SBND Design Review Guideline

SBND Technical Board Meeting

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FNAL Engineering and Design Steps

- Write requirements document
- Develop conceptual design
- Present conceptual design to project and/or collaboration and/or external committee and/or consultants (depends on complexity and risk associated)
- Test prototype components as needed to develop design.
- Perform engineering analysis to develop the final design.
  - Generate engineering notes
  - Identify and correct any safety or performance hazards
- Prepare fabrication drawings
- Use a Graded Approach to decide the appropriate steps needed

FNAL Design Review Process

- Perform peer review of the engineering note
  - Best performed by one person checking one engineering note thoroughly.
- Initiate independent review of the design
  - Usually performed by a committee and involves presentations as well as the signed off fabrication drawings and checked engineering notes. Identify and correct any safety hazards.
- Safety engineering review is typical part of the design review
- Fabricate, assemble and test components
- Identify and correct any safety or performance hazards.
- Initiate Operational Readiness Clearance (ORC) Review

(See Fermilab Engineering Manual for reference:

http://www.fnal.gov/directorate/documents/FNAL_Engineering_Manual.pdf)

SBND Design Review Guideline

- Post design documentation to docDB
- Review and sign off engineering note
  - Engineering calculation, drawing, design note, layout
  - This is the minimum condition for a complete design
- Arrange Independent review by L2 and SBND manager
  - Written review report to docDB
- Consult Linda for additional need for SEDR and ORC reviews
  - Early inclusion of safety documentation is strongly encouraged

Design Documentation Check List

- Design requirement including interface specification
- Engineering design documentation and peer review sign-off
  - Drawings, FEA analysis, engineering note
  - Electronics layout: schematics, power distributions, Bill of Materials etc.
  - Following engineering manuals and codes
- Integrate your layout into SBND 3D model
- Contact Linda Bagby for SEDR requirement
  - Safety Engineering Design Review
- TDR-like update for each subsystem

(Above sent to L2s in my August 4, 2015 email)