

QUALIFICATION PACKET
COMMISSIONING SERVICES

Computational Research & Theory Facility

January 10, 2007

I. PROJECT NOTICE

The University of California Berkeley (University), Capital Projects & Facilities Management (CPFM) Department requests written responses to this Qualification Packet from qualified Commissioning Authority to provide **Commissioning Services** as described under item III below for CRT project.

This Request for Qualification (RFQ) is intended to select firms that are both interested in and qualified to provide the necessary commissioning services. The University will select a consultant based on responses to the information requested including your firm's experience, proposed staff, and references.

II. PROJECT SCOPE

The proposed CRT Project will be located on the Lawrence Berkeley National Labs (LBNL) site. The facility will be a high performance computer facility that will house supercomputers and provide office space. The 130,000 GSF facility will initially operate at 7.5MW with expansion capabilities to 17MW. The Design Professional is Perkins+Will (San Francisco). DPR Construction is the CM/Contractor for the project.

Construction costs are estimated at \$70,000,000. The following are estimated MEP costs:

HVAC - \$15,000,000
Electrical - \$15,000,000

If you wish to review a set of the 95% schematic design document drawings and specifications and the Design Team's Basis of Design document, please call Henry Martinez 510-486-6259 to make an appointment. Please note that the commissioning requirements for the project have not been fully detailed in the specifications at this time. If you wish to purchase a set of the document drawings and specifications for your own use they are available at your expense from:

BPS Reprographic Services
1700 Jefferson Street
Oakland, CA 94612
Phone: 510-287-5485
Contact: Steve Gosslin or Marco Ortiz
Email: Oakland@bps.com

III. PROPOSED SCOPE OF WORK

Provide commissioning consultant services as an independent agent employed by the University prior to construction and during construction, startup and testing of various systems to verify that the installed equipment and systems operate in conformance with the design intent and specifications and correctly interact with one another per the design. Commission Agent (CxA) will work with the Contractor, subcontractors, LBNL's personnel, and the design team to accomplish the commissioning scope. The CxA will not perform testing directly, but will witness tests performed by the contractor. All necessary testing equipment shall be supplied by the contractor.

The Commissioning Authority (CxA) shall:

Prior to Construction

- 1) Be a direct representative of the University and shall not be affiliated in any way with the Design Professional's team members or the prequalified Contractors. The selected firm will not be allowed to bid on any services to the CM/Contractor or subcontractors on the project.
- 2) Review and assist LBNL in completing the scope of Commissioning services.
- 3) Develop a preliminary Commissioning Plan using the current construction documents and the Basis of design document issued by the design team. Commissioning plan will be developed using an existing plan as a template.
- 4) Assist design team in completing commissioning specifications to be included in the construction documents.
- 5) Coordinate a controls integration meeting where the electrical and mechanical engineers and the CxA discuss integration issues between equipment, systems and disciplines to ensure that integration issues and responsibilities are clearly described in the specifications.

During Construction

- 1) Coordinate and direct the commissioning activities in a logical, sequential and efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications and consultations with all necessary parties, frequently updated timelines and schedules and technical expertise.
- 2) Coordinate the commissioning work and, with the contractor and LBNL, ensure that commissioning activities are being scheduled into the Contractor's Master schedule.
- 3) Plan, conduct, and attend commissioning meetings as needed. Maintain and distribute minutes.
- 4) Request and review additional information required to perform commissioning tasks, including O&M materials, contractor start-up and checkout procedures. Before startup, gather and review the current control sequences and interlocks and work with contractors and design engineers until sufficient clarity has been obtained, in writing, to be able to write detailed testing procedures.
- 5) Review and approve normal Contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the Design Professional reviews.
- 6) Review requests for information and change orders for impact on commissioning and Design Team's Basis of Design Document.
- 7) Review coordination drawings to ensure that trades are coordinating work in a reasonable and logical manner.

