

# PHENIX WEEKLY PLANNING

PHENIX  
WEEKLY  
PLANNING



4/9/2009  
Don Lynch

## Next Maintenance Access Day - April 15 (A Very Taxing Day)

- RPC noise problems improved significantly with LV filter last week, Do we need to do more?
- More measurements for RPC Installation?
- AC Work?
- Other tasks ?

PHENIX  
TECHNICAL  
SUPPORT  
NOON

## Run Support & Other Ongoing Work

### Run Technical Support (mech, elec., gas)

As needed → always takes priority

### RPC Factory Support (continuing)

(see slides later)

### Prep for 2009 Shutdown

Design PC1 East maintenance support fixtures

design 3/31, fabrication 5/31

MMS Scaffolding Design

design Done, ordering/fabrication 5/1

RPC3 North installation Prep

Installation plan (including inst'n site prep plan) 3/31

Installation fixture design 4/30

Installation fixture fabrication 6/26

### Upgrades Support

New Beampipe supports (back logged)

NCC prototype design support (on-going)

VTX fabrication tooling design (on-going)

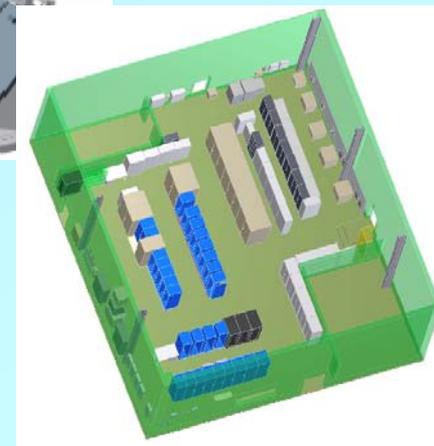
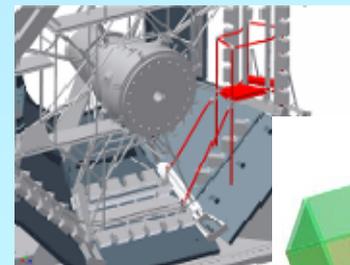
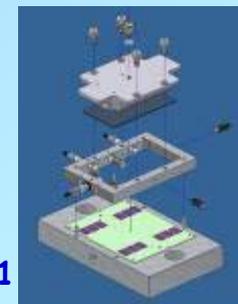
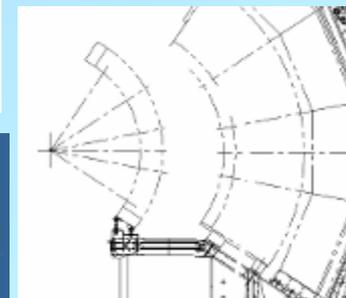
VTX installation design (on-going)

FVTX design/eng'g support (no support req'd yet)

### Maintenance & Overhead Tasks

Procedure Review/Updates (ongoing)

Rack Room, AH, Trailer, Mixing House, etc. (ongoing)

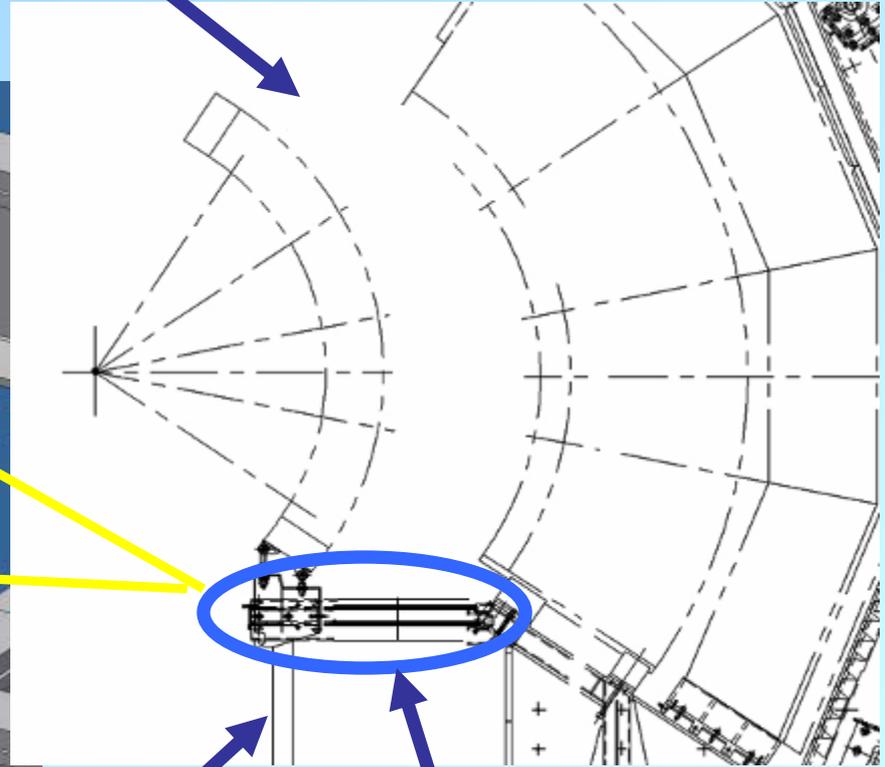
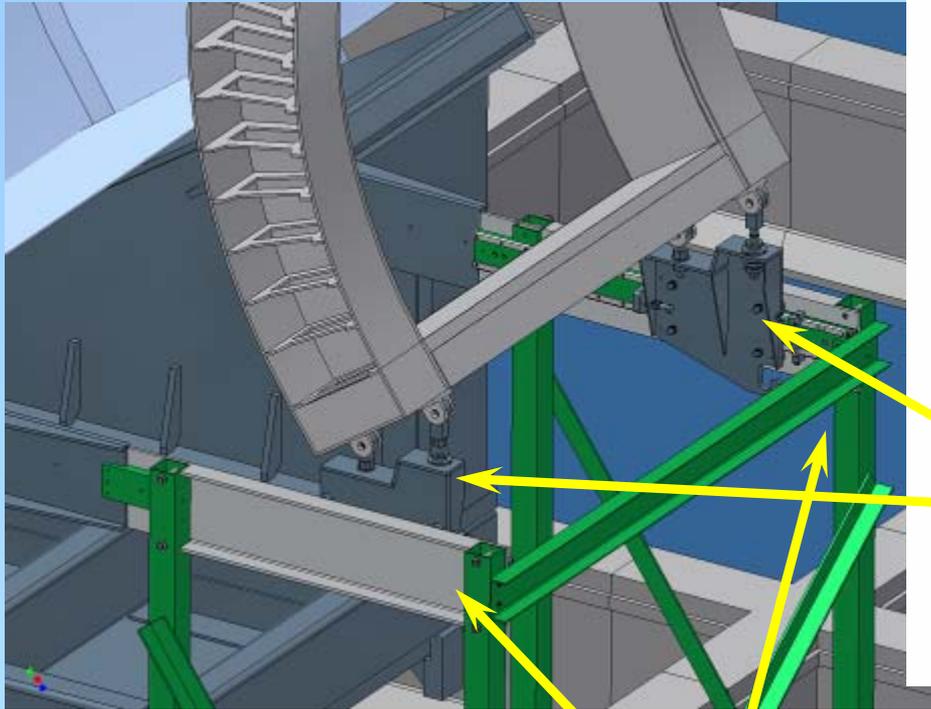


