



ATTACHMENT I – General Qualifications

**ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSPO15-00004729**

**STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007**

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

1. Annual Request for Qualifications

a. FIRM (OR BRANCH OFFICE) NAME:	Adams and Associates Engineers, PLLC
b. FIRM (OR BRANCH OFFICE) STREET:	4067 E. Grant Road, Suite 200
c. FIRM (OR BRANCH OFFICE) CITY:	Tucson
d. FIRM (OR BRANCH OFFICE) STATE:	Arizona
e. FIRM (OR BRANCH OFFICE) ZIP CODE:	85712

Year Established

YEAR ESTABLISHED:	2008
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Ownership

g1. OWNERSHIP - TYPE:	PLLC
g2. OWNERSHIP - SMALL BUSINESS STATUS:	SBE

Contact Information

h. POINT OF CONTACT NAME AND TITLE:	David Tyrrell, Principal
i. POINT OF CONTACT TELEPHONE NUMBER:	520-323-3858
j. POINT OF CONTACT E-MAIL ADDRESS:	dtyrrell@adamsengrs.com

k. NAME OF FIRM <i>(If block 1a is a branch office):</i>	N/A
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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
Mechanical Engineer	P	1	
Fire Protection Engineer	P	1	
CADD Technician	P	2	
Other	P	3	
Total		7	



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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)
19	Airports; Terminals and Hangars; Freight Handling	2
27	Commercial Building (low rise); Shopping Centers	2
3	Community Facilities	1
27	Educational Facilities; Classrooms	2
3	Fire Protection	1
3	Heating; Ventilating; Air Conditioning	1
26	Hospital and Medical Facilities	2
13	Housing (Residential, Multi-Family, Apartments)	1
4	Judicial and Courtroom Facilities	1
1	LEED Accredited A/E	1
23	Office Buildings; Industrial Parks	2
2	Outdoor Recreation	1
3	Petroleum and Fuel (Storage and Distribution)	1
2	Plumbing and Piping Design	1

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 David Tyrrell, P.E.	b. ROLE IN THIS CONTRACT Principal Engineer, Mechanical Engineer, Project Manager, and Commissioning Services	c. YEARS EXPERIENCE	
		1. TOTAL 12	2. WITH CURRENT FIRM 12
d. LOCATION <i>(City and State)</i> Tucson, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> B.S. Mechanical Engineering – University of Arizona, 2002 Registered Mechanical Engineer Arizona #45700, California # 35956 Nevada #022055 New Mexico #20776		f. PROFESSIONAL TRAINING - REGISTRATIONS Bell & Gossett Advanced Pump Design School, Morton Grove, IL University of Titus, Consulting Engineer Seminar; Richardson, TX Trane Air Conditioning Clinics, Tucson, AZ LEED-NC: Technical Review Workshop, Tucson, AZ AABC Commissioning Group Total Building Commissioning Conference, 2009 in Chicago, Illinois and 2014 in Las Vegas, NV HAP for LEED 2009 BD&C EA1, Tucson, AZ Mitsubishi Electric Diamond Designer Seminar, Tucson, AZ	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> ASHRAE – Member, Past Membership Promotion Chairman – Tucson Chapter AABC Commissioning Group (ACG) – Member, Certified Commissioning Authority (CxA)			

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	Tucson City Courts Chiller Replacement Tucson, Arizona	2010	2011
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Dave served as the project manager under the City of Tucson's on-call mechanical engineering service contract for this project. This project involved the replacement of the two water-cooled chillers and associated open-cell cooling towers and upgrading of existing mechanical room to meet the machinery room requirements with a refrigerant management system and exhaust system. The chilled water system was converted from constant flow primary/secondary loops to primary-variable flow by upgrading each air handling unit control valve to a two-way control valve. The cooling tower fans and two air handling unit supply fans were upgraded with variable frequency drives. We modified the existing evaporative cooler air distribution and relief for Shop and Warehouse areas, and added a new air conditioning systems with air distribution for office areas. We also included performance specification for a contractor designed fire protection system and model energy code analysis.	<input checked="" type="checkbox"/> Check if project performed with current firm	
2.	Pima County East Administrative Building, 4 th Floor Remodel Tucson, Arizona	2013	2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Dave provided the mechanical, plumbing and fire protection design services for Pima County Facilities Management under our previous on-call mechanical engineering services contract. This project included replacing the existing chilled water air handling equipment and variable air volume distribution system with hot water reheat coils. An Energy Management and Control System design per Pima County Standards was provided for all mechanical equipment. Also included in this project was plumbing for restroom and break room areas to existing building utilities and fire protection design as a modification to the existing sprinkler system. Contract amount of \$25,000.	<input checked="" type="checkbox"/> Check if project performed with current firm	