- 8) With necessary assistance and review from installing contractors, write the functional performance test (FTP) procedures for equipment and systems. This will include manual functional testing, energy management control system trending and may include stand-alone data-logger monitoring. Submit to LBNL for review and approval.
- 9) Revise, as necessary, the construction phase commissioning plan developed during design, including scope and schedule, based upon approved submittals, RFI responses, Clarifications etc. that impact any aspect of the plan.
- 10) Review Commissioning plan with LBNL to confirm that the plan is acceptable to the LBNL.
- 11) Write and distribute construction checklists for commissioned equipment.
- 12) Develop an enhanced start-up and initial systems checkout plan with contractors for selected equipment.
- 13) Perform site visits, as necessary, to observe component and system installations. Attend selected planning and job-site meetings to obtain information on construction progress. Review construction meeting minutes for revisions/substitutions relating to the commissioning process. Assist in resolving any discrepancies.
- 14) Witness (spot check) HVAC piping pressure test and flushing, sufficient to be confident that proper procedures were followed. Include testing documentation in the Commissioning Record.
- 15) Witness (spot check) ductwork testing sufficient to be confident that proper procedures were followed. Include documentation in the Commissioning Record.
- 16) Document construction checklist completion by reviewing completed construction checklists and by selected site observation.
- 17) Document systems startup by reviewing start-up reports and by selected site observation.
- 18) Approve air and water systems balancing by spot testing and by reviewing completed reports and by selected site observation. CxA may witness balancing work performed by balancing contractor in lieu of spot testing with their own equipment.
- 19) Analyze functional performance trend logs and monitoring data to verify performance.
- 20) Assist Contractor in coordinating FPT's, performed by installing contractors. Witness and document manual FPT's. Coordinate retesting as necessary until satisfactory performance is achieved. The functional testing shall include operating the system and components through each of the written sequences of operation, and other significant modes and sequences, including startup, shutdown, unoccupied mode, manual mode, staging, miscellaneous alarms, power failure, security alarm when impacted and interlocks with other systems or equipment. Sensors and actuators shall be calibrated during construction check listing by the installing contractors, and spot-checked by the commissioning provider during functional testing.

Tests on respective HVAC equipment shall be executed, if possible, during both the heating and cooling season. However, some overwriting of control values to simulate conditions shall be allowed. Functional testing shall be done using conventional manual methods, control system trend logs, and read-outs or stand-alone data loggers, to provide a high level of confidence in proper system function, as deemed appropriate by the commissioning provider and the LBNL.

- 21) Prepare test plans for, assist with execution of, and document tests of commissioned equipment overseen by regulatory authorities and ensure that such tests meet the testing rigor desired by the LBNL.
- 22) Maintain a master issues log and a separate record of functional testing. Report all issues as they occur directly to LBNL. Provide directly to the LBNL written progress reports and test results with recommended actions.

