



# General Services Administration

## Federal Acquisition Service Authorized Federal Supply Schedule Price List

Schedule for  
**Professional Engineering Services (PES)**

Federal Supply Group: **871**      Class: **R425**

Contract Number: **GS-10F-0159Y**

Contract Period: **1/17/2012** through **1/17/2017**

Contractor:	<b>3QC, Inc.</b> <b>193 Blue Ravine Road, Suite 190</b> <b>Folsom, CA 95630-4758</b>
Business Size:	<b>Small Business</b>
DUNS Number	<b>14-8812006</b>
Telephone:	<b>(916) 496-8400</b>
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Contract Administration:	<b>James Becker</b>

On-line access to contract ordering information, terms and conditions, up-to-date pricing, and the option to create an electronic delivery order is available through **GSA Advantage!**<sup>™</sup>, a menu-driven database system. The INTERNET address for **GSA Advantage!**<sup>™</sup> is: <http://www.GSAAdvantage.gov>.

For more information on ordering from Federal Supply Schedules click on the FSS Schedules button at <http://www.gsa.gov/schedules-ordering>

## Introduction | “Enlightened Buildings”



Today’s challenges demand buildings that are environmentally friendly, economically feasible and operationally functional. 3QC is a company of building experts. We understand how buildings are designed, constructed, and operated and are committed to assisting owners realize their project requirements in an increasingly technical, financially complex, and “green” oriented design and construction industry. 3QC works collaboratively with your team to help create an “enlightened building” – a facility that is energy efficient, environmentally conscious, and functions as designed.

Established in 2003, 3QC’s team specializes in supporting your facility program and team by providing building commissioning, energy/building audits, sustainability and LEED navigation, and facilities support services. 3QC’s approach is focused on assuring quality and functional integrity from the beginning of design to completion of the facility and throughout its operational life cycle. Our experienced team of professional engineers, technicians, and project managers has practical experience in all phases of project development including planning, design, construction, management, functional testing, operations, and training. Combining the strength of technical competency, diverse project experience, and strong project

management skills, 3QC represents our client’s interests and environmental vision without bias since we neither design the facility nor profit from the construction contracts. We bring a practitioner’s knowledge on how to add value to your program without adding an extra layer of management. Our goal is to provide you with a value-added engineering resource that is a collaborative part of your project team to assist you in achieving the quality facilities you intend to build.

Averaging over 20 years experience, each of our principals have served on a wide variety of projects including correctional and justice facilities, educational facilities, hospitals and medical care facilities, hotels, theaters, utility districts, military facilities, communications facilities, and city, county, state, and federal projects. Over their years of experience, our principals have developed not only a passion for quality in the design and construction process but also a knack for helping our clients reach their project goals. Our ultimate goal is to preserve the quality of your project - resulting in a facility that meets your requirements and serves you well into the future.

We are members of the US Green Building Council, the Building Commissioning Association, Construction Management Association of America, and Collaborative for High Performance Schools. Our principals are active members of committees and organizations staying at the forefront of industry trends and processes enabling us to assist our clients with a greater understanding of how to pursue quality standards and practices for their facilities. Our principals have been contributing to the development of expertise in the construction management and related industries through serving on numerous committees, task forces and leading educational classes and forums.



## Customer Information

- 1a. AWARDED SPECIAL ITEM NUMBERS (SINS): **SIN 871-7 / 7RC** | *Construction Management*
- 1b. LOWEST PRICED MODEL NUMBER AND LOWEST UNIT PRICE: Not applicable to this contract.
- 1c. COMMERCIAL JOB TITLES/DESCRIPTIONS: 3QC is proposing hourly rates. Job descriptions are listed on page 5.
2. MAXIMUM ORDER: \$1,000,000.00
3. MINIMUM ORDER: \$100.00
4. GEOGRAPHIC COVERAGE: Domestic only
5. POINT(S) OF PRODUCTION: Same as Company Address
6. DISCOUNT FROM LIST PRICES OR STATEMENT OF NET PRICE: Government net prices (discounts already deducted).
7. QUANTITY DISCOUNTS: None Offered
8. PROMPT PAYMENT TERMS: Net 30 days
- 9a. GOVERNMENT PURCHASE CARDS UP TO THE MICRO-PURCHASE THRESHOLD: Yes
- 9b. GOVERNMENT PURCHASE CARDS ABOVE THE MICRO-PURCHASE THRESHOLD: Will accept over \$3,000
10. FOREIGN ITEMS: None
- 11a. TIME OF DELIVERY: Specified on the Task Order
- 11b. EXPEDITED DELIVERY: Contact Contractor
- 11c. OVERNIGHT AND 2-DAY DELIVERY: Contact Contractor
- 11d. URGENT REQUIREMENTS: Contact Contractor
12. F.O.B POINTS(S): Destination
- 13a. ORDERING ADDRESS: Same as Contractor
- 13b. ORDERING PROCEDURES: For supplies and services, the ordering procedures, information on Blanket Purchase Agreements (BPA's), and a sample BPA can be found at the GSA/FSS Schedule homepage ([fss.gsa.gov/schedules](http://fss.gsa.gov/schedules)).
14. PAYMENT ADDRESS: Same as Company Address
15. WARRANTY PROVISION: Contractor's standard commercial warranty
16. EXPORT PACKING CHARGES: N/A



