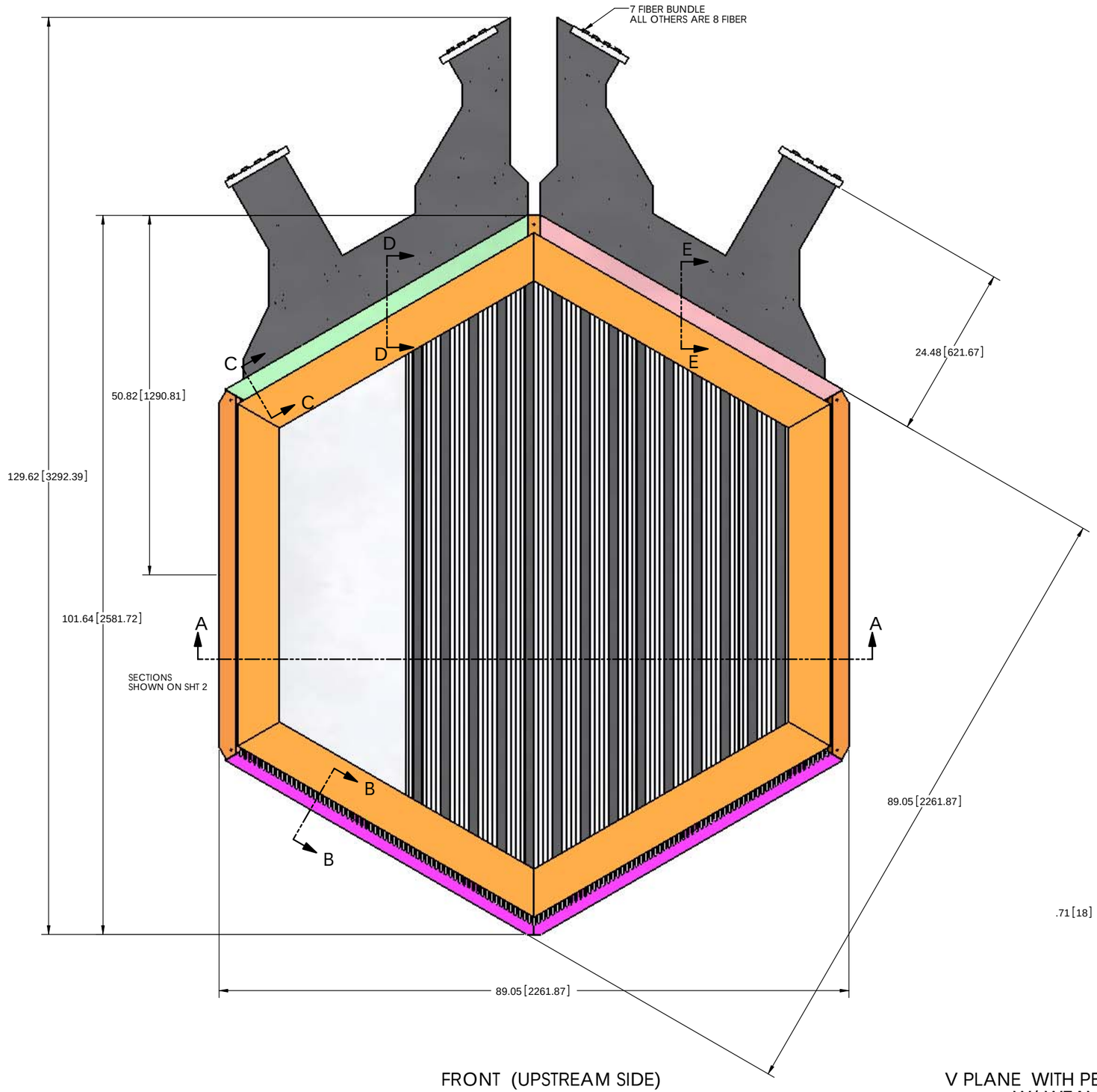
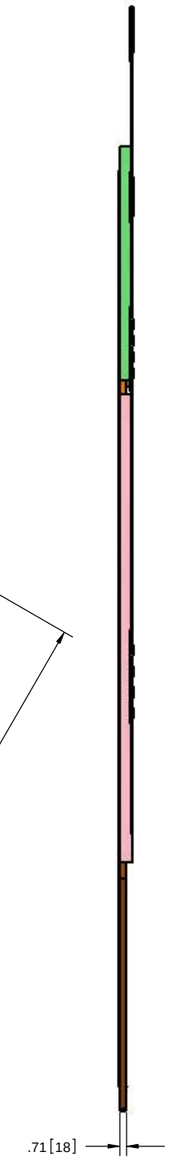


FRONT (UPSTREAM SIDE)



V PLANE WITH PERIMETER BLOCKS
W/ WEAVE & SKINS

Parts List

ITEM NO.	QTY.	DESCRIPTION	MATERIAL	SIZE	WEIGHT
1	127	SCINTILLATOR EXTRUSION	DOW PS663	-	1.520
2	6	Pb SEGMENT NARROW EDGE	PURE LEAD	.078 x 5.91 x 48.38	8.23
3	1	WEAVE	PIEDMOND PLASTICS	#FR25A	3.197
4	1	3M EPOXY	3M EPOXY	#2216A/B	0.001
5	2	SKIN01	PIEDMOND PLASTICS	#FR25A	1.119
6	1	EPOXY-OPTICAL	MILLER STEVENSON CHEMICAL	#EPON815C & EPICURE3243	0.000
7	1	FIBER 127 LH, FLAT NEAR FIBER	WLS FIBER	1.2mm DIA	0.132
8	16	CONNECTOR BOX	DDK	.200 x .793 x 1.067	0.004
9	1	COMB LH, U&V PLANES	TOTAL PLASTICS, PVC RIGID FOAM	1.25 x 2.63 x 49.39	5.642
10	1	COMB RH, U&V PLANES	TOTAL PLASTICS, PVC RIGID FOAM	1.25 x 2.63 x 49.39	4.120
11	1	COMB, CENTER	TOTAL PLASTICS, PVC RIGID FOAM	.71 [18mm] x 5.44 x 10.25	0.642
12	16	FIBER FERRULE	DDK	.150 x .661 x .667	0.002
13	1	FIBER 127 LH, FLAT NEAR FIBER	WLS FIBER	1.2mm DIA	0.134
14	2	EDGE SPACER, BOTTOM	TOTAL PLASTICS, PVC RIGID FOAM	.71 [18mm] x 2.63 x 50.11	2.657
15	16	LATCH CONNECTOR	DDK	.20 x .65 x 1.10	0.002
16	2	EDGE SPACER, VERTICAL	TOTAL PLASTICS, PVC RIGID FOAM	.71 [18mm] x 4.28 x 52.13	2.551
17	2	CONNECTOR BACK STRIP	ALUM	-	0.230
18	4	BAGGIE	AMERICOVER	TS10FR, DARK BLUE, 0.012" THK	0.465

NOTE: DO NOT SCALE DRAWING ! ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: V PLANE ASS'Y

THIRD ANGLE PROJECTION

DRAWN RSF	DATE 2/15/07
CHECKED RSF	DATE 2/15/07
APPROVED RSF	DATE 2/15/07

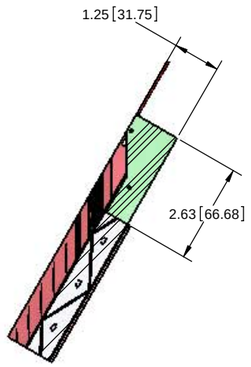
THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

