

Work Order # _____ Job # _____ Activity # _____

1. Work requester fills out this section STANDING WORK PERMIT

Requester: P. KROON Date: 6/29/04 Ext. 5114 Dept/Div/Group: PO/PHENIX
 Other Contact person (if different from requester): SAL MARINO Ext. 3704
 Work Control Coordinator P. KROON Start Date 7/1/04 Est. End Date 8/1/04
 Description of Work / Problem: It is necessary to remove and replace front window, frame and gasket on east drift chamber. This requires the erection of a temporary ventilated enclosure to minimize contamination of the exposed interior of the drift chamber.
 Building 1008 Room AH Equipment N/A Service Provider: PHENIX TECHS

2. Work requester, service provider, and ES&H (as necessary) fill out this section or attach analysis

ES&H Analysis

RADIATION CONCERNS NONE Activation Airborne Contamination Radiation OTHER _____
 Special nuclear materials involved, notify Isotope Special Materials Group Fissionable materials involved, notify Laboratory Criticality Officer

SAFETY CONCERNS NONE

<input type="checkbox"/> Adding / Removing Walls or Roofs	<input type="checkbox"/> Confined Space*	<input type="checkbox"/> Explosives	<input type="checkbox"/> Lead*	<input type="checkbox"/> Penetrating Fire Wall
<input type="checkbox"/> Asbestos*	<input type="checkbox"/> Corrosive	<input type="checkbox"/> Flammable	<input type="checkbox"/> Magnetic Field	<input type="checkbox"/> Pressurized Systems
<input type="checkbox"/> Beryllium*	<input type="checkbox"/> Cryogenic	<input type="checkbox"/> Fumes/Mist/Dust*	<input type="checkbox"/> Material Handling	<input checked="" type="checkbox"/> Rigging/Critical Lift
<input type="checkbox"/> Biohazard*	<input type="checkbox"/> Electrical	<input type="checkbox"/> Heat/Cold Stress*	<input type="checkbox"/> Noise*	<input type="checkbox"/> Toxic Materials*
<input type="checkbox"/> Chemicals*	<input checked="" type="checkbox"/> Elevated Work*	<input type="checkbox"/> Hydraulic	<input type="checkbox"/> Non-ionizing Radiation	<input type="checkbox"/> Vacuum
	<input type="checkbox"/> Excavation	<input type="checkbox"/> Lasers*	<input type="checkbox"/> Oxygen Deficiency*	<input type="checkbox"/> OTHER _____

*Does this work require medical clearance or surveillance from the Occupational Medicine Clinic? Yes No

ENVIRONMENTAL CONCERNS NONE

<input type="checkbox"/> Atmospheric Discharges (rad/non-rad)	<input type="checkbox"/> Liquid Discharges	<input type="checkbox"/> Work impacts Environmental Permit No. _____
<input type="checkbox"/> Chemical or Rad Material Storage or Use	<input type="checkbox"/> Oil / PCB Management	<input type="checkbox"/> Soil activation/contamination
<input type="checkbox"/> Cesspools (UIC)	<input type="checkbox"/> Protected areas / species	<input type="checkbox"/> Waste - Clean
<input type="checkbox"/> High water / power consumption	<input type="checkbox"/> Spill potential	<input type="checkbox"/> Waste - Hazardous
		<input type="checkbox"/> Waste - Industrial
		<input type="checkbox"/> Waste - Mixed
		<input type="checkbox"/> Waste - Radioactive
		<input type="checkbox"/> Waste - Regulated Medical
		<input type="checkbox"/> OTHER _____

Waste disposition by: _____

POLLUTION PREVENTION (P2) / WASTE MINIMIZATION OPPORTUNITY: None Yes

Facility Concerns NONE

<input type="checkbox"/> Access/Egress Limitations	<input type="checkbox"/> Impacts Facility Use Agreement	<input type="checkbox"/> Temperature Change	<input type="checkbox"/> OTHER _____
<input type="checkbox"/> Configuration Control	<input type="checkbox"/> Maintenance Work on Ventilation Systems	<input type="checkbox"/> Utility Interruptions	
<input type="checkbox"/> Electrical Noise	<input type="checkbox"/> Potential to Cause a False Alarm	<input type="checkbox"/> Vibrations	