- 17. TERMS AND CONDITIONS OF GOVERNMENT PURCHASE CARD ACCEPTANCE: Contact Contractor
- 18. TERMS AND CONDITIONS OF RENTAL, MAINTENANCE, AND REPAIR: N/A
- 19. TERMS AND CONDITIONS OF INSTALLATION: N/A
- 20. TERMS AND CONDITIONS OF REPAIR PARTS: N/A
- 20a. TERMS AND CONDITIONS FOR ANY OTHER SERVICES: N/A
- 21. LIST OF SERVICE AND DISTRIBUTION: N/A
- 22. LIST OF PARTICIPATING DEALERS: N/A
- 23. PREVENTIVE MAINTENANCE: N/A
- 24a. ENVIRONMENTAL ATTRIBUTES: N/A
- 24b. SECTION 508 COMPLIANCE: 3QC will comply with Section 508, and the EIT standards found at: [www.Section508.gov/](http://www.Section508.gov/).
- 25. DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER: 14-8812006
- 26. CENTRAL CONTRACTOR REGISTRATION (CCR) DATABASE: Registered

## Service Contract Act

The Service Contract Act (SCA) is applicable to this contract and it includes SCA applicable labor categories. The prices for the cited SCA labor categories are based on the U.S. Department of Labor Wage Determination Number identified in the SCA matrix. The prices offered are based on the preponderance of where work is performed and should the contractor perform in an area with lower SCA rates, resulting in lower wages being paid, the task order prices will be discounted accordingly.

### Service Contract Act (SCA) Matrix

SCA Eligible Contract Labor Category	SCA Equivalent Code Title	WD Number
Commissioning Technician III	30086 Engineering Technician VI	05-2055
Commissioning Technician II	30085 Engineering Technician V	05-2055
Commissioning Technician I	30084 Engineering Technician IV	05-2055
Administrative/Clerical Support	01312 Secretary II	05-2055



