LIGO

Design Requirements

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Advanced LIGO, Seismic Isolation System (SEI)

Structural Design & Fabrication Bidder's Conference

April 29, 2003

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Design Requirements
Optical Component on HAM Table

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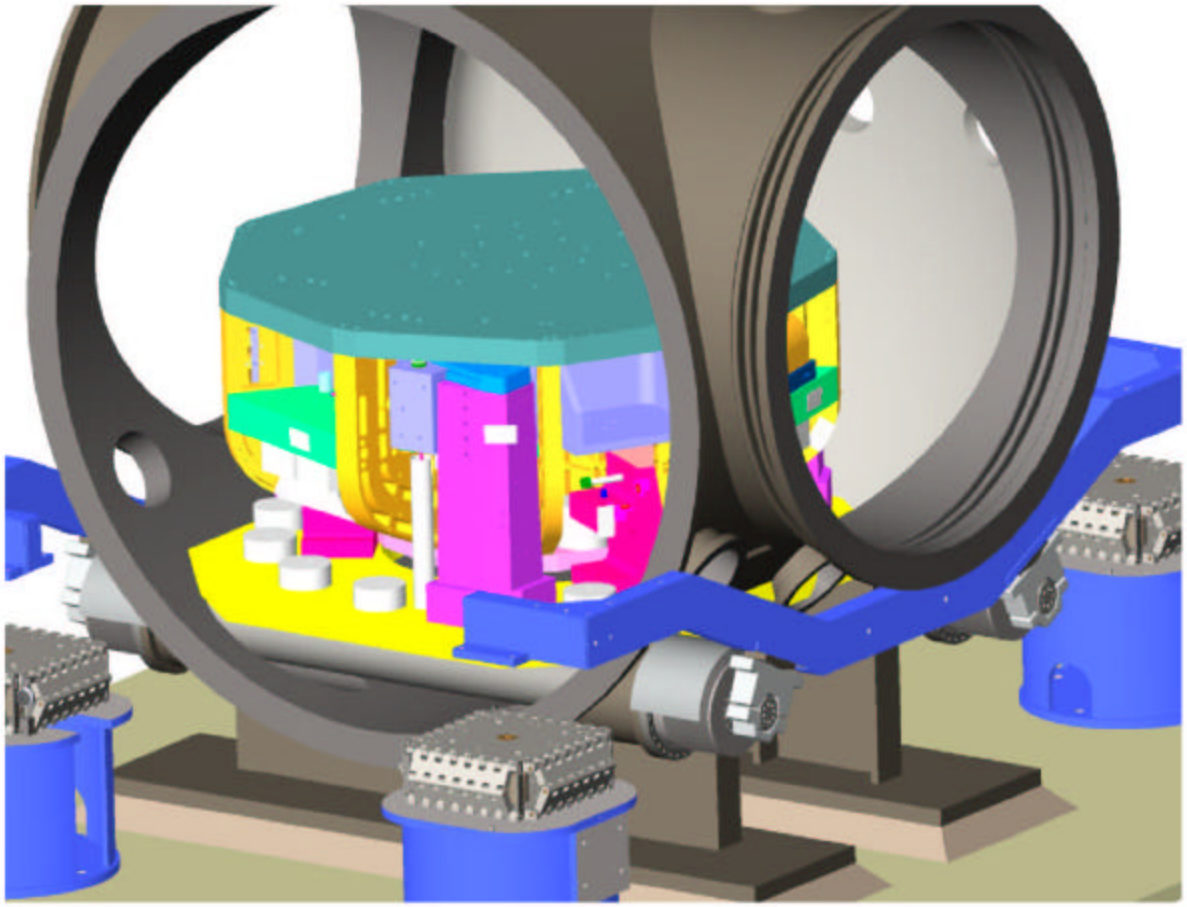
Design Requirements
Tech Demo Unit in HAM Chamber



Design Requirements
Structure for HAM Chamber

Modifications to Tech Demo design:

