



ATTACHMENT I – General Qualifications
**ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
ADSP015-00004729**

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

(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:	Energy Systems Design, Inc.
b. FIRM (OR BRANCH OFFICE) STREET:	7135 E Camelback Rd, Ste 275
c. FIRM (OR BRANCH OFFICE) CITY:	Scottsdale
d. FIRM (OR BRANCH OFFICE) STATE:	AZ
e. FIRM (OR BRANCH OFFICE) ZIP CODE:	85251

f. YEAR ESTABLISHED:	1988
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(g1). OWNERSHIP - TYPE:	Corporation
(g2) OWNERSHIP - SMALL BUSINESS STATUS:	Yes – Federal and State

h. POINT OF CONTACT NAME AND TITLE:	Monte Sturdevant, President
i. POINT OF CONTACT TELEPHONE NUMBER:	480-481-4900 /480-481-4998 (direct)
j. POINT OF CONTACT E-MAIL ADDRESS:	Monte.sturdevant@esdaz.com

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

a. Discipline Title	b. Function: Primary (P) or Secondary (S)	c. No. of Employees - Firm	d. No. of Employees - Branch
Mechanical Engineer	P	5	
Electrical Engineer	P	4	
Project Manager	S	12	
CADD Technician	P	11	
Other: Administrative Staff	P	4	
Total		27	



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

a. Approximate No. of Projects	b. Experience	c. Revenue Index Number (see below)
2	Auditoriums, Theatres	1
11	Computer Facilities (Data Centers)	3
15	Dining Halls/Restaurants/Kitchens	3
51	Educational/Classrooms	5
41	Electrical Studies/Design (only)	3
27	Heating/Ventilation/Air Conditioning (only)	3
4	Hotels/Motels	1
8	Housing (Multi-Family; Apartments; Condominiums)	1
6	Hospitals/Medical	3
2	Industrial	1
14	Labs - General	3
4	Libraries/Museums	1
80	Office/Tenant Improvements	6
8	Plumbing/Piping (only)	1
9	Prisons/Correctional	3
11	Recreational Facilities	1

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

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



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

a. NAME Mo Ardebili	b. ROLE IN THIS CONTRACT Mechanical Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 37	2. WITH CURRENT FIRM 27
d. LOCATION (City and State) Scottsdale, AZ			
e. EDUCATION (DEGREE AND SPECIALIZATION) B.S. Mechanical Engineering, 1977, Iowa State University		f. PROFESSIONAL TRAINING - REGISTRATIONS Professional Engineer, Mechanical, Arizona #17853	
g. OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Awards, etc.) LEED Accredited Professional , Commissioning Process Management Professional, ASHRAE Member			

H. RELEVANT PROJECTS			
1.	(1) TITLE AND LOCATION (City and State) DPS Forensic Sciences Lab Chiller/Cooling Tower Replacement, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2014
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE MPE Engineering to increase the capacity of the existing DPS central plant in addition to connecting the two adjacent central plant chilled water supply/return piping provide better reliability to operation of both central plants. Role: Project Manager; Mechanical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION (City and State) Adobe Mountain School Housing Mechanical Piping Upgrades, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2012	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mechanical engineering design services for the replacement of existing heating hot water piping due to leaking in the existing piping and installation of new preinsulated welded steel heating hot water piping from the connections in the chiller plant throughout the facility to above grade piping connections at each building. Role: QA/QC	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	(1) TITLE AND LOCATION (City and State) ADOA Data Center Upgrade, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2007	Construction (if applicable) 2008
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE An existing raised floor area was converted to a new data center, with new split system computer room A/C units, condensing mounted on the roof. Plumbing work includes new floor sinks along with domestic water for humidification purposes. Electrical modifications include power to the new A/C units and power to the PDU's. The existing wet fire protection system was converted to a pre-action (dry) system Role: Project Manager; Mechanical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm
4.	(1) TITLE AND LOCATION (City and State) Phoenix City Hall Cooling Tower Analysis and Replacement, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2007	Construction (if applicable) 2008
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE MPE engineering to evaluate and replace the cooling towers and existing condenser water piping at Phoenix City Hall. Role: QA/QC	<input checked="" type="checkbox"/>	Check if project performed with current firm
5.	(1) TITLE AND LOCATION (City and State) Wells Fargo Plaza Chiller/Cooling Tower Replacement, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2004	Construction (if applicable) 2006
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE A 30 year old central plant cooling system at the top of a 27-story building needed to be replaced. Objective: to provide a new energy efficient and reliable building cooling system with no disruption to the company's critical business functions. Realizing that complex design, phased implementation, staging and coordinating would be necessary if the central plant was to be replaced, ESD first performed a comprehensive life cycle evaluation, confirming that the most efficient, most energy savings procedure would be to replace the cooling tower and chillers – which had to go through the roof. The new design has been able to reduce electrical consumption by approximately 20%, and provides the ability to collect data on energy consumption. Role: Project Manager; Mechanical Engineer	<input type="checkbox"/>	Check if project performed with current firm



