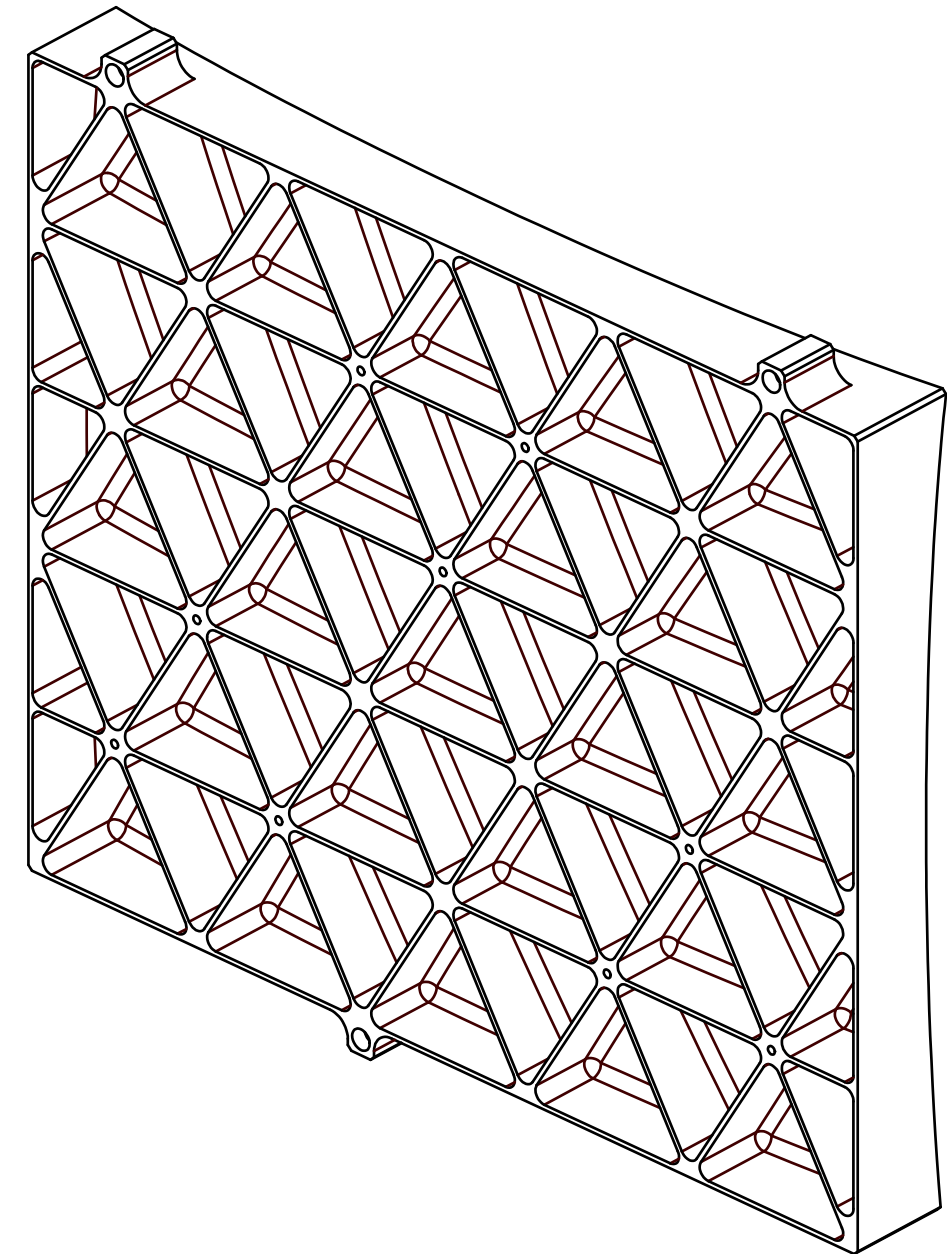



REVISION HISTORY				
REV	DESCRIPTION	DATE	REVISED BY	APPROVED
A	INITIAL RELEASE		A. FERN	N. EMERSON

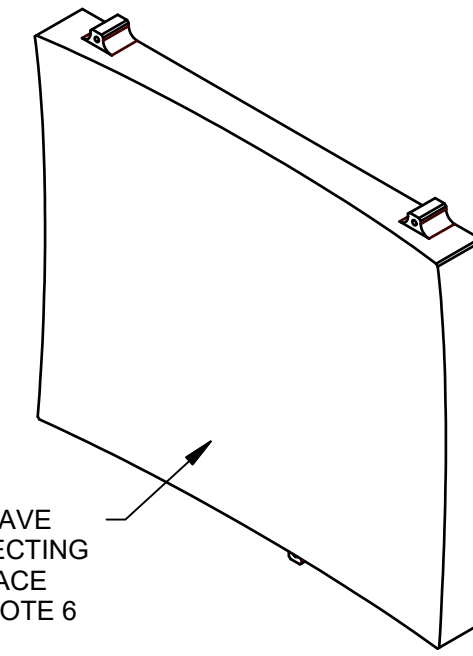
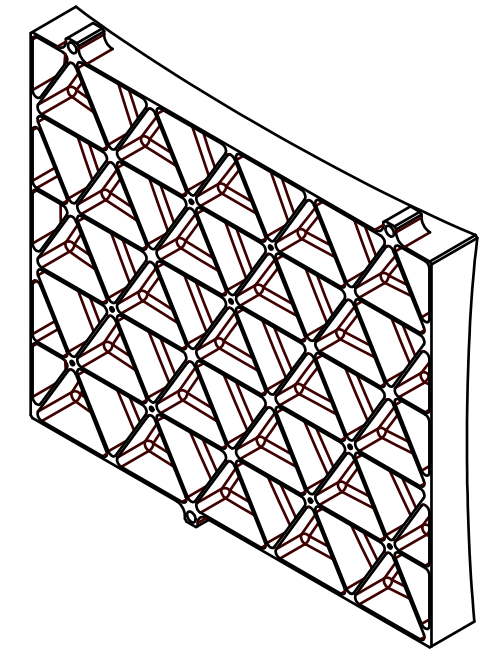
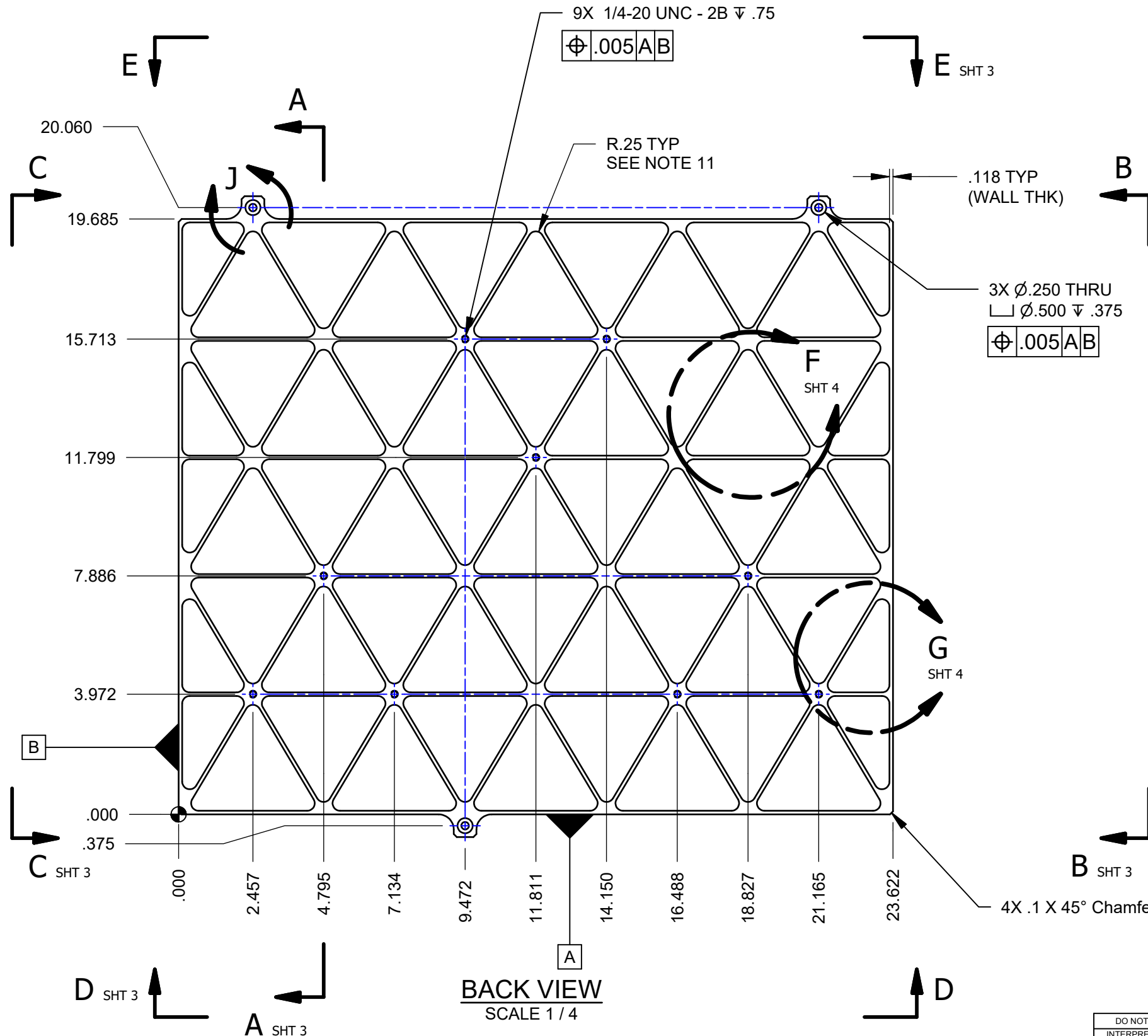
NOTES:

- 1) BREAK SHARP EDGES AND DEBURR.
- 2) ALL MACHINING FILLETS TO BE R.25 MAX UNLESS OTHERWISE SPECIFIED.
- 3) ALL MACHINED SURFACES TO BE 125 RMS OR BETTER, WITH EXCEPTION OF REFLECTING SURFACE INDICATED BY NOTE 6.
- 4) 3D MODEL WILL BE PROVIDED AND USED TO MANUFACTURE THIS PART.
- 5) DRAWING PROVIDES BASIC ENVELOPE DIMENSIONS AND KEY FEATURE CONTROL TOLERANCE CALLOUTS ONLY.
- 6) ROUGHNESS AND ACCURACY OF INDICATED SURFACE DEFINED IN ATTACHED MIRROR SPEC DOCUMENT. FREEFORM SHAPE DEFINED BY STEP MODEL.
- 7) MEASUREMENT OF REFLECTING SURFACE TO BE PERFORMED WITH MIRROR SIMPLY SUPPORTED AT THREE LOCATIONS AS INDICATED ON THE REAR SURFACE, USING TOOLING BALL OR SIMILAR TO AVOID UNINTENTIONAL BENDING OF MIRROR DURING MEASUREMENT. ADAPTOR PLATES AT EACH OF THESE THREE LOCATIONS ARE BOLTED TO THE PANEL AT 3 CORRESPONDING BOLTHOLES.
- 8) THE ADAPTOR PLATES (SUGGESTED PLATE GEOMETRY AS SHOWN) SHOULD BE OFFSET FROM THE BACK OF THE PANEL TO LIMIT THE CONTACT ZONE TO THE AREA AROUND EACH THREADED HOLE
- 9) SUPPORT OF THE PANEL DURING MACHINING CAN BE EITHER USING THE MEASUREMENT ADAPTOR PLATES, OR BY OTHER APPROPRIATE MEANS AT THE DISCRETION OF THE FABRICATOR.
- 10) SHEET 6 DEFINES THE OPTICAL CENTER AND COORDINATE SYSTEM ORIENTATION OF THE MIRROR. THIS POSITION AND ORIENTATION TO BE USED FOR CMM MEASUREMENT. Z POSITION OF OPTICAL CENTER IS IN THE PLANE OF THE THREE REFERENCE TABS.
- 11) TYPICAL (MINIMUM) MACHINING RADIUS SHOWN. A LARGER MACHINING RADIUS BETWEEN RIBS (UP TO 0.375in) IS ACCEPTABLE TO SIMPLIFY MACHINABILITY. STEP MODEL OF MIRROR CAN BE UPDATED ON REQUEST TO INCORPORATE PREFERRED RADIUS.
- 12) TYPICAL RADIUS SHOWN. RADIUS CAN BE ALTERED TO SIMPLIFY MACHINABILITY. SHARP CORNERS ARE ACCEPTABLE. STEP MODEL CAN BE UPDATED ON REQUEST TO INCORPORATE PREFERRED RADIUS.
- 13) LARGER MACHINING STEPS ON CURVED BACK SIDE ARE ACCEPTABLE, WITH STEP HEIGHTS UP TO 0.02in WITH PRIOR APPROVAL FROM UA.



NOTE: THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND CAN NOT BE DISCLOSED WITHOUT THE WRITTEN CONSENT OF STEWARD OBSERVATORY.

DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		 Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 <small>DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>		ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:	
		DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME	
		DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR P1	
		CHECKED BY: A. FERN	DATE: 5/30/2018		
		APPROVED: N. EMERSON	DATE: 5/30/2018		
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		APPROVED:	DATE:	DRAWING NUMBER: 26624	
FINISH:		APPROVED:	DATE:	SHEET 1 of 6	
		ASSEMBLY APPLICATION	APPROVED:	REVISION: A	



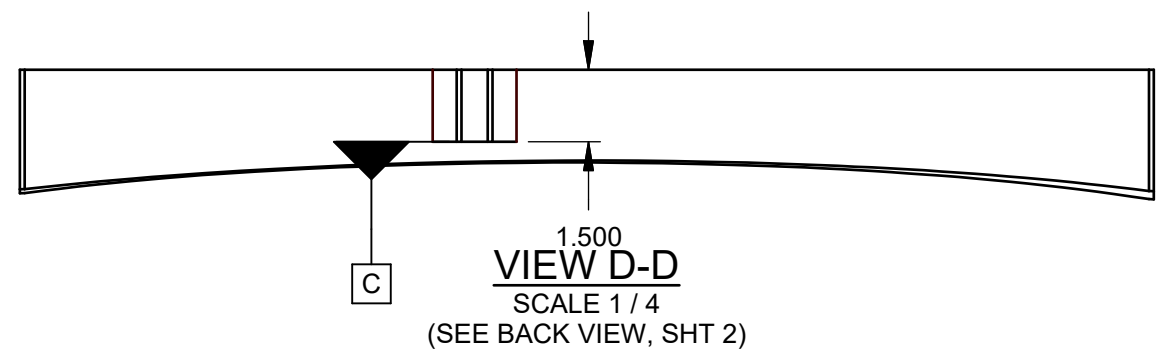
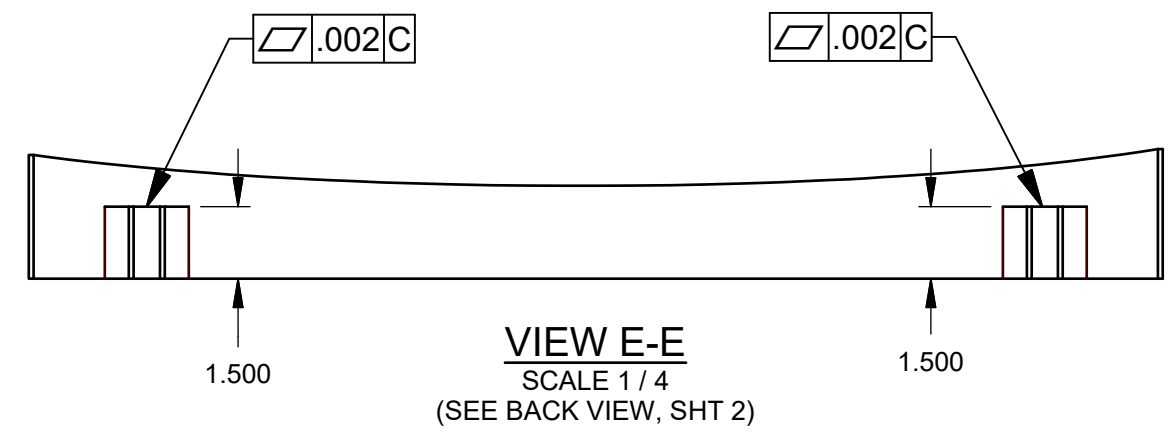
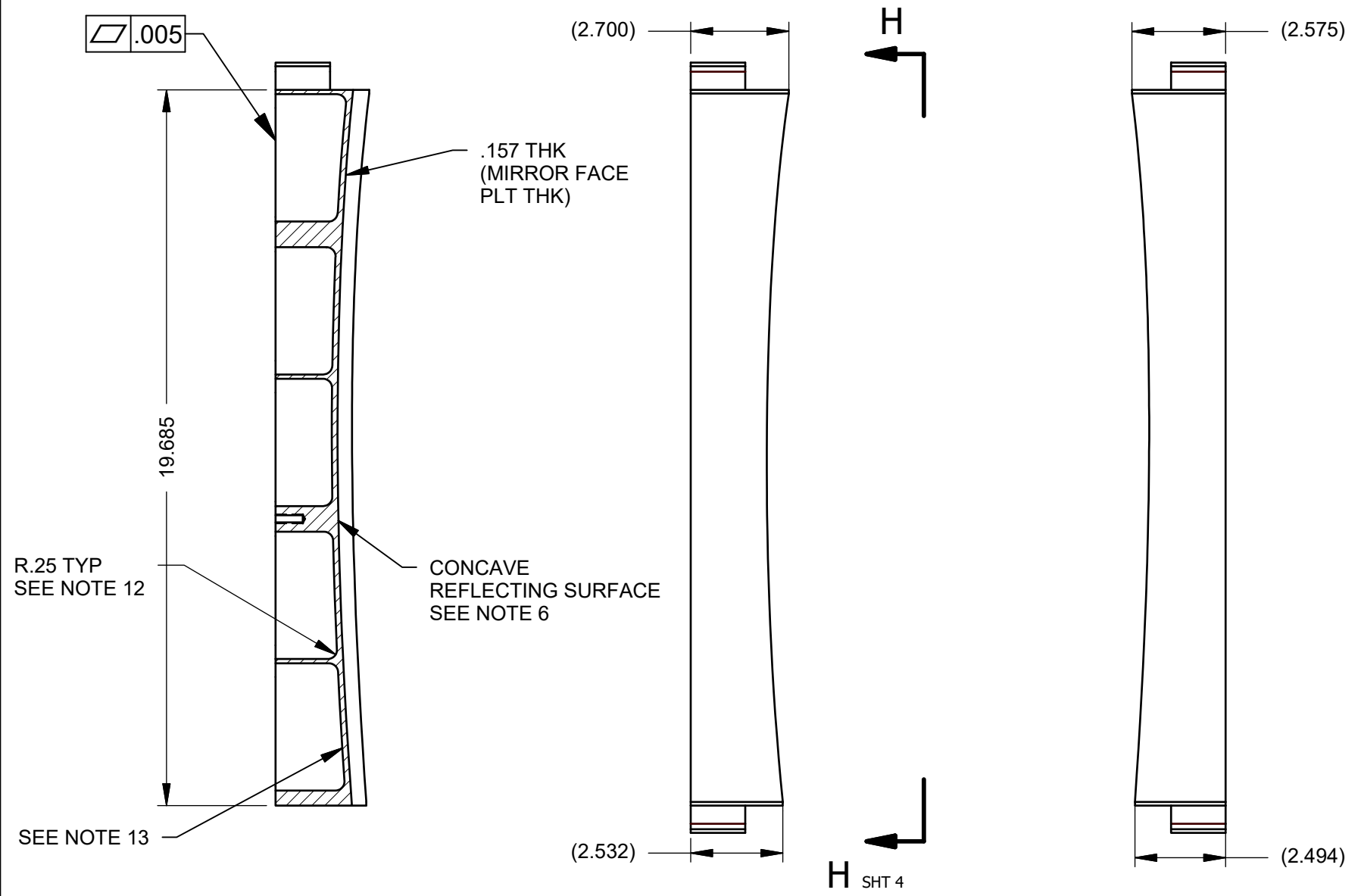
CONCAVE REFLECTING SURFACE
SEE NOTE 6

ISO VIEW - FRONT
SCALE 1 / 8

BACK VIEW
SCALE 1 / 4

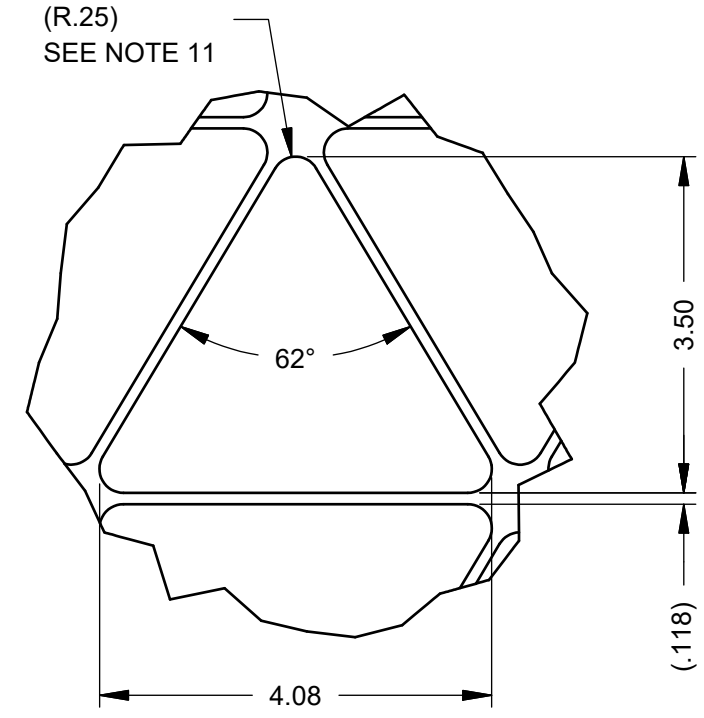
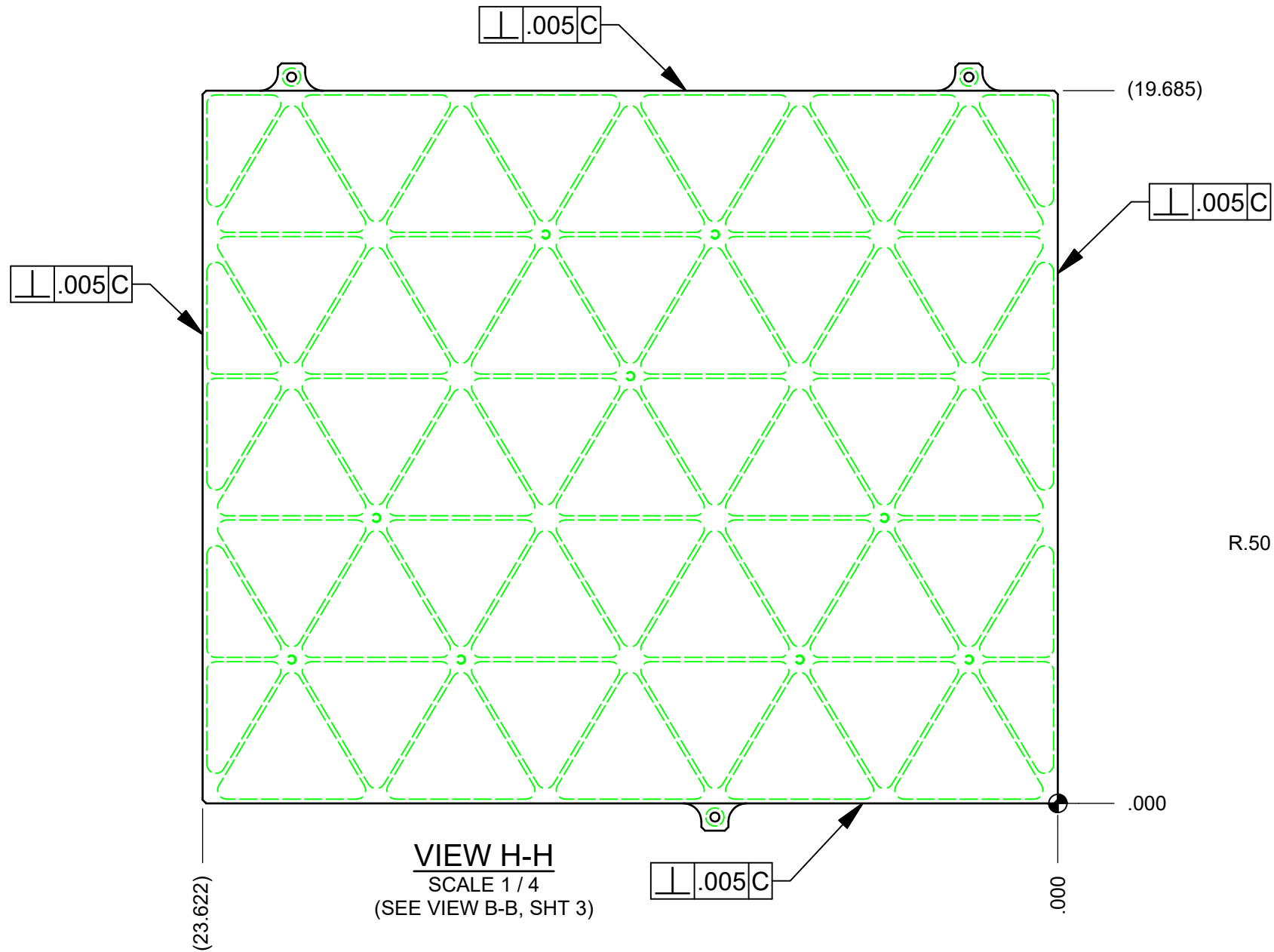
DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR .X = ± .1 .XX = ± .01 .XXX = ± .005 ANGULAR ± .5° DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC		ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM	FINISH:	DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME	
		DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR P1	
		CHECKED BY: A. FERN	DATE: 5/30/2018		
		APPROVED: N. EMERSON	DATE: 5/30/2018		
		APPROVED:	DATE:	DRAWING NUMBER:	REVISION:
		NEXT ASSY	USED ON	26624	A
		ASSEMBLY APPLICATION			

NOTE: THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND CAN NOT BE DISCLOSED WITHOUT THE WRITTEN CONSENT OF STEWARD OBSERVATORY.

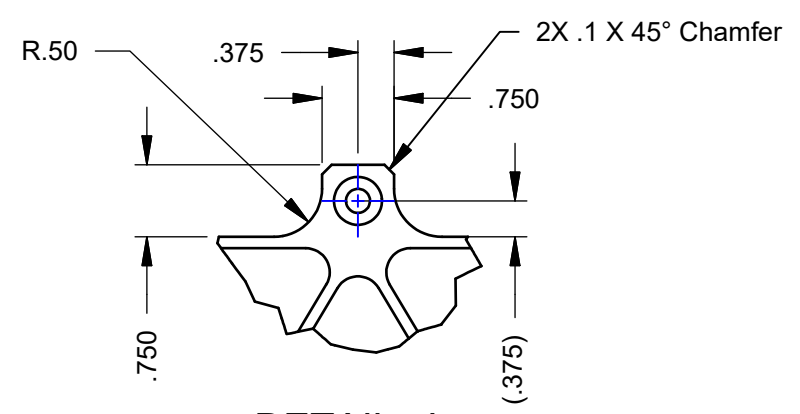


DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94	THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>	Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 DIAMETRICAL : SEE SPEC S-002 <small>DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>	ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:
	DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME
	DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR P1
	CHECKED BY: A. FERN	DATE: 5/30/2018	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM	APPROVED: N. EMERSON	DATE: 5/30/2018	DRAWING NUMBER: 26624
FINISH:	TIME NEXT ASSY USED ON	APPROVED:	DATE:
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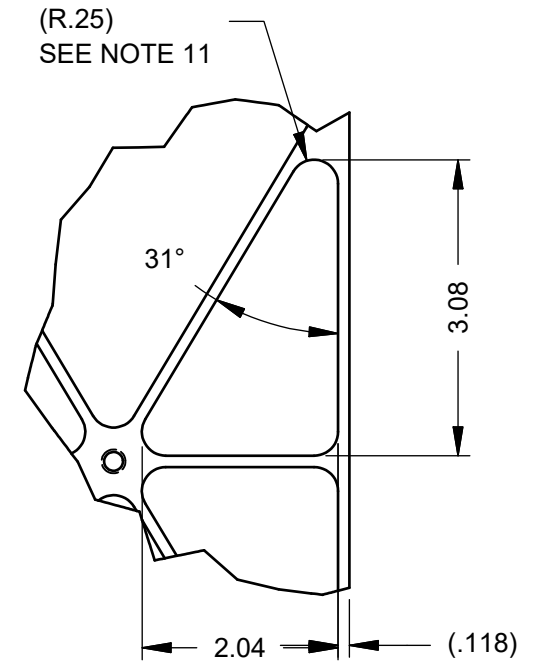
NOTE: THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND CAN NOT BE DISCLOSED WITHOUT THE WRITTEN CONSENT OF STEWARD OBSERVATORY.



DETAIL F
SCALE 1/2
(TYP LARGE TRIANGLE DETAIL)
(SEE BACK VIEW, SHT 2)



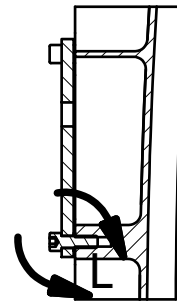
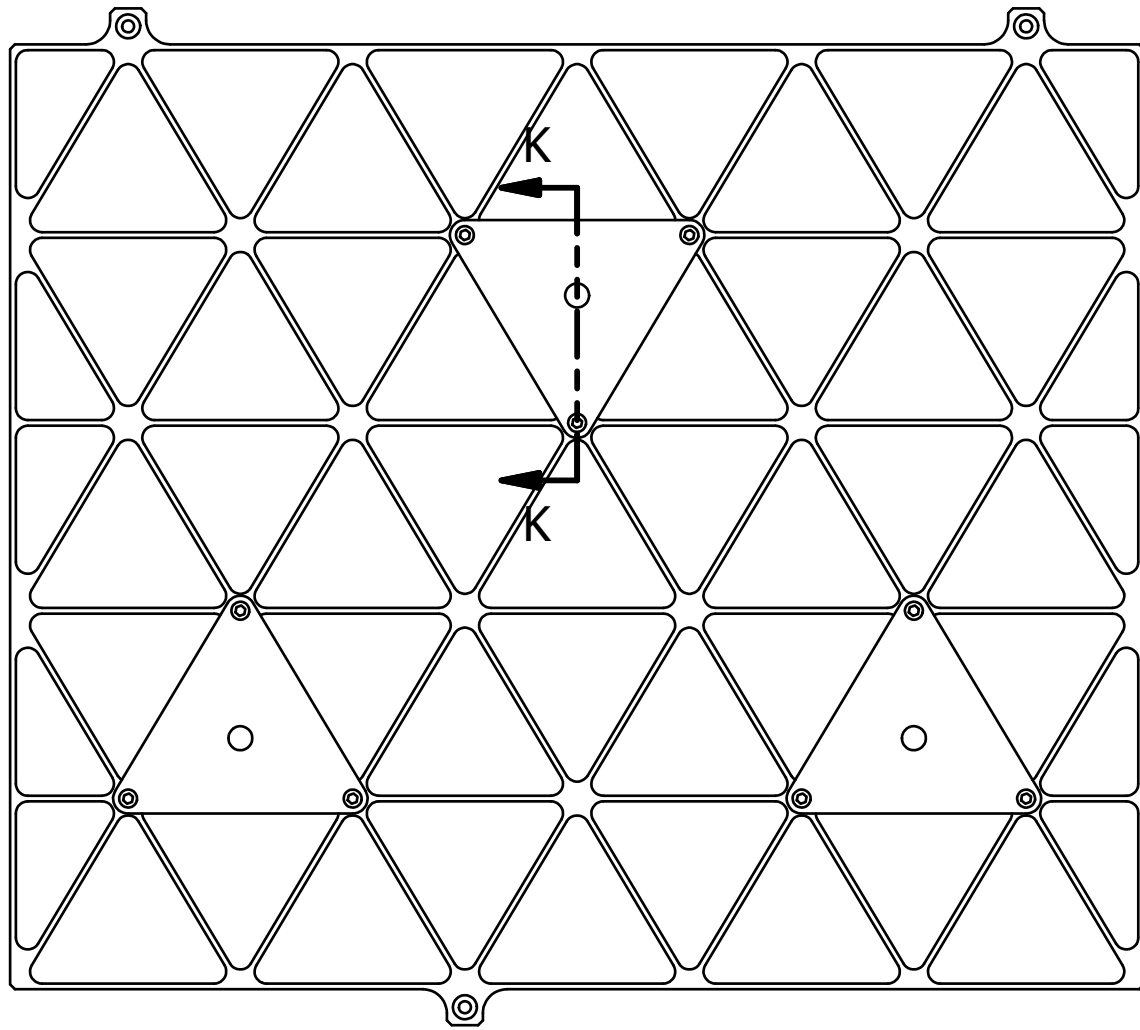
DETAIL J
SCALE 1/2
(TYP REFERENCE TAB)
(SEE BACK VIEW, SHT 2)



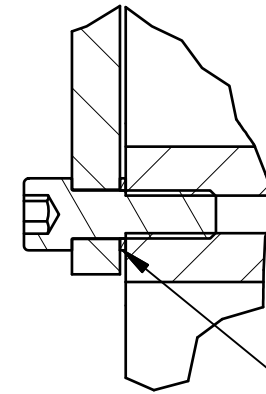
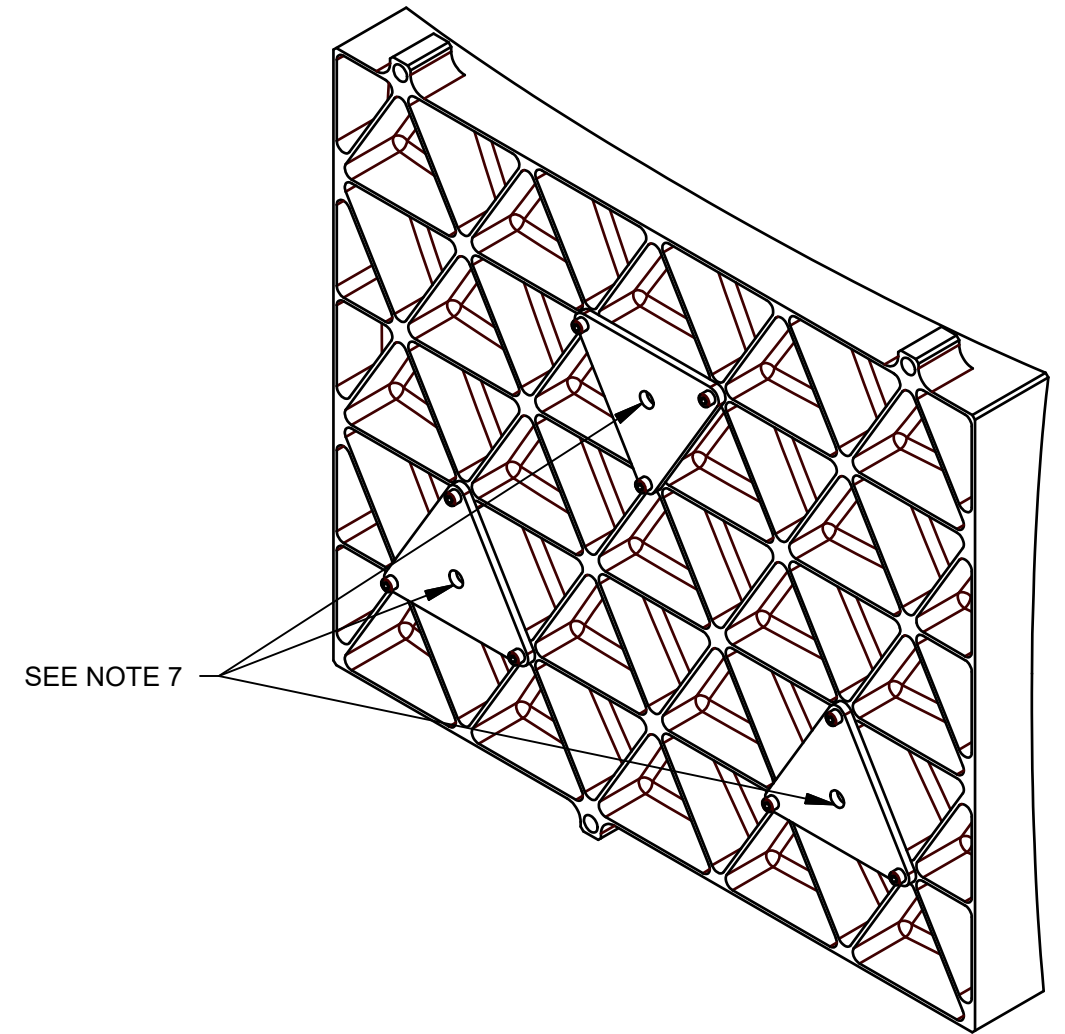
DETAIL G
SCALE 1/2
(TYP SMALL TRIANGLE DETAIL)
(SEE BACK VIEW, SHT 2)

NOTE: THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND CAN NOT BE DISCLOSED WITHOUT THE WRITTEN CONSENT OF STEWARD OBSERVATORY.