Work Controls

WORK PRACTICES NONE Exhaust Ventilation Lockout/Tagout Spill Containment

<input type="checkbox"/> Back-up Person/Watch	<input type="checkbox"/> HP Coverage	<input type="checkbox"/> Posting/Warning Signs	<input type="checkbox"/> Time Limitation
<input type="checkbox"/> Barricades	<input type="checkbox"/> IH Survey	<input type="checkbox"/> Scaffolding - requires inspection	<input type="checkbox"/> Warning alarm (i.e. "high level")

PROTECTIVE EQUIPMENT NONE Ear Plugs Gloves Lab Coat Safety Glasses

<input type="checkbox"/> Coveralls	<input type="checkbox"/> Ear Muffs	<input type="checkbox"/> Goggles	<input type="checkbox"/> Respirator	<input checked="" type="checkbox"/> Safety Harness
<input type="checkbox"/> Disposable Clothing	<input type="checkbox"/> Face Shield	<input checked="" type="checkbox"/> Hard Hat	<input type="checkbox"/> Shoe covers	<input checked="" type="checkbox"/> Safety Shoes <input type="checkbox"/> OTHER _____

PERMITS REQUIRED *Initial next to box to show who has responsibility to generate the permit. Permits must be valid when job is scheduled.* NONE Cutting/Welding Impair Fire Protection Systems

<input type="checkbox"/> Concrete/Masonry Penetration	<input type="checkbox"/> Digging/Core Drilling	<input type="checkbox"/> Rad Work Permit - RWP No. _____
<input type="checkbox"/> Confined Space Entry	<input type="checkbox"/> Electrical Working Hot	<input type="checkbox"/> OTHER _____

DOSIMETRY/ MONITORING NONE Heat Stress Monitor Real Time Monitor TLD

<input type="checkbox"/> Air Effluent	<input type="checkbox"/> Noise Survey/Dosimeter	<input type="checkbox"/> Self-reading Pencil Dosimeter	<input type="checkbox"/> Waste Characterization
<input type="checkbox"/> Ground Water	<input type="checkbox"/> O ₂ /Combustible Gas	<input type="checkbox"/> Self-reading Digital Dosimeter	<input type="checkbox"/> OTHER _____
<input type="checkbox"/> Liquid Effluent	<input type="checkbox"/> Passive Vapor Monitor	<input type="checkbox"/> Sorbent Tube/Filter Pump	

Training Requirements (List below any location specific training requirements)
FALL PROTECTION, OVERHEAD CRANE OPERATOR.

Based on analysis above, the Walkdown Team determines the risk, complexity, and coordination ratings below.

ES&H Risk Level: LOW MODERATE HIGH
 Complexity Level: LOW MODERATE HIGH
 Work Coordination: LOW MODERATE HIGH

Note: If all the ratings are LOW, the Work Control Coordinator and Service Provider must sign for concurrence on the back side. Further review of the work permit is not required. If any ratings are MODERATE or HIGH, the entire permit must be completed.

3. Both work requester and service provider coordinate on work plan (use attachments for detailed plans)

Work Plan: (procedures, timing, equipment, and personnel availability need to be addressed) _____

— SEE ATTACHED —

Special Working Conditions Required: None Prior to start of Job set-up is to be reviewed by P. Ciccioliaro / A. Feltner @ R. Karol.

Operational Limits Imposed: NO

Post Work Testing Required: NO

Job Safety Analysis Required Yes No Walkdown Required Yes No

Reviewed By: Primary Reviewer will determine the size of the review team and the other signatures required based on hazards and job complexity. Primary Reviewer signature means that the hazards and risks that could impact ES&H have been identified and will be controlled according to BNL requirements.

Title	Name (print)	Signature	Life #	Date
Primary Reviewer	Arthur J. Papp	<i>[Signature]</i>	18661	7/1/04
ES&H Professional	P. Ciccioliaro	<i>[Signature]</i>	21868	7/1/04
Other	R. Karol	<i>[Signature]</i>	15065	7/1/04
Other	C. Peterson	<i>[Signature]</i>	15245	7/1/04
Work Control Coordinator*	P. Kroon	<i>[Signature]</i>	17500	7/1/04
Service Provider*				

*Only signatures required for concurrence on LOW rated jobs.