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

a. NAME G. Monte Sturdevant	b. ROLE IN THIS CONTRACT Mechanical Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 33	2. WITH CURRENT FIRM 22
d. LOCATION (City and State) Scottsdale, AZ			
e. EDUCATION (DEGREE AND SPECIALIZATION) B.S. Mechanical Engineering 1982, Oklahoma State University		f. PROFESSIONAL TRAINING - REGISTRATIONS Professional Engineer, Mechanical, Arizona #20981	
g. OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Awards, etc.) ASHRAE, ASPE			

H. RELEVANT PROJECTS			
1.	(1) TITLE AND LOCATION (City and State) DPS Forensic Sciences Lab Chiller/Cooling Tower Replacement, Phoenix, AZ	(2) YEAR COMPLETED Professional Services 2013 Construction (if applicable) 2014	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE MPE Engineering to increase the capacity of the existing DPS central plant in addition to connecting the two adjacent central plant chilled water supply/return piping provide better reliability to operation of both central plants. Role: Mechanical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION (City and State) Adobe Mountain School Housing Mechanical Piping Upgrades, Phoenix, AZ	(2) YEAR COMPLETED Professional Services 2012 Construction (if applicable) 2013	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mechanical engineering design services for the replacement of existing heating hot water piping due to leaking in the existing piping and installation of new preinsulated welded steel heating hot water piping from the connections in the chiller plant throughout the facility to above grade piping connections at each building. Role: Project Manager, Mechanical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	(1) TITLE AND LOCATION (City and State) ADOA Data Center Upgrade, Phoenix, AZ	(2) YEAR COMPLETED Professional Services 2007 Construction (if applicable) 2008	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE An existing raised floor area was converted to a new data center, with new split system computer room A/C units, condensing mounted on the roof. Plumbing work includes new floor sinks along with domestic water for humidification purposes. Electrical modifications include power to the new A/C units and power to the PDU's. The existing wet fire protection system was converted to a pre-action (dry) system Role: Mechanical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm
4.	(1) TITLE AND LOCATION (City and State) Phoenix City Hall Cooling Tower Analysis and Replacement, Phoenix, AZ	(2) YEAR COMPLETED Professional Services 2007 Construction (if applicable) 2008	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE MPE engineering to evaluate and replace the cooling towers and existing condenser water piping at Phoenix City Hall. Role: Project Manager; Mechanical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm
5.	(1) TITLE AND LOCATION (City and State) Wells Fargo Plaza Chiller/Cooling Tower Replacement, Phoenix, AZ	(2) YEAR COMPLETED Professional Services 2004 Construction (if applicable) 2006	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE A 30 year old central plant cooling system at the top of a 27-story building needed to be replaced. Objective: to provide a new energy efficient and reliable building cooling system with no disruption to the company's critical business functions. Realizing that complex design, phased implementation, staging and coordinating would be necessary if the central plant was to be replaced, ESD first performed a comprehensive life cycle evaluation, confirming that the most efficient, most energy savings procedure would be to replace the cooling tower and chillers – which had to go through the roof. The new design has been able to reduce electrical consumption by approximately 20%, and provides the ability to collect data on energy consumption. Role: Mechanical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm



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

a. NAME Ronald Korte	b. ROLE IN THIS CONTRACT Electrical Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 34	2. WITH CURRENT FIRM 18
d. LOCATION <i>(City and State)</i> Scottsdale, AZ			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> B.S. Electrical Engineering 1981, Iowa State University		f. PROFESSIONAL TRAINING - REGISTRATIONS Professional Engineer, Electrical, Arizona #22929	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> 7x24			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> ADOA State Hospital Power Plant & Dietary Building Emergency Generator, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Electrical Engineering for a new emergency generator back up power system that will support the Arizona State Hospital chilled water central plant and the Dietary Building. The project construction budget is \$1,700,000. Role: Project Manager, Electrical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION <i>(City and State)</i> ADOC Florence ACI Electrical Modifications, Florence, AZ	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Electrical engineering services to prepare the design for electrical power for Arizona Correctional Industries for two new enterprises on the Florence Prison property. Wild Horse Farm: This project involves providing a new electrical service and feeding several panels around the property to support electrical needs related to anticipated operations. Fish Farm: This project will reuse the existing SES feeding an irrigation pump and an existing equipment building to provide power to a Ranch House that is being renovated. Role: Project Manager, Electrical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	(1) TITLE AND LOCATION <i>(City and State)</i> DPS Forensic Sciences Lab Chiller/Cooling Tower Replacement Project, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE MPE Engineering to increase the capacity of the existing DPS central plant in addition to connecting the two adjacent central plant chilled water supply/return piping provide better reliability to operation of both central plants. Role: Electrical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm
4.	(1) TITLE AND LOCATION <i>(City and State)</i> Adobe Mountain School Emergency Generator Addition, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2012	Construction (if applicable) 2012
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Completed a study to evaluate the existing electrical systems at the Adobe Mountain School with regard to providing an additional generator for the Administrative Building. ESD evaluated the existing electrical service configuration and loads. Based on this evaluation, ESD investigated what modifications were necessary and provided electrical engineering for the generator addition. Role: Project Manager, Electrical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm
5.	(1) TITLE AND LOCATION <i>(City and State)</i> ASPC Lewis Eagle Point/Sunrise - CATV Provisions, Buckeye, AZ	(2) YEAR COMPLETED	
		Professional Services 2012	Construction (if applicable) 2012
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Electrical engineering services to design electrical power and cable television receptacles to provide facilities for individual televisions for each inmate at the Lewis Prison Sunset and Eagle Point housing buildings. Role: Project Manager, Electrical Engineer	<input checked="" type="checkbox"/>	Check if project performed with current firm