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3.	(1) TITLE AND LOCATION (<i>City and State</i>) Orange Grove Library HVAC Upgrade Tucson, Arizona	(2) YEAR COMPLETED	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE	Professional Services 2010	Construction (if applicable) 2010
		<input checked="" type="checkbox"/> Check if project performed with current firm	
<p>Dave was the project manager under the Catalina Foothills School District on-call mechanical engineering service contract for this project. The project involved replacing all existing rooftop packaged gas heating and electric cooling AC equipment serving the existing Library Building with a variable refrigerant volume AC system and air-to-air heat exchanger. The mechanical system was designed with an Energy Management and Control System connected to the district's existing front-end system. The total cost of the project was approximately \$333,000.</p>			
4.	(1) TITLE AND LOCATION (<i>City and State</i>) Pima County Columbus Library Expansion Tucson, Arizona	(2) YEAR COMPLETED	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE	Professional Services 2012	Construction (if applicable) 2013
		<input checked="" type="checkbox"/> Check if project performed with current firm	
<p>This project included the design and drafting of the HVAC, Plumbing, and Fire Protection systems. Upgrades were necessary to the existing air cooled chiller, (it was a nominal 50-ton unit located in a mechanical equipment yard), the existing multi-zone air handling unit, (approximately 35 years old), and the existing solar domestic water heater installation configures the solar water panels and domestic water heater in series. Our services to complete this upgrade includes the HVAC load calculations to confirm capacity of existing mechanical equipment, expansion of existing multi-zone air handling unit into areas of the library expansion, a dedicated split system air conditioning unit for the IT room, control system modifications as an expansion of the existing control system, plumbing for restrooms and break room modifications to the existing building utilities, performance specifications for a contractor designed fire protection system and a Model Energy Code analysis.</p>			
5.	(1) TITLE AND LOCATION (<i>City and State</i>) City of Douglas Police Department HVAC Upgrade Douglas, Arizona	(2) YEAR COMPLETED	
	(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE	Professional Services 2011	Construction (if applicable) Unknown
		<input checked="" type="checkbox"/> Check if project performed with current firm	
<p>Dave was the project manager on a project for the City of Douglas Facilities Management. The City of Douglas Police Department is located in a historic building that was once the El Paso and Southwestern Railroad Passenger Depot. The building is on the National Register of Historic Places, and was built around 1900. The 17,100 square foot building was renovated for the Police Department in 1992. The existing rooftop packaged and split system air conditioning equipment was at the end of their useful life and the service access to the equipment did not meet the latest requirements of the International Mechanical Code. The existing packaged and split system equipment was replaced with equivalently sized units with increased efficiency ratings and the building was upgraded with an Energy Management and Control System. The service access within the attic was improved by enlarging the attic hatch, providing an attic ladder, walkways with guards and service platforms with guards. Construction dates are currently unknown.</p>			



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4. Resumes of Key Personnel Proposed for this Contract (Complete one Section 4 for each key person.)

