

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

1. Annual Request for Qualifications

		Affiliated Engineers, Inc.
a.	FIRM (OR BRANCH OFFICE) NAME:	
		4742 N 24th Street, Suite 100
b.	FIRM (OR BRANCH OFFICE) STREET:	
		Phoenix
с.	FIRM (OR BRANCH OFFICE) CITY:	
		Arizona
d.	FIRM (OR BRANCH OFFICE) STATE:	
		85016
e.	FIRM (OR BRANCH OFFICE) ZIP CODE:	
		2007
f.	YEAR ESTABLISHED:	

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

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

NAME OF FIRM (If block 1	is a branch office):
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2. EMPLOYEES BY DISCIPLINE

a. Discipline Title	b. Function: Primary (P) or Secondary (S)	c. No. of Employees - Firm	d. No. of Employees - Branch
CADD Technicians	Р	20	2
Cost Engineer/Estimator	Р	3	1
Electrical Engineer	Р	79	4
Fire Protection Engineer	Р	3	1
Specialist	S	50	4
Mechanical Engineer	Р	168	6
Project Manager	S	48	4
Sanitary Engineer	Р	29	2
Other	S	176	7
Total		576	31



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

a. Approximate	b. Experience	c. Revenue Index Number <i>(see below)</i>
2	Airports; Terminals and Hangars; Freight Handling	4
1	Area Master Planning	1
3	Construction Management	2
3	Educational Facilities; Classrooms	3
2	Electrical Studies and Design	1
2	Energy Conservation; New Energy Sources	2
3	Fire Protection	2
1	Historical Preservation	2
8	Hospital and Medical Facilities	2
8	Laboratories; Medical Research Facilities	4
6	Labs - General	2
6	Labs – Research – Dry	2
6	Labs – Research – Wet	3
2	LEED Accredited A/E	1
2	LEED Independent 3 rd Party Building Commissioning	1
2	Office Buildings; Industrial Parks	1
8	Plumbing and Piping Design	2
5	Structures, Air-Support Buildings Power Generation, Transmission, Distribution Public Safety Facilities	2
4	Refrigeration Plants/Systems	2
8	Research Facilities Rehabilitation (Buildings; Structures; Facilities)	5
3	Security Systems; Intruder and Smoke Detection	1
5	Sustainable Design	2
4	Utilities (Gas and Steam)	1
2	Value Analysis; Life-Cycle Costing	1

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



a. NAI	ME	b. ROLE	IN THIS CONTRACT	c. YEARS EXPERIENCE		
Steven J. Yanke		Principa	I-in-Charge/Electrical	1. TOTAL	1. WITH C	URRENT FIRM
		Enginee	r	27	7	
d. LOC	ATION (City and State) Phoenix, AZ					
e. EDU Bac	ICATION (<i>DEGREE AND SPECIALIZATION</i>) chelor of Science, Electrical Engineering],	f. PROFESSIONAL TRAININ Registered Profession	IG - REGISTRATIO	ons izona – 33	014
Milv	waukee School of Engineering		LEED® Accredited Prof	essional		
g. OTI Nat	HER PROFESSIONAL QUALIFICATIONS (O) ional Council of Examiners for Enginee	rganizations, ring and S	Awards, etc.) urveying (NCEES) Record	No. 12587		
			H. RELEVANT PROJECTS			
	(1) TITLE AND LOCATION (<i>City and State</i>) City of Phoenix – Phoenix Sky H	arbor Inte	rnational Airport	(2) YEAR COMPLETED		
	Terminal 3 Modernization – Phoenix, Arizona				j C	Construction (if applicable) Est. 2/2018
1.	(3) BRIEF DESCRIPTION (Brief scope, size Project Manager and Electrical Eng Sky Harbor International Airport, as	, cost, etc.) A ineer for the well as est	ND SPECIFIC ROLE e MEP design for the comple ablishing overall electrical dir	te renovation of t ection and electr	he 210,000 ical service	sf Terminal 3 at Phoenix design for expanded
	security checkpoints and a replacer Costs: \$540M (Est.)	nent South	Concourse. Construction	X Check	if project perf	formed with current firm
	(1) TITLE AND LOCATION (City and State)			(2) YEAR COMP	LETED	
	City of Phoenix – Public Works F – Phoenix, Arizona	acilities N	latural Gas Generators	Professional Services 2013-Ongoing)	Construction (if applicable) Est. 10/2015
2.	Principal-in-Charge for piping/plumb Phoenix Public Works Department for capacities, the project team selecte site functions. New automatic transf engine/generator in the event utility generator load testing. Construction	bing and ele facilities thr d an approp fer switches service is l a Costs: N/A	ectrical engineering design fo oughout the city. Based upor priately-sized natural gas fuel s were also provided at each ost. Provisions were also ma	r new natural gas n review of existin led engine/genera facility to transfer de for the connect X Check if pro	s engine-gen ng site cond ator to supp power fron ction of porta	nerators for five City of ditions, demands and port identified building and n the electric utility to the new <u>able load banks for perio</u> dic ed with current firm
	(1) TITLE AND LOCATION (City and State)	_		(2) YEAR COMP	PLETED	
	Banner Good Samaritan Medical Central Plant Expansion – Phoer	Center – nix, Arizor	Operating Suite and a	Professional Services 2010	i	Construction (if applicable) 2012
3.	(3) BRIEF DESCRIPTION (<i>Brief scope, size,</i> Principal-in-Charge and Project Manage chiller, a steam generator, a rotary UPS Costs: \$31.1M	<i>cost, etc.)</i> A er for a 70,0 system ba	ND SPECIFIC ROLE 100 sf renovation and two-sto ck-up, and a new 1,000-ton ch	ry, multi-phased niller in the existing X Check if pro	80,000 sf a g central utili	ddition featuring an auxiliary ity plant. Construction ed with current firm
	(1) TITLE AND LOCATION (City and State)			(2) YEAR COMP	PLETED	
	Arizona State University – Vivari Reliability Study – Tempe, Arizo	um HVAC na	/Chilled Water	Professional Services 2012	i	Construction (if applicable)
4.	(3) BRIEF DESCRIPTION (Brief scope, size, Principal-in-Charge for a reliability On-campus. The project also inclumed model of the campus chilled wate \$182,925	<i>cost, etc.)</i> A assessme uding as-b r distributio	ND SPECIFIC ROLE ent of the HVAC and chilled uilt drawings of the campus on system. Study Costs:	water systems central plant ch X Check if pro	serving the illed water oject performe	e critical animal facilities system and hydraulic ed with current firm
	(1) TITLE AND LOCATION (City and State)			(2) YEAR COMP	LETED	
	City of Phoenix – Information Te Electrical Upgrades, Phoenix, A	chnology izona	(ITOC) Data Center	Professional Services 2011	;	Construction (if applicable) 2012
5.	(3) BRIEF DESCRIPTION (Brief scope, size, Principal-in-Charge for the electrica branch circuit panelboards (FDC's) new "B" side UPS/PDU. Includes th PDU. The Mechanical Design is to s construction phasing documents de during construction. Construction C	cost, etc.) A l assessme located adj e developn support the monstrating costs: \$850	ND SPECIFIC ROLE int and implementation of a n acent to rows of equipment. I nent of a "B" side electrical di installation of "B" side UPS. g to minimize downtime 000	ew server rack b FDC's to be fed fi stribution system Development of p X Check if pro	ranch circui rom existing including a permit docu pject performe	t distribution system via new g "A" side UPS/PDU's and a single 300 kVa UPS and uments as well as ed with current firm