Review done: in series team

4. Job site personnel fills out this section

Note: Signature indicates personnel performing work have read and understand the hazards and permit requirements (including attached permits).

Job Site Supervisor *[Signature]* 15767 Contractor Supervisor _____
 Workers: *[Signature]* Life # 15280 Workers: *[Signature]* Life # 166512
[Signature] 26221 *[Signature]* 25695
[Signature] 18643 *[Signature]* 26309
[Signature] 26135

Workers are encouraged to provide feedback on ES&H concerns or on ideas for improved job work flow. Use feedback form or space below.

5. Work Requester or designee fills out this section

Conditions are Appropriate to Start Work: (Work permit has been reviewed, work controls are in place, and site is ready for job.)

Name P. Kroon Signature *[Signature]* Life # 17500 Date 7/1/04

6. Work Requester determines if Post Job Review is required No Yes (Fill in names of reviewers)

Post Job Review:

Name: _____ Signature _____ Life #: _____ Date: _____
 Name: _____ Signature _____ Life #: _____ Date: _____

7. Worker provides feedback

Worker Feedback: NONE

8. Work Control Coordinator (requesting dept.) checks quality of completed permit and closes out

Closeout: Name P. Kroon Signature *[Signature]* Life #: 17500 Date: 7/30/04

Comments: Successful job - Tent removed 7/27/04 - see comments in attached procedure.

PHENIX Drift Chamber Window Repair.

A. Background

Due to the number of wire removals required over the last several years, the front window of the east drift chamber must be replaced. The east carriage has been rolled out of the IR and placed in the assembly hall of Bldg. 1008 to provide access to the front. Since removal of the window will leave the entire insides of the drift chamber exposed, it is necessary to erect an enclosure (tent) to minimize the risk of contamination. Two electric vertical man lifts will be enclosed in the tent for access to the drift chamber window. The tent has been designed with filtered air inflow and internal lighting to provide a safe working environment for the repair crew (subsystem experts) and for the drift chamber. The tent design has been reviewed and approved by C-A engineering, and will be inspected by C-A before use. Following completion of the window replacement, the tent will be removed.

B. Tent Assembly

1. Assemble 4 leg units:
 - 1.1 Mount 2 top plates (12"x4") to each 24' long 4"x4" tube by two 5/8" bolts.
 - 1.2 Mount two splicing 2"x3 1/2"x3/4" plates to long tube from the bottom by four 3/8" bolts.
 - 1.3 Attach 20"x4"4" leg extensions to the splicing plates.
2. Put and tape in place 3/8"x7" bolts in 13 cross beams.
3. Mark and drill top horizontal beams for 6" right angle clips
4. Install top horizontal beams (70 LB, lifted by crane) on East carriage extensions.
 - 4.1 Attach 6" right angle clip to horizontal beams.
 - 4.2 Mount two horizontal beams on East carriage extensions using two 1/2" bolts/beam through from the top.
 - 4.3 Bolt 6" right angle clip to the carriage.

5. Attach from top the East/South leg to the horizontal beam with $\frac{3}{4}$ " pivot bolt.

6. Position the leg base to the leg with $\frac{3}{4}$ " bolt.

6.1 Adjust the leg vertically, using shims or trimming as necessary.

7. Repeat steps 5 and 6 for W/S, E/N and W/N legs.

8. Install 13 cross beams from inside on S/W/N sides.

Note: on the west side the **top** beam is mounted from the outside.

9. Stick "Velcro" tape along each leg from exterior sides.

10. Drill and tap the floor plates, and bolt down the leg bases.

11. Cover the tent with tent covering:

11.1 Drape North/Top/South sides by one roll of tent material.

11.2 Attach tent to vertical legs by "Velcro" tape.

11.3 From East/Carriage side fix extra material to RICH vessel with tape.

11.4 Cut vertical slits approximately 8 feet high in the south and north sides to provide ingress/egress. *omit - leave west wall open to 6 ft above floor for ingress/egress* *PK*

