Offer and Acceptance

SOLICITATION NO.: ADSPO16-00005912 Request for Qualifications: 2016 Annual Professional Services List	PAGE 1	**State of Arizona** **State Procurement Office** 100 N. 15th Ave. Suite 201 Phoenix, AZ 85007
Offeror: Affiliated Engineers, Inc.	OF 1	

OFFER

TO THE STATE OF ARIZONA:

The Undersigned hereby offers and agrees to furnish the material, service or construction in compliance with all terms, conditions, specifications and amendments in the Solicitation and any written exceptions in the offer. Signature also certifies Small Business status.

Affiliated Engineers, Inc.
Company Name

4742 N 24th Street, Suite 100
Address

Phoenix | Arizona | 85016
City | State | Zip

syanke@aeieng.com
Contact Email Address

Signature of Person Authorized to Sign Offer

Steven J. Yanke
Printed Name

Principal / Managing Director
Title

Phone: 602-429-5800

Fax: 800-783-5424

By signature in the Offer section above, the Offeror certifies:

1. The submission of the Offer did not involve collusion or other anticompetitive practices.
2. The Offeror shall not discriminate against any employee or applicant for employment in violation of Federal Executive Order 11246, State Executive Order 2009-9 or A.R.S. §§ 41-1461 through 1465.
3. The Offeror has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer. Failure to provide a valid signature affirming the stipulations required by this clause shall result in rejection of the offer. Signing the offer with a false statement shall void the offer, any resulting contract and may be subject to legal remedies provided by law.
4. The Offeror certifies that the above referenced organization ___ **IS/** _X_ **IS NOT** a small business with less than 100 employees or has gross revenues of $4 million or less.

ACCEPTANCE OF OFFER

The Offer is hereby accepted.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the solicitation, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by the State.

This Contract shall henceforth be referred to as Contract No. ADSPO16-00005912.

The effective date of the Contract is March 1, 2016.

The Contractor is cautioned not to commence any billable work or to provide any material or service under this contract until Contractor receives purchase order, contact release document or written notice to proceed.

State of Arizona
Awarded this 29 **day of** February **20** 16

Procurement Officer

(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:	**Affiliated Engineers, Inc.**
b. FIRM (OR BRANCH OFFICE) STREET:	4742 N 24th Street, Suite 100
c. FIRM (OR BRANCH OFFICE) CITY:	Phoenix
d. FIRM (OR BRANCH OFFICE) STATE:	Arizona
e. FIRM (OR BRANCH OFFICE) ZIP CODE:	85016

f. YEAR ESTABLISHED:	2007

(g1). OWNERSHIP - TYPE:	Corporation
(g2) OWNERSHIP - SMALL BUSINESS STATUS:	

h. POINT OF CONTACT NAME AND TITLE:	**Steven Yanke, Managing Principal**
i. POINT OF CONTACT TELEPHONE NUMBER:	602-429-5800
j. POINT OF CONTACT E-MAIL ADDRESS:	syanke@aeieng.com

k. NAME OF FIRM *(If block 1a is a branch office)*:	

2. EMPLOYEES BY DISCIPLINE

a. Discipline Title	b. Function: Primary (P) or Secondary (S)	c. No. of Employees - Firm	d. No. of Employees - Branch
CADD Technicians	P	18	3
Cost Engineer/Estimator	P	3	1
Electrical Engineer	P	79	3
Fire Protection Engineer	P	6	1
Mechanical Engineer	P	65	5
Project Manager	P	48	3
Sanitary Engineer	P	29	2
Other	S	332	12
Total		580	30

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)*
3	Airports; Terminals and Hangars; Freight Handling	6
4	Construction Management	3
4	Educational Facilities; Classrooms	4
3	Electrical Studies and Design	2
2	Energy / Water Auditing Savings	2
3	Fire Protection	2
1	Historical Preservation	4
12	Hospital and Medical Facilities	5
4	Laboratories; Medical Research Facilities	5
5	LEED Accredited A/E	5
10	Rehabilitation (Buildings; Structures; Facilities)	5
3	Research Facilities	5
5	Sustainable Design	5
1	Utilities *(Gas and Steam)*	2

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

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

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

a. NAME	b. ROLE IN THIS CONTRACT	c. YEARS EXPERIENCE	
Steven J. Yanke	**Principal-in-Charge/Electrical Engineer**	1. TOTAL **28**	2. WITH CURRENT FIRM **8**

d. LOCATION *(City and State)* **Phoenix, AZ**

e. EDUCATION *(DEGREE AND SPECIALIZATION)*	f. PROFESSIONAL TRAINING - REGISTRATIONS
Bachelor of Science, Electrical Engineering, Milwaukee School of Engineering	**Registered Professional Engineer Arizona – 33014** LEED® Accredited Professional

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*
National Council of Examiners for Engineering and Surveying (NCEES) Record No. 12587

H. RELEVANT PROJECTS

1.

(1) TITLE AND LOCATION *(City and State)*
City of Phoenix – Phoenix Sky Harbor International Airport Terminal 3 Modernization – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013-Ongoing	**Est. 2/2018**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Project Manager and Electrical Engineer for the MEP design for the complete renovation of the 210,000 sf Terminal 3 at Phoenix Sky Harbor International Airport, as well as establishing overall electrical direction and electrical service design for expanded security checkpoints and a replacement South Concourse. Costs: $540M (Est.)

2.

(1) TITLE AND LOCATION *(City and State)*
City of Phoenix – Public Works Facilities Natural Gas Generators – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013-Ongoing	**Est. 5/2016**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Principal-in-Charge for piping/plumbing and electrical engineering design for new natural gas engine-generators for five City of Phoenix Public Works Department facilities throughout the city. Based upon review of existing site conditions, demands and capacities, the project team selected an appropriately-sized natural gas fueled engine/generator to support identified building and site functions. New automatic transfer switches were also provided at each facility to transfer power from the electric utility to the new engine/generator in the event utility service is lost. Provisions were also made for the connection of portable load banks for periodic generator load testing. Costs: N/A

3.

(1) TITLE AND LOCATION *(City and State)*
Banner University Medical Center – Tucson – New Patient Tower – Tucson, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2015-Ongoing	**Est. 10/2018**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Principal-in-Charge and Project Manager for a new 800,000 sf 11-story hospital building consisting of 240 in-patient private beds (2 ea. 24-bed wings per floor), including 22 operating rooms including a hybrid OR, 25 imaging modalities, a mechanical floor, double height, a mezzanine that will house support spaces, and 2 floors shelled for future use. Costs: $300M (Est.)

4.

(1) TITLE AND LOCATION *(City and State)*
Arizona State University – Vivarium HVAC/Chilled Water Reliability Study – Tempe, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2012	**N/A**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Principal-in-Charge for a reliability assessment of the HVAC and chilled water systems serving the critical animal facilities On-campus. The project also including as-built drawings of the campus central plant chilled water system and hydraulic model of the campus chilled water distribution system. Study Costs: $182,925

5.

(1) TITLE AND LOCATION *(City and State)*
City of Phoenix – Information Technology (ITOC) Data Center Electrical Upgrades, Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2011	**2012**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Principal-in-Charge for the electrical assessment and implementation of a new server rack branch circuit distribution system via new branch circuit panelboards (FDC's) located adjacent to rows of equipment. FDC's to be fed from existing "A" side UPS/PDU's and new "B" side UPS/PDU. Includes the development of a "B" side electrical distribution system including a single 300 kVa UPS and PDU. The Mechanical Design is to support the installation of "B" side UPS. Development of permit documents as well as construction phasing documents demonstrating to minimize downtime during construction. Costs: $850,000

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

a. NAME	b. ROLE IN THIS CONTRACT	c. YEARS EXPERIENCE	
Todd Reust	**Mechanical Discipline Leader/ Mechanical Engineer**	1. TOTAL **16**	2. WITH CURRENT FIRM **1**

d. LOCATION *(City and State)* **Phoenix, AZ**

e. EDUCATION *(DEGREE AND SPECIALIZATION)*	f. PROFESSIONAL TRAINING - REGISTRATIONS
Bachelor of Science, Mechanical Engineering, University of Arkansas	**Registered Professional Engineer Arizona – 60612** LEED® Accredited Professional

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*
National Council of Examiners for Engineering and Surveying (NCEES) Record No. 61477

H. RELEVANT PROJECTS

1.