<p>a. NAME Clement "Mik" Mikulich, P.E., F.P.E., CEM, CxA, LEED AP BD+C</p>	<p>b. ROLE IN THIS CONTRACT Principal Engineer, Director of Energy Engineering, Mechanical HVAC Engineer, Fire Protection Engineer, Commissioning Professional, and LEED Accredited Professional</p>	<p>c. YEARS EXPERIENCE</p>	
		<p>1. TOTAL 15</p>	<p>2. WITH CURRENT FIRM 15</p>
<p>d. LOCATION (City and State) Tucson, Arizona</p>			
<p>e. EDUCATION (DEGREE AND SPECIALIZATION) B.S. Mechanical Engineering – University of Arizona, 2000 Registered Mechanical Engineer Arizona #42007 Registered Fire Protection Engineer Arizona #58046</p>	<p>f. PROFESSIONAL TRAINING - REGISTRATIONS LEED-NC: Technical Review Workshop, Phoenix, AZ HAP for LEED Certification Training, Tolleson, AZ Trane Air Conditioning Clinics, Tempe, AZ Electric Motor Controls, Pima Community College, Tucson, AZ Bell & Gossett Advanced Pump Design School, Morton Grove, IL BeaconMedaes Medical Gas & Vacuum Systems Training, Phoenix, AZ AABC Commissioning Group Total Building Commissioning Conference, San Diego, California and Chicago, IL HTP Solar Thermal Training, Tucson, AZ SFPE Fire Protection Engineering PE Exam Online Prep Course</p>		
<p>g. OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Awards, etc.) ASHRAE – Member, past Tucson Chapter President Association of Energy Engineers (AEE) – Member, Certified Energy Manager (CEM) AABC Commissioning Group (ACG) – Member, Certified Commissioning Authority (CxA) USGBC – LEED Accredited Professional, Green Building Design + Construction National Fire Protection Association (NFPA) – Member Society of Fire Protection Engineers (SFPE) – Affiliate Member</p>			

H. RELEVANT PROJECTS

<p>1.</p>	<p>(1) TITLE AND LOCATION (City and State) Compressed Natural Gas (CNG) Central Plant Upgrade project at the Thomas O. Price Service Center (TOPSC) Tucson, AZ</p>	<p>(2) YEAR COMPLETED</p>	
			<p>Professional Services 2014</p>
<p>(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mik Mikulich served as the mechanical engineer of record and commissioning provider to replace the City of Tucson's existing CNG plant. The existing plant was more than 20 years old and past its useful life. In addition, the old plant was not originally designed to accommodate the higher fill pressures needed for today's CNG vehicles. The project included a new CNG compression plant, new CNG storage, new fast fill dispensers, and a new time fill system. Sun Tran buses are fueled with fast fill dispensers, and Environmental Services trash collection trucks are fueled by the time fill system. The new CNG plant streamlines vehicle fueling capability, optimizes daily pull-out and pull-in operations, and brings the CNG fueling systems up to current industry vehicle fueling standards. With the project team's help, the City of Tucson determined the best solution for procuring construction services was design-bid-build. Our services included programming, schematic design, design development, construction documents, construction administration, and commissioning. The project design was completed in 2014. Construction is scheduled to start in 2015, with completion expected in 2016. Total construction cost is estimated to be \$10,300,000.</p>		<p><input checked="" type="checkbox"/></p>	<p>Check if project performed with current firm</p>
<p>2.</p>	<p>(1) TITLE AND LOCATION (City and State) Santa Cruz County Energy Audit and Implementation Santa Cruz County, Arizona</p>	<p>(2) YEAR COMPLETED</p>	
			<p>Professional Services 2012</p>
<p>(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mik Mikulich served as the energy engineer and completed an energy audit for four Santa Cruz County buildings totaling approximately 85,000 square feet. The audit identified Energy Conservation Measures that could save energy and utility costs. The Energy Conservation Measures included a number of HVAC upgrades, controls upgrades, lighting upgrades, building envelope improvements, testing and balancing, and commissioning. Mik then developed bid documents to implement the recommended Energy Conservation Measures. The total cost to implement the Energy Conservation Measures was approximately \$100,000. The estimated annual utility cost savings was approximately \$44,000, making a simple payback of 2.3 years.</p>		<p><input checked="" type="checkbox"/></p>	<p>Check if project performed with current firm</p>