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

a. NAME William Schubert	b. ROLE IN THIS CONTRACT Certified Plumbing Designer	c. YEARS EXPERIENCE	
		1. TOTAL 32	2. WITH CURRENT FIRM 13
d. LOCATION <i>(City and State)</i> Scottsdale, AZ			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> Water Systems and Plumbing Design Certificate – 1983 New York University, School of Continuing Education – 1974 Rio Salado Community College – 1988 Paradise Valley Community College – 1990		f. PROFESSIONAL TRAINING - REGISTRATIONS Certified Plumbing Designer, #4839	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> ASPE			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> DPS Forensic Sciences Lab Chiller/Cooling Tower Replacement, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE MPE Engineering to increase the capacity of the existing DPS central plant in addition to connecting the two adjacent central plant chilled water supply/return piping provide better reliability to operation of both central plants. Role: Plumbing Designer	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Adobe Mountain School Housing Mechanical Piping Upgrades, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2012	Construction (if applicable) 2013
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Mechanical engineering design services for the replacement of existing heating hot water piping due to leaking in the existing piping and installation of new preinsulated welded steel heating hot water piping from the connections in the chiller plant throughout the facility to above grade piping connections at each building. Role: Plumbing Designer	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	(1) TITLE AND LOCATION <i>(City and State)</i> ADOA Data Center Upgrade, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2007	Construction (if applicable) 2008
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE An existing raised floor area was converted to a new data center, with new split system computer room A/C units, condensing mounted on the roof. Plumbing work includes new floor sinks along with domestic water for humidification purposes. Electrical modifications include power to the new A/C units and power to the PDU's. The existing wet fire protection system was converted to a pre-action (dry) system Role: Plumbing Designer	<input checked="" type="checkbox"/>	Check if project performed with current firm
4.	(1) TITLE AND LOCATION <i>(City and State)</i> Adobe Mountain School Housing Unit Plumbing Fixture Additions, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2011	Construction (if applicable) 2012
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Plumbing engineering design services for installation of new combination water closet lavatory fixtures in the six housing units which are currently unoccupied at the Adobe Mountain School. Role: Plumbing Designer	<input checked="" type="checkbox"/>	Check if project performed with current firm
5.	(1) TITLE AND LOCATION <i>(City and State)</i> Wells Fargo Plaza Chiller/Cooling Tower Replacement, Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services 2004	Construction (if applicable) 2006
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE A 30 year old central plant cooling system at the top of a 27-story building needed to be replaced. Objective: to provide a new energy efficient and reliable building cooling system with no disruption to the company's critical business functions. Realizing that complex design, phased implementation, staging and coordinating would be necessary if the central plant was to be replaced, ESD first performed a comprehensive life cycle evaluation, confirming that the most efficient, most energy savings procedure would be to replace the cooling tower and chillers – which had to go through the roof. The new design has been able to reduce electrical consumption by approximately 20%, and provides the ability to collect data on energy consumption. Role: Plumbing Designer	<input checked="" type="checkbox"/>	Check if project performed with current firm



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

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

a. TITLE AND LOCATION <i>(City and State)</i> DPS Forensic Sciences Lab Chiller/Cooling Tower Replacement, Phoenix, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i> 2013

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Arizona Department of Administration	d. DOLLAR AMOUNT OF PROJECT \$139,000	e. TOTAL COST OF PROJECT \$139,000
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(include scope, size, and length of project)*

MPE Engineering to increase the capacity of the existing DPS central plant in addition to connecting the two adjacent central plant chilled water supply/return piping provide better reliability to operation of both central plants. During the programming phase, ESD evaluated the space and electrical power capacity in respect to the proposed new chillers and installed the largest chillers possible to meet the cooling demand. Our objective was to function in a partnership with the Arizona State Procurement Office, while working in association with other design and construction team members, so as to fulfill the State's needs. Our scope included:

- Removal of two existing 200 ton chillers and installation of two new larger VSD chillers in central plant.
- Removal of three existing cooling towers and addition of three new cooling towers.
- Review of and size the capacity of the new chiller and cooling towers with ADOA and facilities personnel to determine the appropriate size to meet owner requirements and needs.
- Modification to cooling tower piping.
- Addition of tower filtration system.
- Modification to chilled water piping inside the central plant.
- Addition of new chilled water and condenser water pumps.
- Modification to control system.
- Connection of chilled water piping between two central plants.
- Review existing condenser water treatment setup and any modification required for upgrade.
- New concrete pad for chillers and modification to cooling tower support.
- New chemical treatment system and addition of filtration in chilled water piping.
- Modification to controls and addition of control valves and VFDs to pumps and towers as needed.

a. TITLE AND LOCATION <i>(City and State)</i> Wells Fargo Plaza Chiller/Cooling Tower Replacement, Phoenix, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2004	CONSTRUCTION <i>(If applicable)</i> 2006

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Wells Fargo	d. DOLLAR AMOUNT OF PROJECT \$2.4 Million	e. TOTAL COST OF PROJECT \$2.4 Million
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(include scope, size, and length of project)*

A 30 year old central plant cooling system at the top of a 27-story building needed to be replaced. Objective: to provide a new energy efficient and reliable building cooling system with no disruption to the company's critical business functions. Realizing that complex design, phased implementation, staging and coordinating would be necessary if the central plant was to be replaced, ESD first performed a comprehensive life cycle evaluation, confirming that the most efficient, most energy savings procedure would be to replace the cooling tower and chillers – which had to go through the roof. The new design has been able to reduce electrical consumption by approximately 20%, and provides the ability to collect data on energy consumption.