(1) TITLE AND LOCATION *(City and State)*
The University of Arizona – Bioscience Partnership Building – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2014 - Ongoing	**Est. 11/2016**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Project Oversight for the new 10-story 244,653 sf Biosciences Partnership Building (BPB). The research facility will be located on the 30-acre Phoenix Biomedical Campus and is a collaboration between The University of Arizona and the City of Phoenix. The building will provide flexible open space for interdisciplinary, interactive research. AEI is providing mechanical systems designed for staff safety, reliability, ease of maintenance and energy efficiency. DOAS air handlers are located on each floor and will provide primary air to chilled beams. Exhaust air will pass through an energy recovery system before discharging at the roof. The 12.47 kV electrical service will be via the University of Arizona primary service that has been established on the campus. Multiple engine/generators will support the research functions taking place in the building. The project will be designed/constructed to LEED Silver standards as a minimum. Costs: $135M (Est.)

2.

(1) TITLE AND LOCATION *(City and State)*
Banner University Medical Center – Tucson – New Patient Tower – Tucson, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2015-Ongoing	**Est. 10/2018**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Mechanical Engineer for a new 800,000 sf 11-story hospital building consisting of 240 in-patient private beds (2 ea. 24-bed wings per floor), including 22 operating rooms including a hybrid OR, 25 imaging modalities, a mechanical floor, double height, a mezzanine that will house support spaces, and 2 floors shelled for future use. Costs: $300M (Est.)

3.

(1) TITLE AND LOCATION *(City and State)*
The University of Arizona – BioScience Research Laboratories – Tucson, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2012-Ongoing	**Est. 7/2017**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Project Oversight for this 150,000 sf cutting-edge research laboratory on the University of Arizona Tucson Campus, which will house offices, support space, conference rooms and specialized core facilities, including clinical research space. The number of required air changes were reduced in the biology and chemistry laboratories from 10-15 to 4-6, to effectively right-size the equipment and demonstrated dramatic cost savings through energy modeling. The project is being designed/constructed to minimum LEED© Silver standards. Costs: $123M (Est.)

4.

(1) TITLE AND LOCATION *(City and State)*
Mayo Clinic – Mayo Medical School – Scottsdale, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2015-Ongoing	**Est. 3/2016**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Project Manager and Mechanical Engineer for a 12,000 sf renovation of the Administrative Support Building (ASB) form an existing office building into new medical school including a 1,600 sf gross anatomy lab. Upgrades to the Johnson Research Building (JRB) which include creating a lecture hall and student space in the library. Costs: N/A

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

a. NAME	b. ROLE IN THIS CONTRACT	c. YEARS EXPERIENCE	
Jeremy Barrette	**Project Manager/Mechanical Engineer**	1. TOTAL **18**	2. WITH CURRENT FIRM **5**

d. LOCATION *(City and State)* **Phoenix, AZ**

e. EDUCATION *(DEGREE AND SPECIALIZATION)*	f. PROFESSIONAL TRAINING - REGISTRATIONS
Bachelor of Science, Mechanical Engineering, Oral Roberts University; Master of Science, Marketing and Technology Innovation, Worcester Polytechnic Institute	**Registered Professional Engineer Arizona – 52320** **Health Facility Design Professional – 8241101**

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)* National Council of Examiners for Engineering and Surveying (NCEES) Record No. 47844, American Society for Healthcare Engineering (ASHE)

H. RELEVANT PROJECTS

1.

(1) TITLE AND LOCATION *(City and State)*
The University of Arizona – Old Main Building Rehabilitation – Tucson, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2012	**8/2014**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Project Manager and Mechanical Engineer for MEP and information technology design services for the historic renovation. Approximately 60% of the existing building underwent a rework to meet current programming needs. Renovations included new HVAC, energy-efficient LED lighting on the second floor, a new elevator, a finishing kitchen, and an executive boardroom and multi-purpose meeting space. New heat exchangers, pumps, and a water heater were also installed. The project is seeking LEED Certification. Costs: $13.5M

2.

(1) TITLE AND LOCATION *(City and State)*
Banner Thunderbird Medical Center – OR Renovations and Mechanical Upgrades – Glendale, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2014	**10/2015**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Mechanical Engineer for the OR modernization, which included complete demolition of the OR mechanical duct along with electrical infrastructure upgrades and architectural improvements. The air handler was renovated and replaced. New master humidifiers were added. The isolation panels in OR 1-6 and 11-15 will be replaced with new standard panelboards. All existing light fixtures within the corridor and operating rooms will be replaced with new high efficient LED light fixtures. Costs: $10.5M (Est.)

3.

(1) TITLE AND LOCATION *(City and State)*
Arizona State University – Biodesign Institute Building C –Tempe, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2015-Ongoing	**Est. 6/2018**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Project Manager and Mechanical Engineer for a new 5-story, 193,000 sf flexible research laboratory. The building maximizes net lab area to create a workhorse lab facility that upon opening will house a specialty laser linear accelerator lab, high bay lab, organic chemistry labs, and generic, flexible labs to support ASU's growth in research programs. The building is being targeting LEED Gold as a minimum. A variety of sustainable strategies are being integrated for performance and financial reasons. AEI is providing MEP/FP, sustainability, energy and water modeling, architectural lighting and daylighting, and audiovisual design services. Costs: $120M (Est.)

4.

(1) TITLE AND LOCATION *(City and State)*
The University of Arizona Health Network – University Campus Data Center Upgrades – Tucson, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2012	**2012**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Project Manager and Mechanical Engineer for this renovation to add cooling and electrical infrastructure for N+1 redundancy, supporting electronic patient medical records. Project includes computational fluid dynamic modeling of the existing conditions and various options to improve airflow and reconfigure to hot aisle/cold aisle alignment. Costs: $650,000

5.

(1) TITLE AND LOCATION *(City and State)*
Arizona State University – Vivarium HVAC/Chilled Water Reliability Study – Tempe, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2012	**N/A**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Project Manager and Mechanical Engineer for a reliability assessment of the HVAC and chilled water systems serving the critical animal facilities on campus. The project also including as-built drawings of the campus central plant chilled water system and hydraulic model of the campus chilled water distribution system. Study Costs: $182,925

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

a. NAME	b. ROLE IN THIS CONTRACT	c. YEARS EXPERIENCE	
		1. TOTAL	2. WITH CURRENT FIRM
Will Fiocchi	**Project Manager/Mechanical Engineer**	**10**	**2**

d. LOCATION *(City and State)* **Phoenix, AZ**

e. EDUCATION *(DEGREE AND SPECIALIZATION)*	f. PROFESSIONAL TRAINING - REGISTRATIONS
Bachelor of Science, Mechanical Engineering, Bradley University	**Registered Professional Engineer Arizona – 57166**

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)* American Society for Healthcare Engineering (ASHE), Member – American Society of Heating and Refrigeration Engineers (ASHRAE)

