



MDI DBD Editors Report

Tom Markiewicz/SLAC
SiD Collaboration Meeting, SLAC
22 August 2012

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MDI Section Outline

Red Subsections Requested by Editors

- Introduction
 - **Functional Requirements**
- IR Hall Layout Requirements and SiD Assembly Concepts
 - **Vertical Access (RDR style)**
 - **Horizontal Access (Japan style)**
 - **Detector Access While on Beamline**
 - **Detector Access for Major Repairs**
- Detector Exchange Via Sliding Platform
 - **Platform design**
 - **Platform motion**
 - **Platform Alignment**
 - **Vibration analysis**
 - **Push Pull Detector Exchange Process and Time Estimate**
- BeamPipe and Forward Region Design
 - **LUMICAL, Mask, BEAMCAL, QD0 Support and Mechanical Alignment**
 - **QD0-QF1 interface**
 - **FSI Alignment of QD0 and QF1**
 - **Vacuum**
 - **Feedback System**
 - **Higher Order Modes**
 - **Routing of Detector Services**
- Impact on Adjacent Detector When SiD is Running
 - **Radiation Calculations**
 - **Fringe Fields and Magnetics**
- Backgrounds and FCAL Considerations
 - ****NOT in MDI Chapter****
 - **Background estimates in VXD, Tracker, and Calorimeters**



Take Away Point

(from 12-2011 SiD Meeting)

We could write text for this outline today

All contentious issues resolved

Detailed engineering design will continue

When a call for a draft of text is required, a snapshot of progress on will be recorded



DBD Status

- Draft of Common MDI Section Exists
 - **Karsten Buesser**
 - **no comments from anyone else yet**
- Draft of SiD MDI Section Exists
 - **All Figures exist**
 - **Bibliography begun; needs improvement**
- I plan to page through these drafts at the end of this talk to show current selection of figures



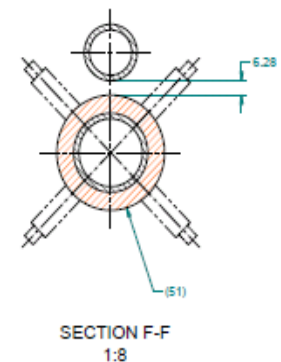
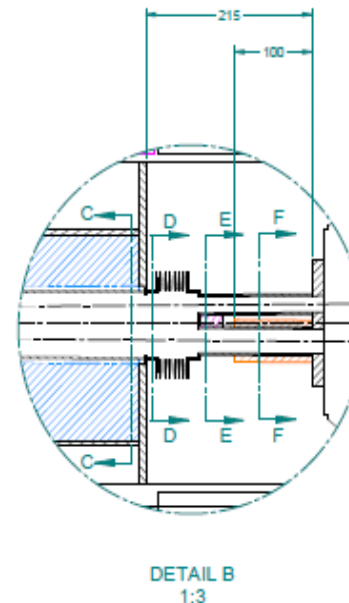
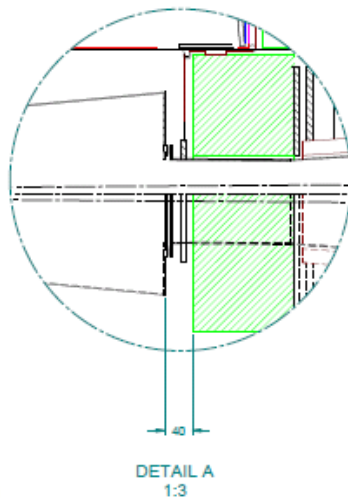
DBD Source Material

- Engineering:
 - **Marco Oriunno**
 - LCWS'11, Granada, SiD 12-2011 CM, ACFA12Korea LCWS
- Beam Pipe, FCAL, QD0 support, Vacuum, FB Hardware
 - **Tom Markiewicz**
 - Korea ACFA12 which also summarizes SLAC MDI Mtg work
 - Vacuum (Mike Sullivan)
 - HOMs (Sasha Novokhatski)
- FSI Alignment: Keith Riles: 2011-12 SiD CM
- Feedback Performance: Glen White (ALCPG11, Oregon)
- Fringe Fields: Wes Craddock (LCWS10, Beijing)
- Radiation Studies Mario Santana (LCWS10, Beijing)
- Push-Pull Timeline: Marty: SiD LOI



Reminder of “New” Technical Choices

- Assembly:
 - **Advocating same assembly sequence whether in above ground hall or in Japanese tunnel**
 - **Based on a 215T crane (not 400T)**
 - **Liquefier on platform & QD0 chiller located on top of SiD**
- LUMICAL Position, Central Hole & position of BEAMCAL & “R20” → “R21.6”,





Work in Progress

- Currently all subsections have text except:
 - **Detector Access While on Beamline**
 - **Detector Access for Major Repairs**
 - **Routing of Detector Services** ← Do not know what to write for this
 - **FSI Alignment of QD0 and QF1**
 - **Vacuum**
 - **Higher Order Modes**
- Need improved text for
 - **Radiation Calculations**
 - **Fringe Fields and Magnetics**
- Need some addition text on
 - **Alignment**



Questions & Issues

- Marco has large collection of high quality 3D CAD engineering and assembly images
 - **Have we selected correct images for MDI**
 - **Which others should be included**
 - In MDI chapter
 - In other chapters
- To first approximation all supporting documentation is in the form of talks on INDICO
 - **No detailed papers with text exist**
 - **Page count will exclude generating adequate supporting documentation from the DBD exercise**



Document Size

- Currently 13 pages (assigned limit = 10)
 - **Probably will be at 20 when 1st pass complete**
- Not integrated (yet) with common MDI session
- Not integrated yet with TDR CFS or TDR BDS
 - **Should it be?**
 - **It is thought that CFS will be in charge of**
 - Site requirements for vibrations & earthquakes
 - Hall layouts
 - Platform design
 - Platform motion system design
 - **It is thought that BDS will be in charge of**
 - QD0 engineering & requirements



Technical Reviews

- Review of MDI by VTX, Tracker, FCAL editors, SiD Mgmt
 - **Accuracy, completeness**
- Review of CFS and BDS by MDI?
 - **e.g. CFS specifies 400 T cranes**
 - **Current CFS draft is 4x over page limit and has Inadequate and illegible figures**
 - Asian Hall Figure 13.8
 - Vertical Access Hall Figure 13.36 (3D)
 - Vertical Hall Layout Floor Plan 13.60
 - Slab Invert deflection Figure 13.37
- Thought:
 - **Do we want a stand alone “MDI” document to capture all detail?**



End of DBD Report

Marco's talk has many of the Assembly Images
we may want to incorporate into the DBD

My Daegu MDI Talk has many slides that can
also be figures

Can Flash Through these talks to Remind You
of Slides We May Want to Use