

DEFINITIONS

Architect Services, Engineer Services, Land Surveying Services, Assayer Services, Geologist Services and Landscape Architect Services: Those professional services within the scope of the practice of those services as provided in ARS § 32-101.

Branch Office: A geographically distinct place of business or subsidiary office of a firm that has a key role on the team.

Discipline: Primary technical capabilities of key personnel, as evidenced by academic degree, professional registration, certification, and/or extensive experience.

Firm: Defined in ARS § 32-101(B.19.).

Key Personnel: Individuals who will have major contract responsibilities and/or provide unusual or unique expertise.

SPECIFIC INSTRUCTIONS:

1. Complete this form for each branch office seeking work under this RFQ.
 - a. – e. **Firm (or Branch Office) Name and Address.** Self-explanatory.
 - f. **Year Established.** Enter the year the firm (or branch office, if appropriate) was established under the current name.
 - g. **Ownership.**
 - (g1). *Type.* Enter the type of ownership or legal structure of the firm (sole proprietor, partnership, corporation, joint venture, etc.).
 - (g2). *Small Business Status.* A firm is a small business if the firm has less than 100 employees **or** has gross revenues of \$4 million or less.
 - h.-j. **Point of Contact.** Provide this information for a representative of the firm that the Customer can contact for additional information. The representative must be empowered to speak on contractual and policy matters.
 - k. **Name of Firm.** Enter the name of the firm.
2. **Employees by Discipline.**
 - a. Select disciplines from the List of Disciplines (Function Code) listed on Page 3 of 4 Instructions. For employees that do not qualify for any of the disciplines, select Other. *Note: The intended searchable database indicated in the RFQ will be populated from the Qualifications Form I Excel attachment only.*
 - b. Each person can be counted only twice; once for his/her primary function and once for his/her secondary function. Primary and secondary functions should be indicated by including a "P" or an "S" in column b after the Description Title is given.
 - c-d. If the form is completed for a firm (including all branch offices), enter the number of employees by disciplines in column c. If the form is completed for a branch office, enter the number of employees by discipline in column d and for the firm in column c.
3. **Profile of Firm's Experience and Annual Average Revenue for Last Year.**
 - a. Enter the approximate number of projects the firm (or branch) has done attributable by Profile Code listed on Page 3 of 4 Instructions over the last year.
 - b. Enter the appropriate Profile Codes from Instructions Pages 3 of 4 that represent the type of work the firm (or branch) has done over the last year.
 - c. Using the Revenue Index Number on Page 3 of 6 Form, indicate the approximate revenue the firm has

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earned over the last year per Profile Code entered into the table.

4. **Resumes of Key Personnel Proposed for This Contract.** Complete this section for each key person who will participate in this contract.
 - a. Self-explanatory.
 - b. Self-explanatory
 - c. Total years of relevant experience (block c1), and years of relevant experience with current firm, but not necessarily the same branch office (block c2).
 - d. Name, City and State of the firm where the person currently works, which must correspond with one of the firms (or branch office or a firm, if appropriate) listed in Section 1.
 - e. Provide information on the highest relevant academic degree(s) received. Indicate the area(s) of specialization for each degree.
 - f. Provide information on current relevant professional registration(s) and in which State(s) they are current.
 - g. Provide information on any other professional qualifications relating to this contract, such as education, professional registration, publications, organizational memberships, certifications, training, awards, and foreign language capabilities.
 - h. Provide information on no more than five (5) projects in the last year which the person had a significant role that demonstrates the person's capability relevant to her/his proposed role in this contract. These projects do not necessarily have to be any of the projects presented in Section 5 for the project team if the person was not involved in any of those those projects or the person worked on other projects that were more relevant than the team projects in Section 5. Use the check box provided to indicate if the project was performed with any office of the current firm. If any of the professional services or construction projects are not complete, leave Year Completed blank and indicate the status in Brief Description and Specific Role.

5. **Example Projects Which Best Illustrate Firms Qualification for this contract.** Select project where multiple team members worked together, if possible, that demonstrate the team's capability to perform work similar to that required for this contract. Complete one Section 5 for each project. List no more than five (5) projects.
 - a. Title and Locations of project or contract. For an indefinite delivery contract, the location is the geographic scope of the contract.
 - b. Enter the year completed of the professional services (such as planning, engineering study, or design), and/or the year completed if construction. If any of the professional services or the construction projects are not complete, leave Year Completed blank and indicate the status in Brief Description of Project and Relevance to This Contract (block f).
 - c. Project Owner or user, such as a government agency or installation, an institution, a corporation or private individual.
 - d. Provide the original budget or not to exceed dollar amount for the project.
 - e. Provide the Total Cost of the Project. If any of the professional services or construction projects is not complete, indicate the percentage complete and whether this project will be on budget, over or under budget.
 - f. Brief Description: Indicate scope, size, and length of project, principle elements and special features of the project. Discuss the relevance of the example project to this contract.

6. **Additional Information.** Use this section to provide additional information you feel may be necessary to describe your firm's qualifications for this contract.

7. **Annual Average Professional Services Revenues of Firm for Last 3 Years.** Complete this block for the firm or branch office for which this form is completed. In column a, enter an approximate percentage of total work attributable to State, Federal or Municipal Work. In column b, enter an approximate percentage of total work attributable to Non-Government work. Percentages should take into consideration work completed over the last 3 years.

8. **Authorized Representative.** An authorized representative of the firm or branch office must sign and date the completed form. Signing attests that the information provided is current and factual. Provide the name and title of the authorized representative who signed the form.

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List of Disciplines (Function Codes) for Question 7

Aeronautical Engineer	Environmental Engineer	Mining Engineer
Agricultural Engineer	Environmental Scientist	Nuclear Engineer
Archeologist	Fire Protection Engineer	Petroleum Engineer
Architect	Geodetic Surveyor	Photogrammetrist
Architectural Engineering	Geographic Information System Specialist	Project Manager
Biologist	Geological Engineer	Sanitary Engineer
CADD Technician	Geologist	Soils Engineer
Chemical Engineer	Hydrographic Surveyor	Structural Engineer
Civil Engineer	Hydraulic Engineer	Technician/Analyst
Construction Manager	Hydrologist	Transportation Engineer
Construction Inspector	Industrial Engineer	Water Resources Engineer
Control Systems Engineer	Landscape Architect	
Cost Engineer/Estimator	Mechanical Engineer	
Ecologist	Metallurgical Engineer	
Electrical Engineer		

List of Experience Categories (Profile Codes for Question 8)