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	**The University of Arizona – Bioscience Partnership Building – Phoenix, Arizona**	**2014-Ongoing**	**11/2016**
	(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE Project Manager and Mechanical Engineer for the new 10-story 244,653 sf Biosciences Partnership Building (BPB). The research facility will be located on the 30-acre Phoenix Biomedical Campus and is a collaboration between The University of Arizona and the City of Phoenix. The building will provide flexible open space for interdisciplinary, interactive research. AEI is providing mechanical systems designed for staff safety, reliability, ease of maintenance and energy efficiency. DOAS air handlers are located on each floor and will provide primary air to chilled beams. Exhaust air will pass through an energy recovery system before discharging at the roof. The 12.47 kV electrical service will be via the University of Arizona primary service that has been established on the campus. Multiple engine/generators will support the research functions taking place in the building. The project will be designed/constructed to LEED Silver standards as a minimum. Costs: $135M (Est.)	X Check if project performed with current firm	
	(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
2.	**The University of Arizona – Health Sciences Education Building Shell Space Build-Out – Phoenix, Arizona**	**2013**	**8/2014**
	(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE Project Manager and Mechanical Engineer for mechanical, electrical, piping/plumbing and fire protection design for a 50,000 sf build-out of shell space in the existing Health Sciences Education Building, which includes a lecture hall, learning studio, computer classrooms, simulation laboratories, presidential office suite, a gross anatomy laboratory, and AV control room. Costs: $17M	X Check if project performed with current firm	
	(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
3.	**SurgCenter Development – Cornerstone Commons Specialty Surgery Center – Kenosha, Wisconsin**	**2013**	**10/2014**
	(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE Project Manager and Mechanical Engineer for the electrical and piping/plumbing design for a 6,500 sf ambulatory care surgery center. Systems include a new transformer, 1000A electrical service, emergency generator, ATS, water heaters, water softener, reverse osmosis water system, deionized water system, fire protection, fire alarm and nurse call systems. Construction Costs: $1.5M	X Check if project performed with current firm	
	(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
4.	**Mayo Clinic Arizona – Medallion Phase 3 Renovation – Phoenix, Arizona**	**2014**	**11/2014**
	(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE Project Manager and Mechanical for this 10,000 sf clinic renovation to the existing mechanical, electrical and piping/plumbing systems to accommodate wall removal, new room layouts, requirements, loads and re-lighting, as well as existing ceiling replacement and sight lighting design for a 16-car parking garage. Costs: $1.7M	X Check if project performed with current firm	
	(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
5.	**Dignity Health/St. Joseph's Hospital & Medical Center – Linear Accelerator Replacement – Phoenix, Arizona**	**2013**	**6/2014**
	(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Project Manager and Mechanical Engineer for MEP design services of 3,800 sf of removal and replacement of two existing Varian linear accelerators and a full renovation of the existing linear accelerator vaults. Including the addition of process cooling, supply and exhaust, branch piping and ductwork extension, normal and essential power electrical distribution systems, and domestic hot and cold water. Construction Costs: N/A	X Check if project performed with current firm	

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

a. NAME	b. ROLE IN THIS CONTRACT	c. YEARS EXPERIENCE	
Charlie McGowan	**Mechanical Engineer**	1. TOTAL **5**	2. WITH CURRENT FIRM **5**

d. LOCATION *(City and State)* **Phoenix, AZ**

e. EDUCATION *(DEGREE AND SPECIALIZATION)*	f. PROFESSIONAL TRAINING - REGISTRATIONS
Bachelor of Science, Architectural Engineering, Milwaukee School of Engineering	**Registered Professional Engineer Arizona – 60452**

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)* American Society for Healthcare Engineering (ASHE)

H. RELEVANT PROJECTS

1.

(1) TITLE AND LOCATION *(City and State)*
The University of Arizona Cancer Center at Dignity Health St. Joseph's Hospital and Medical Center – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2012	**8/2015**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Mechanical Engineer for MEP, information technology and audiovisual design services for this design-build project. This 200,000 sf facility houses radiation therapy, infusion therapy and multiple imaging modalities. There is also procedure space, a mixing pharmacy and multiple cancer treatment spaces. AEI evaluated a series of mechanical design strategies because the University was interested in reducing operating costs over the life of this healthcare facility and the project is required to obtain a minimum of LEED® Silver certification. Options included active chilled beams, heat pipes, energy recovery, enthalpy wheels and condensing boilers. Based on energy modeling and detailed life cycle cost analysis results, active chilled beams were determined to be the most cost-effective option. Costs: $100M

2.

(1) TITLE AND LOCATION *(City and State)*
City of Phoenix – Phoenix Sky Harbor International Airport Terminal 3 Modernization – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013-Ongoing	**Est. 2/2018**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Mechanical Designer Engineer for the MEP design for the complete renovation of the 210,000 sf Terminal 3 at Phoenix Sky Harbor International Airport, as well as establishing overall electrical direction and electrical service design for expanded security checkpoints and a replacement South Concourse. Costs: $540M (Est.)

3.

(1) TITLE AND LOCATION *(City and State)*
Arizona State University – Vivarium HVAC/Chilled Water Reliability Study – Tempe, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2012	**N/A**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Mechanical Designer for a reliability assessment of the HVAC and chilled water systems serving the critical animal facilities on campus. The project also including as-built drawings of the campus central plant chilled water system and hydraulic model of the campus chilled water distribution system. Study Costs: $182,925

4.

(1) TITLE AND LOCATION *(City and State)*
Banner Thunderbird Medical Center – OR Renovations and Mechanical Upgrades – Glendale, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2014	**10/2015**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Mechanical Engineer for the OR modernization, which included complete demolition of the OR mechanical duct along with electrical infrastructure upgrades and architectural improvements. The air handler was renovated and replaced. New master humidifiers were added. The isolation panels in OR 1-6 and 11-15 will be replaced with new standard panelboards. All existing light fixtures within the corridor and operating rooms will be replaced with new high efficient LED light fixtures. Costs: $10.5M (Est.)

5.

(1) TITLE AND LOCATION *(City and State)*
University of Arizona Health Network – University of Arizona Medical Center Data Center Upgrades – Tucson, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013	**3/2014**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Mechanical Designer for renovation to add cooling and electrical infrastructure for N+1 redundancy, supporting electronic patient medical records. Project includes computational fluid dynamic CFD modeling of the existing conditions and various options to improve airflow and reconfigure to hot aisle/cold aisle alignment. Costs: $650,000

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

a. NAME	b. ROLE IN THIS CONTRACT	c. YEARS EXPERIENCE	
Zach Goldsworthy	**Project manager/Electrical Engineer**	1. TOTAL **8**	2. WITH CURRENT FIRM **6**

d. LOCATION *(City and State)* **Phoenix, AZ**

e. EDUCATION *(DEGREE AND SPECIALIZATION)*	f. PROFESSIONAL TRAINING - REGISTRATIONS
Bachelor of Science, Electrical Engineering, Milwaukee School of Engineering	

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*

H. RELEVANT PROJECTS

1.

(1) TITLE AND LOCATION *(City and State)*: **Banner Thunderbird Medical Center – OR Renovation and Mechanical Upgrades – Glendale, Arizona**

(2) YEAR COMPLETED — Professional Services: **2014**; Construction (if applicable): **10/2015**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — [X] Check if project performed with current firm

Project Manager and Electrical Designer for the OR modernization, which included complete demolition of the OR mechanical duct along with electrical infrastructure upgrades and architectural improvements. The air handler (AH-6) will be renovated by replacing the existing dual duct system with a new single duct system. The air handler will be added to the existing campus surgery chiller in a booster configuration. New master humidifiers will be added. The isolation panels in OR 1-6 and 11-15 will be replaced with new standard panelboards. All existing light fixtures within the corridor and operating rooms will be replaced with new high efficient LED light fixtures. Costs: $7M (Est.)

2.

(1) TITLE AND LOCATION *(City and State)*: **University of California, San Diego – Scripps Institution of Oceanography (SIO) – Emergency Power System Improvements – San Diego, California**

(2) YEAR COMPLETED — Professional Services: **2014-Ongoing**; Construction (if applicable): **Est. 9/2016**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — [X] Check if project performed with current firm

Electrical Designer for a medium voltage standby power project for the University of California San Diego's SIO. Project includes construction of medium voltage emergency/standby generators and paralleling switchgear to provide emergency standby power to most buildings on the SIO Campus. Additional project scope includes site preparation and housing for the new generators and paralleling equipment. AEI is also assessing the existing medium voltage cables, controls, and the associated underground distribution system, as well as necessary modifications to the existing building distribution systems. Costs: $4M (Est.)