# PC1 East Repair Fixturing Design



Repairs to be performed during '09 Shutdown

Access to PC1 is adequate to remove and replace module

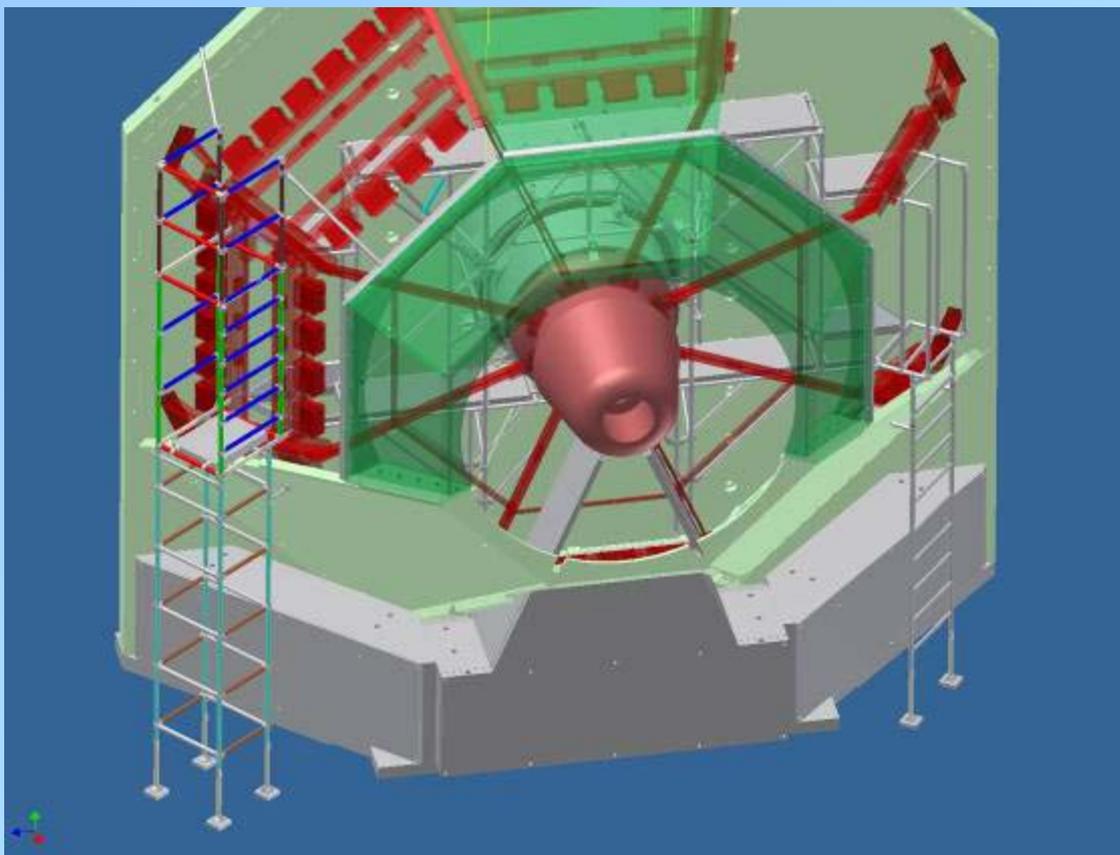


*Drawings at CS for quote*

New Column Supports Under railway extensions

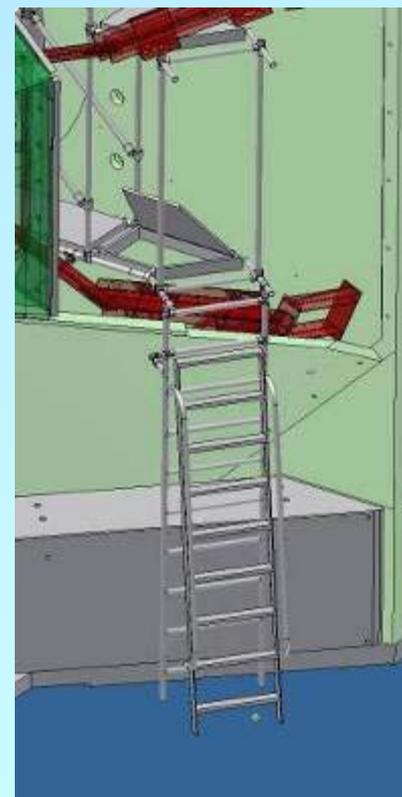
New Railway extensions will allow DC to be pulled out ~ 3 feet more

PHENIX PROJECT NO. 0909



## MMS scaffolding

Designed for MuTr installation. Approved in 2000 for use. Stress analysis done for worst case. Current design has minor modifications.