a. NAME		b. ROLE IN THIS CONTRACT		c. YEARS EXPERIENCE			
Br	yan Jehling	Project Manager/Electrical		1. TOTAL	2. WITH C	CURRENT FIRM	
1.1.00	THOMAGE IS Describe A7	Engine	er	25	Joine	d AEI in October 2014	
a. LOC	ATION (City and State) PROENIX, AZ						
e. EDU	CATION (DEGREE AND SPECIALIZATION)	_	f. PROFESSIONAL TRAININ	ING - REGISTRATIONS			
Nor	thern Illinois University	y,	LEED® Building Desig	nal Engineer Al	tion Accre	dited Professional	
a. OTH	HER PROFESSIONAL OUALIFICATIONS (O)	rganizations.	Awards. etc.)				
Nat	ional Council of Examiners for Enginee	ring and Su	urveying (NCEES) Record	No. 20042			
		Ц					
	(1) TITLE AND LOCATION (City and State)	11.	KELLVANT I KOJECIJ	(2) YEAR COMP	LETED		
City of Phoenix – Phoenix Sky Harbor International Airport				Professional Services		Construction (if applicable)	
	Terminal 3 Modernization – Phoenix, Arizona			2013-Ongoing	J	Est. 2/2018	
1.	(3) BRIEF DESCRIPTION (Brief scope, size	e, cost, etc.) A	ND SPECIFIC ROLE				
	Electrical Engineer for the MEP design for the complete renovation of the 210,000 st 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 Sou	uth Concour	se. Construction Costs:	X Check if pro	ject perform	ed with current firm	
	\$540M (Est.)						
	(1) TITLE AND LOCATION (City and State) Banner Health – University of Ar	izona Hea	Ith Network Master	(2) YEAR COMP	LETED	1	
	Plan – Tucson, Arizona			Professional Services 2014-Ongoing	ı	Construction (if applicable)	
2.	(3) BRIEF DESCRIPTION (Brief scope, size,	cost, etc.) Al	ND SPECIFIC ROLE		<u>,</u>		
	Electrical Engineer for the develo	pment of a	program for the mechanica	l, plumbing/pipir	ng and ele	ectrical infrastructure for	
	a new 600,000 st, 9-story inpatier	nt hospital c	on the University of Arizona	X Check if project performed with current firm			
					eet perform		
	(1) TITLE AND LOCATION (<i>City and State</i>) City of Phoenix – Public Works I	- Facilities N	latural Gas Generators	(2) YEAR COMP	LETED		
	– Phoenix, Arizona			Professional Services 2013-Ongoing	ı	Construction (if applicable) Est. 10/2015	
	(3) BRIEF DESCRIPTION (Brief scope, size,	cost, etc.) Al	ND SPECIFIC ROLE	g	,		
2	Electrical Engineer for piping/plun	nbing and e	electrical engineering desig	n for new natura	I gas engi	ine-generators for five	
з.	demands and capacities, the proi	ect team se	cilities throughout the city.	Based upon rev	iew of exis	sting site conditions,	
	support identified building and site	e functions.	New automatic transfer sv	witches were also provided at each facility to			
	transfer power from the electric ut	tility to the I	new engine/generator in the	e event utility se	rvice is los	st. Provisions were also	
	made for the connection of portal	on Costs: N	nks for periodic	X Check if project performed with current firm			
	(1) TITLE AND LOCATION (City and State)			(2) YEAR COMP	LETED		
	City of Chandler and HUD Housi	ng HVAC I	Renovation – Chandler,	Professional Services		Construction (if applicable)	
	Arizona			2014		Est. 2015	
4.	(3) BRIEF DESCRIPTION (Brief scope, size, Electrical Engineer supporting ele	<i>cost, etc.)</i> Al	ND SPECIFIC ROLE	cuiting to accom	modate c	onnection of new HVAC	
	units at multi-building housing cor	mplex. Cor	nstruction Costs: \$300,000		modulo o		
				Check if pro	oject perforn	ned with current firm	
	(1) TITLE AND LOCATION (City and State)			(2) YEAR COMP	'LETED		
	Arizona Department of Public Sa	afety – Pe	oria, Arizona	Professional Services		Construction (if applicable)	
	(2) DDIEE DESCRIPTION (Brief soons size	0.004 .040 \ \ 1		2014		Est. 11/2017	
5.	Electrical Engineer supporting light	nting, aene	ral power, and HVAC renov	ation for approx	imately 9	0,000 square foot	
	tenant improvement within an exis	sting buildir	ng. Construction Costs: \$2	√l (Est.)	2	· •	
				Check if proj	ject perform	ed with current firm	
			I				



a. NAME Jason Clausen		b. ROLE IN THIS CONTRACT		c. YEARS EXPERIENCE			
		Electr	ical Engineer	1. TOTAL 2. WITH CURRENT FIRM		CURRENT FIRM	
				11	2		
d. LOC	ATION (City and State) Phoenix, AZ						
e. EDU	CATION (DEGREE AND SPECIALIZATION)		f. PROFESSIONAL TRAINING	G - REGISTRATIO	NS		
Bac	chelor of Science, Electrical Engineering	g,	Registered Professior	nal Engineer Ar	izona – 5	2023	
	JEP PROFESSIONAL OUAL FECATIONS (0)	ragnizations	Awards etc.)				
g. On Cor	nstruction Documents Technologist (CE	DT)	Awaras, etc.)				
			H. RELEVANT PROJECTS				
	(1) TITLE AND LOCATION (City and State))		(2) YEAR COMPLETED			
	City of Casa Grande – Police Dis	spatch and	Library Renovation –	Professional Services		Construction (if applicable)	
						1/2013	
1.	(3) BRIEF DESCRIPTION (Brief scope, size	e, cost, etc.) A	ND SPECIFIC ROLE		intin a huil	dian into the Coop Cronde	
	Project Manager and Electrical Electricad El	ngineer for rv. Scope i	ncludes electrical renovation	ovation of an ex	n area to e	expand the existing IT	
	server rack capacity, provide new	/ low-voltag	je lighting design, consolida	ate multiple unint	terrupted p	power supplies into a single	
	unit, and integrate new HVAC and	d mechani	cal systems, and MEP renor	vation of the exi	sting libra	ry facility. Construction	
Costs: \$1.5M				X Check	if project pe	rformed with current firm	
	(1) TITLE AND LOCATION (<i>City and State</i>)) missionin/	n Chandlor Arizona	(2) YEAR COMP	LETED	1	
		mssioninų	j – Chandler, Anzona	Professional Services	1	Construction (if applicable)	
	(3) BRIEF DESCRIPTION (Brief scope, size	, cost, etc.) A	ND SPECIFIC ROLE	2014 Oligolių	2	IUA	
2.	Electrical Engineer to evaluate exis	ting conditi	ons and performing Retro Co	mmissioning serv	vices of Int	el's 154,000 sf CH11 building.	
	AEI performed system trending to in and electrical trending to identify eli	dentify exis ectrical con	ting equipment and systems to sumption for each roofton unit	hat may negatively impact the energy costs for the facility			
	development of the energy conserv	ation meas	ures (ECM's) site survey, ene	ergy modeling, ar	nd life cycle	e cost analyses, cost	
	estimation and implementation. Co	nstruction C	Costs: N/A	X Check if pro	oject perforn	ned with current firm	
	(1) TITLE AND LOCATION (City and State))		(2) YEAR COMP	LETED		
	University of Arizona Health Net Medical Center Data Center Ung	work – Ui rades – Ti	iversity of Arizona	Professional Services		Construction (if applicable)	
-	(3) BRIEF DESCRIPTION (Brief scope size	cost etc.) A	ND SPECIFIC ROLE	2013		3/2014	
3.	Electrical Engineer for renovation	to add cod	bling and electrical infrastrue	cture for N+1 red	dundancy,	supporting electronic	
	patient medical records. Project in	ncludes co	mputational fluid dynamic C	CFD modeling of the existing conditions and various			
	alignment, Construction Costs: \$6	configure to	o not alsie/cold alsie	X Check if project performed with current firm			
	(1) TITLE AND LOCATION (<i>City and State</i>))		(2) YEAR COMP	LETED		
	Hospice of the Valley – Sherma	n Home E	xpansion – Scottsdale,	Professional Services		Construction (if applicable)	
	Arizona (2) PRIES DESCRIPTION (Priof scope, size	aget ata) A	ND SDECIEIC DOI E	2012		9/2013	
4.	Electrical Engineer for mechanica	al, electrica	l and piping/plumbing desig	In services for th	is 13,500	sf addition to a hospice	
	facility on Mayo Clinic of Arizona	s Scottsda	e, Arizona campus. Project	scope included	new utility	electrical service and the	
	client requested that the pursuit c	of green bu	ilding technologies be inclue	ded in the buildir	ng design.	Construction Costs: N/A	
	(1) TITLE AND LOCATION (City and State)		(2) VEAR COMP	Ject perform	nea with current firm	
	Banner Good Samaritan Medica	, I Center –	Hyperbaric Expansion	Professional Services	LEIED	Construction (if applicable)	
	– Phoenix, Arizona			2013-Ongoing]	Est. 1/2014	
	(3) BRIEF DESCRIPTION (Brief scope, size	, cost, etc.) A	ND SPECIFIC ROLE				
5.	Electrical Engineer for mechanica	al, electrica an Medical	I and piping/plumbing desig	in of the hyperba	aric expan	sion in the rehabilitation	
	chambers, dressing rooms and s	upport spa	ce. Additional scope also in	cluded renovatir	ig the mai	n waiting room, registration	
	desk and portions of the physical	therapy ar	ea. Construction Costs:\$79	5,000 (Est.)	-		
				X Check	k if project p	performed with current firm	