3.

(1) TITLE AND LOCATION *(City and State)*: **City of Phoenix – Phoenix Sky Harbor International Airport – Terminal Three Parking Garage Lighting Upgrades 1-Step Design-Build Services – Phoenix, Arizona**

(2) YEAR COMPLETED — Professional Services: **2011**; Construction (if applicable): **9/2013**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — [X] Check if project performed with current firm

Electrical Designer for a new lighting system to attain the most suitable levels of illumination while taking safety and energy conservation measures into primary consideration. The project included renovating the lighting within the elevator lobbies and stairwells and installing a separate power distribution system to allow for the APS e67 billing rate. Additional scope included replacing the existing APS transformer, and installing a new service meter for the garage infrastructure, a new step-down transformer to maintain the existing separately metered tenant's 208V system, and a 480Y/277-volt distribution panel and associated downstream lighting panels. Construction Costs: $2.1M

4.

(1) TITLE AND LOCATION *(City and State)*: **Arizona State University – Vivarium HVAC/Chilled Water Reliability Study – Tempe, Arizona**

(2) YEAR COMPLETED — Professional Services: **2012**; Construction (if applicable): **N/A**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — [X] Check if project performed with current firm

Electrical Designer for a reliability assessment of the HVAC and chilled water systems serving the critical animal facilities On-campus. The project also including as-built drawings of the campus central plant chilled water system and hydraulic model of the campus chilled water distribution system. Study Costs: $182,925

5.

(1) TITLE AND LOCATION *(City and State)*: **Banner Health – Arc Flash Hazard Analysis/ Short Circuit Coordination Study – Various, Arizona**

(2) YEAR COMPLETED — Professional Services: **2011**; Construction (if applicable): **2013**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — [X] Check if project performed with current firm

Electrical Designer for over-current device coordination studies and arc-flash hazard analysis studies on the campus electrical distribution systems at: Banner Corporate Center, Phoenix; Good Samaritan Medical Center, Sun City West; Desert Medical Center, Mesa and Gateway Medical Center, Gilbert. The results of these studies will aid Banner Health in achieving safer and more reliable operation of their electrical systems at these locations. Costs: $189,000

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

a. NAME	b. ROLE IN THIS CONTRACT	c. YEARS EXPERIENCE	
Jason Clausen	**Electrical Engineer**	1. TOTAL **12**	2. WITH CURRENT FIRM **3**

d. LOCATION *(City and State)* **Phoenix, AZ**

e. EDUCATION *(DEGREE AND SPECIALIZATION)*	f. PROFESSIONAL TRAINING - REGISTRATIONS
Bachelor of Science, Electrical Engineering, South Dakota University	**Registered Professional Engineer Arizona – 52023**

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)* Construction Documents Technologist (CDT)

H. RELEVANT PROJECTS

1.

(1) TITLE AND LOCATION *(City and State)*
Arizona State University – Biodesign Institute Building C –Tempe, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2015-Ongoing	**Est. 6/2018**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Electrical Engineer for a new 5-story, 193,000 sf flexible research laboratory. The building maximizes net lab area to create a workhorse lab facility that upon opening will house a specialty laser linear accelerator lab, high bay lab, organic chemistry labs, and generic, flexible labs to support ASU's growth in research programs. The building is being targeting LEED Gold as a minimum. A variety of sustainable strategies are being integrated for performance and financial reasons. AEI is providing MEP/FP, sustainability, energy and water modeling, architectural lighting and daylighting, and audiovisual design services. Costs: $120M (Est.)

2.

(1) TITLE AND LOCATION *(City and State)*
The University of Arizona – Bioscience Partnership Building – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2014-Ongoing	**Est. 11/2016**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Electrical Engineer for the new 10-story 244,653 sf Building (BPB). The research facility will be located on the 30-acre Phoenix Biomedical Campus and is a collaboration between The University of Arizona and the City of Phoenix. The building will provide flexible open space for interdisciplinary, interactive research. AEI is providing mechanical systems designed for staff safety, reliability, ease of maintenance and energy efficiency. DOAS air handlers are located on each floor and will provide primary air to chilled beams. Exhaust air will pass through an energy recovery system before discharging at the roof. The 12.47 kV electrical service will be via the University of Arizona primary service that has been established on the campus. Multiple engine/generators will support the research functions taking place in the building. The project will be designed/constructed to LEED Silver standards as a minimum. Costs: $135M (Est.)

3.

(1) TITLE AND LOCATION *(City and State)*
Intel CH-11 Building Retro-Commissioning – Chandler, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2014	**8/2015**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Electrical Engineer to evaluate existing conditions and performing Retro Commissioning services of Intel's 154,000 sf CH11 building. AEI performed system trending to identify existing equipment and systems that may negatively impact the energy costs for the facility and electrical trending to identify electrical consumption for each rooftop unit. AEI will support the Retro Commissioning and development of the energy conservation measures (ECM's) site survey, energy modeling, and life cycle cost analyses, cost estimation and implementation. Costs: $49,550

4.

(1) TITLE AND LOCATION *(City and State)*
University of Arizona Health Network – University of Arizona Medical Center Data Center Upgrades – Tucson, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013	**3/2014**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Electrical Engineer for renovation to add cooling and electrical infrastructure for N+1 redundancy, supporting electronic patient medical records. Project includes computational fluid dynamic CFD modeling of the existing conditions and various options to improve airflow and reconfigure to hot aisle/cold aisle alignment. Costs: $650,000

5.

(1) TITLE AND LOCATION *(City and State)*
City of Casa Grande – Police Dispatch and Library Renovation – Casa Grande, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013	**1/2013**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Electrical Engineer for this 8,500 sf, one-story renovation of an existing building into the Casa Grande Police Dispatch building and library. Scope includes electrical renovation of the dispatch area to expand the existing IT server rack capacity, provide new low-voltage lighting design, consolidate multiple uninterrupted power supplies into a single unit, and integrate new HVAC and mechanical systems, and MEP renovation of the existing library facility. Costs: $850,000

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

a. NAME	b. ROLE IN THIS CONTRACT	c. YEARS EXPERIENCE	
Paul Hurt	**Electrical Engineer**	1. TOTAL **10**	2. WITH CURRENT FIRM **2**

d. LOCATION *(City and State)* **Phoenix, AZ**

e. EDUCATION *(DEGREE AND SPECIALIZATION)*	f. PROFESSIONAL TRAINING - REGISTRATIONS
Bachelor of Science, Electrical Engineering, Georgia Southern University	**Registered Professional Engineer Arizona – 54768**

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*

H. RELEVANT PROJECTS

1.

(1) TITLE AND LOCATION *(City and State)*
City of Phoenix – Phoenix Sky Harbor International Airport Terminal 3 Modernization – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013-Ongoing	**Est. 2/2018**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Electrical Engineer for the MEP design for the complete renovation of the 210,000 sf Terminal 3 at Phoenix Sky Harbor International Airport, as well as establishing overall electrical direction and electrical service design for expanded security checkpoints and a replacement South Concourse. Costs: $540M (Est.)

2.

(1) TITLE AND LOCATION *(City and State)*
The University of Arizona Cancer Center at Dignity Health St. Joseph's Hospital and Medical Center – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2012	**8/2015**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Electrical Engineer for MEP, information technology and audiovisual design services for this design-build project. This 200,000 sf facility houses radiation therapy, infusion therapy and multiple imaging modalities. There is also procedure space, a mixing pharmacy and multiple cancer treatment spaces. AEI evaluated a series of mechanical design strategies because the University was interested in reducing operating costs over the life of this healthcare facility and the project is required to obtain a minimum of LEED® Silver certification. Options included active chilled beams, heat pipes, energy recovery, enthalpy wheels and condensing boilers. Based on energy modeling and detailed life cycle cost analysis results, active chilled beams were determined to be the most cost-effective option. Costs: $100M

3.