## Price List / Job Categories / Position Descriptions

SERVICE PROPOSED / LABOR CATEGORY	POSITION DESCRIPTION	HOURLY RATE
Principal	Program oversight. Ensures resources are available and that tasks are fully staffed with personnel, equipment and other required support. Assigns the task to the appropriate Senior Project Manager. Bachelor's degree in Architecture, Engineering, or Construction Management and/or registered architect or professional engineer is required. Minimum of 20 years experience.	\$204.25
Senior Project Manager	Provides business, technical, and personnel management and coordination for individual projects. Provides comprehensive definition of all technical aspects of project requirements. Program development, analysis of program mission, goals, and objectives. Bachelor's degree or higher in Architecture, Engineering, or Construction Management, and 15 or more years relevant experience.	\$161.85
Project Manager	Supports the Senior Project Manager. Gathers data and performs basic analysis of the gathered information. Bachelor's degree or higher in Architecture, Engineering, or Construction Management or higher with 5 or more years relevant experience.	\$155.52
Commissioning Authority	Provides business, technical, and personnel management across a major single project or multiple projects, involving multi-disciplinary and diverse functional activities, subordinate groups of technical and administrative personnel. Bachelor's degree or higher in an engineering discipline. Must be a registered professional engineer with 10 or more years relevant experience.	\$171.02
Commissioning Agent - Electrical	Reviews all technical specifications and drawings related to electrical engineering, to ensure compliance with all regulations. Responsibilities also include report generation and data analysis. Bachelor's degree in engineering with a minimum of 5 years experience. Registration is preferred, but not required.	\$154.41
Commissioning Agent - Mechanical	Reviews all technical specifications and drawings related to mechanical engineering, to ensure compliance with all regulations. Responsibilities also include report generation and data analysis. Bachelor's degree in engineering with a minimum of 5 years experience. Registration is preferred, but not required.	\$157.34
Commissioning Provider	Manages multiple subcontractors, testing, commissioning, ensuring adherence to specifications and drawings, preparing progress reports, maintaining a daily log of activities, maintaining construction budget and meeting the needs of the customer and contract. Reads and interprets technical specifications and drawing and has good record keeping skills. AA degree required or special training/certification. 8 years of relevant experience required.	\$150.50
Commissioning Technician III	Performs audits of construction and quality control measures. Checks compliance to specifications, standards, and construction practices. "Hands-on" experience shall include project equipment function reports, maintenance process and O&M Manual preparation. High School Diploma and 8 years of relevant experience.	\$114.95
Commissioning Technician II	Performs audits of construction and quality control measures. Checks compliance to specifications, standards, and construction practices. Commissioning of built out space, O&M Manual receipt and tracking. Verification of as built conditions with trades and systems functional testing. Works under the supervision of a Commissioning Technician III or Commissioning Provider. High School Diploma and 4 years of relevant experience.	\$95.76
Commissioning Technician I	Provides technical assistance in construction audits under the direct supervision of more senior personnel. High School Diploma with 2 years of relevant experience.	\$86.17
Senior Administrator	Provides clerical oversight to assure quality on the project. Ensures day-to-day contract administration including project coordination and communication liaison. High School Diploma minimum requirement with 5 years relevant experience.	\$91.86
Administrative/Clerical Support	Performs clerical and word processing functions including typing, word processing, data entry, filing, copying, binding, faxing, and electronic communication. High School Diploma with 2 years experience.	\$56.68



## SIN Description

### 871 7 Construction Management

#### 236220 *Commercial and Institutional Building Construction*

Customer agencies shall utilize construction managers as its principal agent to advise on or manage the process over the project regardless of the project delivery method used. The Construction Manager assumes the position of professional adviser or extension of staff to the customer agency. The Construction Manager frequently helps the customer agency identify which delivery method is the best for the project. The construction management approach utilizes a firm (or team of firms) with construction, design and management expertise to temporarily expand the customer agency(s) capabilities, so that they can successfully accomplish their program or project. The Construction Manager also provides expert advice in support of the customer agency(s) decisions in the implementation of the project. The following are some of the tasks to be covered under Construction Management:

Project Design Phase Services: These services may include: design technical reviews; code compliance reviews; constructability reviews; analysis of Value Engineering proposals; preparation of cost estimates (including independent check estimates); cost analysis; cost control/monitoring; energy studies; utility studies; site investigations; site surveys; scheduling (including preparation of schedules and schedule reviews); review of design scope changes (including analysis of schedule impact); scheduling/conducting/documenting design related meetings; and performing market studies (material availability, contractor interest, etc.).

Project Procurement Phase Services: These services may include: providing assistance to the Contracting Officer in contract procurement; answering bid/RFP questions; attending/participating in site visits; attending/participating in pre-bid conferences; preparing and issuing solicitation amendments for review and approval by the Government Contracting Officer; and performing cost/bid/proposal analysis.

Project Construction Phase Services. These services may include: establishing temporary field offices; setting up job files, working folders, and record keeping systems; maintaining organized construction files; scheduling and conducting preconstruction meetings; documenting actions taken and decisions made, etc.; monitoring the submittal review process; review and monitoring of project schedules for construction progress with emphasis on milestone completion dates, phasing requirements, work flow, material deliveries, test dates, etc.; assisting in problem resolution and handling of disputed issues (including development of Government position); maintaining marked up sets of project plans and specifications for future as-built drawings; performing routine inspections of construction as work proceeds, taking action to identify work that does not conform to the contract requirements, and notifying the contractors when work requires correction; compiling, through site inspections, lists of defects and omissions related to the work performed and providing these lists to the contractor for correction; review of construction contractor payment requests (including preparation of necessary forms for payment processing); monitoring project financial data and budgetary cost accounting; administration of construction contract change orders (issuing proposal requests, preparing cost estimates, reviewing cost proposals, assisting agency in negotiations, preparing change order packages for processing); scheduling, conducting, and documenting regular progress meetings with all interested parties to review project status, discuss problems, and resolve issues; scheduling, conducting, and documenting (prepare minutes, etc. for distribution) construction related project meetings; monitoring construction contractor compliance with established safety standards (note and report unsafe working conditions, failures to adhere to safety plan required by construction contract); monitoring construction contractor's compliance with contract labor standards; coordination of construction activities with customer Managers and occupying agency personnel; monitoring the design and construction clarification process and, when appropriate, reminding the A/E and other parties involved of the need for timely actions; participating in all "Partnering" activities