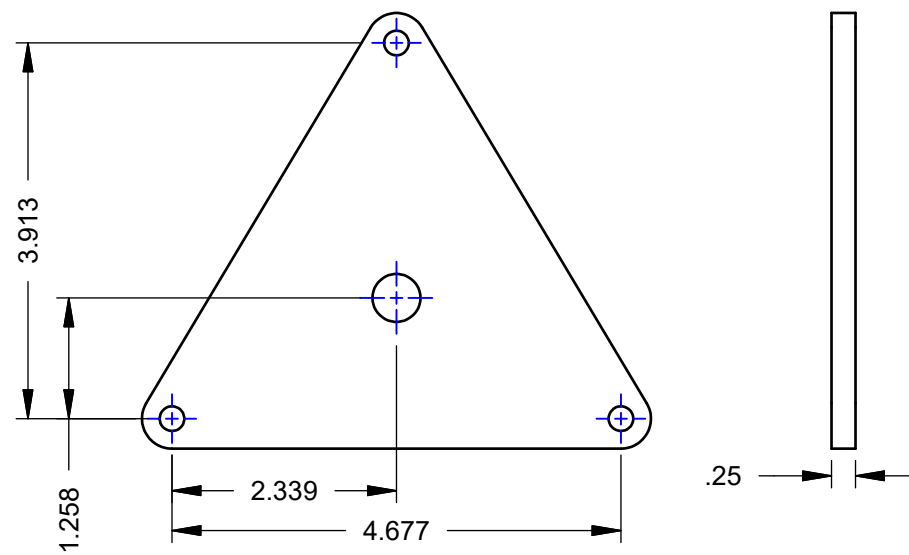
DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR .X = ± .1 .XX = ± .01 .XXX = ± .005 ANGULAR ± .5° DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC		ENGINEER: N. EMERSON		DATE: 5/30/2018	CATEGORY:
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		DESIGNED BY: N. EMERSON		DATE: 5/30/2018	PROJECT: TIME
FINISH:		DRAWN BY: A. FERN		DATE: 5/30/2018	TITLE: MIRROR P1
NEXT ASSY		CHECKED BY: A. FERN		DATE: 5/30/2018	
ASSEMBLY APPLICATION		APPROVED: N. EMERSON		DATE: 5/30/2018	
		APPROVED:		DATE:	DRAWING NUMBER: 26624
		APPROVED:		DATE:	SHEET 4 OF 6
		APPROVED:		DATE:	REVISION: A



SECTION K-K
SCALE 1/4

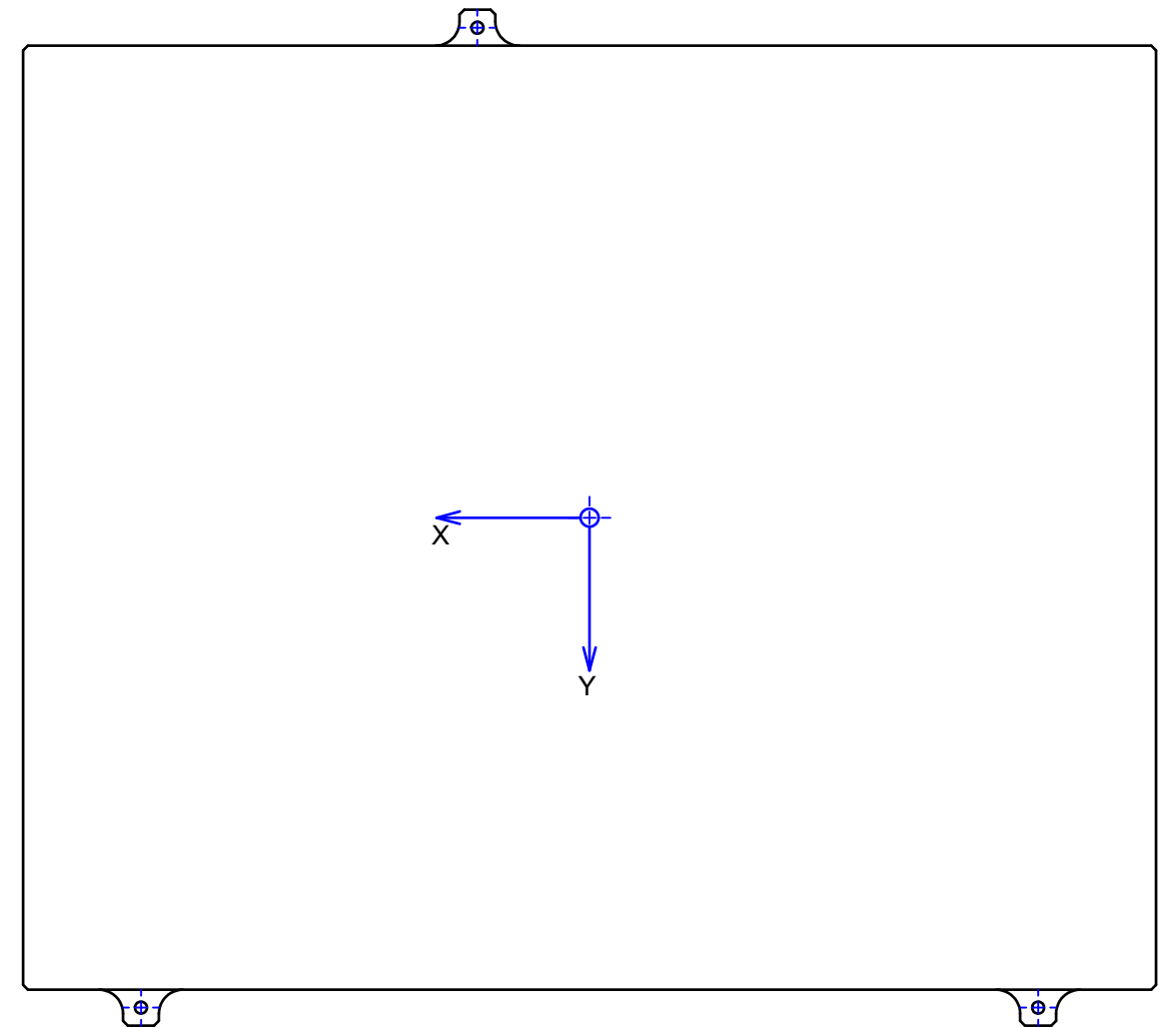
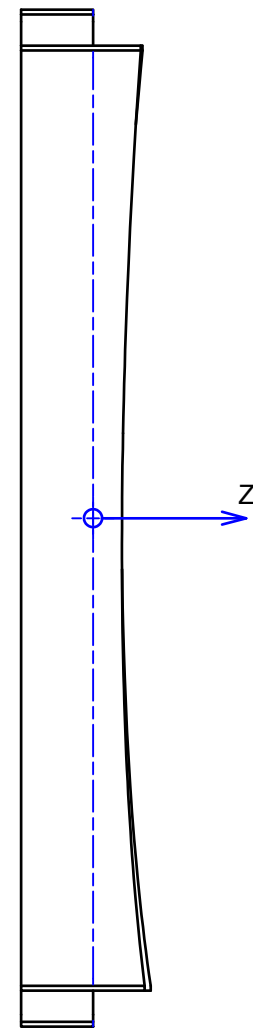
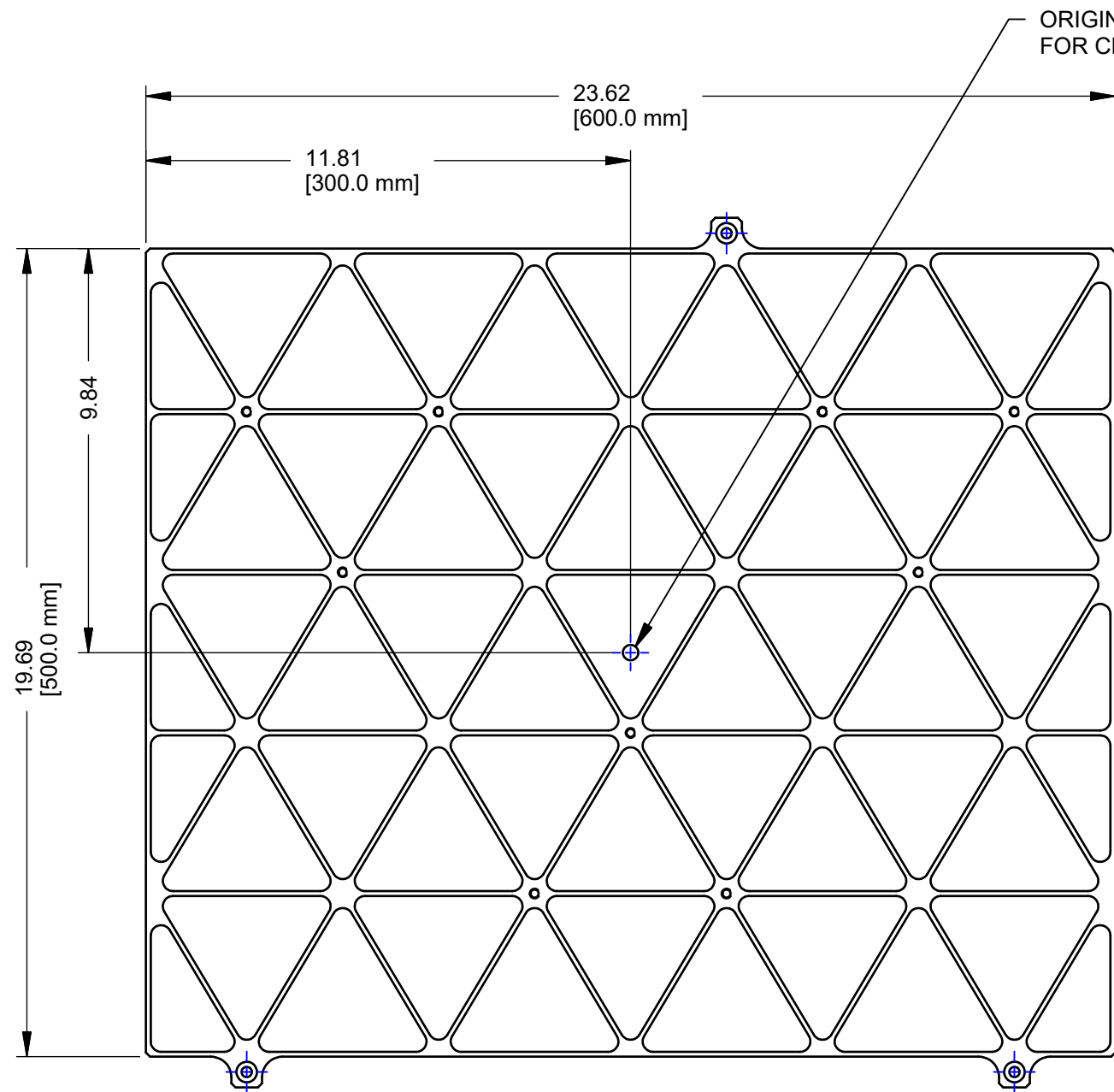


DETAIL L
SCALE 1



TYPICAL MEASUREMENT ADAPTOR PLATE DIMENSIONS

DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR .X = ± .1 .XX = ± .01 .XXX = ± .005 ANGULAR ± .5° DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC		ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME	
FINISH:		DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR P1	
NEXT ASSY		CHECKED BY: A. FERN	DATE: 5/30/2018	DRAWING NUMBER: 26624	
ASSEMBLY APPLICATION		APPROVED: N. EMERSON	DATE: 5/30/2018	SHEET 5 OF 6	
		APPROVED:	DATE:	REVISION: A	



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DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94	THIS DRAWING CREATED IN:				Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659			
	ACAD	MECH	IDEAS	INV	ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:	
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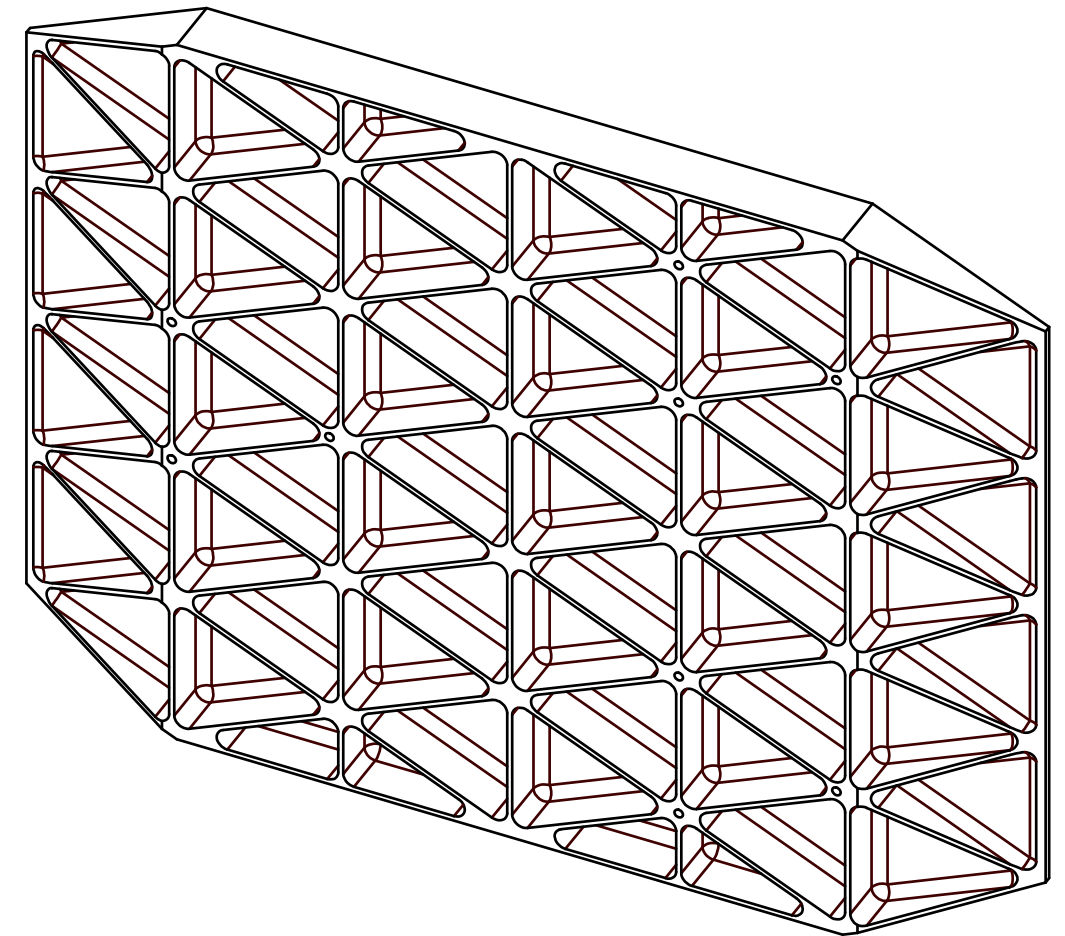
REVISION HISTORY				
REV	DESCRIPTION	DATE	REVISED BY	APPROVED
A	INITIAL RELEASE		A. FERN	N. EMERSON

NOTES:


- 1) BREAK SHARP EDGES AND DEBURR.
- 2) ALL MACHINING FILLETS TO BE R.25 MAX UNLESS OTHERWISE SPECIFIED.
- 3) ALL MACHINED SURFACES TO BE 125 RMS OR BETTER, WITH EXCEPTION OF REFLECTING SURFACE INDICATED BY NOTE 6.
- 4) 3D MODEL WILL BE PROVIDED AND USED TO MANUFACTURE THIS PART.
- 5) DRAWING PROVIDES BASIC ENVELOPE DIMENSIONS AND KEY FEATURE CONTROL TOLERANCE CALLOUTS ONLY.
- 6) ROUGHNESS AND ACCURACY OF INDICATED SURFACE DEFINED IN ATTACHED MIRROR SPEC DOCUMENT.
- 7) MEASUREMENT OF REFLECTING SURFACE TO BE PERFORMED WITH MIRROR SIMPLY SUPPORTED AT THREE LOCATIONS AS INDICATED ON THE REAR SURFACE, USING TOOLING BALL OR SIMILAR TO AVOID UNINTENTIONAL BENDING OF MIRROR DURING MEASUREMENT. ADAPTOR PLATES AT EACH OF THESE THREE LOCATIONS ARE BOLTED TO THE PANEL AT 3 CORRESPONDING BOLTHOLES.
- 8) THE ADAPTOR PLATES (SUGGESTED PLATE GEOMETRY AS SHOWN) SHOULD BE OFFSET FROM THE BACK OF THE PANEL TO LIMIT THE CONTACT ZONE TO THE AREA AROUND EACH THREADED HOLE
- 9) SUPPORT OF THE PANEL DURING MACHINING CAN BE EITHER USING THE MEASUREMENT ADAPTOR PLATES, OR BY OTHER APPROPRIATE MEANS AT THE DISCRETION OF THE FABRICATOR.
- 10) SHEET 6 DEFINES THE OPTICAL CENTER AND COORDINATE SYSTEM ORIENTATION OF THE MIRROR. THIS POSITION AND ORIENTATION TO BE USED FOR CMM MEASUREMENT. Z POSITION OF OPTICAL CENTER IN THE PLANE OF THE REFLECTING SURFACE.

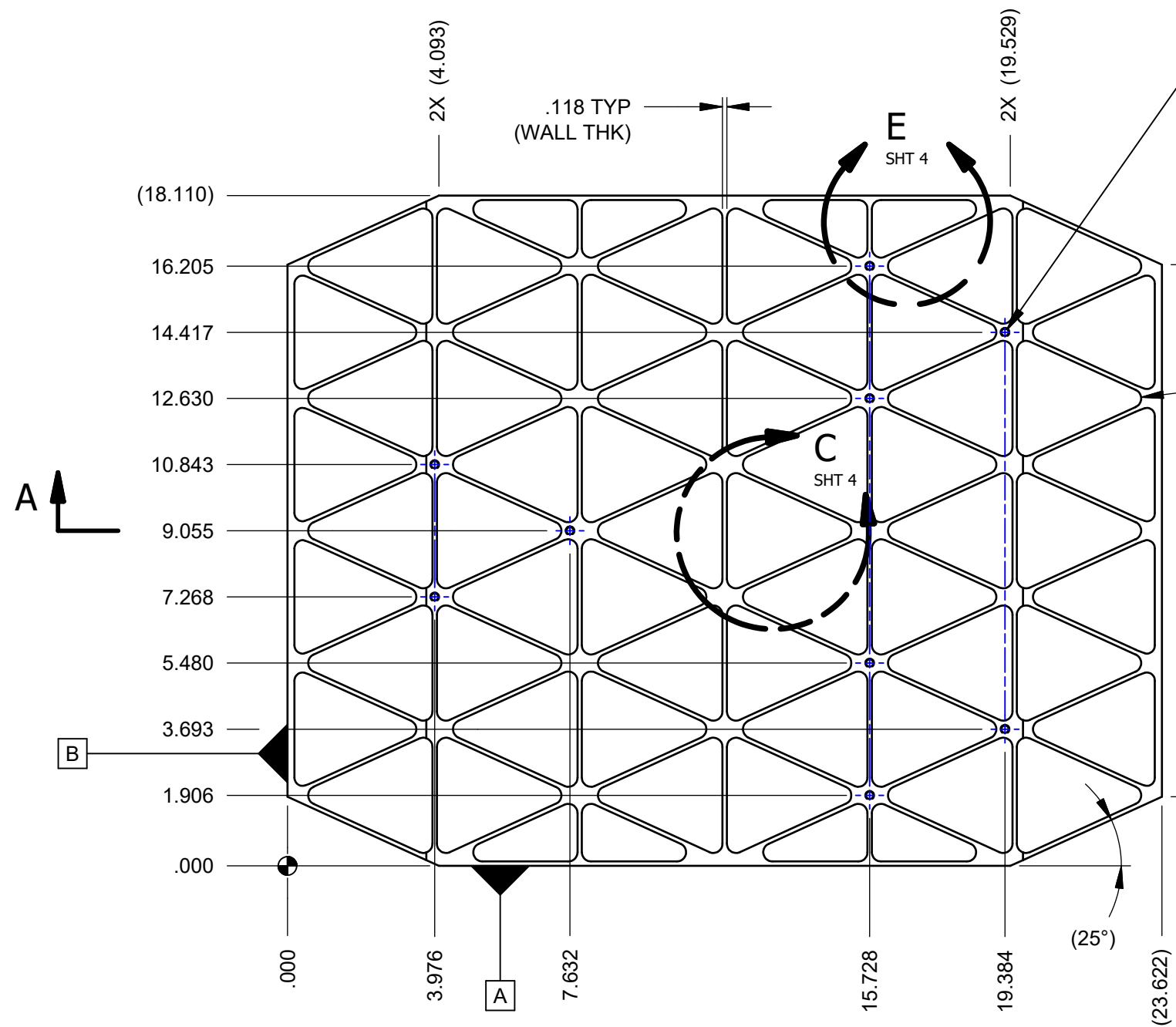
11) TYPICAL (MINIMUM) MACHINING RADIUS SHOWN. A LARGER MACHINING RADIUS BETWEEN RIBS (UP TO 0.375in) IS ACCEPTABLE TO SIMPLIFY MACHINABILITY. STEP MODEL OF MIRROR CAN BE UPDATED ON REQUEST TO INCORPORATE PREFERRED RADIUS.

12) TYPICAL RADIUS SHOWN. RADIUS CAN BE ALTERED TO SIMPLIFY MACHINABILITY. SHARP CORNERS ARE ACCEPTABLE. STEP MODEL CAN BE UPDATED ON REQUEST TO INCORPORATE PREFERRED RADIUS.



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DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		 Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 <small>DIAMETRICAL: SEE SPEC S-002</small> <small>DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>		ENGINEER: N. EMERSON DESIGNED BY: N. EMERSON DRAWN BY: A. FERN CHECKED BY: A. FERN APPROVED: N. EMERSON		DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		TIME USED ON		PROJECT: TIME TITLE: MIRROR K1	
FINISH: NONE		ASSEMBLY APPLICATION		DRAWING NUMBER: 26630	
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				REVISION: A	



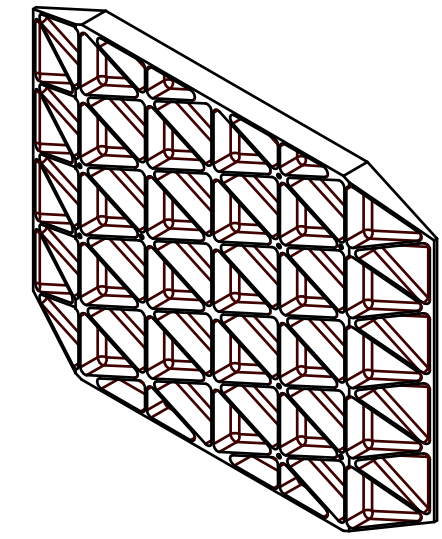
BACK VIEW
SCALE 1 / 4

9X 1/4-20 UNC - 2B
▽ .75
Φ .005 AB

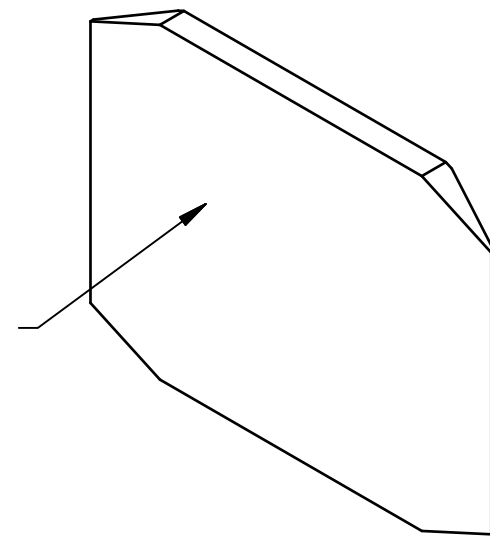
2X (16.243)

R.25 MIN
SEE NOTE 11

2X (1.868)



ISO VIEW - BACK
SCALE 1 / 8

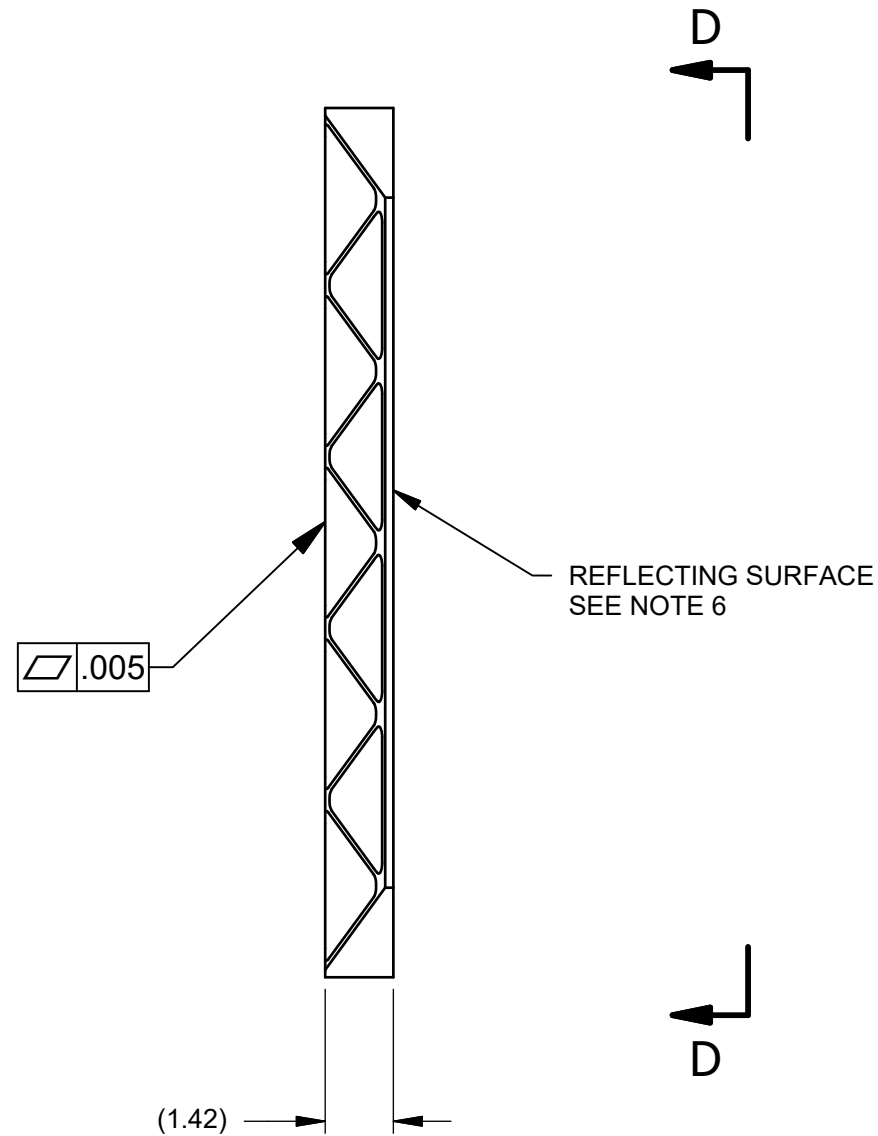


ISO VIEW - FRONT
SCALE 1 / 8

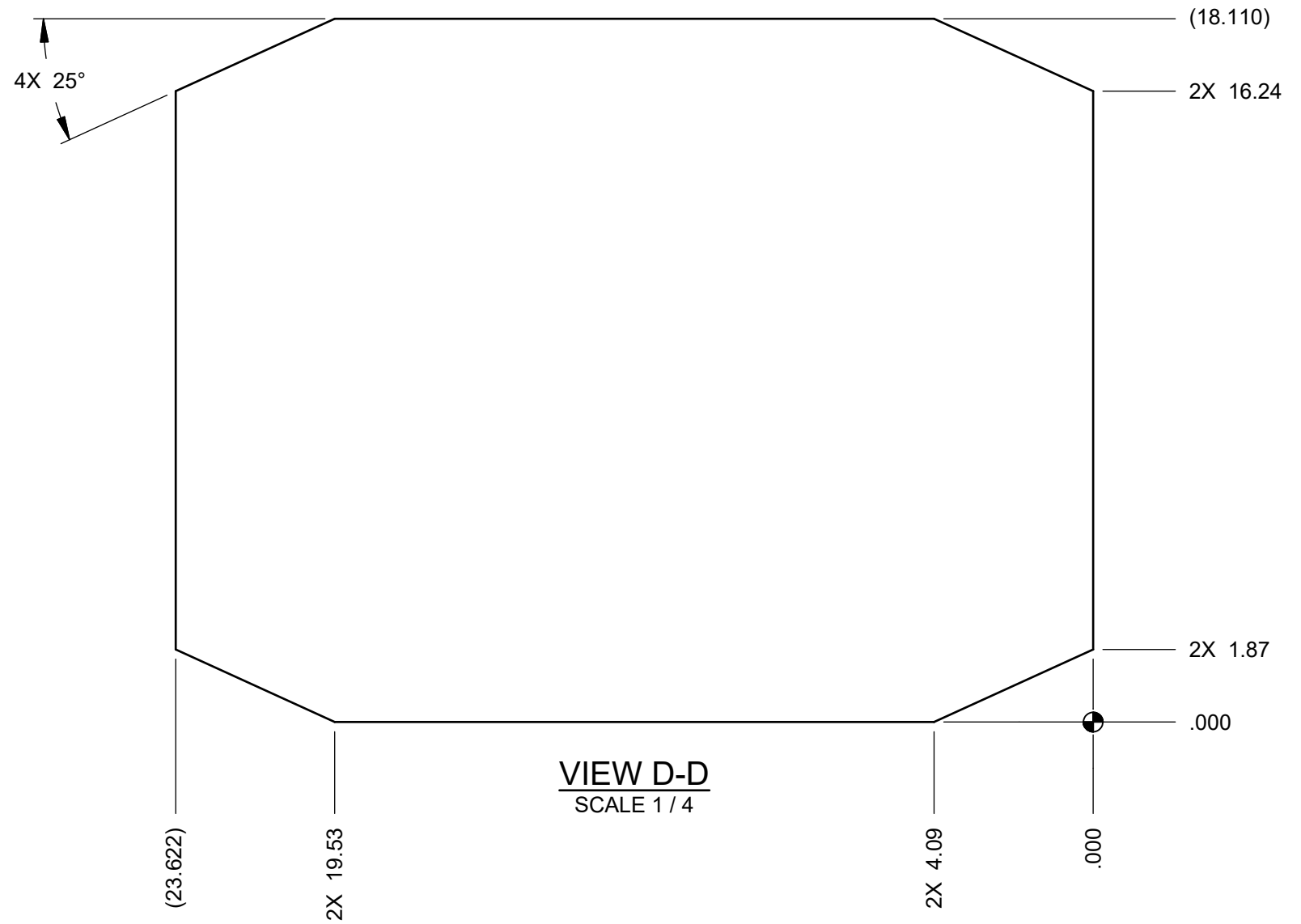
FLAT
REFLECTING
SURFACE
SEE NOTE 6

DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 <small>DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>		ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:	
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		DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE:	
		CHECKED BY: A. FERN	DATE: 5/30/2018	MIRROR K1	
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MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		APPROVED:	DATE:	DRAWING NUMBER:	
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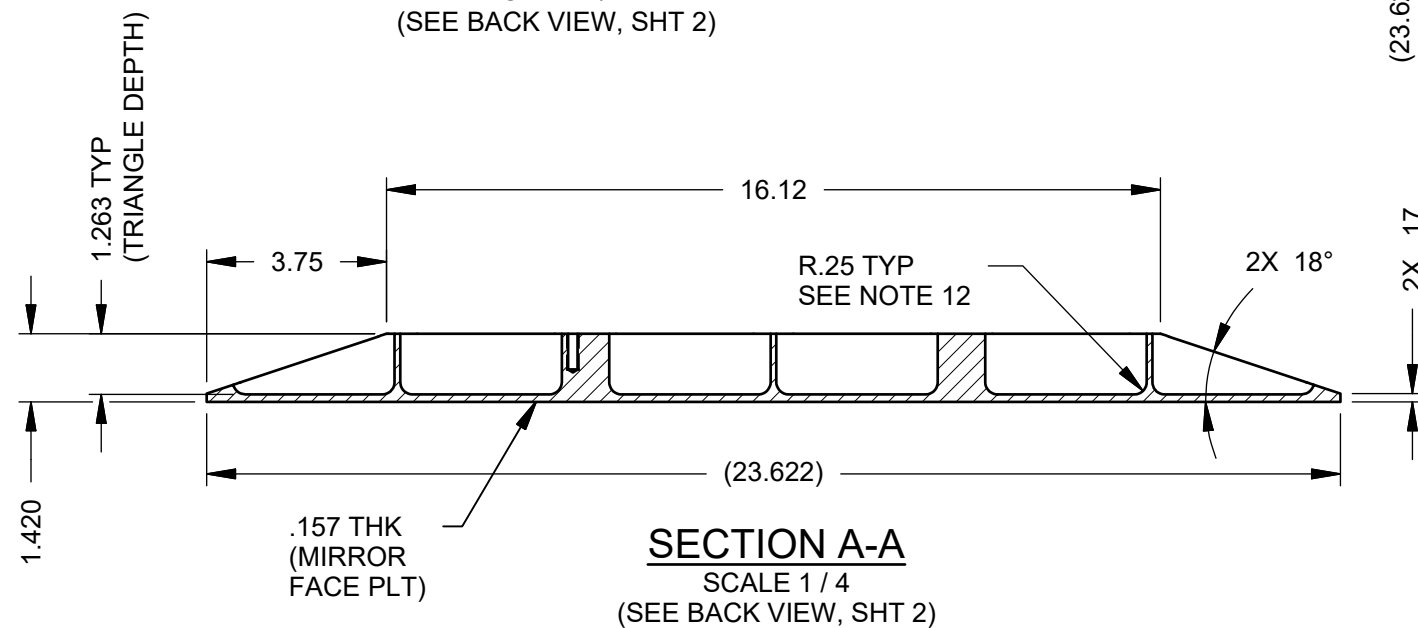
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VIEW B-B
SCALE 1 / 4
(SEE BACK VIEW, SHT 2)