4.	Resumes of Key Personnel Pro	oposed fo	r this Contract (Complete	e one Section	4 for each k	key person.			
a. NAM	ME	b. ROLE IN THIS CONTRACT		c. YEARS EXPERIENCE					
Zac	h Goldsworthy	Electr	ical Designer	1. TOTAL	2. WITH	CURRENT FIRM			
d. LOC	ATION (City and State) Phoenix. AZ			0	5				
e. EDU	UCATION (DEGREE AND SPECIALIZATION))	f. PROFESSIONAL TRAININ	G - REGISTRAT	TIONS				
Bac	chelor of Science, Electrical Engineering	ng,							
	Vaukee School of Engineering	Organizations	Awards ato)						
y. 011	IERTROFESSIONAL QUALIFICATIONS (C	nganizations,	Awaras, etc.)						
	(1) TITLE AND LOCATION (City and Stat	(e)	H. RELEVANT PROJECTS	(2) YEAR CO	MPI FTFD				
(1) TITLE AND LOCATION (City and City of Phoenix – Phoenix – Phoenix – Terminal 3 Electrical Upgra 1.		Harbor Int Construct	ernational Airport – ion Administration –	Professional Servi	ices	Construction (if applicable) 2010			
	(3) BRIEF DESCRIPTION (Brief scope, si Electrical Designer for electrical Terminal 3 Electrical Upgrade (ze, cost, etc.) consulting construction	AND SPECIFIC ROLE on behalf of the City of Phoe Costs: \$11 8M	enix for the co	nstruction de	ocument phase of the			
	(1) TITLE AND LOCATION (City and Stat				(2) YEAP COMPLETED				
	City of Phoenix – Phoenix Sky	Harbor Inte	ernational Airport –	Professional Servi		Construction (if applicable)			
	Terminal Three Parking Garage Build Services – Phoenix, Arizo	e Lighting l ona	Jpgrades 1-Step Design-	2011		9/2013			
2.	(3) BRIEF DESCRIPTION (Brief scope, siz Electrical Designer for a new ligh conservation measures into prim and stairwells and installing a se included replacing the existing A down transformer to maintain the and associated downstream ligh	e, cost, etc.) A hting system nary conside parate pow NPS transfor e existing so ting panels	ND SPECIFIC ROLE n to attain the most suitable eration. The project included rer distribution system to allo mer, and installing a new se eparately metered tenant's 2 . Construction Costs: \$2.1M	levels of illum I renovating th ow for the APS ervice meter fo 208V system,	ination while the lighting w S e67 billing or the garage and a 480Y	e taking safety and energy ithin the elevator lobbies rate. Additional scope e infrastructure, a new step- /277-volt distribution panel			
	(4) TITLE AND LOCATION (City and Stat	-)		(2) VEAD COL	ck if project pe	rformed with current firm			
	Banner Thunderbird Medical C	enter –OR	Renovations and	(2) TEAR CONFLETED Professional Services Construction (if applicable)					
	Mechanical Upgrades – Glendale, Arizona				ing	Est. 5/2015			
3.	(3) BRIEF DESCRIPTION (Brief scope, siz Project Manager and Electrical I mechanical duct along with elec renovated by replacing the exist existing campus surgery chiller i 1-6 and 11-15 will be replaced w rooms will be replaced with new Construction Costs: N/A	e, cost, etc.) A Designer for trical infrast ing dual duo n a booster vith new sta high efficie	ND SPECIFIC ROLE the OR modernization, whi ructure upgrades and archit ct system with a new single configuration. New master ndard panelboards. All exist nt LED light fixtures.	ch included co ectural improv duct system. humidifiers w ing light fixtur X Check if	omplete dem vements. Th The air hanc ill be added. es within the project perform	nolition of the OR e air handler (AH-6) will be dler will be added to the . The isolation panels in OR e corridor and operating ned with current firm			
	(1) TITLE AND LOCATION (City and State	e) rium UVAC		(2) YEAR COL	MPLETED				
	Reliability Study – Tempe, Ariz	ona		Professional Servi 2012	ices	Construction (if applicable)			
4.	(3) BRIEF DESCRIPTION (<i>Brief scope, siz</i> Electrical Designer for a reliabilit campus. The project also includ the campus chilled water distribut	e, cost, etc.) A ty assessme ing as-built ution systen	ND SPECIFIC ROLE ent of the HVAC and chilled drawings of the campus cer n. Study Costs: \$182,925	water system htral plant chill X Check if	s serving the ed water sys	e critical animal facilities on stem and hydraulic model of ned with current firm			
	(1) TITLE AND LOCATION (City and Stat	e)		(2) YEAR COL	MPLETED				
	Maricopa Integrated Health Sys Arizona	stem – Arc	Flash Study – Phoenix,	Professional Servi 2013	ices	Construction (if applicable)			
5.	(3) BRIEF DESCRIPTION (Brief scope, siz Project Manager and Electrical I outpatient family health centers analysis, short-circuit studies an Costs: N/A	ze, cost, etc.) A Designer for throughout d protective	ND SPECIFIC ROLE r electrical assessment studi the Maricopa Integrated Hea e device coordination analys	ies for the Ma alth System. S is for the elect X Che	ricopa Media Specific scop trical distribu ck if project pe	cal Center Campus and be includes arc flash hazard ution systems. Construction rformed with current firm			
					1				