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3.	<p>(1) TITLE AND LOCATION (<i>City and State</i>) Tucson International Airport Chiller Replacement Tucson, Arizona</p>	<p>(2) YEAR COMPLETED</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">Professional Services 2009</td> <td style="width: 50%;">Construction (if applicable) 2010</td> </tr> </table>		Professional Services 2009	Construction (if applicable) 2010
	Professional Services 2009	Construction (if applicable) 2010			
	<p>(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE</p> <p align="right"><input checked="" type="checkbox"/> Check if project performed with current firm</p>		<p>For this project under our on call mechanical engineering contract, Mik Mikulich was the prime consultant, mechanical engineer of record, and commissioning provider to replace one of the three chillers at the Tucson International Airport and remove the fourth existing chiller. Mik was responsible for verifying the total chilled water load for the entire airport. After the load was verified, Mik sized, selected, specified, and designed the replacement chiller. He also designed a change in the chilled water pumping scheme from primary-secondary to primary variable flow. Mik re-designed the existing chilled water control sequence of operations. He worked closely with the Tucson Airport Authority (TAA) and the installing contractor to coordinate chilled water shut-down's and keep the airport's HVAC system online during the project. After the project was substantially complete, Mik wrote Functional Performance Test procedures and witnessed the testing to ensure that the chiller controls operated in accordance with the design intent. The construction cost for the project was approximately \$400,000.</p>		
<p>3. For this project under our on call mechanical engineering contract, Mik Mikulich was the prime consultant, mechanical engineer of record, and commissioning provider to replace one of the three chillers at the Tucson International Airport and remove the fourth existing chiller. Mik was responsible for verifying the total chilled water load for the entire airport. After the load was verified, Mik sized, selected, specified, and designed the replacement chiller. He also designed a change in the chilled water pumping scheme from primary-secondary to primary variable flow. Mik re-designed the existing chilled water control sequence of operations. He worked closely with the Tucson Airport Authority (TAA) and the installing contractor to coordinate chilled water shut-down's and keep the airport's HVAC system online during the project. After the project was substantially complete, Mik wrote Functional Performance Test procedures and witnessed the testing to ensure that the chiller controls operated in accordance with the design intent. The construction cost for the project was approximately \$400,000.</p>					
4.	<p>(1) TITLE AND LOCATION (<i>City and State</i>) Tucson International Airport Concourse Renovations Tucson, Arizona</p>	<p>(2) YEAR COMPLETED</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">Professional Services 2006</td> <td style="width: 50%;">Construction (if applicable) 2008</td> </tr> </table>		Professional Services 2006	Construction (if applicable) 2008
	Professional Services 2006	Construction (if applicable) 2008			
	<p>(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE</p> <p align="right"><input checked="" type="checkbox"/> Check if project performed with current firm</p>		<p>Mik Mikulich was the mechanical engineer for this project. The Concourse Renovations project was a 70,000 square feet remodel of the A and B Concourses at Tucson International Airport including interior finishes, ceilings, restrooms, food and concession venue shells, and security checkpoints. The existing VAV systems and air handlers were replaced as part of this project. The existing primary/secondary chilled water system was upgraded to a primary/variable flow system, and one of the four existing chillers was replaced. Mik designed the HVAC, plumbing, and controls systems and provided construction administration services. The project was constructed in two phases. Phase I included the central plant upgrades and utility infrastructure for food and beverage concessions. Phase II was the concourse renovations.</p>		
<p>4. Mik Mikulich was the mechanical engineer for this project. The Concourse Renovations project was a 70,000 square feet remodel of the A and B Concourses at Tucson International Airport including interior finishes, ceilings, restrooms, food and concession venue shells, and security checkpoints. The existing VAV systems and air handlers were replaced as part of this project. The existing primary/secondary chilled water system was upgraded to a primary/variable flow system, and one of the four existing chillers was replaced. Mik designed the HVAC, plumbing, and controls systems and provided construction administration services. The project was constructed in two phases. Phase I included the central plant upgrades and utility infrastructure for food and beverage concessions. Phase II was the concourse renovations.</p>					
5.	<p>(1) TITLE AND LOCATION (<i>City and State</i>) Human Intelligence (HUMINT) General Instructional Building Ft. Huachuca, Arizona</p>	<p>(2) YEAR COMPLETED</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">Professional Services 2009</td> <td style="width: 50%;">Construction (if applicable) 2010</td> </tr> </table>		Professional Services 2009	Construction (if applicable) 2010
	Professional Services 2009	Construction (if applicable) 2010			
	<p>(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE</p> <p align="right"><input checked="" type="checkbox"/> Check if project performed with current firm</p>		<p>Mik was the mechanical engineer on this project that included two large variable air volume air handling systems with return fans and outside air economizers. The chilled water system was a primary variable flow system. The HUMINT facility was designed to incorporate stringent U.S. Army Corps of Engineers guidelines for fire suppression systems, including the military's Unified Facilities Criteria document 3-600-01. Wet-pipe fire sprinkler systems were designed to a 3,000 sq. ft. minimum operating area and incorporated all aspects of seismic design for suppression systems as outlined by the American Society of Civil Engineers (ASCE 7).</p>		
<p>5. Mik was the mechanical engineer on this project that included two large variable air volume air handling systems with return fans and outside air economizers. The chilled water system was a primary variable flow system. The HUMINT facility was designed to incorporate stringent U.S. Army Corps of Engineers guidelines for fire suppression systems, including the military's Unified Facilities Criteria document 3-600-01. Wet-pipe fire sprinkler systems were designed to a 3,000 sq. ft. minimum operating area and incorporated all aspects of seismic design for suppression systems as outlined by the American Society of Civil Engineers (ASCE 7).</p>					