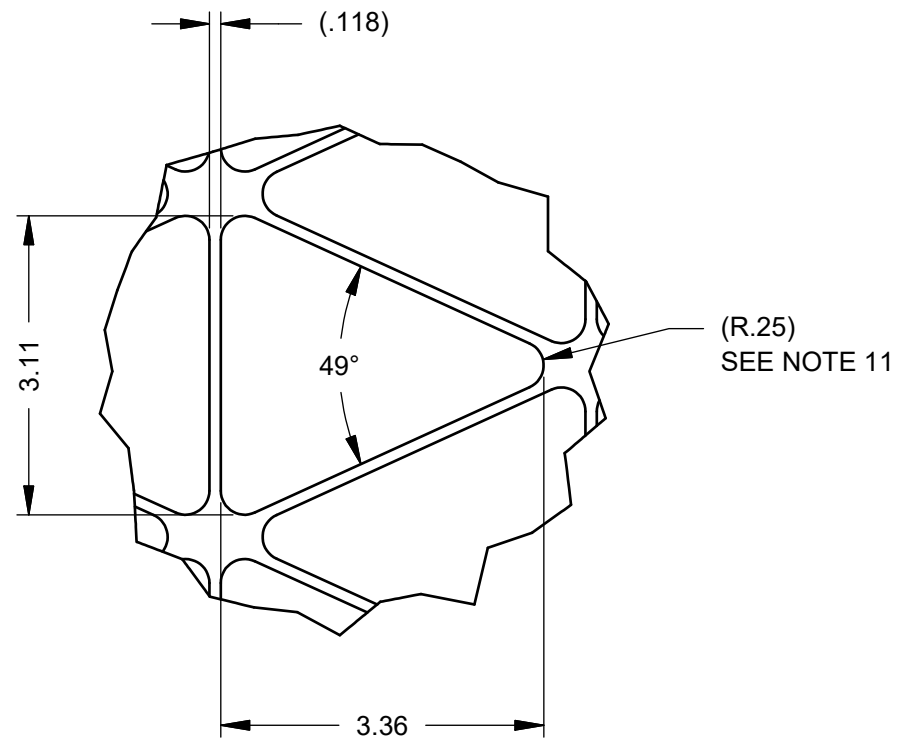
VIEW D-D
SCALE 1 / 4



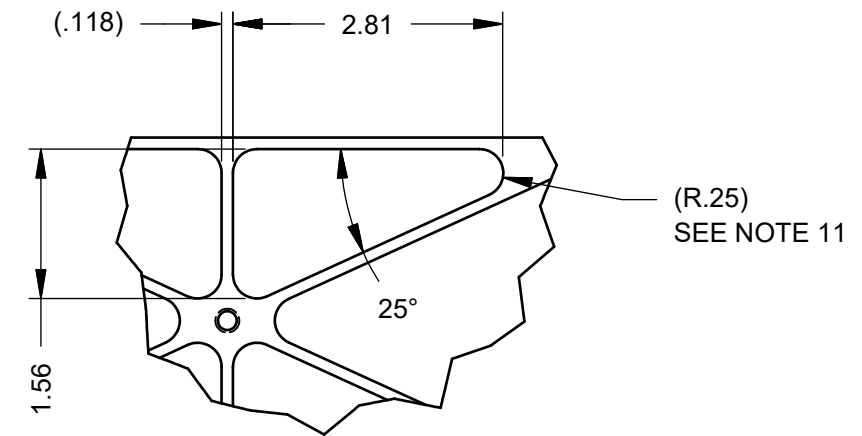
SECTION A-A
SCALE 1 / 4
(SEE BACK VIEW, SHT 2)

DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94	THIS DRAWING CREATED IN:				Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659			
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					DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR K1	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM					CHECKED BY: A. FERN	DATE: 5/30/2018		
					APPROVED: N. EMERSON	DATE: 5/30/2018		
FINISH: NONE					APPROVED:	DATE:	DRAWING NUMBER: 26630	REVISION: A
					APPROVED:	DATE:	SHEET 3 OF 6	
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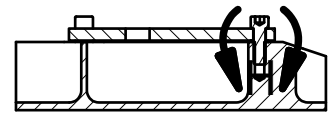
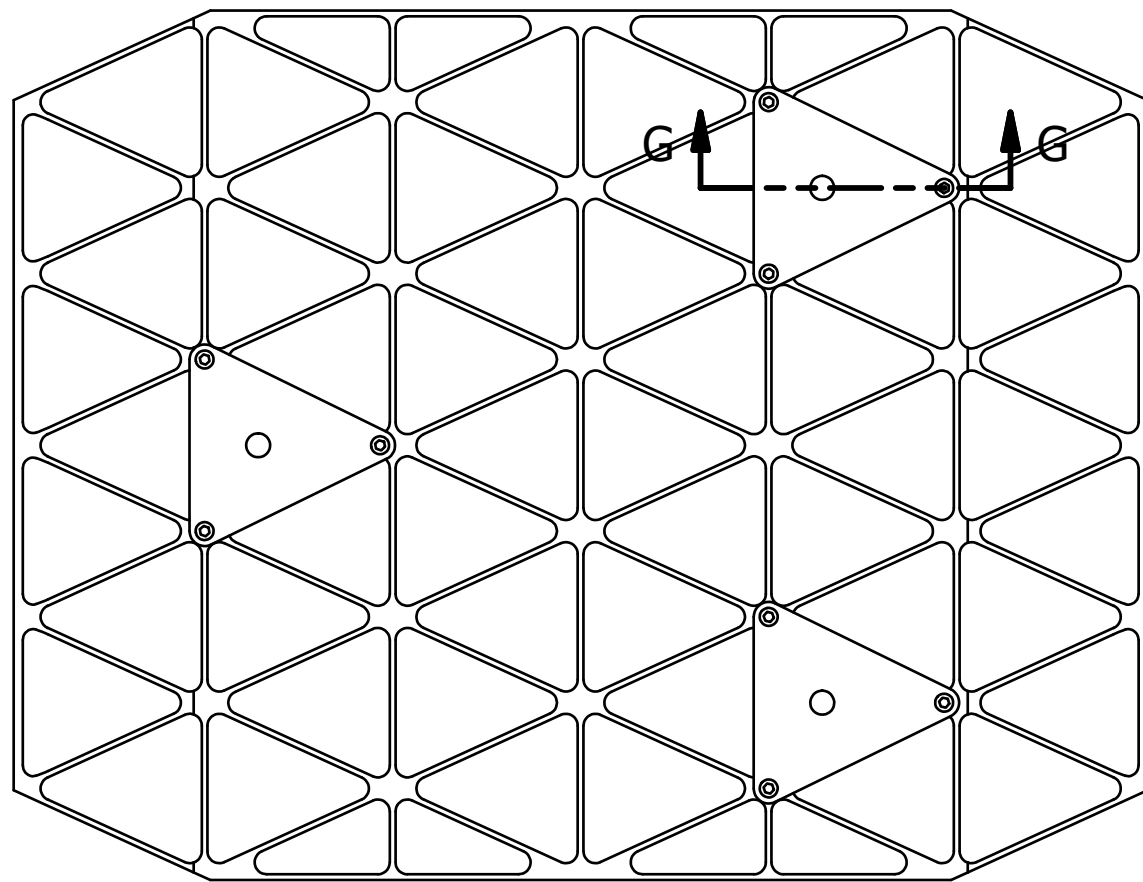
DETAIL C
SCALE 1 / 2
(TYP LARGE TRIANGLE DETAIL)
(SEE BACK VIEW, SHT 2)



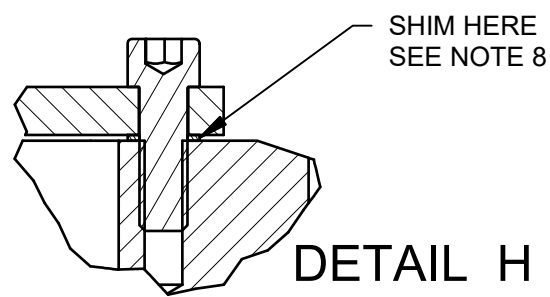
DETAIL E
SCALE 1 / 2
(TYP SMALL TRIANGLE DETAIL)
(SEE BACK VIEW, SHT 2)

DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94	THIS DRAWING CREATED IN:					Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659		
	ACAD	MECH	IDEAS	INV		ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC					DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME	
					DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR K1	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM					CHECKED BY: A. FERN	DATE: 5/30/2018		
					APPROVED: N. EMERSON	DATE: 5/30/2018		
FINISH: NONE					APPROVED:	DATE:	DRAWING NUMBER: 26630	
					APPROVED:	DATE:	SHEET 4 OF 6	
					APPROVED:	DATE:	REVISION: A	

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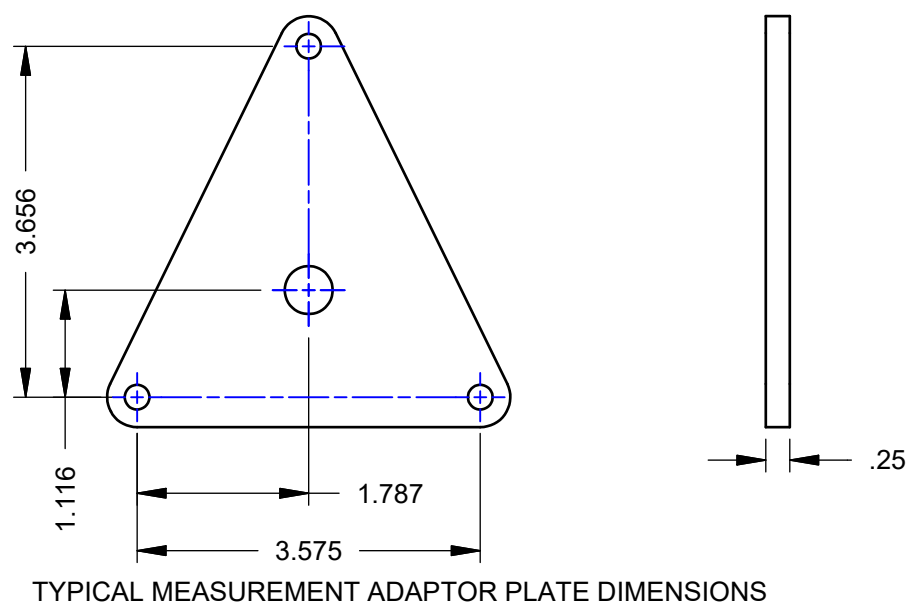
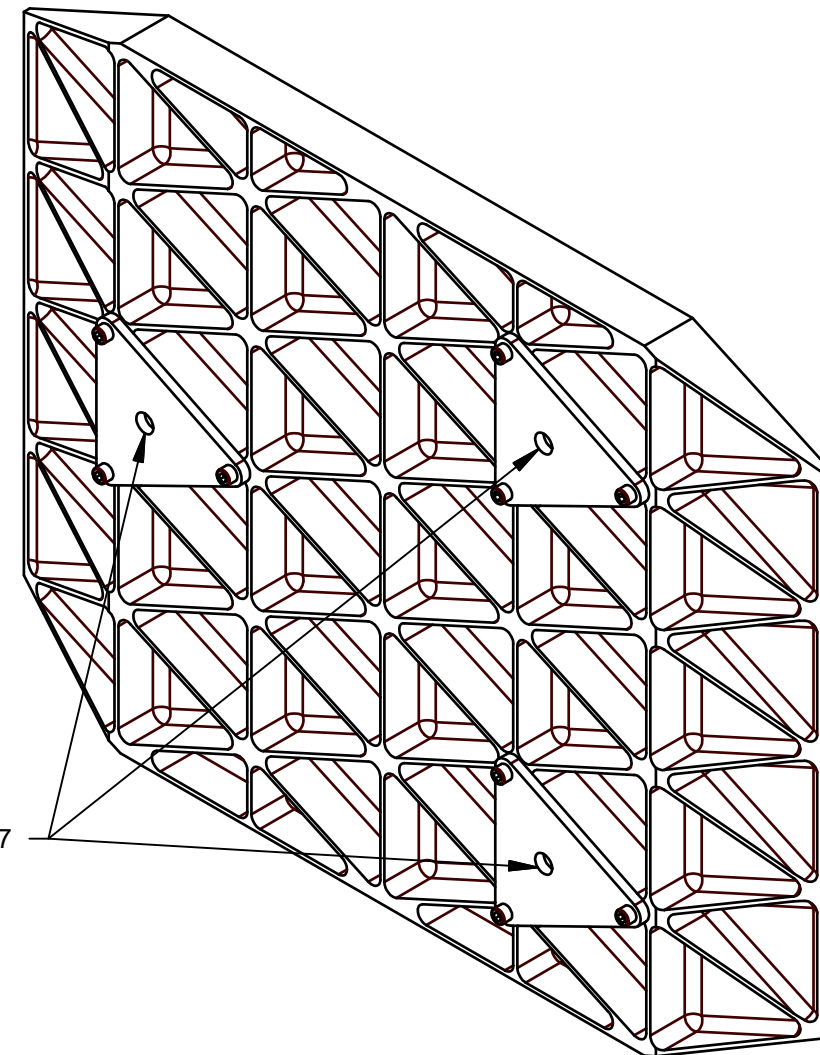


SECTION G-G
SCALE 1/4



DETAIL H
SCALE 1

SEE NOTE 7



TYPICAL MEASUREMENT ADAPTOR PLATE DIMENSIONS

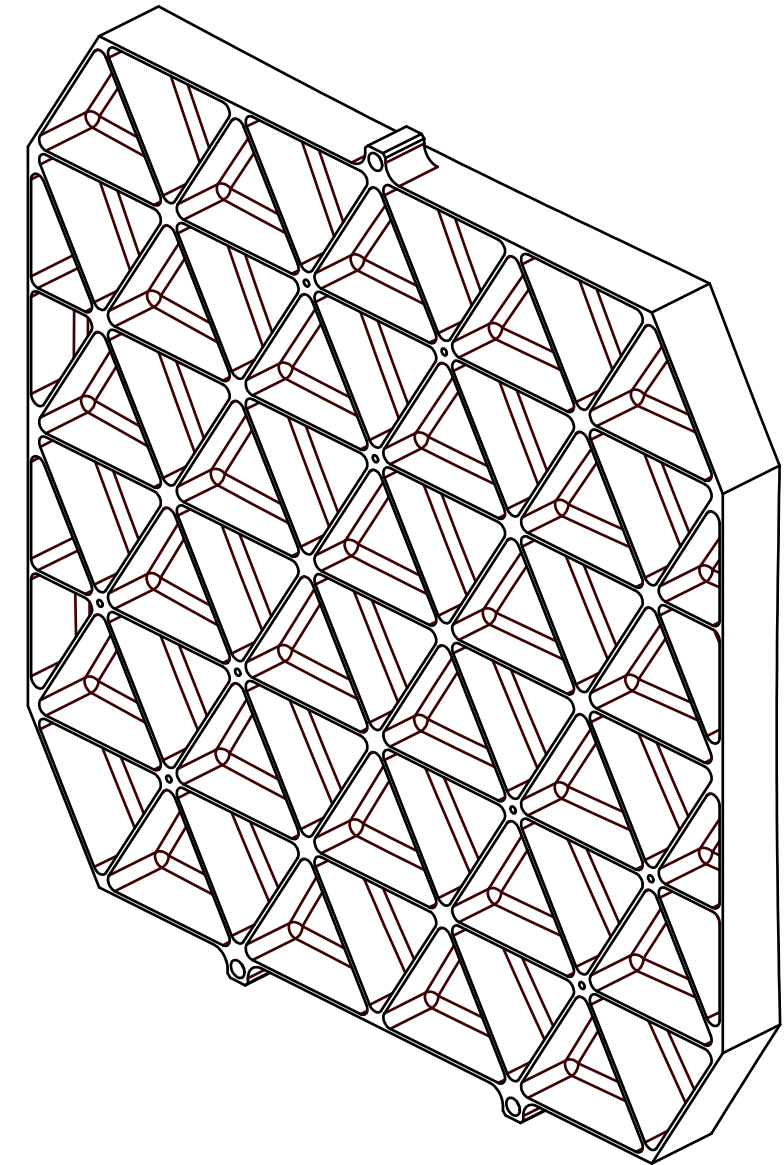
DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94	THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>	Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED <u>LINEAR</u> <u>ANGULAR</u> .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 <u>DIAMETRICAL</u> : SEE SPEC S-002 <small>DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>	ENGINEER: N. EMERSON DESIGNED BY: N. EMERSON DRAWN BY: A. FERN CHECKED BY: A. FERN APPROVED: N. EMERSON	DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018	CATEGORY: PROJECT: TIME TITLE: MIRROR K1
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM	TIME NEXT ASSY USED ON	APPROVED: DATE:	DRAWING NUMBER: 26630
FINISH: NONE	ASSEMBLY APPLICATION	APPROVED: DATE:	SHEET 5 of 6 REVISION: A

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REVISION HISTORY				
REV	DESCRIPTION	DATE	REVISED BY	APPROVED
A	INITIAL RELEASE		A. FERN	N. EMERSON


NOTES:

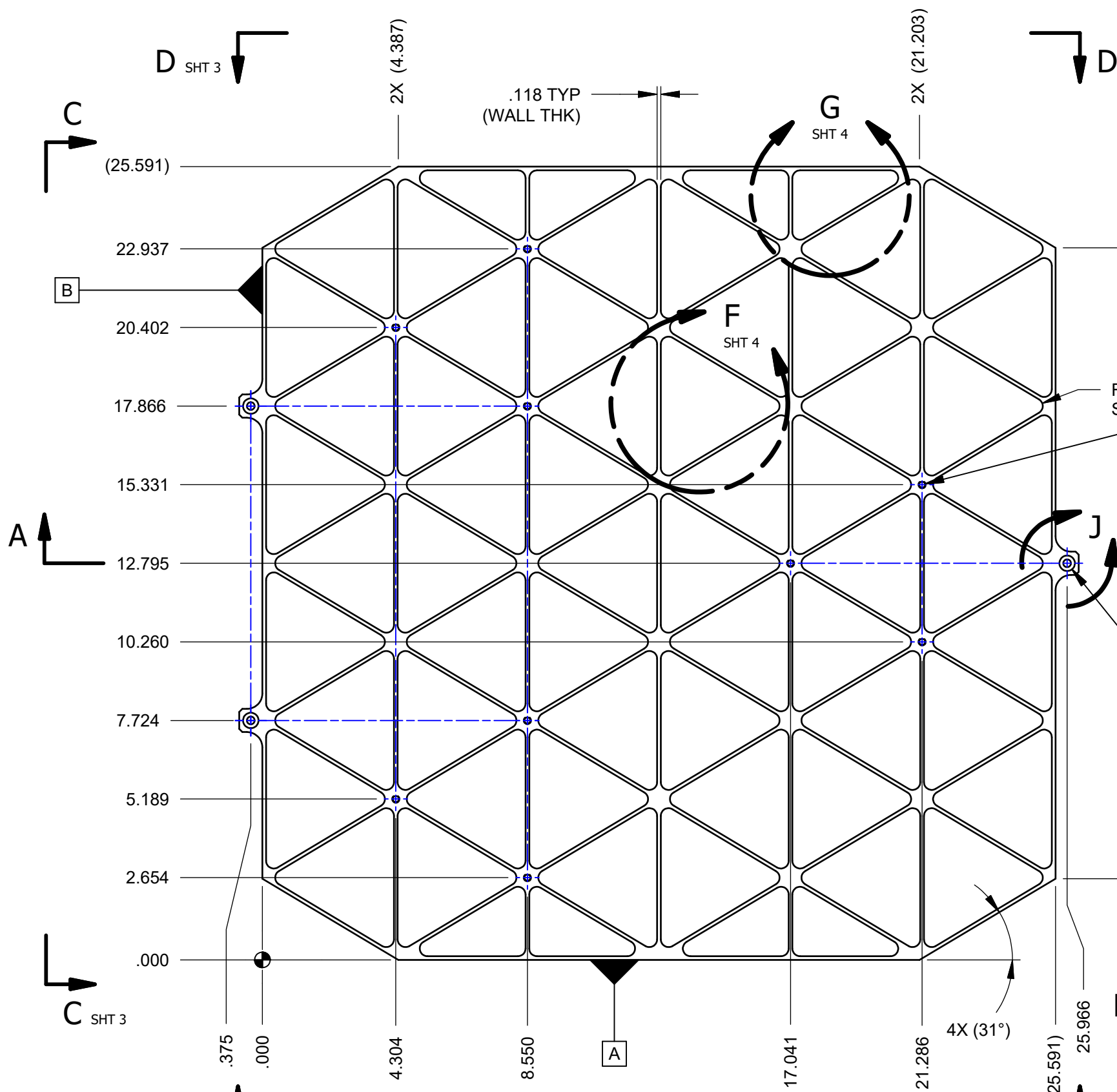
- 1) BREAK SHARP EDGES AND DEBURR.
- 2) ALL MACHINING FILLETS TO BE R.25 MAX UNLESS OTHERWISE SPECIFIED.
- 3) ALL MACHINED SURFACES TO BE 125 RMS OR BETTER, WITH EXCEPTION OF REFLECTING SURFACE INDICATED BY NOTE 6.
- 4) 3D MODEL WILL BE PROVIDED AND USED TO MANUFACTURE THIS PART.
- 5) DRAWING PROVIDES BASIC ENVELOPE DIMENSIONS AND KEY FEATURE CONTROL TOLERANCE CALLOUTS ONLY.
- 6) ROUGHNESS AND ACCURACY OF INDICATED SURFACE DEFINED IN ATTACHED MIRROR SPEC DOCUMENT. FREEFORM SHAPE DEFINED BY STEP MODEL.
- 7) MEASUREMENT OF REFLECTING SURFACE TO BE PERFORMED WITH MIRROR SIMPLY SUPPORTED AT THREE LOCATIONS AS INDICATED ON THE REAR SURFACE, USING TOOLING BALL OR SIMILAR TO AVOID UNINTENTIONAL BENDING OF MIRROR DURING MEASUREMENT. ADAPTOR PLATES AT EACH OF THESE THREE LOCATIONS ARE BOLTED TO THE PANEL AT 3 CORRESPONDING BOLTHOLES.
- 8) THE ADAPTOR PLATES (SUGGESTED PLATE GEOMETRY AS SHOWN) SHOULD BE OFFSET FROM THE BACK OF THE PANEL TO LIMIT THE CONTACT ZONE TO THE AREA AROUND EACH THREADED HOLE
- 9) SUPPORT OF THE PANEL DURING MACHINING CAN BE EITHER USING THE MEASUREMENT ADAPTOR PLATES, OR BY OTHER APPROPRIATE MEANS AT THE DISCRETION OF THE FABRICATOR.
- 10) SHEET 6 DEFINES THE OPTICAL CENTER AND COORDINATE SYSTEM ORIENTATION OF THE MIRROR. THIS POSITION AND ORIENTATION TO BE USED FOR CMM MEASUREMENT. Z POSITION OF OPTICAL CENTER IS IN THE PLANE OF THE THREE REFERENCE TABS.



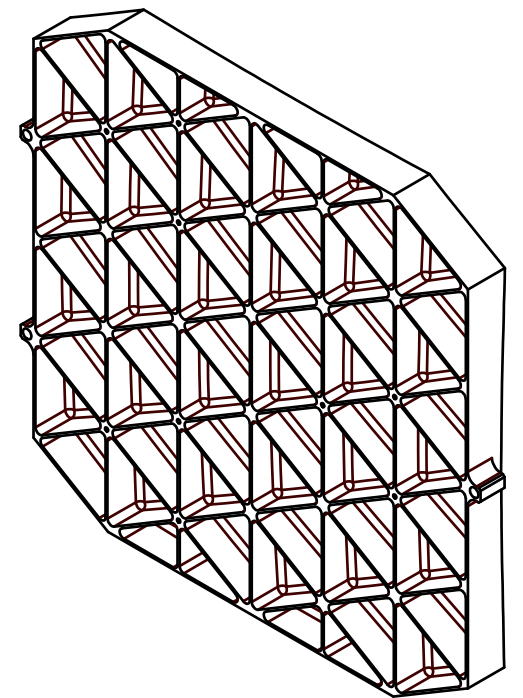
- 11) TYPICAL (MINIMUM) MACHINING RADIUS SHOWN. A LARGER MACHINING RADIUS BETWEEN RIBS (UP TO 0.375in) IS ACCEPTABLE TO SIMPLIFY MACHINABILITY. STEP MODEL OF MIRROR CAN BE UPDATED ON REQUEST TO INCORPORATE PREFERRED RADIUS.
- 12) TYPICAL RADIUS SHOWN. RADIUS CAN BE ALTERED TO SIMPLIFY MACHINABILITY. SHARP CORNERS ARE ACCEPTABLE. STEP MODEL CAN BE UPDATED ON REQUEST TO INCORPORATE PREFERRED RADIUS.
- 13) LARGER MACHINING STEPS ON CURVED BACK SIDE ARE ACCEPTABLE, WITH STEP HEIGHTS UP TO 0.02in WITH PRIOR APPROVAL FROM UA.

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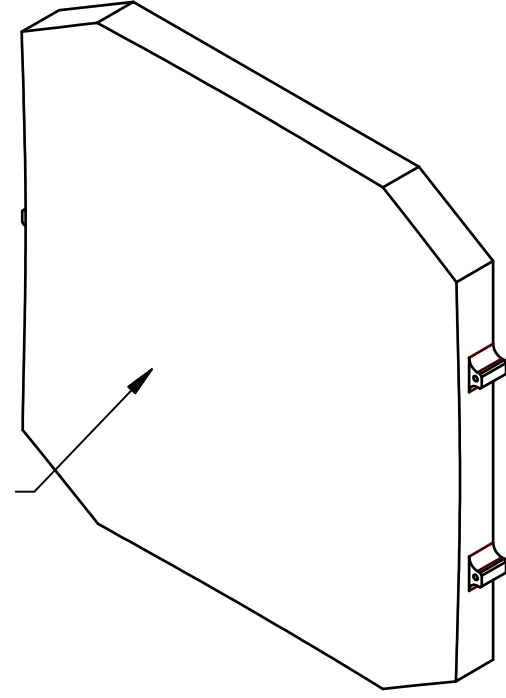
DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		 Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 <small>DIAMETRICAL: SEE SPEC S-002</small> <small>DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>		ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:	
		DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME	
		DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR K2	
		CHECKED BY: A. FERN	DATE: 5/30/2018		
		APPROVED: N. EMERSON	DATE: 5/30/2018		
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		APPROVED:	DATE:	DRAWING NUMBER: 26631	
FINISH: NONE		APPROVED:	DATE:	SHEET 1 OF 6	
		ASSEMBLY APPLICATION	APPROVED:	REVISION: A	



BACK VIEW
SCALE 1 / 4



ISO VIEW - BACK
SCALE 1 / 8



ISO VIEW - FRONT
SCALE 1 / 8

$\phi .005AB$
9X 1/4-20 UNC - 2B
 $\nabla .75$

R.250 MIN
SEE NOTE 11

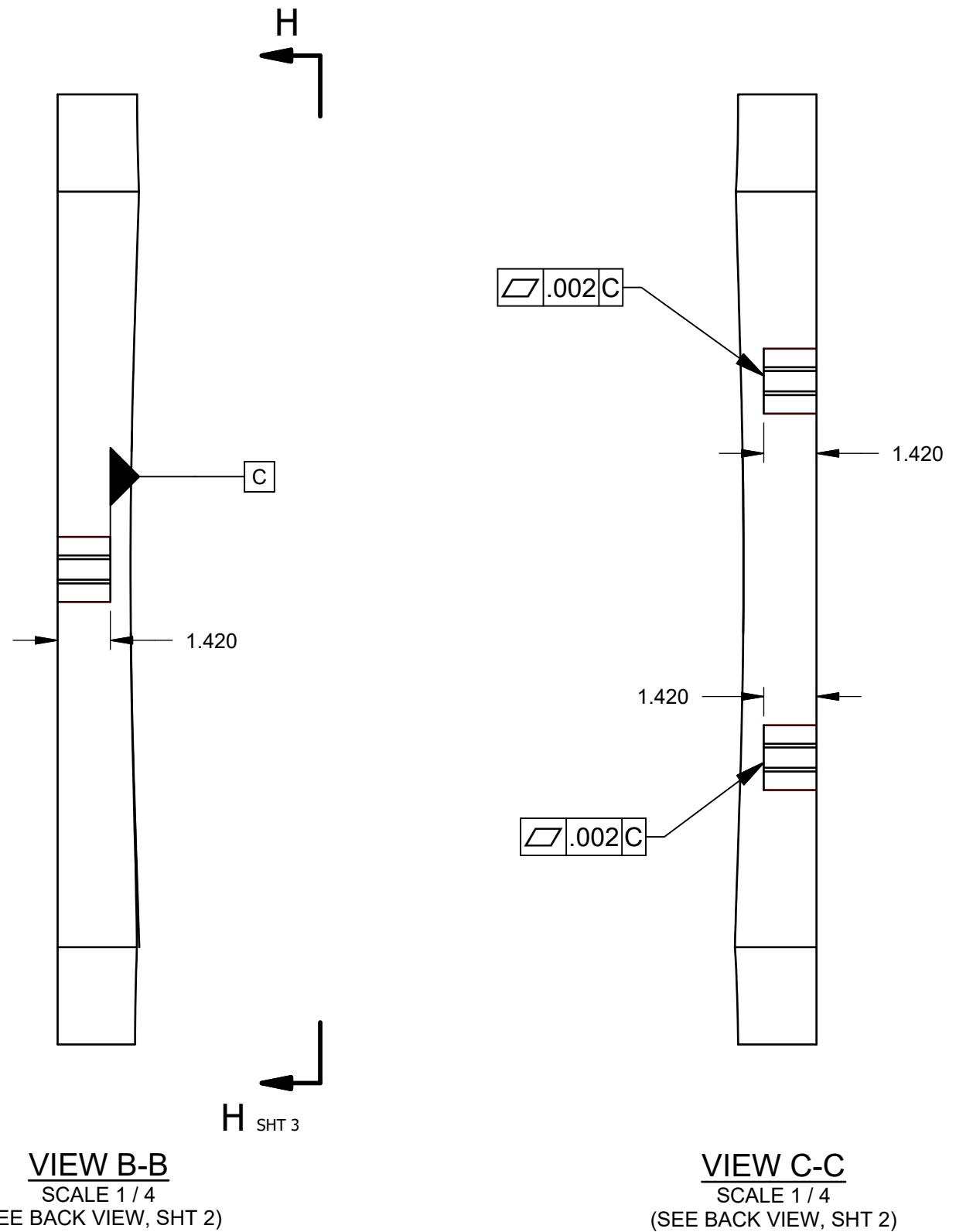
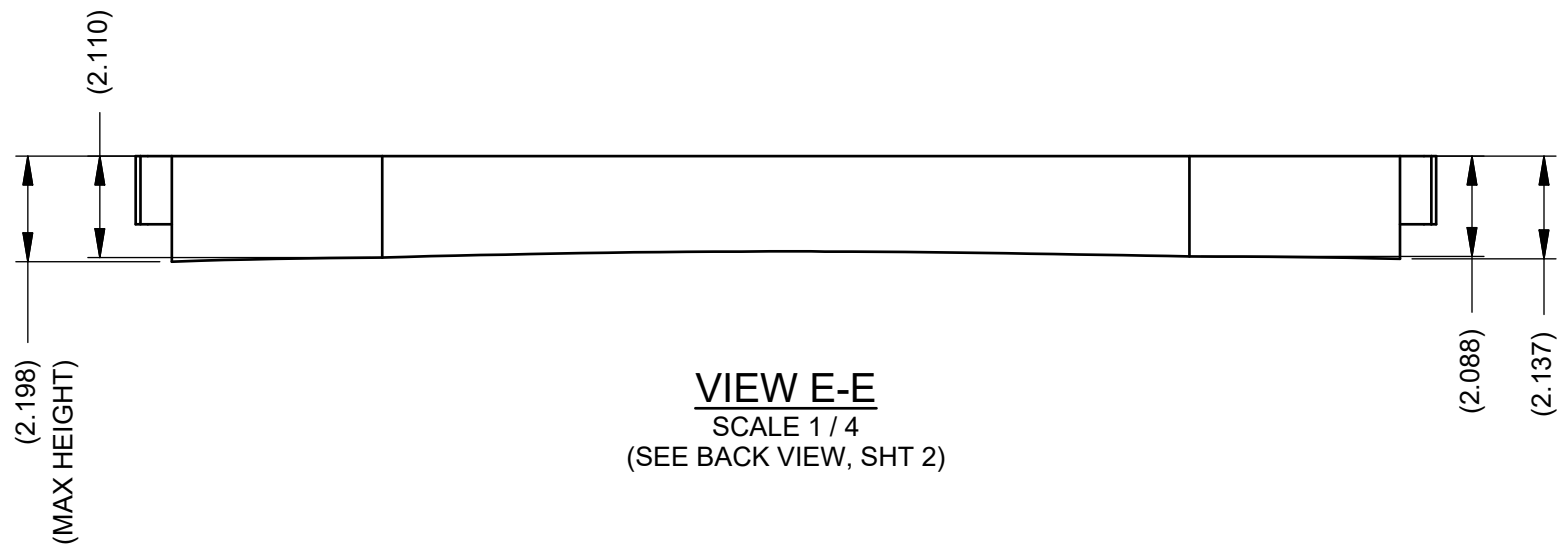
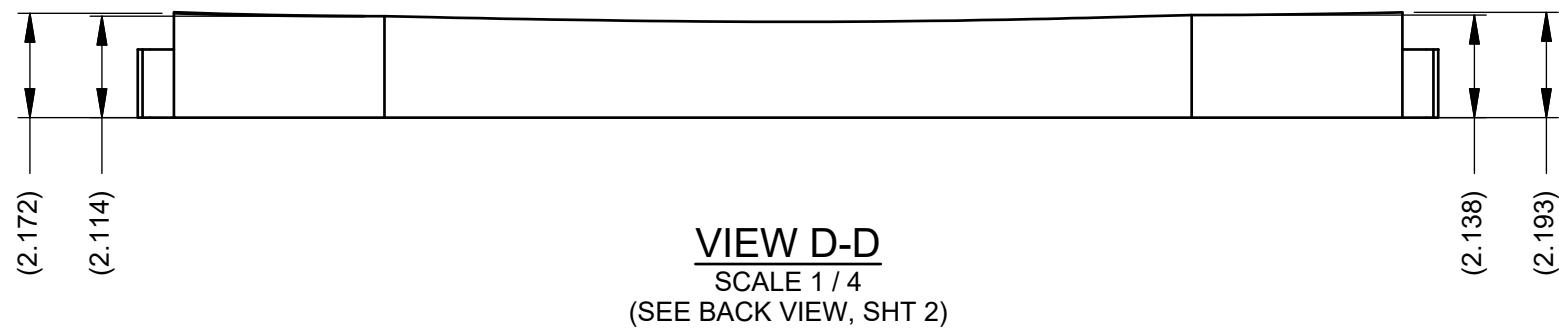
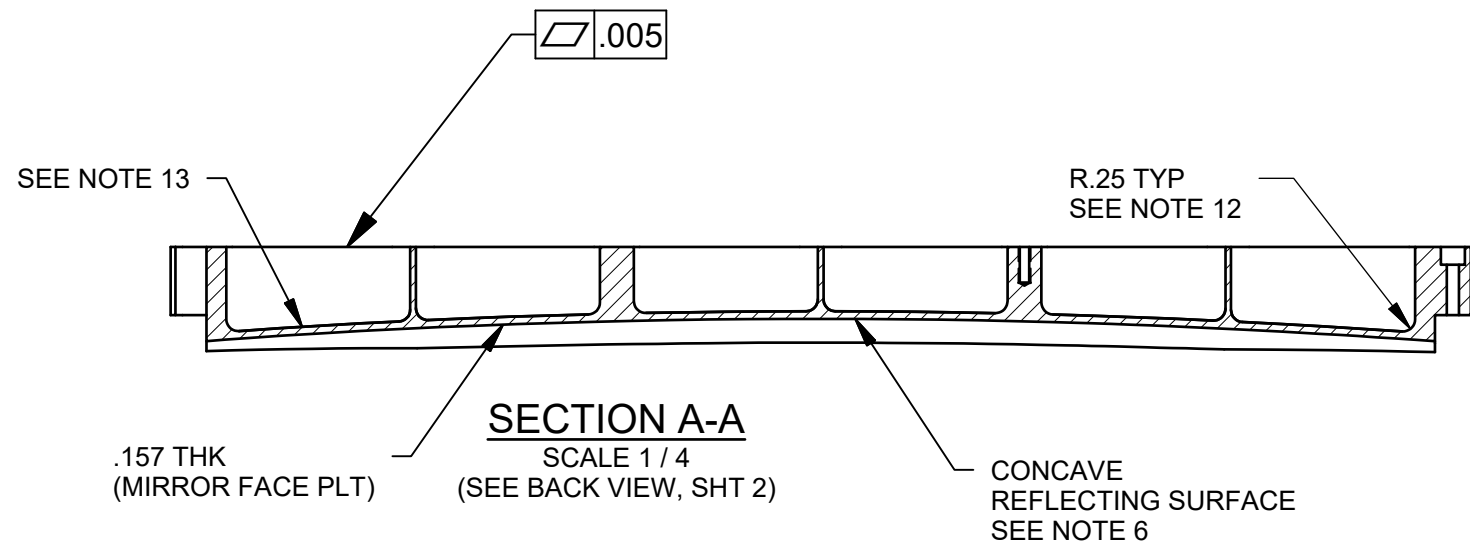
$\phi .005AB$