Acoustics, Noise Abatement	Dredging Studies and Design
Aerial Photography; Airborne Data and Imagery Collection and Analysis	Design & Planning Structured Parking Facilities
Activity Centers	Detention Security Systems
Air Pollution Control	Disability / Special Needs
Airports; Nav aids; Airport Lighting; Aircraft Fueling	Ecological and Archeological Investigations
Airports; Terminals and Hangars; Freight Handling	Educational Facilities; Classrooms
Agricultural Development; Grain Storage; Farm Mechanization	Electrical Studies and Design
Animal Facilities	Electronics
Anti-Terrorism/Force Protection	Elevators; Escalators; People-Movers
Area Master Planning	Energy / Water Auditing Savings
Auditoriums and Theaters	Energy Conservation; New Energy Sources
Automation; Controls; Instrumentation	Environmental Impact Studies, Assessments or Statements
Barracks; Dormitories	Fallout Shelters; Blast-Resistant Design
Bridge Design: Bridges	Fire Protection
Cartography	Fisheries; Fish Ladders
Cemeteries (<i>Planning and Relocation</i>)	Forensic Engineering
Chemical Processing and Storage	Garages; Vehicles Maintenance Facilities; Parking
Child Care/Development Facilities	Gas Systems (<i>Propane; Natural, Etc.</i>)
Codes; Standards; Ordinances	Geodetic Surveying: Ground and Airborne
Cold Storage; Refrigeration and Fast Freeze	Heating; Ventilating; Air Conditioning
Commercial Building (<i>Low Rise</i>); Shopping Centers	Highways; Streets; Airfield Paving; Parking Lots
Community Facilities	Historical Preservation
Communications Systems; TV; Microwave	Hospital and Medical Facilities
Computer Facilities	Hotels; Motels
Conservation and Resource Management	<i>Housing (Residential, Multi-Family; Apartments; Condominiums)</i>
Construction Management	Hotels; Motels
Construction Surveying	Hydraulics and Pneumatics
Corrosion Control; Cathodic Protection Electrolysis	Hydrographic Surveying
Cost Estimating; Cost Engineering and Analysis; Parametric Costing; Forecasting	Industrial Buildings; Manufacturing Plants
Cryogenic Facilities	Industrial Processes; Quality Control
Construction Materials Testing	Industrial Waste Treatment
Dams (<i>Concrete; Arch</i>)	Intelligent Transportation Systems
Dams (<i>Earth; Rock</i>); Dikes; Levees	Infrastructure
Desalinization (<i>Process and Facilities</i>)	Irrigation; Drainage
Design-Build - Preparation of Requests for Proposals	Judicial and Courtroom Facilities
Digital Elevation and Terrain Model Development	Laboratories; Medical Research Facilities
Digital Orthophotography	Land Surveying
Dining Halls; Clubs; Restaurants	Landscape Architecture
	Libraries; Museums; Galleries

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Lighting (*Interior; Display; Theater, Etc.*)
Lighting (*Exteriors; Streets; Memorials; Athletic Fields, Etc.*)
Labs - General
Labs – Research – Dry
Labs – Research – Wet
LEED Accredited A/E
LEED Independent 3rd Party Building Commissioning
Mapping Location/Addressing Systems
Materials Handling Systems; Conveyors; Sorters
Metallurgy
Materials Testing
Measurement / Verification / Conservation Water Consumption Savings
Mining and Mineralogy
Medical Related
Modular Systems Design; Fabricated Structures or Components
Mold Investigation
Museums
Nuclear Facilities; Nuclear Shielding
Office Buildings; Industrial Parks
Outdoor Recreation
Petroleum and Fuel (*Storage and Distribution*)
Photogrammetry
Pipelines (*Cross-Country - Liquid and Gas*)
Phase I Environmental
Prisons & Correctional Facilities
Plumbing and Piping Design
Prisons and Correctional Facilities
Product, Machine Equipment Design Pneumatic Structures, Air-Support Buildings Power Generation, Transmission, Distribution Public Safety Facilities
Radar; Sonar; Radio and Radar Telescopes
Radio Frequency Systems and Shielding's
Railroad; Rapid Transit
Recreation Facilities (*Parks, Marinas, Etc.*)
Refrigeration Plants/Systems
Rehabilitation (*Buildings; Structures; Facilities*)
Research Facilities
Resources Recovery; Recycling
Roof Infrared Imaging to Identify Water Leaks

Roofing
Safety Engineering; Accident Studies; OSHA Studies
Security Systems; Intruder and Smoke Detection
Seismic Designs and Studies
Sewage Collection, Treatment and Disposal
Soils and Geologic Studies; Foundations
Solar Energy Utilization
Solid Wastes; Incineration; Landfill
Special Environments; Clean Rooms, Etc.
Structural Design; Special Structures
Surveying; Platting; Mapping; Flood Plain Studies
Sustainable Design
Swimming Pools
Storm Water Handling and Facilities
Specifications Writing
Toxicology
Testing and Inspection Services
Traffic and Transportation Engineering
Topographic Surveying and Mapping
Towers (*Self-Supporting and Guyed Systems*)
Tunnels and Subways
Traffic Studies
Transportation
Urban renewals; Community Development
Utilities (*Gas and Steam*)
Value Analysis; Life-Cycle Costing
Warehouse and Depots
Water Resources; Hydrology; Ground Water
Water Supply; Treatment and Distribution
Wind Tunnels; Research/Testing Facilities Design
Waste Water Treatment Facility
Water Well Rehabilitation; Water Well Work
Zoning; Land Use Studies

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(If a firm has branch offices, complete for each specific branch office seeking work.)

1. REVISED ADSPO13-00003465: Annual Request for Qualifications

a.	FIRM (OR BRANCH OFFICE) NAME:	Spectrum Engineers
b.	FIRM (OR BRANCH OFFICE) STREET:	1501 West Fountainhead Parkway, Suite 330
c.	FIRM (OR BRANCH OFFICE) CITY:	Tempe
d.	FIRM (OR BRANCH OFFICE) STATE:	Arizona
e.	FIRM (OR BRANCH OFFICE) ZIP CODE:	85282
f.	YEAR ESTABLISHED:	1982
(g1).	OWNERSHIP - TYPE:	Corporation
(g2).	OWNERSHIP - SMALL BUSINESS STATUS:	yes
h.	POINT OF CONTACT NAME AND TITLE:	Aaron Ricks
i.	POINT OF CONTACT TELEPHONE NUMBER:	480-621-3452
j.	POINT OF CONTACT E-MAIL ADDRESS:	alr@spectrum-engineers.com
k.	NAME OF FIRM (If block 1a is a branch office):	

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2. EMPLOYEES BY DISCIPLINE

a. Discipline Title	b. Function: Primary (P) or Secondary (S)	c. No. of Employees - Firm	d. No. of Employees - Branch
Electrical Engineer	P	19	3
Mechanical Engineer	P	10	4
Fire Protection Engineer	P	1	1
Architectural Engineer	P	2	1
Technology Designer	P	6	2
Total			

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3. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST YEAR

a. Approximate No. of Projects	b. Experience	c. Revenue Index Number (see below)
30	Acoustics, Noise Abatement	4
84	Airports; Terminals and Hangers; Freight Handling	3
38	Auditoriums and theaters	4
337	Commercial Building (low rise); shopping centers	5
7	Computer Facilities	3
48	Dining Halls; Clubs; Restaurants	3
623	Educational Facilities; Classrooms	7
55	Fire Protection	2
33	Garages; Vehicle Maintenance Facilities; Parking Decks	3
613	Hospitals and Medical Facilities	6
67	Hotels; Motels	4
17	Housing (Residential, Multi-family, Apartments, Condos)	6
15	Industrial Buildings; Manufacturing Plants	3
121	Judicial and Courtroom Facilities	4
14	Labs - General	4
891	Office Buildings; Industrial Parks	6

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

- | | |
|---|---|
| 1. Less than \$100,000 | 6. \$2 million to less than \$5 million |
| 2. \$100,000 to less than \$250,000 | 7. \$5 million to less than \$10 million |
| 3. \$250,000 to less than \$500,000 | 8. \$10 million to less than \$25 million |
| 4. \$500,000 to less than \$1 million | 9. \$25 million to less than \$50 million |
| 5. \$1 million to less than \$2 million | 10. \$50 million or greater |

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4. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT (Complete one Section 4 for each key person.)