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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> City Courts Chiller Replacement through the City of Tucson Mechanical On Call Services contract, Tucson, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2011	CONSTRUCTION <i>(If applicable)</i> 2011

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Tucson	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$68,600	e. TOTAL COST OF PROJECT \$630,000
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

The Tucson City Courts chiller replacement project involved upgrading of the chilled water system from a primary-secondary chilled water system to a primary-variable flow chilled water system. The conversion included the replacement of both 200-ton water-cooled chillers with two 200-ton McQuay WMC centrifugal chillers with frictionless bearings. Each replacement chiller was provided with a variable frequency drive (VFD) to maximize the efficiency of the chilled water plant. The system water pumps were upgraded to chilled water pumps in a primary/backup configuration with inverter-duty motors and VFD's. The existing condenser water pumps were reused to circulate condenser water from the water-cooled chillers to the replacement cooling towers. The replacement cooling towers fans were provided with inverter-duty motors and VFD's to reset the condenser water supply temperature to the water-cooled chiller.

The chilled water control valves at each air-handling unit within the building were converted from three-way bypass to two-way valves. An additional two-way control valve and automatic flow control valve was provided within the mechanical room to maintain minimum chilled water flow through the water-cooled chillers.

The chiller replacement requires the City of Tucson to upgrade the existing mechanical room to meet the latest requirements of the 2006 IBC, IMC and IFC for a machinery equipment room. The machinery equipment room required a refrigerant monitoring system and mechanical ventilation to provide normal and emergency exhaust airflow levels. The intakes for the exhaust were located near the floor of the machinery room.

Towards the end of this project, the chillers kept going into alarm and shutting down. The mechanical contractor had a hard time keeping the chillers on line. Adams met the mechanical contractor and test and balance contractor on site to diagnose the problem. We were able to determine that the chillers' internal staging controls was bringing the lag chiller on too soon when there was not enough water flow. We directly the mechanical contractor disable the chillers' internal staging controls, and we instructed the controls contractor on how to implement a correct staging sequence. The controls were updated, and the chillers stopped shutting down on low chilled water flow.

For the Tucson City Courts Chiller Replacement project, the owner's objective was to replace the chillers with as little discomfort to the occupied building as possible. We met the owner's needs by promptly identifying the chiller shut down issue and implementing a solution to keep the building occupants as comfortable as possible.