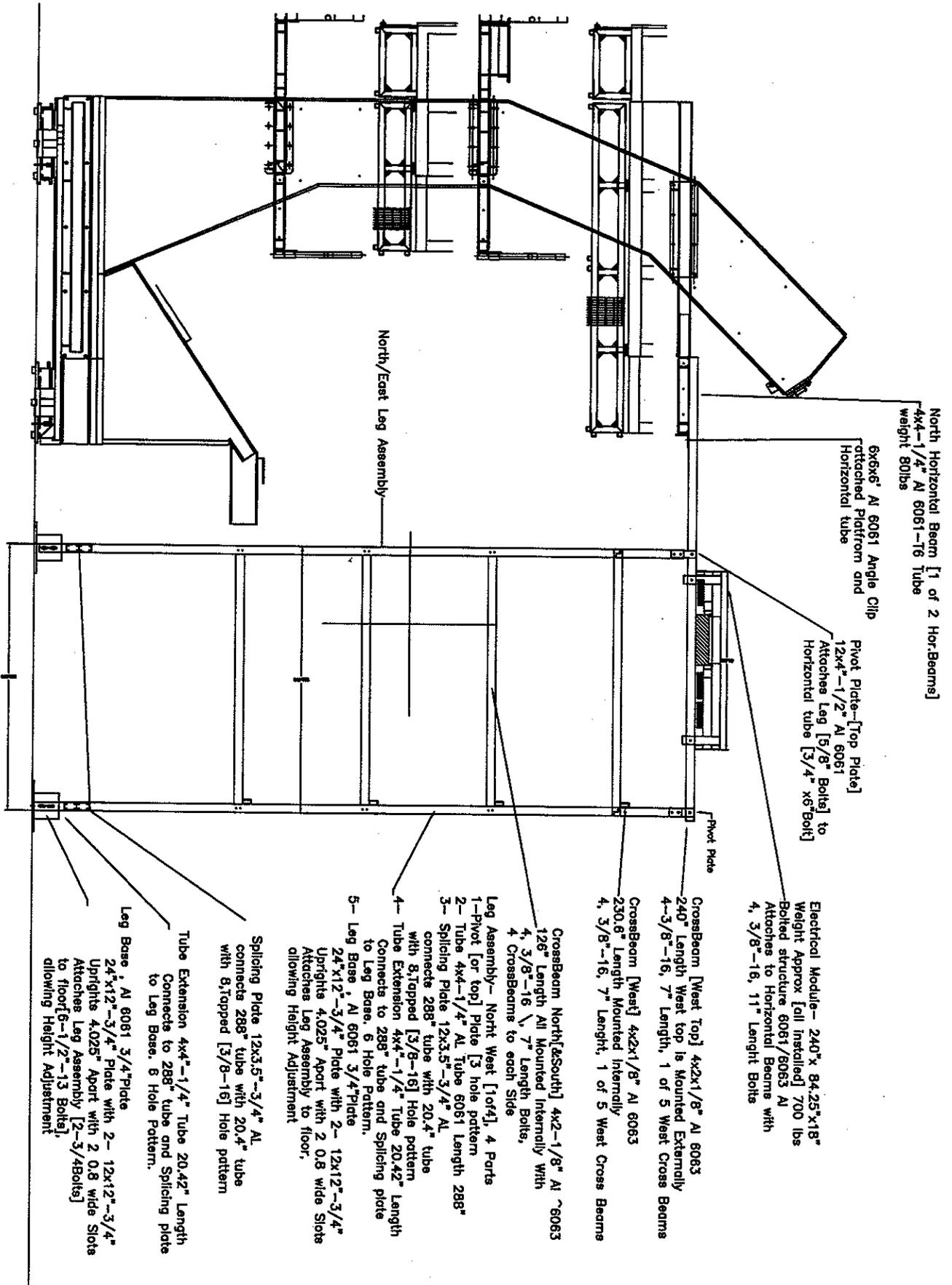
12. Raise the complete electric module (Wt. ~ 800 Lb.), place it on top of the tent and attach it to the horizontal beams using the 12" bolts at 4 points.

13. From inside the tent, cut openings in the ceiling for the air blowers and lights and seal them to the electric module with tape.