Concept approved at  
C-A Design Review

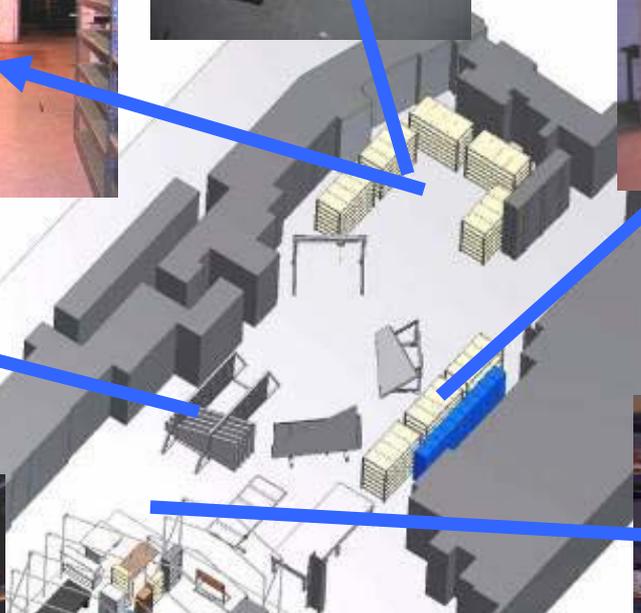
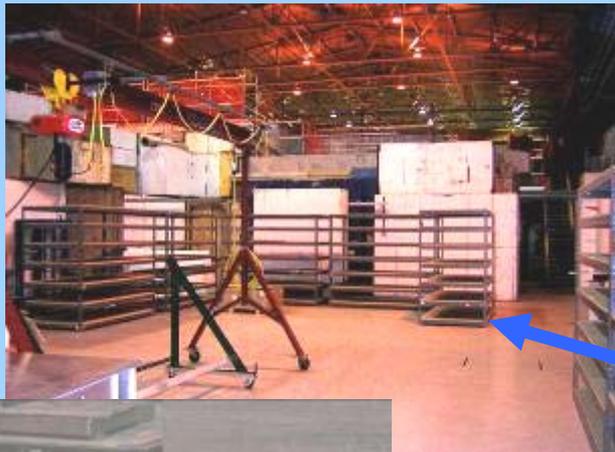
Bargaining Unit negotiations are next

## RPC Factory Support Tasks:

- Design and order environmental control system for Burn-In Test Stand (*in progress*)
- Assemble gap & module storage with humidity control, 1<sup>st</sup> humidity control unit received. (*assembly in-progress*)
- Assemble tilting transport table (*in progress*)
- Assemble burn-in test stand (bike rack) (*after TTT complete*)
- Extend gas, electric and safety systems to Burn-In Test Stand (*in progress*)