This project was performed under our on-call mechanical engineering service contract with the City of Tucson Facilities Management. Adams and Associates Engineers provided the project to the City of Tucson Facilities Management as a mechanical prime that included subcontracting the structural and electrical engineering design services under our contract. We followed the project from design, permitting, bidding and negotiation, construction administration, contract close-out and warranty walk-through. This project included an energy analysis utilizing Carrier Hourly Analysis Program (HAP) for upgrading the existing windows or adding a shade structure over the existing windows to improve energy efficiency within the 8 story building. The project started in 2009 and ended with construction administration services in 2011.



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

a. TITLE AND LOCATION <i>(City and State)</i> Tucson International Airport (TIA) Cooling Tower Replacement through the Mechanical Design Services On Call, Tucson, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2012	CONSTRUCTION <i>(If applicable)</i> 2012

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Tucson Airport Authority	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$30,000	e. TOTAL COST OF PROJECT \$627,000
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Each year facilities at Tucson International Airport are constructed, renovated, modified or demolished to suit the ever-changing needs of the aviation industry. The elements of these projects are complex and impact a variety of different operations, security and safety considerations. Fingerprints were submitted to verify the process for employees and badges were provided to our employees to access areas in the airport by approval of the Airport Security/Police Administrator. Adams works directly with the Planning and Development Department who acts as the central point of coordination between TAA and the various TAA departments as well as other agencies having jurisdiction over the airports. The goal was to insure that TAA sponsored development activities progress in a timely manner while insuring that all requirements, standards, and safety and security measures are complied with.

This project was designed for phased construction to keep the central plant operational. Adams and Associates Engineers was the prime consultant. We designed the mechanical, plumbing & controls & provided Construction Administration. Two 1980's vintage cooling towers were replaced with 3 cooling towers to match the 3 existing chillers.

One specific challenge came up during this project. A Mohave contractor was selected to perform the work, and the contractor's pricing was almost double the budgeted amount. Adams and Associates Engineers worked with TAA and the contractor to significantly reduce the scope of work. The redesign brought the pricing down to an acceptable level, and the project was successfully completed. TAA's objective was to replace aging cooling towers that were past their useful life. Not only were the cooling towers successfully replaced and commissioned, but the project also decreased the electricity consumption of the central plant.

This project was performed under our on-call mechanical engineering services contract with the Tucson Airport Authority. Adams and Associates Engineers provided the project to TAA as a mechanical prime that included subcontracting the structural and electrical engineering design services under our contract. We followed the project from design, permitting, bidding and negotiation, construction administration, contract close-out and warranty walk-through. The project started in 2011 and ended in the fourth quarter of 2012.



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

a. TITLE AND LOCATION <i>(City and State)</i> Human Intelligence (HUMINT) General Instructional Building Ft. Huachuca, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2009	CONSTRUCTION <i>(If applicable)</i> 2010

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER U.S. Army Corp of Engineers	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$1,500,000	e. TOTAL COST OF PROJECT \$18,000,000
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Adams designed the mechanical, plumbing, and fire suppression systems for this 60,000 sq. ft. project that included two large variable air volume air handling systems with return fans and outside air economizers. The chilled water system was a primary variable flow system. The HUMINT facility was designed to incorporate stringent U.S. Army Corps of Engineers guidelines for fire suppression systems, including the military's Unified Facilities Criteria document 3-600-01. Wet-pipe fire sprinkler systems were designed to a 3,000 sq. ft. minimum operating area and incorporated all aspects of seismic design for suppression systems as outlined by the American Society of Civil Engineers (ASCE 7). The firm also performed the energy modeling for this building, and documented the mechanical and plumbing related LEED credits. HUMINT was designed to be LEED Silver certified. Having worked extensively for stringent government agencies, we are not strangers to complex requirements and documentation and that experience will serve the State of Arizona well. This project was performed as a design building through a general contractor for the Federal Government and demonstrates the wide range of capabilities that Adams and Associates Engineers can provide to a project. Our office provided the mechanical, plumbing and fire protection and LEED documentation under stringent design guidelines for life safety and secured working conditions. Design started in 2008 and was completed in 2009. Construction on this project ended in 2010.