## SIN Description

during construction (workshops, meetings, etc.); preparing special reports and regular project status reports; providing for progress and/or final photographs of project work; perform site surveys; provide assistance in obtaining permits; perform hazardous material assessments and monitoring of hazardous material abatement work; and provide cost estimating assistance.

Commissioning Services. These services shall include, but are not limited to, providing professional and technical expertise for start-up, calibration, and/or certification of a facility or operating systems within a facility. The CM must be able to provide any level of commissioning need from total support to specialty services. Commissioning services may require start-up planning, forecasting start-up duration, estimating start-up costs, determining start-up objectives, organizing start-up teams and team assignments, testing building system components, conducting performance tests.

Testing Services: The CM may be tasked to provide the services of an independent testing agency/laboratory to perform project specific quality control testing and inspection services. The services may include, but are not limited to, testing/inspection of soils, concrete, precast concrete connections, steel, steel decking, applied fireproofing, roofing, curtain walls/glazing, and elevator installations.

Claims Services. The CM may be tasked to provide Claims Services when and as required by the Government for specific projects. The CM will review disputes and claims from the A&E and/or construction contractor(s) and render all assistance that the Government may require, including, but not limited to, the following: Furnishing reports with supporting information necessary to resolve disputes or defend against the claims; preparation and assembly of appeal files; participation in meetings or negotiations with claimants; appearance in legal proceedings; preparation of cost estimates for use in claims negotiations; preparation of risk assessments/analyses relative to claim exposures; preparation of findings of fact and any other documentation required by the Government.

Post Construction Services. At or near substantial completion of project construction, the CM may be tasked to provide services such as: Performing Post Occupancy Evaluations (POEs); assisting Agency in the formulation of lessons learned; providing occupancy planning including development of move schedules, cost estimates, inventory lists, etc.; providing move coordination, relocation assistance, and/or furniture coordination; providing telecommunication and computer coordination.

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Project Procurement Phase Services: These services may include: providing assistance to the Contracting Officer in contract procurement; answering bid/RFP questions; attending/participating in site visits; attending/participating in pre-bid conferences; preparing and issuing solicitation amendments for review and approval by the Government Contracting Officer; and performing cost/bid/proposal analysis.

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Post Construction Services. At or near substantial completion of project construction, the CM may be tasked to provide services such as: Performing Post Occupancy Evaluations (POEs); assisting Agency in the formulation of lessons learned; providing occupancy planning including development of move schedules, cost estimates, inventory lists, etc.; providing move coordination, relocation assistance, and/or furniture coordination; providing telecommunication and computer coordination.

Statement of Qualifications – Project Experience

Quality Assurance IDIQ Administrative Office of the Courts *State of California*

<b>Customer/Client Name:</b> <i>Administrative Office of the Courts</i>	<b>Project Name/Contract Number:</b> <i>Quality Assurance IDIQ</i>	<b>Customer Point of Contact (PoC):</b> <i>Kevin Wagner – Project Manager</i>
	<b>Project Performance Period:</b> <i>April 2007 – April 2013</i>	<b>Dollar Value of the Entire Project:</b> <i>\$785,000,000</i>
<b>Dollar Value Received for Work:</b> <i>\$1,335,725</i>	<b>Brief Summary of Project:</b> The Administrative Office of the Courts (AOC) has numerous facilities in need of repair or replacement. 3QC was hired to provide commissioning and quality assurance engineering under an IDIQ contract to perform facility assessments and engineering analysis on existing buildings and inspection/ testing services on the construction of new facilities. The courthouse facilities typically include courtrooms, public areas, and administrative office space. The first IDIQ contract phase was from 2007 to 2010, and we are currently under our second IDIQ contract phase of 2010 through 2013.	