SIZE D | DWG NO 70009 | REV —

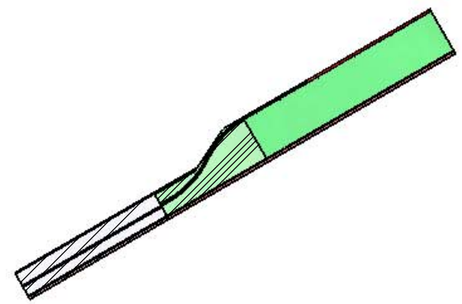
SCALE 1:8 | SHEET 1 OF 14

WEIGHT: 222 LBS

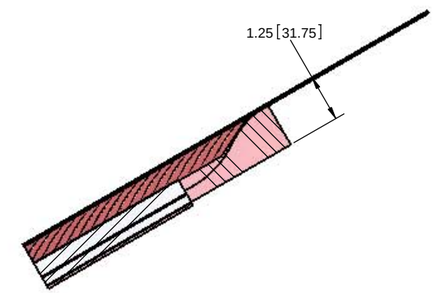
FILE: 70009 V PLANE MODULE ASSY 127



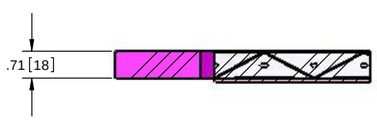
SECTION C-C



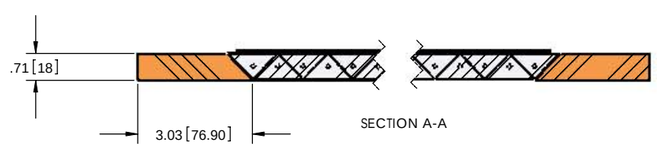
SECTION D-D



SECTION E-E



SECTION B-B



SECTION A-A

NOTE: DO NOT SCALE DRAWING ! ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: V PLANE ASS'Y

THIRD ANGLE PROJECTION

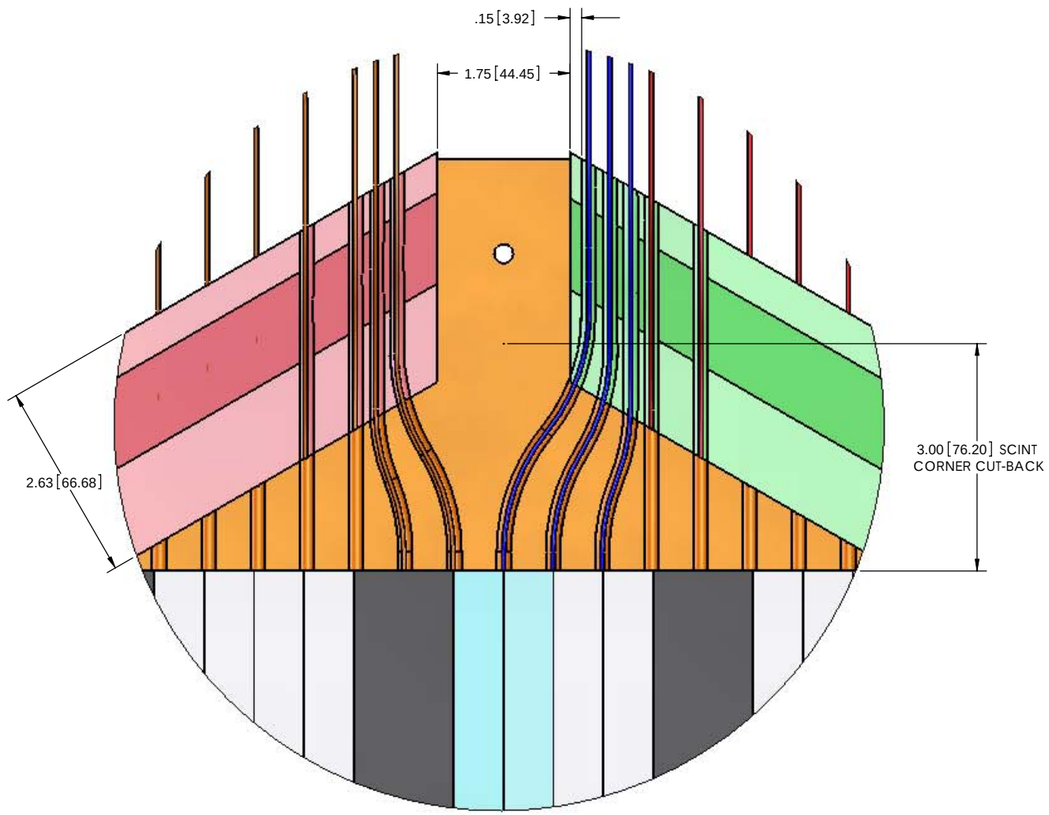
DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

SIZE D | DWG NO 70009 | REV —

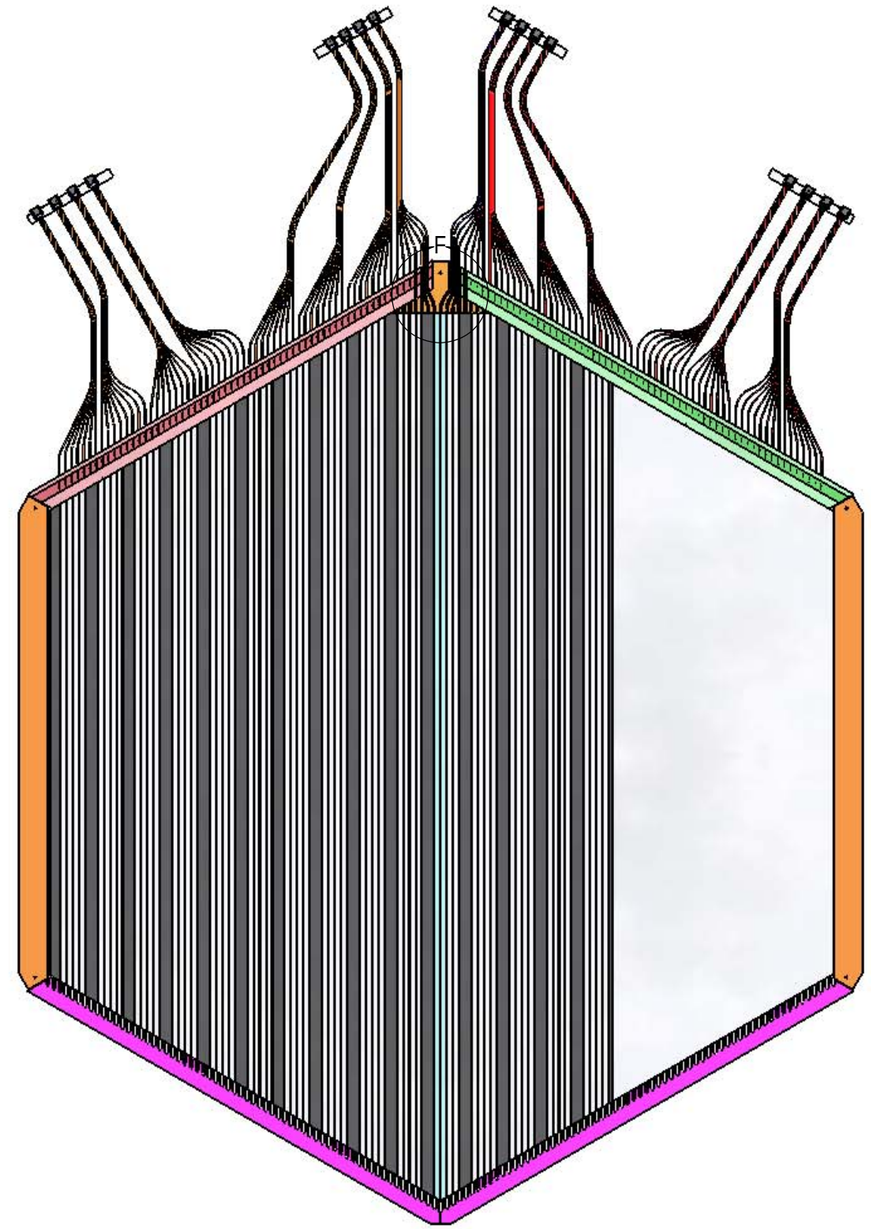
SCALE 1:2 | SHEET 2 OF 14

WEIGHT: 222 LBS

FILE: 70009 V PLANE MODULE ASSY 127



DETAIL F
SCALE 1 : 1



BACK (DOWNSTREAM SIDE)
BAGGIES REMOVED FOR CLARITY

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE
V PLANE ASS'Y

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

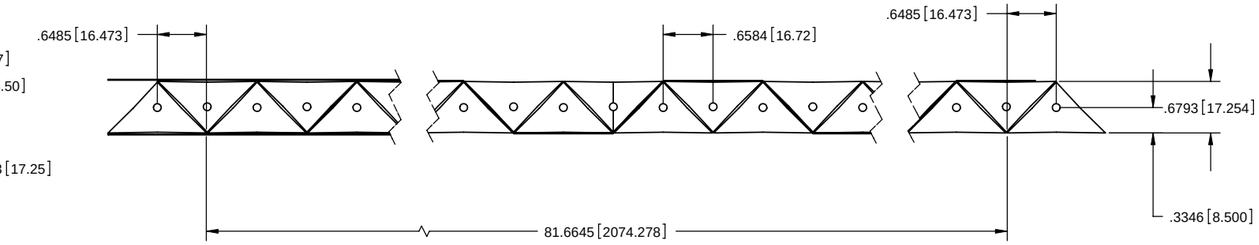
THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