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

a. TITLE AND LOCATION <i>(City and State)</i> Pima County Columbus Library Expansion Tucson, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i> 2014

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Pima County	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$16,000	e. TOTAL COST OF PROJECT \$1,035,000
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

This almost 12,000 sq. ft. project included the design and drafting of the HVAC, Plumbing, and Fire Protection systems. Upgrades were necessary to the existing air cooled chiller, (it was a nominal 50-ton unit located in a mechanical equipment yard), the existing multi-zone air handling unit, (approximately 35 years old), and the existing solar domestic water heater installation configures the solar water panels and domestic water heater in series. Our services to complete this upgrade includes the HVAC load calculations to confirm capacity of existing mechanical equipment, expansion of existing multi-zone air handling unit into areas of the library expansion, a dedicated split system air conditioning unit for the IT room, control system modifications as an expansion of the existing control system, plumbing for restrooms and break room modifications to the existing building utilities, performance specifications for a contractor designed fire protection system and a Model Energy Code analysis.

The existing air-cooled chiller was tripping on high-head pressure based on the original installation location of the equipment on the east wall of the building. The chiller was relocated further from the building to reduce the recirculation of the hot discharge air back into the inlet of the condenser coil. We identified the recirculation issues with the existing air-cooled chiller and provided a low-cost solution to improve the operating performance of the equipment. We also provided an energy savings upgrade by converting the existing constant volume multi-zone air handling unit to a variable-air-volume multi-zone air handling unit controlled through the Delta Controls energy management and control system.

This project was performed under an architectural on-call services contract with Pima County Facilities Management. The engineering services involved assessing the existing air-cooled chiller, heating water boiler and multi-zone air handling unit to verify the operating condition of the equipment and an upgrade to the existing system design and control to improve the operating efficiency of the mechanical equipment. The project was started in August of 2012 and completed in May of 2013. This project is a perfect example of Adams and Associates Engineers capabilities under an on-call service contract with a government jurisdiction.



ATTACHMENT I – General Qualifications

ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

6. ADDITIONAL INFORMATION

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

Company Overview

Adams and Associates Engineers, PLLC, a Tucson-based company since 1977, specializes in the following engineering services:

- Heating, Ventilation, and Air Conditioning (HVAC) Systems Design
- Plumbing Systems Design
- Fire Protection
- Commissioning Services
- Energy Audits and Energy Modeling
- LEED Documentation

We assess HVAC systems and controls sequences from a design engineer and energy auditor's standpoint to find energy savings potential. In new construction, we offer design reviews that are specific to finding energy efficient strategies. We also take part in design charrettes to discuss potential energy savings with the A/E team. In existing construction, we review existing drawings and sequences of operation to suggest energy efficiency measures that have quick paybacks. Our breadth of expertise makes us uniquely qualified to suggest ways to operate HVAC systems in the most energy efficient manner. We have extensive experience and currently have as-needed contracts with Pima County, University of Arizona, City of Tucson, City of Sierra Vista, Tucson Unified School District, and Catalina Foothills School District for mechanical engineering and commissioning services.

Our experienced staff includes two Registered Mechanical Engineers, one of which is also a Fire Protection Engineer, a senior mechanical designer, a senior plumbing designer, a BIM Coordinator and CAD Manager. Principals, Dave Tyrrell and Clement (Mik) Mikulich are Certified Commissioning Authorities (CxA), by the AABC Commissioning Group. We have commissioning experience with HVAC systems, EMCS controls systems, lighting and day lighting controls, emergency generators, domestic water heating systems, photovoltaic systems, solar water heating, fire sprinkler systems, and fire alarm systems. Adams and Associates Engineers, PLLC. also provides energy audits and building modeling simulations to analyze energy conservation measures (ECMs) on the basis of life cycle costs. Mik Mikulich is a Certified Energy Manager (CEM).

Benefits

We are able to complete your projects using either AutoCAD or REVIT software and we will provide the following major benefits to the State:

Local.