3X $\phi .250$ THRU
 $\perp \phi .500 \nabla .375$

CONCAVE
REFLECTING
SURFACE
SEE NOTE 6

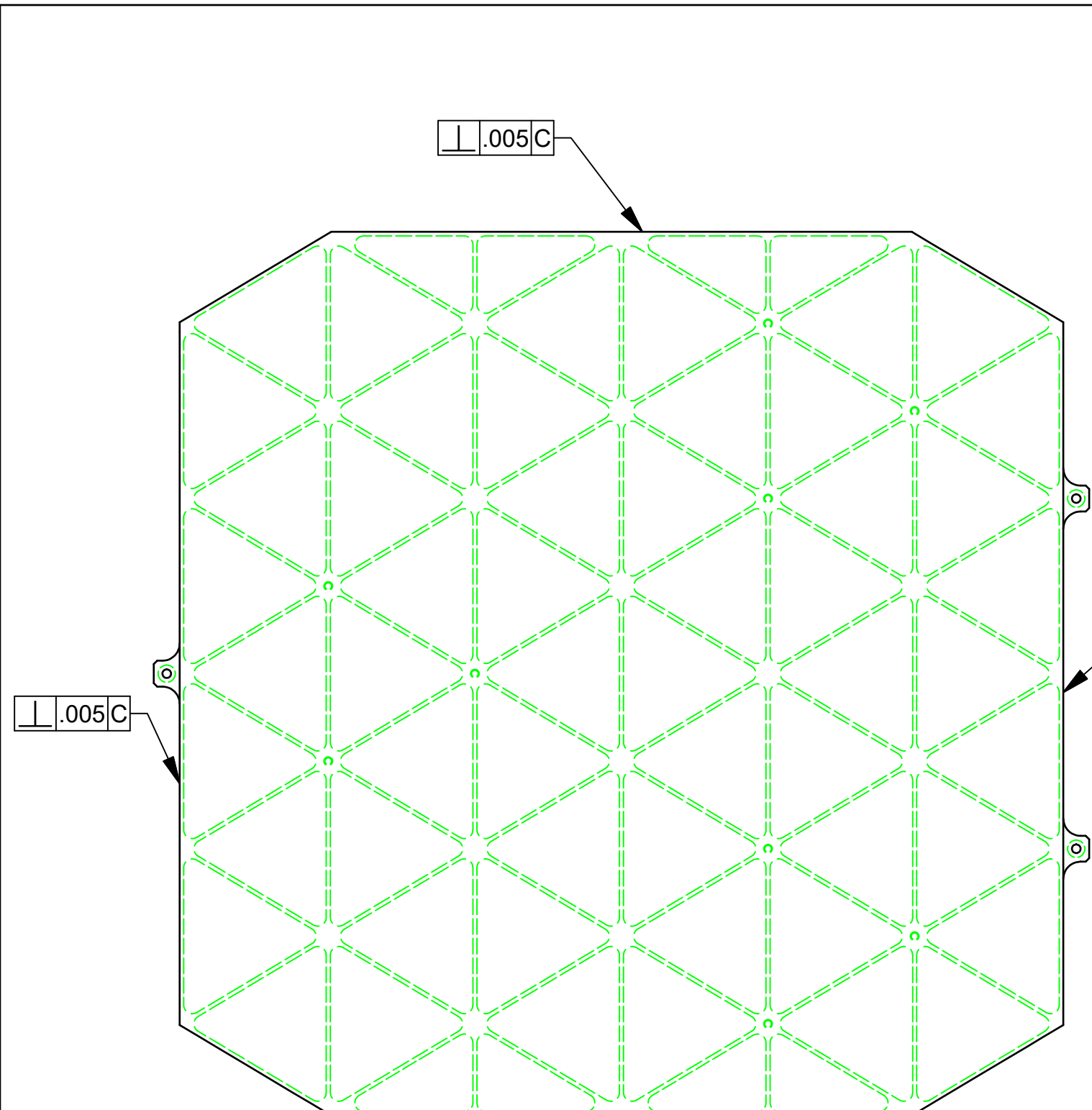
DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC		ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME	
FINISH: NONE		DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR K2	
ASSEMBLY APPLICATION		CHECKED BY: A. FERN	DATE: 5/30/2018	DRAWING NUMBER: 26631	
		APPROVED: N. EMERSON	DATE: 5/30/2018	REVISION: A	

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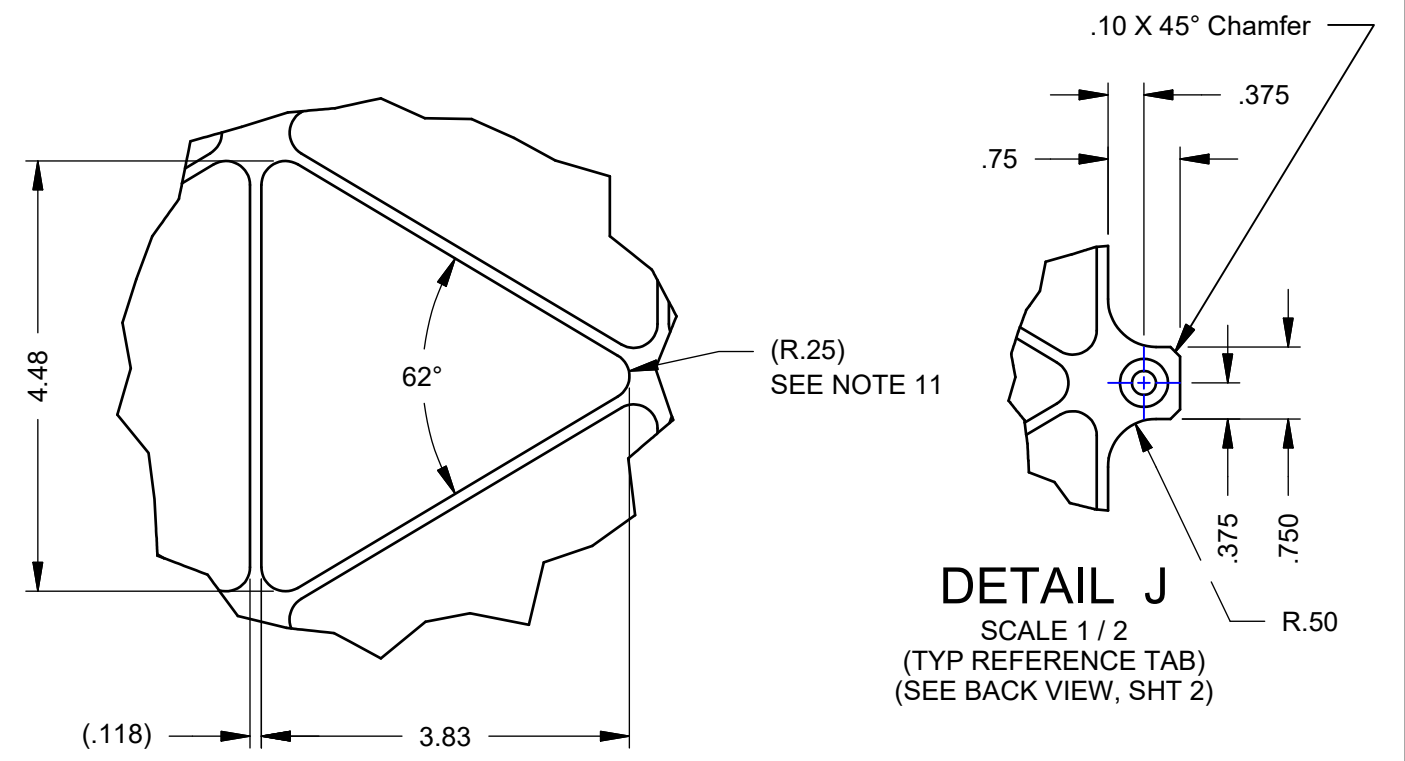


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DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94	THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>	Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 <small>DIAMETRICAL: SEE SPEC S-002</small> <small>DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>	ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:
	DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME
	DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR K2
	CHECKED BY: A. FERN	DATE: 5/30/2018	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM	APPROVED: N. EMERSON	DATE: 5/30/2018	DRAWING NUMBER: 26631
FINISH: NONE	APPROVED:	DATE:	REVISION: A
	ASSEMBLY APPLICATION	APPROVED:	SHEET 3 OF 6

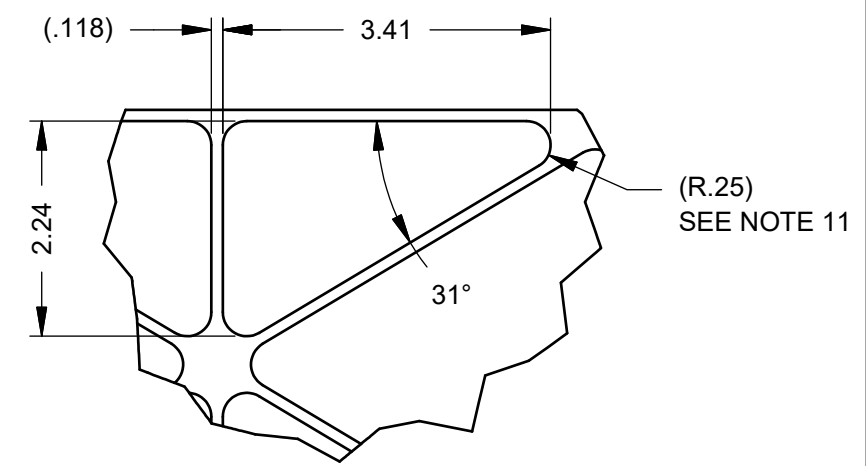


VIEW H-H
SCALE 1 / 4
(SEE VIEW B-B, SHT 3)



DETAIL F
SCALE 1 / 2
(TYP LARGE TRIANGLE DETAIL)
(SEE BACK VIEW, SHT 2)

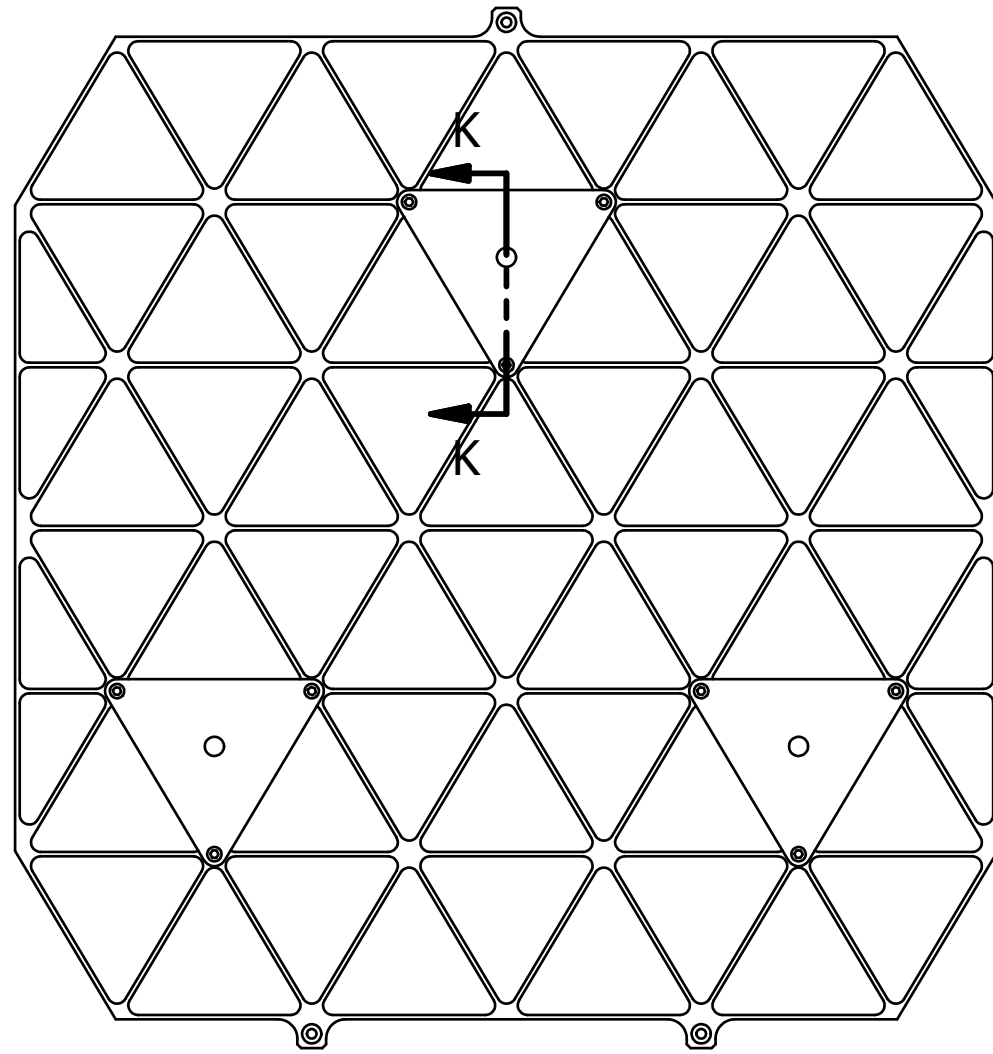
DETAIL J
SCALE 1 / 2
(TYP REFERENCE TAB)
(SEE BACK VIEW, SHT 2)



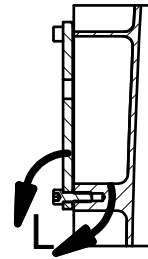
DETAIL G
SCALE 1 / 2
(TYP SMALL TRIANGLE DETAIL)
(SEE BACK VIEW, SHT 2)

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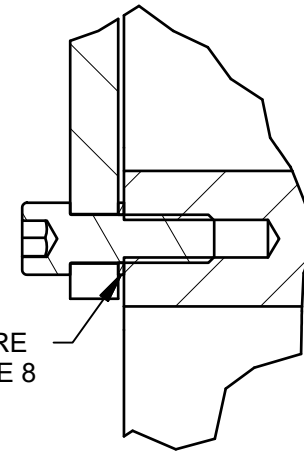
DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR .X = ± .1 .XX = ± .01 .XXX = ± .005 ANGULAR ± .5° DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC		ENGINEER: N. EMERSON DESIGNED BY: N. EMERSON DRAWN BY: A. FERN CHECKED BY: A. FERN APPROVED: N. EMERSON		DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		TIME USED ON		PROJECT: TIME	
FINISH: NONE		ASSEMBLY APPLICATION		TITLE: MIRROR K2	
				DRAWING NUMBER: 26631	
				REVISION: A	



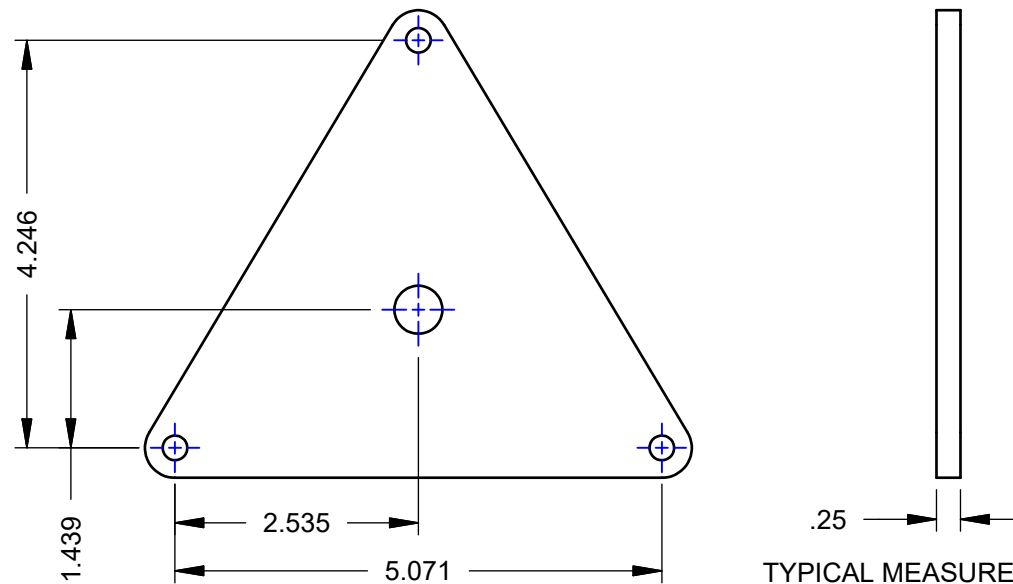
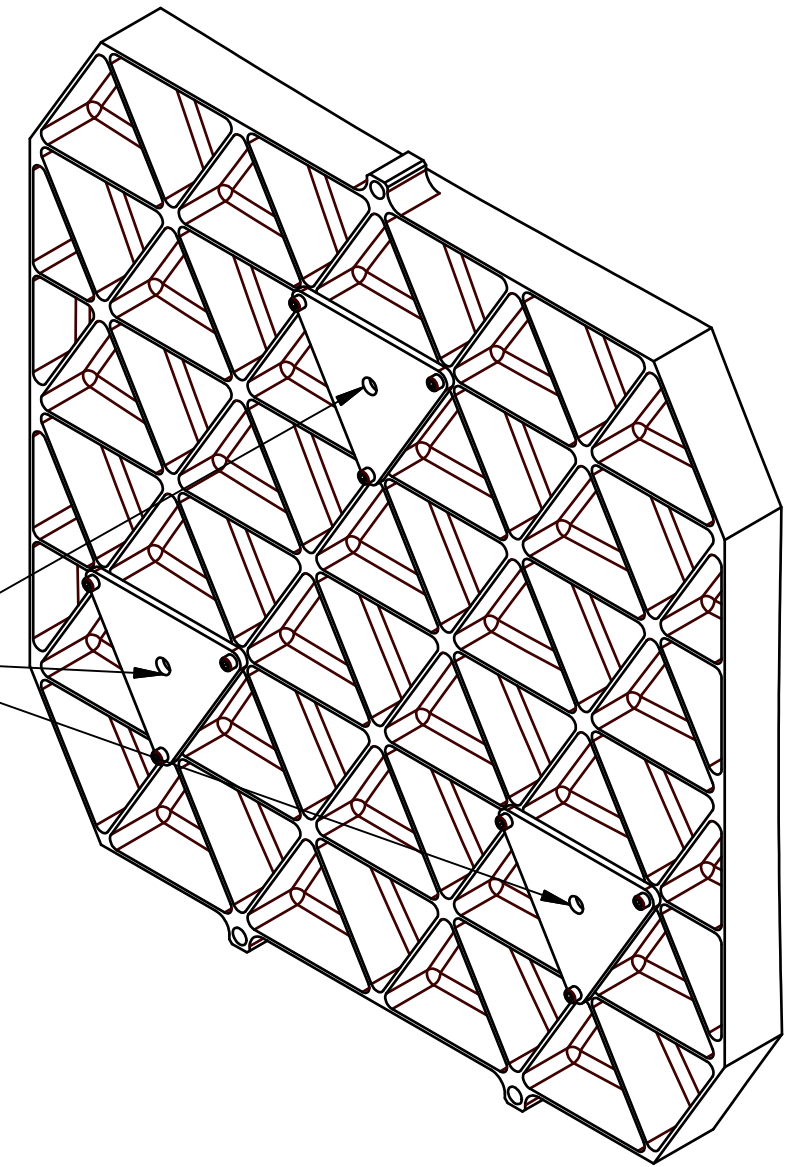
SECTION K-K
SCALE 1/5



DETAIL L
SCALE 1

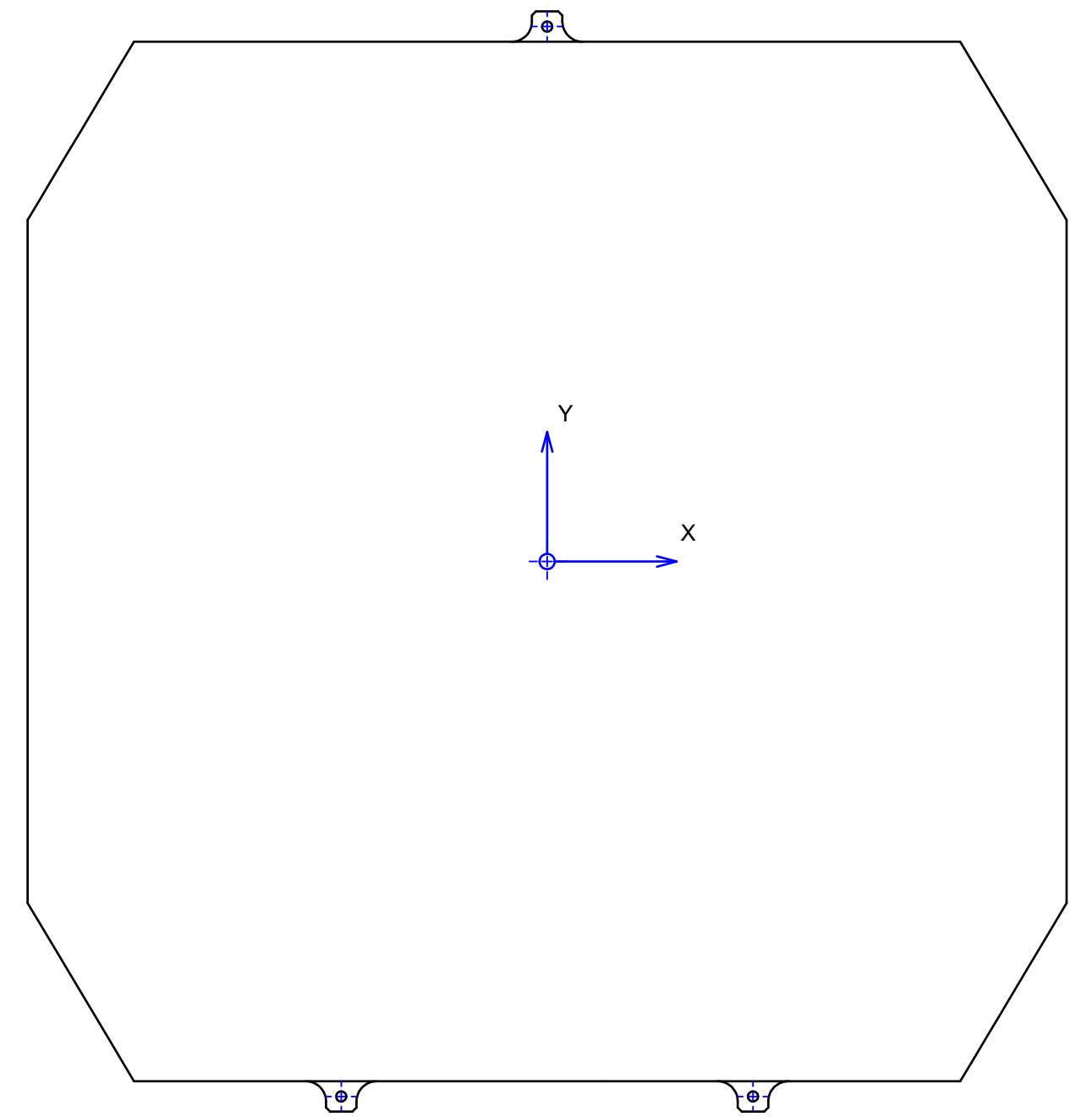
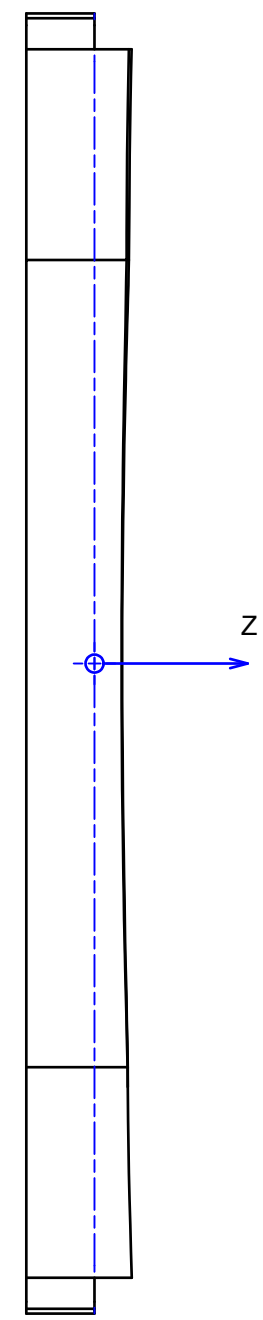
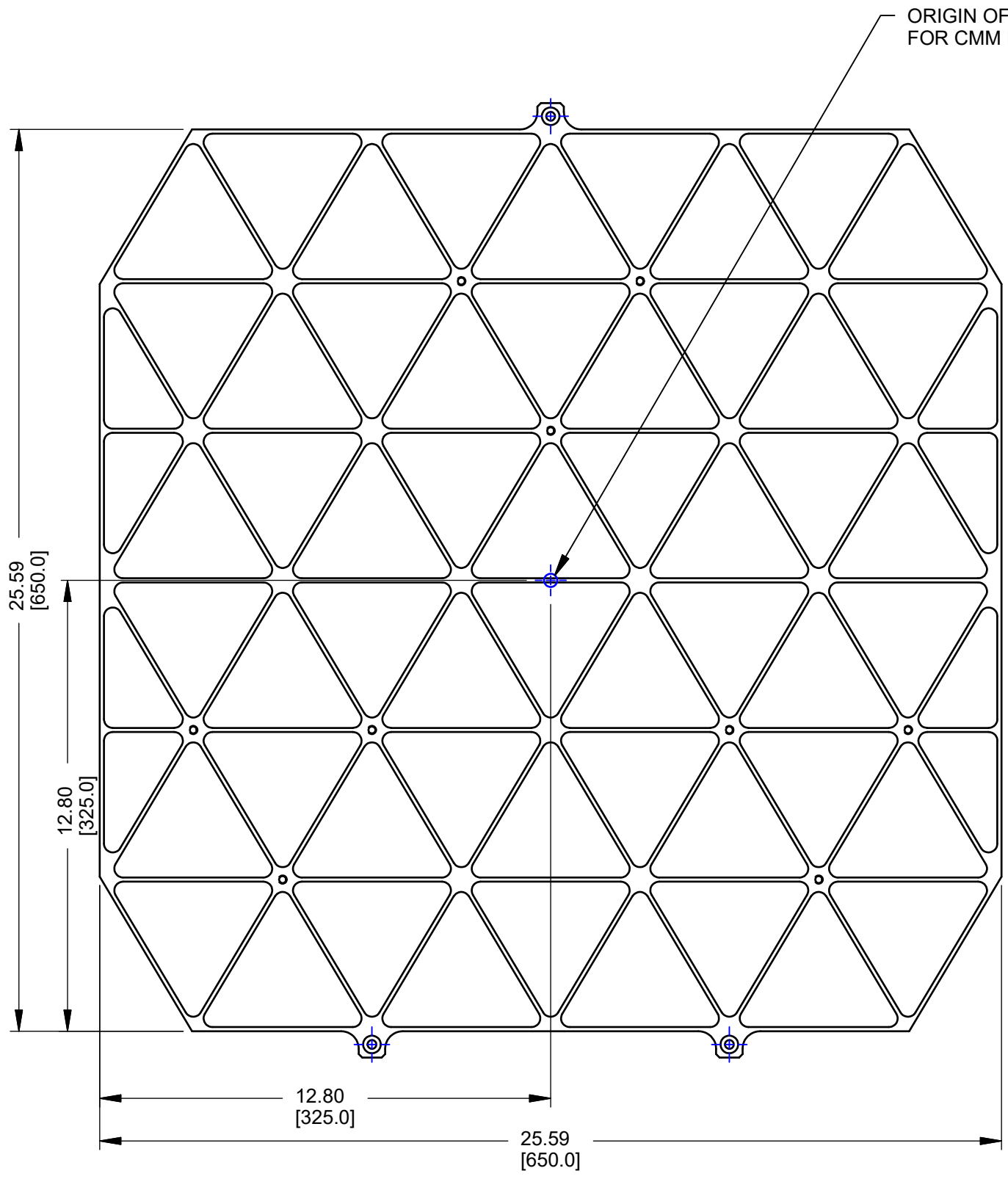


SEE NOTE 7



DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 DIAMETRICAL: SEE SPEC S-002 <small>DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>		ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME	
FINISH: NONE		DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR K2	
NEXT ASSY		CHECKED BY: A. FERN	DATE: 5/30/2018	DRAWING NUMBER: 26631	
ASSEMBLY APPLICATION		APPROVED: N. EMERSON	DATE: 5/30/2018	SHEET 5 of 6	
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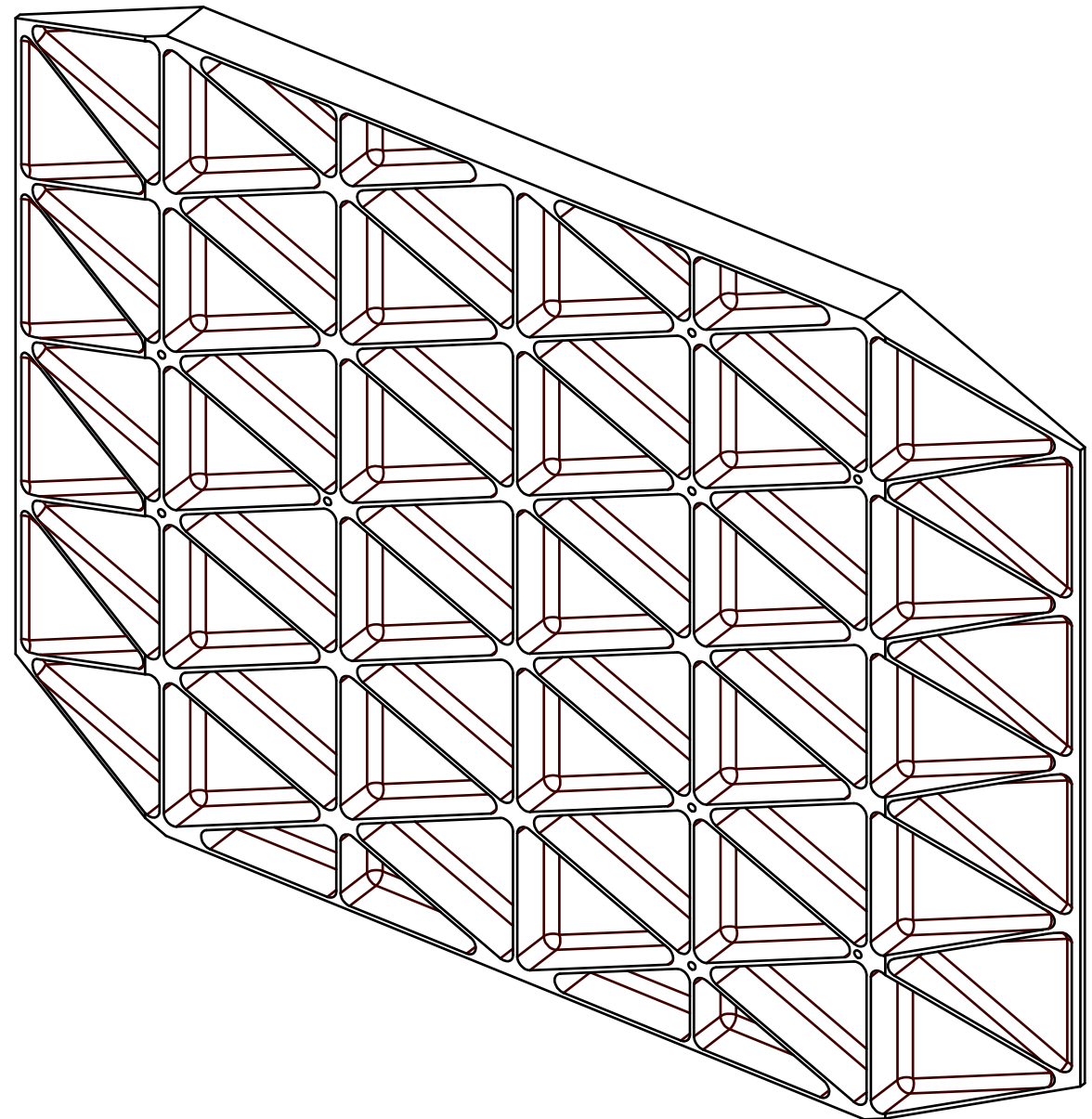
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DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94	THIS DRAWING CREATED IN:				Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659			
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TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC					DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME	
					DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR K2	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM					CHECKED BY: A. FERN	DATE: 5/30/2018		
					APPROVED: N. EMERSON	DATE: 5/30/2018		
FINISH: NONE					APPROVED:	DATE:	DRAWING NUMBER: 26631	REVISION: A
					ASSEMBLY APPLICATION		SHEET 6 OF 6	