Je		b. ROLE IN THIS	S CONTRACT		c. YEAF	RS EXPERIENCE	
Jeremy Barrette		Engineer	ager/Mechanical	1. TOTAL 17	2. WITH 4	I CURRENT FIRM	
LOC	CATION (City and State)Phoenix, AZ			1			
EDU Bac	JCATION (<i>DEGREE AND SPECIALIZAT</i> chelor of Science, Mechanical Eng	ION) ineering, Oral	f. PROFESSIONAL TR. Registered Profe	AINING - REGIST	RATIONS eer Arizon	na – 52320	
Rol Tec	berts University; Master of Science chnology Innovation, Worcester P	e, Marketing and	Health Facility D	esign Professi	onal – 824	11101	
OTH	HER PROFESSIONAL QUALIFICATION	IS (Organizations, Award	ds, etc.) National Counc	cil of Examiners	for Engine	eering and Surveying	
(H R)			
	(1) TITLE AND LOCATION (City and	State)		(2) YEAR COM	APLETED		
	University of Arizona Healtl Medical Center Data Center	sity of Arizona n, Arizona	Professional Service 2013	ces	Construction (if applicable) 3/2014		
1.	(3) BRIEF DESCRIPTION (Brief scop Project Manager and Mecha	pe, size, cost, etc.) AND S nical Engineer for re	SPECIFIC ROLE	ng and electrica	l infrastruc	ture for N+1 redundancy,	
	supporting electronic patient	medical records. Pr	oject includes comput	tational fluid dyr	namic CFD) modeling of the existing	
	aisle/cold aisle alignment. C	onstruction Costs: \$	600,000	Chec	к п project p	benormed with current firm	
	(1) TITLE AND LOCATION (City and State)			(2) YEAR COM	APLETED		
	Reliability Study – Tempe,	Professional Service	ces	Construction (if applicable)			
	critical animal facilities on ca system and hydraulic model system. Study Costs: \$182,	mpus. The project a of the campus chille 925	lso including as-built	drawings of the X Check if	campus co	rmed with current firm	
	Banner Thunderbird Medica	al Center –OR Renc	ovations and	(2) YEAR COM	APLETED	Construction (if applicable)	
	Mechanical Upgrades – Gle	ndale, Arizona		FIDIESSIDITAL SELVIC	,es na		
	(2) DDIEE DESCRIPTION (Dui of a com	a size cost stal AND S	DECIEIC DOLE	2014-Ongoi	iig	5/2015	
3.	 (3) BRIEF DESCRIPTION (Brief scop Mechanical Engineer for the electrical infrastructure uppr existing dual duct system wi in a booster configuration. N with new standard panelboa high efficient LED light fixtur 	e, size, cost, etc.) AND S OR modernization, ades and architectur th a new single duct lew master humidifie rds. All existing light es. Construction Cos	PECIFIC ROLE which included compl al improvements. The system. The air hand ers will be added. The fixtures within the con sts: N/A	ete demolition de air handler (Al- ler will be adde isolation panel rridor and opera X Check if	of the OR r H-6) will be d to the ex s in OR 1-4 ting rooms project perfor	nechanical duct along with e renovated by replacing the isting campus surgery chille 6 and 11-15 will be replaced s will be replaced with new rmed with current firm	
3.	 (3) BRIEF DESCRIPTION (Brief scop Mechanical Engineer for the electrical infrastructure upgr existing dual duct system wi in a booster configuration. N with new standard panelboa high efficient LED light fixtur (1) TITLE AND LOCATION (City and Banner Health – University 	e, size, cost, etc.) AND S OR modernization, ades and architectur th a new single duct lew master humidifier rds. All existing light es. Construction Cos State) of Arizona Health	PECIFIC ROLE which included compl al improvements. The system. The air hand ers will be added. The fixtures within the cor sts: N/A	ete demolition o e air handler (Al- ler will be adde- isolation panel ridor and opera X Check if (2) YEAR CON Professional Servit	of the OR r I-6) will be d to the ex s in OR 1-i ting rooms project perfor MPLETED	5/2015 nechanical duct along with renovated by replacing the isting campus surgery chille 6 and 11-15 will be replaced will be replaced with new rmed with current firm	
3.	 (3) BRIEF DESCRIPTION (Brief scop Mechanical Engineer for the electrical infrastructure upgr existing dual duct system wi in a booster configuration. N with new standard panelboa high efficient LED light fixtur (1) TITLE AND LOCATION (City and Banner Health – University Plan – Tucson, Arizona 	e, size, cost, etc.) AND S OR modernization, ades and architectur th a new single duct lew master humidifie rds. All existing light es. Construction Cos State) of Arizona Health N	PECIFIC ROLE which included compl al improvements. The system. The air hand ers will be added. The fixtures within the con sts: N/A Metwork Master	ete demolition o e air handler (Al- ler will be adde isolation panel rridor and opera X Check if (2) YEAR COM Professional Servic 2014-Ongoi	of the OR r H-6) will be d to the ex s in OR 1-4 ting rooms project perfor MPLETED res ng	b/2015 mechanical duct along with e renovated by replacing the isting campus surgery chille 6 and 11-15 will be replaced s will be replaced with new rmed with current firm Construction (if applicable) N/A	
3. 4.	 (3) BRIEF DESCRIPTION (Brief scop Mechanical Engineer for the electrical infrastructure upgr existing dual duct system wi in a booster configuration. N with new standard panelboa high efficient LED light fixtur (1) TITLE AND LOCATION (City and Banner Health – University Plan – Tucson, Arizona (3) BRIEF DESCRIPTION (Brief scop Project Manager and Mecha electrical infrastructure for a Construction Costs: N/A 	e, size, cost, etc.) AND S OR modernization, ades and architectur th a new single duct lew master humidifie rds. All existing light es. Construction Cos State) of Arizona Health N e, size, cost, etc.) AND S nical Engineer for th new 600,000 sf, 9-s	PECIFIC ROLE which included compl al improvements. The system. The air hand ers will be added. The fixtures within the con sts: N/A Jetwork Master PECIFIC ROLE e development of a p tory inpatient hospital	ete demolition o e air handler (Al- ler will be adde- isolation panel ridor and opera X Check if (2) YEAR CON Professional Servic 2014-Ongoi	of the OR r I-6) will be d to the ex s in OR 1-1 ting rooms project perfor (PLETED pes ng mechanica ity of Arizo	b/2013 mechanical duct along with renovated by replacing the isting campus surgery chille 6 and 11-15 will be replaced will be replaced with new rmed with current firm Construction (if applicable) N/A I, plumbing/piping and na Medical Center campus rmed with current firm	
3. 4.	 (3) BRIEF DESCRIPTION (Brief scop Mechanical Engineer for the electrical infrastructure upgr- existing dual duct system wi in a booster configuration. N with new standard panelboa high efficient LED light fixtur (1) TITLE AND LOCATION (City and Banner Health – University Plan – Tucson, Arizona (3) BRIEF DESCRIPTION (Brief scop Project Manager and Mecha electrical infrastructure for a Construction Costs: N/A (1) TITLE AND LOCATION (City and 	e, size, cost, etc.) AND S OR modernization, ades and architectur th a new single duct lew master humidifie rds. All existing light es. Construction Cos State) of Arizona Health N e, size, cost, etc.) AND S nical Engineer for th new 600,000 sf, 9-s	PECIFIC ROLE which included compl al improvements. The system. The air hand ers will be added. The fixtures within the con sts: N/A Network Master PECIFIC ROLE e development of a p tory inpatient hospital	ete demolition o e air handler (Al- ler will be adde isolation panel ridor and opera X Check if (2) YEAR COM Professional Servic 2014-Ongoi rogram for the r on the Universi X Check if (2) YEAR COM	of the OR r I-6) will be d to the ex s in OR 1-4 ting rooms project perfor MPLETED res ng nechanica ty of Arizo project perfor MPLETED	5/2013 mechanical duct along with a renovated by replacing the isting campus surgery chille 6 and 11-15 will be replaced with new rmed with current firm Construction (if applicable) N/A I, plumbing/piping and na Medical Center campus rmed with current firm	
4.	 (3) BRIEF DESCRIPTION (<i>Brief scop</i> Mechanical Engineer for the electrical infrastructure upgr- existing dual duct system wi in a booster configuration. N with new standard panelboa high efficient LED light fixtur (1) TITLE AND LOCATION (<i>City and</i> Banner Health – University Plan – Tucson, Arizona (3) BRIEF DESCRIPTION (<i>Brief scop</i> Project Manager and Mecha electrical infrastructure for a Construction Costs: N/A (1) TITLE AND LOCATION (<i>City and</i> US Department of Veterans Care System (SAVAHCS) – 	e, size, cost, etc.) AND S OR modernization, ades and architectur th a new single duct lew master humidifie rds. All existing light es. Construction Cos State) of Arizona Health N e, size, cost, etc.) AND S nical Engineer for th new 600,000 sf, 9-s State) Affairs – Southern Tucson, Arizona	PECIFIC ROLE which included compl al improvements. The system. The air hand ers will be added. The fixtures within the con- sts: N/A Network Master PECIFIC ROLE e development of a p tory inpatient hospital Arizona VA Health	2014-Ongoi ete demolition ce eair handler (Aller will be addeed isolation panel ridor and operative 'ridor and operative X Check if (2) YEAR COM Professional Service 2014-Ongoi rogram for the r on the University X Check if (2) YEAR COM Professional Service 2014-Ongoi	of the OR r I-6) will be d to the ex s in OR 1-4 ting rooms project perfor APLETED res ng nechanica ty of Arizo project perfor MPLETED res ng	5/2013 mechanical duct along with a renovated by replacing the isting campus surgery chille 6 and 11-15 will be replaced with new rmed with current firm Construction (if applicable) N/A I, plumbing/piping and na Medical Center campus. rmed with current firm Construction (if applicable) KA Construction (if applicable) Est. 6/2015	



