

16.5	2	Threaded Rod MCM98743A230	-	10.4	2	Washer, ANSI A, Normal #6	-	1	2	Tube Stiffener Base Plate	PFS03042
17	2	1/4 NPT Ball Valve	-	10.5	2	SHCS 6-32 UNCx0.5	-	2	1	Vacuum Valve Access Mount	PFS03034
18	1	Nor-Cal NW Blank Off Cap NW-25B	-	10.6	2	SHCS 6-32 UNCx1	-	3	1	Vacuum Valve Access Plug 1	PFS03032
19	1	Nor-Cal NW Centering Ring NW-25-CR-SV	-	11	8	1/8 X .375 Std Pop Rivet	-	4	1	Vacuum Valve Access Cap	PFS03031
20	1	Nor-Cal NW 25 Nut Clamp	-	12	4	Collar 1/2" two-piece - MCM6436K14	-	5	1	Insulation Side Water Jacket	PFS03027
21	2	Nor-Cal NW Full Nipple 2N-NW-25B	-	13	1	Knob MCM6091K41	-	6	1	Insulation Side 3" Foam	PFS03023
22	1	Vacuum Hose, rubber	-	14	2	Swage-Lok Elbow 1/2" to 1/4 NPT	-	7	1	Insulation Side 4" Foam	PFS03020
23	2	Stainless Worm Drive Hose Clamp, Ø1.625	-	15	2	Quick Disconnect Coupling MCM1077T17	-	8	1	Insulation Side 2 Heat Sink	PFS03008
24	4	1/8 X .313 Std Pop Rivet	-	16	8	Handle Assembly	-	9	1	Insulation Side 2 Outer Plate	PFS03007
25	2	Button Head, Hex, 8-32 UNC x 0.375	-	16.1	1	Insulation Handle Attachment Plate	PFS03035	10	2	Pipe Strain Protector	-
26	2	Formica, black	-	16.2	12	1/8 X .313 Std Pop Rivet	-	10.1	1	Tube Stiffener Clamp	PFS03044
27	2	Formica, black	-	16.3	4	Hex nut 1/4-20	-	10.2	1	Tube Stiffener Clamp Anchor	PFS03043
28	1	Formica, black	-	16.4	4	Washer, ANSI A, Normal 0.25	-	10.3	2	Hex Nut 6-32	-
29	1	Styrofoam 3/4" Layer	-								
ITEM	QTY	DESCRIPTION	PART NUMBER	ITEM	QTY	DESCRIPTION	PART NUMBER	ITEM	QTY	DESCRIPTION	PART NUMBER
Bill of Material				Bill of Material				Bill of Material			

**THE OBSERVATORIES  
OF THE CARNEGIE INSTITUTION OF WASHINGTON**  
813 Santa Barbara Street  
Pasadena, CA 91101

MATERIAL: UNLESS OTHERWISE SPECIFIED  
 FRACTIONAL .XX +/- 0.01 ANGULAR +/- 0.1 DEG  
 +/- 1/32 .XXX +/- 0.002 GOAL  
 EST WEIGHT: 170 lb  
 .XXX +/- 0.005 REQD  
 BREAK SHARP EDGES MACHINED SURFACES 125  
 ALL DIMENSIONS IN INCHES