REVISION HISTORY				
REV	DESCRIPTION	DATE	REVISED BY	APPROVED
A	INITIAL RELEASE		A. FERN	N. EMERSON

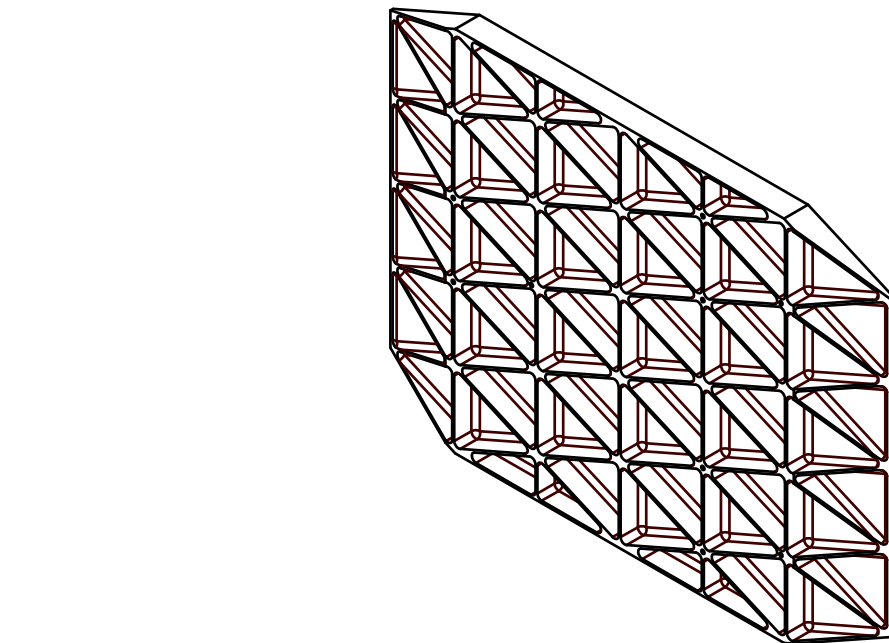
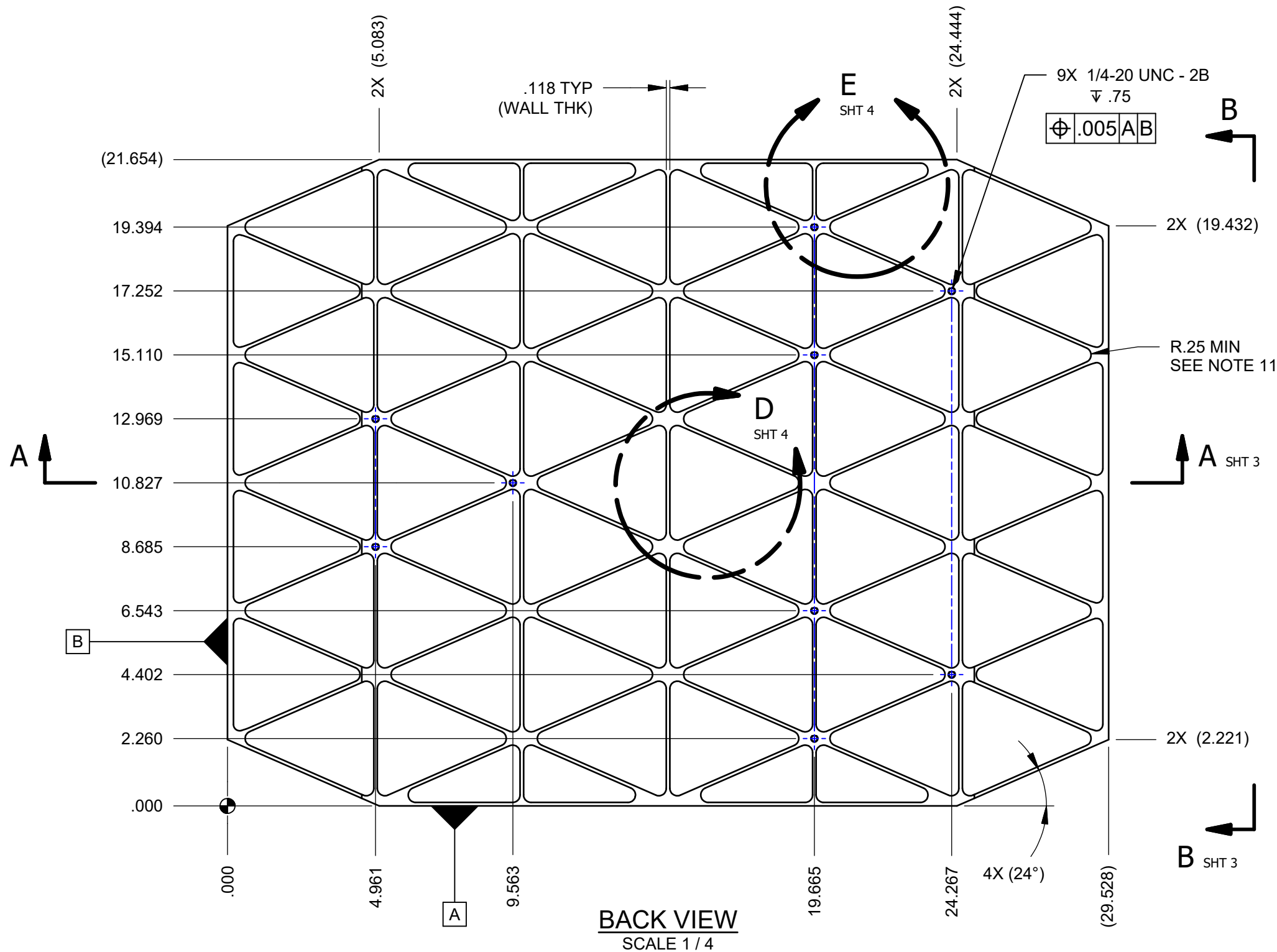
NOTES:

- 1) BREAK SHARP EDGES AND DEBURR.
- 2) ALL MACHINING FILLETS TO BE R.25 MAX UNLESS OTHERWISE SPECIFIED.
- 3) ALL MACHINED SURFACES TO BE 125 RMS OR BETTER, WITH EXCEPTION OF REFLECTING SURFACE INDICATED BY NOTE 6.
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- 9) SUPPORT OF THE PANEL DURING MACHINING CAN BE EITHER USING THE MEASUREMENT ADAPTOR PLATES, OR BY OTHER APPROPRIATE MEANS AT THE DISCRETION OF THE FABRICATOR.
- 10) SHEET 6 DEFINES THE OPTICAL CENTER AND COORDINATE SYSTEM ORIENTATION OF THE MIRROR. THIS POSITION AND ORIENTATION TO BE USED FOR CMM MEASUREMENT. Z POSITION OF OPTICAL CENTER IN THE PLANE OF THE REFLECTING SURFACE.
- 11) TYPICAL (MINIMUM) MACHINING RADIUS SHOWN. A LARGER MACHINING RADIUS BETWEEN RIBS (UP TO 0.375in) IS ACCEPTABLE TO SIMPLIFY MACHINABILITY. STEP MODEL OF MIRROR CAN BE UPDATED ON REQUEST TO INCORPORATE PREFERRED RADIUS.
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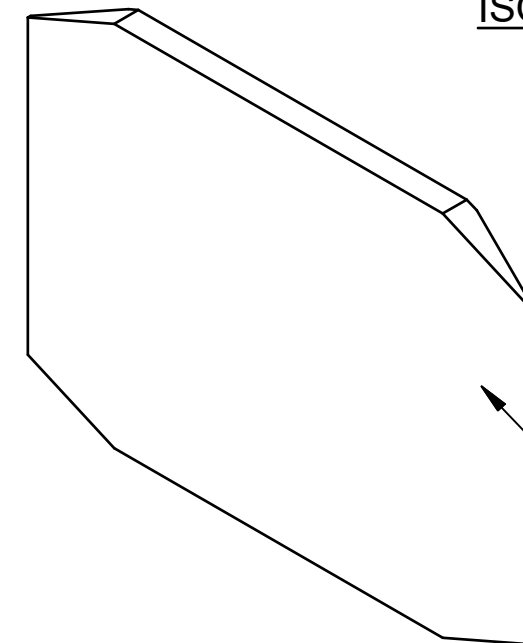


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DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		 Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 <small>DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>		ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:	
		DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME	
		DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR K3	
		CHECKED BY: A. FERN	DATE: 5/30/2018		
		APPROVED: N. EMERSON	DATE: 5/30/2018		
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		APPROVED:	DATE:	DRAWING NUMBER: 26632	
FINISH: NONE		APPROVED:	DATE:	SHEET 1 of 6	
		ASSEMBLY APPLICATION	APPROVED:	DATE:	REVISION: A



ISO VIEW - BACK
SCALE 1 / 8



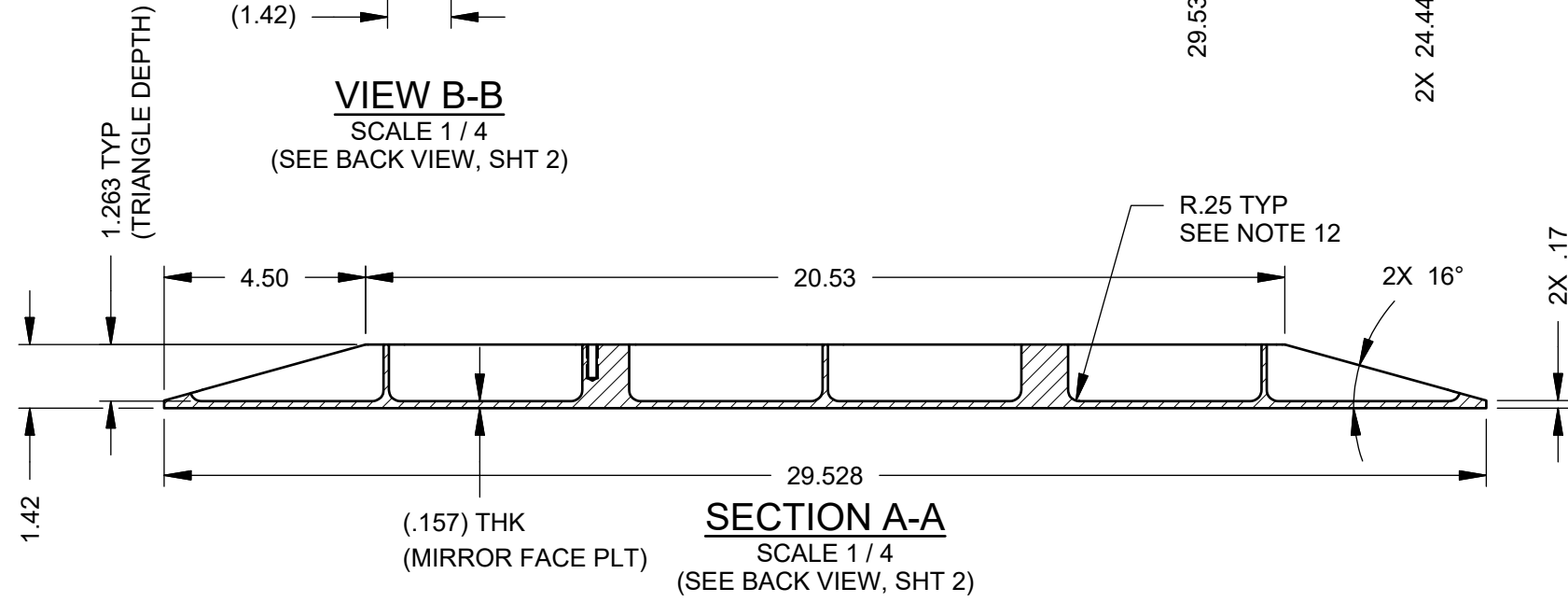
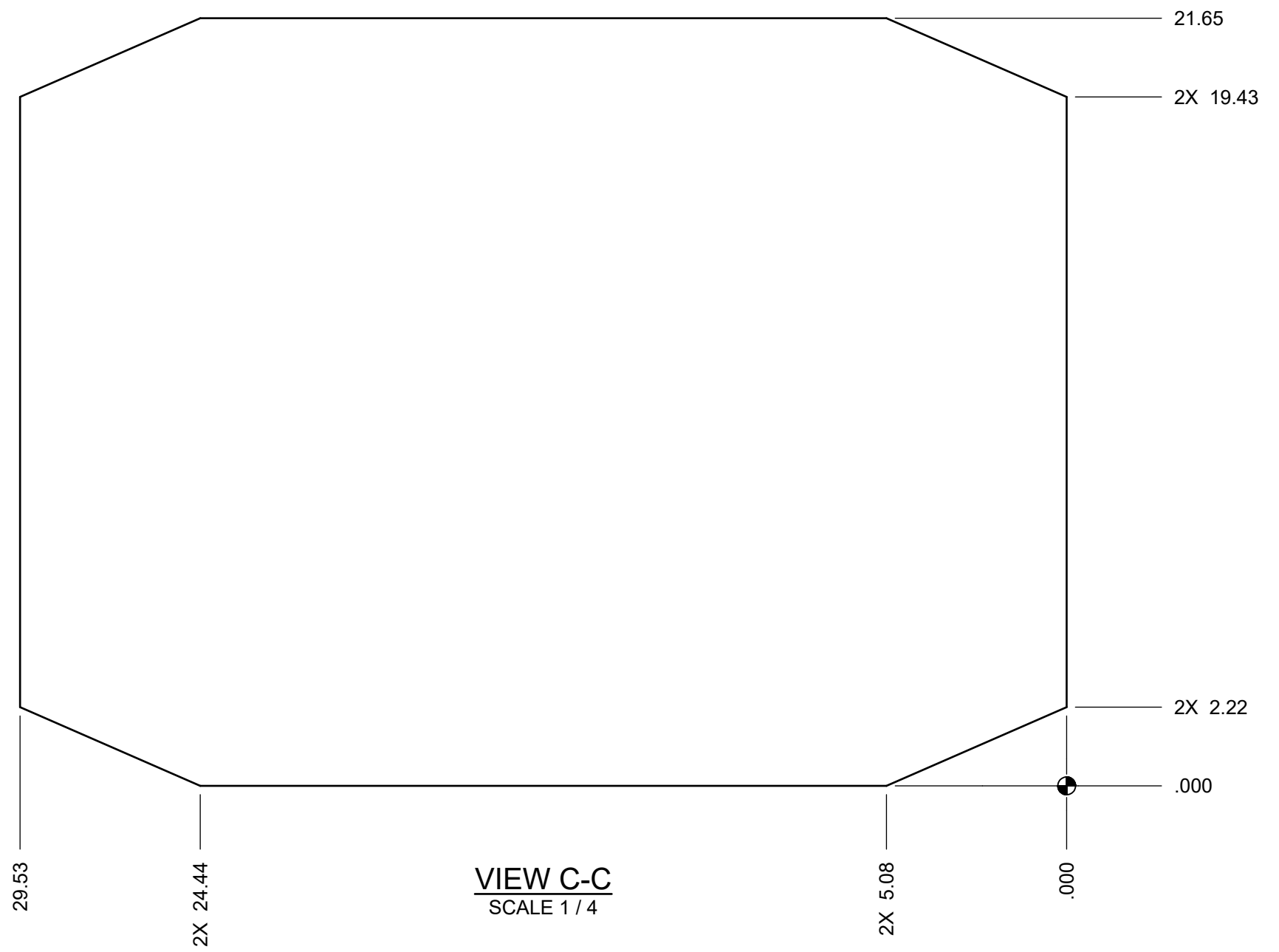
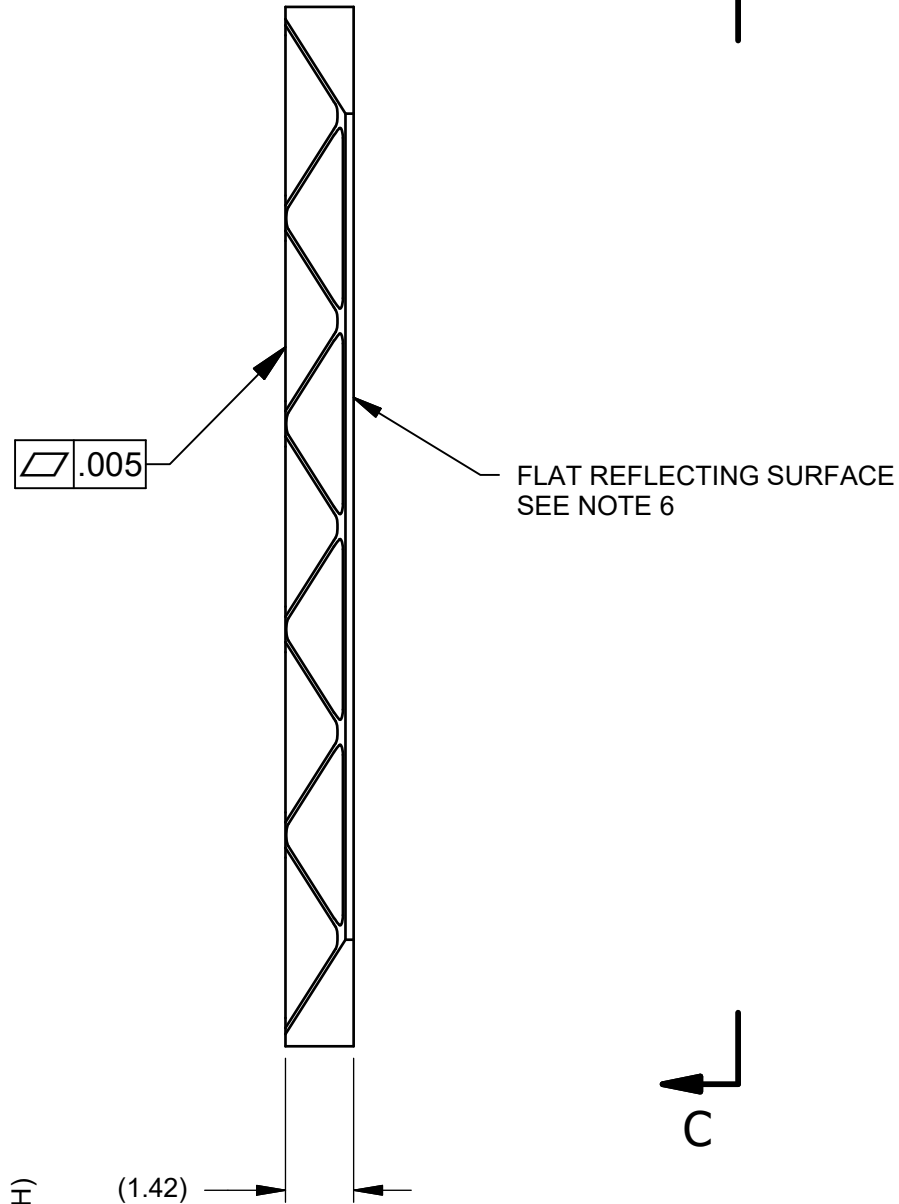
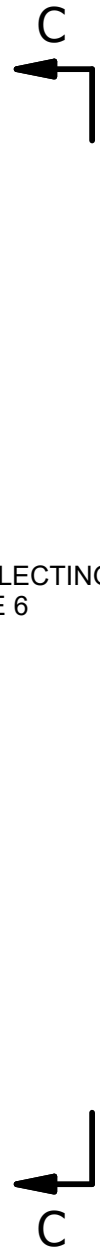
FLAT REFLECTING SURFACE
SEE NOTE 6

ISO VIEW - FRONT
SCALE 1 / 8

BACK VIEW
SCALE 1 / 4

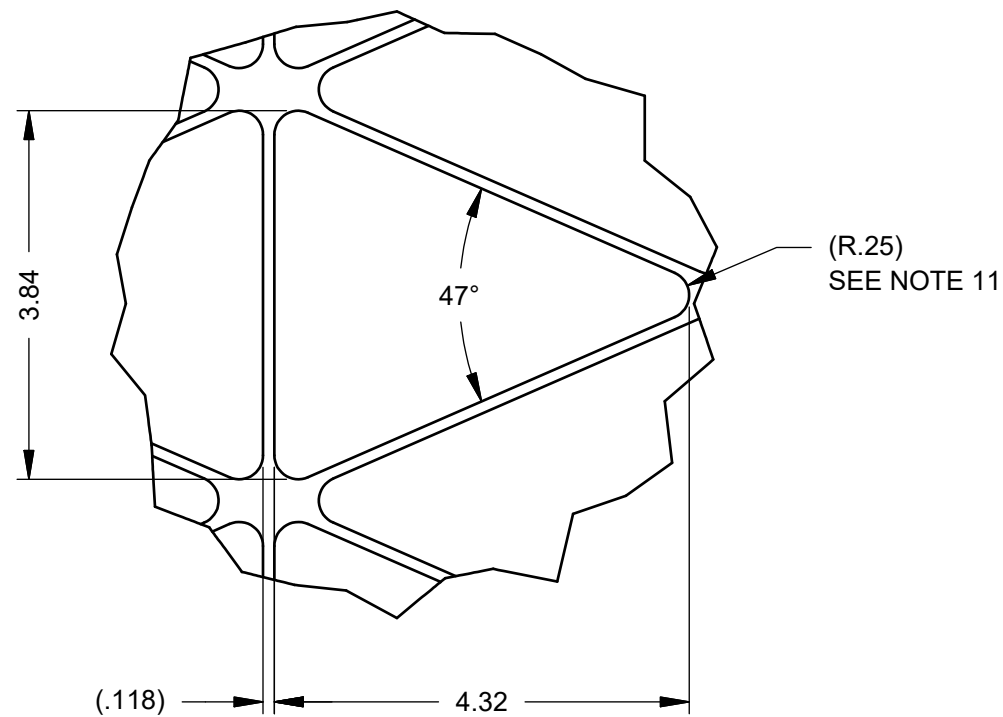
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DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR .X = ± .1 .XX = ± .01 .XXX = ± .005 ANGULAR ± .5° DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC		ENGINEER: N. EMERSON DESIGNED BY: N. EMERSON DRAWN BY: A. FERN CHECKED BY: A. FERN APPROVED: N. EMERSON		DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018	
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				SHEET 2 OF 6	
				REVISION: A	

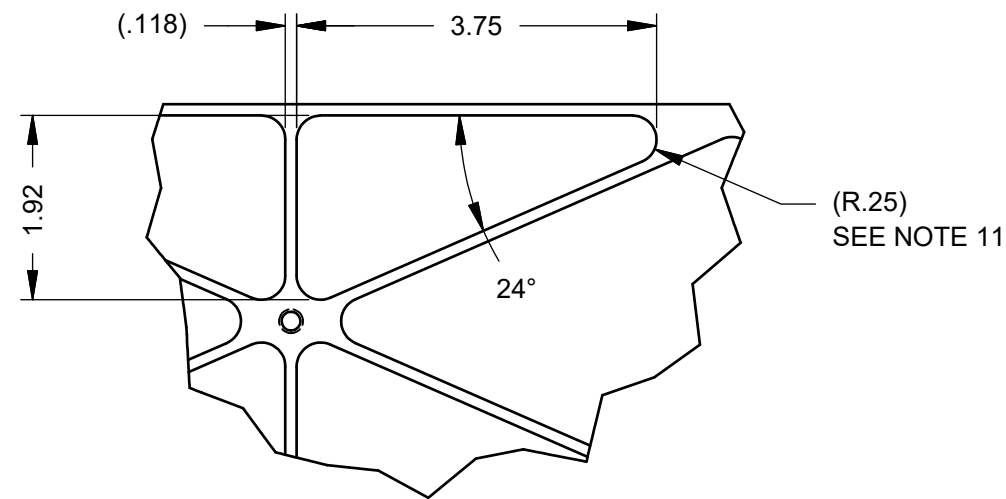


DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN:				Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659			
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR .X = ± .1 .XX = ± .01 .XXX = ± .005 ANGULAR ± .5° DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC		ACAD	MECH	IDEAS	INV	ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:	PROJECT: TIME
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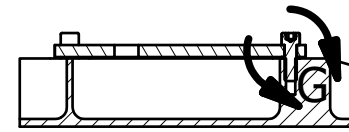
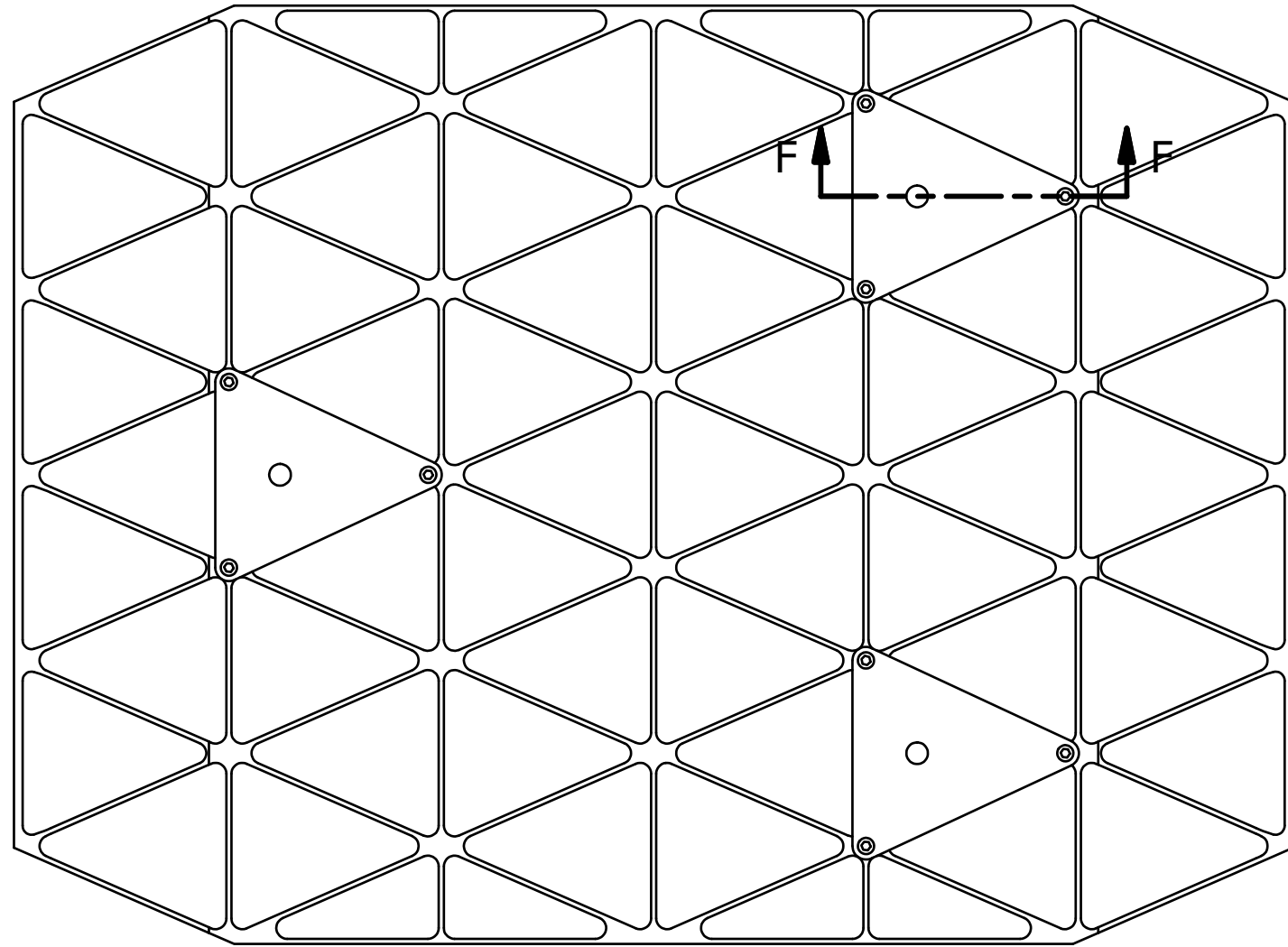
DETAIL D
SCALE 1 / 2
(TYP LARGE TRIANGLE DETAIL)
(SEE BACK VIEW, SHT 2)



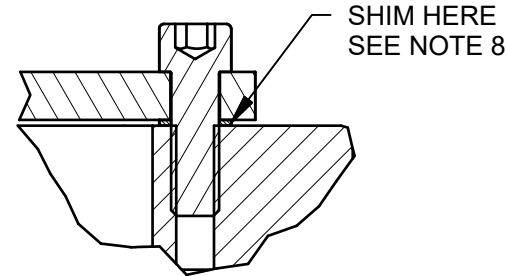
DETAIL E
SCALE 1 / 2
(TYP SMALL TRIANGLE DETAIL)
(SEE BACK VIEW, SHT 2)

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DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>				 Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
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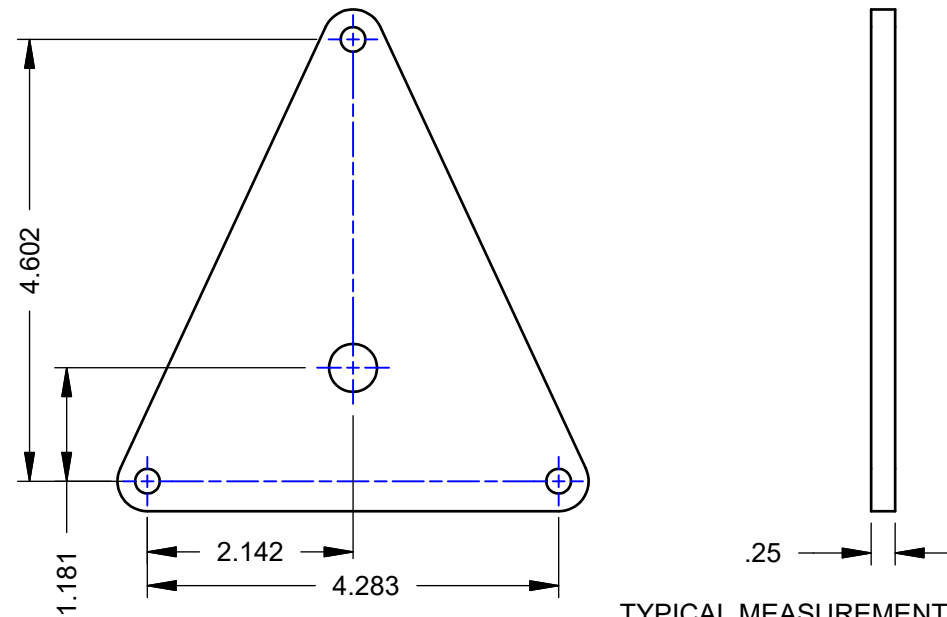
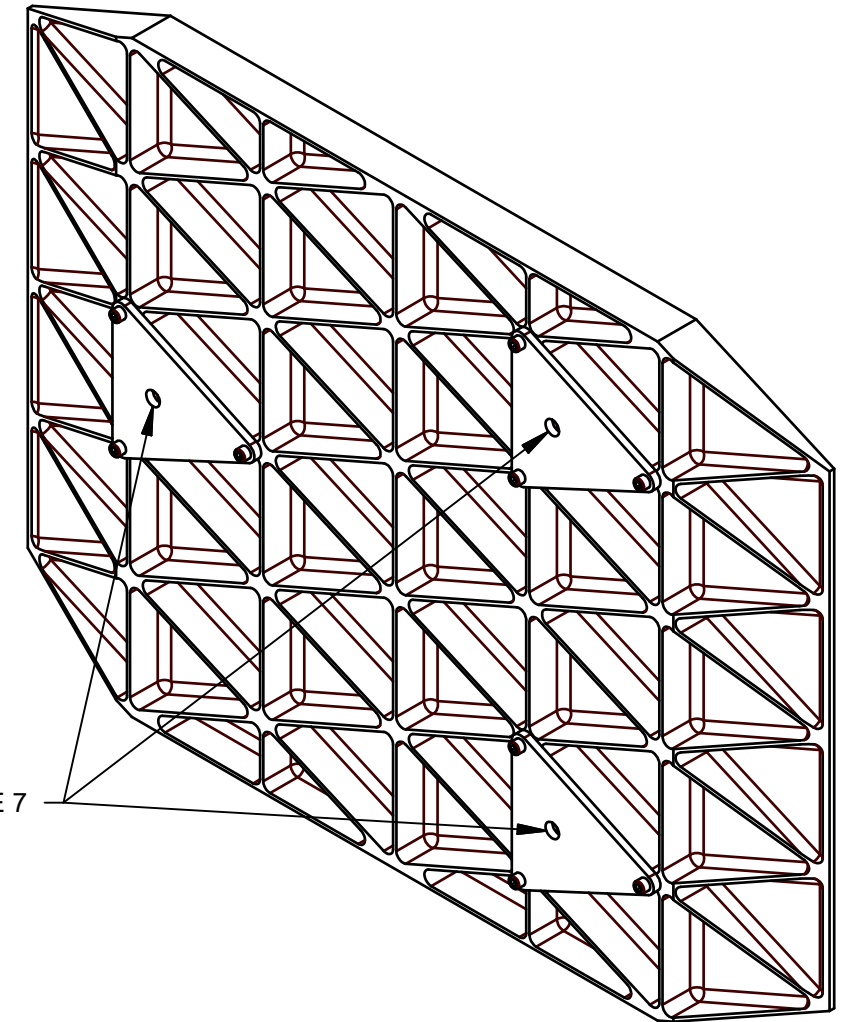