(1) TITLE AND LOCATION *(City and State)*
SurgCenter Development – Surgery Center of Tucson – Tucson, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013	**6/2014**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Electrical Engineer for electrical and piping/plumbing design of a 6,400 sf ambulatory care surgery center. Systems include a new transformer, 1000A electrical service, emergency generator, ATS, water heaters, water softener, reverse osmosis water system, deionized water system, fire protection, fire alarm and nurse call systems. Costs: $2M (Est.)

4.

(1) TITLE AND LOCATION *(City and State)*
City of Phoenix – Phoenix Sky Harbor International Airport Terminal 2 & 4 Electrical Assessment – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2015	**9/2015**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Electrical Engineer for an electrical assessment and Arc Flash hazard analysis for 38 electrical services at Terminal 2 and Terminal 4. Study Costs: $217,000

5.

(1) TITLE AND LOCATION *(City and State)*
Banner Del E. Webb Medical Center – Patient Financial Services Admitting – Sun City West, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013	**11/2014**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

X Check if project performed with current firm

Electrical Engineer for the mechanical, electrical and piping/plumbing design of the relocation of the patient financial services/admitting department in the Banner Del E. Webb Medical Center. The proposed new location provides approximately 5,000 sf of administrative space, directly impacting body holding, environmental services, security and associated support corridors. Costs: N/A

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

a. NAME	b. ROLE IN THIS CONTRACT	c. YEARS EXPERIENCE	
Jeff Cordell	**Piping Department Lead** **Piping/Plumbing Designer**	1. TOTAL **17**	2. WITH CURRENT FIRM **2**

d. LOCATION *(City and State)* **Phoenix, AZ**

e. EDUCATION *(DEGREE AND SPECIALIZATION)*	f. PROFESSIONAL TRAINING - REGISTRATIONS
Associate Degree, Specialized Technology Architectural Computer Aided Drafting and Design Triangle Technical Institute	**Certified Plumbing Designer, Arizona – 27751**

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*

H. RELEVANT PROJECTS

1.

(1) TITLE AND LOCATION *(City and State)*
Banner University Medical Center – Tucson – New Patient Tower – Tucson, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013-Ongoing	**Est. 10/2018**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Piping/Plumbing Designer for a new 800,000 sf 11-story hospital building consisting of 240 in-patient private beds (2 ea. 24-bed wings per floor), including 22 operating rooms including a hybrid OR, 25 imaging modalities, a mechanical floor, double height, a mezzanine that will house support spaces, and 2 floors shelled for future use. Costs: $300M (Est.)

2.

(1) TITLE AND LOCATION *(City and State)*
City of Phoenix – Public Works Facilities Natural Gas Generators – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013-Ongoing	**Est. 5/2016**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Piping/Plumbing Designer for piping/plumbing and electrical engineering design for new natural gas engine-generators for five City of Phoenix Public Works Department facilities throughout the city. Based upon review of existing site conditions, demands and capacities, the project team selected an appropriately-sized natural gas fueled engine/generator to support identified building and site functions. New automatic transfer switches were also provided at each facility to transfer power from the electric utility to the new engine/generator in the event utility service is lost. Provisions were also made for the connection of portable load banks for periodic generator load testing. Costs: N/A

3.

(1) TITLE AND LOCATION *(City and State)*
The University of Arizona – Health Sciences Education Building Shell Space Build-Out – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013	**8/2014**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Piping/Plumbing Designer for mechanical, electrical, piping/plumbing and fire protection design for a 50,000 sf build-out of shell space in the existing Health Sciences Education Building, which includes a lecture hall, learning studio, computer classrooms, simulation laboratories, presidential office suite, a gross anatomy laboratory, and AV control room. Costs: $17M

4.

(1) TITLE AND LOCATION *(City and State)*
The University of Arizona – Old Main Building Rehabilitation – Tucson, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2012	**8/2014**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Piping/Plumbing Designer for MEP and information technology design services for the historic renovation. Approximately 60% of the existing building underwent a rework to meet current programming needs. Renovations included new HVAC, energy-efficient LED lighting on the second floor, a new elevator, a finishing kitchen, and an exec¬¬utive boardroom and multi-purpose meeting space. New heat exchangers, pumps, and a water heater were also installed. The project is seeking LEED Certification. Costs: $13.5M

5.

(1) TITLE AND LOCATION *(City and State)*
Banner Del E. Webb Medical Center – Patient Financial Services Admitting – Sun City West, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2013	**11/2014**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Piping/Plumbing Designer for the mechanical, electrical and piping/plumbing design of the relocation of the patient financial services/admitting department in the Banner Del E. Webb Medical Center. The proposed new location provides approximately 5,000 sf of administrative space, directly impacting body holding, environmental services, security and associated support corridors. Costs: N/A

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

a. NAME	b. ROLE IN THIS CONTRACT	c. YEARS EXPERIENCE	
Brett McQuillan	**Sustainable Design Consultant**	1. TOTAL **3**	2. WITH CURRENT FIRM **>1**

d. LOCATION *(City and State)* **Phoenix, AZ**

e. EDUCATION *(DEGREE AND SPECIALIZATION)*	f. PROFESSIONAL TRAINING - REGISTRATIONS
Master of Science, Civil Engineering, University of Colorado at Boulder - Bachelor of Science, Architectural Engineering, Illinois Institute of Technology	**Registered Professional Engineer –in-Training – 061.035244**

g. OTHER PROFESSIONAL QUALIFICATIONS *(Organizations, Awards, etc.)*

H. RELEVANT PROJECTS

1.

(1) TITLE AND LOCATION *(City and State)*
Mayo Clinic – Mayo Medical School – Scottsdale, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2015-Ongoing	**Est. 3/2016**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Sustainable Designer for a 12,000 sf renovation of the Administrative Support Building (ASB) form an existing office building into new medical school including a 1,600 sf gross anatomy lab. Upgrades to the Johnson Research Building (JRB) which include creating a lecture hall and student space in the library. Costs: N/A

2.

(1) TITLE AND LOCATION *(City and State)*
University of Washington Animal Research and Care Facility – Seattle, Washington

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2012-Ongoing	**Est. 1/2016**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Building Energy Performance Modeler for the new animal research and care facility. The new, 85,000 sf facility will centralize the University's animal research and education resources into a modern, two-story, below-grade building. The above ground features of the project will include an approximately 66' high exhaust tower and a 1,500 sf structure providing elevator and stairway access to the building. The facility will feature laboratory space including animal holding, procedure, testing, and surgery rooms, cage wash, and support space. Costs: $80M (Est.)

3.

(1) TITLE AND LOCATION *(City and State)*
The University of Arizona Cancer Center at Dignity Health St. Joseph's Hospital and Medical Center – Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2012	**8/2015**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Building Energy Performance Modeler for LEED certification for this 200,000 sf National Cancer Institute (NCI) designated comprehensive cancer center, which will house radiation therapy, infusion therapy and multiple imaging modalities, as well as procedure space, a mixing pharmacy (including two clean rooms) and multiple cancer treatment spaces. The Cancer Center is located on the Phoenix Biomedical Campus and clinical operations are being provided by Dignity Health/St. Joseph's Hospital & Medical Center. Costs: $100M

4.

(1) TITLE AND LOCATION *(City and State)*
Intel CH-11 Building Retro-Commissioning – Chandler, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2015	**8/2015**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

Commissioning Specialist to evaluate existing conditions and performing Retro Commissioning services of Intel's 154,000 sf CH11 building. AEI performed system trending to identify existing equipment and systems that may negatively impact the energy costs for the facility and electrical trending to identify electrical consumption for each rooftop unit. AEI will support the Retro Commissioning and development of the energy conservation measures (ECM's) site survey, energy modeling, and life cycle cost analyses, cost estimation and implementation. Costs: N/A

5.