- 23) Review equipment warranties to ensure that the LBNL's responsibilities are clearly defined.
- 24) Oversee and approve the training of the LBNL's operating personnel.
- 25) Review and approve the preparation of the O&M manuals for commissioned equipment.
- 26) Compile a Commissioning Record, which shall include:
 - A. A brief summary report that includes a list of participants and roles, brief building description, overview of commissioning and testing scope, and a general description of testing and verification methods. For each piece of commissioned equipment, the report should contain the disposition of the commissioning provider regarding the adequacy of the equipment, documentation and training meeting the contract documents in the following areas:
 - i. Equipment meeting the equipment specifications,
 - ii. Equipment installation,
 - iii. Functional performance and efficiency,
 - iv. Equipment documentation, and
 - v. Operator training.
 - B. All outstanding non-compliance items shall be specifically listed. Recommendations for improvement to equipment or operations, future actions, commissioning process changes, etc. shall also be listed. Each non-compliance issue shall be referenced to the specific functional test, inspection, trend log, etc. where the deficiency is documented.
 - C. Also included in the Commissioning Record shall be the issues log, commissioning plan, progress reports, submittal and O&M manual reviews, training record, test schedules, construction checklists, start-up reports, functional tests, and trend log analysis.
- 27) Compile a Systems Concepts and Operations Manual that consists of the following: Basis of Design (which includes LBNL objectives and design narrative by designer); Performance metrics, if completed during design; space and use descriptions, coordinated shop drawings and schematics for major systems (by designer); control drawings, sequences of control (by contractor); and a table of all set points and implications when changing them, schedules, instructions for operation of each piece of equipment for emergencies, seasonal adjustment, startup and shutdown, instructions for energy savings operations and descriptions of the energy savings strategies in the facility, recommendations for recommissioning frequency by equipment type, energy tracking recommendations, and recommended standard trend logs with a brief description of what to look for in them.
- 28) When the commissioning process has been successfully completed, recommend acceptance to LBNL of the commissioned equipment and systems for the purpose of achieving Substantial Completion.
- 29) CxA shall witness all required seasonal or deferred testing and deficiency corrections performed by the Contractor's Testing Engineer & Subcontractors. Return to the site at 10 months into the 12 months warranty period. Review with facility staff the current building operation and the condition of outstanding issues related to the original and seasonal commissioning. Interview facility staff and identify problems or concerns they have operating the building as originally intended. Make suggestions for improvements. Identify areas that may come under warranty or under the original construction contract. Assist facility staff in developing reports, documents and requests for services to remedy outstanding problems.
- 30) Cost of Retesting: CxA shall be compensated for additional testing of systems only to the extent that the CxA's actual time on the project exceeds the contracted amount. CxA shall not be entitled to additional compensation for corrective work attributable to their services. CxA shall include time for one test and one retest of all start-up, pre-function, or FPT's to be performed on the project. Time for any subsequent retesting required shall be documented and tracked by the CxA. CxA shall document issues related to retesting in order to permit the LBNL to determine if the cost of subsequent retests should be charged to the contractor.

- 31) Systems to be commissioned:
- | | |
|---|---|
| A. Central building automation system | F. Uninterruptible power supply systems |
| B. All equipment of the heating, ventilating and air conditioning systems | G. Life safety systems (fire alarm, egress pressurization, fire protection) |
| C. Scheduled or occupancy sensor lighting controls | H. Electrical |
| D. Daylight dimming controls | I. Domestic water pumping and mixing systems |
| E. Emergency power generators and automatic transfer switching (possible diesel generator or cogen) | J. Plumbing |
| | K. Vertical transport |

IV. CONTENT OF PROPOSAL

- A. Cover Letter of introduction (2 page limit). A cover letter summarizing the key points of the submittal and describing your firm's organizational structure.
- B. Respond to each item listed under the Selection Criteria, Attachment A.
- C. Complete Statement of Qualification Form, Attachment B.

V. PROPOSAL SUBMITTAL AND REVIEW PROCESS

- A. Nine (9) copies of the letter and submittal should be directed to:

UCB Capital Projects
Attention: Henry Martinez, Sr. Project Manager
1936 University Avenue, 2nd Floor
Berkeley, CA 94704-7027
- B. Responses must be received no later than 12 noon on **January 25, 2008** and labeled "**RFQ for CRT Commissioning Services**" in order to be considered.
- C. Firms that have recently submitted proposals for the Helios project, and are interested in the CRT project, need to send a Cover Letter indicating interest. No additional copies of the submittal are required.
- D. For technical inquiries not covered by this Qualification process, please call Henry Martinez at (510) 486-6259.
- E. After a review of submittals from all interested candidates, all candidates will be ranked. At least 3 of the highest ranked may be contacted for an interview or engaged in a discussion regarding anticipated concepts, relative utility of alternative methods of approach for furnishing required services, and other issues as appropriate. If the selected

firm and the University are unable to reach a fee agreement, the University reserves the right to discuss proposals with the next qualified firm and so forth responding to this Qualification process.