a. NAME Aaron Ricks, P.E., LEED AP		b. ROLE IN THIS CONTRACT Principal-in-charge/Principal Electrical Engineer		c. YEARS EXPERIENCE	
		1. TOTAL 13	2. WITH CURRENT FIRM 4		
d. FIRM NAME AND LOCATION (City and State) Spectrum Engineers, Tempe, AZ					
e. EDUCATION (DEGREE AND SPECIALIZATION) B.S. Electrical Engineering			f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Registered Professional Engineer / Arizona #48564 Registered Professional Engineer / Nevada #019933 Leadership in Energy and Environmental Design Accredited Professional		
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Mr. Ricks is a professional engineer (P.E.) licensed to practice electrical engineering in Arizona and Nevada with more than 10 years of electrical engineering design and planning experience. He is a Leadership in Energy and Environmental Design Accredited Professional (LEED AP). His areas of specialization include power distribution and lighting. He is skilled in the preparation of electrical construction documents including drawings, specifications, calculations and spreadsheets. He possesses direct experience and familiarity with the National Electric Code, NFPA, IEE, IECC and ASHRAE as well as AutoCAD software. Member—United States Green Building Council (USGBC).					
h. RELEVANT PROJECTS					
(1) TITLE AND LOCATION (City and State) Arizona State University Lattie F. Coor Hall Generator Reliability Phase 2B, Tempe, AZ		(2) Year Completed			
		Professional Services 2013	Construction (if applicable) 2014 (expected)		
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE		<input checked="" type="checkbox"/> Check if project performed with current firm			
1) Project Electrical Engineer for Coor Hall to improve systems reliability. This project consisted of upgrading the HVAC and electrical infrastructure for the Intermediate Data Frame (IDF) and Main Data Frame (MDF) rooms within the facility. This includes installation of mechanical split systems, standby generator, and redundant automatic transfer switches and UPS systems to all critical loads. The mechanical and electrical systems are anticipated to be monitored by the central plant. SIZE: 6,000 SF / \$1.6 million					
(1) TITLE AND LOCATION (City and State) Arizona State University Campus Reliable Power Study, Gap Analysis, Master Plan, & Phase I Priority System Upgrades, Tempe, AZ		(2) Year Completed			
		Professional Services 2012	Construction (if applicable) 2012		
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE		<input checked="" type="checkbox"/> Check if project performed with current firm			
2) Project Electrical Engineer for this \$587,869 study and \$1.3 million Priority 1 Upgrades of power systems affecting the entire campus and campus buildings as well as some satellite campus facilities. Following a comprehensive inspection of campus systems, Spectrum Engineers prepared a master plan for the "ASU Reliable Power for the Tempe Campus", establishing a consensus-based campus standard of Uptime requirements for stakeholder equipment and facilities based upon a process which documents and evaluates the stakeholders' needs. The master plan includes: Owner's Project Requirements, ASU Standard for Reliability, Critical Load Summary, Campus Medium Voltage Distribution and Generation System, Existing Medium Voltage One-Line Diagram, Campus Low Voltage Generation and Distribution, CHP Reliability Report, Gap Analysis and the Electrical Infrastructure Master Plan. The first phase of upgrades identified in the study and master plan documents are currently being performed.					

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a. NAME Matthew B. Tibbs, P.E.		b. ROLE IN THIS CONTRACT Principal Mechanical Engineer		c. YEARS EXPERIENCE	
				2. TOTAL 22	2. WITH CURRENT FIRM 1
d. FIRM NAME AND LOCATION (<i>City and State</i>) Spectrum Engineers, Tempe, AZ					
e. EDUCATION (<i>DEGREE AND SPECIALIZATION</i>) B.S. Mechanical Engineering			f. CURRENT PROFESSIONAL REGISTRATION (<i>STATE AND DISCIPLINE</i>) Registered Professional Engineer in Mechanical Engineering Arizona #54690		
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Mr. Tibbs is a broadly accomplished and highly skilled engineering management professional with more than two decades of experience in consulting, design, engineering, construction, testing, balancing and commissioning of education, healthcare, data/call centers, commercial, institutional, governmental, municipal and industrial projects. He delivers an unparalleled record of accountability-based leadership, reduced costs through strong problem-solving skills and the ability to communicate with precision to all levels of professionals. He creates sustainable solutions while managing complex projects and leverages engineering principles and scientific theories to ensure deliverables are provided on time and within budget. He is a former member of the International Energy Code Review Task Force of Georgia, a board established to amend codes to fit the state’s needs, and has lobbied state code to allow flexibility for innovative technologies and designs that, though they may not precisely adhere to the code’s stringent specifications, they actually exceed performance goals leading to a more successful outcome. An example is the first multi-pressure isolation room design in the state of Kentucky. Member—ASHRAE (American Society of Heating Refrigeration, Air-conditioning Engineers) Member—NCEE (National Certified Engineer Examiners) Member—AOPA (Aircraft Owners and Pilots Association) Member—NAUI (National Association of Underwater Instructors)					
H. RELEVANT PROJECTS					
1)	(1) TITLE AND LOCATION (<i>City and State</i>) Arizona State University ISTB 1, Tempe, AZ		(2) Year Completed		
			Professional Services 2013	Construction (<i>if applicable</i>) 2013	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Principal Mechanical Engineer for this research facility and complete data center serving the entire ASU campus. The project involves designing systems for research facility and data center areas affirming “no operational failure” can occur. Includes complete redundant chilled water, air handler, hydronic and electrical systems are provided. This building also houses the ASU Vivarium Research unit. Budget: \$5 million. Size: 90,000 sq. ft. (estimate).		<input checked="" type="checkbox"/> Check if project performed with current firm		
2)	(1) TITLE AND LOCATION (<i>City and State</i>) Southwest Tennessee Community College Maintenance Storage Facility, Memphis, TN		(2) Year Completed		
			Professional Services 2004	Construction (<i>if applicable</i>) 2005	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Principal Mechanical Engineer for this project converted an existing manufacturing warehouse into the maintenance headquarters, shop and central college shipping and handling facilities. The project involved a complete rework of the existing HVAC, plumbing and fire protection systems. Cost: \$1.8 million. Size: 50,000 sq. ft.		<input type="checkbox"/> Check if project performed with current firm		
3)	(1) TITLE AND LOCATION (<i>City and State</i>) N.D.I.A. (Doha International Airport) Doha, State of Qatar		(2) Year Completed		
			Professional Services 2009-2012	Construction (<i>if applicable</i>) 2013	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Provided mechanical engineering design and construction administration. Provided initial design for mechanical, plumbing and fire protection systems; then followed up the design with on-site construction administration. Project was built on reclaimed land and consisted of primary terminal and all ancillary support buildings. The project is approximately 8 million sq. ft. with a construction cost of \$20 billion.		<input type="checkbox"/> Check if project performed with current firm		