PHENIX  
FACTORY  
SUPPORT  
NOON

PHENIX TECHNICAL SUPPORT



# Tilting Transport Table

Fabrication in progress



Concept approved at C-A Design Review, with minor corrections

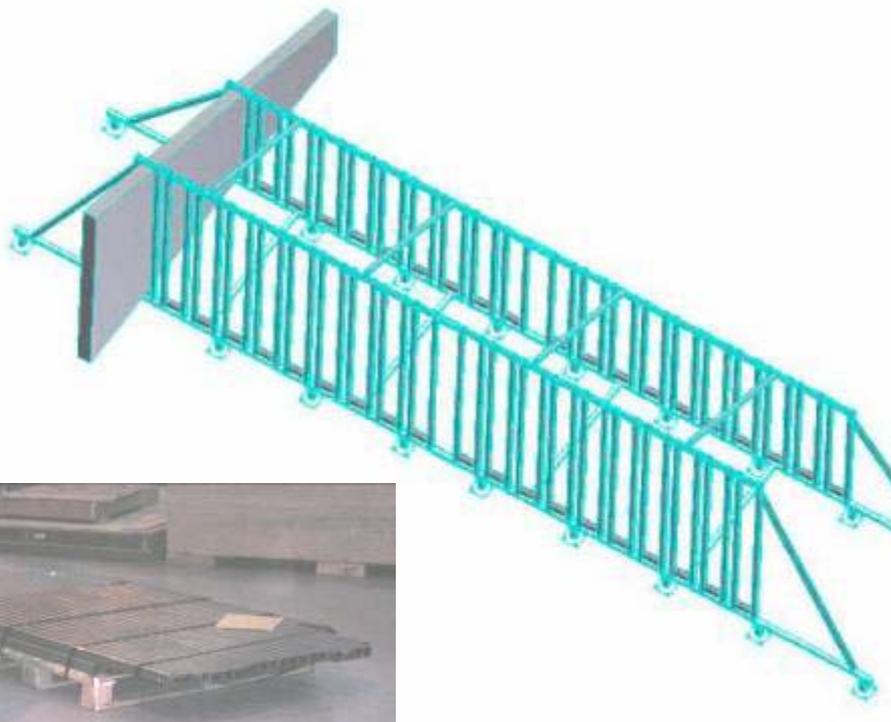
TECHNICAL SUPPORT NOON

Concept approved at  
C-A Design Review waiting  
in the task queue

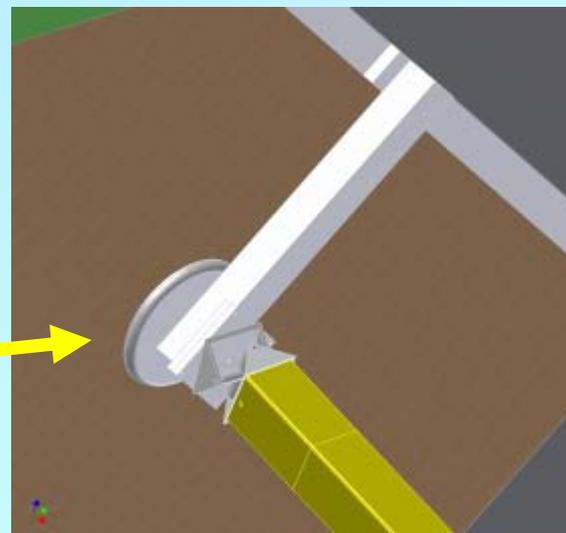
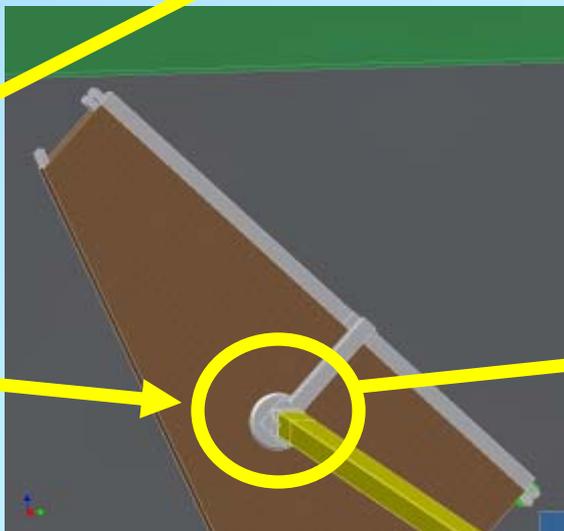
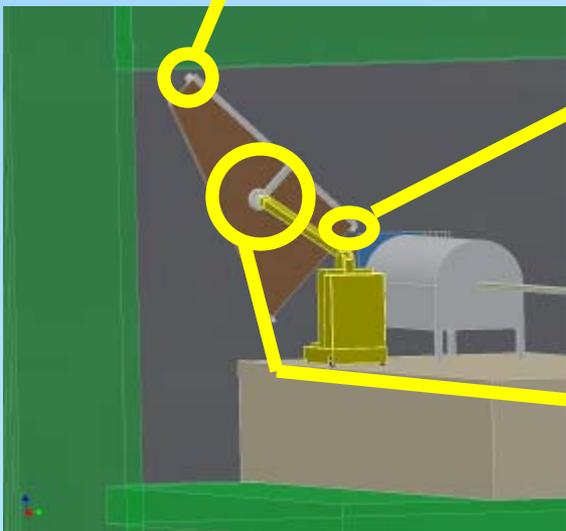
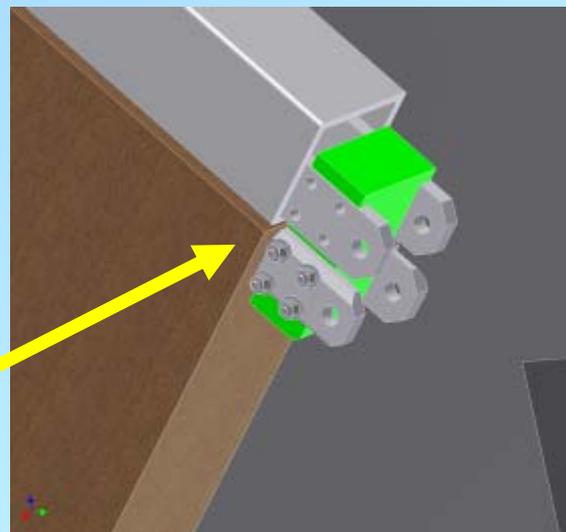
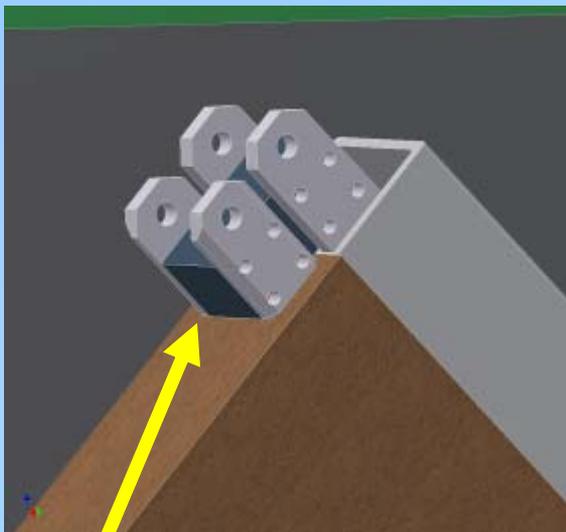
RPC Factory Burn In Test Station  
For Octant and Half Octant Burn-in Tests

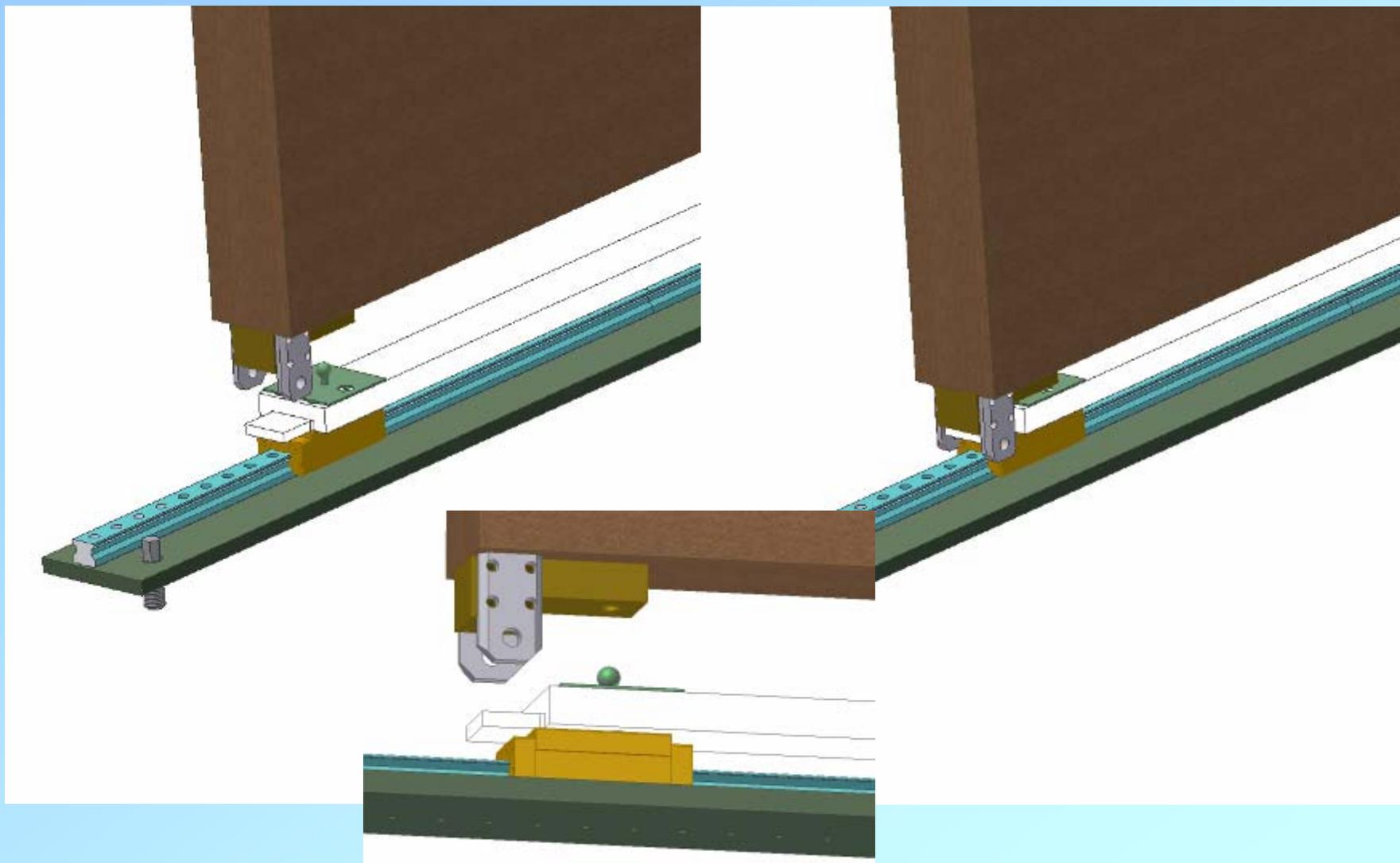
### Mechanical Requirements:

