UPGRADE AND ADDITION TO BUILDING AT LLO

Gerry Stapfer

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Overview

- Background
- Construction Plans
- Purpose and Use for Additional Space
- Building Requirements
- Design features
- Bid Solicitation Process
- Proposed Contracting

Background

- Deferred Construction
  - The original square footage was reduced from 48,000 square feet to 27,200 square feet at the beginning of the construction
  - The resources saved were added to contingency
  - LIGO Planned to add the scope back at the end of the construction phase contingent on completion of Detector installation
- Complete LIGO Facility
  - Priority for use of construction funds now that the detector construction is almost completed
  - Build an addition to, and upgrade the existing storage building
  - Design is complete
  - Solicit NSF approval to proceed with the construction

Advanced LIGO

- Facilities Required
  - Staging Area
  - Laboratory space
- Previous Reviews
  - John Peoples Review (about a year ago)
- Recommendations
  - Schedule construction activities to minimize impact on LIGO-1 operation (particularly Science run)
  - If at all possible, use LIGO-1 construction dollars to start construction now

Construction Plans

- Construction is in two parts
  - Addition to existing storage building
  - Refurbishment of existing storage building
- Proposed Addition
  - High Bay Area (40 x 80 feet, Same size as End station High Bay)
  - Two story clean laboratory and office space
- Proposed Refurbishment
  - Change room and Equipment air locks
  - Clean storage area
  - machine shop and storage room
  - Open area for Office/Laboratories
  - Auditorium

Addition

- High Bay Area
  - provides the necessary space to assemble and test advanced/upgraded seismic isolation systems
  - full scale systems
  - clean environment
  - bake out and annealing capabilities
- Clean Lab Area
  - clean laboratory space for the technology development of upgraded or advanced components
- Office Area
  - provides the required office space to co-locate the scientific and engineering staff working on advanced technology

Refurbishment

- Airlocks and change room
  - Provides staged cleanliness for equipment and personnel entry
- Clean storage
  - Provides space for clean storage of equipment (prior to installation)
- Machine shop
  - Houses machine tools for fabrication of custom parts and jigs fabricated by LLO staff
- Open area for laboratories/offices
  - Provides the infrastructure for the expanding needs of LLO for the next decade
- Auditorium

Requirements (Addition)

- On-Site Facility to assemble, test and accept advanced instruments and equipment required for an enhanced LIGO
  - 40 ft x 80 ft high bay with 5 ton overhead crane 26 ft hook height
  - receiving/shipping/inspection area, 20 ft ceiling height
  - adjacent and functionally integral with existing storage building
  - clean room finish type construction materials
  - room for team office (approximately 6 person)
  - laboratory space for cleaning and vacuum baking parts
  - change room for personnel

Requirements (Refurbishment)

- House the receiving/shipping/inspection function
  - make use of the existing building including roll-up doors
  - provide clean storage space
- Auditorium
  - capacity of 150-200 people
  - entry lobby and display area
  - handicapped access
  - incorporate the possibility of an adjacent future outreach center
- Laboratory/Office Expansion
  - provide max flexibility to house future expansion (10-12 people
- Machine shop
  - provide logical access and infrastructure for machine shop

Design Features

- Addition
  - Construct 3200 square feet of High Bay area
  - On first floor, add 1800 square feet of clean laboratory space including change room
  - On second floor construct 1800 square feet of office space
  - Add toilets and mechanical room for HVAC
- Refurbishment
  - Convert part of existing storage building to accommodate receiving/shipping/ storage (2000 square feet)
  - Add second floor to existing building for office/laboratory expansion (4500 square feet)
  - Retain first floor for machine shop, storage space and future laboratory expansion (6000 square feet)
  - Convert east end of building to Auditorium (4000 square feet)

Architect sketch of project

Bid Solicitation Process

- Used local (Baton Rouge) Architect to design the addition and the refurbishment (John Desmond, Architect retained to provide local expertise for original Parsons design)
- Request for Bids were advertised in Louisiana papers and Baton Rouge construction paper
- Conducted pre-bid conference on September 28, 2000
- Received four (4) bids on October 19, 2000

October 19 Bids

Stafford Construction	$2,357,300
Brunt Construction Inc.	$2,345,000
Group Contractors	$2,369,000
Charles Carter Construction	$2,492,200
LIGO Architect Cost Estimate	$1,466,746

FACT FINDING

- Able to compared two contractor bids in detail
  - Lowest bidder and second lowest bidder
  - The two bidders used different sub-contractors
  - We found that at the division level, both bids appear “identical”
- This indicated that the bids we received represent a fair market value for the submitted package
- Found some omissions and errors on LIGO (Architect’s) bid
- Decision was made to proceed with re-solicitation
  - Inviting all four bidders to re-bid

Re-Solicitation

- Modified Scope
  - Deferred some items
  - Re-designed walls
  - Relaxed specifications
  - Deleted large windows
- Requested re-bids from all four contractors
- Conducted bid conference
  - All four bidders attended
- Received three (3) bids on November 30, 2000
  - one of the original bidder declined, citing large work load

November 30 Bids

- Brunt Construction Inc. $1,947,000
- Group Contractors $2,093,000
- Charles Carter Construction $2,123,300
- LIGO Architect Cost Estimate $1,897,000

Proposed Contracting

- Based on the available data including the close dollar value of the bids received LIGO recommends that a contract with Brunt Construction be entered
  - Difference between lowest and highest bid is $173,300 dollars
  - Cost submitted by the three bidders is in the same ranking as the original bid price.
  - The LIGO cost estimate is within 2.5% of the lowest bidder
- To minimize interference with LIGO-1 engineering and science run our plans are to start construction as soon as possible, scheduled for January 2001