Scope of Work –



3QC is currently consulting to the Administrative Office of the Courts, Office of Court Construction (AOC) under an indefinite quantity, indefinite delivery (IDIQ) contract, providing quality assurance and commissioning services. To date, 3QC has completed retro-commissioning and building MEP system evaluations on three existing courthouses and is currently providing building commissioning services on six additional courthouses. Professional services include developing and monitoring the project quality assurance plan for the building systems. This includes development of an equipment start-up plan, building sensor calibration plan, and final inspection and verification of building systems operations. Additional tasks include assisting in the development of the Owner Project

Requirements (OPR), design review of the construction documents, contractor submittal review, quality control checklist preparation, equipment start-up and observations, writing controls sequences, functional systems testing, measurement and verification of energy systems, energy analysis, training and warranty review. Existing building commissioning (retro-commissioning) includes as-built plan review, energy bill analysis, HVAC equipment inspection and functional assessment, as well as technical evaluation of the electrical, plumbing, elevator, and fire/life/safety systems. Additionally, existing building commissioning services include inspection of as-built conditions, development of computer based current and alternative energy models, prioritization of equipment replacements, modifications to existing control sequences, life cycle cost analysis, and training of operations staff.

Methodology –

3QC provided a systematic quality assurance process for the AOC to verify proper installation and operation of building mechanical, electrical, plumbing and low voltage systems. Our services vary slightly from project to project, however, each project includes management of design and construction professionals, technical review of project documentation and as-built information, scheduling/conducting/documenting design and construction meetings, analysis of cost proposals for energy systems, technical inspection of equipment installation and start-up, development and maintenance of defective work product lists, scheduling of building systems performance testing, review of maintenance and operations manuals, and participation in post occupancy evaluations (POEs).

During the design phase 3QC provided a comprehensive technical review of the building systems design documents for constructability, functionality, and systems coordination. We prepared written logs of design review comments and coordinated review meetings with the owner and the design team. During the design phase we provided an independent cost analysis of proposed energy systems and proposed energy systems equipment. We provided a technical review of the energy systems specification documents and coordinated testing and quality control requirements. We prepared a commissioning plan that outlined the team’s quality control and quality assurance responsibilities including the Cx team’s (owner, commissioning agent, contractor, subcontractor, inspector) responsibilities, systems testing requirements, and communications protocol during construction. Equipment testing schedule requirements were developed and incorporated into the construction documents at this time.

During the construction phase of the project 3QC coordinated and directed the inspection, start-up and testing of the mechanical, electrical and plumbing systems. As the owner’s representative we worked with the construction contractor to

## Statement of Qualifications – Project Experience

develop and manage construction schedule activities including the submittal of MEP documentation, installation and inspection activities for the mechanical, electrical and plumbing systems, equipment start-up activities, testing and balancing, calibration of sensors and final functional performance testing.

3QC monitored the submittal process for the mechanical, electrical, plumbing and low voltage systems submittals provided by the contractor and the subcontractors. We performed a formal review of the submittals and tracked corrections and changes to the submittals to ensure quality products were provided. These submittals were reviewed for conformance with the contract requirements and that the functional performance of the equipment met the project performance requirements.

Our staff conducted regular project coordination meetings during construction with the contractor and the subcontractors to organize and schedule the project quality assurance activities. We prepared an agenda prior to each meeting, led and managed the meeting, prepared meeting minutes after the meeting and tracked project issues with the meeting minutes and with a project master issues log. A significant part of the meeting agendas included schedule coordination of building equipment installation, inspection and testing.

Critical to proper equipment start-up, 3QC performed pre-functional testing and inspection of system components to verify that each piece of the system works independently prior to the system working as a whole. We provided a detailed inspection, including visual verification of the HVAC equipment dampers prior to testing the unit economizer cycle. We tested all the hot water and chilled water valves to ensure that they opened and closed completely upon the proper call from the building management systems. We tested operation of each of the hydronic system pumps to verify performance along its pump curve and we tested each building operations sensor to verify correct signal and signal response. During the testing we prepared a list of requirements to be completed prior to startup of equipment that will ensure that the equipment was ready to complete start-up.

During the test and balance phase of the work, we validated the accuracy and completeness of the balancing report by sampling the TAB recorded values. We reviewed the balance report for completeness and reliability by performing random re-testing. Where performance deficiencies were identified, 3QC conducted and documented project resolution meetings to correct the deficiencies. Subsequent to the resolution meetings we monitored contractor correction of the deficiencies.