4.	Resumes of Key Personnel Pro	posed for this	s Contract (Complet	e one Section	4 for each	key person.	
a. NA W	^{AME} illiam Fiocchi	b. ROLE IN THI Project Ma Engineer	S CONTRACT nager/Mechanical	1. TOTAL 9	c. YEAF 2. WITH 1	c. YEARS EXPERIENCE 2. WITH CURRENT FIRM 1	
d. LOC	CATION (City and State)Phoenix, AZ				1		
e. EDU Bao Bra	JCATION (<i>DEGREE AND SPECIALIZATION</i>) chelor of Science, Mechanical Engineer idley University	ing	f. PROFESSIONAL TRA Registered Profe	AINING - REGIST ssional Engin	RATIONS eer Arizo	na – 57166	
g. OTI Am	HER PROFESSIONAL QUALIFICATIONS (0) erican Society for Healthcare Engineeri	rganizations, Award ing (ASHE), Me	<i>ds, etc.)</i> ember – American Soc	iety of Heating	and Refriq	geration Engineers (ASHRAE)	
		H. R	ELEVANT PROJECTS				
	(1) TITLE AND LOCATION (<i>City and State</i>) Dignity Health/St. Joseph's Hosp Accelerator Replacement – Phoe	pital & Medical enix, Arizona	Center – Linear	(2) YEAR COM Professional Servic	IPLETED es	Construction (if applicable)	
1.	(3) BRIEF DESCRIPTION (Brief scope, size Project Manager and Mechanical Varian linear accelerators and a f cooling, supply and exhaust, bran systems, and domestic hot and co	e, cost, etc.) AND S Engineer for M ull renovation o nch piping and c old water. Cons	PECIFIC ROLE EP design services of f the existing linear act luctwork extension, no truction Costs: N/A	3,800 sf of rem celerator vaults rmal and essen	noval and . Including ntial powe	replacement of two existing the addition of process r electrical distribution	
	(1) TITLE AND LOCATION (City and State)			(2) YEAR CON	IPI FTFD		
	SurgCenter Development – Corr Surgery Center – Kenosha, Wisc	nerstone Comn consin	nons Specialty	Professional Servic 2013	es	Construction (if applicable) 10/2014	
2.	(3) BRIEF DESCRIPTION (Brief scope, size, Project Manager and Mechanical surgery center. Systems include water softener, reverse osmosis v Construction Costs: \$1.5M	, <i>cost, etc.)</i> AND SI Engineer for the a new transform water system, de	PECIFIC ROLE e electrical and piping, ner, 1000A electrical s eionized water system	/plumbing desig ervice, emerge , fire protection X Check if p	gn for a 6, ncy gener , fire alarr project perfo	500 sf ambulatory care ator, ATS, water heaters, n and nurse call systems. rmed with current firm	
	(1) TITLE AND LOCATION (<i>City and State</i>)) Alexan Dertmon	ahin Duilding	(2) YEAR COM	IPLETED		
	Phoenix, Arizona	science Partnei	rship Building –	Professional Service 2014-Ongoin	es 1 0	Construction (if applicable) Est. 10/2016	
3.	(3) BRIEF DESCRIPTION (<i>Brief scope, size,</i> Mechanical Engineer for the new 10-s providemechanical systems designed on each floor and will provide primary pass through an energy recovery syst Multiple engine/generators will suppor the building. Construction Costs: \$991	, <i>cost, etc.)</i> AND SI story 245,000 sf B I for staff safety, ru air to chilled bear tem before discha rt the research fur M (Est.)	PECIFIC ROLE Biosciences Partnership E eliability, ease of mainter ms. Exhaust air will urging at the roof. nctions taking place in	Building (BPB). A bance and energy	El's scope efficiency.	of services are to DOAS air handlers are located rmed with current firm	
	(1) TITLE AND LOCATION (<i>City and State</i>)	Dhasa 2 Dana	votion Dheeniy	(2) YEAR COM	IPLETED		
	Arizona	Phase 5 Keno	vation – Phoenix,	Professional Servic 2014	es	Construction (if applicable) Est. 11/2014	
4.	(3) BRIEF DESCRIPTION (Brief scope, size, Project Manager and Mechanical systems to accommodate wall rer replacement and sight lighting des Construction Costs: \$1M	, <i>cost, etc.)</i> AND SI Engineer for m moval, new roor sign for a 16-ca	PECIFIC ROLE odifications to the exis m layouts, requiremen r parking garage.	ting mechanica ts, loads and re X Chec	al, electrica e-lighting, a k if project p	al and piping/plumbing as well as existing ceiling performed with current firm	
	(1) TITLE AND LOCATION (<i>City and State</i>)) Lak Danasatis	Diana 4	(2) YEAR COM	IPLETED		
	Scottsdale, Arizona – Histology	Lap Kenovatio	on Phase 1 –	Professional Servic 2014	es	Construction (if applicable) Est. 12/2014	
5.	Scottsdale, Arizona Professional Services Construction (if applicable) Scottsdale, Arizona 2014 Est. 12/2014 (3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Project Manager and Mechanical Engineer of a multi-phase 1,600 sf histology laboratory renovation. Phase 1 renovation includes three rooms and incorporates switching grossing station functions with fume hood and ventilated tissue cabinet, relocation of sink to expanded functions at the grossing station. The relocated equipment includes but is not limited to fume hoods, ventilated tissue storage cabinets, ventilated flammable storage cabinets, specimen processing equipment, sinks and drains. Project will include a mechanical, electrical and plumbing existing system evaluation and development of construction documents to determine capabilities/capacities of the existing system and provide suitable system upgrades and modifications to meet the requirements of						
	the department. Construction Costs	s: N/A		X Check if p	project perfo	rmed with current firm	