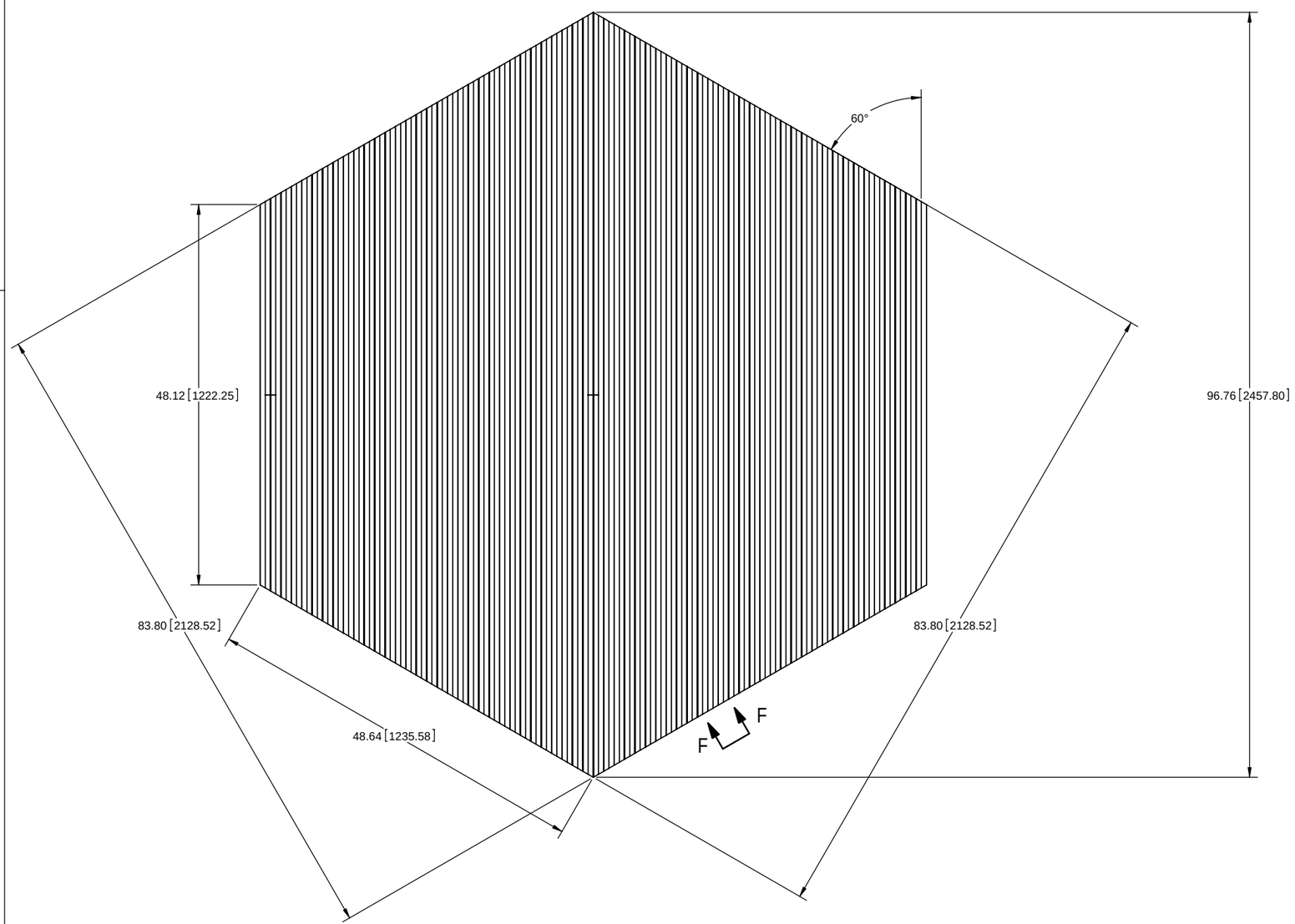
SIZE D | DWG NO 70009 | REV —

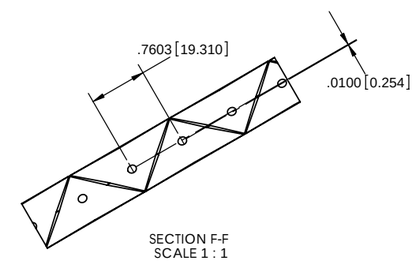
SCALE 1:8 | SHEET 3 OF 14

WEIGHT: 222 LBS

FILE: 70009 V PLANE MODULE ASSY 127







SECTION F-F
SCALE 1 : 1

127 SCINTILLATOR PLANE,
WITHOUT APEX CUT BACK
DIMENSIONS ARE WITHOUT
LEXAN WEAVE ALLOWANCE

NOTE: DO NOT SCALE DRAWING ! ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x]	± .010 [.3]
x.xxx [x.xx]	± .005 [.13]
x.xxxx [x.xxx]	± .0005 [.013]
xx/xx	± 1/32
x°	± 1°

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: V PLANE ASS'Y

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

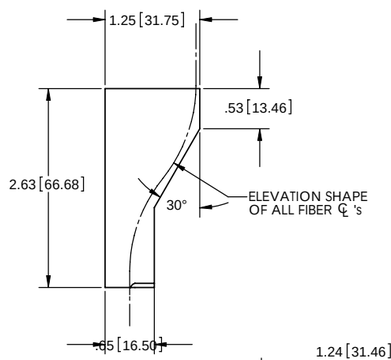
THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