- Slots for 20 detector units, max. 10 under test and 10 storage
- Each detector weighs ~ 750 lb
- Each slot to have 2 rollers
- Separation between rollers spaced to allow half octant to rest in slot with unit center of gravity mid way between rollers
- Rollers must be sufficiently close to catch unit before center of gravity passes first roller



RPC 3 North  
Installation  
Tooling  
Concept

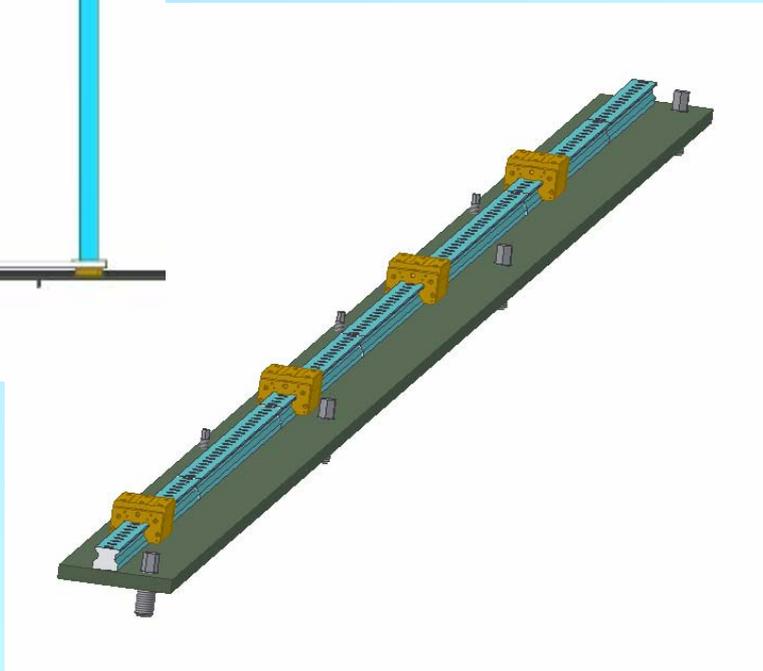
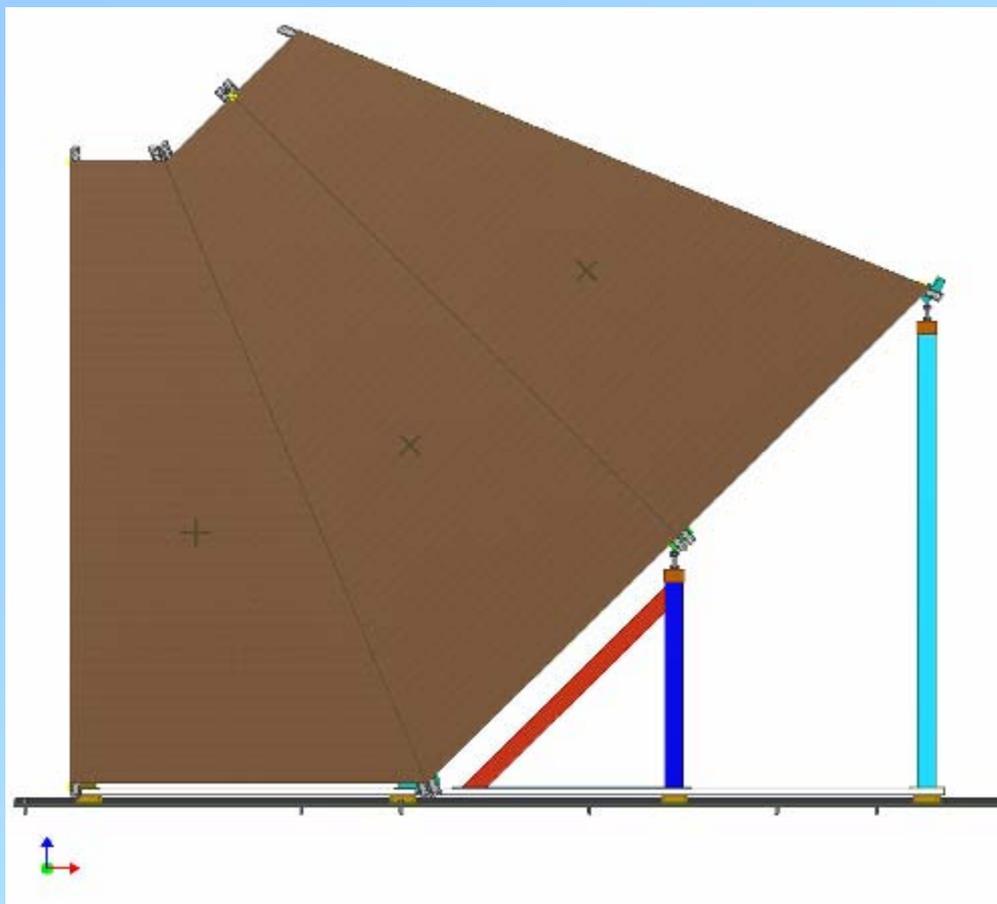