ATTACHMENT I – General Qualifications

<u>4. R</u> e	sumes of Key Personnel Propos	ed for this Co	ontract (Complete on	e Section 4 for	each key	person.)		
a. NAM	E	b. ROLE IN THIS	CONTRACT		c. YEARS EXPERIENCE			
Nevi	in Heitner	Mechanical Engineer/Commissioning Agent		1. TOTAL 2. WITH CURI 24 2		CURRENT FIRM		
d. LOC	ATION (City and State) Phoenix, AZ							
e. EDU Bao Leh	ICATION (<i>DEGREE AND SPECIALIZATION</i>) chelor of Science, Mechanical Engineer igh University	ring	f. PROFESSIONAL TRA Registered Profes LEED® Accredited	AINING - REGISTI ssional Engine I Professional	RATIONS er Arizon	a – 54572		
g. OTH Ene	IER PROFESSIONAL QUALIFICATIONS (Or ergy Manager (CEM), Association of E	rganizations, Awara nergy Engineers	ls, etc.) Certified Build s (AEE)	ing Commissior	ing Profe	ssional (CBCP), Certified		
		H. R	ELEVANT PROJECTS	_				
	(1) TITLE AND LOCATION (City and State))		(2) YEAR COM	PLETED			
	City of Phoenix – Phoenix Sky H Terminal 3 Modernization – Pho	larbor Internati enix, Arizona	onal Airport	Professional Service 2013-Ongoin	es I CI	Construction (if applicable) 2/2018		
1.	(3) BRIEF DESCRIPTION (Brief scope, size Mechanical Designer for the MEP International Airport, as well as esta checkpoints and a replacement Sou \$540M (Est.)	e, cost, etc.) AND S design for the co ablishing overall uth Concourse. C	PECIFIC ROLE omplete renovation of the electrical direction and Construction Costs:	ne 210,000 sf Te electrical service X Check	rminal 3 a design fo	t Phoenix Sky Harbor r expanded security performed with current firm		
	(1) TITLE AND LOCATION (City and State,)		(2) YEAR COM	PLETED			
	Banner Thunderbird Medical Ce Mechanical Upgrades – Glendal	nter –OR Reno e, Arizona	vations and	Professional Service 2014-Ongoin	es I g	Construction (if applicable) Est. 5/2015		
2.	Mechanical Engineer for the OR in electrical infrastructure upgrades existing dual duct system with a r in a booster configuration. New r with new standard panelboards. A high efficient LED light fixtures. C	modernization, v and architectura- new single duct master humidifie All existing light construction Cos	which included comple al improvements. The system. The air handlers will be added. The fixtures within the correct ts: N/A	ete demolition o air handler (AH er will be added isolation panels ridor and operat X Check if p	f the OR r -6) will be to the ex in OR 1-6 ing rooms roject perfor	nechanical duct along with renovated by replacing the isting campus surgery chiller 6 and 11-15 will be replaced will be replaced with new rmed with current firm		
	(1) TITLE AND LOCATION (City and State))		(2) YEAR COM	PLETED			
	Recreation Centers of Sun City Center Study – Sun City West, A	West – Johnso Arizona	n Recreation	Professional Service	es.	Construction (if applicable) 2013		
3.	(3) BRIEF DESCRIPTION (Brief scope, size Project Manager and Mechanical performed to identify existing equ cost estimation, life cycle cost and photovoltaics, solar thermal hot w Costs: N/A	, <i>cost, etc.)</i> AND SI Engineer for a ipment and dev alyses, and con vater, and others	PECIFIC ROLE 201,000 sf building rei elop renewable energ ceptual design. Susta s Construction	newable energy y provisions thr inable renewabl X Check if p	feasibility ough site e energy roject perfor	y study. An energy audit was survey, energy modeling, options included solar rmed with current firm		
	(1) TITLE AND LOCATION (<i>City and State</i>)			(2) YEAR COM	PLETED			
	Arizona State University – Temp Commissioning – Tempe, Arizor	na	reation Center	Professional Service 2013	S	Construction (if applicable) 6/2014		
4.	(3) BRIEF DESCRIPTION (Brief scope, size Commissioning Agent responsible 84,500 sf Center. Necessary corr operations and conditions, with a \$23.2M	, <i>cost, etc.</i>) AND SI e for preparing t rection of test dis specific focus c	PECIFIC ROLE he master report and screpancies were trac on HVAC, plumbing an	LEED construct ked and returne ind lighting contro X Check if p	ion phase d to the s ol systems roject perfor	e documentation for the ite to review building s. Construction Costs: rmed with current firm		
	(1) TITLE AND LOCATION (City and State))		(2) YEAR COMPLETED				
	Banner Boswell Medical Center Expansion – Sun City, Arizona	– Emergency F	ower Switchgear	Professional Service 2012	es	Construction (if applicable) 11/2013		
5.	(3) BRIEF DESCRIPTION (Brief scope, size Mechanical Engineer for the cam engine/generator set, a new 6,00 equipment system to allow for ful Construction Costs: \$1.2M	, <i>cost, etc.)</i> AND SI pus essential el 0A synchronizir I critical cooling	PECIFIC ROLE ectric system expansi- ig switchgear with N+ on backup power.	on, which incluc 1 redundancy a X Check if p	led the ad nd connec roject perfor	Idition of a new 2.0 MW cting additional chillers to the rmed with current firm		



4.	Resumes of Key Personnel Pr	oposed for thi		plete one Section	4 for each	key person.)	
a. NAM Cha	^ம rlie McGowan	b. ROLE IN THIS Mechanical	S CONTRACT Engineer	1. TOTAL	c. YEAR 2. WITH	S EXPERIENCE CURRENT FIRM	
d. LOC	ATION (City and State) Phoenix, AZ				4		
e. EDU Bac Milv	CATION (<i>DEGREE AND SPECIALIZATION</i> chelor of Science, Architectural Engine waukee School of Engineering	⁷⁾ eering,	f. PROFESSIONAL Arizona – (Lice	TRAINING - REGIST ense # Pending)	RATIONS		
g. OTH	IER PROFESSIONAL QUALIFICATIONS (Organizations, Award	ds, etc.) American S	ociety of Heating a	nd Refrige	eration Engineers (ASHRAE)	
		H. R	ELEVANT PROJEC	TS			
	City of Phoenix – Phoenix Sky Terminal 3 Modernization – Ph	Harbor Internat oenix, Arizona	ional Airport	Professional Servic 2013-Ongoir	es Ig	Construction (if applicable) 2/2018	
1.	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mechanical Designer for the MEP design for the complete renovation of International Airport, as well as establishing overall electrical direction al checkpoints and a replacement South Concourse. Construction Costs: \$540M (Est.)			on of the 210,000 s on and electrical s sts: X Chec	f Terminal ervice desi k if project p	3 at Phoenix Sky Harbor gn for expanded security erformed with current firm	
	(1) TITLE AND LOCATION (City and State)			(2) YEAR COM	IPLETED		
	 Arizona State University – Vivarium HVAC/Chilled Water Reliability Study – Tempe, Arizona (3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Mechanical Designer for a reliability assessment of the HVAC and chille on campus. The project also including as-built drawings of the campus of the campus chilled water distribution system. Study Costs: \$182,925 (4) TERE AND LOCATION (<i>Circue Line</i>) 			Professional Servic 2012	Professional Services Construction (if applicab 2012 N/A		
2.				chilled water system pus central plant cl X Check if p	Iled water systems serving the critical animal facilities s central plant chilled water system and hydraulic model X Check if project performed with current firm		
	Banner Thunderbird Medical Center –OR Renovations Mechanical Upgrades – Glendale, Arizona		ovations and	Professional Servic	es	Construction (if applicable)	
				2014-Ongoir	ng	Est. 5/2015	
3.	(3) BRIEF DESCRIPTION (Brief scope, si Mechanical Designer for the OF electrical infrastructure upgrade existing dual duct system with a in a booster configuration. New with new standard panelboards high efficient LED light fixtures.	<i>ze, cost, etc.)</i> AND S R modernization, s and architectur new single duct master humidifie . All existing light Construction Cos	PECIFIC ROLE which included con al improvements. T system. The air ha ers will be added. T fixtures within the sts: N/A	nplete demolition o The air handler (AH Indler will be added The isolation panels corridor and operator X Check if p	f the OR n I-6) will be I to the exi is in OR 1-6 ting rooms project perfor	nechanical duct along with renovated by replacing the sting campus surgery chiller and 11-15 will be replaced will be replaced with new med with current firm	
	(1) TITLE AND LOCATION (City and State Banner Health – University of	te) Arizona Health N	lotwork Master	(2) YEAR COM	IPLETED		
	Plan – Tucson, Arizona		GIWOIR WIASIEI	2014-Ongoir	es 1g	Construction (if applicable)	
4.	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Project Manager and Mechanical Engineer for the development of a pro electrical infrastructure for a new 600,000 sf, 9-story inpatient hospital o Construction Costs: N/A			a program for the n ital on the Universi X Check if p	nechanical ty of Arizor project perfor	, plumbing/piping and na Medical Center campus. med with current firm	
	(1) TITLE AND LOCATION (City and Stat	te)		(2) YEAR COM	IPLETED		
	University of Arizona Health Ne Medical Center Data Center Up	etwork – Univer ogrades – Tucso	sity of Arizona n, Arizona	Professional Servic 2013	es	Construction (if applicable) 3/2014	
5.	 (3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Mechanical Designer for renovation to add cooling and electrical infras patient medical records. Project includes computational fluid dynamic (options to improve airflow and reconfigure to hot aisle/cold aisle alignment. Construction Costs: \$600,000 		irastructure for N+1 hic CFD modeling of X Check if p	redundar	icy, supporting electronic ing conditions and various med with current firm		



