

**Design Review:**  
**ProtoDUNE Single Phase Detector Support  
Structure**

**7-8 November, 2016**

**Charge**

The Committee is requested to review the DUNE detector support structure (DSS) technical design and determine if it is at a state commensurate with that needed for producing the parts and components planned for the NP04 ProtoDUNE prototype detector operation at the CERN Neutrino Platform in 2018.

In particular, the review team is asked to address the following questions:

1. Does the DSS design meet requirements for all project phases (transport, handling, installation the rails, cool down, tests and operation)? Are the requirements/justifications sufficiently complete and clear? Are the applicable codes and standards identified and followed?
2. Does the documentation of the DSS technical design provide sufficiently comprehensive analysis and justification for the DSS design adopted?
3. Are all DSS interfaces to other detector components and cryostat documented for all project phases (transport, handling, installation the rails, cool down, tests and operation), clearly identified and complete? Does the TPC integrated 3D model adequately represent the mechanical interfaces to the APAs, CPAs, FC and cryostat?
4. Is the DSS 3D model (nominal and envelopes), top level assembly drawings, detail/part drawings and the material and process specifications sufficiently complete to demonstrate that the design can be constructed and installed?
5. Does the design lead to a reasonable production schedule, including QA, transport, installation and commissioning?
6. Are transport, installation and operation conditions (loads and temperature) listed, understood and comprehensive?
7. Are the DSS engineering analyses sufficiently comprehensive for safe handling, installation and operation at the CERN Neutrino Platform? Is the installation plan for the DSS sufficiently well developed? Is the design for the installation tooling adequate for installation of the DSS?
8. Are the materials planned for use in the DSS qualified and adequate for the application? Are they qualified for use in LAr environment?
9. Is there sufficient compliance designed into the connection points between the cryostat and the TPC to allow for the shrinkage of the TPC during cooldown?
10. Are the grounding, shielding and detector isolation requirements for the detector satisfied and adequate?
11. Are DSS risks captured and is there a plan for managing and mitigating these risks?

The committee should present its findings, comments, and recommendations in a closeout meeting with DUNE management on November 8. The committee should provide a final written report by November 18.