F. Final selection and appointment is contingent upon funding and budget approval.

VII Attachments to this RFP

- Attachment A - Selection Criteria
- Attachment B - Statement of Qualifications Form
- Attachment C - Project Data Sheets, Project #1, Project #2 and Project #3
- Attachment D - Professional Services Agreement

Attachment A SELECTION CRITERIA

1. Capabilities of proposed Commissioning Authority. Capabilities of the proposed team and of the firm and/or individuals participating on the proposed team, as evaluated in terms of the functional, technical, and economic features of comparable commissioning services provided for LBNL the University or other clients.
 - a. Experienced in the operation and troubleshooting of HVAC systems, energy management control systems and security systems.
 - b. Field experience is required. A minimum of five (5) full years in this type of work is required.
 - c. Knowledge of building operation and maintenance and O&M training.
 - d. Knowledge of test and balance of both air and water systems.
 - e. Experienced in energy-efficient equipment design and control strategy optimization.
 - f. Direct experience in monitoring and analyzing system operation using energy management control system trending and stand-alone data logging equipment.
 - g. Direct experienced with normal and emergency electrical distribution systems and their interface to all other electrical dependent systems in the building.
 - h. Experienced working with California State Fire Marshal
2. Approach to Commissioning. Provide a brief description of your firm's approach to commissioning during construction of this project. Demonstrate your understanding of the requirements of the Commissioning Authority and present a general schedule of activities that will respond to those requirements and meet the needs of the Contractor's project schedule.
3. Required Experience: Provide three (3) projects, each of at least 100,000 GSF, on which your firm acted as the principal commissioning authority providing services as described under Item III Proposed Scope of Services. Additional points will be awarded if the projects submitted are: 1) in a University environment; 2) a research facility; 3) under the jurisdiction of the State Fire Marshal. Complete project information on Attachment C.
4. Personnel Assignments. Ability to identify and to commit key personnel with appropriate experience for assignments as necessary. Provide a complete Statement of Qualifications (see Attachment B). Resumes of proposed staff and sub consultants must be included. Staff possessing a bachelor's degree in Mechanical Engineering are strongly preferred. P.E. certification is desired. However, other technical training, past commissioning and field experience will be considered.
5. Program responsiveness. Previous experience that demonstrates success in providing commissioning services which are consistent with program schedule, budget, and technical requirements, and are responsive to the specifics of the program.
6. Client relationships. Recognition of the need to work harmoniously and productively with LBNL Design & Construction employees, LBNL customers, LBNL Construction Manager, Contractor and trade contractors.

7. Production capability. Evidence of ability to perform commissioning services for construction projects and produce commissioning specifications and reports of superior quality and to meet the completion schedule of the projects. Excellent verbal and written communication skills.
8. Project management and coordination. Evidence of ability to conduct a smoothly and efficiently managed contractual engagement.
9. Proximity of firm's office to project site will be considered.
10. Equal Employment Opportunity. Show evidence of its equal employment opportunity policy.
11. Acceptance of Professional Services Agreement (PSA). The successful firm will be required to sign the University's Professional Services Agreement, which is available for review at <http://www.cp.berkeley.edu/PSA.pdf>, including the indemnification and insurance requirements, which cannot be modified. Once contract is executed, the University will issue one or more Authorizations describing the scope of work.
12. The University of California is an Equal Opportunity Employer. Every effort will be made to ensure that all persons, regardless of race, religion, sex, color, and national origin have equal access to contracts and other business opportunities with the University.

Firms who cannot satisfy the above minimum criteria will not be considered.

ATTACHMENT B

STATEMENT OF QUALIFICATIONS

1. Firm Name: _____
2. Business Address: _____
3. Telephone: _____ Fax # _____
4. Type of Organization: (Check one)
a. Sole Proprietorship () b. Partnership () c. Corporation () d. Joint Venture ()
5. Tax ID Number: _____
6. Firm Established (Year): _____
7. Proposed Staff **(include Resumes and copies of certifications for each staff)**

	NAME	DEGREE, CERTIFICATE, OR LICENSE	ROLE ON PROJECT
a.			
b.			
c.			
d.			