b. NAME		b. ROLE IN THIS CONTRACT		c. YEARS EXPERIENCE			
Gary	⁷ Chiurazzi	Piping/Piumbing Designer		1. TOTAL 27	TOTAL2. WITH CURRENT FIRM271		
d. LOC	ATION (City and State) Phoenix, AZ						
e. EDU	CATION (DEGREE AND SPECIALIZATION)		f. PROFESSIONAL TRA (CPD), Certified in Pl	INING - REGISTI umbing Engine	RATIONS: Ce ering (CIPE)	ertified Plumbing Designer	
g. OTH	ER PROFESSIONAL QUALIFICATIONS (Or	ganizations, Award	ls, etc.)				
H. RELEVANT PROJECTS							
	(1) TITLE AND LOCATION (<i>City and State</i>) City of Phoenix – Phoenix Sky H	arbor Internati	ional Airport	(2) YEAR COM	PLETED		
	Terminal 3 Modernization – Pho	enix, Arizona		Professional Service 2013-Ongoin	es Co Ig E	onstruction (if applicable) st. 2/2018	
1.	(3) BRIEF DESCRIPTION (Brief scope, size Sr. Piping/plumbing Designer for t International Airport, as well as esta checkpoints and a replacement Sou	e, cost, etc.) AND S the MEP design ablishing overall uth Concourse. (PECIFIC ROLE for the complete renova electrical direction and e Construction Costs:	tion of the 210,0 electrical service	000 sf Termin design for ex	al 3 at Phoenix Sky Harbor xpanded security prmed with current firm	
	\$540M (Est.)				F - J F		
	(1) TITLE AND LOCATION (<i>City and State</i>)		ral Gas Generators	(2) YEAR COM	PLETED		
	– Phoenix, Arizona		ai Gas Generators	Professional Service 2013-Ongoin	es I g	Construction (if applicable) Est. 10/2015	
 2. Piping/plumbing Designer for piping/plumbing and electrical engineering design for new natural gas engine-generators for 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 suppor 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. X Check if project performed with current firm Construction Costs: N/A 					s engine-generators for five ing site conditions, ie/generator to support facility to transfer power re also made for the d with current firm		
	(1) TITLE AND LOCATION (<i>City and State</i>)	d 22nd Avonue	Lightning and	(2) YEAR COM	PLETED		
	Surge Protection – Phoenix, Ariz	zona	Eightinng and	Professional Service 2014-Ongoin	es I g	Construction (if applicable) Est. 5/2015	
 (3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Project Manager for review to perform a field survey and risk assess 22nd Avenue Service Center (Facilities Management) and Union Hill presented for associated electrical surge and lightning protection an NEDA 720 lightning protection Construction Costs; N/A 		PECIFIC ROLE vey and risk assessme nent) and Union Hills S ntning protection and ts: N/A	ent for lightning Service Center I X Check if p	or surge pro Buildings. Re roject performe	tection systems at the ecommendations were d with current firm		
	(1) TITLE AND LOCATION (City and State)			(2) YEAR COM	PLETED		
	Accelerator Replacement – Phoe	enix, Arizona	Center – Linear	Professional Service 2013	es	Construction (if applicable) 6/2014	
 (3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Piping/plumbing oversight 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, supplicand exhaust, branch piping and ductwork extension, normal and essential power electrical distribution systems, and dom hot and cold water. Construction Costs: N/A X Check if project performed with current firm 					existing Varian linear process cooling, supply tion systems, and domestic d with current firm		
	(1) TITLE AND LOCATION (City and State)	-		(2) YEAR COM	PLETED		
	SurgCenter Development – Surg Arizona	ery Center of	Tucson – Tucson,	Professional Service 2013	es	Construction (if applicable) 7/2014	
5.	 (3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE Piping/plumbing oversight for the electrical and piping/plumbing design f Systems include a new transformer, 1000A electrical service, emergenc reverse osmosis water system, deionized water system, fire protection, 1 Costs: \$1.5M 			for a 6,500 sf a cy generator, A fire alarm and X Check if p	ambulatory ca TS, water he nurse call sy roject performe	are surgery center. eaters, water softener, stems. Construction d with current firm	



ADSPO15-00004729

	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 C	OMPLETED	
	City of Phoenix – Phoenix Sky Harbo Modernization – Phoenix, Arizona	r International Airport Terminal 3	PROFE Mecha Plumb	ESSIONAL SERVICES anical/Electrical/ bing	CONSTRUCTION (If applicable Est. 2/2018	
		23. PROJECT OWNER'S INFORMAT	ΓΙΟΝ			
	c .PROJECT OWNER City of Phoenix	d .ORIGINAL BUDGET/NTE AMOUNT OF PROJE Est. \$540M	ECT	e. TOTAL COST OF F N/A	ROJECT	

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 C	OMPLETED
	Arizona State University – Vivarium HVAC/Chilled Water Reliability Study –	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable
	Tempe, Arizona	Reliability Analyses and	2012
		Cost Estimation	

23. PROJECT OWNER'S INFORMATION

c .PROJECT OWNER	d .ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
Arizona State University	\$178,000	Study Cost \$182,925
-		•

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

Affiliated Engineers was engaged to develop facility and utility infrastructure reliability analyses and cost estimation services for HVAC and chilled water systems upgrades for critical animal facilities on the Tempe campus. The main objective was to determine whether or not the existing HVAC systems could provide a 10-minute maximum downtime for airflow loss and 50-minute loss of cooling, in the event of an equipment failure or loss of campus normal electrical power.

Our team also studied and modeled the campus chilled water infrastructure, including the central plant, combined heat and power plant, and campus chilled water piping network. The 3-D as-built models of the campus central plant chilled water system and the hydraulic models of the campus chilled water distribution system calculated the minimum number of chillers, pumps, and cooling towers that were necessary to support the cooling loads withcin the animal facilities, and determined how the chilled water could be supplied during a loss of campus normal power.

Based upon this survey, AEI determined that the Central Heating Plan's (CHP) equipment was inadequate to provide the required chilled water to all of ASU's campus. A list of recommended upgrades for each facility was developed with budget costs for each project. Finally, AEI recommended developing a full as-built document set to enable future renovations or upgrades within the facility.

AEI also recommended a reliability study for all additional research buildings and data centers on campus, to determine the total chilled water capacity required to be connected to emergency power infrastructure.



	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.)				
b. TITLE AND LOCATION (City and State)				b. YEAR (COMPLETED
	Banner Thunderbird Medical Center – Upgrades – Glendale, Arizona	OR Renovation and Mechanical	PROFE Electr Plum	ESSIONAL SERVICES ical/Mechanical/ ping	CONSTRUCTION (If applicable Est. 5/2015
	23. PROJECT OWNER'S INFORMATION				
C	.PROJECT OWNER Banner Health	d .ORIGINAL BUDGET/NTE AMOUNT OF PRO. N/A	JECT	e. TOTAL COST OF F N/A	PROJECT

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 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) modernization which serves 6 OR's, 2 C- Section Rooms, Sterile Core, and Labor and Delivery, will be renovated by replacing the existing dual duct system with a new single duct system, while maintaining operation and occupancy of the OR Suite. The project team designed a single duct system that would allow construction to be complete for half of the OR's while maintaining the air flow in the activate OR Suite in the adjacent space. The air handler will be added to the existing campus surgery chiller in a booster configuration. In lieu of existing local humidifiers in the OR suite ceiling, new master humidifiers will be provided at the air handler resulting in lower static pressure in the duct and minimize noise. The isolation panels in OR 1-6 and 11-15 will be replaced with new standard panelboards which were approved per Banner Health's OR Wet Location Assessment. All existing light fixtures within the corridor and operating rooms will be replaced with new high efficient LED light fixtures providing adequate illumination levels throughout the suite.