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a. NAME Roger Shearrow, P.E., QxTS, LEED AP		b. ROLE IN THIS CONTRACT Project Mechanical Engineer/Mechanical Project Manager		c. YEARS EXPERIENCE	
		3. TOTAL 17	2. WITH CURRENT FIRM 2		
d. FIRM NAME AND LOCATION (<i>City and State</i>) Spectrum Engineers, Tempe, AZ					
e. EDUCATION (<i>DEGREE AND SPECIALIZATION</i>) B.S. Mechanical Engineering			f. CURRENT PROFESSIONAL REGISTRATION (<i>STATE AND DISCIPLINE</i>) Registered Professional Engineer – Mechanical / Arizona #37366		
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Mr. Shearrow is a registered professional engineer with more than 15 years of experience designing and commissioning HVAC, plumbing and fire sprinkler systems. He has extensive experience providing engineering and commissioning for various types of projects. He also possesses advanced knowledge of CHVAC with load calculations and U-Factor Calculator as well as Trane Trace 700. Other Training/Certifications include: Commissioning Process Technical Service Provider (CxTS); LEED Accredited Professional; Fire Sprinkler Design Certificate AFSA, Autodesk Building Systems (MEP) Training Certificate, and Autodesk Revit Training Certificate					
H. RELEVANT PROJECTS					
1)	(1) TITLE AND LOCATION (<i>City and State</i>) Arizona State University Trovitch Laboratory, Tempe, AZ		(2) Year Completed		
			Professional Services 2012	Construction (<i>if applicable</i>) 2013	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Project manager/lead mechanical engineer designing HVAC and plumbing systems for this organic/inorganic lab intended to find alternative fuel sources. Includes three glove boxes for performing chemical tests, two six-foot fume hoods and four four-foot fume hoods. The lab uses house nitrogen, reverse osmosis (RO) water and includes a complex “monkey bar” system to run chemical processes using vacuum pumps and mercury with a mercury containment system. The Trovitch lab is located in an aging building with older systems. It was determined that the existing air handler would not support this type of lab, Spectrum Engineers called for a new oversized air handler to be used, which would support future capacity within the building, and a VAV unit for energy efficiency. A-three office renovation is also part of the original project, which may be deferred to maintain the budget. Budget: \$800,000 (estimated). Size: 2,000 sq. ft.		<input checked="" type="checkbox"/> Check if project performed with current firm		
2)	(1) TITLE AND LOCATION (<i>City and State</i>) Arizona State University Lattie F. Coor Hall Generator Reliability Phase 2B, Tempe, AZ		(2) Year Completed		
			Professional Services 2013	Construction (<i>if applicable</i>) 2014 (expected)	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE This project consisted of upgrading the HVAC and electrical infrastructure for the Intermediate Data Frame (IDF) and Main Data Frame (MDF) rooms within the facility. This includes installation of mechanical split systems, standby generator, and redundant automatic transfer switches and UPS systems to all critical loads. The mechanical and electrical systems are anticipated to be monitored by the central plant.		<input checked="" type="checkbox"/> Check if project performed with current firm		
3)	(1) TITLE AND LOCATION (<i>City and State</i>) Arizona State University Redundancy and Reliability, Phase I Priority, Commissioning, Tempe, AZ		(2) Year Completed		
			Professional Services 2010	Construction (<i>if applicable</i>) NA	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE This project involved reviewing a master plan prepared to comply with the university’s standard for reliability that established a campus standard of uptime requirements for equipment and facilities. The ASU standard for reliability (ASR) is based on an exhaustive campus-wide power reliability study. Based upon the data the existing distribution, generation and utility systems were analyzed for gaps which pose risk of outage. Using SKM software, a load flow study, voltage drop study, and an ARC flash study were performed to determine noncompliant components in accordance with the ASR. A failure modes and effects analysis was performed and included a survey of cooling infrastructure, access security and other related gaps that increase the risk of downtime. A study of the existing SF6 switches was included and a report was issued detailing these results.		<input checked="" type="checkbox"/> Check if project performed with current firm		

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a. NAME Stewart "Skip" Greene, P.E.		b. ROLE IN THIS CONTRACT Electrical Project Manager		c. YEARS EXPERIENCE	
				4. TOTAL 38	2. WITH CURRENT FIRM 38
d. FIRM NAME AND LOCATION (<i>City and State</i>) Spectrum Engineers, Tempe, AZ					
e. EDUCATION (<i>DEGREE AND SPECIALIZATION</i>) B.S. Electrical Engineering			f. CURRENT PROFESSIONAL REGISTRATION (<i>STATE AND DISCIPLINE</i>) Registered Professional Engineer / Utah #170193 Registered Professional Engineer / Texas #68292 Registered Professional Engineer / Wisconsin #26763-6		
g. OTHER PROFESSIONAL QUALIFICATIONS (<i>Publications, Organizations, Training, Awards, etc.</i>) Stewart E. "Skip" Greene is the CEO and a principal electrical engineer with Spectrum Engineers and the Chief Operating Officer of Spectrum's Arizona office. Skip is a registered Professional Engineer with more than 35 years of experience in the design of electrical systems for the built environment. Skip has honed his interpersonal skills as CEO for Spectrum. He encourages collaboration and is adept at coordinating and inspiring team members to achieve a complete and productive design package, tailored to the owner's needs. His project experience in working with design teams, with architects, and with clients, as well as his senior-level experience in all aspects of electrical engineering will help contribute to the team leadership that projects require. Mr. Greene has more than 30 years of experience in the design of complex electrical systems for 100+ hospital and healthcare projects. Member—National Fire Protection Association (NFPA) Member—Illuminating Engineering Society (IES) Member—The U.S. Green Building Council (USGBC) Member—Construction Specification Institute (CSI)					
H. RELEVANT PROJECTS					
1)	(1) TITLE AND LOCATION (<i>City and State</i>) Arizona State University ISTB 1, Tempe, AZ		(2) Year Completed		
			Professional Services 2013	Construction (<i>if applicable</i>) 2013	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Principal-in-Charge for this research facility and complete data center serving the entire ASU campus. The project involves designing systems for research facility and data center areas affirming "no operational failure" can occur. Includes complete redundant chilled water, air handler, hydronic and electrical systems are provided. This building also houses the ASU Vivarium Research unit. Budget: \$5 million. Size: 90,000 sq. ft. (estimate).				
2)	(1) TITLE AND LOCATION (<i>City and State</i>) Arizona State University Campus Reliable Power Study, Gap Analysis, Master Plan & Phase I Priority System Upgrades, Tempe, AZ		(2) Year Completed		
			Professional Services 2012	Construction (<i>if applicable</i>) 2012	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Principal-in-charge and principal electrical engineer for this \$587,869 study of power systems affecting the entire campus and campus buildings as well as some satellite campus facilities. Following a comprehensive inspection of campus systems, Spectrum Engineers prepared a master plan for the "ASU Reliable Power for the Tempe Campus", establishing a consensus-based campus standard of Uptime requirements for stakeholder equipment and facilities based upon a process which documents and evaluates the stakeholders' needs. The master plan includes: Owner's Project Requirements, ASU Standard for Reliability, Critical Load Summary, Campus Medium Voltage Distribution and Generation System, Existing Medium Voltage One-Line Diagram, Campus Low Voltage Generation and Distribution, CHP Reliability Report, Gap Analysis and the Electrical Infrastructure Master Plan. The first phase of upgrades identified in the study and master plan documents are currently being performed.				

**RFQ# ADSP014-00003465, Annual Request for Qualifications and Experience
REVISED - Attachment I – General Qualifications**