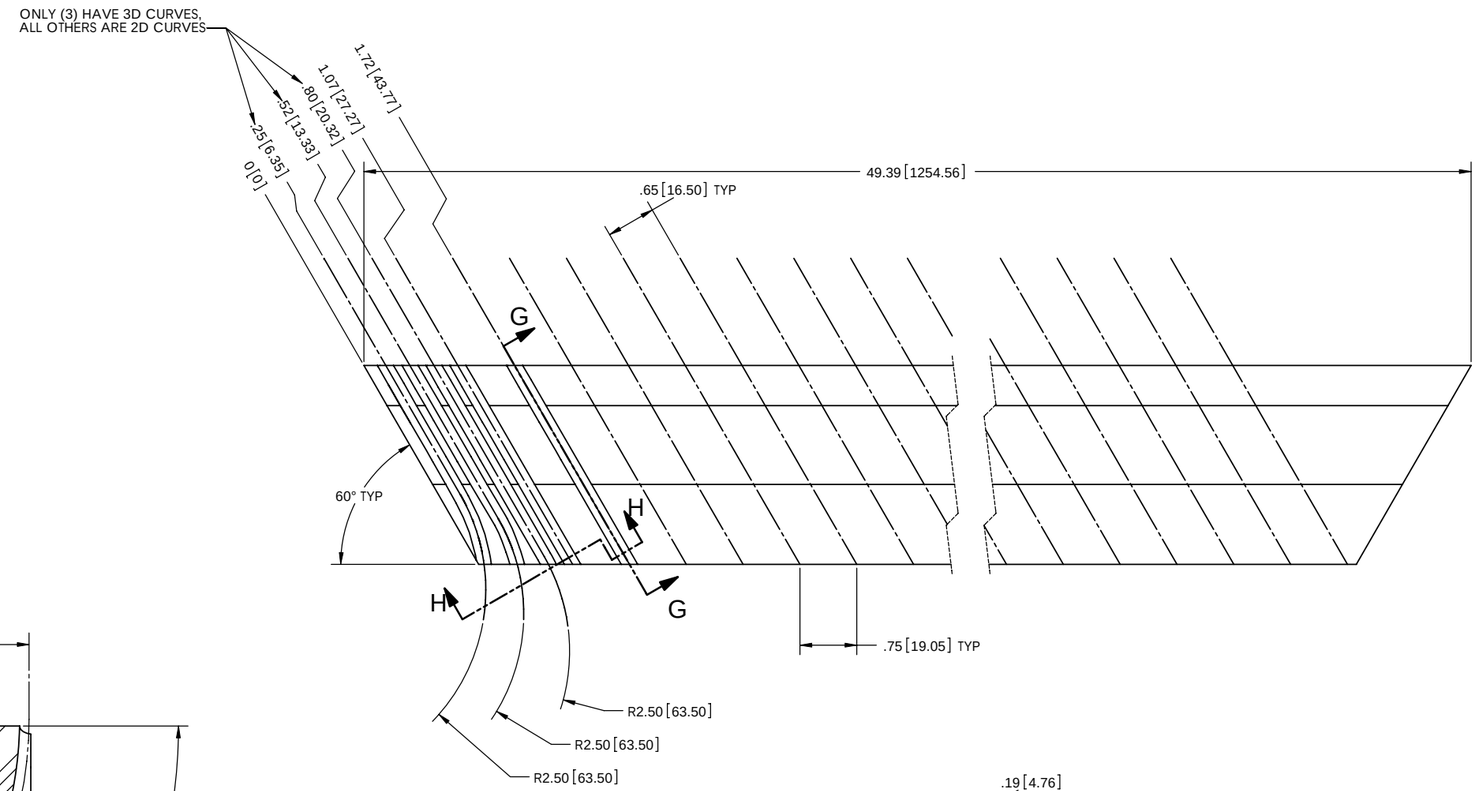
SIZE D | DWG NO 70009 | REV —

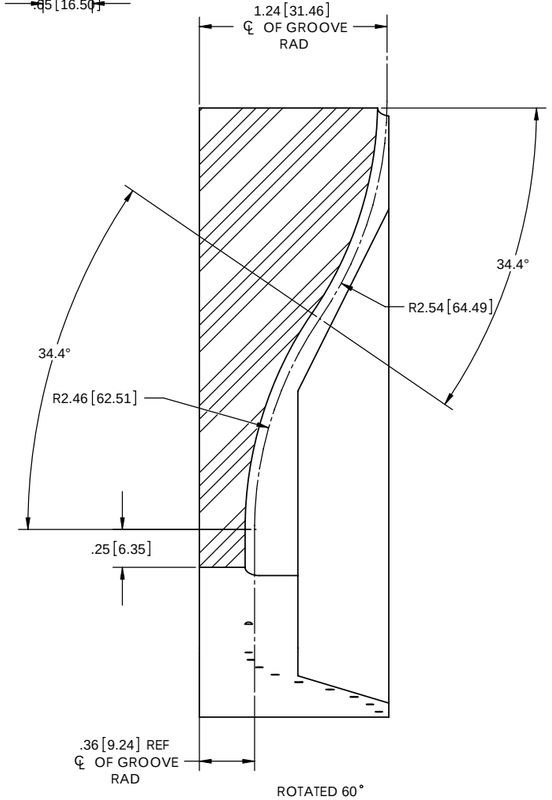
SCALE 1:8 | SHEET 4 OF 14

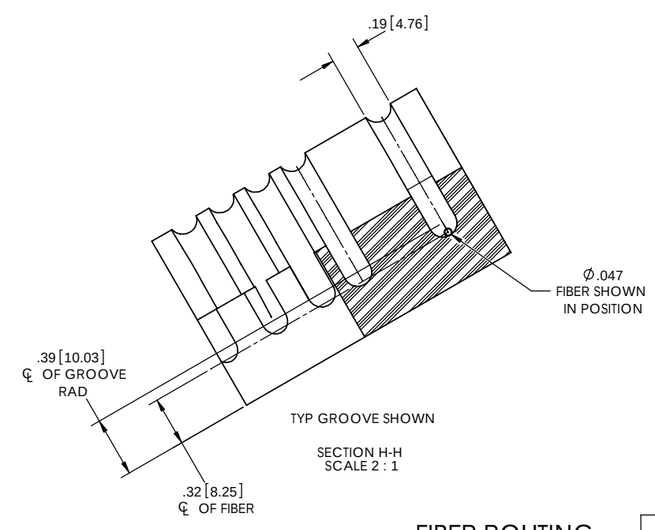
WEIGHT: 196 LBS

FILE: 70009 V PLANE MODULE ASSY 127









FIBER ROUTING
COMB, LH
U & V PLANES

UPPER COMB LH SHOWN,
RH IS OPPOSITE - SEE SHT 5

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: V PLANE ASS'Y

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

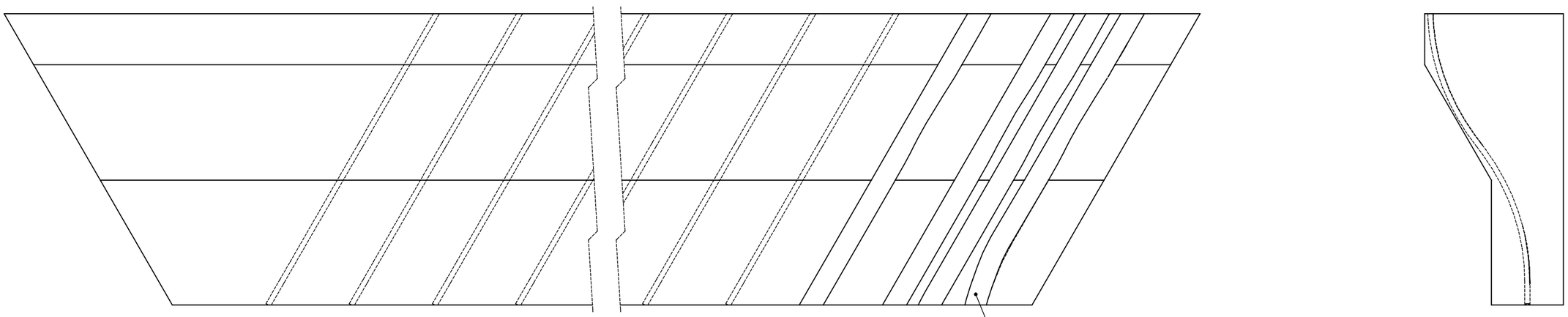
SIZE D | DWG NO 70009 | REV —

SCALE 1:1 | SHEET 5 OF 14

WEIGHT: 5.642 LBS

FILE: 70009 V PLANE MODULE ASSY 127

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
–	–	INITIAL ISSUE	–	–



ONLY GROOVES #2 & #3 ARE 3D,
GROOVE #1 IS NOT NEEDED &
NOT SHOWN

UPPER COMB RH SHOWN
OPPOSITE OF LH,
SHOWN ON SHT 4

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS
OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE
V PLANE ASS'Y

