20 SHCS, 3/4" long	18-8 SS	McMaster-Carr	92196A540	
15	6	10-32 SHCS, 5/8" long	18-8 SS	McMaster-Carr	92196A271	

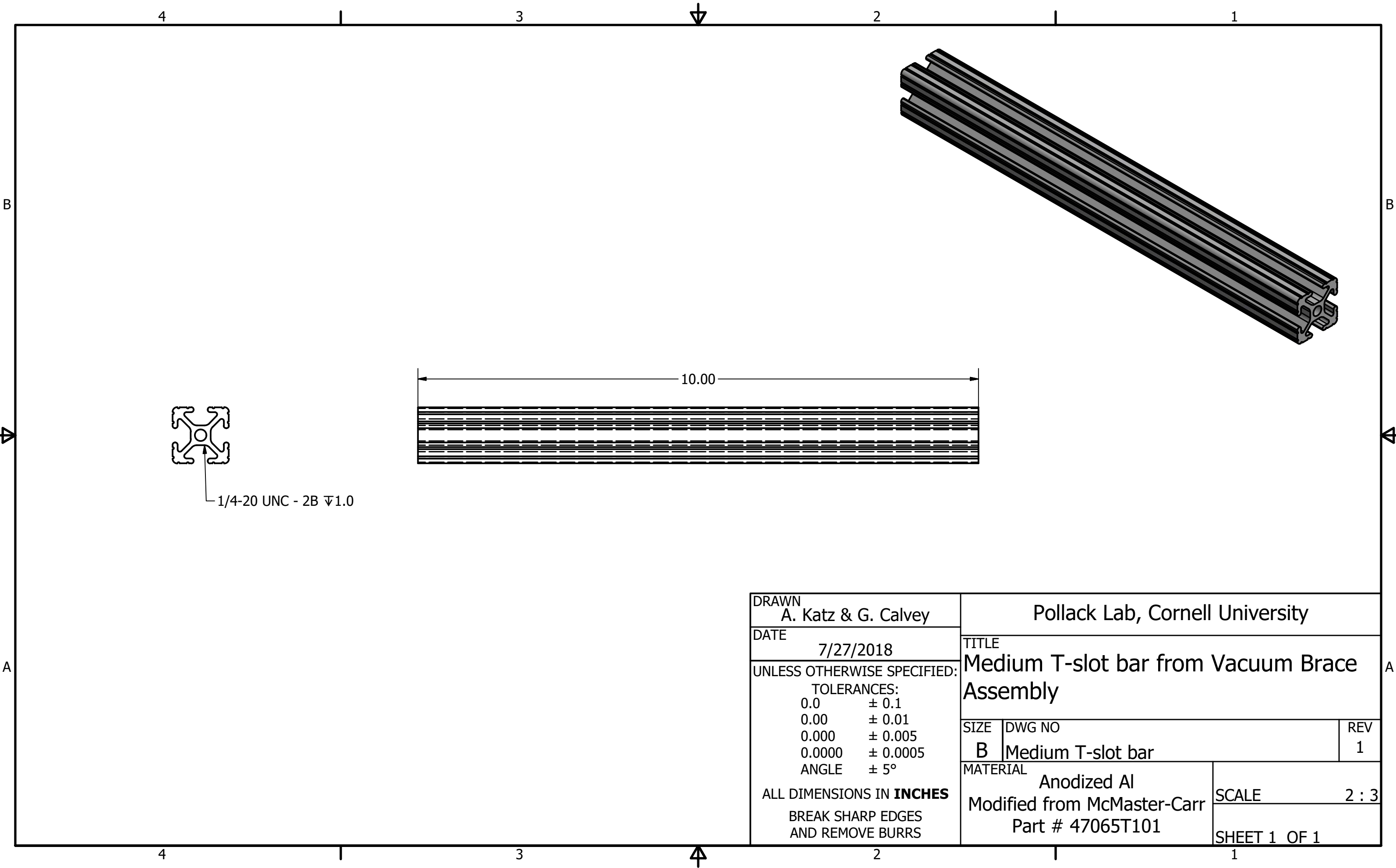
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/26/2018		TITLE Vacuum brace assembly from diffusive mixing beamline	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE D	REV 1
		MATERIAL --	
		SCALE	1 : 2
SHEET 1 OF 1			



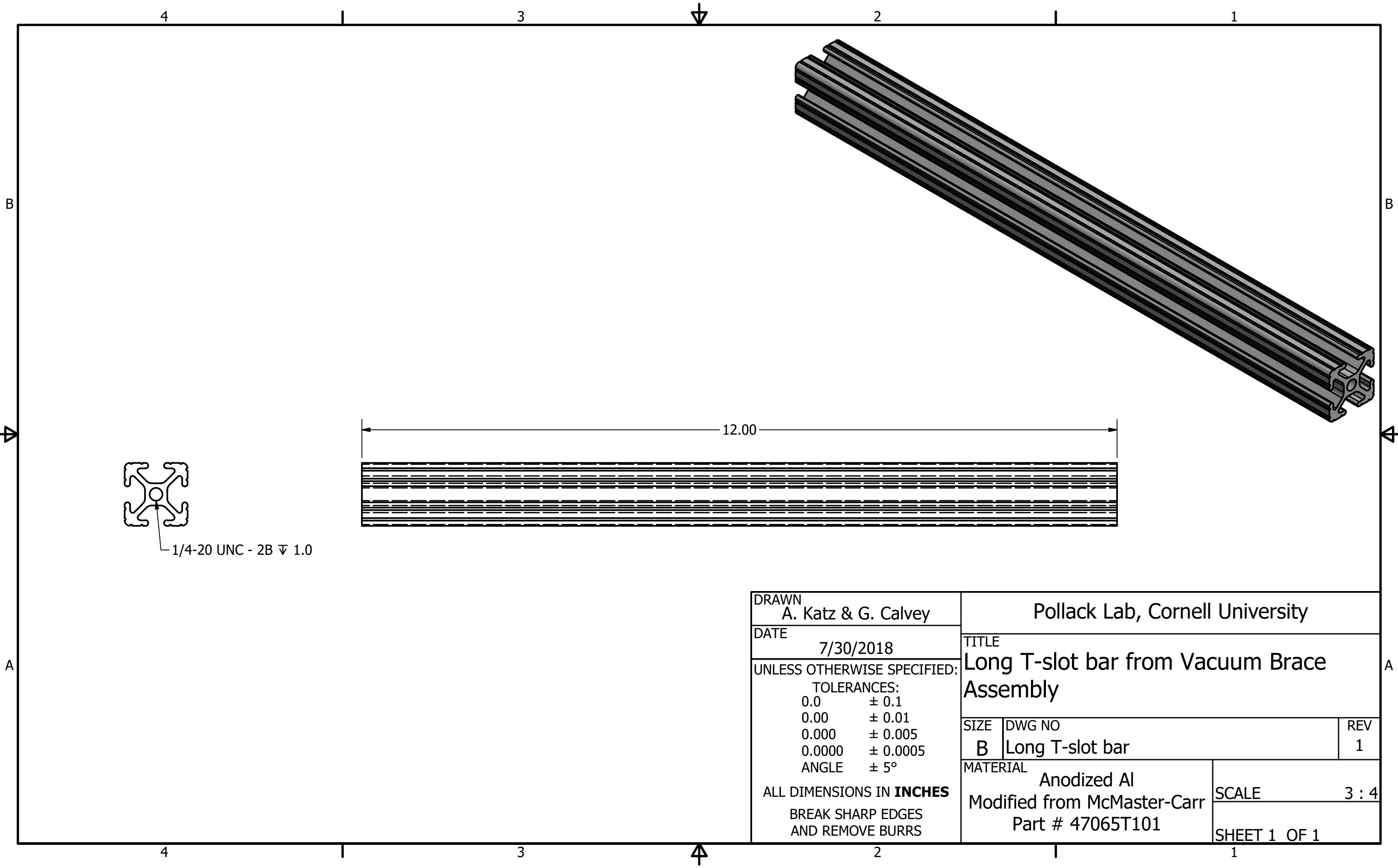
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 3/19/2017		TITLE Bellow attachment plate from Vacuum Brace Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Bellow attachment plate
		REV	
MATERIAL Aluminum 6061		SCALE 2:3	
		SHEET 1 OF 1	