a. NAME Dave Wesemann, P.E., LEED AP		b. ROLE IN THIS CONTRACT Principal Electrical Engineer		c. YEARS EXPERIENCE	
				5. TOTAL 15	2. WITH CURRENT FIRM 6
d. FIRM NAME AND LOCATION (<i>City and State</i>) Spectrum Engineers, Tempe, AZ					
e. EDUCATION (<i>DEGREE AND SPECIALIZATION</i>) B.S. Electrical Engineering			f. CURRENT PROFESSIONAL REGISTRATION (<i>STATE AND DISCIPLINE</i>) Registered Professional Engineer in 27 states including Arizona #31244		
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Mr. Wesemann is a Principal Engineer for Spectrum Engineers, with more than 22 years of electrical engineering design, cost control and construction review experience. His project leadership, attention to detail and schedules, and ability to coordinate various services with the electrical design are hallmarks of his work. Mr. Wesemann's experience includes several projects at the Veterans Affairs Medical Center in Salt Lake City. Member—Institute of Electrical & Electronics Engineers, Inc. (IEEE); Illuminating Engineering Society (IES); Building Industry Consulting Services International (BICSI); American Council of Engineering Companies (ACEC); The U.S. Green Building Council. 34+ awards and award-winning projects					
H. RELEVANT PROJECTS					
(1) TITLE AND LOCATION (<i>City and State</i>) Salt Lake City Public Safety Complex, Salt Lake City, UT		(2) Year Completed			
		Professional Services 2011	Construction (<i>if applicable</i>) 2013		
1)	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Principal electrical engineer for this \$124 million Public Safety Complex which comprises approximately 170,000 sq. ft. of space to house Salt Lake City's police department administration and department-wide services and fire department administration. The complex is home to a combined dispatch center and Emergency Operations Center (EOC). A below-grade, enclosed and secure parking structure accommodating approximately 400 vehicles is also part of this project. A public plaza space is provided on the remainder of the site. This project is pursuing LEED® Silver.				
(1) TITLE AND LOCATION (<i>City and State</i>) Arizona State University Campus Reliable Power Study, Tempe, AZ		(2) Year Completed			
		Professional Services 2009	Construction (<i>if applicable</i>) NA		
2)	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Mr. Wesemann prepared a master plan complying with the university's standard for reliability that establishes a campus standard of uptime requirements for equipment and facilities. The existing distribution, generation and utility systems were analyzed for gaps which pose risk of outage. Using SKM software, a load flow study, voltage drop study, and an ARC flash study were performed to determine noncompliance. A failure modes and effects analysis was performed and included a survey of cooling infrastructure, access security and other related gaps that increase the risk of downtime. A study of the existing SF6 switches was included and a report was issued detailing these results.				
(1) TITLE AND LOCATION (<i>City and State</i>) University of Utah Campus Wide Electrical Utility Distribution Upgrade, Salt Lake City, UT		(2) Year Completed			
		Professional Services current	Construction (<i>if applicable</i>) current		
3)	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Mr. Wesemann is the Principal Electrical Engineer providing services to replace the majority of the electrical distribution system. The project budget is \$85 million, phased over a 3-year period (2012 - 2014). The first phase consisting of approximately \$15 million is designed with construction under way. The entire electrical distribution was modeled using SKM Power Tools® for system analysis and coordination. Reliability Analysis was performed using IEEE Std 493-2007 ("The Gold Book") to verify that the design approach provided optimum reliability, and ensure that State money is spent wisely. Outages for critical buildings cannot be tolerated, so "Methods of Procedure" (MOP's) are developed to minimize outages during equipment and cabling change-overs. Voltage conversions from 5 kV and 7 kV systems to standard 15 kV distributions.				

**RFQ# ADSP014-00003465, Annual Request for Qualifications and Experience
REVISED - Attachment I – General Qualifications**

a. NAME Gerald F. Nelson, B.S.A.T.		b. ROLE IN THIS CONTRACT Principal Technology Designer		c. YEARS EXPERIENCE	
				6. TOTAL 23	2. WITH CURRENT FIRM 22
d. FIRM NAME AND LOCATION (<i>City and State</i>) Spectrum Engineers, Tempe, AZ					
e. EDUCATION (<i>DEGREE AND SPECIALIZATION</i>) B.S. Audio Technology			f. CURRENT PROFESSIONAL REGISTRATION (<i>STATE AND DISCIPLINE</i>)		
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) As principal technology designer for Spectrum Engineers with 23 years of experience, Mr. Nelson has successfully provided consulting services for numerous facilities throughout North America and various places around the world. He possesses expertise in designing specialized technology that relates to higher education and community libraries as well as classrooms, auditoriums, conference rooms and lecture halls. His involvement in projects is vital to ensure that audiovisual (AV), voice/data, intercom, security and other electronic systems are planned and designed to meet current needs while accommodating future expansion and emerging technology. He has vast “hands-on” experience in the engineering of local area and wide area network systems, media retrieval systems, sound systems, intercom /paging and other communications technologies. He is a practitioner of “electronic systems common sense” and implements proven design methods within a highly technical environment. His involvement in projects is vital to ensure that technology systems are planned and designed to meet current needs while accommodating emerging technology. Member—Audio Engineering Society					
H. RELEVANT PROJECTS					
1)	(1) TITLE AND LOCATION (<i>City and State</i>) Second Floor Courtroom, Cheyenne, WY		(2) Year Completed		
			Professional Services 2009	Construction (<i>if applicable</i>) 2010	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Principal technology designer and project manager. Audio and video systems: Successfully completed the Discovery and Presentation, Design, and Installation Support task orders for audio systems, video evidence presentation systems, and fixed video conferencing systems in the second floor courtroom. This courtroom was a new build-out inside an existing building.		<input checked="" type="checkbox"/> Check if project performed with current firm		
2)	(1) TITLE AND LOCATION (<i>City and State</i>) Utah Multi-Agency State Government Office Building, Salt Lake City, UT		(2) Year Completed		
			Professional Services 2008	Construction (<i>if applicable</i>) 2009	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Principal technology designer for this 265,000 sq. ft., \$40 million design/build project. MASOB is the new home to for the Departments of Human Services (DHS) and Environmental Quality (DEQ) and includes approximately 700 parking stalls. This four-story building includes a cafeteria, lockers/showers, fitness center and building reception.		<input checked="" type="checkbox"/> Check if project performed with current firm		
3)	(1) TITLE AND LOCATION (<i>City and State</i>) Veterans Affairs George E. Wahlen Medical Center Campus Wide Fiber Optic Backbone Upgrades Study and Design, Salt Lake City, UT		(2) Year Completed		
			Professional Services 2008	Construction (<i>if applicable</i>) 2010	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Principal-in-charge of technology design services for this project which provides new design for singlemode fiber backbone distribution system. The study was of the existing campus multimode fiber optic distribution system, which used a single central node location, and an investigation of the migration of multimode to singlemode. Included designing a multimode system with the addition of two other distribution nodes providing closer access to the east and west side of the complex for better network management and utilization. An existing data center was not sufficient for expansion capabilities so a new data center was designed. The scope of design was significantly increased as the project received new funding. Cost: \$750,000 (final construction budget including study and design).		<input checked="" type="checkbox"/> Check if project performed with current firm		

**RFQ# ADSP014-00003465, Annual Request for Qualifications and Experience
REVISED - Attachment I – General Qualifications**