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

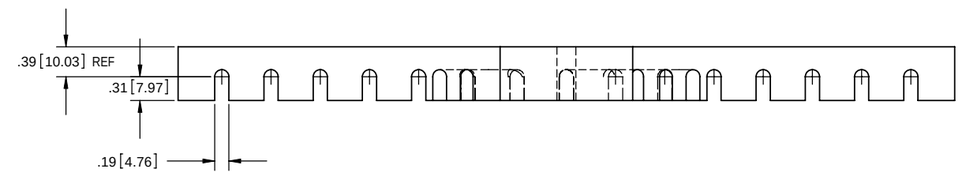
SIZE D | DWG NO 70009 | REV —

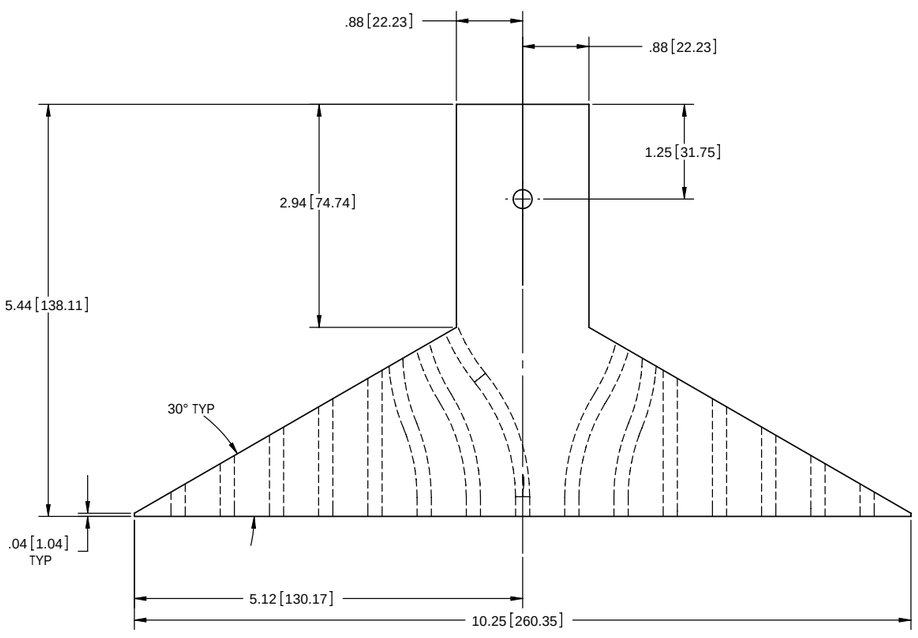
SCALE 2:1 | SHEET 6 OF 14

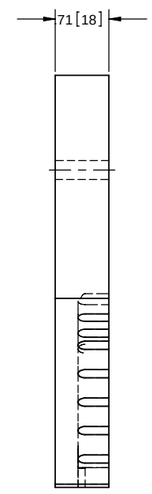
WEIGHT: 4.120 LBS

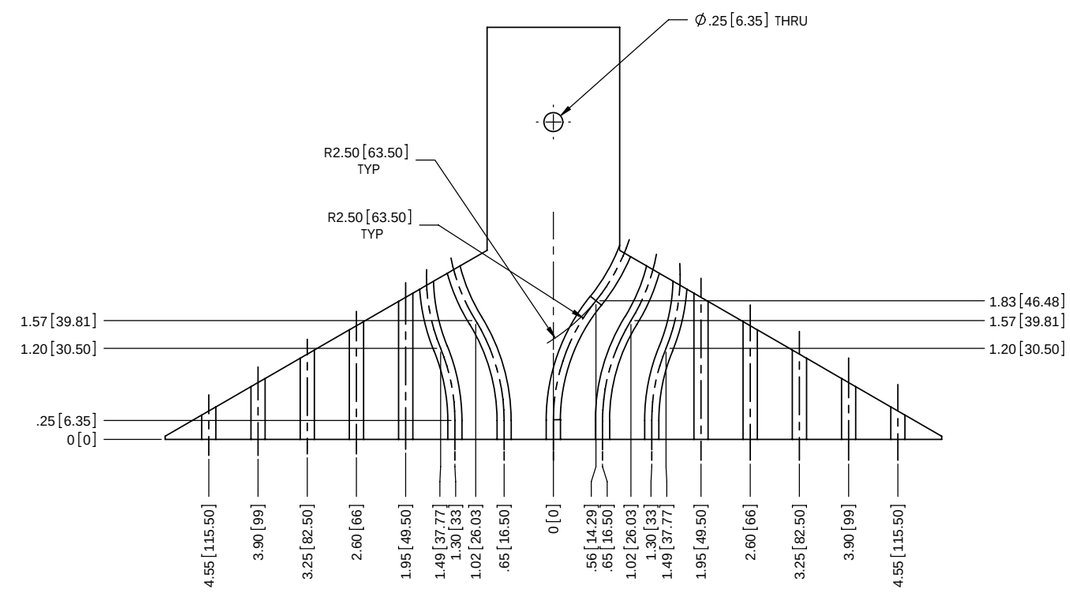
FILE: 70009 V PLANE MODULE ASSY 127

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
–	–	INITIAL ISSUE	–	–









CENTER COMB
ALL CURVED GROOVES
ARE PLANAR, 2D

NOTE: CENTER COMB IS THE SAME FOR
U, V, & X PLANES

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS
OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: V PLANE ASS'Y

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

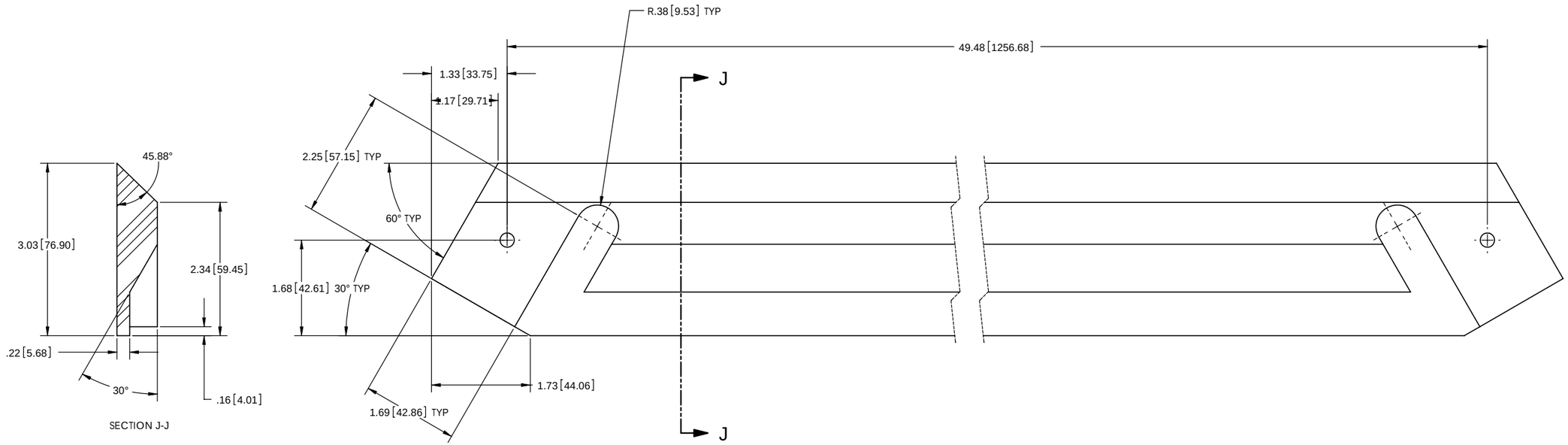
THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

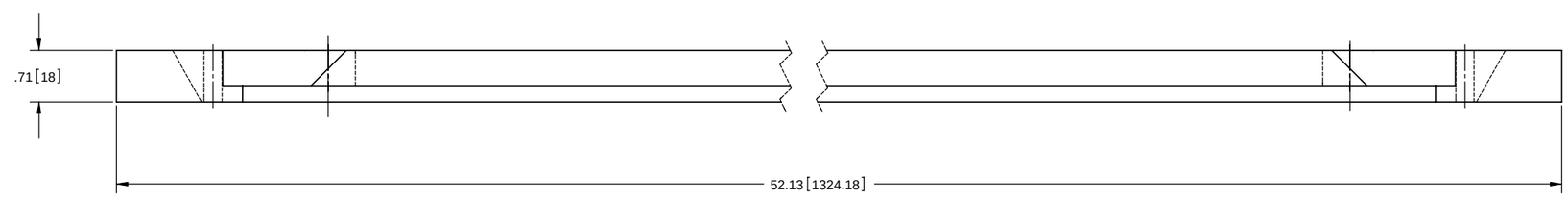
SIZE D | DWG NO 70009 | REV –
SCALE 1:1 | SHEET 7 OF 14