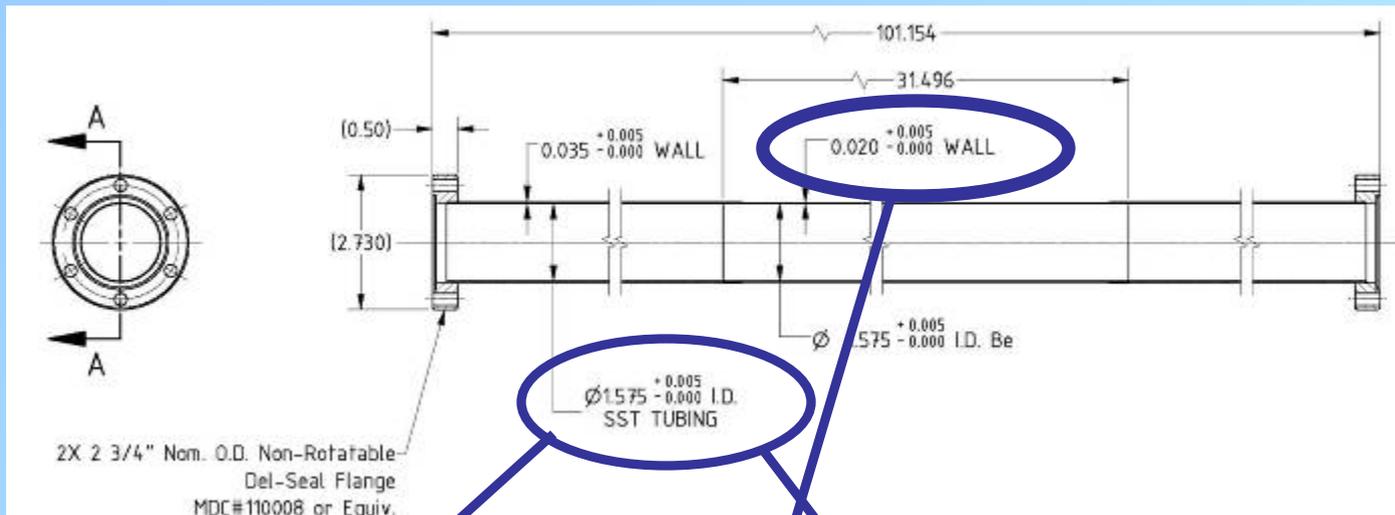
PHENIX





# New Beampipe

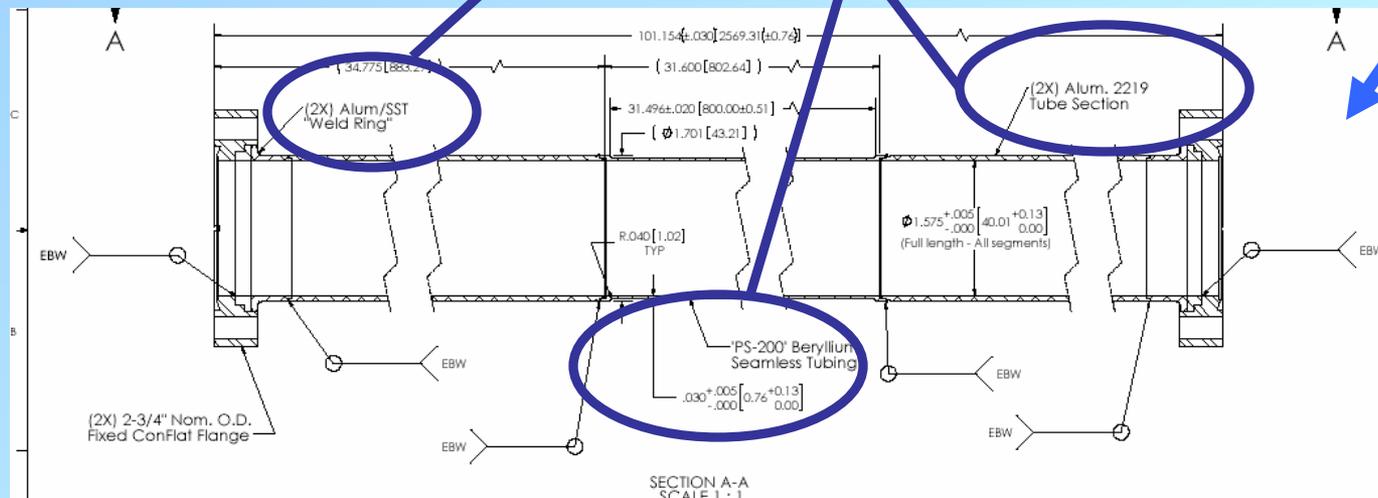
NOON-120705 SCAPORT NOON



PHENIX

SCD

Brush-Wellman CAP



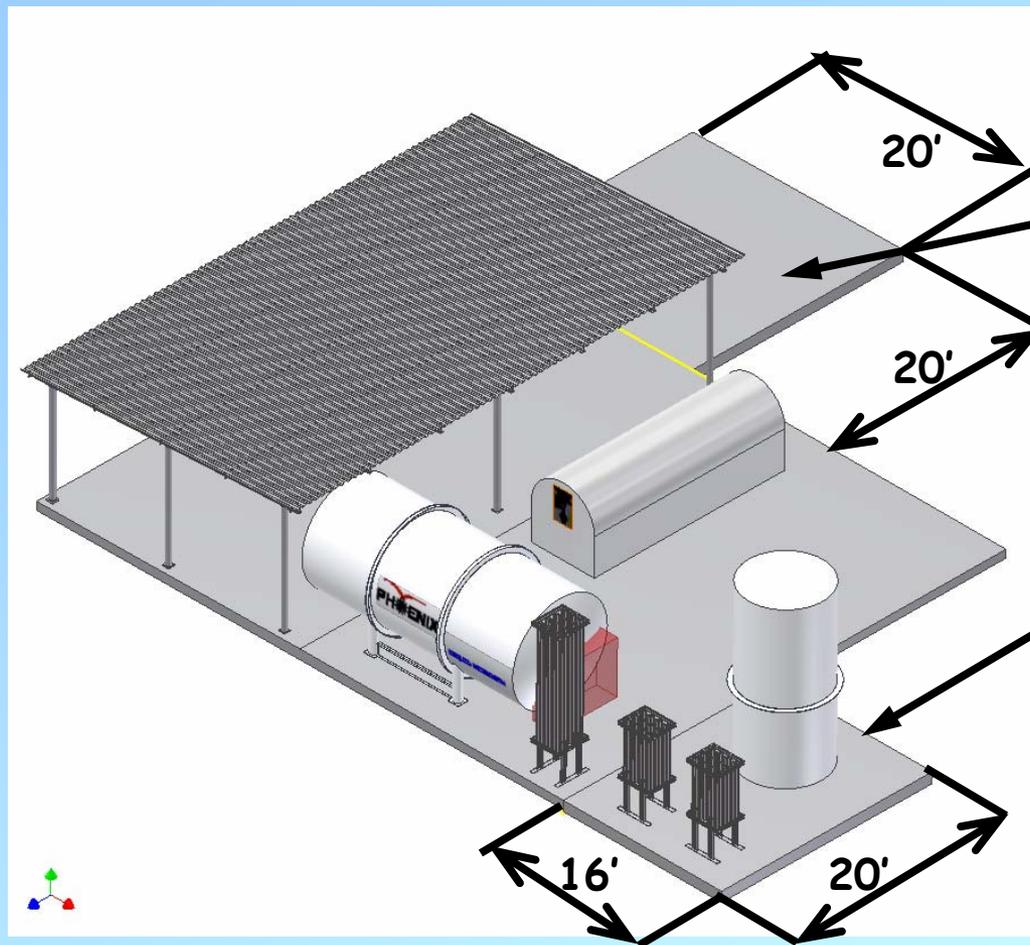
CAP Approval sent to B/W. Quotes rec'd from CS for spools & Transitions