a. NAME Jeffrey D. DuBois, P.E., FPE		b. ROLE IN THIS CONTRACT Principal Fire Protection Engineer		c. YEARS EXPERIENCE	
				7. TOTAL 15	2. WITH CURRENT FIRM 6
d. FIRM NAME AND LOCATION (<i>City and State</i>) Spectrum Engineers, Tempe, AZ					
e. EDUCATION (<i>DEGREE AND SPECIALIZATION</i>) B.S. Mechanical Engineering			f. CURRENT PROFESSIONAL REGISTRATION (<i>STATE AND DISCIPLINE</i>) Registered Fire Protection Engineer / Arizona / #46296 Registered Professional Engineer / Utah / #265949-2202 Registered Professional Engineer / Illinois / # 062-055530 Registered Professional Engineer / Maryland / #38578		
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Jeff DuBois, P.E., FPE, is a principal and licensed fire protection engineer (FPE) and licensed professional mechanical engineer (P.E.) with more than 15 years of national design and project management experience in fire suppression systems for new and remodeled projects. His experience includes new fire suppression systems for more than 300 facilities and fire suppression system upgrades for more than 200 remodeled projects. He has overseen engineering services on projects across the country including underground piping systems, fire flow calculations, high piled storage systems, fire alarm systems, and commercial sprinkler systems. Mr. DuBois provides clients strong communication skills and sound engineering judgment, giving him the ability to consistently achieve desired results. He is accustomed to negotiating with building and fire department officials to implement the most effective fire protection for a project while mitigating unrealistic demands placed on the client. He is a member of National Fire Protection Association (NFPA), Society of Fire Protection Engineers (SFPE), Utah Society of Fire Protection Professionals (USFPP). He is also a consultant/writer for AIA/MASTERSPEC—sections include clean agents and foam systems.					
H. RELEVANT PROJECTS					
	(1) TITLE AND LOCATION (<i>City and State</i>) Salt Lake City Public Safety Complex, Salt Lake City, UT		(2) Year Completed		
			Professional Services 2011	Construction (<i>if applicable</i>) 2013	
1)	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Principal fire protection engineer for this \$124 million Public Safety Complex which comprises approximately 170,000 sq. ft. of space to house Salt Lake City's police department administration and department-wide services and fire department administration. The complex is home to a combined dispatch center and Emergency Operations Center (EOC). A below-grade, enclosed and secure parking structure accommodating approximately 400 vehicles is also part of this project. A public plaza space is provided on the remainder of the site. This project is pursuing LEED® Silver.				
	(1) TITLE AND LOCATION (<i>City and State</i>) Joint Agency Traffic Management Center, City and County of Honolulu, Hawaii		(2) Year Completed		
			Professional Services 2013	Construction (<i>if applicable</i>) 2014 (expected)	
2)	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Principal fire protection engineer for the Honolulu Joint Traffic Management Center (JTMC) which is a new building that will bring transportation operations and emergency responder communications personnel (and their operations systems) together for the purpose of improving traffic management on Oahu. A Concept of Operations was developed to provide guidance to the JTMC Steering and Executive Committees for developing the project leading to development of a Joint Traffic Management Center Master Plan. The Master Plan helped to define the project in terms of potential size, costs, opportunities, and challenges. During this time frame, Steering Committee members toured and benchmarked several mainland JTMC facilities.				

**RFQ# ADSP014-00003465, Annual Request for Qualifications and Experience
REVISED - Attachment I – General Qualifications**

a. NAME Ray W. Moore, P.E., CPD, LEED AP, FASPE		b. ROLE IN THIS CONTRACT Principal Mechanical Engineer		c. YEARS EXPERIENCE	
		8. TOTAL 44	2. WITH CURRENT FIRM 7		
d. FIRM NAME AND LOCATION (<i>City and State</i>) Spectrum Engineers, Tempe, AZ					
e. EDUCATION (<i>DEGREE AND SPECIALIZATION</i>) B.S. Civil Engineering			f. CURRENT PROFESSIONAL REGISTRATION (<i>STATE AND DISCIPLINE</i>) Registered Professional Engineer (Mechanical) in Arizona #22734 LEED® Accredited Professional		
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Mr. Moore offers clients more than 40 years of engineering and design experience. His interests in mechanical and plumbing engineering stretch beyond designing these systems for high-profile and complex projects, taking him into the classroom where he has been able to share his expertise and experience with others. An active member of several professional organizations, Mr. Moore currently serves as the Vice President Legislative for the American Society of Plumbing Engineers. In addition to awards like the Excellence in Industry Award (Utah Chapter of ICBO), He has been recognized many times by professional organizations for his contributions to their goals. He has taught numerous seminars throughout the Intermountain area on plumbing and mechanical-related topics since 1996. Member—ASHRAE, ASPE, NSPE, IAPMO, NFPA, ICC <u>Publications</u> ASPE Domestic Water Heater Design Manual / Misc. Chapters / 2003 Plumbing Code Comparison Column / ASPE <i>Plumbing System & Design Magazine</i> / 2003–present ASPE Data Book / Volume 4 / Chapter 7 “Vibration Isolation” / 2001 (2003) <i>Plumbing System & Design Magazine</i> / Bi-monthly Plumbing Code articles / 2003 to Present					
H. RELEVANT PROJECTS					
1)	(1) TITLE AND LOCATION (<i>City and State</i>) Northern Arizona University, North Valley Tenant Improvement, Phoenix, AZ		(2) Year Completed		
			Professional Services 2007	Construction (<i>if applicable</i>) 2007	
(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Principal mechanical and plumbing engineer for this tenant finish involving design of a heat pump system for this 45,000 sq. ft. building which was remodeled into classrooms and office space for Northern Arizona University.					
2)	(1) TITLE AND LOCATION (<i>City and State</i>) Orem City Energy Upgrade, Orem, UT		(2) Year Completed		
			Professional Services 2010	Construction (<i>if applicable</i>) 2011	
(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Principal mechanical engineer and Prime A/E (Spectrum Engineers is also the electrical engineer for this project) providing mechanical engineering for the energy upgrades of the mechanical and electrical systems of the Orem City Center complex, which includes the children’s library, city administration and old library. Work involved includes installation of VFD on air handler 2, upgrades to the HVAC control system, installation of premium efficient fan motors, Direct Digital Control (DDC) installation, a new chiller for the city admin/old library, cooling tower renovation, premium efficient fan motor replacement for the admin/old library, VAV retrofit of dual duct system, conversion of chilled water system to variable flow, new high-efficiency condensing modular boilers and energy-efficient lighting upgrades to children’s library, old library, and city administration. Cost: approximately \$93,000.					

**RFQ# ADSP014-00003465, Annual Request for Qualifications and Experience
REVISED - Attachment I – General Qualifications**

a. NAME Sam Buhr, P.E.		b. ROLE IN THIS CONTRACT Project Electrical Engineer		c. YEARS EXPERIENCE	
		9. TOTAL 7	2. WITH CURRENT FIRM 6		
d. FIRM NAME AND LOCATION (City and State) Spectrum Engineers, Tempe, AZ					
e. EDUCATION (DEGREE AND SPECIALIZATION) B.S. Electrical Engineering			f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Registered Professional Engineer Arizona # 53985		
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Mr. Buhr is a graduate in electrical engineering with experience in consulting engineering, management and sales. He has consulting electrical engineering experience on office buildings, health care, retail, and higher education projects. He has designed systems for generator and pump and control additions.					
H. RELEVANT PROJECTS					
1)	(1) TITLE AND LOCATION (City and State) Arizona State University Herberger Partnership for Digital Culture, Tempe, AZ		(2) Year Completed		
			Professional Services 2012	Construction (if applicable) 2013	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Electrical Engineer for the demolition and renovation of KAET studio into multifunctional and flexible digital culture class and lab space. Provided extensive upgrade to distribution system, new emergency transfer system, new audio system, new video system, new fabrication lab, new lighting system, and extensive renovation to covered walkway between two buildings for an outdoor display area. PROJECT SIZE: 18,000 sq. ft.		<input checked="" type="checkbox"/> Check if project performed with current firm		
2)	(1) TITLE AND LOCATION (City and State) Maricopa Community College Bulpitt Auditorium Renovation, Phoenix, AZ		(2) Year Completed		
			Professional Services 2013	Construction (if applicable) 2014	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Electrical engineer for the renovation of historic theater. Provided overhaul of existing electrical system; including new main distribution, lighting, and fire alarm systems. New theatrical lighting and controls, and new audio and video booths. SIZE: 13,000 sq. ft.		<input checked="" type="checkbox"/> Check if project performed with current firm		
3)	(1) TITLE AND LOCATION (City and State) Arizona State University Dr. Neiswender's Lab, Tempe, AZ		(2) Year Completed		
			Professional Services 2012	Construction (if applicable) 2012	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Electrical engineer for the renovation of existing Bio Safety Lab 2 (BSL2) space to new BSL2 space for animal studies. Provided voltage regulation for sensitive refrigeration equipment and specific power requirements for animals and lab equipment (including: vacuum, -80 refrigerator, stereotaxic tables, germinators, a necropsy table, and germinators). PROJECT SIZE: 5,000 sq. ft.		<input checked="" type="checkbox"/> Check if project performed with current firm		
4)	(1) TITLE AND LOCATION (City and State) Arizona State University PE East Lab Renovations, Tempe, AZ		(2) Year Completed		
			Professional Services 2012	Construction (if applicable) 2013	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Electrical engineer for the demolition and Renovation of existing lab space to new virtual reality Lab. Provided renovation services for the conversion of lab space, new virtual reality lab and conference room. PROJECT SIZE: 9,000 sq. ft.		<input checked="" type="checkbox"/> Check if project performed with current firm		