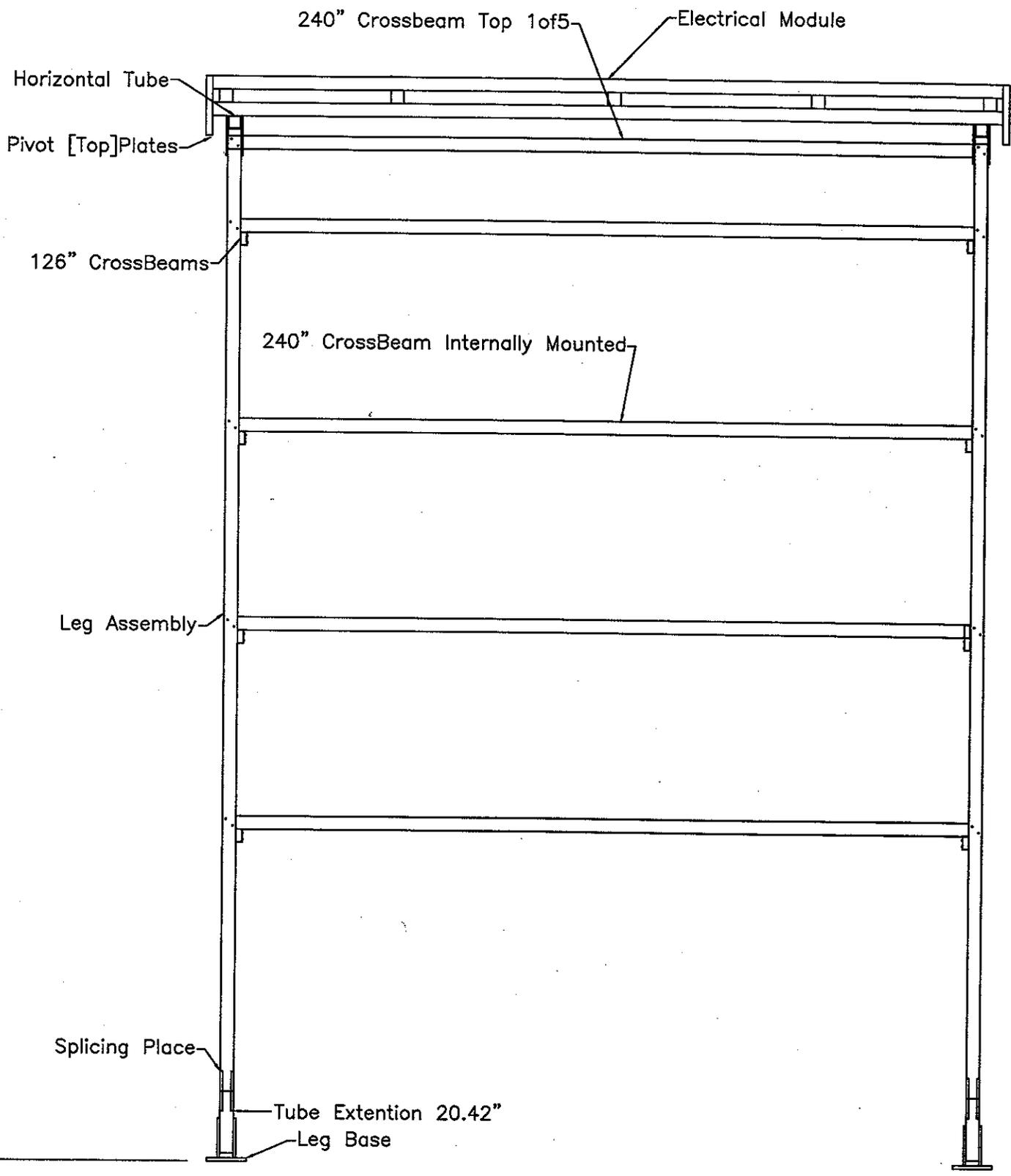
14. Provide power to the electric module and test.