During the course of the project 3QC maintained a master deficiency log for the project. We used the log as a discussion point during regular construction coordination meetings and we tracked status of the deficiencies until they were signed off as complete.

During turn-over of the buildings we coordinated the contractor's training plan and scheduled the training with the owner's facility staff. Included in the training coordination was a comprehensive review of the operation and maintenance manuals. After construction we worked with the building operators to monitor contractor warranty calls and warranty services. We developed a survey questionnaire and chaired a subsequent lessons learned meeting with the operations staff to incorporate best practices on follow-on projects.

### CM and Engineering Scope –

- Professional and technical expertise for start-up, calibration and/or certification of a facility or operating system
- Construction inspection, conducting regular process meetings, maintaining deficiency lists
- Project Design Phase Services, technical reviews, cost analysis, energy studies, scheduling
- Project Construction Phase Services, submittal review, problem resolution, as-built drawings
- Review of change orders and cost proposals
- Monitoring contractor compliance and partnering
- Organizing and conducting performance tests
- Analysis of Value Engineering proposals
- Post Construction Services, POEs, lessons learned, occupancy scheduling
- Electrical Engineering / Instrumentation and Measurement – Control Systems – Remote Sensing
- Mechanical Engineering / Materials – Power – Noise Control and Acoustics
- Analysis of program goals, objectives, performance
- Demonstration and Validation
- Education and Training
- Independent Verification and Validation
- Documentation and Information Services and Dissemination
- Regulatory compliance support
- Technical Analysis / Simulation and Modeling / Technical and Management Support
- Life Cycle Costing / Statistical Analysis / Test and Evaluation of Systems



Statement of Qualifications – Project Experience

East Campus Operations Center Sacramento, California

<b>Customer/Client Name:</b> <i>Sacramento Municipal Utility District</i>	<b>Project Name/Contract Number:</b> <i>East Campus Operations Center</i>	<b>Customer Point of Contact (PoC):</b> <i>Glenn Shuder – Project Manager</i>
	<b>Past Performance Period:</b> <i>April 2008 – December 2012</i>	<b>Dollar Value of the Entire Project:</b> <i>\$130,000,000</i>
<b>Dollar Value Received for Work:</b> <i>\$786,100</i>	<b>Brief Summary of Project:</b> The Sacramento Municipal Utility District has outgrown their current facilities and is relocating their operations and corporate yard to a new 51 acre site. The new “Net-Zero” facility will generate its own power and includes many energy efficient strategies and systems. At 590,000 square feet, the facility will house office space, conference space, training center, vehicle maintenance facility, tool and shop building, warehouse/salvage facility, transformer recycle and repair facility, as well as parking for employees and fleet vehicles. This project is currently in the construction phase using a Design-Build methodology to meet LEED Platinum requirements.	

Scope of Work –



3QC is currently consulting to the Sacramento Municipal Utilities District (SMUD) as part of their project management team providing technical quality assurance and inspection services from the pre-design procurement phase through post construction commissioning services. These professional services include Design-Build criteria consulting, design management, cost control and budgeting, development of project quality assurance requirements, design review, constructability review, project schedule coordination, review of design scope changes, assisting the contract manager with contract

procurement by participating in pre-bid meetings and technical review of the bid proposals. During the construction phase of the project 3QC is representing the owner as the commissioning agent and LEED manager. Construction phase services provided will include documentation of project decisions and criteria; planning, conducting and documenting project meetings; monitoring and review of project schedule milestones; development of inspection and testing schedule activities; maintaining a master project issues log; participating in change order negotiations; monitoring contractor compliance with building codes and LEED requirements; coordinating equipment start-up; technical inspection of mechanical and electrical systems; developing LEED certification documentation; building operational testing, scheduling and acceptance; and coordination of facility staff training. Post construction phase services will include tracking warranty repair issues and participating in a warranty review with the owner approximately ten months after occupancy; development of a user survey and coordination of a lessons learned conference; and development and documentation of a post occupancy evaluation (POE).

Methodology –

3QC’s professional services on this project are based upon the “Best Practices” developed by the Construction Management Association of America (CMAA) and the ASHRAE Guideline 0 quality assurance commissioning process guide. During the pre-design phase of the project, 3QC consulted to the SMUD staff to document and organize the major project criteria and operational requirements of the project. Our staff reviewed and edited these criteria in the Owner Performance Requirements (OPR) document prepared by the design phase architect. As part of the owner’s management team, 3QC managed development of the construction methodology developed for this project. 3QC consulted to the owner on the level and detail of documentation developed for bid to a design-build contractor. 3QC also documented scope changes in the project criteria and managed development of the design documents.