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b. TITLE AND LOCATION <i>(City and State)</i> ADOA Data Center Upgrade, Phoenix, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2007	CONSTRUCTION <i>(If applicable)</i> 2008

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Department of Administration	d. DOLLAR AMOUNT OF PROJECT N/A	e. TOTAL COST OF PROJECT N/A
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)
 This project involved an upgrade of 2,000 SF data center. Existing raised floor area on 2nd floor, previously being used as office space, was converted to a new data center. New split system computer room A/C units were required for this renovation. Plumbing work included new floor sinks along with domestic water for humidification purposes. Electrical modifications included power to the new A/C units and power to the Power Distribution Units. Additionally, the existing wet fire protection system was converted to a pre-action (dry) system. Cut over required limited to no downtime of the facility. The project was completed from design to construction in 17 months. ESD was not the original MPE engineer on this project. We were brought in as an alternate MPE engineer to reevaluate the existing conditions of the data center to determine whether the flooring system truly had to be replaced to accommodate the new cooling system, as established by the original engineer. Instead of replacing the entire flooring system and therefore driving up the cost of the project, we solved the cooling issue by incorporating it into the design of the new cabinets that were going to be installed. This design allowed direct venting of the seating space causing a lower space need for the under floor system, and no need to replace the flooring system at all.

c. TITLE AND LOCATION <i>(City and State)</i> Adobe Mountain School Housing Mechanical Piping Upgrades, Phoenix, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2012	CONSTRUCTION <i>(If applicable)</i> 2013

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Department of Administration	d. DOLLAR AMOUNT OF PROJECT N/A	e. TOTAL COST OF PROJECT N/A
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)
 The existing underground heating hot water piping was fiberglass with solvent welded joints and was leaking below grade. This project consisted of mechanical engineering design services for replacement of existing heating hot water piping and installation of new preinsulated welded steel heating hot water piping from the connections in the chiller plant throughout the facility to above grade piping connections at each building

d. TITLE AND LOCATION <i>(City and State)</i> ADOA State Hospital Power Plant & Dietary Building Emergency Generator, Phoenix, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i> 2014

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Department of Administration	d. DOLLAR AMOUNT OF PROJECT \$1,700,000	e. TOTAL COST OF PROJECT \$1,700,000
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g. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)
 Electrical Engineering for a new emergency generator back up power system that will support the Arizona State Hospital chilled water central plant and the Dietary Building. The project included full design and construction administration services including site verification of affected electrical systems. ESD coordinated with the electric power utility company for modifications to the existing service entrances to the affected buildings. ESD also provided engineering support for startup and commissioning of the new emergency backup systems in conjunction with the contractor and equipment suppliers. Specifications were included describing commissioning requirements and ESD reviewed the procedures and witnessed testing to ensure the systems operate as designed.



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6. ADDITIONAL INFORMATION

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

Energy Systems Design is a client-focused team of mechanical, plumbing and electrical engineers. We are committed to creative and technically innovative solutions, and sustainable engineering design for every project.

Established in 1988, we have been providing exemplary engineering design for over two decades. Our goal is to meet the Owner’s functional needs, and provide the most cost beneficial designs and solutions, while representing the best interest of the Owner. We utilize a project management approach, with company principal leadership, and promote a collaborative team environment, which includes Owner’s representation (both functional and management), architectural and engineering design team members, construction managers, subcontractors, etc.; whoever is appropriate for each specific project.

ESD is a member of the US Green Building Council and the majority of our Engineering Staff are LEED Accredited Professionals.

Our consistently high level of engineering services has resulted in long-term, on-going, successful relationships with building Owners, Architects, Governmental Agencies, Universities, School Districts, Developers, and Contractors.

Services we provide

- MPE Systems Engineering
- Lighting Design
- Building Energy Analysis/Simulation
- Energy Audits
- Building Assessments/Due Diligence
- Systems Evaluations/Life Cycle Analysis
- BIM/3D Modeling (Revit/MEP)
- Thermal/Airflow Modeling
- Federal/State Incentive Evaluation/Application
- Test and Balance
- Daylighting Design
- Photovoltaic/Solar Design
- Code Studies
- Fire Protection
- LEED Consulting
- LEED Energy Analysis
- LEED Commissioning
- Commissioning

Our general brochure is attached in following pages.