SECTION F-F
SCALE 1/4



DETAIL G
SCALE 1

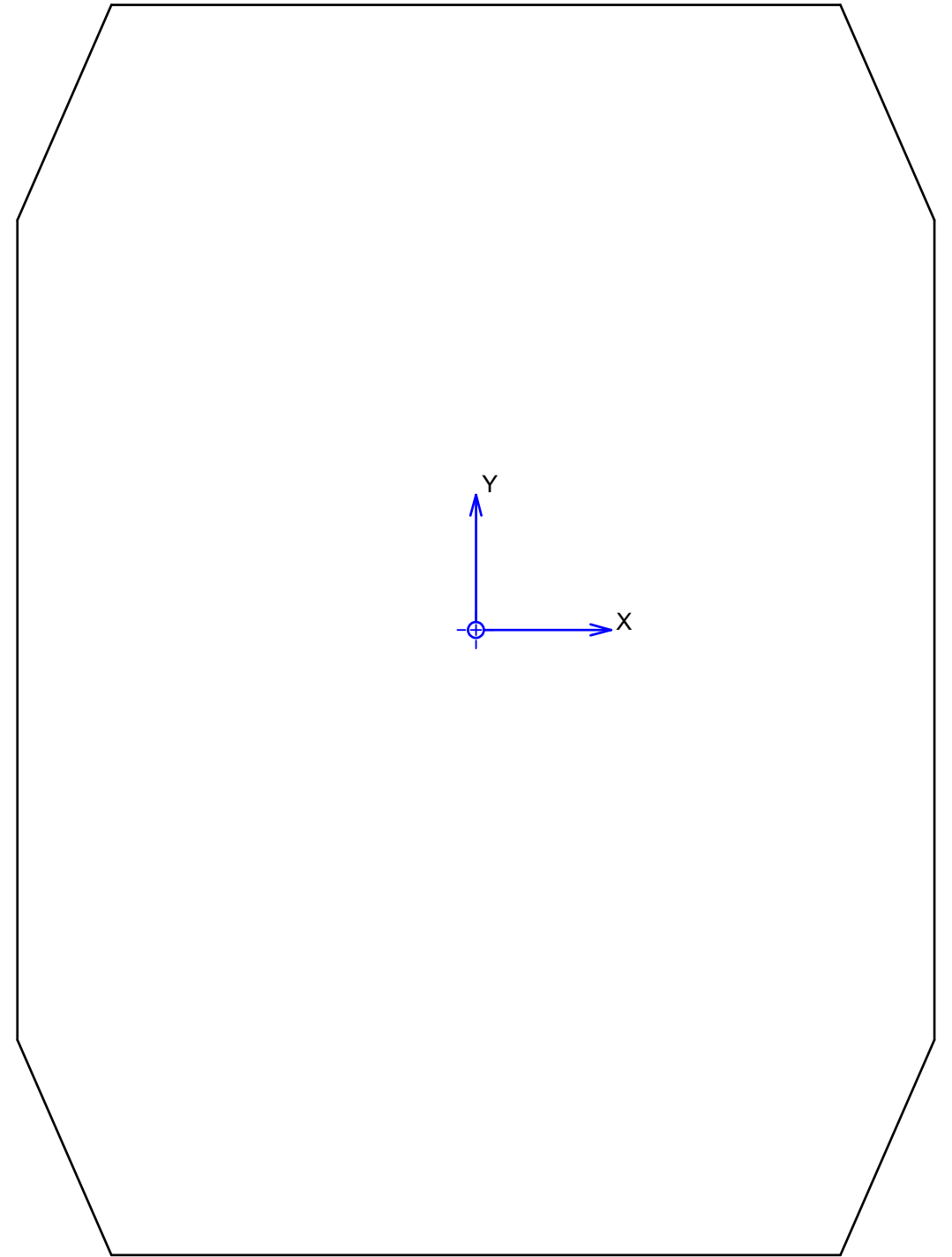
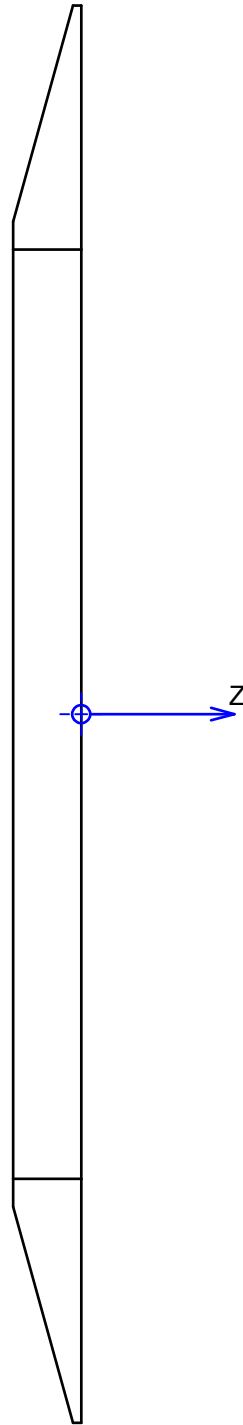
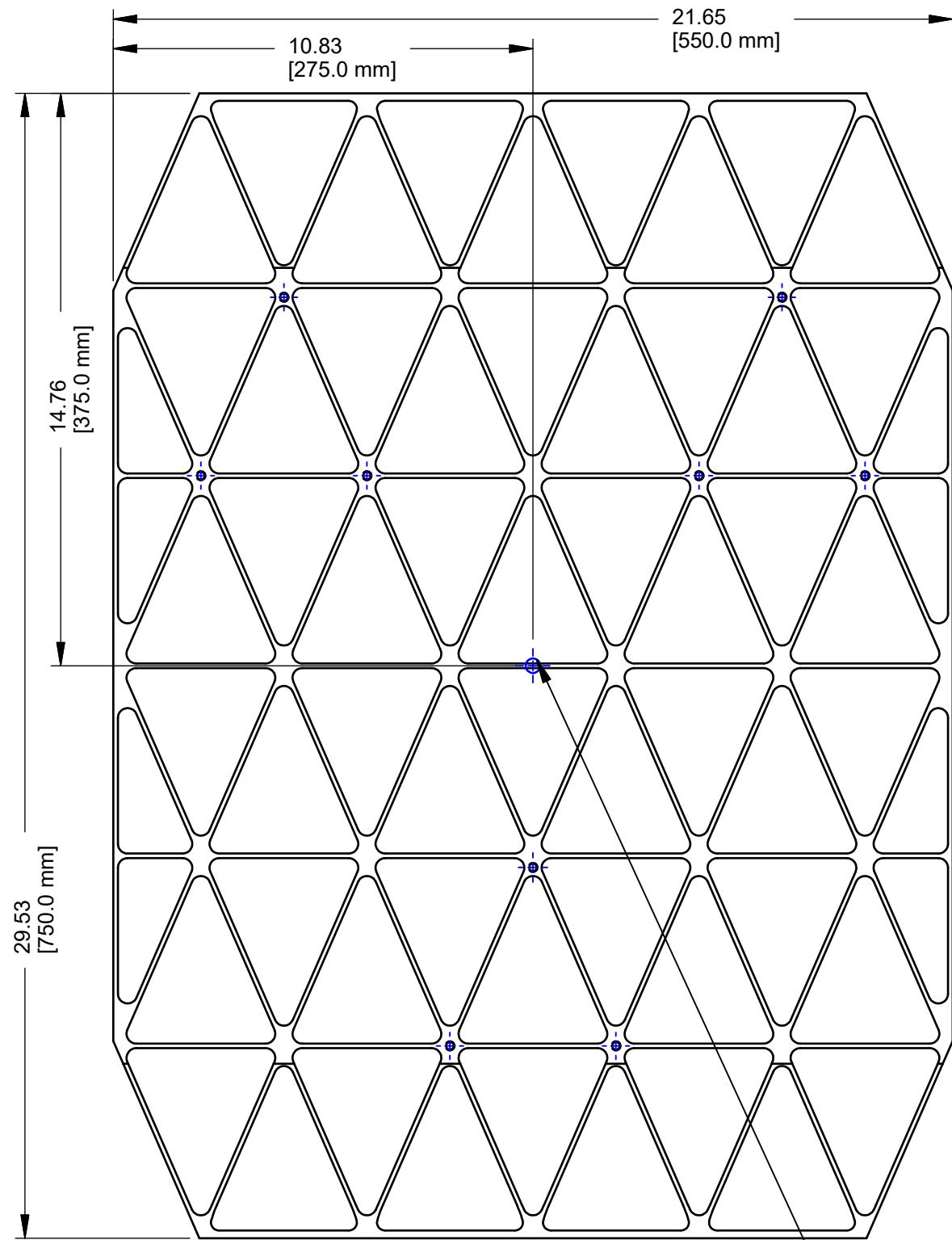
SEE NOTE 7



TYPICAL MEASUREMENT ADAPTOR PLATE DIMENSIONS


DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94	THIS DRAWING CREATED IN:				Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659		
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TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 DIAMETRICAL: SEE SPEC S-002 <small>DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>					DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME
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					APPROVED:	DATE:	SHEET 5 OF 6
					APPROVED:	DATE:	REVISION: A

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ORIGIN OF COORDINATE SYSTEM FOR CMM MEASUREMENT

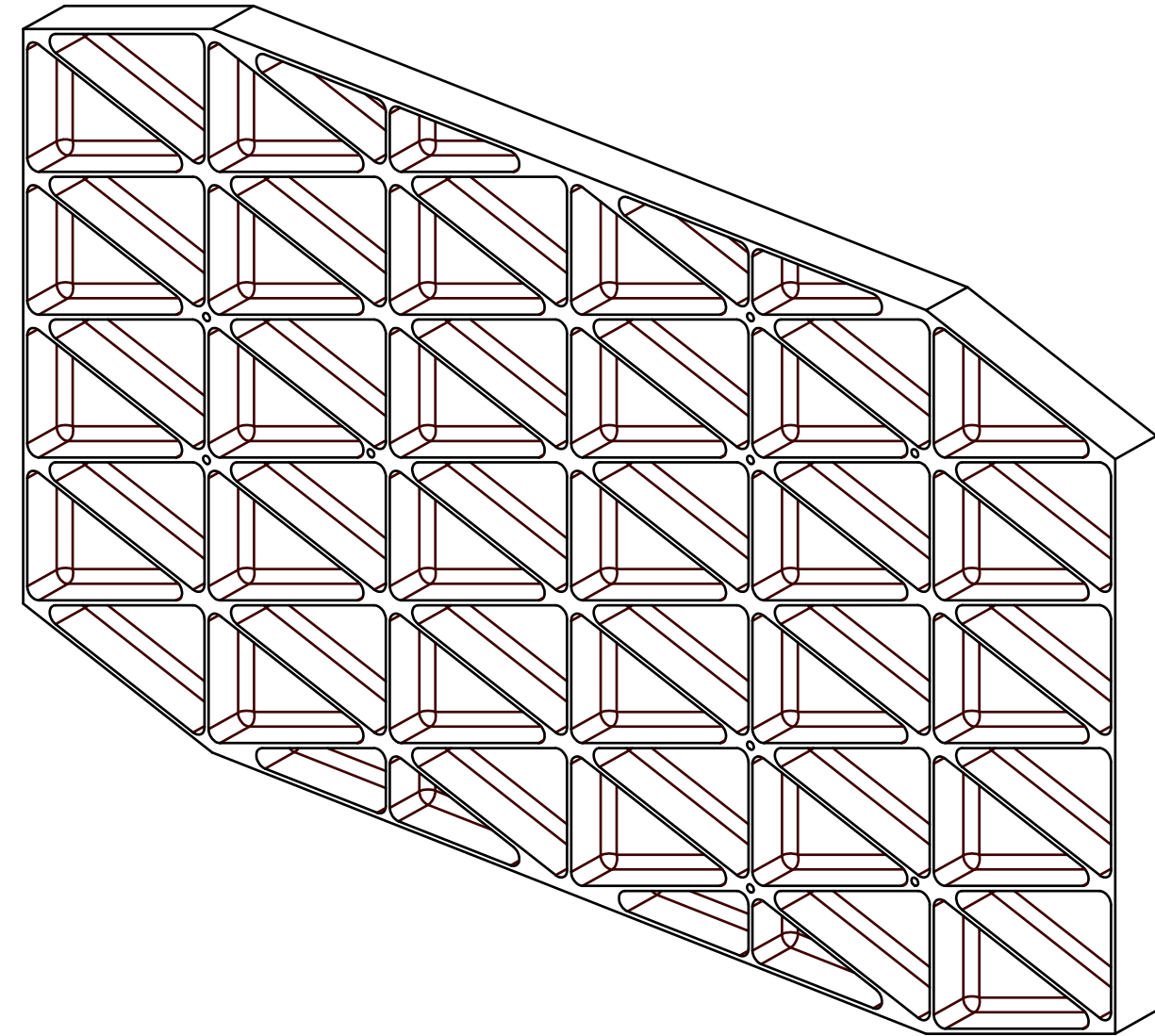
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DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>				 Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 <small>DIAMETRICAL: SEE SPEC S-002</small> <small>DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>		ENGINEER: N. EMERSON DATE: 5/30/2018		CATEGORY: PROJECT: TIME		TITLE: MIRROR K3	
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FINISH: NONE		NEXT ASSY USED ON		APPROVED: DATE:		DRAWING NUMBER: 26632	
		ASSEMBLY APPLICATION		APPROVED: DATE:		SHEET 6 OF 6 A	


REVISION HISTORY				
REV	DESCRIPTION	DATE	REVISED BY	APPROVED
A	INITIAL RELEASE		A. FERN	N. EMERSON

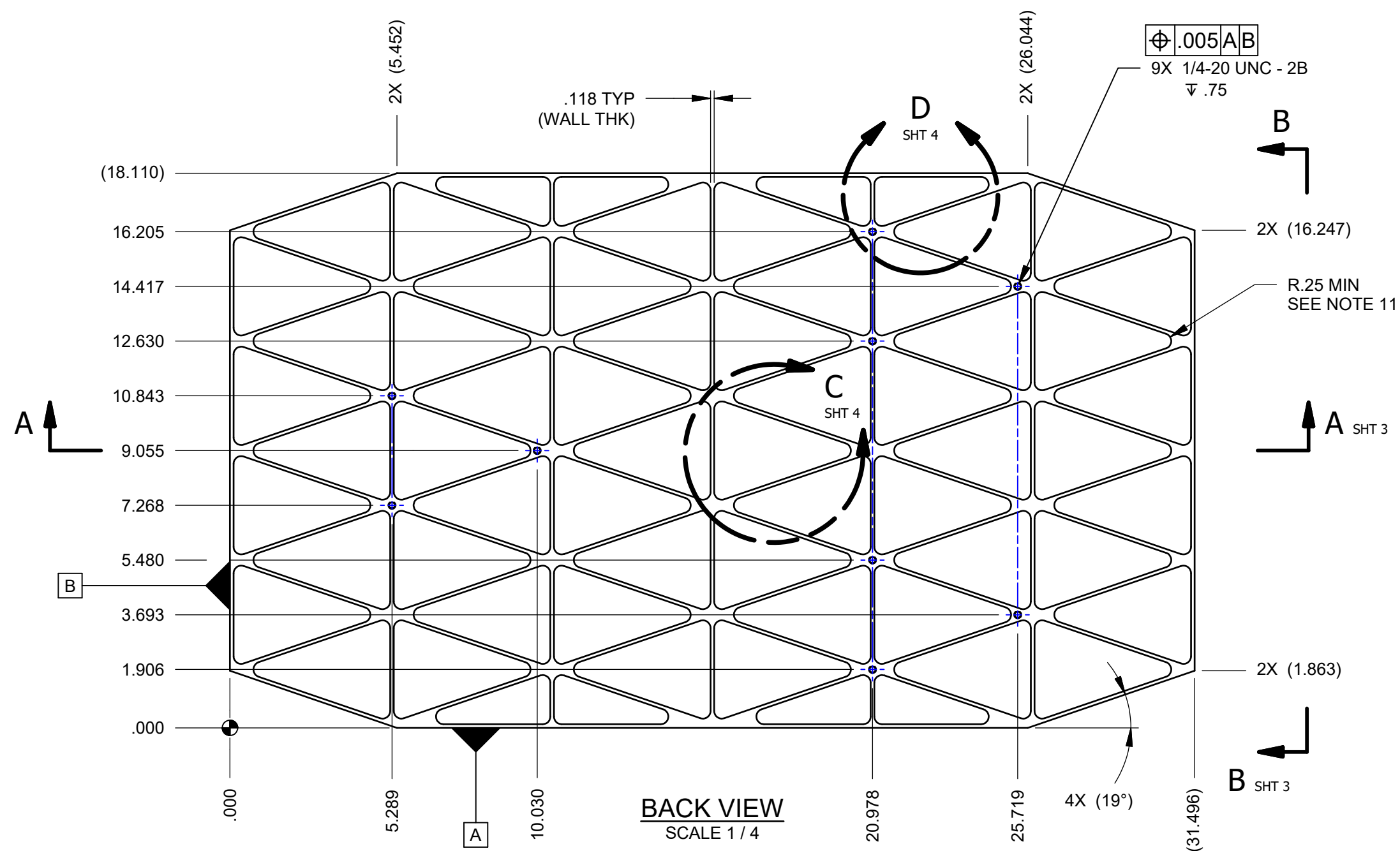
NOTES:

- 1) BREAK SHARP EDGES AND DEBURR.
- 2) ALL MACHINING FILLETS TO BE R.25 MAX UNLESS OTHERWISE SPECIFIED.
- 3) ALL MACHINED SURFACES TO BE 125 RMS OR BETTER, WITH EXCEPTION OF REFLECTING SURFACE INDICATED BY NOTE 6.
- 4) 3D MODEL WILL BE PROVIDED AND USED TO MANUFACTURE THIS PART.
- 5) DRAWING PROVIDES BASIC ENVELOPE DIMENSIONS AND KEY FEATURE CONTROL TOLERANCE CALLOUTS ONLY.
- 6) ROUGHNESS AND ACCURACY OF INDICATED SURFACE DEFINED IN ATTACHED MIRROR SPEC DOCUMENT.
- 7) MEASUREMENT OF REFLECTING SURFACE TO BE PERFORMED WITH MIRROR SIMPLY SUPPORTED AT THREE LOCATIONS AS INDICATED ON THE REAR SURFACE, USING TOOLING BALL OR SIMILAR TO AVOID UNINTENTIONAL BENDING OF MIRROR DURING MEASUREMENT. ADAPTOR PLATES AT EACH OF THESE THREE LOCATIONS ARE BOLTED TO THE PANEL AT 3 CORRESPONDING BOLTHOLES.
- 8) THE ADAPTOR PLATES (SUGGESTED PLATE GEOMETRY AS SHOWN) SHOULD BE OFFSET FROM THE BACK OF THE PANEL TO LIMIT THE CONTACT ZONE TO THE AREA AROUND EACH THREADED HOLE
- 9) SUPPORT OF THE PANEL DURING MACHINING CAN BE EITHER USING THE MEASUREMENT ADAPTOR PLATES, OR BY OTHER APPROPRIATE MEANS AT THE DISCRETION OF THE FABRICATOR.
- 10) SHEET 6 DEFINES THE OPTICAL CENTER AND COORDINATE SYSTEM ORIENTATION OF THE MIRROR. THIS POSITION AND ORIENTATION TO BE USED FOR CMM MEASUREMENT. Z POSITION OF OPTICAL CENTER IN THE PLANE OF THE REFLECTING SURFACE.
- 11) TYPICAL (MINIMUM) MACHINING RADIUS SHOWN. A LARGER MACHINING RADIUS BETWEEN RIBS (UP TO 0.375in) IS ACCEPTABLE TO SIMPLIFY MACHINABILITY. STEP MODEL OF MIRROR CAN BE UPDATED ON REQUEST TO INCORPORATE PREFERRED RADIUS.
- 12) TYPICAL RADIUS SHOWN. RADIUS CAN BE ALTERED TO SIMPLIFY MACHINABILITY. SHARP CORNERS ARE ACCEPTABLE. STEP MODEL CAN BE UPDATED ON REQUEST TO INCORPORATE PREFERRED RADIUS.

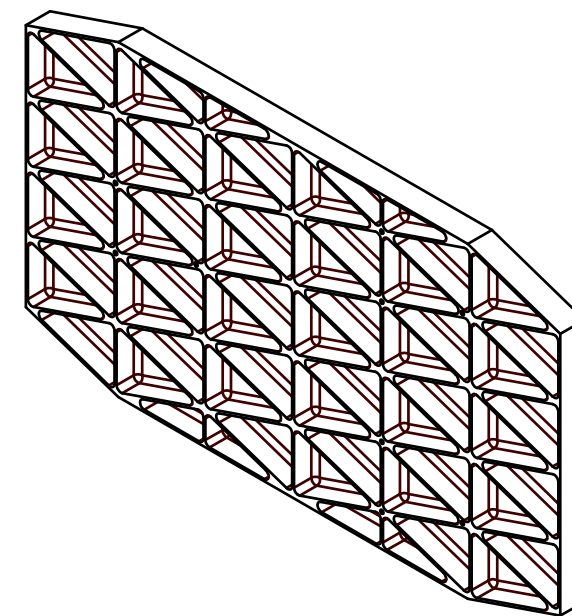


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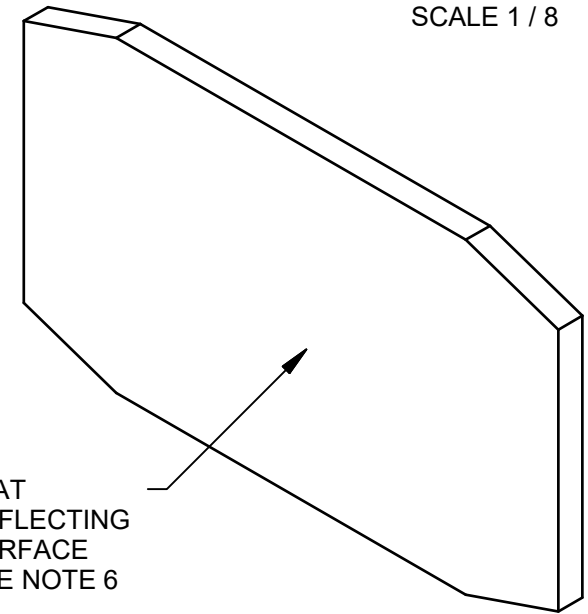
DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		 Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± .5° .XX = ± .01 .XXX = ± .005 <small>DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>		ENGINEER: N. EMERSON	DATE: 5/30/2018	CATEGORY:	
		DESIGNED BY: N. EMERSON	DATE: 5/30/2018	PROJECT: TIME	
		DRAWN BY: A. FERN	DATE: 5/30/2018	TITLE: MIRROR F1	
		CHECKED BY: A. FERN	DATE: 5/30/2018		
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MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		APPROVED:	DATE:	DRAWING NUMBER: 26633	
FINISH: NONE		APPROVED:	DATE:	SHEET 1 of 6	
		ASSEMBLY APPLICATION	APPROVED:	REVISION: A	



BACK VIEW
SCALE 1 / 4



ISO VIEW - BACK
SCALE 1 / 8

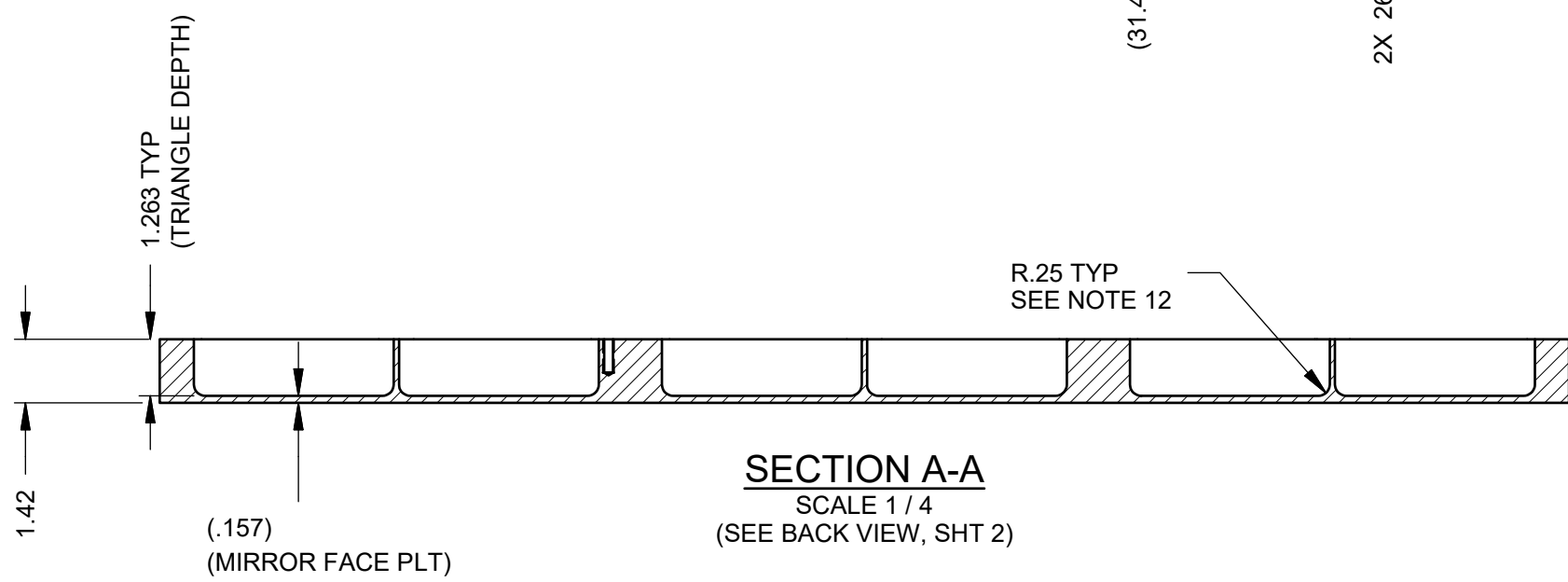
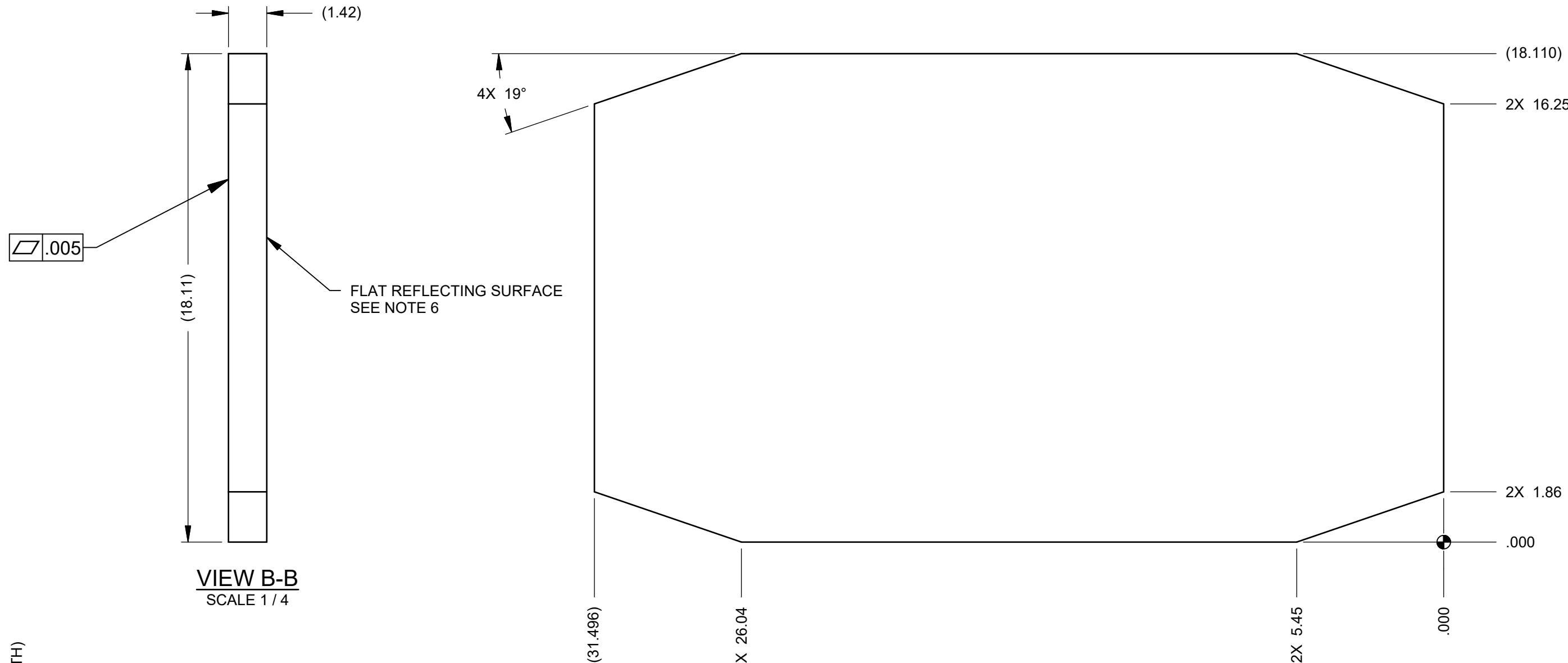


ISO VIEW - FRONT
SCALE 1 / 8

FLAT
REFLECTING
SURFACE
SEE NOTE 6

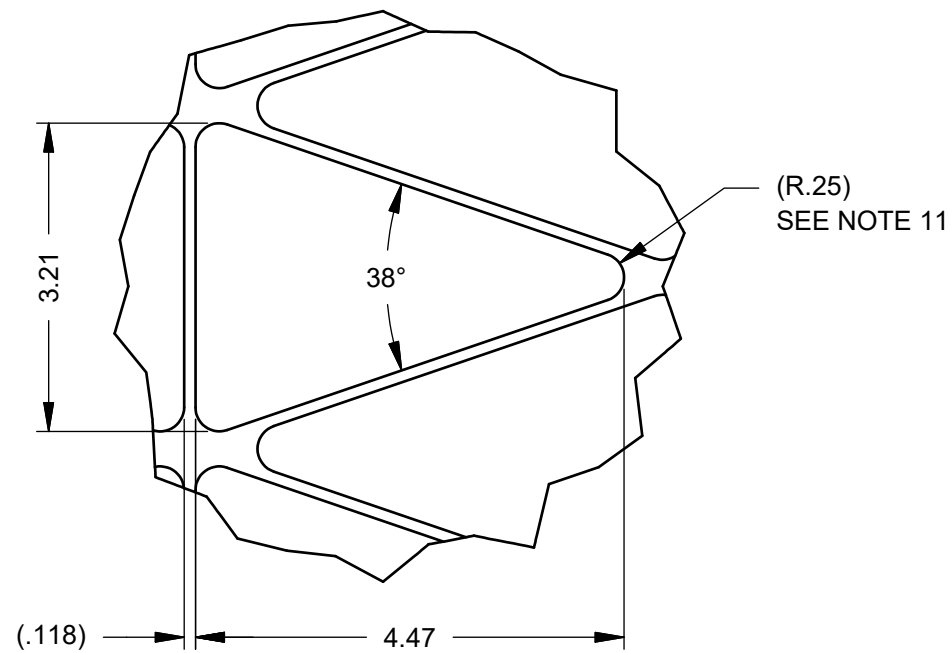
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	APPROVED:	DATE:	REVISION: A
	ASSEMBLY APPLICATION		

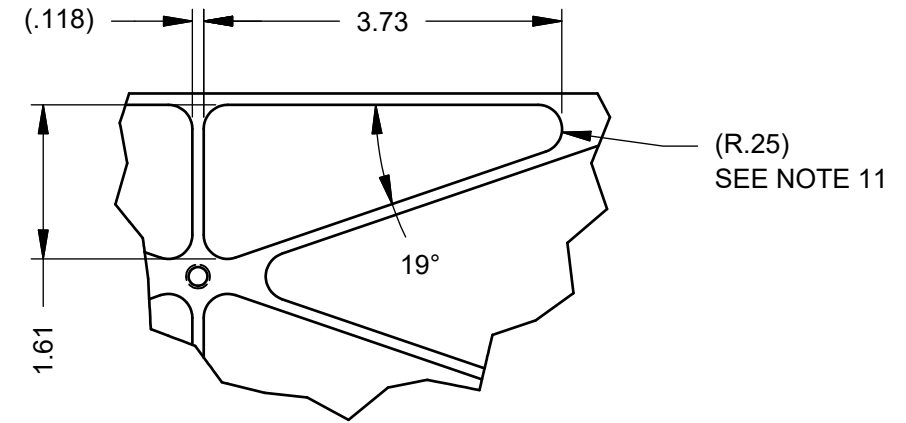


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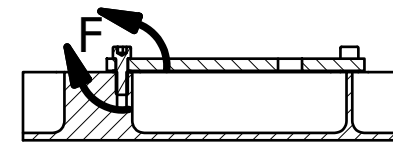
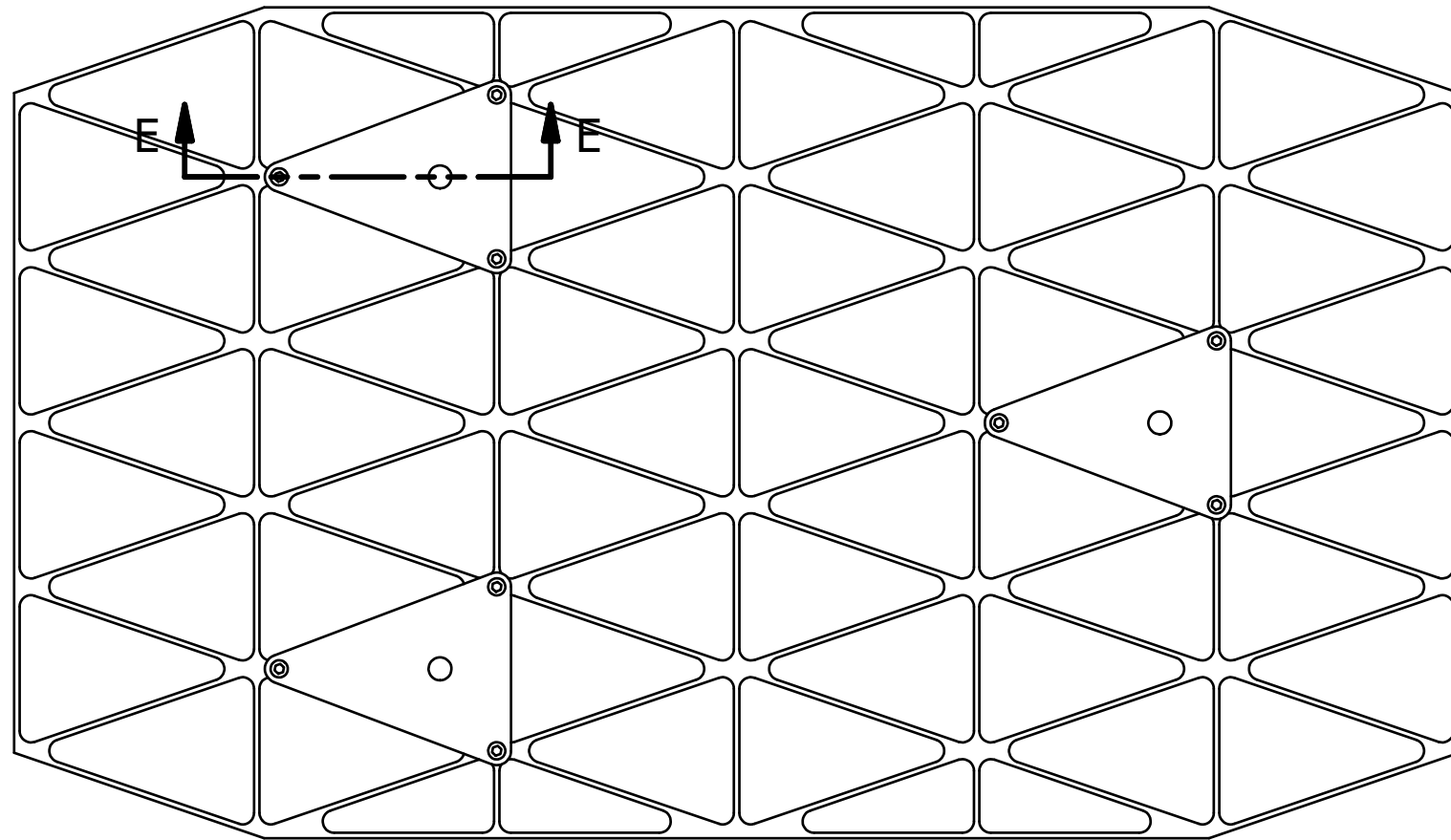
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(SEE BACK VIEW, SHT 2)



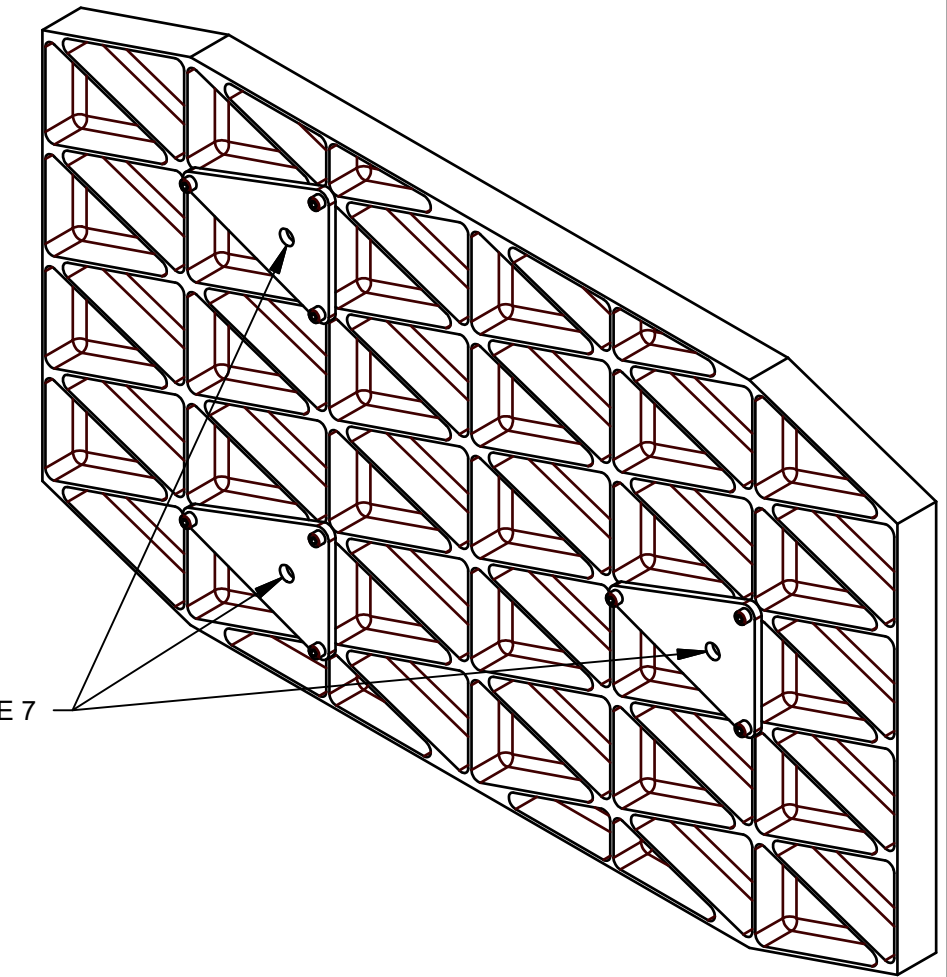
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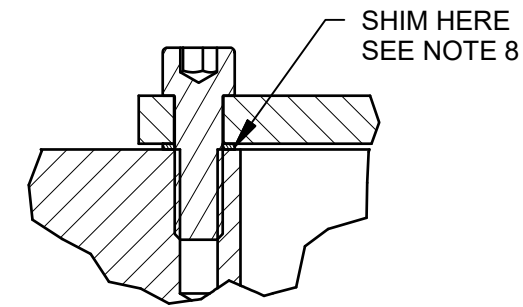
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DRAWING NUMBER: 26633						SHEET 4 OF 6	
REVISION: A							