# New Argon Dewar Pros and Cons

1. **Safety** - The existing 160 liter dewars we are using weigh 750 pounds each. They have to be taken off a rack truck by hand, then they are wheeled by hand cart about 25 feet to the manifold to be hooked up. This is not the easiest or safest operation we could be employing, especially in the inclement weather (ice, snow, rain, wind, etc.). The tank is filled about once a month by their driver.
2. **Cost** - approximate savings to PHENIX = \$4296.00/ year.
3. **Quality of delivered product** - Much better for PHENIX detectors. There would be no disconnecting of gas lines as is now, introducing air contamination every time we change dewars (2-3 times a week).
4. **Automatic delivery** - the proposed system has a solar powered telemetry that "phones home" when the tank gets down to 1/3 full, triggering a delivery order.
5. **No demurrage problems** - this one is close to all of our hearts. (Priceless)

# New Argon Dewar

TECHNICAL SUPPORT NOON



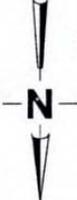
New storage pad for empty gas cylinders, 20' x 20', 9" min thick, reinforced concrete

New Argon Dewar Pad, 16' x 20', 12" minimum thickness, reinforced concrete.

# New Argon Dewar

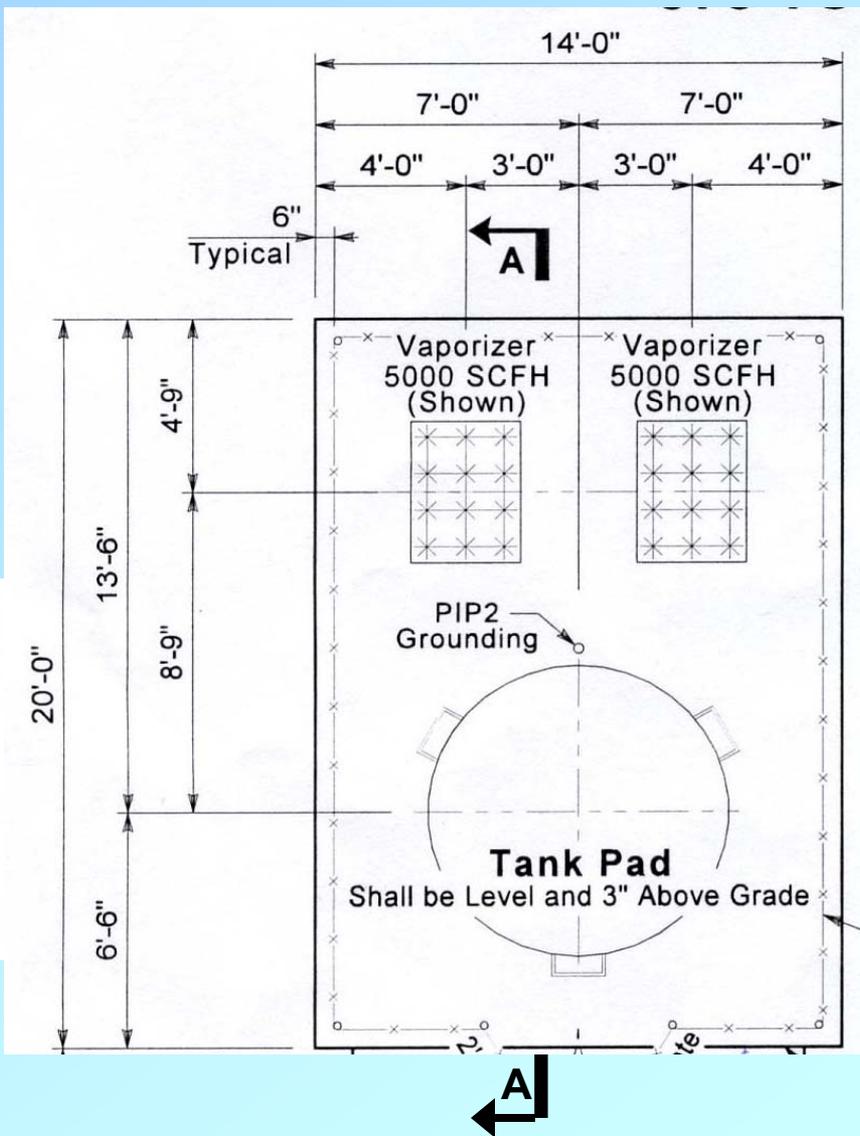
PHENIX TECHNICAL SUPPORT

Locate Installation With Vaporizers Towards South if Possible



**APPROXIMATE TANK DIMENSIONS & CAPACITIES**

Model	Height	Tank Diameter Width	Net Cap. Gallons	Weight Empty	Weight Full O <sub>2</sub>	Weight Full N <sub>2</sub>	Weight Full Ar
575	15'-0"	5'-0"	535	5800	10,900	9400	12,000
660	13'-0"	5'-0"	600	7500	13,200	11,500	14,500
975	15'-0"	6'-0"	920	9300	18,100	15,500	20,000
1500	15'-9"	6'-6"	1490	10,300	20,600	24,800	28,000
3125	18'-9"	8'-0"	3005	17,100	45,700	37,400	52,000
3170	19'-10"	7'-0"	3050	18,500	47,500	39,100	54,000
3400	17'-5"	8'-0"	3250	18,500	49,500	40,400	56,300