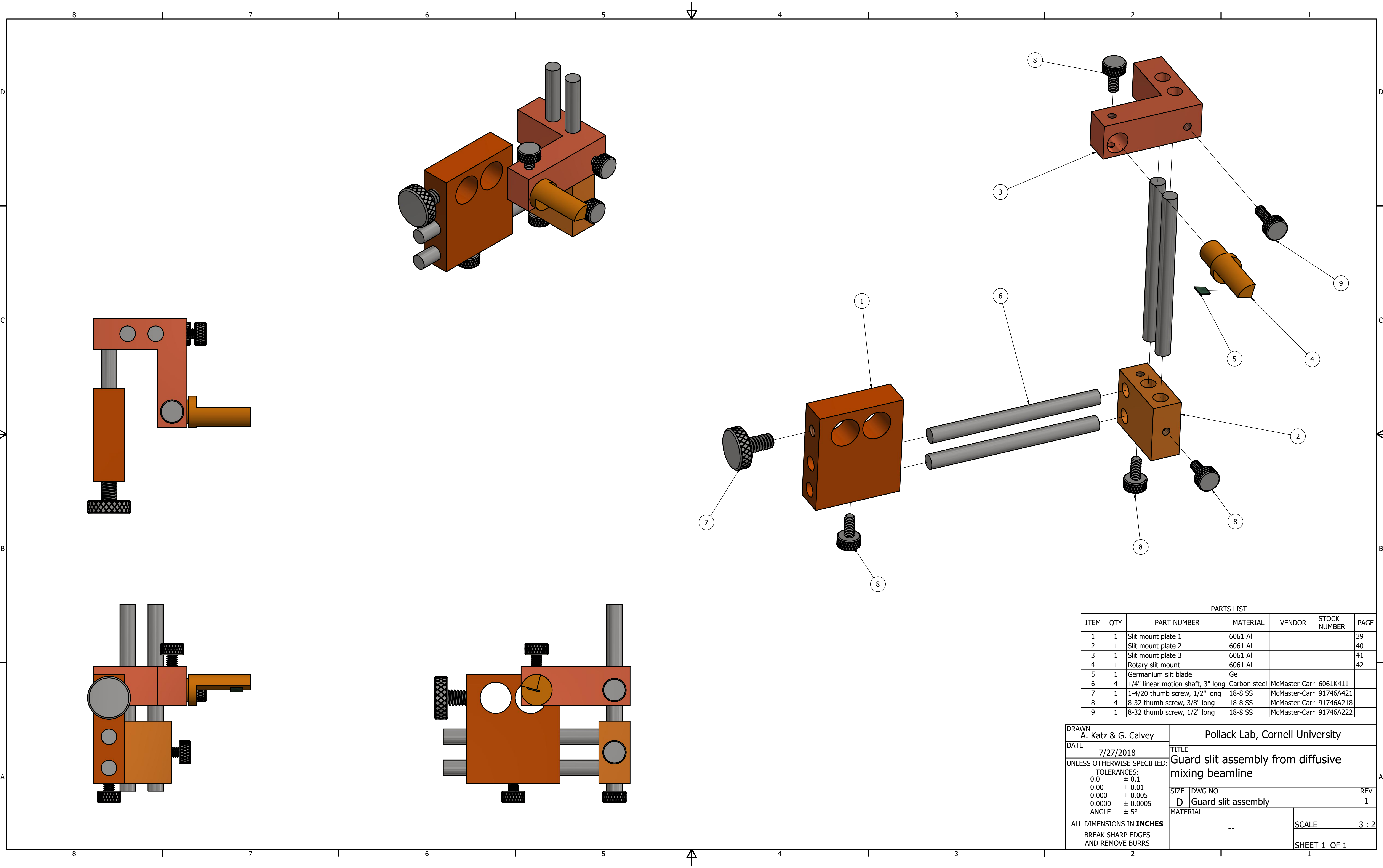
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/27/2018		TITLE Short T-slot bar from Vacuum Brace Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE DWG NO REV B Short T-slot bar 1	
		MATERIAL Anodized Al Modified from McMaster-Carr Part #47065T101	
		SCALE 1 : 1	
		SHEET 1 OF 1	