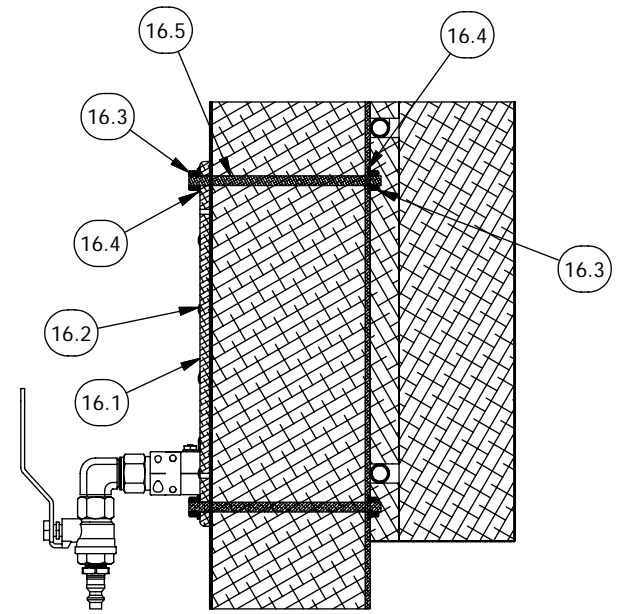
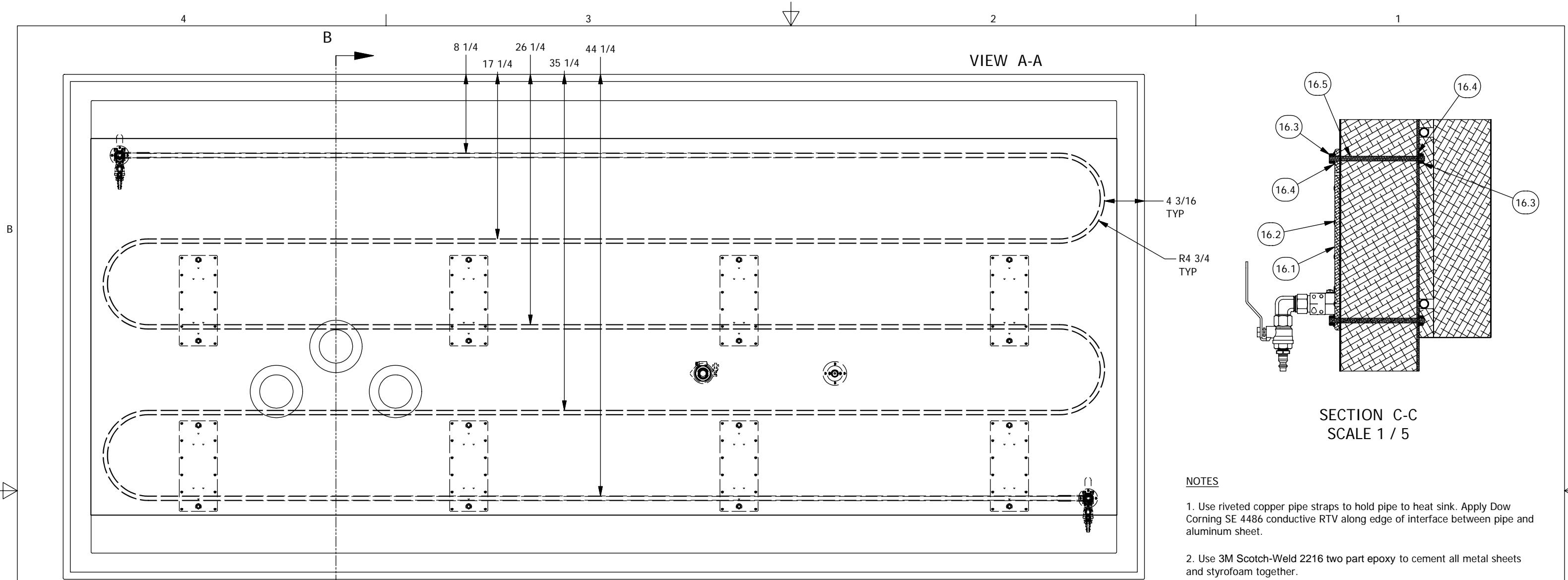
SCALE: 1:10