# New Argon Dewar

CONCRETE PAD DETAILS FOR CRYOGENIC BULK TANK INSTALLATIONS  
575 TO 3400 GALLON CAPACITY

TECHNICAL SUPPORT

## TANK PAD

### Pad Specifications

Concrete: 4000 PSI @ 28 Days.  
Reinforcing: ASTM A615 Grade 60  
Soil Bearing Capacity: 2000 PSF (minimum)  
Grounding: Per N.F.P.A. 70,  
N.E.C. Article 501  
& Dwg. PIP2

### Pad Dimensions and Reinforcing:

Tank Pad: 14'-0" x 20'-0" x 12" thick  
Bottom: 21-#6 at 8" On Center Long Way  
22-#6 at 11" On Center Short Way  
Top: None

Transport Pad: 12'-0" x 12'-0" x 6" thick  
#4 at 12" On Center Both Ways

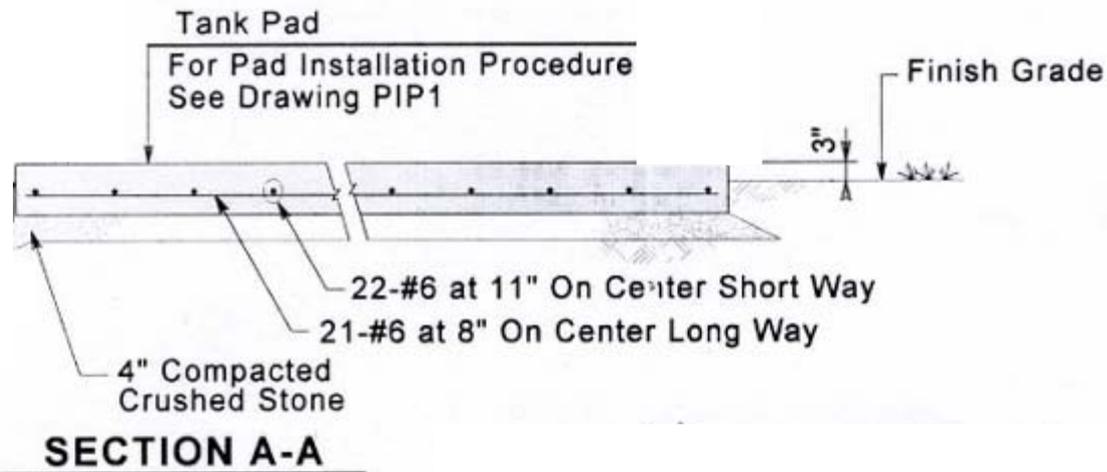
Consult Technical Services for Pad Sizes When  
Free Standing Ambient Vaporizers are Specified.

Location of Gate, Transport Pad and Orientation  
of Equipment to Suit Site.

### Work This Drawing With:

PIP1 - Pad Installation Procedure  
PIP2 - Grounding Specifications  
PIP3 - Standard Bollard Detail

EIP1 - Tank Anchoring Procedure  
EIP3 - Tank Anchoring Procedure  
EIP4 - Vaporizer Anchoring Procedure



## 2009 Building Maintenance Issues

*These items passed on to Fred K.*

- Mixing House thermometers not working properly
- Roof leaks in utility bathroom at northwest corner behind tech offices and over door between rack room and assembly hall.
- Trailer bathroom slop sink (for Custodians).
- Heat wrap tape for trailer bathroom toilet drains to prevent freeze/clogging in winter.
- Improved Rack Room AC performance (This item has been addressed time and again but unsatisfactorily. Currently the AC fails periodically and is repaired only to fail again. On-condition maintenance is not adequate...an engineered solution is needed.)
- Back bathroom plumbing noise
- AH slop sink leak
- Icy conditions at mixing house north stairs



## Shutdown '09 Major tasks (expect 5 month shutdown):

- 2009 shutdown Begins June 28
- End run, remove wall, MuID collars down, EC to AH (3 weeks)
- Install Station 1 South scaffolding (1 week)
- Install Station 2/3 scaffolding (2 weeks)
- PC1 East repair (4 weeks)
- Install stations 1, 2 and 3 south MuTrigger FEE's (12 weeks)
- MuTr decapacitations: station 3 south (3 weeks)
- RPC Station 3 North (see next slide)
- Mechanical/Electrical Plumbing installation of (4) new DCM racks
- Add Ar Dewar and expand gas pad to add storage (12 weeks)
- Prep for future upgrades/existing equipment maintenance & Repair (as necessary)

# RPC3 North Installation Schedule

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9

Installation Concept Finalized	Mar. 31
Half-Octant Brackets, Connecting Blocks, under detector translating support design	Mar. 31
Installation Fixturing and Tooling Design	Apr. 30
Redesign crystal palace/IR Gas Barrier	May 29
End of Run 9	June 28
Fixturing/Tooling, Brackets/Block/support Fabrication	June 30
Move Shielding/Remove Crystal Palace	June 29-July31
Move cable trays and piping in gap 5	June 29-July 31
Simulated (practice) installation with new fixturing/ tooling	July 13-July 31
Install, level & survey support structure	Aug. 3 - Aug 14
Half Octant Testing and Assembly Complete (1 <sup>st</sup> half Octant ready by Aug.17, 16 <sup>th</sup> by Sep.18)	Aug. 17- Sep. 18
Mechanical Install Align & survey RPC3 N	Aug 17 - Sep. 30
Install 3 elect. Racks, all cables & gas system	Oct. 1 - Oct. 30
Commissioning	Nov. 1 - Nov. 30
Install new crystal palace/IR Gas Barrier & Shielding	Nov. 1 - Nov. 30
Start Run 10	Dec. 1

1. CPR Training for Electrical Safety 1 - To Be set up next week. Let me know if you need/want to take the course and I'll add your name to the list when I set it up.
2. It should be noted that only BNL/CAD approved PPE is acceptable for use at work. Contact P. Cirnigliaro for appropriate PPE specifications and requirements before purchasing.
3. Reminder to PHENIX collaborators- Any tours must be cleared through Carter Biggs, Ed O'Brien and me. We are fabricating tools and equipment for the shutdown in the AH and electrical assembly room. Care should be taken to stay away from assembly and fabricating areas. (Potential sharp edges, tripping hazards, airborne metal chips etc.)

# Where To Find PHENIX Engineering Info

Happy Passover



Links for the weekly planning meeting slides, archives of past meeting slides, long term planning, pictures, videos and other technical info can be found on the PHENIX Engineering web site:

[http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL\\_SSint-page.htm](http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm)