**RFQ# ADSP014-00003465, Annual Request for Qualifications and Experience
REVISED - Attachment I – General Qualifications**

a. NAME Sarah Rollins, M.S.		b. ROLE IN THIS CONTRACT Acoustician and Technology Designer		c. YEARS EXPERIENCE	
				10. TOTAL 6	2. WITH CURRENT FIRM 1
d. FIRM NAME AND LOCATION (<i>City and State</i>) Spectrum Engineers, Tempe, AZ					
e. EDUCATION (<i>DEGREE AND SPECIALIZATION</i>) B.S. Applied Physics, Acoustics Emphasis M.S. Physics, Acoustics Emphasis			f. CURRENT PROFESSIONAL REGISTRATION (<i>STATE AND DISCIPLINE</i>)		
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Ms. Rollins possesses more than six years of progressive advancement in acoustical consulting and project management. She is accustomed to coordinating acoustic designs with architects and mechanical engineers, and performing field measurements and construction observations. Associate Member of the Acoustical Society of America (ASA); Member of Synergetic Audio Concepts (Syn-Aud-Con)					
H. RELEVANT PROJECTS					
1)	(1) TITLE AND LOCATION (<i>City and State</i>) Weber State University Davis Campus Professional Classroom Building Central Plant Study, Layton, UT		(2) Year Completed		
			Professional Services 2012	Construction (<i>if applicable</i>) NA	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Ms. Rollins was the project acoustician providing an acoustical study of the noise generated by a new Central Utility Plant, currently under construction. The study involved conducting ambient noise measurements (before the plant was in operation) in nearby residential areas. Ms. Rollins also provided the university with preliminary noise-level predictions for the same residential areas predicting the potential differences in noise levels once the plant is in operation. \$2500 fee.		<input checked="" type="checkbox"/> Check if project performed with current firm		
2)	(1) TITLE AND LOCATION (<i>City and State</i>) Utah Valley University New Classroom Building, Orem, UT		(2) Year Completed		
			Professional Services 2012	Construction (<i>if applicable</i>) 2013	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Ms. Rollins was the acoustician for this project. She provided architectural acoustics, acoustical separation, HVAC noise and vibration control for the large auditorium, classrooms and offices housed in this building. The auditorium seats nearly 1000 people and is divisible into as many as three smaller halls. Spectrum Engineers also provided electrical engineering (including LEED® consulting and power distribution within the new building as well as a related medium voltage services such as a substation reliability upgrade and new central plant electrical gear), technology design (including security, AV, voice/data cabling) and lighting and theater design. Budget: \$46 million. Size: 250,000 sq. ft.		<input checked="" type="checkbox"/> Check if project performed with current firm		
3)	(1) TITLE AND LOCATION (<i>City and State</i>) Wenatchee Valley College Arts & Music Building, Wenatchee, WA		(2) Year Completed		
			Professional Services 2008	Construction (<i>if applicable</i>) 2008	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Acoustician to provide AutoCAD details and specifications for double stud walls and spring-isolated ceiling. Observed and corrected construction of double stud walls, isolated ceilings and acoustically-shaped ceilings. Budget: \$7 million (estimate)		<input type="checkbox"/> Check if project performed with current firm		

**RFQ# ADSP014-00003465, Annual Request for Qualifications and Experience
REVISED - Attachment I – General Qualifications**

a. NAME Austin Abney, E.I.T, LEED AP		b. ROLE IN THIS CONTRACT Mechanical Designer / Engineer-in-Training		c. YEARS EXPERIENCE	
				11. TOTAL 6	2. WITH CURRENT FIRM 1
d. FIRM NAME AND LOCATION (City and State) Spectrum Engineers, Tempe, AZ					
e. EDUCATION (DEGREE AND SPECIALIZATION) B.S. Mechanical Engineering			f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Leadership in Energy and Environmental Design Accredited Professional (LEED AP) Passed Engineer-in-Training (EIT) exam / 2007		
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) Mr. Abney has two years of mechanical engineering and design experience, and four years of experience working for an HVAC manufacturer's representative. He is experienced in the selection and sizing of chillers, air handlers, variable refrigerant volume systems, cooling towers, fluid coolers, heat exchangers, humidifiers, etc., as well as mechanical and plumbing system design and project management. Member—American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)					
H. RELEVANT PROJECTS					
1)	(1) TITLE AND LOCATION (City and State) Arizona State University Lattie F. Coor Hall Generator Reliability Phase 2 Upgrades, Tempe, AZ			(2) Year Completed	
				Professional Services 2012	Construction (if applicable) 2013
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mechanical designer for the New redundant system A/system B UPS systems and distribution to MDF and IDF loads with dual power supplies, each backed up with generator power. Backup cooling systems on emergency power added to each IDF. PROJECT SIZE: 6,000 sq. ft.; \$1.63 million.			<input checked="" type="checkbox"/> Check if project performed with current firm		
2)	(1) TITLE AND LOCATION (City and State) Arizona State University ISTB1 Reliability Phase 2B, Tempe, AZ			(2) Year Completed	
				Professional Services 2012	Construction (if applicable) 2013
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mechanical designer for the New redundant systems A/system B UPS systems and distribution to data center, MDF and IDF rooms. Backup cooling systems with emergency power added. PROJECT SIZE: 90,000 sq. ft.; \$4.1 million.			<input checked="" type="checkbox"/> Check if project performed with current firm		
3)	(1) TITLE AND LOCATION (City and State) Arizona State University SHESC Lab Renovation, Tempe, AZ			(2) Year Completed	
				Professional Services 2012	Construction (if applicable) 2012
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mechanical designer for HVAC upgrades and maceration lab remodel. PROJECT SIZE: 4,400 sq. ft.; \$450,000.			<input checked="" type="checkbox"/> Check if project performed with current firm		
4)	(1) TITLE AND LOCATION (City and State) Arizona State University Bookstore HVAC Upgrade, Tempe, AZ			(2) Year Completed	
				Professional Services 2012	Construction (if applicable) 2012
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mechanical designer for the HVAC and building control upgrades for sales floor and server room. PROJECT SIZE: 17,100 sq. ft.; \$363,000.			<input checked="" type="checkbox"/> Check if project performed with current firm		
5)	(1) TITLE AND LOCATION (City and State) Arizona Regional Medical Center, Apache Junction, AZ			(2) Year Completed	
				Professional Services 2008	Construction (if applicable) 2010
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mechanical designer. Converted a physician's office into a full service hospital with 30 beds. ROLE: Mechanical designer. PROJECT SIZE: 32,000 sq. ft.			Check if project performed with current firm		

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REVISED - Attachment I – General Qualifications**

5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present no more than five (5) projects. Complete one Section 5 for each project.)

a. TITLE AND LOCATION <i>(City and State)</i> Joint Agency Traffic Management Center, City and County of Honolulu, Hawaii	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i> 2014 (expected)

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City and County of Honolulu, Hawaii	d. DOLLAR AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

The Honolulu Joint Traffic Management Center (JTMC) is a new building that will bring transportation operations and emergency responder communications personnel (and their operations systems) together for the purpose of improving traffic management on Oahu. A Concept of Operations was developed to provide guidance to the JTMC Steering and Executive Committees for developing the project leading to development of a Joint Traffic Management Center Master Plan. The Master Plan helped to define the project in terms of potential size, costs, opportunities, and challenges. During this time frame, Steering Committee members toured and benchmarked several mainland JTMC facilities.