Our responsibilities included procurement phase consulting services during the bid and award process of the design-build contractor. 3QC consulted to the SMUD contract manager during contract procurement by providing written review comments of the contractor proposals, participating in the interview and scoring process of the design build teams, review and answering of RFP questions, review of value engineering proposals, participating in site visits and pre-bid conferences, and providing analysis of cost proposals.

During the design phase 3QC provided a comprehensive technical review of the building systems design documents for constructability, functionality, and systems coordination. We prepared written design review comments and participated in review meetings with the owner and the design build team. 3QC provided technical review of the energy systems

## Statement of Qualifications – Project Experience

documentation and Title 24 Report. We prepared a commissioning plan that outlined the team's quality control and quality assurance responsibilities including the quality team's (owner, commissioning agent, contractor, subcontractor, inspector) responsibilities, systems testing requirements, and communications protocol during construction. Equipment testing schedule requirements were developed and incorporated into the construction documents at this time.

Currently in the construction phase of the project 3QC is coordinating the project schedule milestones for inspection, start-up, and testing of the mechanical, electrical and plumbing systems. As the owner's representative we are working with the construction contractor to develop and manage construction schedule activities including the submittal of MEP documentation, installation and inspection activities for the mechanical, electrical and plumbing systems, equipment start-up activities, testing and balancing, calibration of sensors and final functional performance testing.

3QC is monitoring the submittal status of the mechanical, electrical, plumbing and LEED required submittals provided by the contractor and the subcontractors. We are performing a formal review of the submittals and documenting deficiencies and required corrections. Our review is focused on two critical aspects: conformance with the contract requirements and project functional performance requirements to meet "Net Zero" and LEED Platinum.

During installation of the MEP equipment, 3QC will manage the contractor to verify that proper quality control procedures are followed. This is accomplished using the commissioning plan developed for the project specific requirements and includes the use of pre-functional checklists developed by 3QC prior to start-up. The contractor will provide quality control of his installation using the checklists as a guide and 3QC will provide observation and verification to check the results. 3QC will perform an independent inspection process using a sampling methodology to confirm correct use of the inspection forms and verification that equipment installations meet specification requirements. Upon completion of building mechanical, electrical, and plumbing system installations the contractor will be required to demonstrate that the final operation of the equipment and the systems meet the original design criteria which will be verified by 3QC.

Currently our staff are conducting, managing and documenting regular project coordination meetings with the contractor, sub-contractors, inspectors and owner staff. 3QC prepares the agenda prior to each meeting, leads the meeting, prepares meeting minutes after the meeting and tracks project issues using a master issues log. Currently the major focus during the meetings is centered on equipment performance requirements and testing milestones as well as LEED documentation and template preparation for building certification.

3QC has developed a systematic testing plan to verify that the mechanical, electrical, plumbing and building management systems function correctly, are controllable with the designed project parameters, and are tuned for optimum energy performance. 3QC is responsible to manage the construction contractor to ensure that these systems have been configured and tested to perform correctly prior to occupancy by the building users and tenants. Contractors will provide a written log of measurements and test results for distribution and tracking. 3QC staff will review the testing results and documentation provided by the contractor and will perform re-testing to verify proper performance. System deficiencies and their subsequent corrections are then identified, verified, and documented by 3QC. Final performance and set points will be documented for use by the facilities maintenance staff and referenced during training.

Upon completion of final testing, 3QC will coordinate training of the building operations staff by the contractor and/or manufacturer representatives, documenting the training process and provide verification that the training is sufficient for continuing operations. The operations staff will be encouraged to test and evaluate system operations to develop a thorough understanding of system capabilities during training.

### CM and Engineering Scope –

- Professional Advisor
- Design and Management Experience
- Project Design Phase Services
- Project Procurement Phase Services
- Project Construction Phase Services
- Commissioning Services
- Testing Services / Demonstration and Validation / Independent Verification and Validation
- Education and Training
- Building Regulatory Certification / Regulatory Compliance Support
- Life Cycle Costing / Statistical Analysis / Control Systems
- Mechanical Engineering / Materials – Power – Noise Control and Acoustics
- Post Construction Service / Analysis of Program Goals, Objectives, Performance
- Technical Analysis / Simulation and Modeling