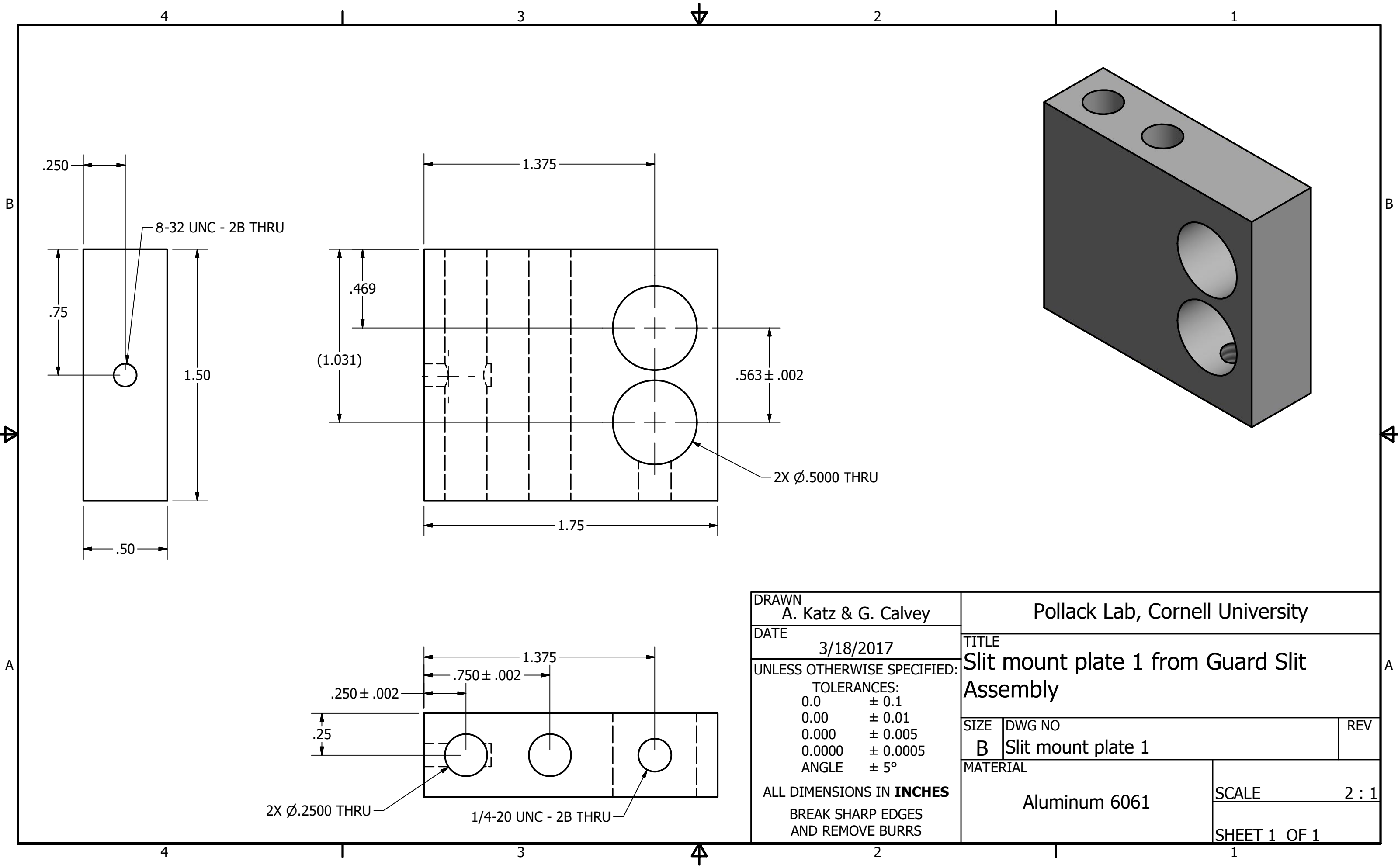


DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/27/2018		TITLE Medium T-slot bar from Vacuum Brace Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	REV 1
		MATERIAL Anodized Al Modified from McMaster-Carr Part # 47065T101	
		SCALE 2 : 3	
		SHEET 1 OF 1	



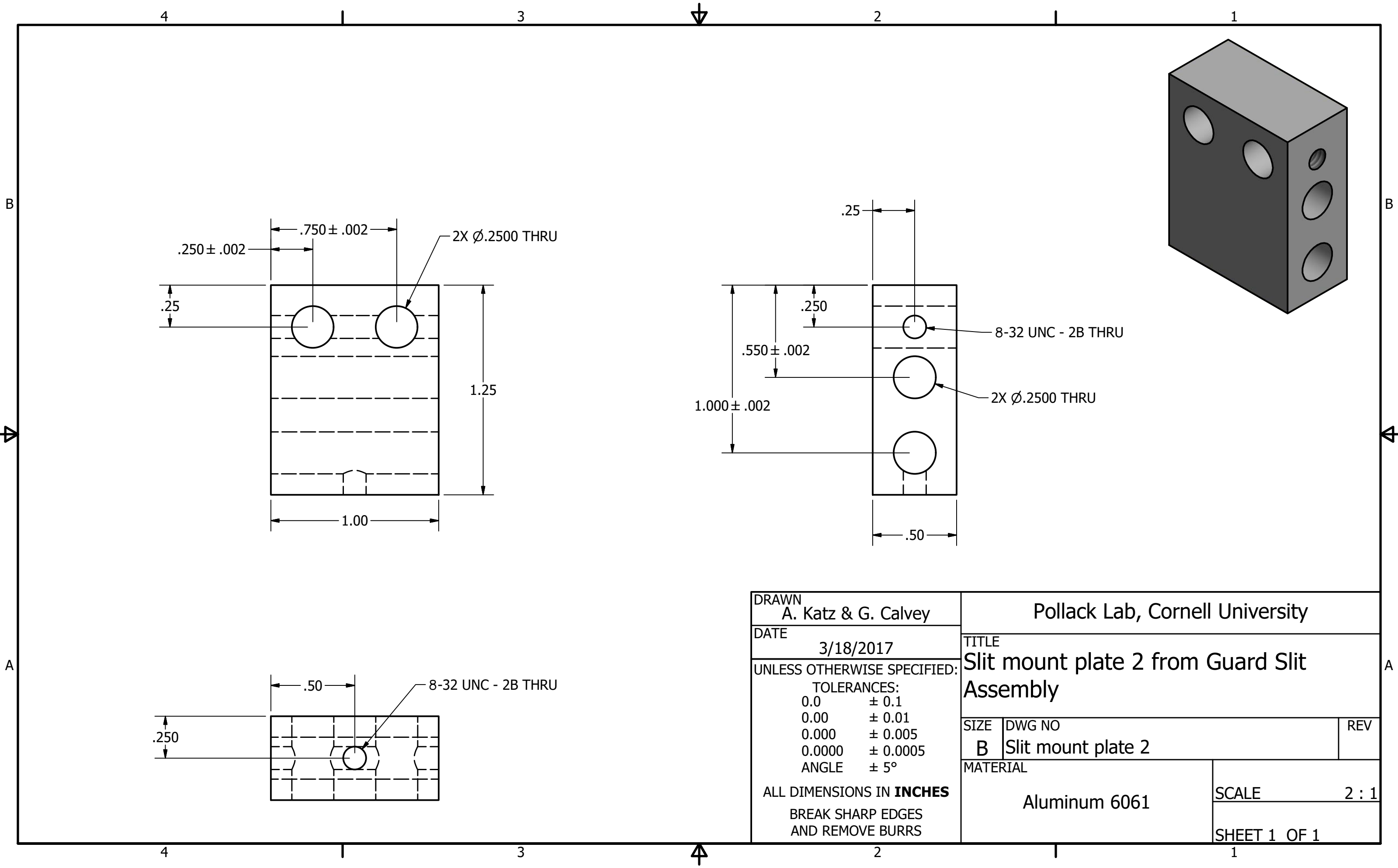
DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/30/2018		TITLE Long T-slot bar from Vacuum Brace Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Long T-slot bar
		MATERIAL Anodized Al Modified from McMaster-Carr Part # 47065T101	REV 1
		SCALE 3 : 4	
		SHEET 1 OF 1	





DRAWN	A. Katz & G. Calvey	
DATE	3/18/2017	
UNLESS OTHERWISE SPECIFIED:		
TOLERANCES:		
0.0	±	0.1
0.00	±	0.01
0.000	±	0.005
0.0000	±	0.0005
ANGLE	±	5°
ALL DIMENSIONS IN INCHES		
BREAK SHARP EDGES AND REMOVE BURRS		

Pollack Lab, Cornell University		
TITLE		
Slit mount plate 1 from Guard Slit Assembly		
SIZE	DWG NO	REV
B	Slit mount plate 1	
MATERIAL		
Aluminum 6061		
SCALE		2 : 1
SHEET 1 OF 1		