A three-layered system from least restrictive public and staff areas to most restrictive computer and operations centers utilizing multiple CCTV security cameras and door access systems all routed through a central security office.

The team was challenged to design suitable stand-off distances from public access per the minimum requirements of Unified Facilities Criteria (UFC) DoD Minimum Antiterrorism Standards for Buildings and integration of COPS (Critical Operations Power Systems) on a small urban in-fill site adjacent to a major public transportation node.

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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT		
<i>(Present no more than five (5) projects. Complete one Section 5 for each project.)</i>		
a. TITLE AND LOCATION <i>(City and State)</i> City of Mesa Metro Division Cut and Reface Projects	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i>
23. PROJECT OWNER'S INFORMATION		
c. PROJECT OWNER City of Mesa	d. DOLLAR AMOUNT OF PROJECT \$42,800 (Spectrum's fee)	a. TOTAL COST OF PROJECT \$42,800 (Spectrum's fee)

f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Spectrum Engineers is providing mechanical, electrical and plumbing (MEP) engineering for this project, which involves widening and modifications to Main Street in downtown Mesa, Arizona to accommodate the Metro Light Rail extension through town. The new line will run along the Center of Main Street. Main Street is being widened into buildings, requiring the removal and relocation of HVAC units and other utilities as buildings are being "cut back." Spectrum Engineers is re-establishing power, HVAC and plumbing systems, that meet current code requirements, to the remaining portion of buildings. Coordination with architectural, structural, and civil landscapes was also essential.

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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT <i>(Present no more than five (5) projects. Complete one Section 5 for each project.)</i>		
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a. TITLE AND LOCATION <i>(City and State)</i> Arizona State University Lattie F. Coor Hall Generator Reliability, Phase 2B, Tempe, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i> 2014 (expected)

23. PROJECT OWNER'S INFORMATION		
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c. PROJECT OWNER Arizona State University	d. DOLLAR AMOUNT OF PROJECT \$1.6 million	b. TOTAL COST OF PROJECT \$1.6 Million
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Spectrum Engineers is currently providing mechanical, electrical and plumbing (MEP) engineering services for Coor Hall to improve systems reliability. Coor Hall is home to advanced mediated classrooms, traditional classrooms, open computer labs, research, survey research, special purpose facilities and offices. This project consisted of upgrading the HVAC and electrical infrastructure for the Intermediate Data Frame (IDF) and Main Data Frame (MDF) rooms within the facility. This includes installation of mechanical split systems, standby generator, and redundant automatic transfer switches and UPS systems to all critical loads. The mechanical and electrical systems are anticipated to be monitored by the central plant. Spectrum Engineers designed new redundant system A/system B UPS systems and distribution to MDF and IDF loads with dual power supplies, each backed up with generator power. Backup cooling systems on emergency power were added to each IDF.



Project size: 6,000 sq. ft.

**RFQ# ADSP014-00003465, Annual Request for Qualifications and Experience
REVISED - Attachment I – General Qualifications**

5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT		
<i>(Present no more than five (5) projects. Complete one Section 5 for each project.)</i>		
a. TITLE AND LOCATION <i>(City and State)</i> Arizona State University Reliable Power Study, Gap Analysis, Master Plan, and Priority 1 Upgrades, Tempe, AZ	b. YEAR COMPLETED PROFESSIONAL SERVICES 2009 CONSTRUCTION <i>(If applicable)</i> NA	
23. PROJECT OWNER'S INFORMATION		
c. PROJECT OWNER Arizona State University	d. DOLLAR AMOUNT OF PROJECT \$587,869.55	e. TOTAL COST OF PROJECT \$587,869.55

f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

As the prime A/E, Spectrum Engineers prepared a master plan complying with the university's standard for reliability that establishes a campus standard of uptime requirements for equipment and facilities. The ASU standard for reliability (ASR) is based on an exhaustive campus-wide power reliability study conducted by Spectrum that documented and evaluated major stakeholder needs, especially those related to research, and existing power conditions.

Based upon the data that Spectrum acquired, the existing distribution, generation and utility systems were analyzed for gaps which pose risk of outage. Using SKM software, a load flow study, voltage drop study and an ARC flash study were performed to determine noncompliant components in accordance with the ASR. A failure modes and effects analysis was performed and included a survey of cooling infrastructure, access security and other related gaps that increase the risk of downtime. A study of the existing SF6 switches was included and a report was issued detailing these results.



Using the SKM software for the existing power infrastructure, a master plan document was prepared with proposed modifications to the infrastructure including schedule and cost to meet the requirements of the ASR. The final master plan document presented future proposed upgrades to campus infrastructure with associated costs and schedules.

**RFQ# ADSPO14-00003465, Annual Request for Qualifications and Experience
REVISED - Attachment I – General Qualifications**

5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT <i>(Present no more than five (5) projects. Complete one Section 5 for each project.)</i>		
b. TITLE AND LOCATION <i>(City and State)</i> Arizona State University Student Engagement Center at Downtown Post Office, Mechanical & Electrical Utilities Replacement	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2011	CONSTRUCTION <i>(If applicable)</i> 2012
23. PROJECT OWNER'S INFORMATION		
c. PROJECT OWNER Arizona State University	d. DOLLAR AMOUNT OF PROJECT \$120,000	e. TOTAL COST OF PROJECT \$120,000

g. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Spectrum Engineers provided mechanical, electrical and plumbing (MEP) engineering for this project.

The existing obsolete APS electrical service from an underground building vault is being replaced with a new upgraded 480/277 3 phase electrical service from a pad mounted transformer to a new switchboard sized for the new building loads in a dedicated main electrical room. The post office is a historical building so the location of the pad mounted transformer was a sensitive issue. After reviewing multiple alternatives, it was determined to adapt the existing cooling tower enclosure and change its use to be the transformer enclosure which included minimal modification to the pedestal base and modifying the existing architectural louver to comply with APS requirements.

In addition, chilled water is being extended by Northwind from the district cooling facilities into the building. Equipment and piping modifications and coordination are required to interface this work with the existing building's chilled water system. This includes removal of the chillers, cooling tower and associated piping along with minimizing the downtime required for the existing building.

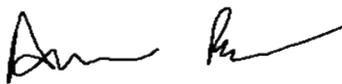
6. ADDITIONAL INFORMATION

a. PROVIDE ANY ADDITIONAL INFORMATION YOU FEEL MAY BE NECESSARY TO DESCRIBE YOUR FIRMS QUALIFICATIONS. (ATTACH ADDITIONAL SHEETS AS NEEDED.)

7. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

a. Percentage of Total Work Attributable to State, Federal and Municipal Government Work:	20%
b. Percentage of Total Work Attributable to Non-Government Work:	80%

8. AUTHORIZED REPRESENTATIVE. The foregoing is a statement of facts.

Signature:  _____ Date: 12/11/2013 _____
Name: Aaron Ricks Title: Principal-in-charge/ Principal Electrical Engineer