(1) TITLE AND LOCATION *(City and State)*
The University of Arizona – Health Sciences Education Building, Phoenix, Arizona

(2) YEAR COMPLETED

Professional Services	Construction (if applicable)
2015	**9/2015**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE

[X] Check if project performed with current firm

LEED Design Reviewer and Systems Consultant for this collaborative 5-story, 265,000 sf project. Performed building ventilation analysis and optimized control sequence to meet LEED IAQ requirements for this building which houses support space for use by all of the educational programs, including four large lecture halls with sophisticated audiovisual/media capabilities, a cafe/kitchen, and a 20,300 sf learning resource center for pharmacy, medical, nursing, physical therapy, and other health sciences students. Other facilities in the building include two gross anatomy labs, five simulation labs, 24 clinical skills labs, two physical therapy labs, one occupational therapy lab and five learning studios. The project initially aimed for LEED Silver, but is currently up for LEED Gold review certification. Costs: N/A

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 *(City and State)*	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
City of Phoenix – Phoenix Sky Harbor International Airport Terminal 3 Modernization – Phoenix, Arizona	**Mechanical/Electrical/ Plumbing**	**Est. 2/2018**

23. PROJECT OWNER'S INFORMATION

c .PROJECT OWNER	d .ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
City of Phoenix	**Est. $540M**	**N/A**

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

Terminal 3 Modernization

The Modernization project consists of the Terminal (Central Processor), North Concourse and South Concourse. AEI's focus is the Central Processor MEP design and the Electrical distribution for the entire Terminal, including emergency power and central 400Hz power.

As part of the renovation all mechanical equipment is planned to be replaced. The mechanical design was challenged with a high traffic ground level, multiple atria, and aggressive energy goals all while keeping the building operational during construction. The central processor contains ticketing, baggage claim, and the security checkpoint for all of Terminal 3. Multiple roof mounted air handlers equipped with energy wheel energy recovery serve the central processor of Terminal 3. Mechanical system are being designed to accommodate the high swings in occupancy typically observed in a major airport terminal. Through coordination with the architecture design team, the passenger level contains zero visible ductwork for a wide open feel to the passenger.

A new main service entrance electrical room will be provided as part of the Terminal 3 modernization. The Airport will remain in operation during the main service switchover. Meticulous coordination efforts are required to minimize disruption and provide the required work in the appropriate phases. At the end of the project, the Terminal will have (12) 3000A 480Y/277V APS services, a new central plant, new central 400Hz power and a complete face-lift.

Terminal 3 Electrical Upgrades

The Terminal 3 Electrical Upgrade project is a thorough electrical infrastructure upgrade intended to serve the needs of Terminal 3 for decades to come. The project team's first task was to walk the terminal and document the entire electrical distribution system, both normal and emergency power. Future load growth was then analyzed and recommended upgrades were prepared and presented. Ultimately, the design included the replacement and consolidation of eleven utility electrical services. Review of existing loads allowed consolidation of several services, 'freeing up' utility transformers to allow for double-ended service entrances thereby improving reliability. The new design took into account the 24/7 nature of the terminal and phasing was coordinated with the CMAR. AEI has been hired to review the Design Development Documents and final Permit/ Construction Documents and to advise the Aviation Project Manager, Project Manager and Lead Electrical Engineer. AEI has also been contracted to perform Construction Administration services for mechanical and plumbing systems.

Terminal 3 Parking Garage Lighting Study and Upgrades

Brought on board to improve the lighting in the Terminal 3 parking structure, AEI's initial efforts began with an evaluation of lamp technology, including metal halide, fluorescent, induction and LED. Based on the results of a detailed life cycle cost analysis, our team selected LED as the best option and the solution was implemented. The final design met Illuminating Engineering Society (IES) recommendations for both illumination and controllability.

Subsequent to this study, AEI's project scope included renovating the lighting within the elevator lobbies and stairwells, utilizing both LED and linear fluorescent type luminaries, and installing a separate electrical service and distribution system (to allow for the APS e67 billing rate held exclusively for City of Phoenix-owned lighting loads). Following the development of the lighting recommendations report, AEI developed prequalification specifications and provided a preliminary review of all submittals from lighting manufacturers and their associated representatives. These specifications assisted in determining if the lighting met IES recommended minimum foot-candle levels, average foot-candle levels and maximum/minimum ratios as indicated in the specifications.

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 *(City and State)*	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
University of California, San Diego – Scripps Institution of Oceanography (SIO) – Emergency Power System Improvements – San Diego, California	**2014-Ongoing**	**Est. 9/2016**

23. PROJECT OWNER'S INFORMATION

c .PROJECT OWNER	d .ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
University of California, San Diego	**$4M**	**$4M (Est.)**

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

Medium voltage standby power project for the University of California San Diego's Scripps Institution of Oceanography (SIO). Project scope includes construction of medium voltage emergency/standby generators and paralleling switchgear to provide emergency standby power to most buildings on the SIO Campus. Additional project scope includes site preparation and housing for the new generators and paralleling equipment. AEI is also assessing the existing medium voltage cables, controls, and the associated underground distribution system, as well as necessary modifications to the existing building distribution systems.

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 *(City and State)*	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Banner Thunderbird Medical Center – OR Renovation and Mechanical Upgrades – Glendale, Arizona	**2014**	**10/2015**

23. PROJECT OWNER'S INFORMATION

c .PROJECT OWNER	d .ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
Banner Health	**$6.2M**	**$7M**

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

AEI is providing mechanical, electrical, and plumbing engineering services associated with the Air Handler 6/OR – Mechanical Renovation Project. The project includes replacement of the existing dual-duct HVAC system with a new single-duct design within an existing portion of the OR Suite. The existing ceiling in the OR Suite corridors were replaced to allow for installation of the new mechanical system.

The project included provided an additional air cooled chiller on the roof to serve as booster chiller for AH-6 as well as coordinating pipe routing in an already congested roof while providing adequate maintenance clearances. The local humidifiers at each OR suite were removed to provide a master humidifier at the air handler to lower the overall static pressure in the duct to minimize noise within the suite and provide easier maintenance access for the facilities with minimal impact to the users and patients.

The isolation panels in OR 1-6 and 11-15 were all replaced with new standard panelboards which was approved per Banner Health's OR Wet Location Assessment. Existing light fixtures within the corridor and operating rooms were replaced with new LED light fixtures to provide adequate illumination levels and distribution.

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 *(City and State)*	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Banner Health – Arc Flash Hazard Analysis/ Short Circuit Coordination Study – Various, Arizona	**2011**	**2013**

23. PROJECT OWNER'S INFORMATION

c .PROJECT OWNER	d .ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
Banner Health	**$180,000**	**$189,000**

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

AEI provided electrical engineering services for arc flash hazard analysis and short circuit coordination studies at six Banner Health facilities: Banner Corporate Center, Phoenix; Good Samaritan Medical Center, Phoenix; Boswell Medical Center, Sun City; Del E. Webb Medical Center, Sun City West; Desert Medical Center, Mesa; and Gateway Medical Center, Gilbert. In full compliance with NFPA 70E code requirements, AEI conducted surveys and research to provide facilities staff with a thorough understanding of their existing electrical system, including engines/generators, circuit-breaker coordination, and to subsequently provide extremely detailed electrical one-line diagrams. As part of this regimented survey process, our team ensured that all circuits trip correctly in appropriate sequence, thereby improving overall campus electrical reliability and safety.

Based on AEI's experience with each facility's electrical distribution systems, our team completed preliminary electrical one-line diagrams early in the evaluation process to establish a current knowledge of the electrical systems. Beginning with the Banner Boswell and Banner Del E. Webb Medical Centers (those campuses with the least existing electrical documentation), our team also completed management plans indicating the spaces required for access and essential equipment, ensuring minimal/scheduling conflicts for the users and facility team.