WEIGHT: 0.642 LBS

FILE: 70009 V PLANE MODULE ASSY 127

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
–	–	INITIAL ISSUE	–	–





SIDE SPACER BAR
QTY: 1 PER PLANE

NOTE: SIDE SPACER BARS ARE THE SAME FOR U, V, & X PLANES

NOTE: DO NOT SCALE DRAWING ! ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: V PLANE ASS'Y

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

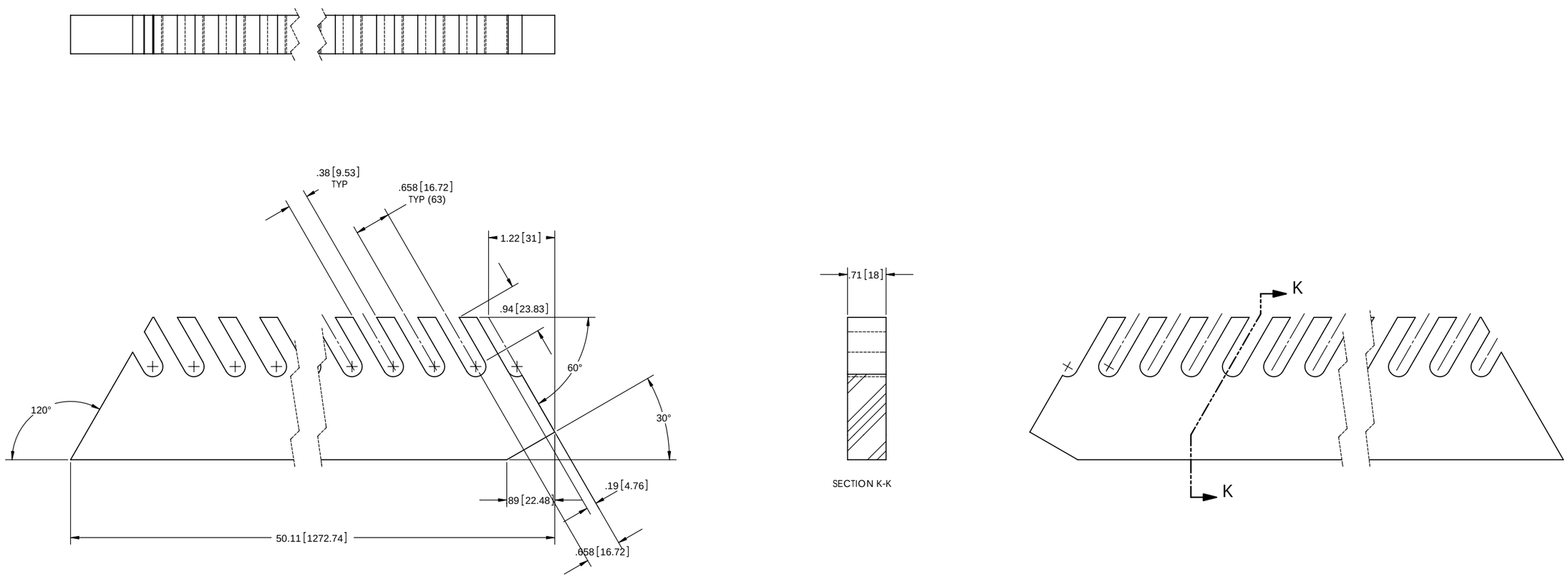
SIZE D | DWG NO 70009 | REV —

SCALE 1:1 | SHEET 8 OF 14

WEIGHT: 2.551 LBS

FILE: 70009 V PLANE MODULE ASSY 127

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPRV
–	–	INITIAL ISSUE	–	–



BOTTOM COMB
QTY: 2 EA PER PLANE

NOTE: BOTTOM COMBS ARE THE SAME FOR U, V, & X PLANES

NOTE: DO NOT SCALE DRAWING ! ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: V PLANE ASS'Y

THIRD ANGLE PROJECTION

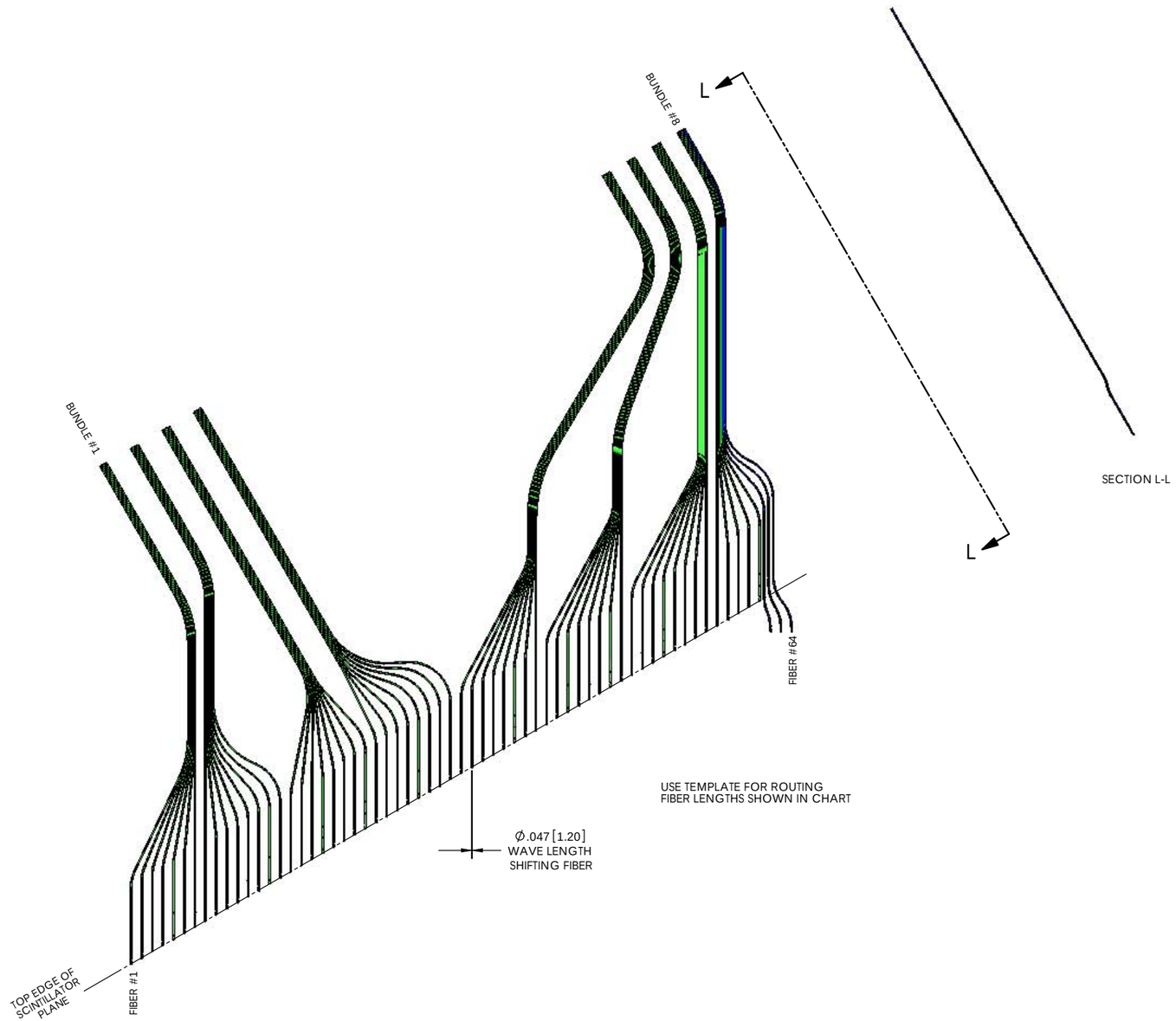
DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

SIZE D | DWG NO 70009 | REV —

SCALE 1:1 | SHEET 9 OF 14

WEIGHT: 2.657 LBS

FILE: 70009 V PLANE MODULE ASSY 127



SECTION L-L

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS
OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER, ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE
V PLANE ASS'Y