	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.)					
b.	TITLE AND LOCATION (City and State)			b. YEAR C	OMPLETED	
	City of Phoenix – Public Works Facili Phoenix, Arizona	ies Natural Gas Generators –	PROFE Electr	ESSIONAL SERVICES ical/Plumbing	CONSTRUCTION (If applicable Est. 10/2015	
		23. PROJECT OWNER'S INFORMA	TION			
Ī	c .PROJECT OWNER City of Phoenix	d .ORIGINAL BUDGET/NTE AMOUNT OF PROJ Est. \$1.5M	IECT	e. TOTAL COST OF P N/A	ROJECT	

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

AEI is providing piping/plumbing engineering design and electrical engineering design for new Natural gas engine-generators for five (5) City of Phoenix Public Works Department (PWD) facilities throughout the city.

The project includes reviewing the following existing conditions:

- · Electrical demand and natural gas loads at each facility
- Electrical service and distribution
- Natural gas supply capacities at each location, and
- Site opportunities and limitations.

From these reviews, AEI will select an appropriately-sized natural gas (NG) fueled engine/generator(s) to support identified building and site functions. The engine/generators will be located on new concrete pad(s) in the vicinity of the electrical service or at another location as directed by the City PWD. New automatic transfer switches will be provided at each facility location to transfer power from the serving electric utility to the new engine/generator in the event utility service is lost. Provisions will be made for connection of portable load banks for periodic generator load testing.

In April 2011, each facility underwent a needs assessment that identified critical operations to be backed up by the engine/generator, electrical load (kW) to be supported by the engine/generator, and required run-time duration. At least one location will require a new electrical service entrance section (SES) in conjunction with the new stand-by generator.

The five (5) locations where new NG engine/generators will be provided are at five (5) Public Works Facilities.

Union Hills

Glenrosa Service Center

Salt River Service Center

South Shops

Okemah Service Center



	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.)					
TITLE AND LOCATION (City and State)				b. YEAR C	OMPLETED	
University of Arizona Health Network		c – University of Arizona Medical		ESSIONAL SERVICES	CONSTRUCTION (If applicable	
	Center Data Center Upgrades – Tucson, Arizona		Facility Assessment, Mechanical/Electrical Design and Commissioning Services		3/2014	
		23. PROJECT OWNER'S INFORM	ATION			
С	.PROJECT OWNER City of Phoenix	d .ORIGINAL BUDGET/NTE AMOUNT OF PRC \$590,000	JECT	e. TOTAL COST OF P \$600,000 (add services)	ROJECT ed commissioning	

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

AEI provided a facility assessment, mechanical, electrical design and commissioning services for the renovation of the University of Arizona Health Network's campus data center. Project scope included design of a new Uninterrupted Power Supply (UPS), new Computer Room Air Conditioning Units (CRACs), FM-200 Fire Protection, and a Computational Fluid Dynamics (CFD) model to support the Electronic Privacy Information Center (EPIC). To accommodate equipment needs, 5 new 25kW server racks were added to the existing equipment, which was reorganized to optimize cooling efficiency. Parallel to the design process, AEI performed a study of the existing 1,700 sf data center configurations using CFD to track temperature fluctuations. Our team modeled several N+1 configurations to provide cost-effective and energy-efficient options to the University. The data center is located in a basement room, directly beneath patient rooms and across from a busy laundry room facility. With such extensive existing mechanical and electrical infrastructure in the vicinity, our team performed a full inventory of existing site equipment to determine the facility's true load capacity. By adding some additional breakers to support a weakened 600-amp feeding panel, we were able to easily accommodate the increased mechanical equipment capacity. AEI also commissioned all of the new equipment to test optimal functionality.



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 highquality 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.





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

TEAM ORGANIZATION CHART



PROJECT TEAM

AEI | Affiliated Engineers, Inc.



Steven J. Yanke, PE, LEED AP

Principal/Managing Director/Electrical Engineer

Steve leads AEI's Phoenix office. He is a registered engineer with over 27 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

7 years



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



Bryan J. Jehling, PE, LEED AP BD+C

Electrical Discipline Leader/Project Managing/Electrical Engineer

Bryan is the Electrical Department Lead for Affiliated Engineers' Phoenix office. Bryan has 25 years of experience in the electrical engineering field serving the architectural, engineering, and construction industry in various market sectors including laboratories, data centers, higher education, general office, healthcare, and correctional. Bryan's specialties include the development of electrical distribution systems and participation in the design of low voltage structured cabling distribution. He is also becoming heavily involved in the design and implementation of sustainable energy reduction strategies, as well as renewable energy solutions such as solar, for renovated and new facilities.

EDUCATION Bachelor of Science, Electrical Engineering, Northern Illinois University

CERTIFICATIONS Registered Professional Engineer - Arizona # 32857 LEED Accredited Professional

YEARS WITH FIRM Joined AEI October 2014



Jeremy Barrette, PE, HFDP

Project Manager/Mechanical Engineer

Jeremy has more than 17 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

4 years



William T. Fiocchi, PE Project Manager/Mechanical Engineer

Will has a proven track record in a variety of challenging healthcare and commercial projects. For over 9 years, he has applied his project management skills in the design of healthcare, 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 Registered Professional Engineer - Arizona # 57166

YEARS WITH FIRM

1.5



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



Gary Chiurazzi, CPD

Project Manager/Piping/Plumbing Designer and Oversight

Gary has over 27 years of experience in plumbing, medical gas, and fire protection system design in the healthcare, municipal, science and technology, institutional, and commercial market sectors. Gary is responsible for project management, quality control and review. He is also the local representative for the company's water conservation initiative, a formal program focused on assisting project owners rethink and reduce overall water usage on a project-by-project basis.

CERTIFICATIONS

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

YEARS WITH FIRM





Nevin Heitner, PE, CBCP, CEM , LEED AP

Commissioning Agent/Mechanical Engineer

Nevin is experienced in leading teams in mechanical system planning and design for new construction and renovation projects, specifically involving higher education, healthcare, industrial and hospitality facilities. Nevin has over 23 years of extensive background in commissioning HVAC systems and state-of-the-art building automation systems for critical facilities, including preparing master reports and LEED documentation for project acceptance, and tracking correction of test discrepancies, with a specific focus on HVAC, plumbing and lighting control systems.

EDUCATION Pachalor of Scie

Bachelor of Science, Mechanical Engineering, Lehigh University

CERTIFICATION

Registered Professional Engineer - Arizona # 54572 Certified Building Commissioning Professional (CBCP) Certified Energy Manager (CEM) LEED Accredited Professional

YEARS WITH FIRM 2



Zach Goldsworthy

Electrical Designer

Zach understands the need for continuity of power not only after the project is complete, but also during construction. His over 8 years of experience include numerous renovation and new construction projects for various clients, including the City of Phoenix, University of Arizona, Banner Health and Dignity Health. As such, he is very familiar with an extensive array of design standards and requirements. He specializes in power system modeling (load flow, short circuit, breaker coordination, and harmonic analysis) using SKM software.

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

YEARS WITH FIRM

5



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



Jason C. Clausen, PE, CDT

Electrical Engineer

Jason has over 11 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 building types, including government, industrial, higher education, and healthcare facilities.

EDUCATION Bachelor of Science, Electrical Engineering, South Dakota University

CERTIFICATIONS

Registered Professional Engineer - Arizona # 52023

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 Registered Professional Engineer - Arizona # pending

YEARS WITH FIRM

4

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

a.	Percentage of Total Work Attributable to State, Federal and Municipal Government Work:	30%
b.	Percentage of Total Work Attributable to Non-Government Work:	70%

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

Signature:

Date: 12/22/2014

Name: Steven J. Yanke

Title: Principal/Managing Director