To complete the arc flash hazard analysis, AEI coordinated with facilities staff on each campus for as-built drawings and site surveys to create a thorough, comprehensive electrical one-line diagram. Each of these completed electrical one-line diagrams allowed for the entire electrical distribution to be reviewed prior to any adjustments. Our team engaged in regular review meetings with Banner facilities staff, providing them with working knowledge of their campus electrical systems.

Results from these coordination studies and arc-flash hazard analysis studies have provided safer and more reliable electrical systems operations. AEI coordinated with facilities team members for recommended adjustments to over-current devices, ensuring selective coordination on the essential branch equipment. Scope also included identifying circuit breaker adjustments for arc flash mitigation on the life safety and critical branches.

While these studies did not result in construction activity, a number of issues requiring corrective action were identified (i.e. circuit breaker settings that required reconfiguring). Our team kept these situations to a minimum by paying close attention to the coordination studies. AEI also reviewed the available fault current (AFC) against the AIC rating of the electrical equipment to ensure that the equipment was sufficiently protected. Partnering with a contractor and testing organization early in the process, utilizing the same team on each Banner campus, and maintaining consistent, close communication with facilities staff to discuss campus electrical systems, all ensured fast, accurate field verification, thereby allowing AEI to focus efforts on the engineering and quickly complete the work for the facilities.

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 *(City and State)*	b. YEAR COMPLETED	
Intel CH-11 Building Retro-Commissioning – Chandler, Arizona	PROFESSIONAL SERVICES **2014**	CONSTRUCTION *(If applicable)* **3/2015**

23. PROJECT OWNER'S INFORMATION

c .PROJECT OWNER	d .ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
SRP (Salt River Project) Business Solutions	**$50,000**	**$49,550**

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

SRP (Salt River Project) Business Solutions, through the project administrator Nexant, selected AEI to assist in evaluating existing conditions and performing Retro Commissioning services of Intel's CH11 Building, located in Chandler, AZ. The building is approximately 154,000 sf with the space functioning as: 39% office, 14% warehouse, 16% laboratories, and 31% common. Operation of the facility is not 24/7 and consists of 19 existing rooftop units without a Building Automation System. The goals of the project were:

1. Perform system operation trending for 25% of rooftop units – system trending, to identify existing equipment and systems that may negatively impact the energy costs for the facility.

2. Perform electrical system trending for 100% of rooftop units – electrical trending to identify electrical consumption for each rooftop unit.

3. Develop detailed recommendations or energy conservation measures (ECM's) for the facility within the retro commissioning program requirements of 1.5 year payback and implementation cost of $0.05/sqft.

AEI supported the Retro Commissioning and development of the ECM's site survey, energy modeling, and life cycle cost analyses, cost estimation and implementation. Based on the information provided the targeted savings for the project will be up to 10% or approximately 403,677 kWh based on annual usage of 4,036,776 kWh.

6. ADDITIONAL INFORMATION

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

AFFILIATED ENGINEERS

Affiliated Engineers (AEI) is a technical consulting, design, and engineering firm, specializing in complex and highly technical projects. With a history going back 80 years, AEI is owned by 25 principals who develop and maintain client relationships and provide project leadership.

A nationwide firm with approximately 576 employees, we have 12 regional offices, including the Phoenix office, which is comprised of more than 30 professional staff. More than eighty percent of our projects are with repeat clients, demonstrating our ability to provide high-quality service and deliver accurate work, on time and within budget. The following pages highlight the experience of our carefully selected technical staff who will work together to provide the client with the most optimal solutions for each assignment. Our team will contribute to your goals by bringing the following competencies:

Team Integration and Close Coordination:

AEI is a multi-disciplined engineering firm providing a wide and complementary array of engineering design services all out of one office, providing you with a team that is accustomed to working together on complex projects that require clear communication and coordination, contributing to a seamless design process.

Specialized Experience:

Adaptive Re-use. The unique programming needs that go along with renovating building systems for adaptive re-use stretches the imagination of those designing these spaces. AEI's designers understand the challenges associated with renovating a building with a past life into a building with a new life. In fact, the vast majority of our projects include building renovations for users/constituents with varied priorities, backgrounds, and functions. As building designers, we must work with each user group to create a space that is fully functional, yet versatile. Our design takes into account that spaces often serve different users during different times of the day or different periods of the year. We also know that the use of the space, as envisioned today, is likely to be vastly different in just a few short years. As a result, buildings systems must be designed with an appropriate level of flexibility and adaptability—an expertise AEI will bring to maximize the potential of re-use projects.

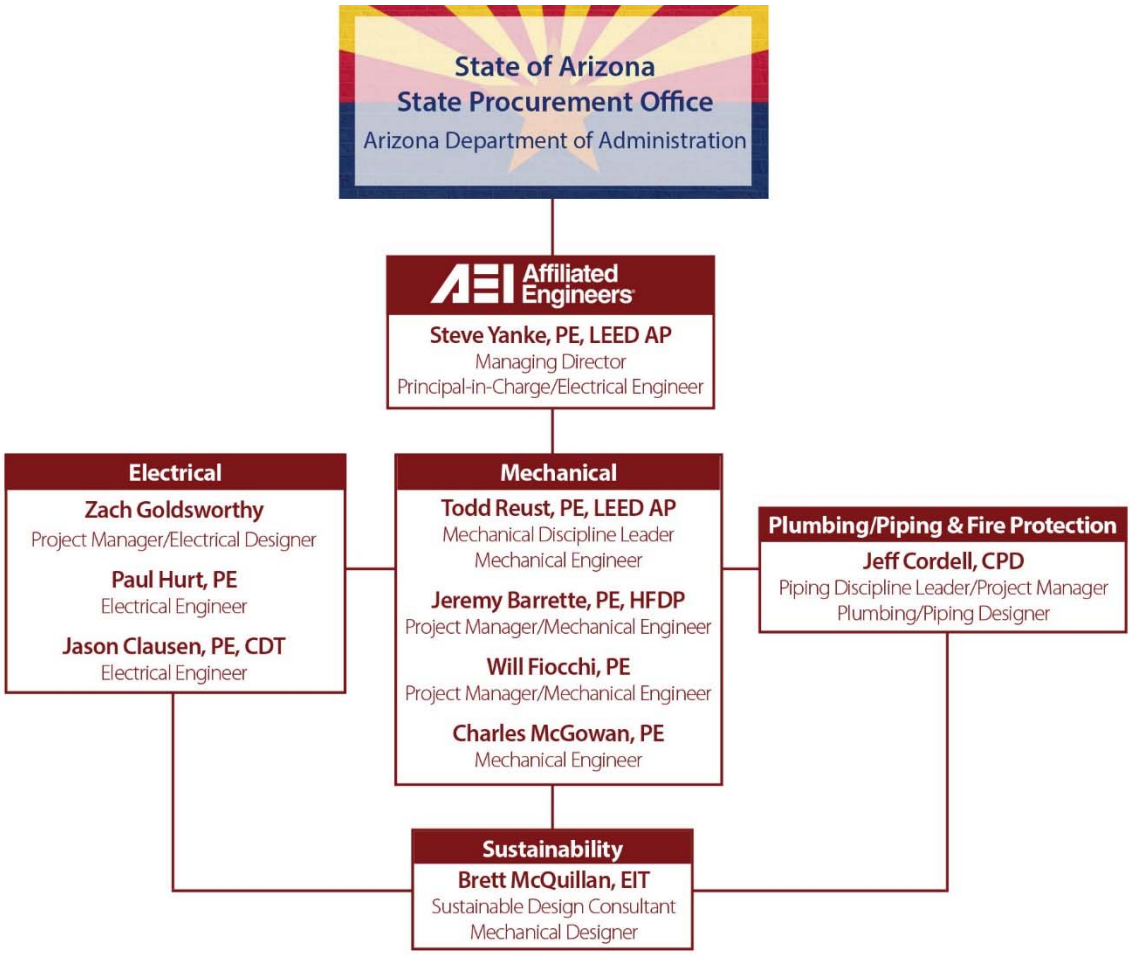
Utility Infrastructure. In addition to mechanical, electrical, plumbing/piping and sustainable building design, AEI also plans, designs, and implements utility system solutions. The client will benefit from our utility infrastructure practice because we're focused on long-term planning and life cycle cost analysis to ensure flexibility to meet future growth and load requirements, while functioning with optimum efficiency and reliability at current demand levels.