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:	15%
b.	Percentage of Total Work Attributable to Non-Government Work:	85%

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

Signature: *Mo Ardebili*

Date: 12/19/2014

Name: Mo Ardebili

Title: CEO/Sr. Principal



2014
CREATIVE. PRACTICAL. SUSTAINABLE.

STATE FARM DISCOVERY BUILDING 2118



ENERGY MECHANICAL ENGINEERS
SYSTEMS ELECTRICAL ENGINEERS
DESIGN SUSTAINABLE DESIGN



certifications

- SRP Qualified Services Provider (QSP)
- SRP Energy Efficiency Alliance Contractor
- APS Trade Ally
- Multiple Association of Energy Engineers (AEE) Certified Energy Managers (CEM)
- ASHRAE Certified Commissioning Process Management Professional (CPMP)
- Certified Healthcare Design Professional
- Included on Energy Star's list of Approved Professional Engineers
- Green Classroom Professional

project types

- Office Buildings
- Corporate Headquarters
- Data Centers/Mission Critical Facilities
- Universities/Colleges
- Medical Clinics
- Laboratories
- Elementary/Secondary Schools
- Libraries
- Theatres
- Performing Arts Centers
- Museums
- Hotel/Hospitality
- Tenant Improvements
- Municipal Buildings/Courts
- Condominiums
- Central Plants/Central Utilities
- Recreation Centers
- Fitness Centers
- Park Lighting
- Assisted Living Facilities

registrations

- Arizona
- California
- Colorado
- Illinois
- Iowa
- Kansas
- Missouri
- Nevada
- New Mexico
- North Carolina
- Oregon
- South Carolina
- Texas
- Utah
- Washington
- Wisconsin

ESD Corporate Office, Scottsdale, AZ
First LEED-CI Platinum Certified Office in Arizona

energy systems design company profile

Energy Systems Design is a client-focused team of mechanical, plumbing and electrical engineers. We are committed to creative and technically innovative solutions, and sustainable engineering design for every project.

Established in 1988, we have been providing exemplary engineering design for over two decades. Our goal is to meet the Owner's functional needs, and provide the most cost beneficial designs and solutions, while representing the best interest of the Owner. We utilize a project management approach, with company principal leadership, and promote a collaborative team environment, which includes Owner's representation (both functional and management), architectural and engineering design team members, construction managers, subcontractors, etc.; whoever is appropriate for each specific project.

ESD is a member of the US Green Building Council and the majority of our Engineering Staff are LEED Accredited Professionals.

Our consistently high level of engineering services has resulted in long-term, on-going, successful relationships with building Owners, Architects, Governmental Agencies, Universities, School Districts, Developers, and Contractors.

services we provide

- MPE Systems Engineering
- Lighting Design
- Building Energy Analysis/Simulation
- Energy Audits
- Building Assessments/Due Diligence
- Systems Evaluations/Life Cycle Analysis
- BIM/3D Modeling (Revit/MEP)
- Thermal/Airflow Modeling
- Federal/State Incentive Evaluation/Application
- Test and Balance
- Daylighting Design
- Photovoltaic/Solar Design
- Code Studies
- Fire Protection
- LEED Consulting
- LEED Energy Analysis
- LEED Commissioning
- Commissioning

comprehensive services

sustainable solutions

LEED and sustainable solutions

ESD is committed to providing creative design and sustainable solutions for our clients, including the preservation of our natural resources, and has been designing energy-efficient mechanical and lighting systems for over 20 years. As experts in sustainable design, our objective is to incorporate a responsible, global view of energy consumption, using low energy building systems and renewable technology whenever possible.

Embracing environmental best practices, our designs are based on an energy-saving strategy that provides comfortable and healthy interior climate solutions.

ESD is a member of the U.S. Green Building Council, and the majority of our Engineering Staff are LEED Accredited Professionals.