15. Bolt down 4" Al. Angles at east and west end of floor plates to serve as stops for the man lifts.

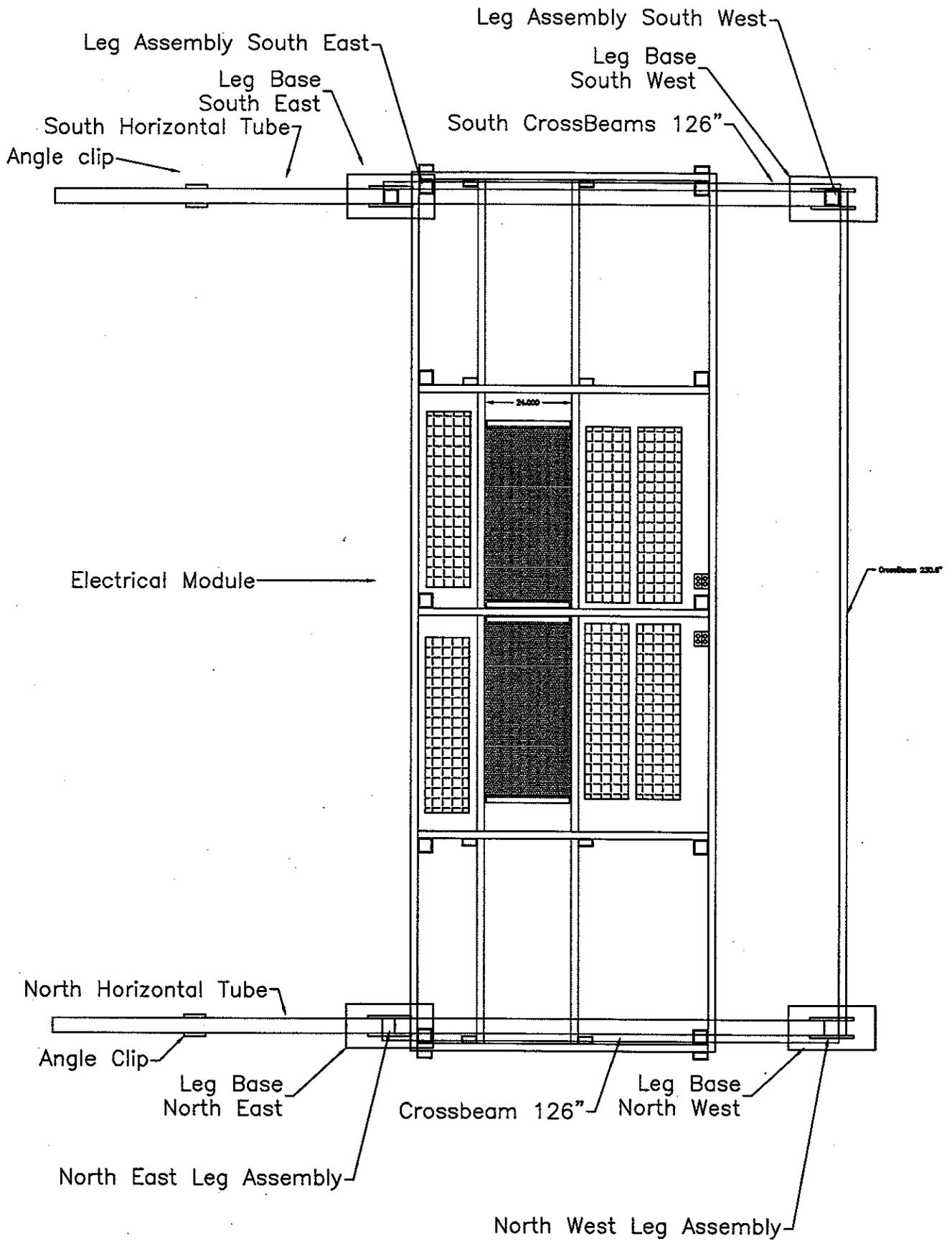
16. Cover the west side with tent material. Fix the top edge to external cross beam with self-tapping screws and press plate. *- leave 7' hi opening* *PK*



NORTH SIDE - LOOK SOUTH



WEST SIDE - LOOKING EAST



TOP VIEW — ELECTRIC MODULE

C. Tent disassembly

1. Remove west side tent material.
2. Disconnect power to electric module.
3. From inside, cut the ceiling tent material free of the electric module.
4. Remove the 4 bolts attaching the electric module and remove the module.
5. Remove the rest of the tent material.
6. Remove the 13 cross beams.
7. Remove the 4 legs.
8. Remove the 2 horizontal beams.