DRAWN
A. Katz & G. Calvey

DATE
3/18/2017

UNLESS OTHERWISE SPECIFIED:

TOLERANCES:

0.0 ± 0.1

0.00 ± 0.01

0.000 ± 0.005

0.0000 ± 0.0005

ANGLE ± 5°

ALL DIMENSIONS IN **INCHES**

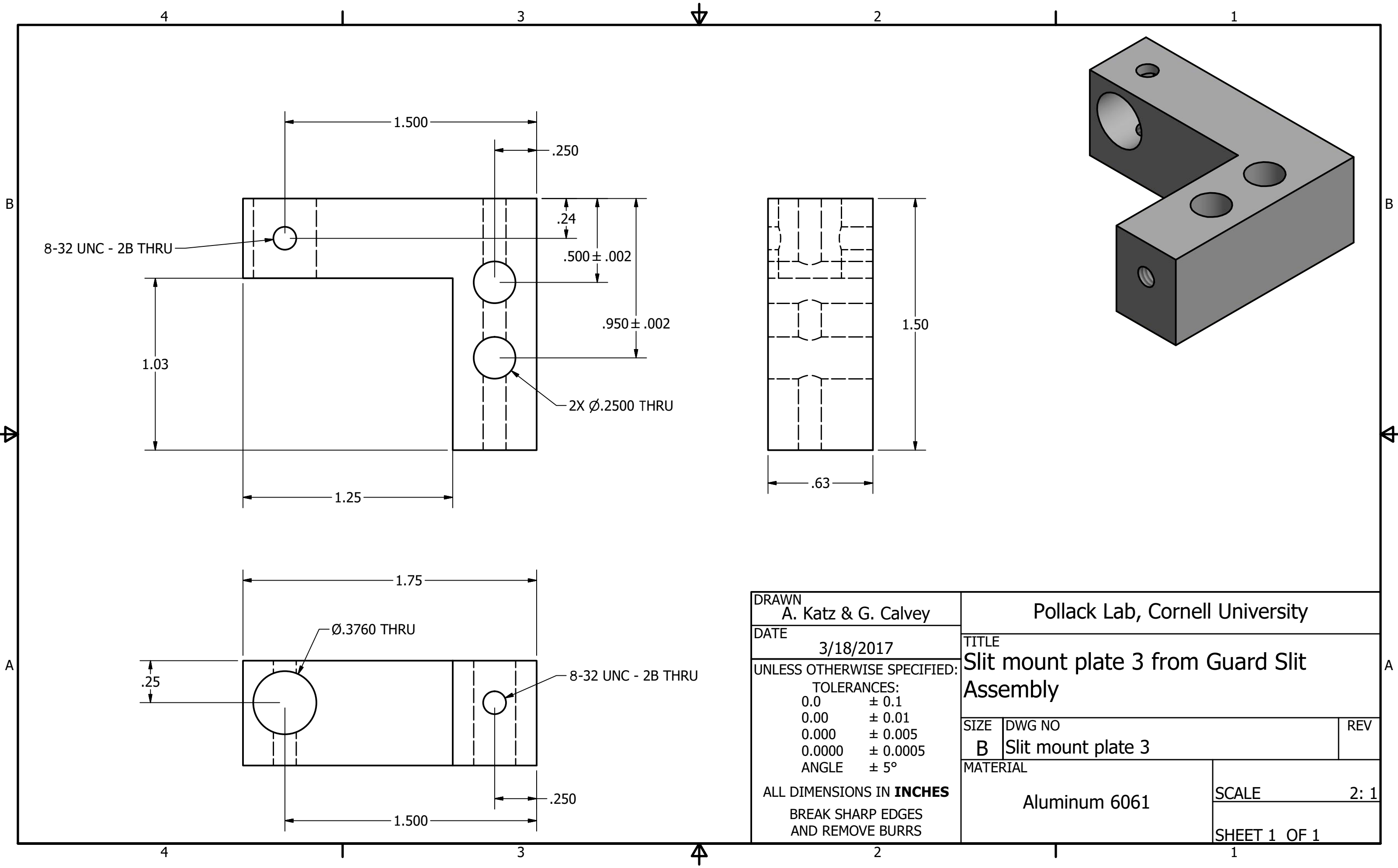
BREAK SHARP EDGES
AND REMOVE BURRS

Pollack Lab, Cornell University

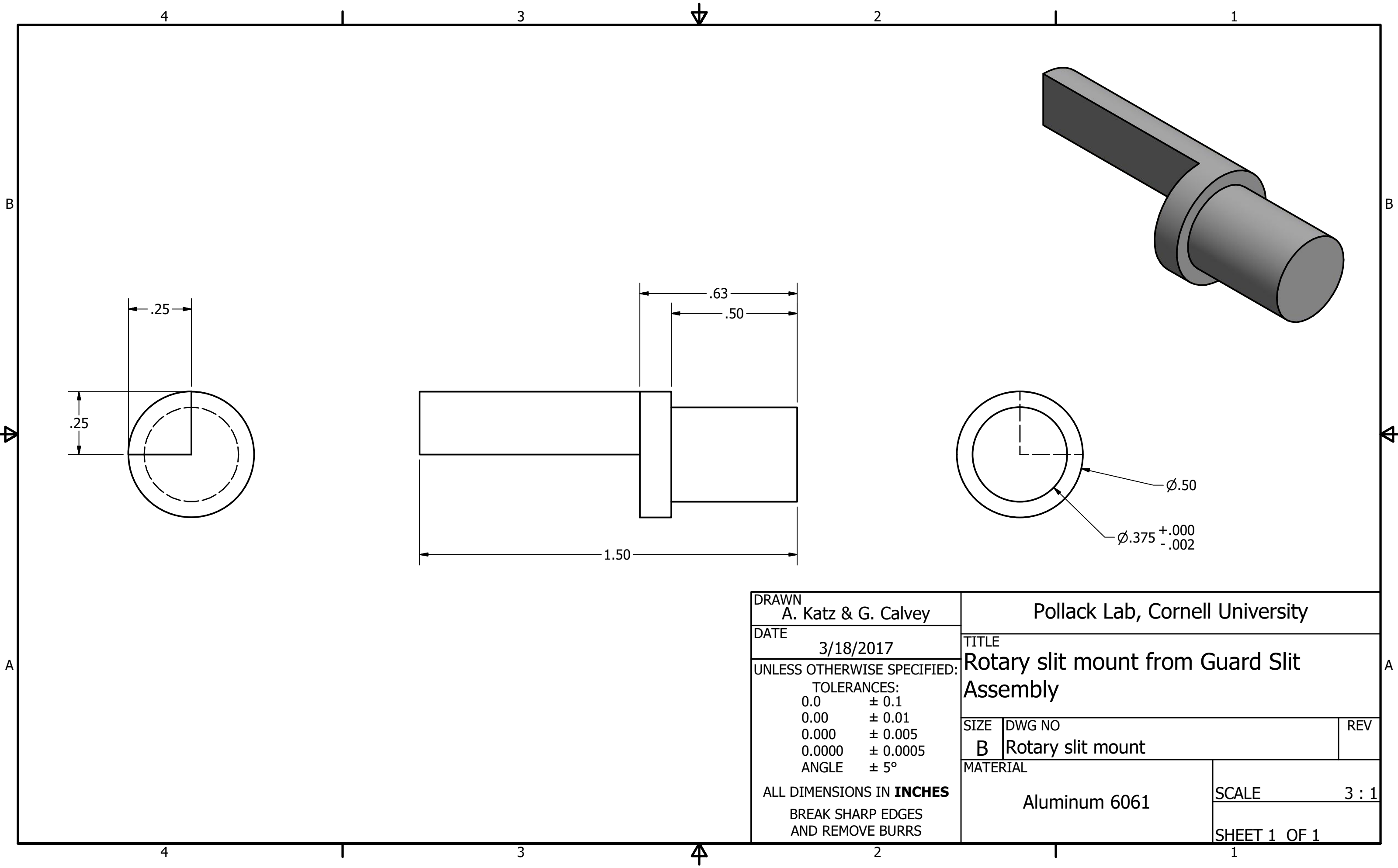
TITLE
Slit mount plate 2 from Guard Slit
Assembly