- Fit inside the HAM chamber, on support tubes
- Change Optical Table size, elevation, lift strength
- Revise pod design features: UHV sealing, locking devices, etc.
- Remove actuator mount dovetail features (adjustment not required)
- Revise flexure design: eliminate shim
- Revise displacement sensor design
- Revise mass & CG design: 5 ton limit, incl. Payload; keel likely, etc.
- Revise kinematic locator & lockdown designs
- Design to pass FEA requirements
- Design mass dummies & crate; write procedures for processing
- Review and confirm all other requirements are met

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Design Requirements
Lower Section, BSC Chamber

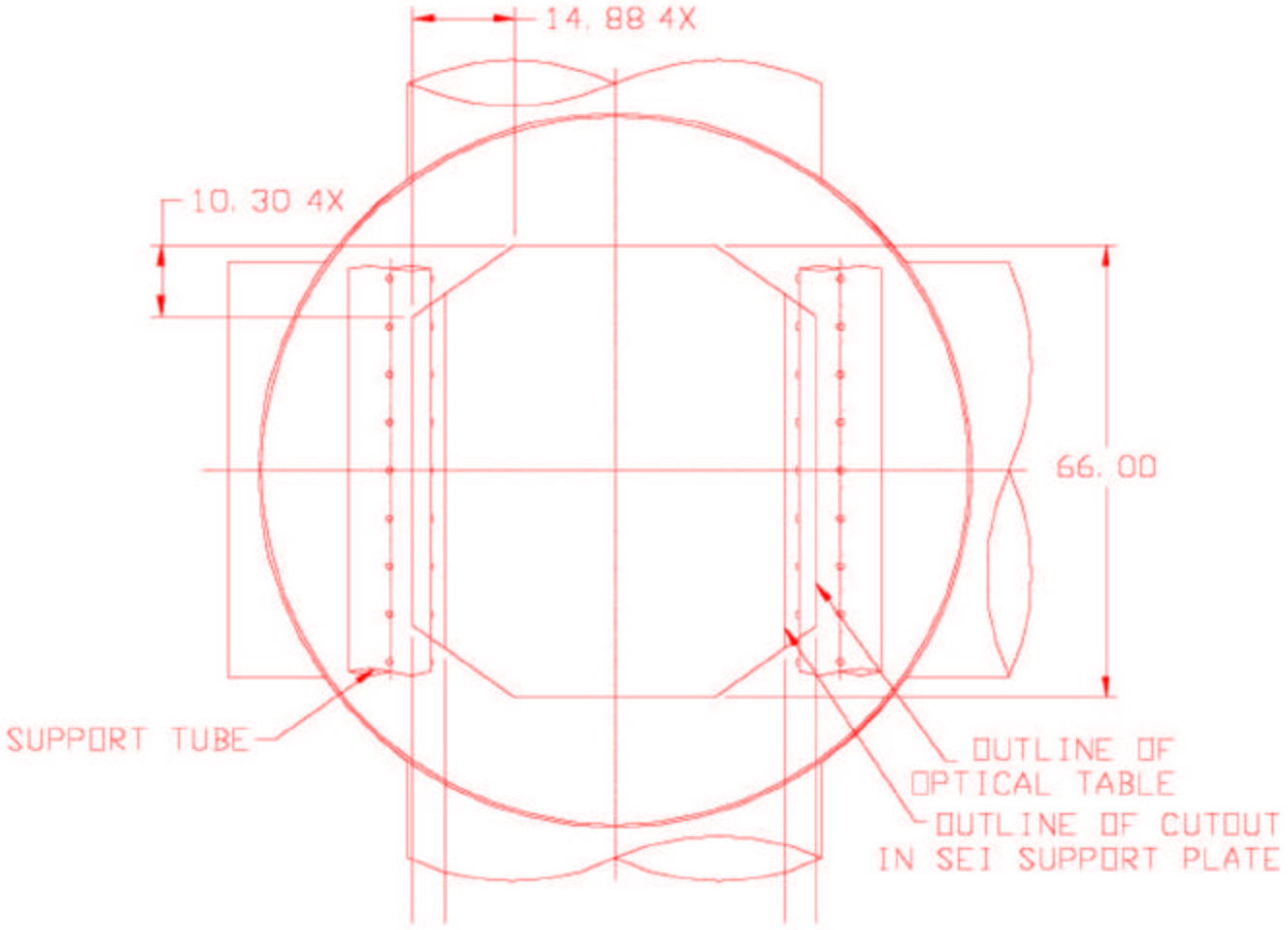
Design Requirements
Structure for BSC Chamber