ESD has completed numerous LEED certified projects, with awards ranging from Certified to Platinum, and has many additional projects currently in design or awaiting LEED certification. Furthermore, countless other projects have been designed to incorporate sustainable practices, but these project owners have chosen to design to LEED standards rather than pursue certification.

recent LEED certified projects

Energy Systems Design Corporate Office, Scottsdale, AZ; *First LEED-CI Platinum Certified Office in Arizona*

DPR Construction Corporate Headquarters Phoenix, AZ, *LEED Platinum, First Net Zero Office in Arizona* (Commissioning)

White Tank Library, Waddell, AZ; *LEED Platinum*

Ironwood Hall, Chandler-Gilbert Community College, Pecos Campus, Chandler, AZ; *LEED Gold*

Engel Hall, Chandler-Gilbert Community College, Williams Campus, Mesa, AZ; *LEED Gold*

NAU Liberal Arts Renovation, Flagstaff, AZ; *LEED CI GOLD*

Peoria Courts Expansion, Peoria, AZ; *LEED GOLD*

ASU Polytechnic Academic Campus Academic Buildings, Mesa, AZ; *LEED Gold*

Knoll Furniture Showroom, Tempe, AZ; *LEED Gold*

Herrera Elementary School Performing Arts Building, Phoenix, AZ; *LEED Silver*

Scottsdale Community College Film Program Storage and Classrooms, Scottsdale, AZ; *LEED Silver*

ASU ISTB 2 Building, Tempe, AZ; *LEED Silver*

Desert Broom Library, City of Phoenix, AZ; *LEED Silver*

Sky Song, Buildings 1 and 2, Scottsdale, AZ; *LEED Silver*

Cesar Chavez Library, City of Phoenix, AZ; *LEED Silver*

Desert Edge High School Phase II, Goodyear, AZ; *LEED Silver* (Fundamental Commissioning)

AECOM Corporate Office, Phoenix, AZ; *LEED Certified*

Starwood Hotels Corporate Office, Scottsdale, AZ; *LEED Certified*

ASU Foundation Headquarters Building, Tempe, AZ; *LEED Certified*

RNL Office Tenant Improvement, Phoenix, AZ; *LEED CI* (Fundamental Commissioning)

DAVIS Office Tenant Improvement, Tempe, AZ; *LEED CI*

McGough Construction Office Tenant Improvement, Phoenix, AZ; *LEED CI*

Maricopa County Parks Estrella Visitor Center, Goodyear, AZ; *LEED Certified*

Three Springs Mixed Use Project, Durango, CO; *LEED Certified* (Design & Commissioning)

City of Apache Junction City Hall & Multi-generational Buildings, Apache Junction, AZ; *LEED Certified* (Fundamental Commissioning)



White Tank Library, Waddell, AZ
First LEED Platinum Public Library in Arizona



Herrera Elementary School
Performing Arts Building, LEED Silver



ESD Corporate Office, LEED Platinum



Peoria Courts Expansion, LEED Gold

data centers

Mission critical projects give us the chance to highlight what sets us apart from the rest - **our ability to design efficient complex systems**. From conceptual design, feasibility studies, computer modeling and simulations to detailed design, sequence of operations and commissioning. ESD works closely with each client to meet the individual needs of each data center.

Large Co-Location Data Center Client Multiple Campuses Expansions, Metro-Phoenix, AZ, 400,000+ GSF

Private Data Center Client, Commissioning and Renovations, Chandler, AZ

John C. Lincoln NCSS Data Center, Phoenix, AZ, 4,000 SF

Alaska USA Data Center, Glendale, AZ, 12,000 SF

Wells Fargo, Tempe, Phoenix, Chandler, AZ; Irvine, CA; Irving, TX, 1997-Present

Central New Mexico Community College (CNMCC) Data Centers, Albuquerque, NM, 4,500 GSF