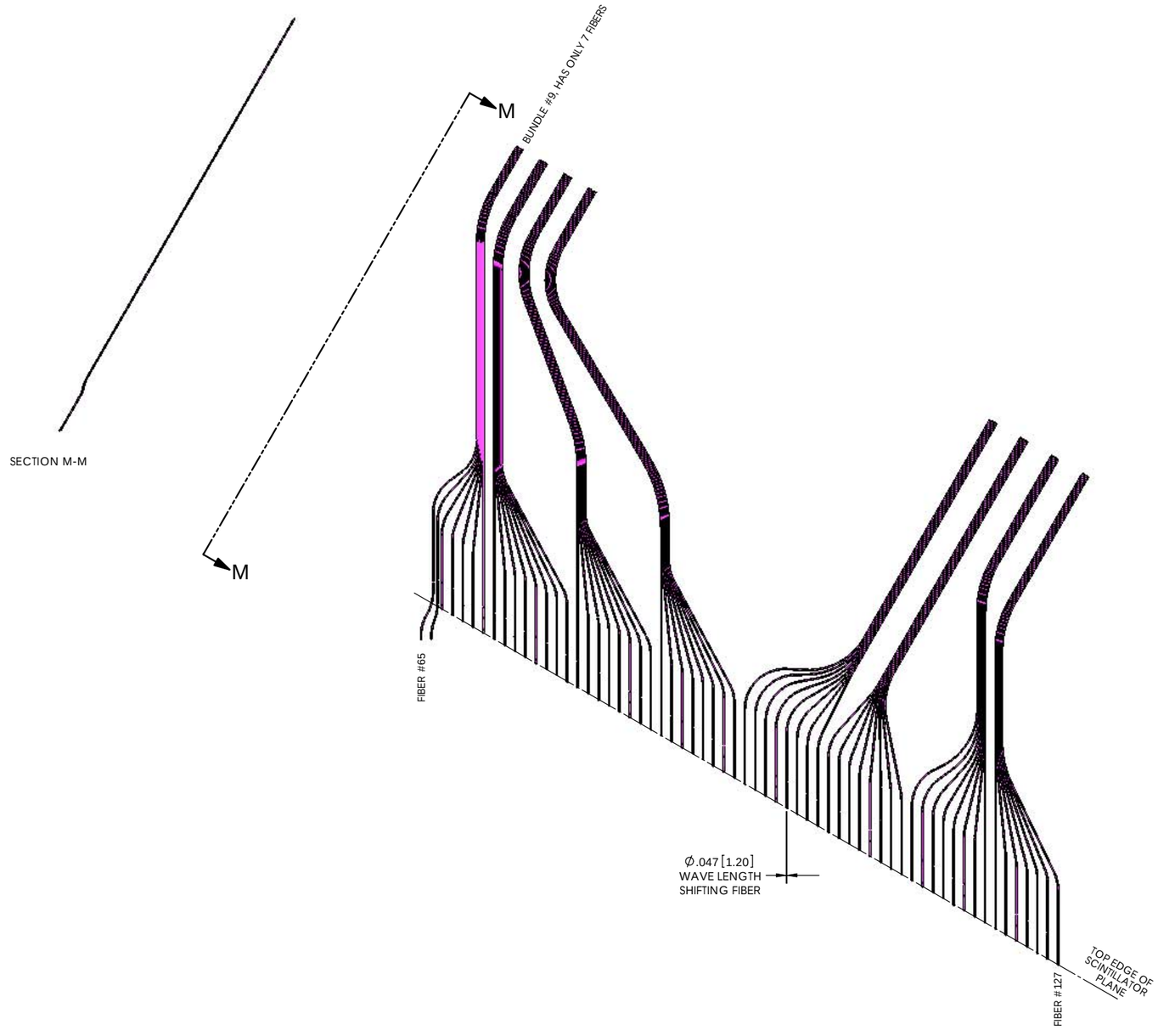
THIRD ANGLE PROJECTION

DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

SIZE	DWG NO	REV
D	70009	—
SCALE 1:1	SHEET 10 OF 14	

WEIGHT: 0.135 LBS

FILE: 70009 V PLANE MODULE ASSY 127



USE TEMPLATE FOR ROUTING
FIBER LENGTHS SHOWN IN CHART

NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS
OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: V PLANE ASS'Y

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

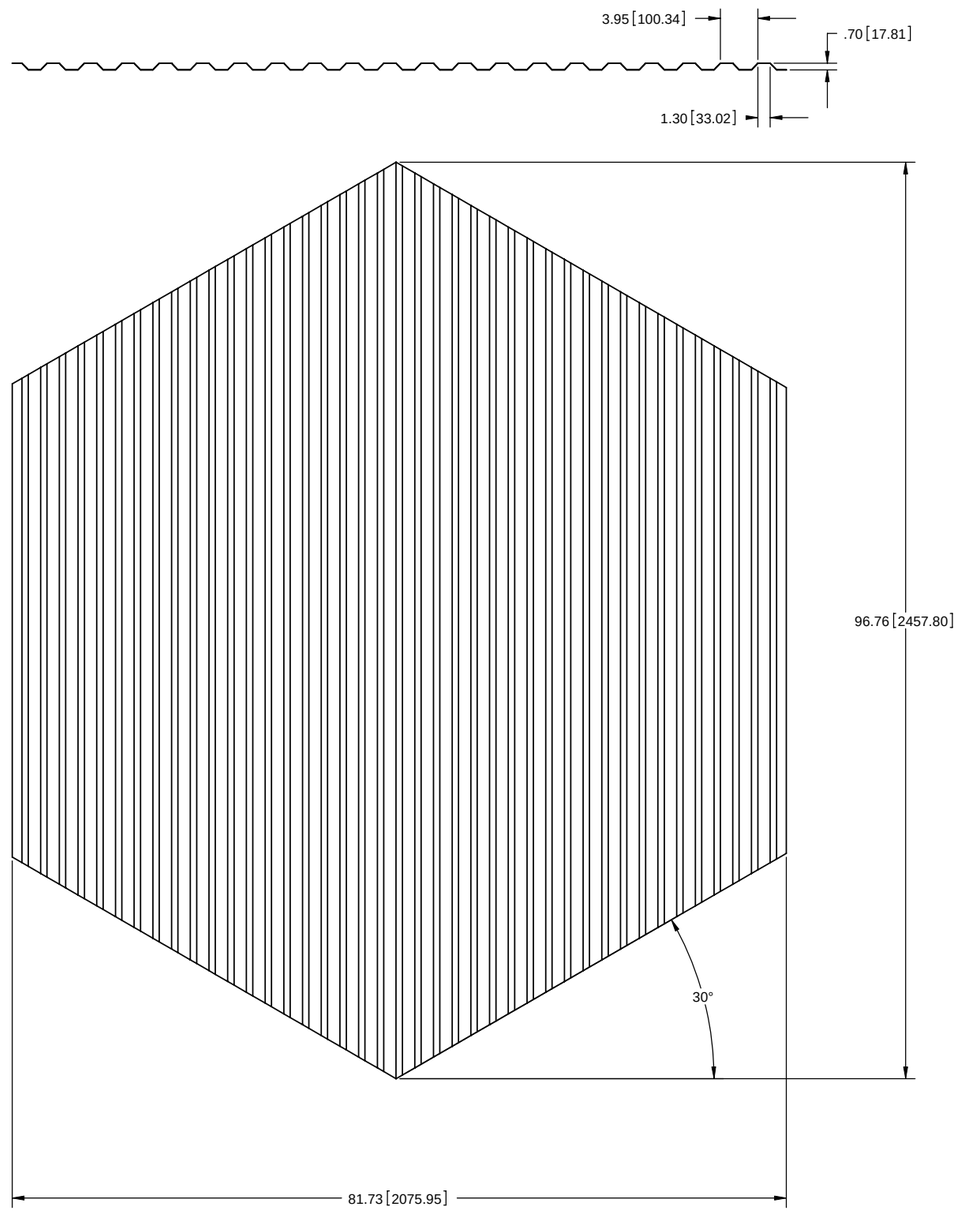
THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