8. Number of staff employed in office: _____
List type of staff and #s: _____

9. Proposed Subconsultants, if any **(include resume/brochure)**:
a. _____
b. _____

10. References: Provide 3 references for both the company and proposed staff (Contact Name, Company, and Phone Number)

Company

- a. _____

- b. _____

- c. _____

Staff 1-Name:

- a. _____

- b. _____

- c. _____

Staff 2-Name:

- a. _____

- b. _____

- c. _____

(Name and Title, printed or typed)

By: _____
(Signature)

Position: _____

Date: _____

Please attach to this form any other information you wish us to consider, such as your firm's brochure or a discussion of your recent work.

Attachment C
PROJECT DATA SHEET FOR PROJECT #1
COMMISSIONING SERVICES
(One Form Per Project)

FIRM: _____

1. Project Name: _____

2. Project Location: _____

3. Owner's Name: _____

Address: _____

Phone: _____

Contact Person: _____

4. Design Professional: _____

Phone: _____

Contact Person: _____

5. General Contractor: _____

Phone: _____

Contact Person: _____

6. Gross Square Feet: _____

7. Project Timetable:

A. Design Start Date: _____

B. Construction Start Date: _____

C. Construction Completion date: _____

8. Project Cost:

A. Cost at Bid \$ _____

B. Cost at Completion \$ _____

ATTACHMENT C
PROJECT DATA SHEET FOR PROJECT #1 (Continued)

NAME OF FIRM: _____

Project Name: _____

9. Project under jurisdiction of the State Fire Marshal? Yes No

10. Type of project (i.e. medical, research laboratory): _____

11. Describe, briefly, the scope of project:

12. Describe the commissioning services provided on the project:

13. Name each staff member, title, and brief duties that worked on this project for your firm.

ATTACHMENT C
PROJECT DATA SHEET FOR PROJECT #2
COMMISSIONING SERVICES
(One Form Per Project)

FIRM: _____

1. Project Name: _____

2. Project Location: _____

3. Owner's Name: _____

Address: _____

Phone: _____

Contact Person: _____

4. Design Professional: _____

Phone: _____

Contact Person: _____

5. General Contractor: _____

Phone: _____

Contact Person: _____

6. Gross Square Feet: _____

7. Project Timetable:

A. Design Start Date: _____

B. Construction Start Date: _____

C. Construction Completion date: _____

8. Project Cost:

A. Cost at Bid \$ _____

B. Cost at Completion \$ _____

ATTACHMENT C
PROJECT DATA SHEET FOR PROJECT #2 (CONTINUED)

NAME OF FIRM: _____

Project Name: _____

9. Project under jurisdiction of the State Fire Marshal? Yes No

10. Type of project (i.e. medical, research lab): _____

11. Describe, briefly, the scope of project:

12. Describe the commissioning services provided on the project:

13. Name each staff member, title, and brief duties that worked on this project for your firm.

ATTACHMENT C
PROJECT DATA SHEET FOR PROJECT #3
COMMISSIONING SERVICES
(One Form Per Project)

FIRM: _____

1. Project Name: _____

2. Project Location: _____

3. Owner's Name: _____

Address: _____

Phone: _____

Contact Person: _____

4. Design Professional: _____

Phone: _____

Contact Person: _____

5. General Contractor: _____

Phone: _____

Contact Person: _____

6. Gross Square Feet: _____

7. Project Timetable:

A. Design Start Date: _____

B. Construction Start Date: _____

C. Construction Completion date: _____

8. Project Cost:

A. Cost at Bid \$ _____

B. Cost at Completion \$ _____

ATTACHMENT C
PROJECT DATA SHEET FOR PROJECT #3 (CONTINUED)

NAME OF FIRM: _____

Project Name: _____

9. Project under jurisdiction of the State Fire Marshal? Yes No

10. Type of project (i.e. medical, research lab): _____

11. Describe, briefly, the scope of project:

12. Describe the commissioning services provided on the project:

13. Name each staff member, title, and brief duties that worked on this project for your firm.