Being Arizona-based is an advantage to the State because we are a local firm that can be to the project area within minutes of being notified. We have vast experience throughout southern Arizona, as well as statewide, and are in the Phoenix area several times a month. We offer over 70 years of combined experience in a very diverse range of projects. We are familiar with the regulations and codes in the City of Phoenix, Maricopa County, Pinal County and Pima County and throughout Arizona.

Small Business.

We are a small business enterprise (SBE) certified by the City of Tucson for Mechanical Engineering, NAICS #541330. We are here to help you meet any small business procurement goals. We can provide a copy of the SBE certificate if requested by the State.



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Value Engineering.

Adams and Associates Engineers understand the importance of providing an accurate and documented design on time within budget. With our expansive design experience, we are able to suggest value engineering items during the project development and design phases that can help the design team maintain the project within the projected budget. Each value engineering alternative will include a narrative of the cost savings and cost increases on each discipline, as well as long term utility cost or maintenance implications. Value engineering is a key part of the design process as equivalent options are considered. Countless past projects have resulted in the owner saving thousands on up front and maintenance costs by our attention to detail during design. One recent design eliminated the need for a fire pump that was assumed necessary by others, resulting in a more reliable, less costly, and lower maintenance system for the owner.

On Call Contracts.

Our experience with on call contracts is that many projects may be running simultaneously and vary in size from the very small to very large projects and various complexities. This can sometimes require as much coordination skill as engineering skill. Assigning one contact for all projects, and providing that person with sufficient back-up staff for the design capabilities, properly serves our clients' needs. We value our long term contracts and plan to continue providing our services to each on call agency. We work with different project managers in different departments as their needs arise Adams works well with other agencies to review, compile, and stamp/seal the entire mechanical, plumbing, and fire protection set of drawings. Adams works hard to resolve project-related permitting comments from city's Development Services departments and fire departments. We take pride in developing design options as the Engineer of Record. We work within existing structures to extend their useful life and to improve comfort and reliability while improving energy efficiency. We understand that appropriate funding will be needed to drive the design and construction projects.

Primary Contact.

We assign one engineer to manage all projects. This provides a single point of contact for the State. Dave Tyrrell will be our main point of contact and will be in charge of the design team for each project. This provides the responsiveness desired by the client and coordination required by the engineering office.

Quality Assurance.

Adams and Associates Engineers has a written quality control plan which includes in-house design staff meetings to ensure that the owner's project requirements have been properly identified, accommodated and coordinated. Having two licensed professional engineers involved allows for the engineers to provide quality assurance and control over each other's work. All drafting personnel are trained in basic design to increase the quality of the final product. We conduct weekly schedule review and coordination meetings to assure that deadlines are met. We also meet at the beginning and end of each project to review the design expectations and determine any issues that may have arose during the project to make sure that there is a clear understanding of everyone's role and how mistakes can be averted going forward. Dave Tyrrell, PE will be responsible for producing the project deliverables and Mik Mikulich, PE will be responsible for reviewing the deliverables to ensure that they are of professional quality and are as free from errors and omissions as possible. Adams will provide the State with a written copy of our Quality Assurance Program upon request.

Scheduling.

We have a project coordinator who updates and distributes calendars weekly; these calendars indicate all upcoming project due dates. This allows the entire office to work together as a team. Weekly staff meetings are held to discuss project timetables of both our staff and those of our sub-consultants. If necessary, meetings are then scheduled with the subconsultants to discuss the project in detail and ensure that they remain on schedule, as well. When we have received change-order requests in the past, we have made every effort to meet with the contractor and sub-consultants to resolve the issue in a timely manner. As Principal Engineer, Dave will communicate those changes to our staff to ensure that they are aware of the scheduling change and are able to meet the new scheduling demand.

Team Communications.

Communication is an important part of overall project management. A few of our internal measures are listed below.

We believe it is of utmost importance to have an ongoing, transparent rapport with our clients. We discuss scheduling, timelines, budgets, etc. on a regular basis with each client. It is important to keep the State's project manager up to date with any perceived conflicts, etc. We will engage in open