SIZE	DWG NO	REV
B	Slit mount plate 2	1

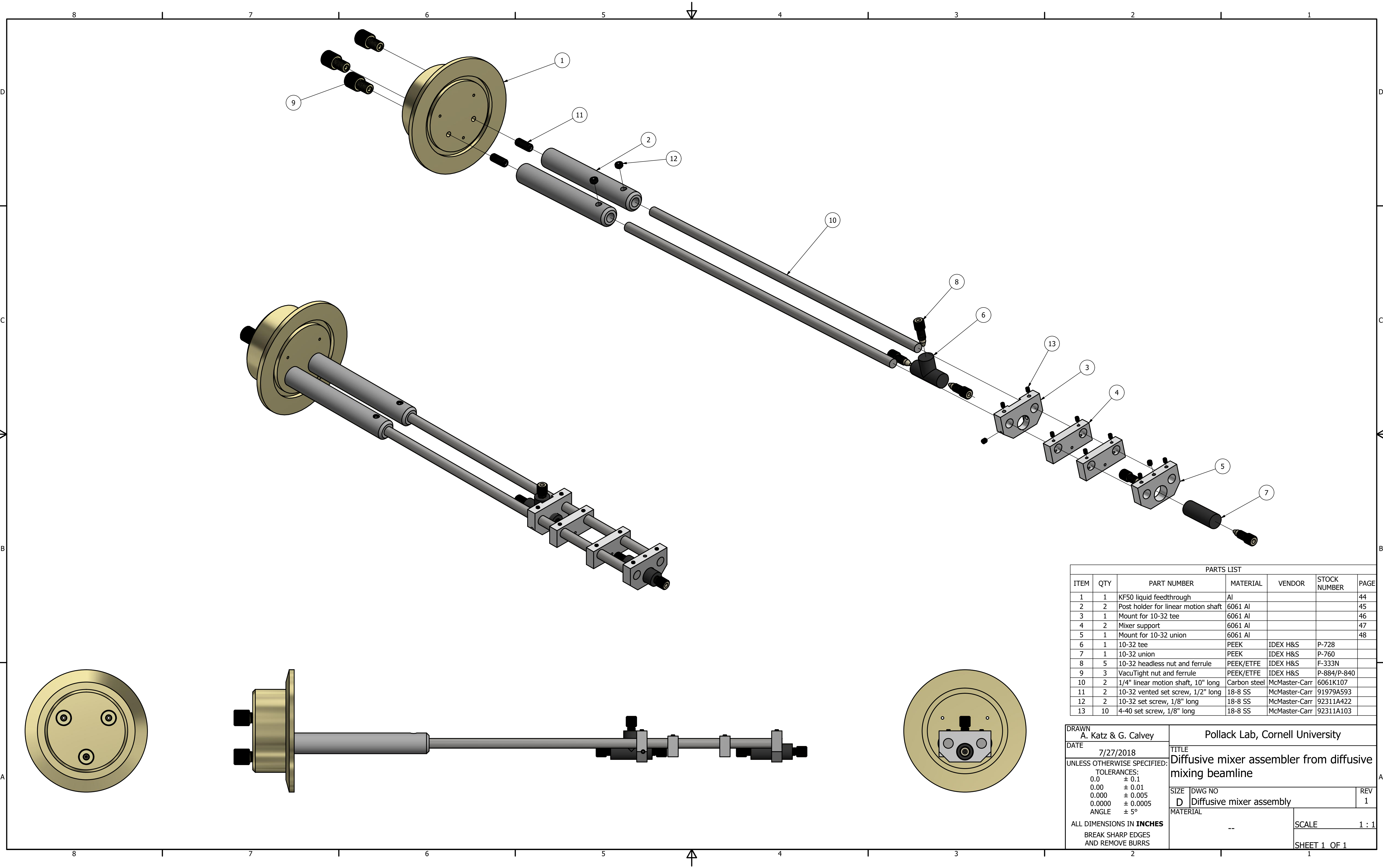
MATERIAL	Aluminum 6061	SCALE	2 : 1
		SHEET 1 OF 1	



DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 3/18/2017		TITLE Slit mount plate 3 from Guard Slit Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Slit mount plate 3
		REV	
MATERIAL Aluminum 6061		SCALE 2: 1	
		SHEET 1 OF 1	



DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 3/18/2017		TITLE Rotary slit mount from Guard Slit Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	REV
		DWG NO Rotary slit mount	
		MATERIAL Aluminum 6061	
		SCALE 3 : 1	
		SHEET 1 OF 1	



PARTS LIST						
ITEM	QTY	PART NUMBER	MATERIAL	VENDOR	STOCK NUMBER	PAGE
1	1	KF50 liquid feedthrough	Al			44
2	2	Post holder for linear motion shaft	6061 Al			45
3	1	Mount for 10-32 tee	6061 Al			46
4	2	Mixer support	6061 Al			47
5	1	Mount for 10-32 union	6061 Al			48
6	1	10-32 tee	PEEK	IDEX H&S	P-728	
7	1	10-32 union	PEEK	IDEX H&S	P-760	
8	5	10-32 headless nut and ferrule	PEEK/ETFE	IDEX H&S	F-333N	
9	3	VacuTight nut and ferrule	PEEK/ETFE	IDEX H&S	P-884/P-840	
10	2	1/4" linear motion shaft, 10" long	Carbon steel	McMaster-Carr	6061K107	
11	2	10-32 vented set screw, 1/2" long	18-8 SS	McMaster-Carr	91979A593	
12	2	10-32 set screw, 1/8" long	18-8 SS	McMaster-Carr	92311A422	
13	10	4-40 set screw, 1/8" long	18-8 SS	McMaster-Carr	92311A103	

DRAWN
A. Katz & G. Calvey

DATE
7/27/2018

UNLESS OTHERWISE SPECIFIED:
TOLERANCES:
0.0 ± 0.1
0.00 ± 0.01
0.000 ± 0.005
0.0000 ± 0.0005
ANGLE ± 5°
ALL DIMENSIONS IN **INCHES**
BREAK SHARP EDGES
AND REMOVE BURRS

