LIGO LABORATORY
California Institute of Technology
1200 E. California Blvd.
Pasadena, CA 91125

Statement of Work
Fabrication of BSC Install Work Platforms

The following documents are incorporated into and made a part this purchase order. Click on the following LIGO Document Control Center (DCC) links to access these documents or go on line to the LIGO Public DCC at https://dcc.ligo.org/ to access the DCC#.

1.0 Terms:

DCC #	*Description*
C080185-v1	Laser Interferometer Gravitational Wave Observatory (LIGO) Commercial Items or Services Contract General Provisions California Institute of Technology "Institute", LIGO Rev 11/12/08
F0810001-v4	Technical Direction Memorandum.

2.0 Quality Control:

DCC #	*Description*
Q0900001-v4	Advanced LIGO Supplier Quality Requirements, dated 2/10/10, describes following contractor/supplier QA/QC actions for this procurement:

	3.1 Pre-Award Inspection		3.9 Discrepant Material Storage		4.4 Calibration Program
☒	3.2 Supplier In Process Quality Control	☒	3.10 Quality Records		4.5 Critical Interface
	3.3 In Process Inspection		3.11 Drawing and Specification Change Control	☒	4.6 Cleanliness
☒	3.4 Pre-Ship Inspection		3.12 Welding Certification	☒	4.7 Packaging
	3.5 Receiving Inspection	☒	3.13 End Item Data Package (including Certifications of Compliance)	☒	4.8 Storage
	3.6 Discrepant Material		4.1 Design Verification	☒	4.9 Transport
	3.7 Material Review Action		4.2 Raw Material Procurement		4.10 Customs
	3.8 Material Review Actions at Contractor		4.3 Traceability of Materials		

For the above list the Supplier shall: 1) Identify the corresponding sections/paragraphs in their existing QA/QC system 2) meet or exceed the design requirements contained in the attached engineering documents for each area called out.

LIGO prefers to utilize the vendors existing QA/QC programs to the fullest extent possible consistent with the LIGO QA and QC requirements. All bidders are requested to submit a written description/plan of their existing QA/QC system with their quotes. The bidder must also submit QA/QC plans for managing subcontractor work and materials.

In the event that a prospective contractor lacks an existing quality system, the contractor/vendor shall develop and implement a quality assurance program in compliance with requirements negotiated at contract/PO award.

3.0 End Item Data Package:

At the time of delivery of the parts, the Supplier shall also provide the following data, as a minimum:

- Any as-built modifications (with approval of the LIGO Contracting Officer) as mark-ups to the drawings
- Dimensional & QC inspection reports—this shall include a report showing that parts have been inspected and fall within specified tolerances.
- Certificate or statement of compliance with all contract and drawing process restrictions.

4.0 Included Documents:

In addition to the drawings, the contractor will be provided with CAD solid models of the parts (SolidWorks Professional 2009, SP5.0)

DCC #	Description
D961093-v1	BSC Chamber, Lower Shell
D961106-v1	BSC Chamber, Bottom Half Flange
D970412-v1	BSC Chamber
D1001990-v2	Platform Walkway (Platforms A-D)
D1002410-v1	Walking Plates
D1002926-v1	Platform E (Module E)
D1003029-v1	BSC Platform Installation Example

5.0 Delivery Requirements:

The deliveries are FOB at these destinations, i.e. the contractor has responsibility for shipping title and control of goods until they are delivered and the transportation has been completed. The contractor selects the carrier and is responsible for the risk of transportation and for filing claims for loss or damage.

Shipping Location:
These items will be shipped to:

LIGO Hanford Observatory (LHO)
Attn: Jodi Fauver and Terry Santini
127124 North Route 10
Richland, WA 99354

LIGO Livingston Observatory (LLO)
Attn: Bryan Smith and Willie Hawkins
19100 LIGO Lane
Livingston, LA 70754

Shipping Containers:
The contractor is responsible for providing shipping containers and transportation which protects these parts from damage from the transportation environment (weather, handling, accidents, etc.). Mating edges of parts should be especially protected from damage during shipping.

6.0 Manufacturing:

6.1 Precedence

The Statement of Work (SOW) sections below regarding processing or fabrication of the parts are meant to convey the scope and nature of the requested work. If there is a conflict between the SOW and the drawing, the drawing has precedence. The parts are to be produced using the CAD models which will be provided to the contractor upon award. If there are discrepancies between the drawings and the CAD model, the model takes precedence.

6.2 Restrictions

- Machine all surfaces to remove oxides and mill finish. Abrasive removal techniques are not acceptable.
- All machining fluids must be fully synthetic, water soluble (not simply water miscible) and free of sulfur, chlorine, and silicone.
- Thoroughly clean part to remove all oil, grease, dirt, and chips with soap and water. Follow with solvent (acetone) wipe. Pay close attention to tapped holes.

6.3 Materials

Material is specified on the drawings. All materials specified by drawings or SOW have been approved for use in the cleanroom environment in LIGO. No materials may be substituted or added without prior knowledge and testing by LIGO.

6.4 Machining

All parts are to be machined. No grinding or lapping with abrasive wheels, cloth or stones is permitted. No sanding of any type. No parts shall be cast or molded. Water soluble (not just water miscible) cutting fluid (lubrication) is to be used for all machining operations. The use of cutting fluids or lubricants, which contain sulfur, chlorine or silicone compounds is prohibited.

6.5 Finishing

Any required surface finish is defined in the drawings.
Localized scratches, digs and blemishes should be minimized.