SIZE D | DWG NO 70009 | REV —

SCALE 1:1 | SHEET 11 OF 14

WEIGHT: 0.135 LBS

FILE: 70009 V PLANE MODULE ASSY 127



NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: V PLANE ASS'Y

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

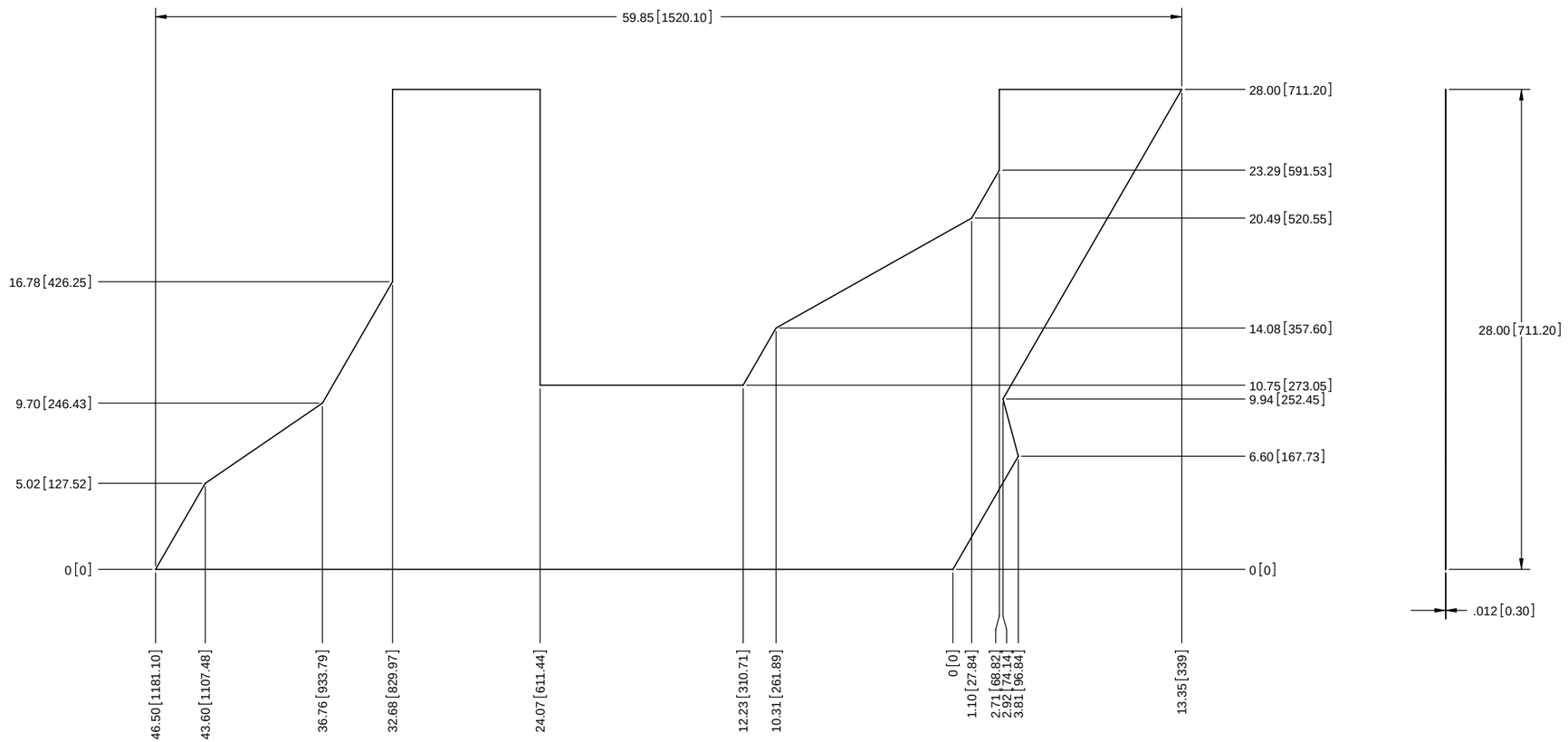
THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

SIZE D | DWG NO 70009 | REV —

SCALE 1:1 | SHEET 12 OF 14

WEIGHT: 3.197 LBS

FILE: 70009 V PLANE MODULE ASSY 127



NOTE: DO NOT SCALE DRAWING !
ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: V PLANE ASS'Y

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

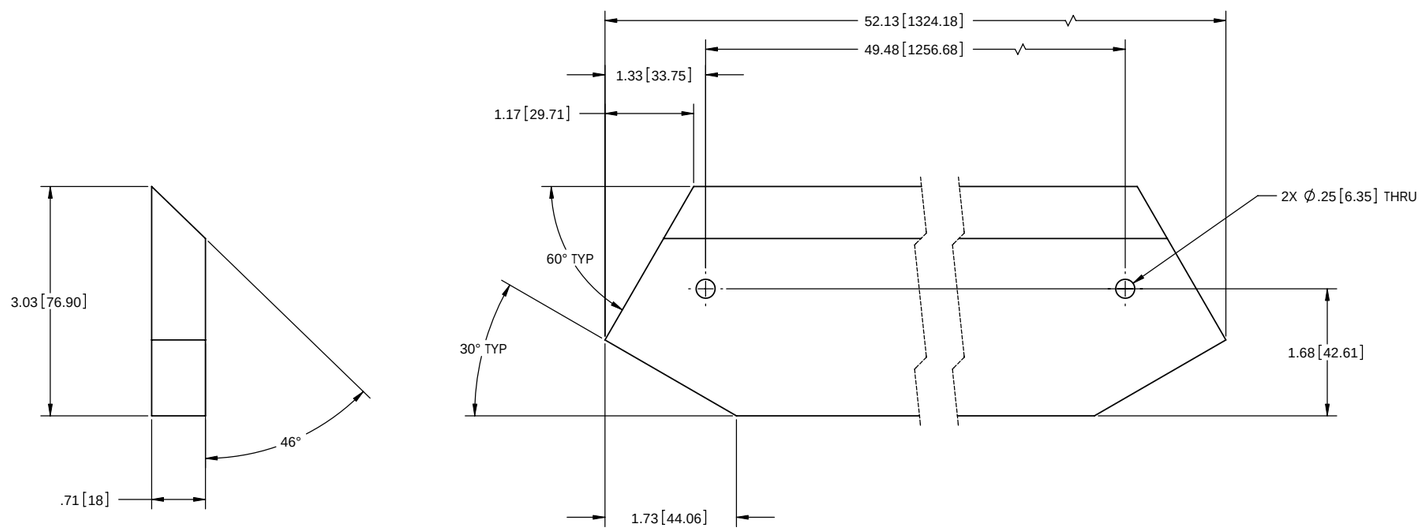
THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER, ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

SIZE D | DWG NO 70009 | REV —

SCALE 1:1 | SHEET 13 OF 14

WEIGHT: 0.465 LBS

FILE: 70009 V PLANE MODULE ASSY 127



SIDE SPACER BAR
QTY: 1 PER PLANE

NOTE: SIDE SPACER BARS ARE THE SAME FOR U, V, & X PLANES

NOTE: DO NOT SCALE DRAWING ! ALL TOLERANCES UNLESS OTHERWISE SPECIFIED ARE

DIMENSIONS ARE IN:
☐ INCHES [mm] ☐ mm [IN]

x.xx [x.x] ± .010 [.3]
x.xxx [x.xx] ± .005 [.13]
x.xxxx [x.xxx] ± .0005 [.013]
xx/xx ± 1/32
x° ± 1°

UNIVERSITY OF ROCHESTER
DEPT. OF PHYSICS AND ASTRONOMY
SIDNEY W. BARNES RESEARCH LABORATORY

TITLE: V PLANE ASS'Y

THIRD ANGLE PROJECTION

DRAWN	RSF	DATE 2/15/07
CHECKED	RSF	DATE 2/15/07
APPROVED	RSF	DATE 2/15/07

THIS IS THE PROPERTY OF THE UNIVERSITY OF ROCHESTER. ANY USE OR REPRODUCTION WITHOUT AUTHORIZATION BY THIS UNIVERSITY IS PROHIBITED.

SIZE D | DWG NO 70009 | REV —

SCALE 1:1 | SHEET 14 OF 14

WEIGHT: 2.551 LBS

FILE: 70009 V PLANE MODULE ASSY 127