Pollack Lab, Cornell University

TITLE
Diffusive mixer assembler from diffusive
mixing beamline

SIZE
D

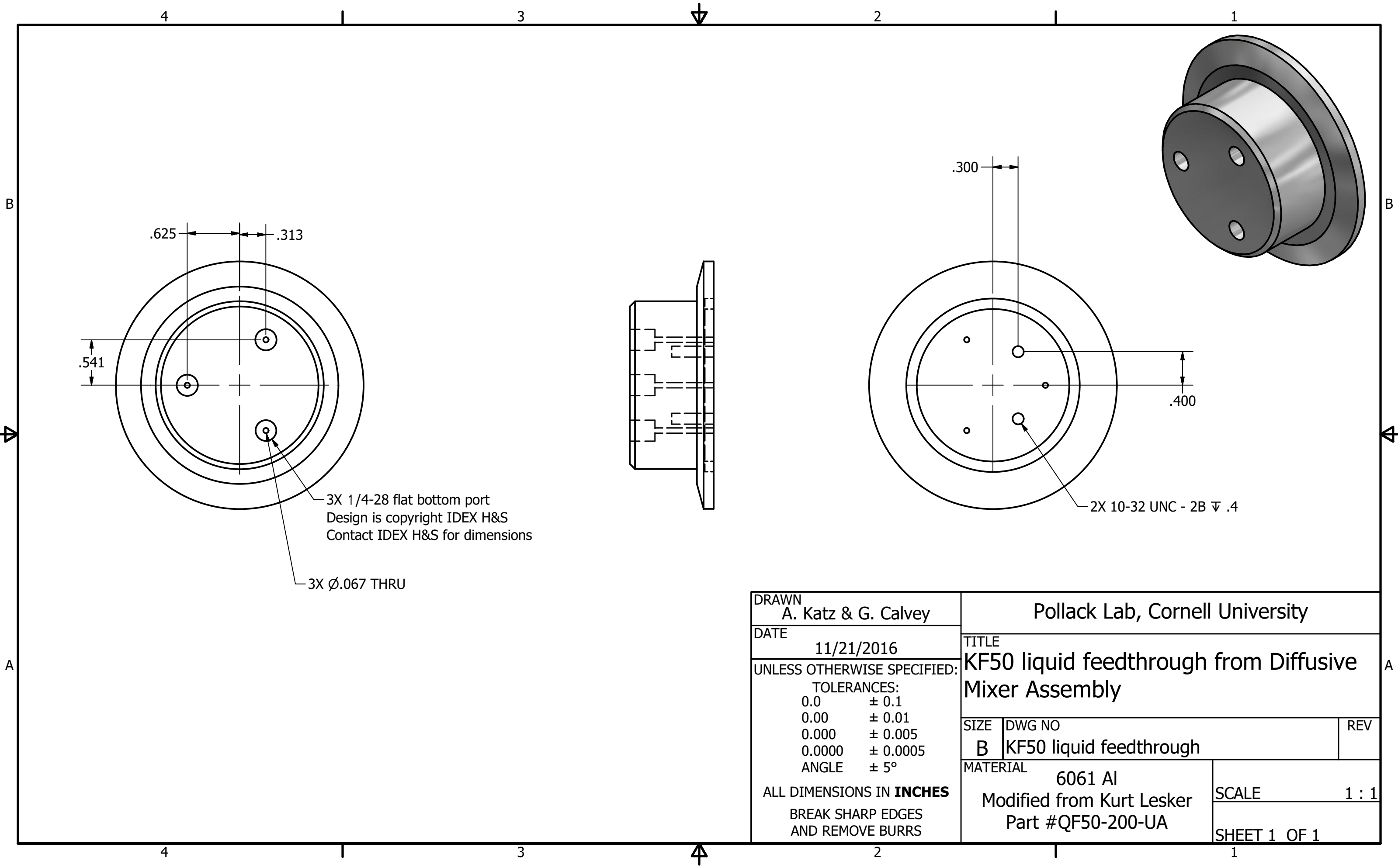
DWG NO
Diffusive mixer assembly

MATERIAL
--

REV
1