Distinctions from Tech Demo design:

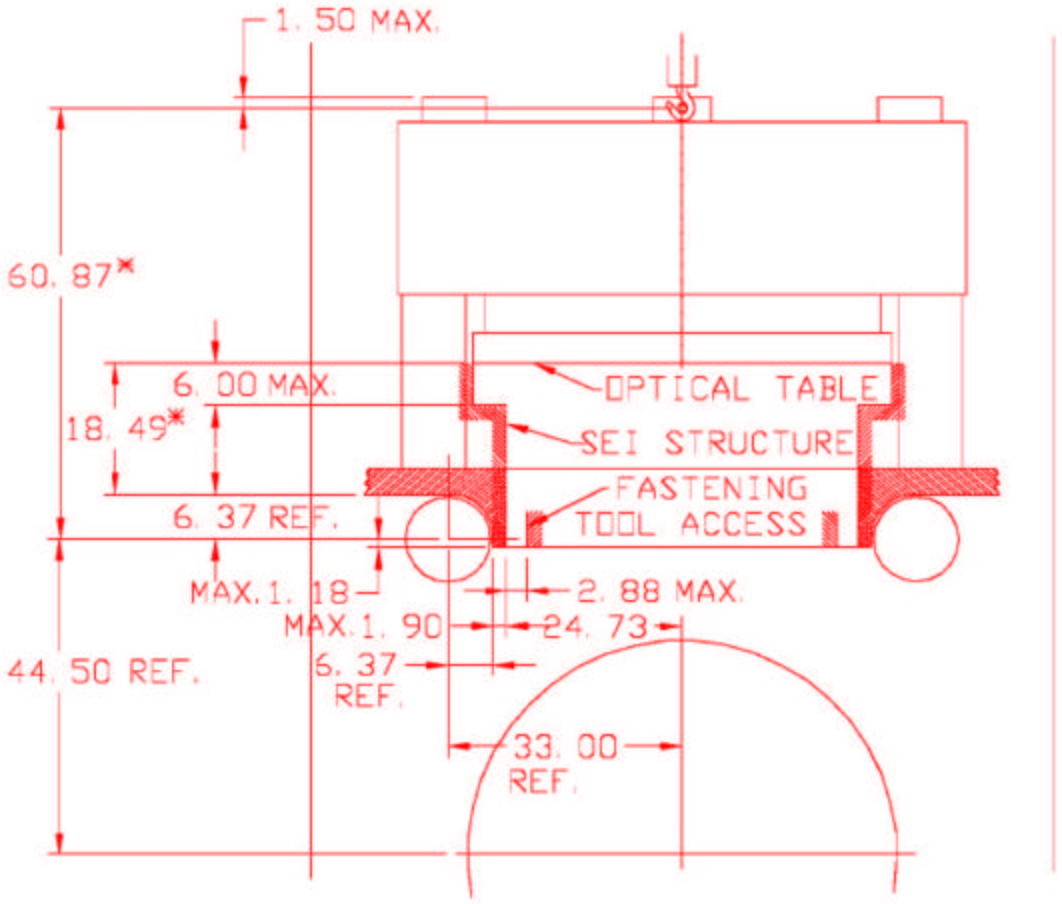
- Optical Table is underneath; components hang from it
- Stage 0 has a large clearance hole for components
- Support Tube mounting structure has “stay clear” zone applied
- Lift pin is included in structure
- All revisions/improvements as listed under HAM Unit
- Design to pass FEA requirements
- Design mass dummies & crate; write procedures
- Review and confirm all other requirements are met

Design Requirements

BSC Structure, Top View



Design Requirements
BSC Structure, Elevation View



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Design Requirements

Categories of Areas Controlled

- Stage Structures
- Actuators, Seismometers, Displacement Sensors, Springs & Flexures
- Instrument Pods
- Alignment
- Optical Table
- Masses
- Cabling
- Vacuum Compatibility
- Drawing Notes

Design Requirements
Corner Configuration