Primary Areas of Expertise:

- Utility Master Planning, phasing implementation, realizing cost and energy savings, and guiding fiscal planning
- Electrical Power Distribution
- Gas and solid fuel Central Heating Plants
- Chilled Water Systems
- Commissioning, utilizing detailed functional performance testing protocols, system redundancy testing, and rigorous training programs
- Building Systems Design

Additional areas of expertise include Combined Heat and Power, Thermal Storage, Alternative Fuel Types and Sources, Telecommunications and Data, Network Modeling of Steam and Hydronic Systems and Building Management/Control Systems.

Schedule-challenged Projects. The projects that we have included in our response demonstrate our ability to design, manage, and plan for complex projects within 24/7, public facilities with high security requirements that can impact schedule-driven projects. Drawing from our significant experience we have developed an approach that addresses similar challenges that a client may encounter in order to meet schedule goals.



PROJECT TEAM

AEI | Affiliated Engineers, Inc.

Steve Yanke, PE, LEED AP

Principal/Managing Director/Electrical Engineer

Steve leads AEI's Phoenix office. He is a registered engineer with over 28 years of demonstrated success in positions of increasing responsibility in electrical engineering design, project management, marketing and business operations. He brings his clients strong project design and construction experience in government, higher education and healthcare, corporate and institutional facilities.

EDUCATION

Bachelor of Science, Electrical Engineering, Milwaukee School of Engineering

CERTIFICATIONS

Registered Professional Engineer - Arizona # 33014
LEED Accredited Professional

YEARS WITH FIRM

8

Todd Reust, PE, LEED, AP

Mechanical Discipline Leader/Project Manager/Mechanical Engineer

In his 17 year career, Todd has gained a wealth of experience in the design of HVAC systems for a large variety of healthcare, research, higher education, and science + technology projects varying in size and complexity. He approaches mechanical systems design keeping in mind building automation and temperature control first and foremost, while using solid fundamentals with long-term maintainability and initial constructability, to deliver a design that works.

EDUCATION

Bachelor of Science, Mechanical Engineering, University of Arkansas

CERTIFICATIONS

Registered Professional Engineer - Arizona # 60612
LEED Accredited Professional

YEARS WITH FIRM

1

Jeremy Barrette, PE, HFDP

Project Manager/Mechanical Engineer

Jeremy has more than 18 years of mechanical engineering, product development, and project management experience, specifically focusing on mechanical products and control systems design for higher education, laboratory, industrial and healthcare clients. His responsibilities at AEI include project management and mechanical systems design from concept development and systems evaluation through construction document completion and construction phase project support.

EDUCATION

Master of Science, Management of Marketing and Technology Innovation, Worcester Polytechnic Institute
Bachelor of Science, Mechanical Engineering, Oral Roberts University

CERTIFICATIONS

Registered Professional Engineer - Arizona # 52320
ASHRAE Health Facility Design Professional - 8241101

YEARS WITH FIRM

5

Will Fiocchi, PE

Project Manager/Mechanical Engineer

Will is a Project Manager and Mechanical Engineer and has worked on variety of challenging healthcare and commercial projects. For over 10 years, he has applied his project management skills in the design of healthcare, research, higher education and government buildings, and has been a strong resource in applying communication skills to his long-standing client relationships. He has been involved in all phases of facilities projects, including conceptual design, construction cost estimates, construction document development, scheduling, and construction supervision.

EDUCATION

Bachelor of Science, Mechanical Engineering, Bradley University

CERTIFICATIONS

Registered Professional Engineer - Arizona # 57166

YEARS WITH FIRM

2

Charles McGowan, PE

Mechanical Engineer

As a mechanical engineer, Charlie works closely with clients in the production and coordination of ductwork, and in piping plan layouts. He also diagrams the process and instrumentation of heating and cooling systems for a variety of building types. Charlie provides analysis and design of the systems including load calculations, equipment/material selection, layout, sizing, control and other design considerations. Charlie has surveyed project sites, served as the liaison for the mechanical teams, and coordinated mechanical requirements with architectural and structural designs.

EDUCATION
Bachelor of Science, Architectural Engineering, Milwaukee School of Engineering

CERTIFICATIONS
Registered Professional Engineer - Arizona # 60452

YEARS WITH FIRM
5

Zach Goldsworthy

Project Manager/Electrical Designer

As a reliable electrical resource with over 8 years of experience in technically complex facilities, Zach Goldsworthy will provide the team with electrical design support. In his time at AEI, Zach has been involved in several electrical distribution upgrade or replacement projects for large, multi-building facilities and campuses. As such, he is very familiar with working in fully operational facilities and adhering to their sensitive requirements; specifically, Zach specializes in power system modeling (load flow, short circuit breaker coordination, and harmonic analysis) using SKM software. As an Electrical Designer, Zach's efforts are focused on developing viable electrical concepts during the schematic design phase and on reviews during later design phases.

EDUCATION
Bachelor of Science, Electrical Engineering, Milwaukee School of Engineering

YEARS WITH FIRM
6

Jason Clausen, PE, CDT

Electrical Engineer

Jason has over 12 years of experience in electrical engineering design, document production, quality control and specifications for new and renovated facilities. He has both designed and supervised the design of many types of building electrical systems, including medium and low-voltage power distribution, emergency power systems, lighting, lighting controls, telecommunication and life-safety notification systems. He has significant experience in many diverse markets, including higher education, healthcare and public buildings.

EDUCATION
Bachelor of Science, Electrical Engineering, South Dakota University

CERTIFICATIONS
Registered Professional Engineer - Arizona # 52023

YEARS WITH FIRM
3

Paul Hurt, PE

Electrical Engineer

Paul has over 10 years of electrical system design experience from concept to final product, producing power, lighting and fire alarm construction documents for a wide variety of projects, including higher education, government, commercial and data center facilities. Most recently, he has been designing a myriad of power, lighting and fire alarm designs for highly complex facilities. His vast knowledge across many areas makes Paul a vital resource to any design team.

EDUCATION

Bachelor of Science, Electrical Engineering, Georgia Southern University

CERTIFICATIONS

Registered Professional Engineer - Arizona # 54768

YEARS WITH FIRM

2

Jeff Cordell, CPD

Piping Department Leader/Project Manager/Piping/Plumbing Designer and Oversight

Jeff has over 17 years of experience in plumbing, medical gas, and fire protection system design, the vast majority of which is dedicated to large-scale healthcare, research, higher education, and commercial projects. Jeff's attention to detail and commitment to responsive communication are critical traits that bring increased value to any design team.

CERTIFICATIONS

Certified Plumbing Designer (CPD)
National Inspection Testing Certification (NITC)
Certified ASSE 6020 Medical Gas Inspector

YEARS WITH FIRM

2

Brett McQuillan, EIT

Sustainable Design Consultant

As a project sustainable consultant Brett participates in the design and analysis of high-performance buildings and supports the entire life-cycle of facilities through new construction, facilities operations and renovation. His project experience is in mechanical system design, renewable energy, lighting, building performance simulation, and commissioning for clients in the healthcare, higher education, government, corporate, and commercial sectors.

CERTIFICATIONS

Registered Professional Engineer-in-Training

YEARS WITH FIRM

Joined AEI June 2015

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:	25%
b.	Percentage of Total Work Attributable to Non-Government Work:	75%

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

Signature: _____ Date: 12/10/2015

Name: Steven J. Yanke Title: Principal / Managing Director