SECTION E-E
SCALE 1/4

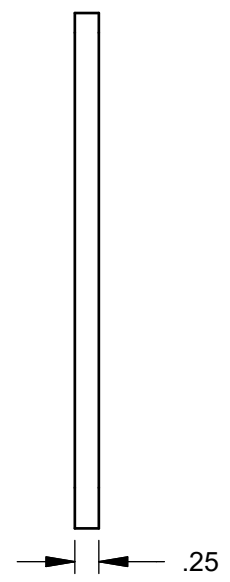
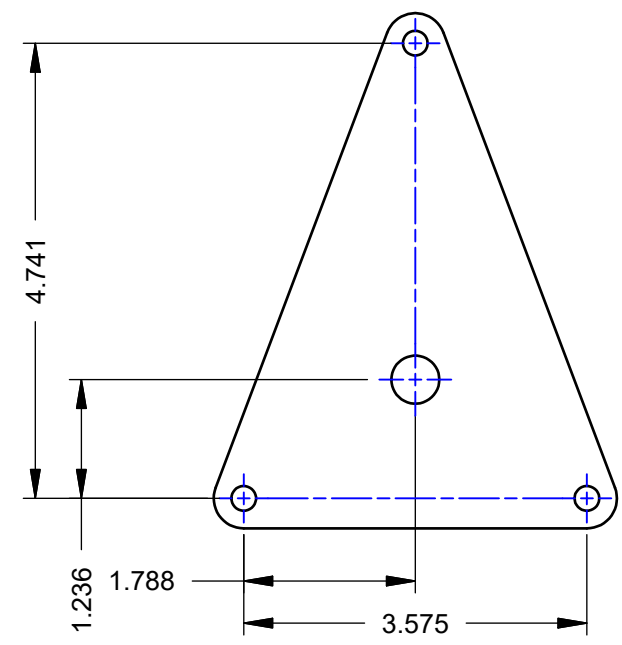


SEE NOTE 7



SHIM HERE
SEE NOTE 8

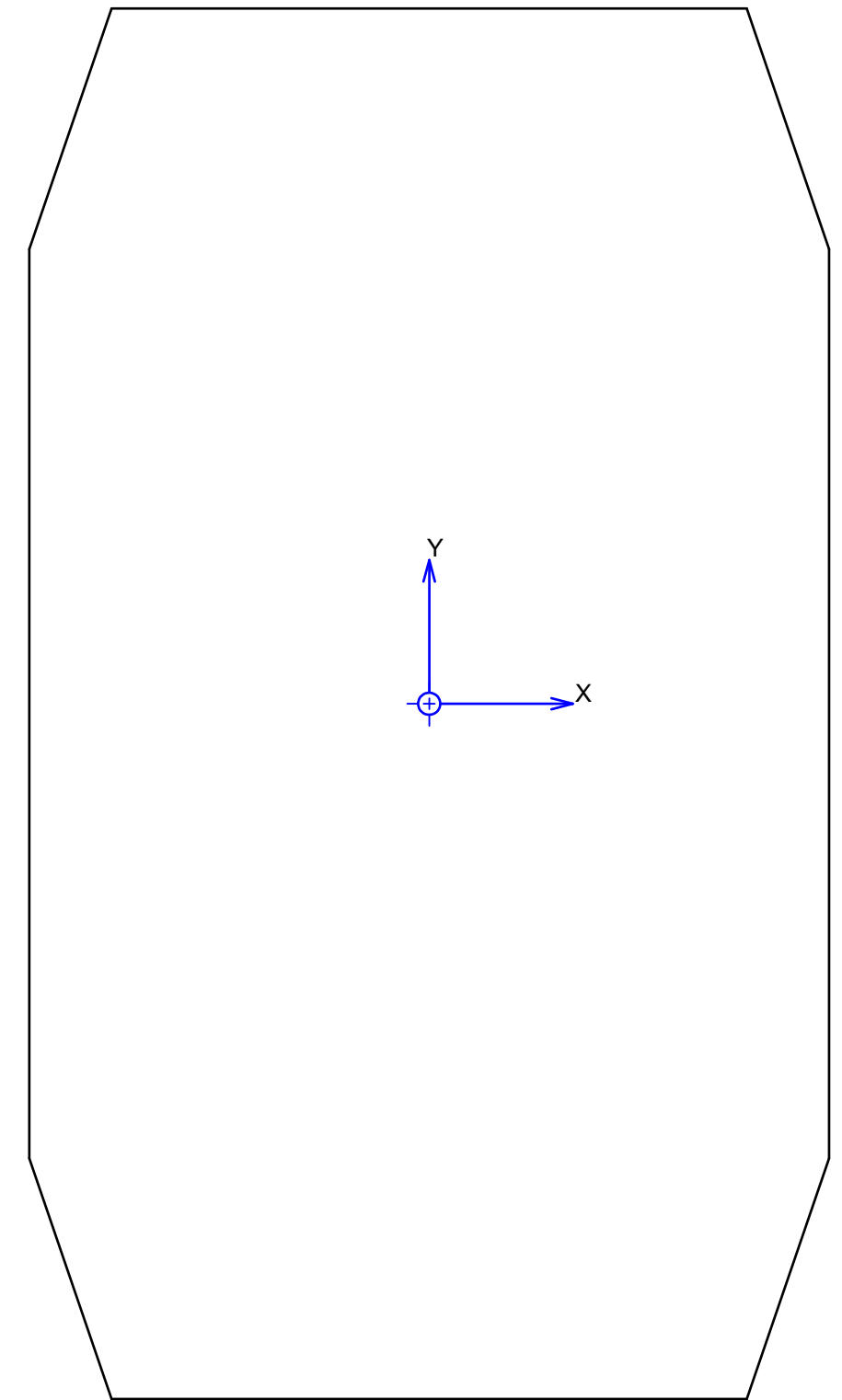
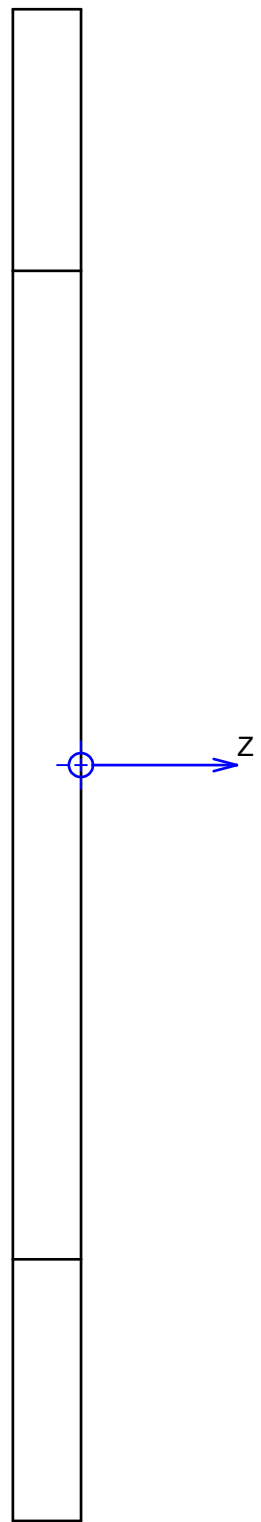
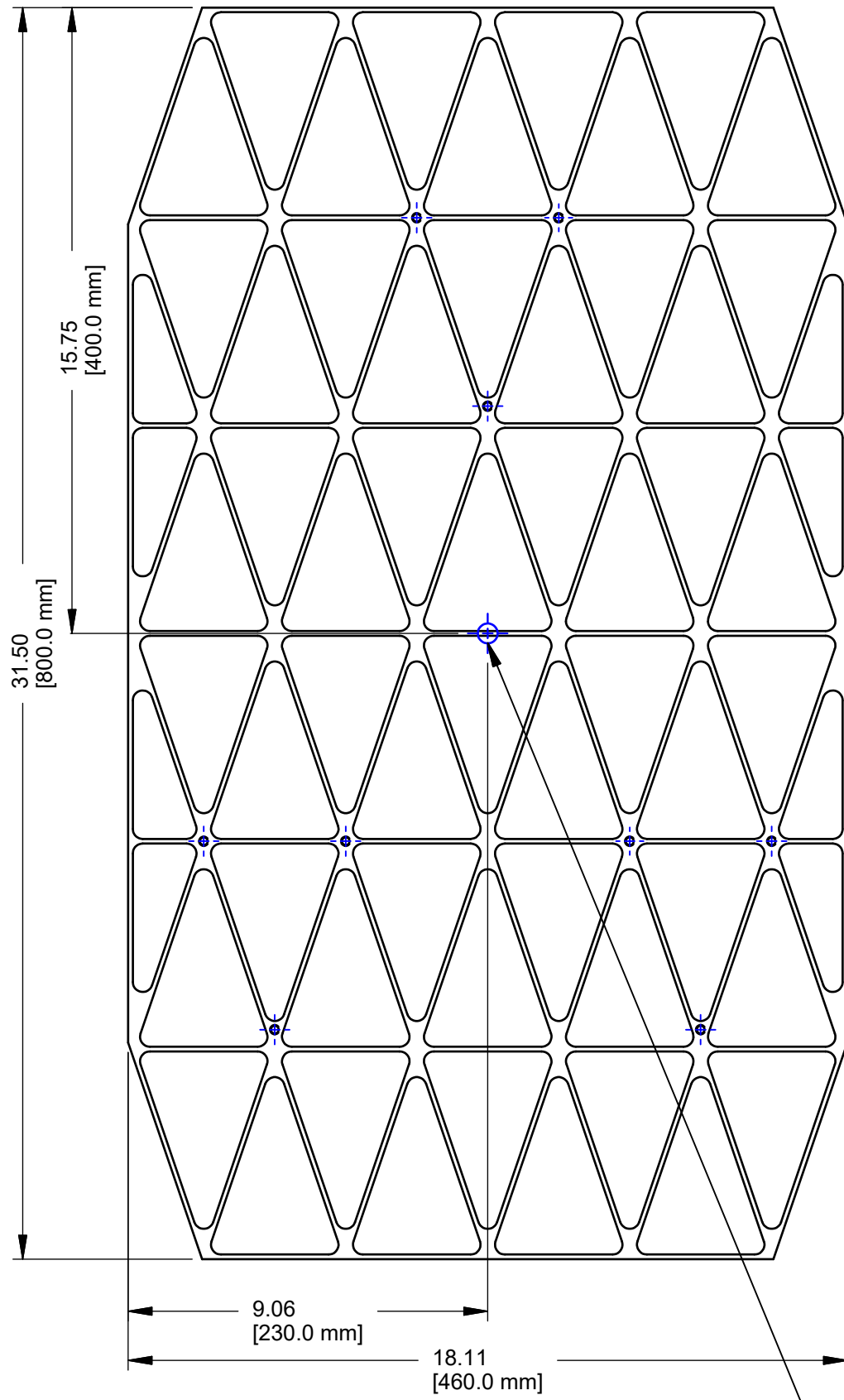
DETAIL F
SCALE 1



TYPICAL MEASUREMENT ADAPTOR PLATE DIMENSIONS

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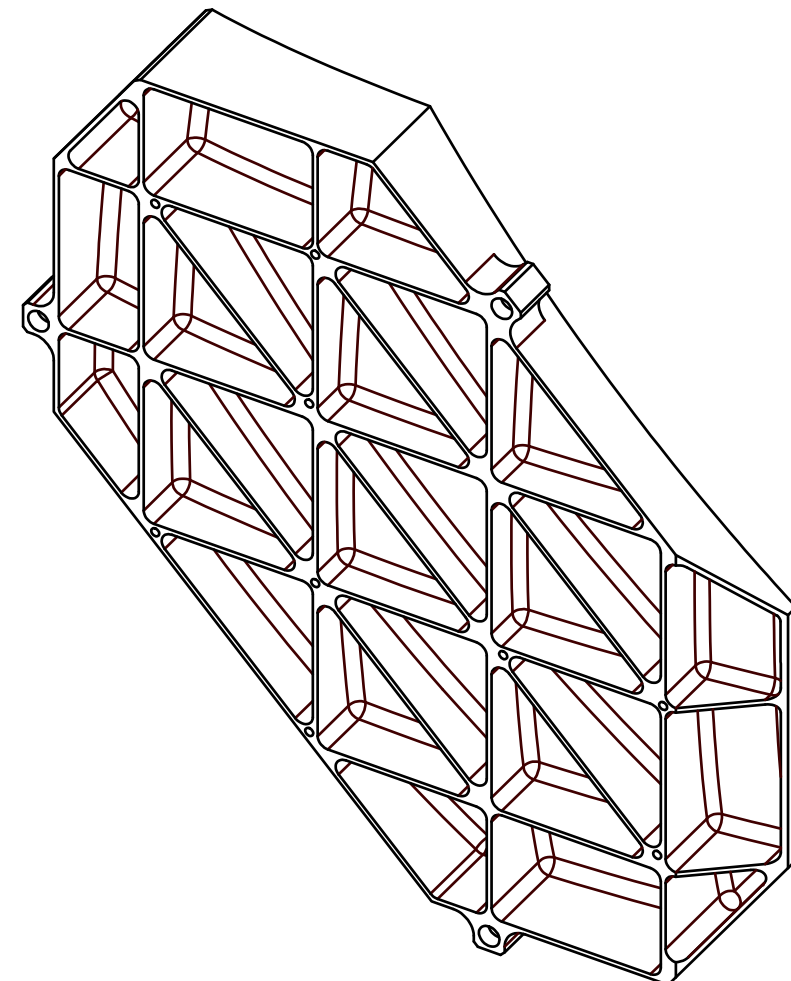
DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN:				Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
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						CHECKED BY: A. FERN	DATE: 5/30/2018
						APPROVED: N. EMERSON	DATE: 5/30/2018
						APPROVED:	DATE:
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM					TIME	APPROVED:	DATE:
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					ASSEMBLY APPLICATION	APPROVED:	DATE:
<small>NOTE: THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND CAN NOT BE DISCLOSED WITHOUT THE WRITTEN CONSENT OF STEWARD OBSERVATORY.</small>						CATEGORY: PROJECT: TIME TITLE: MIRROR F1	
						DRAWING NUMBER:	
						26633	
						SHEET 6 OF 6	
						REVISION: A	

REVISION HISTORY


REV	DESCRIPTION	DATE	REVISED BY	APPROVED
A	INITIAL RELEASE		A. FERN	N. EMERSON

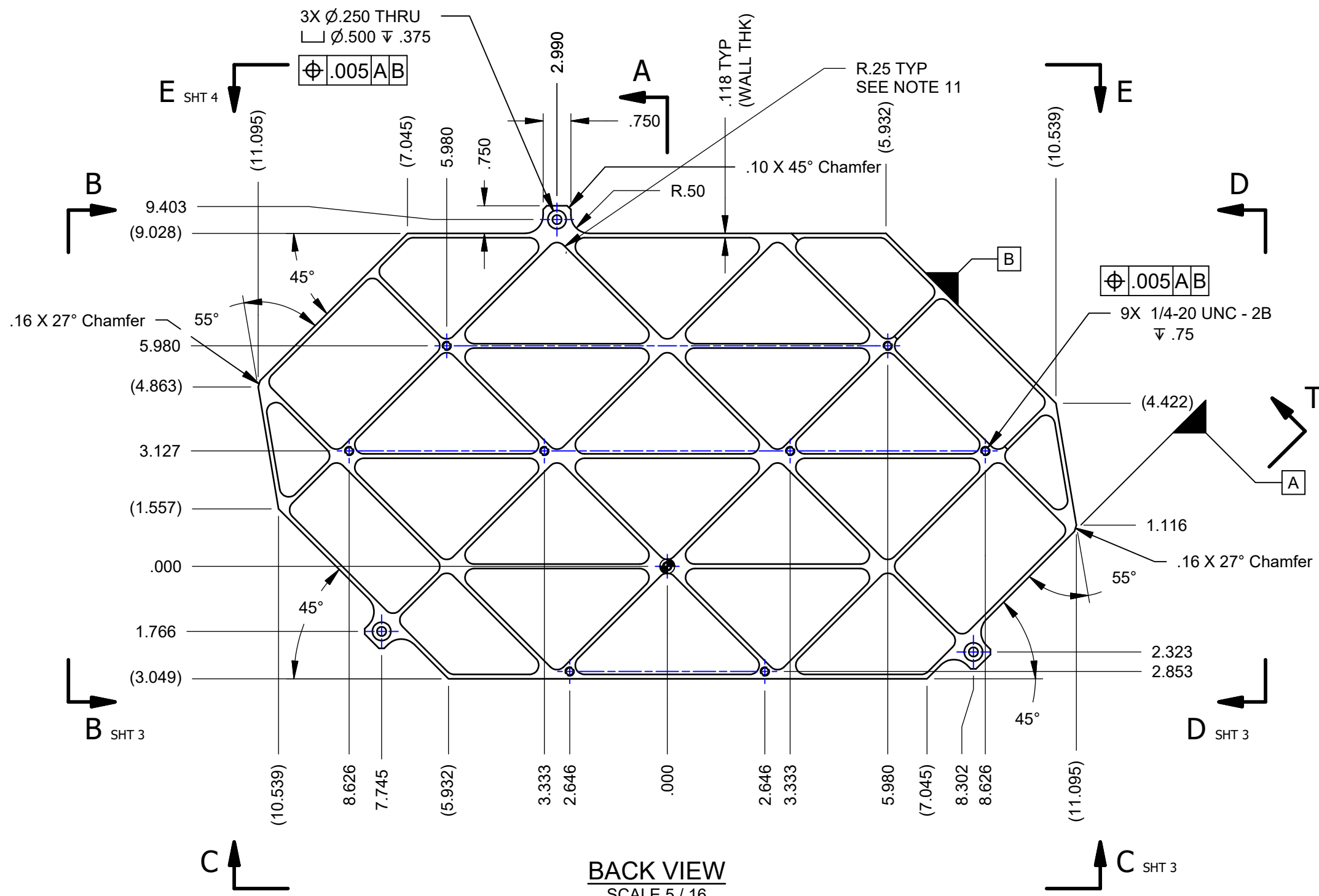
NOTES:

- 1) BREAK SHARP EDGES AND DEBURR.
- 2) ALL MACHINING FILLETS TO BE R.25 MAX UNLESS OTHERWISE SPECIFIED.
- 3) ALL MACHINED SURFACES TO BE 125 RMS OR BETTER, WITH EXCEPTION OF REFLECTING SURFACE INDICATED BY NOTE 6.
- 4) 3D MODEL WILL BE PROVIDED AND USED TO MANUFACTURE THIS PART.
- 5) DRAWING PROVIDES BASIC ENVELOPE DIMENSIONS AND KEY FEATURE CONTROL TOLERANCE CALLOUTS ONLY.
- 6) ROUGHNESS AND ACCURACY OF INDICATED SURFACE DEFINED IN ATTACHED MIRROR SPEC DOCUMENT. FREEFORM SHAPE DEFINED BY STEP MODEL.
- 7) MEASUREMENT OF REFLECTING SURFACE TO BE PERFORMED WITH MIRROR SIMPLY SUPPORTED AT THREE LOCATIONS AS INDICATED ON THE REAR SURFACE, USING TOOLING BALL OR SIMILAR TO AVOID UNINTENTIONAL BENDING OF MIRROR DURING MEASUREMENT. ADAPTOR PLATES AT EACH OF THESE THREE LOCATIONS ARE BOLTED TO THE PANEL AT 3 CORRESPONDING BOLTHOLES.
- 8) THE ADAPTOR PLATES (SUGGESTED PLATE GEOMETRY AS SHOWN) SHOULD BE OFFSET FROM THE BACK OF THE PANEL TO LIMIT THE CONTACT ZONE TO THE AREA AROUND EACH THREADED HOLE
- 9) SUPPORT OF THE PANEL DURING MACHINING CAN BE EITHER USING THE MEASUREMENT ADAPTOR PLATES, OR BY OTHER APPROPRIATE MEANS AT THE DISCRETION OF THE FABRICATOR.
- 10) SHEET 7 DEFINES THE OPTICAL CENTER AND COORDINATE SYSTEM ORIENTATION OF THE MIRROR. THIS POSITION AND ORIENTATION TO BE USED FOR CMM MEASUREMENT. Z POSITION OF OPTICAL CENTER IS IN THE PLANE OF THE THREE REFERENCE TABS.
- 11) TYPICAL (MINIMUM) MACHINING RADIUS SHOWN. A LARGER MACHINING RADIUS BETWEEN RIBS (UP TO 0.375in) IS ACCEPTABLE TO SIMPLIFY MACHINABILITY. STEP MODEL OF MIRROR CAN BE UPDATED ON REQUEST TO INCORPORATE PREFERRED RADIUS.
- 12) TYPICAL RADIUS SHOWN. RADIUS CAN BE ALTERED TO SIMPLIFY MACHINABILITY. SHARP CORNERS ARE ACCEPTABLE. STEP MODEL CAN BE UPDATED ON REQUEST TO INCORPORATE PREFERRED RADIUS.
- 13) LARGER MACHINING STEPS ON CURVED BACK SIDE ARE ACCEPTABLE, WITH STEP HEIGHTS UP TO 0.02in WITH PRIOR APPROVAL FROM UA.

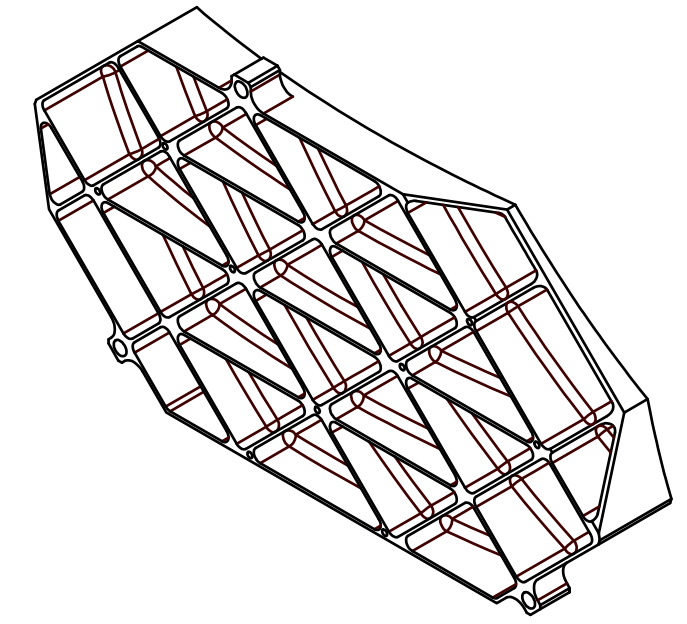


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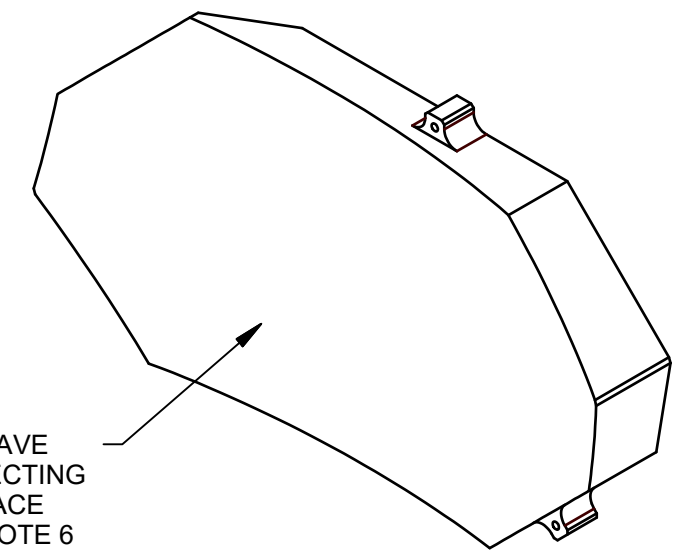
DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>		 Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659	
TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR ANGULAR .X = ± .1 ± 1° .XX = ± .01 .XXX = ± .005 DIAMETRICAL: SEE SPEC S-002 <small>DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC</small>		ENGINEER: N. EMERSON DESIGNED BY: N. EMERSON DRAWN BY: A. FERN CHECKED BY: A. FERN APPROVED: N. EMERSON		DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018 DATE: 5/30/2018	
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		TIME USED ON		PROJECT: TIME TITLE: MIRROR P2	
FINISH: NONE		ASSEMBLY APPLICATION		DRAWING NUMBER: 26634	
				SHEET 1 OF 7	
				REVISION: A	



BACK VIEW
SCALE 5 / 16



ISO VIEW - BACK
SCALE 3 / 16

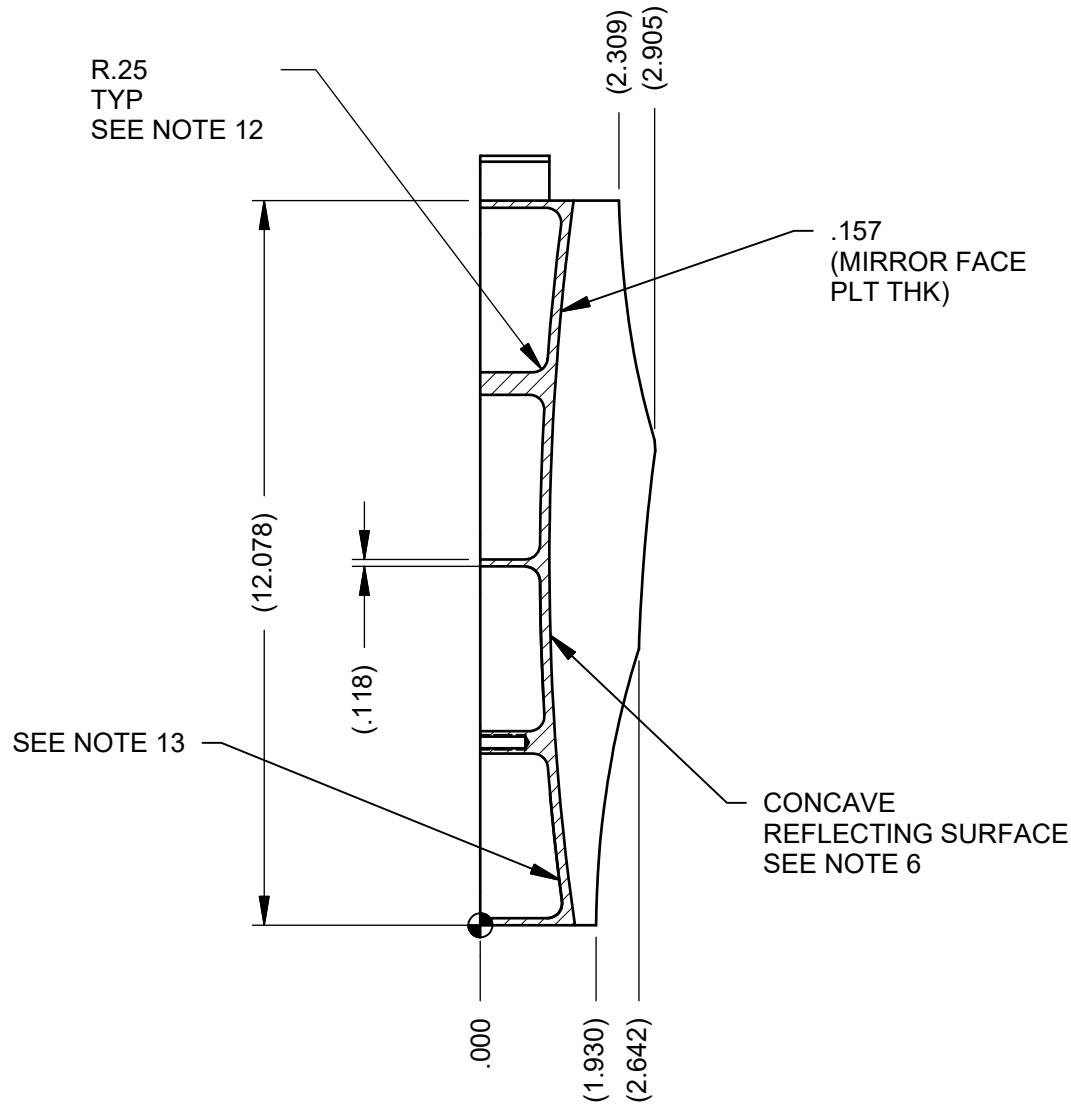


ISO VIEW - FRONT
SCALE 3 / 16

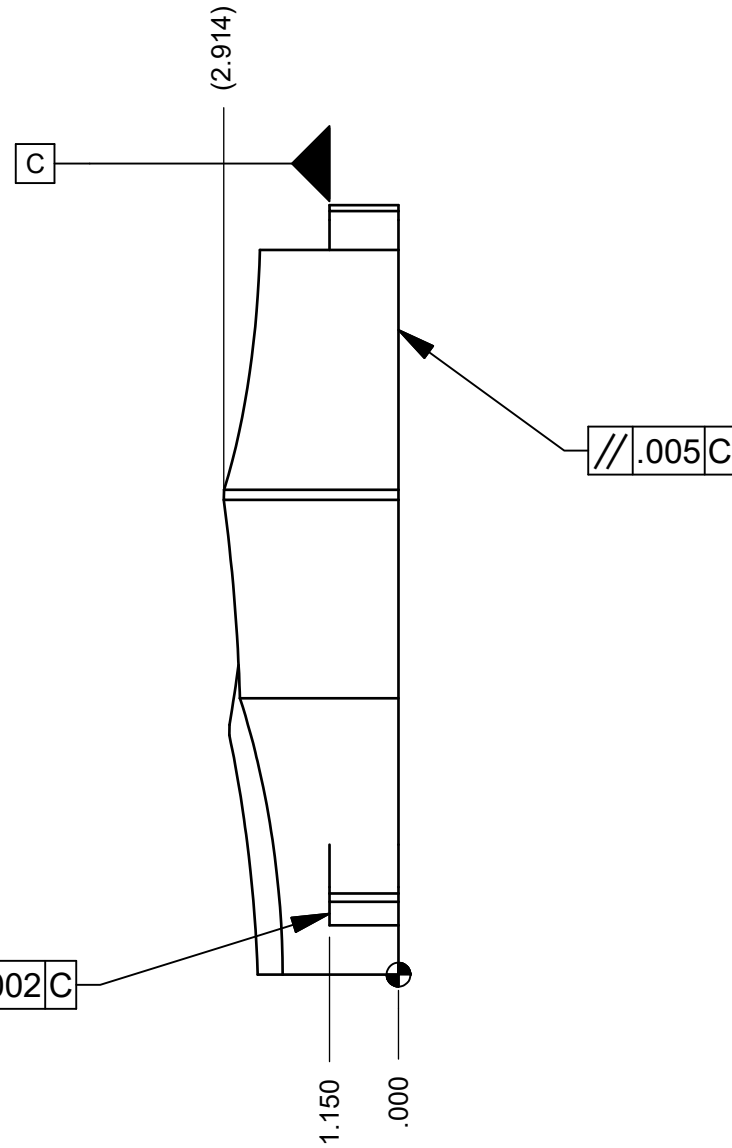
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		CHECKED BY: A. FERN	DATE: 5/30/2018	DRAWING NUMBER: 26634	
		APPROVED: N. EMERSON	DATE: 5/30/2018	SHEET 2 OF 7	
		APPROVED:	DATE:	REVISION: A	
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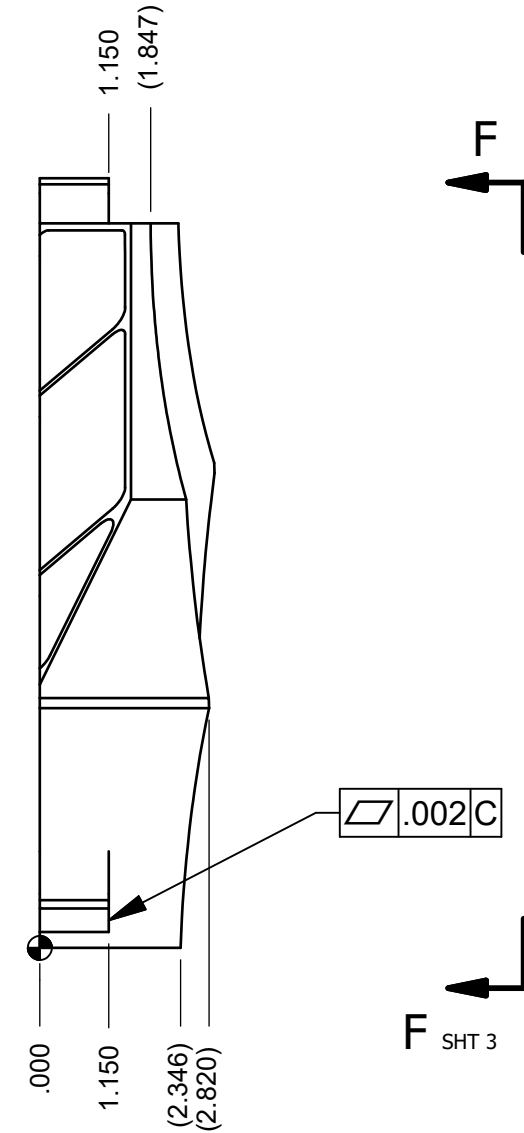
R.25
TYP
SEE NOTE 12



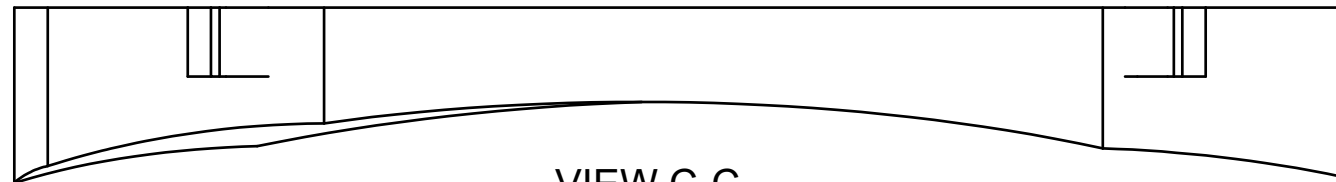
SECTION A-A
SCALE 5 / 16
(SEE BACK VIEW, SHT 2)



VIEW B-B
SCALE 5 / 16
(SEE BACK VIEW, SHT 2)