**P**lanet  
**F**inder  
**S**pectrograph

**Insulation Side 2  
Assembly**

DWN: CRANE 5/20/2009  
 APVD: BY: DATE

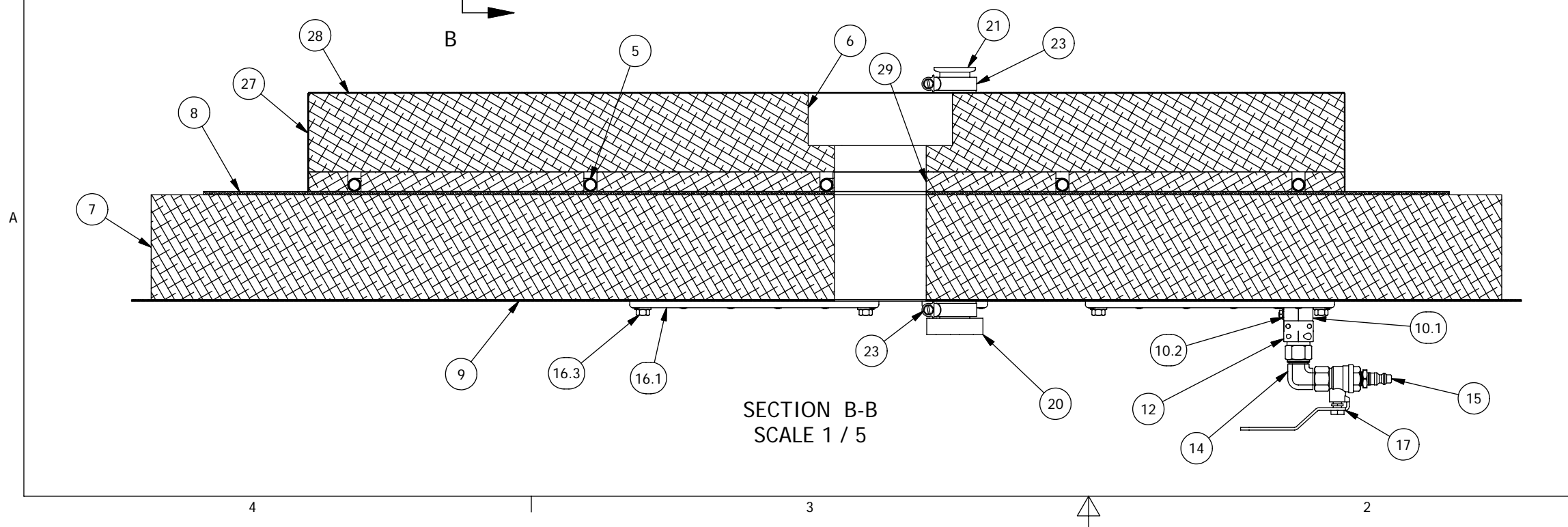
SHEET: B DRAWING NUMBER: PFS00029 SHT 1 OF 2 REV 1



SECTION C-C  
SCALE 1 / 5

NOTES

1. Use riveted copper pipe straps to hold pipe to heat sink. Apply Dow Corning SE 4486 conductive RTV along edge of interface between pipe and aluminum sheet.
2. Use 3M Scotch-Weld 2216 two part epoxy to cement all metal sheets and styrofoam together.
3. Use contact adhesive to cement formica to Styrofoam.
4. Dry fit all parts before using adhesive.
5. Rivets and pipe straps not shown.
6. To ensure proper alignment, place central four Handle Attachment Plates while attached to Lifting Frame Assembly PFS00034 and rivet in place.



SECTION B-B  
SCALE 1 / 5

<b>THE OBSERVATORIES OF THE CARNEGIE INSTITUTION OF WASHINGTON</b> 813 Santa Barbara Street Pasadena, CA 91101				
MATERIAL		UNLESS OTHERWISE SPECIFIED FRACTIONAL .XX +/- 0.01 ANGULAR +/- 0.1 DEG +/- 1/32 .XXX +/- 0.002 GOAL .XXX +/- 0.005 REQD BREAK SHARP EDGES MACHINED SURFACES 125 ✓ ALL DIMENSIONS IN INCHES		
EST WEIGHT		170 lb		
SCALE		1:10		
		Planet Finder Spectrograph		Insulation Side 2 Assembly
DWN	CRANE	5/20/2009		
APVD	BY	DATE	SHEET B	REV 1
		DRAWING NUMBER PFS00029		SHT 2 OF 2