SCALE
1 : 1

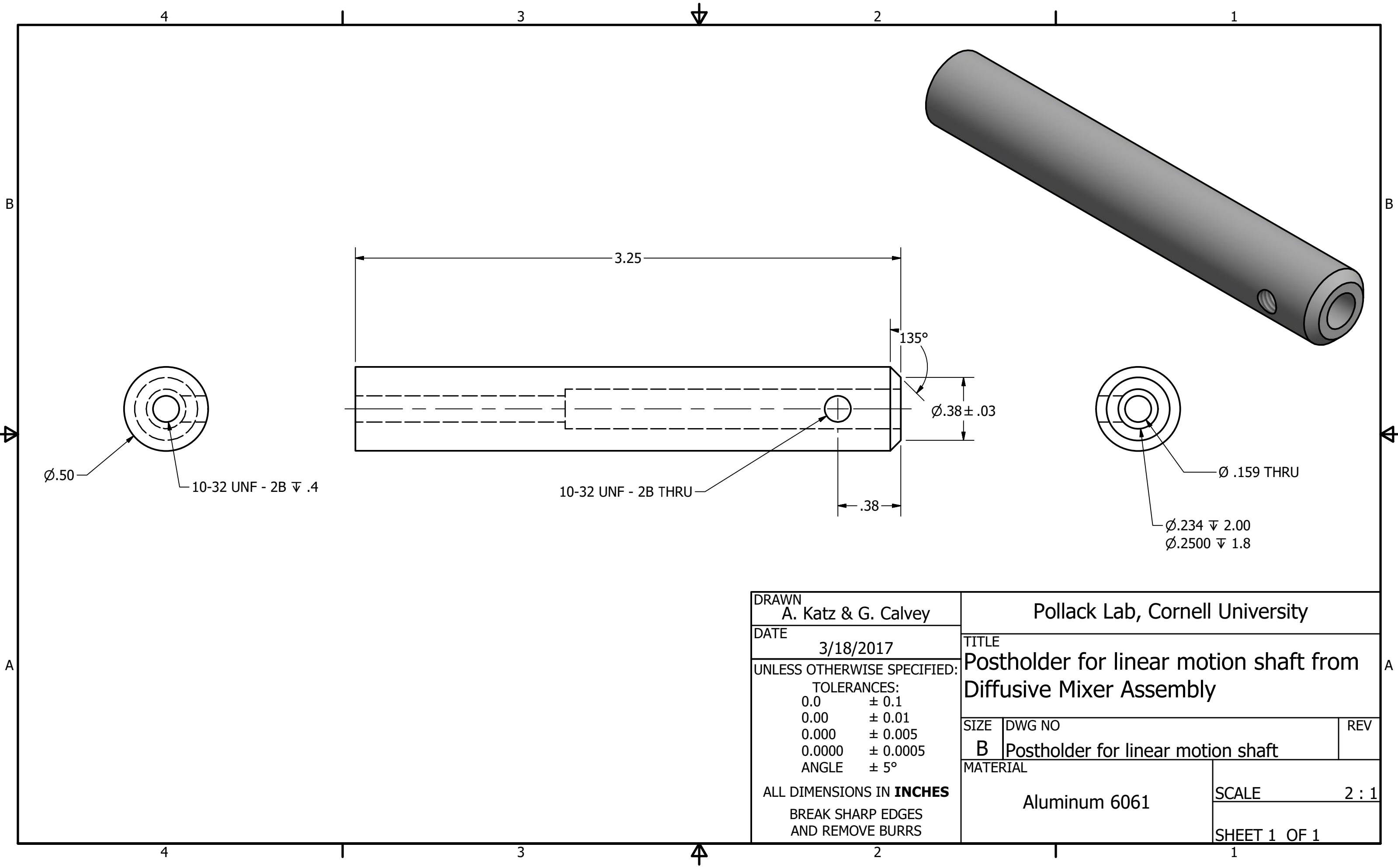
SHEET 1 OF 1



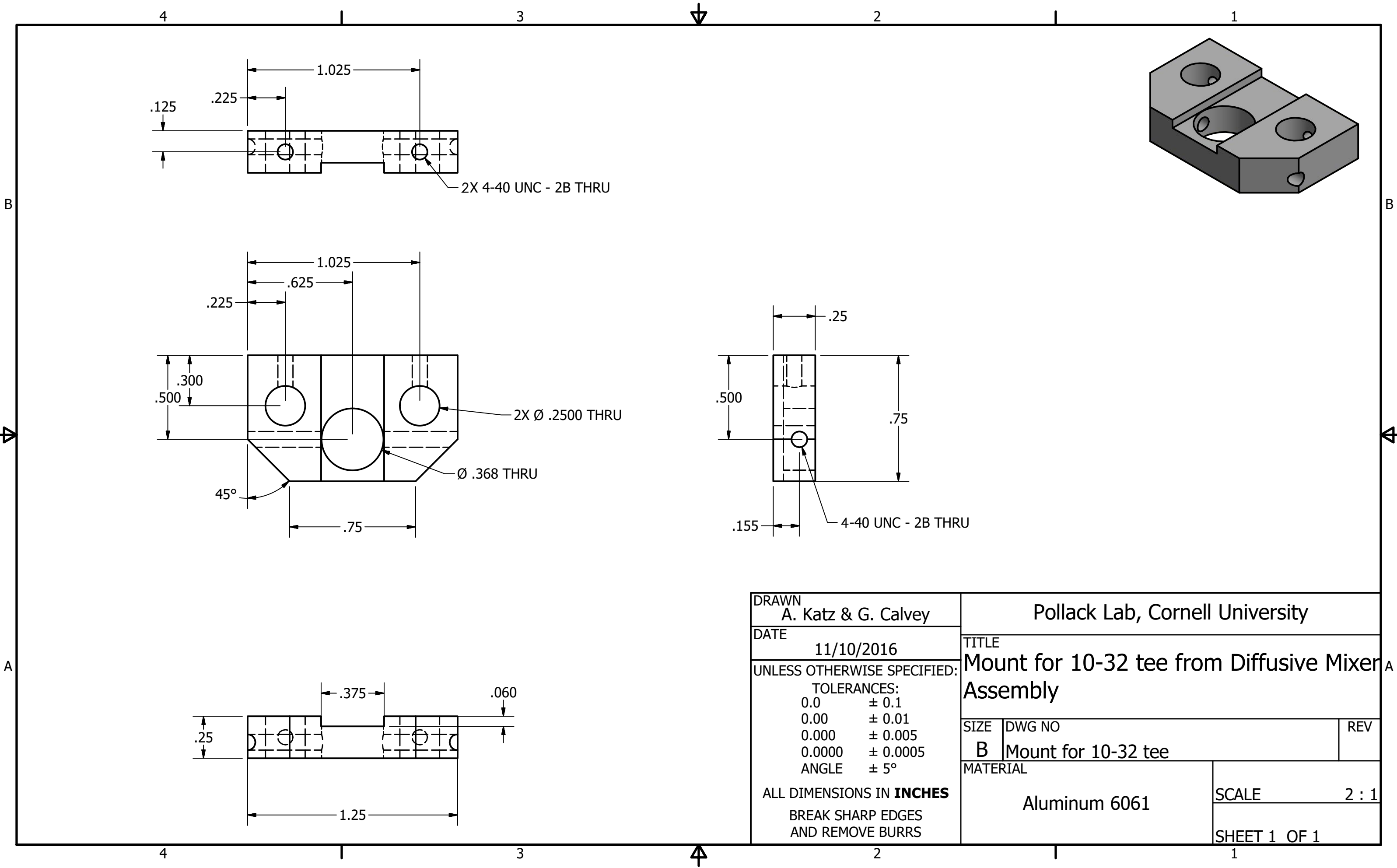
3X 1/4-28 flat bottom port
Design is copyright IDEX H&S
Contact IDEX H&S for dimensions