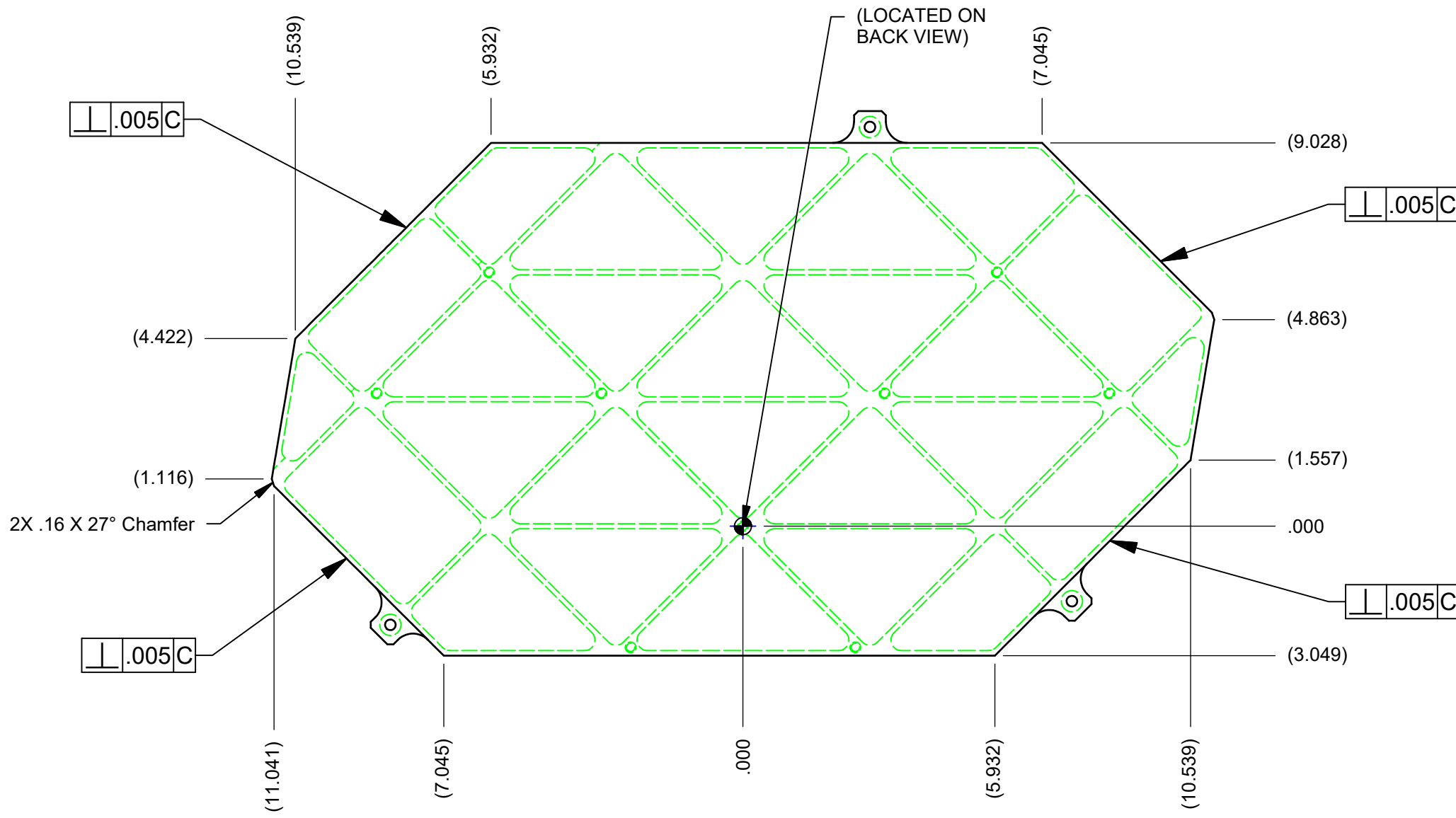
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(SEE BACK VIEW, SHT 2)



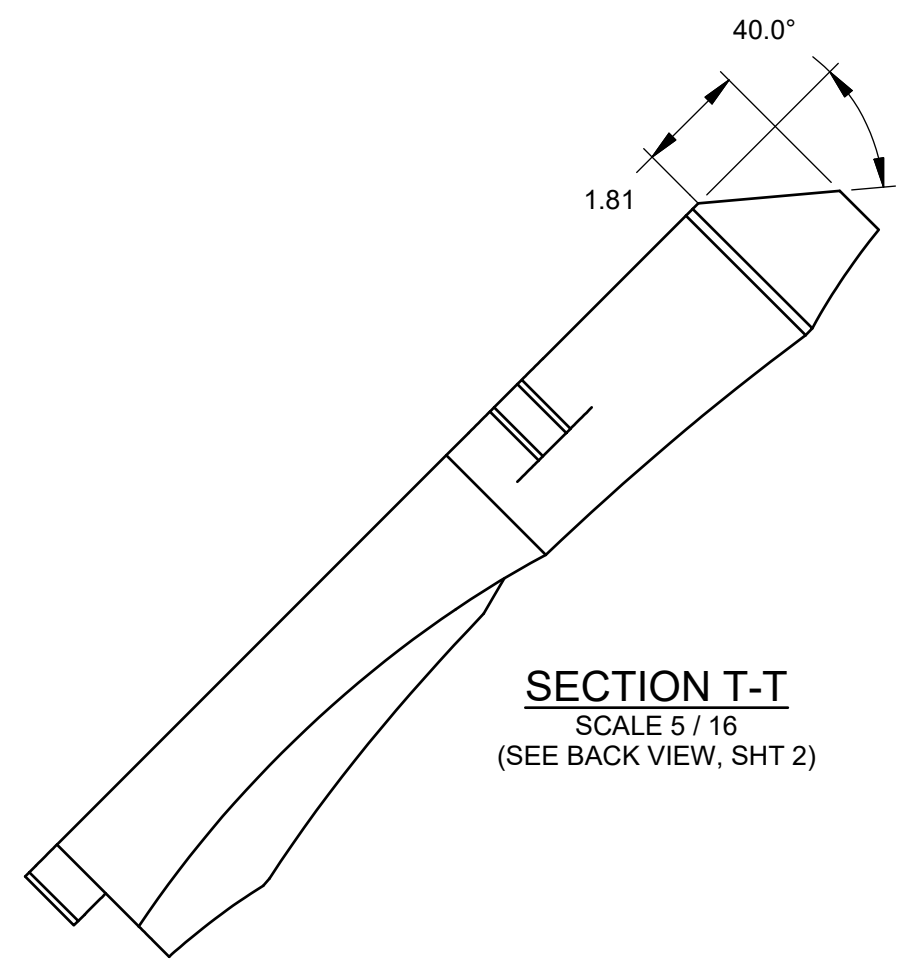
VIEW C-C
SCALE 5 / 16
(SEE BACK VIEW, SHT 2)

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				DRAWING NUMBER: 26634	
				SHEET 3 OF 7	
				REVISION: A	

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VIEW F-F
SCALE 5 / 16
(SEE VIEW D-D, SHT 3)



SECTION T-T
SCALE 5 / 16
(SEE BACK VIEW, SHT 2)

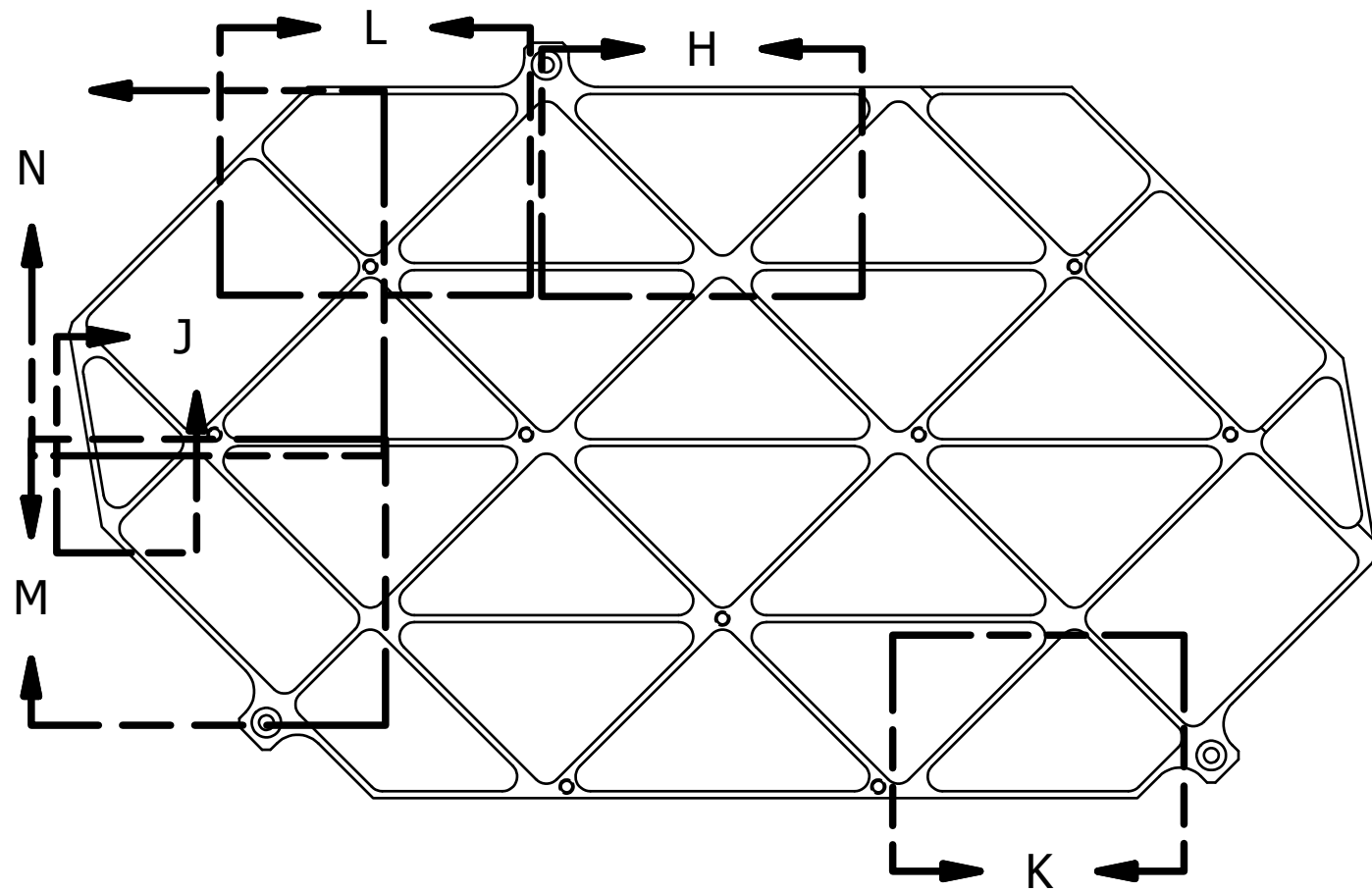


VIEW E-E
SCALE 5 / 16
(SEE BACK VIEW, SHT 2)

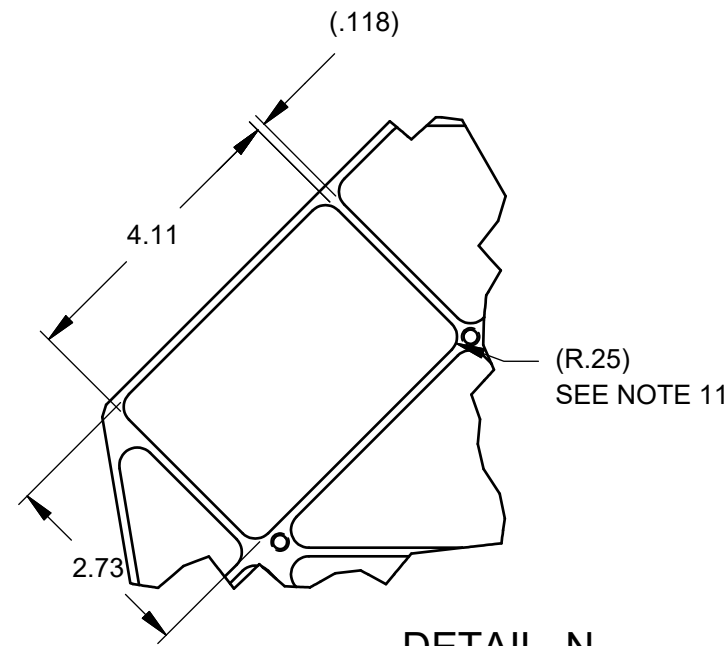


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TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR .X = ± .1 .XX = ± .01 .XXX = ± .005 ANGULAR ± 1° DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC		ENGINEER: N. EMERSON DATE: 5/30/2018	CATEGORY:
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		APPROVED:	SHEET 4 OF 7
		APPROVED:	

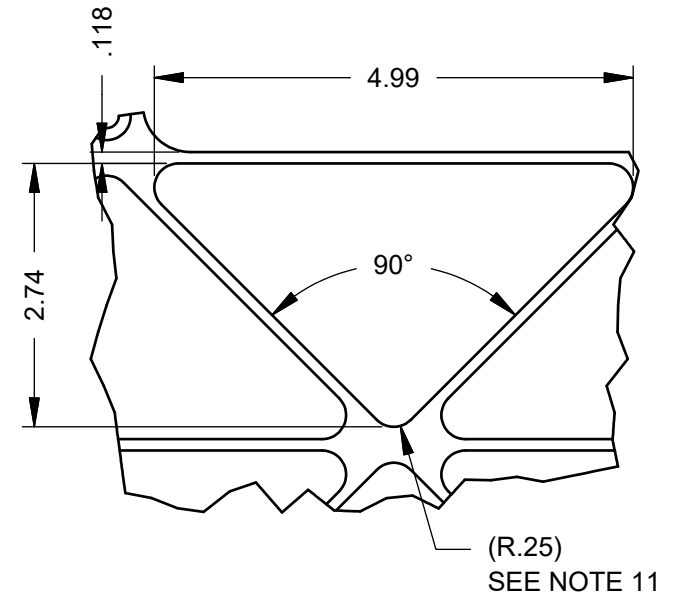
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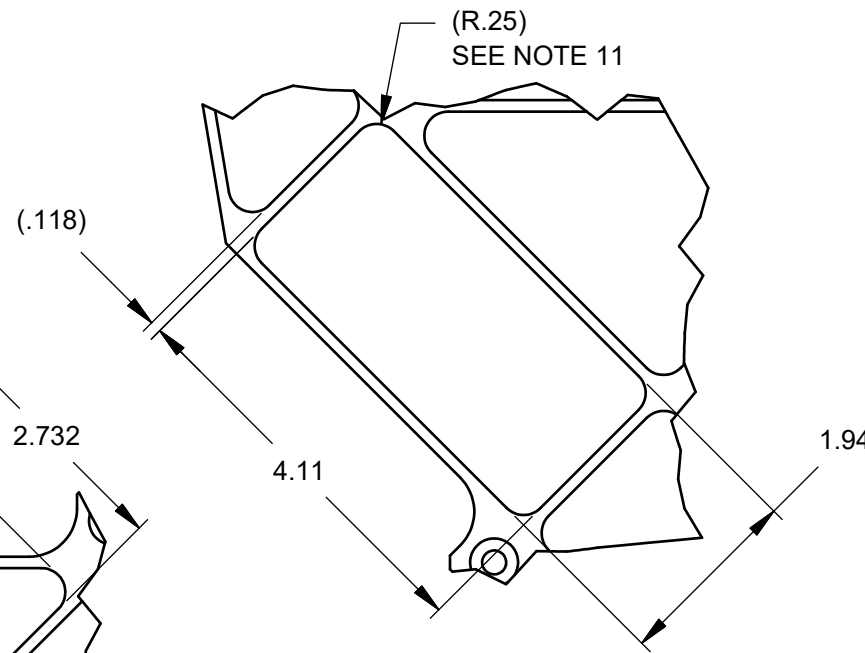
VIEW G-G
SCALE 5 / 16
(SEE VIEW E-E, SHT 4)



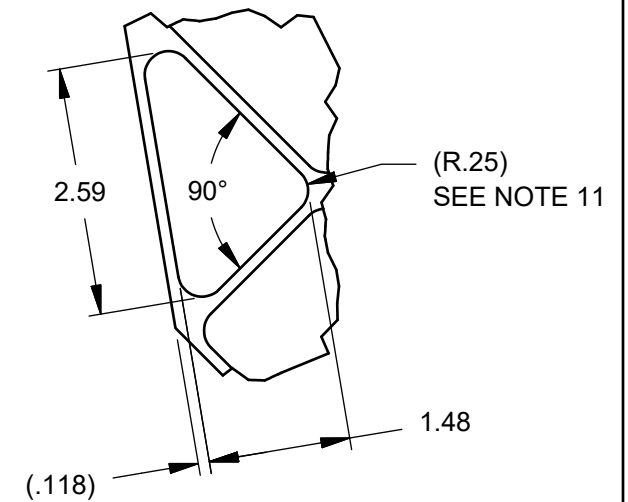
DETAIL N
SCALE 3 / 8
(2 PLACES)



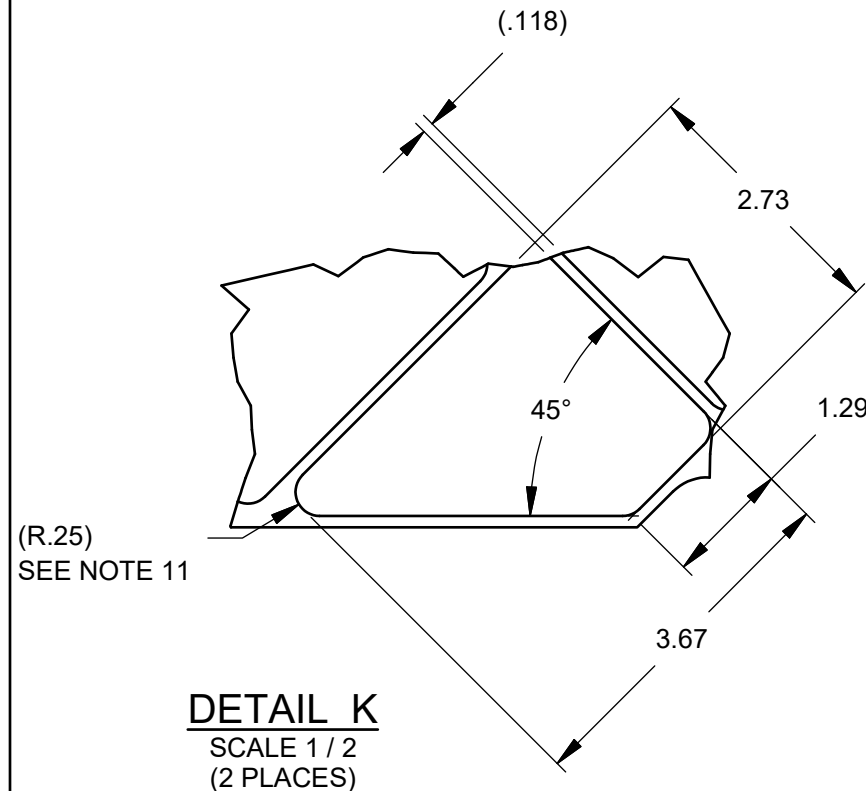
DETAIL H
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(TYP LARGE TRIANGLE DETAIL)



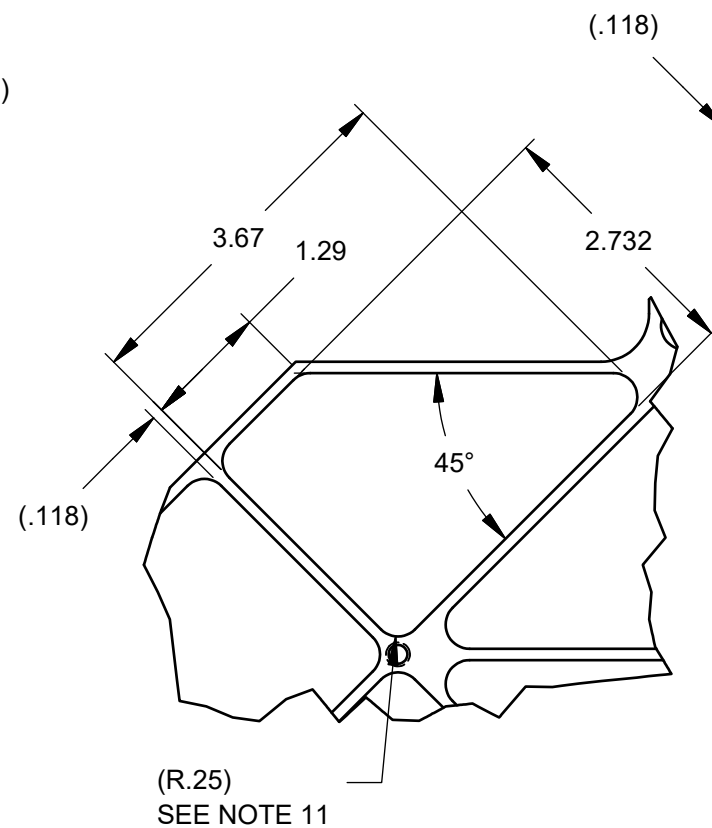
DETAIL M
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DETAIL J
SCALE 1 / 2
(TYP SM TRIANGLE DETAIL)



DETAIL K
SCALE 1 / 2
(2 PLACES)



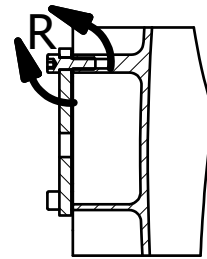
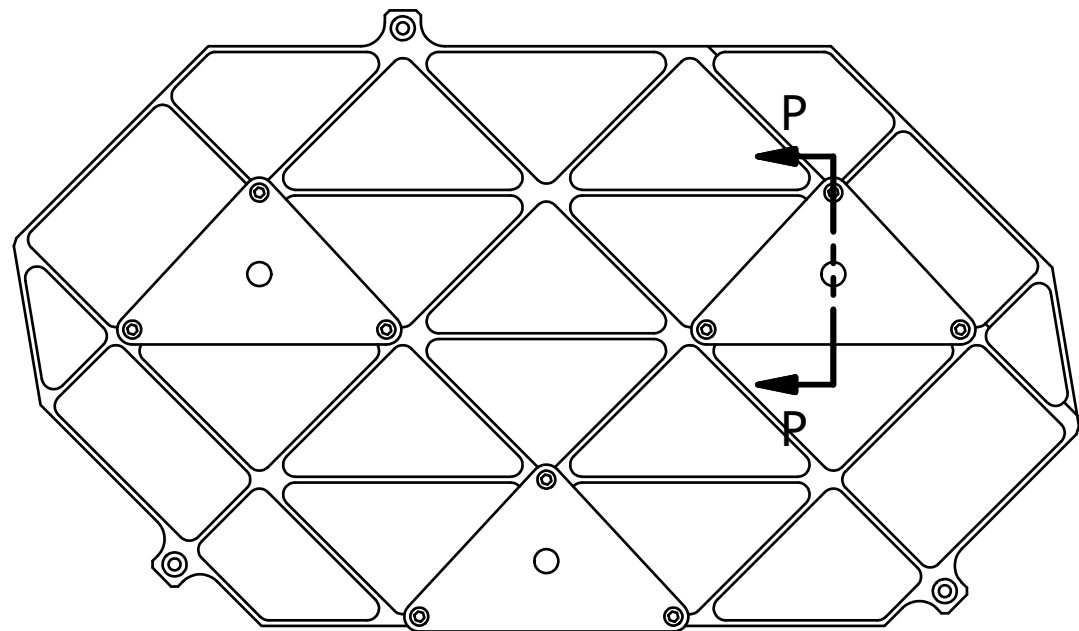
DETAIL L
SCALE 1 / 2
(2 PLACES)

(R.25)
SEE NOTE 11

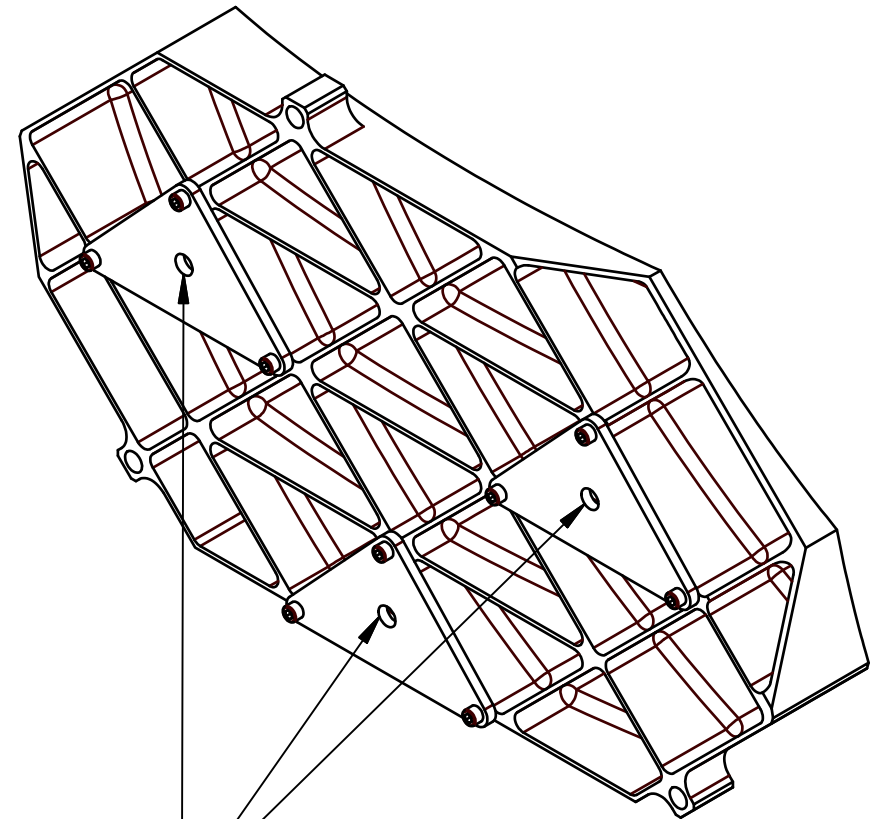
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SEE NOTE 11

DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-94		THIS DRAWING CREATED IN: ACAD <input type="checkbox"/> MECH <input type="checkbox"/> IDEAS <input type="checkbox"/> INV <input checked="" type="checkbox"/>				Steward Observatory, University of Arizona 933 N. Cherry Avenue, Tucson, AZ 85721 (520)621-7659																									
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ASSEMBLY APPLICATION				SHEET 5 OF 7																											

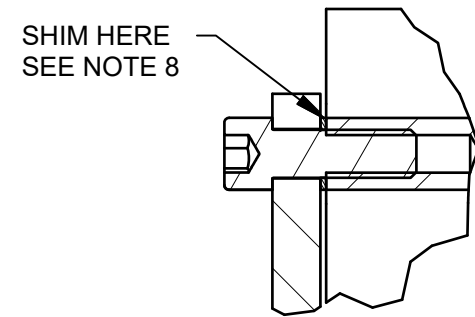
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SECTION P-P
SCALE 1/4

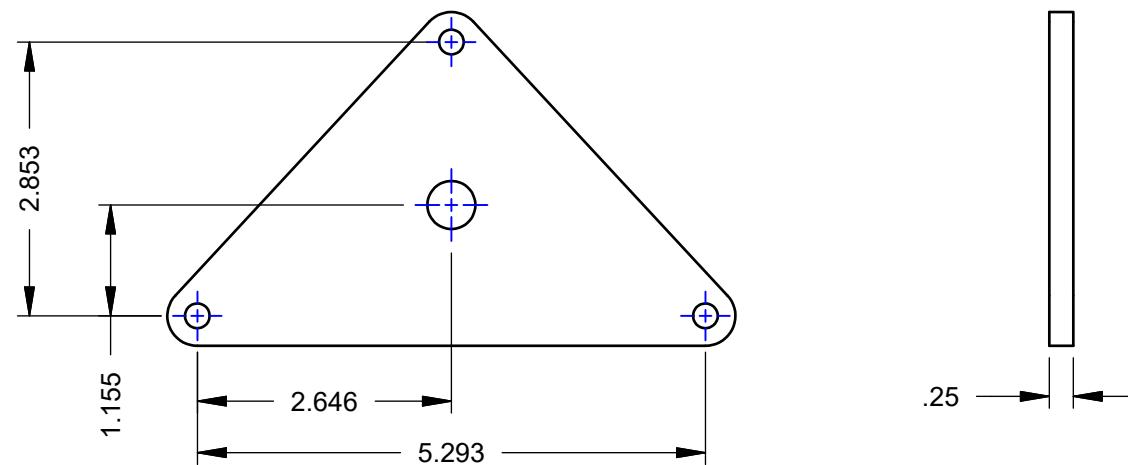


SEE NOTE 7



SHIM HERE
SEE NOTE 8

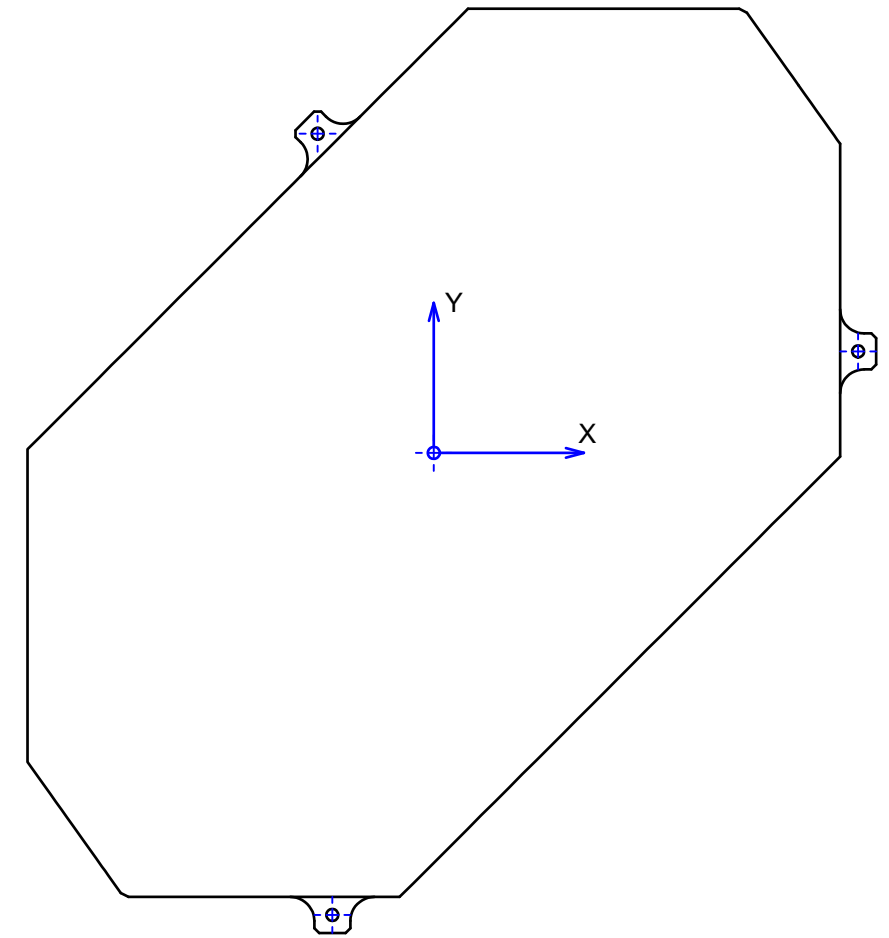
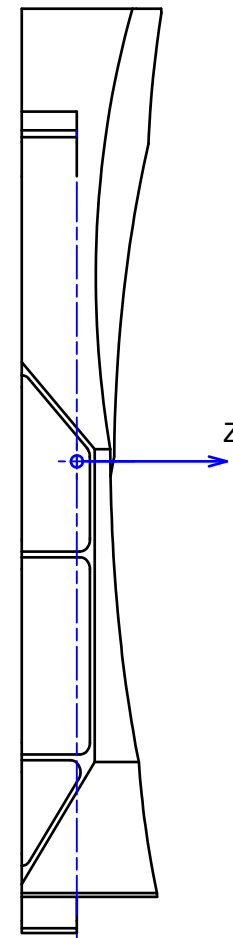
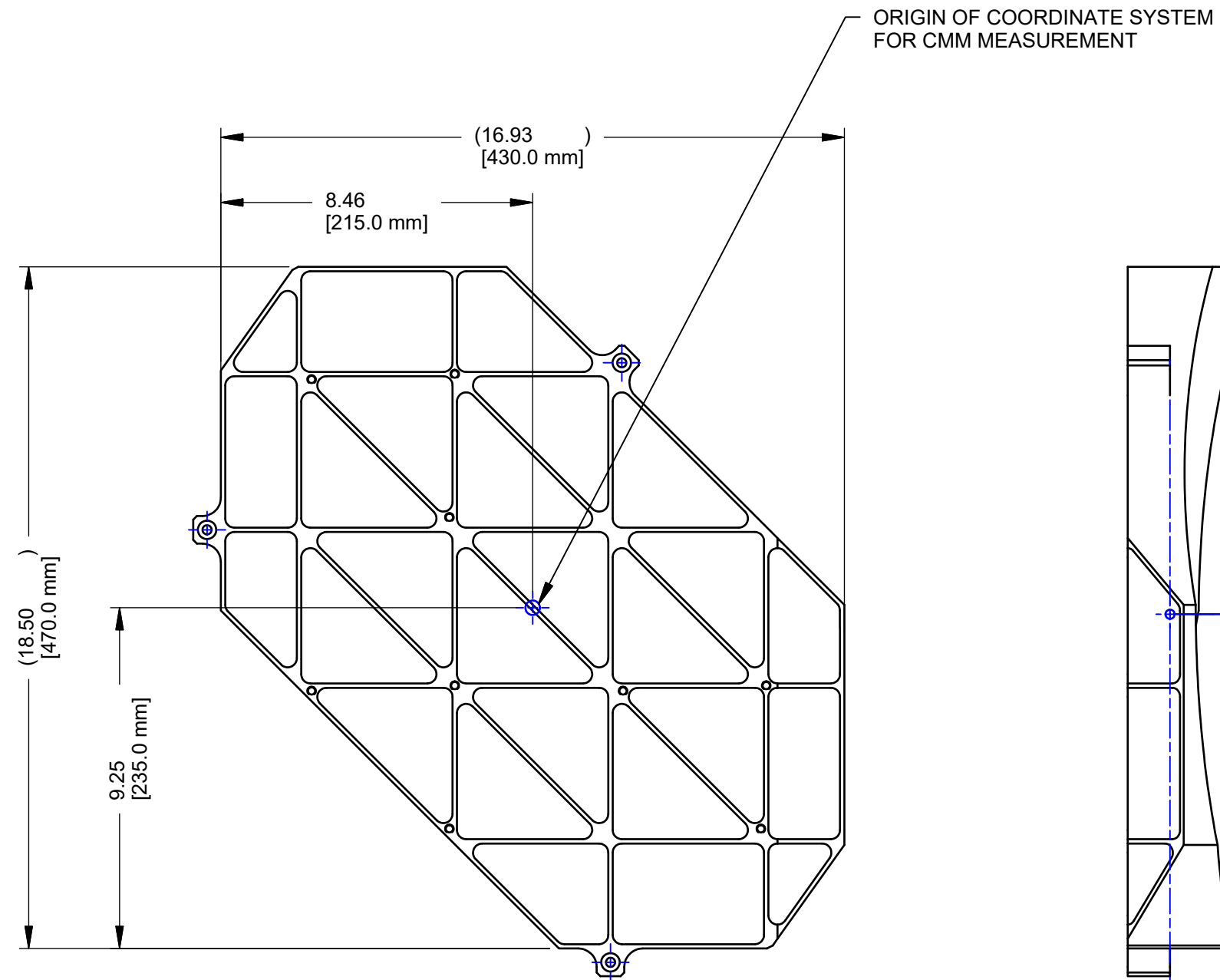
DETAIL R
SCALE 1



TYPICAL MEASUREMENT ADAPTOR PLATE DIMENSIONS

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.X = ± .1		± 1°		DRAWN BY:	DATE:	TITLE:	
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DIAMETRICAL: SEE SPEC S-002				A. FERN	5/30/2018		
DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC				APPROVED:	DATE:		
MATERIAL: MIC-6 OR EQUIV CAST ALUMINUM		TIME		N. EMERSON	5/30/2018		
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FINISH: NONE		ASSEMBLY APPLICATION		APPROVED:	DATE:	SHEET 6 OF 7	
						REVISION: A	

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	APPROVED:	DATE:	ASSEMBLY APPLICATION		

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