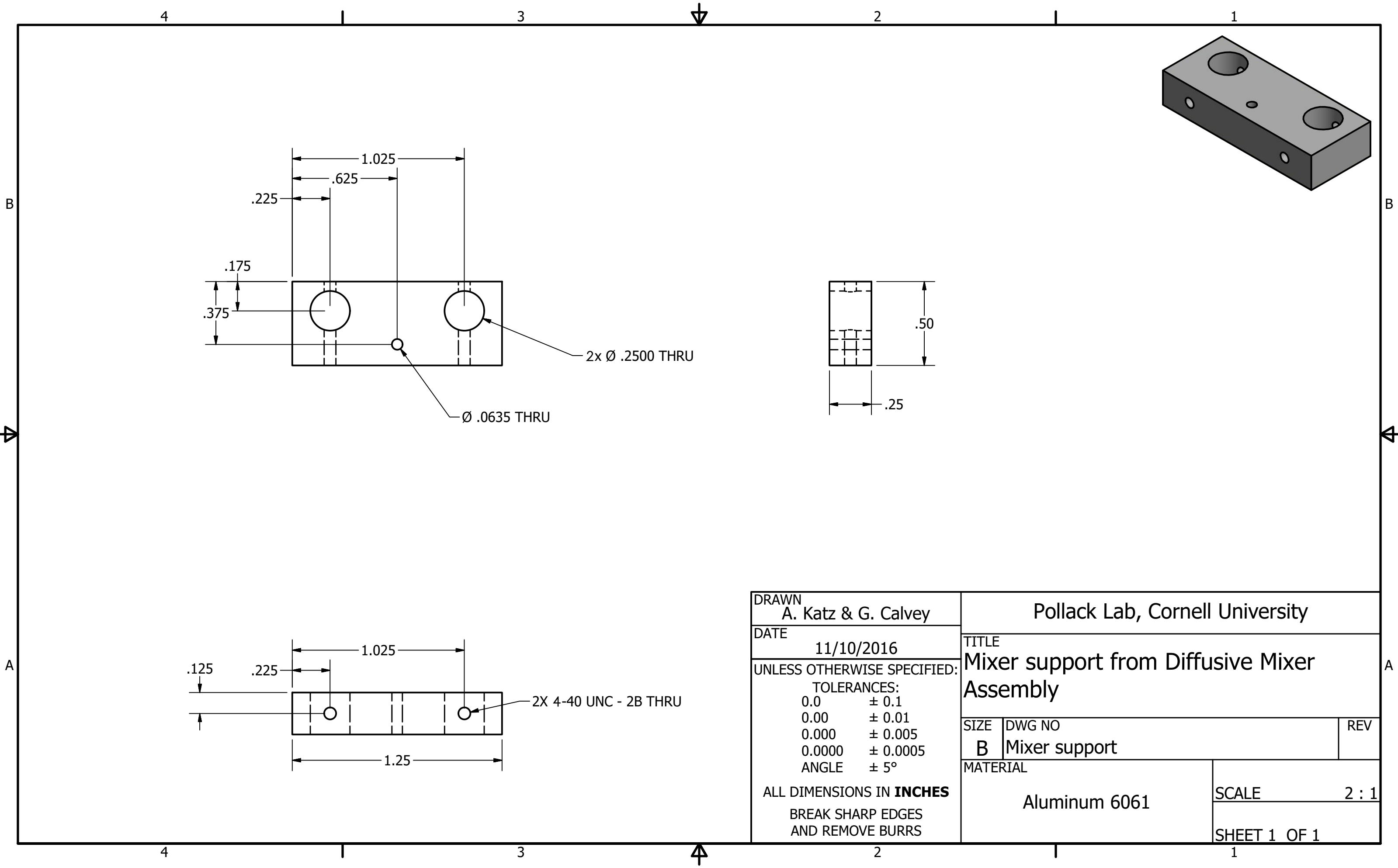
3X Ø.067 THRU

DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 11/21/2016		TITLE KF50 liquid feedthrough from Diffusive Mixer Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE	DWG NO
		B	KF50 liquid feedthrough
		REV	
		MATERIAL 6061 Al Modified from Kurt Lesker Part #QF50-200-UA	
		SCALE 1 : 1	
		SHEET 1 OF 1	

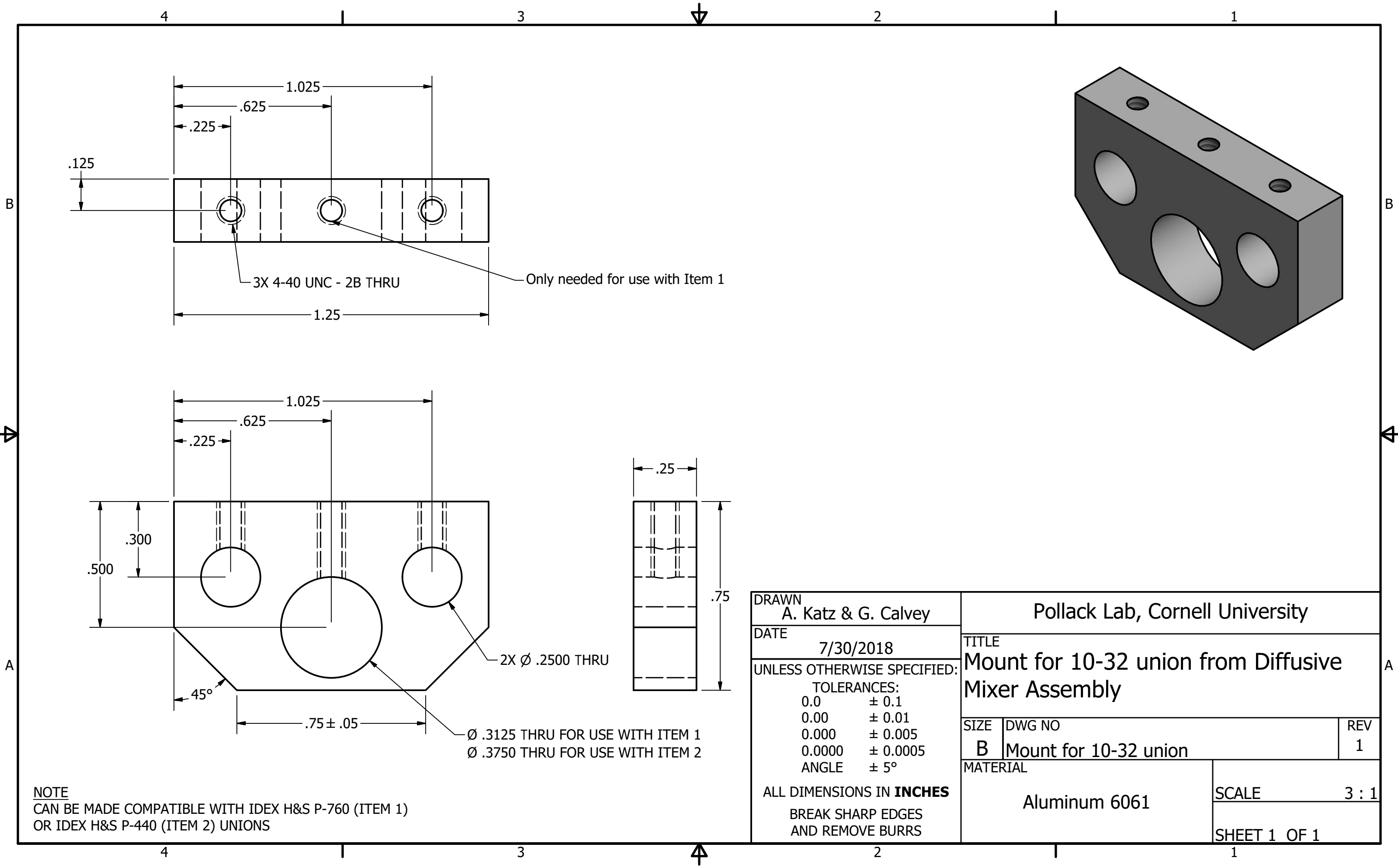


DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 3/18/2017		TITLE Postholder for linear motion shaft from Diffusive Mixer Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Postholder for linear motion shaft
		MATERIAL Aluminum 6061	REV 2 : 1
		SHEET 1 OF 1	





DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 11/10/2016		TITLE Mixer support from Diffusive Mixer Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Mixer support
		REV	
		MATERIAL Aluminum 6061	
		SCALE 2 : 1	
		SHEET 1 OF 1	



B

A

B

A

NOTE
CAN BE MADE COMPATIBLE WITH IDEX H&S P-760 (ITEM 1)
OR IDEX H&S P-440 (ITEM 2) UNIONS

DRAWN A. Katz & G. Calvey		Pollack Lab, Cornell University	
DATE 7/30/2018		TITLE Mount for 10-32 union from Diffusive Mixer Assembly	
UNLESS OTHERWISE SPECIFIED: TOLERANCES: 0.0 ± 0.1 0.00 ± 0.01 0.000 ± 0.005 0.0000 ± 0.0005 ANGLE ± 5° ALL DIMENSIONS IN INCHES BREAK SHARP EDGES AND REMOVE BURRS		SIZE B	DWG NO Mount for 10-32 union
		REV 1	
MATERIAL Aluminum 6061		SCALE 3 : 1	
		SHEET 1 OF 1	