Early Warning Services Chilled Water Piping, Scottsdale, AZ

First Data Corporation, Chandler, AZ, 51,500 SF

ADOA Data Center, Phoenix, AZ, 2,000 SF

ADES Data Center Renovation and UPS Replacement, Phoenix, AZ, 9,000 SF

SGA Data Center, Kierland Office Building, Phoenix, AZ, 6,000 SF

McKesson Call Center, Scottsdale Galleria, Scottsdale, AZ, 90,000 SF Call Center, 2

IndyMac Bank Data Center Expansion, La Mirada, CA, 2,800 SF

IndyMac Tempe Data Center Equipment Upgrades, Tempe, AZ

Bull Data Center Relocation, Phoenix, AZ, 21,000 SF

CoreLink Data Centers Expansion, CAC, Phoenix, AZ, 21,000 SF

Pegasus Office Building and Data Center Complex, Scottsdale, AZ, 8,000 SF

Banner Health Services, Data Center Energy Evaluation, Fairbanks, AK

Banner Health Data Center Evaluation, North Colorado Medical Center, Greeley, CO

Over the past 10 years, there have been major shifts in both energy efficiency goals and data centers, a type of facility which is constantly evolving with new technology. ESD has been on the forefront of this movement and consistently provides state-of-the-art mechanical, plumbing and electrical engineering for data center clients. We understand the complexities of mission critical facilities and work to ensure the utmost reliability, redundancy and maintainability within the design. Furthermore, we suggest floor plan modifications to maximize a building's available space while designing for optimum energy efficiency to provide the most cost-efficient engineering solution.



Arizona Department of Administration Data Center



Client Data Center



Pegasus Office Building and Data Center Complex

energy plants

Central Plants, one of the major energy users in any building or structure, are the heart of the environmental cooling and heating system. Proper design of central plants will result in a major reduction of heating and cooling energy required by any facility. Analysis of the overall life-cycle costs of a central plant benefits the Owner in terms of learning the expected total cost and energy efficiency. This encompasses everything from infrastructure design and component selection to commissioning and maintenance of the central plant. At ESD, we strive to design and engineer each of our projects to exceed the expectations of our clients and get the most out of energy plant components to the end of their useful life. By designing an efficient central plant, we help the client save on energy as well as life-cycle cost to operate and maintain their facilities. Because of our dedication to effective design, we have built long-term relationships with many of our clients who continue to use our services year after year on existing and new projects.

Arizona Department of Public Safety Forensic Sciences Lab Chiller/Cooling Tower Upgrade, Phoenix, AZ

Arizona Department of Revenue Chiller Replacement, Phoenix, AZ

Central Arizona College Superstition Mountain Campus Central Plant, Apache Junction, AZ

City of Scottsdale Water District Himovitz Building, Chilled Water Building Mods & Mechanical CX, Scottsdale, AZ

Early Warning Systems Chiller Addition, Scottsdale, AZ

FAA North Terminal, Replacement of Air Handling Unit; Replacement of Chiller Boiler, Phoenix, AZ

Central Plant & Infrastructure Upgrades to each of Maricopa Community College District's 10 Campuses, Metro Phoenix, AZ

Maricopa County Courts Complex Replacement of Chiller #5, Phoenix, AZ

Maricopa County East Courts Outside Air Modifications, Phoenix, AZ

Monarch Apartments Mechanical System Replacement, Phoenix, AZ

Motorola Mesa Central Plant Chiller #3 and #4 Replacement and Upgrade, Chiller #12, Mesa, AZ

Peoria City Hall Central Plant Renovation, Peoria, AZ

Phoenix Sky Harbor Airport Terminal 3, Chiller/Cooling Tower Replacement, Phoenix, AZ

San Diego Padres Training Complex, Central Plant Replacement, San Diego, CA

South Mountain High School Central Plant Equipment Upgrade, Phoenix, AZ

SRP PAB, Crosscut and 27th St. Facilities Central Plant Upgrades, Metro-Phoenix, AZ

Wells Fargo Plaza Central Plant Replacement (27-story High Rise Building), Phoenix, AZ

Wells Fargo Service Center, Chiller Replacement, Tempe, AZ



Peoria IT Building Cooling Fans



SHOC Central Plants



City of Peoria Cooling Towers



Climatec Headquarters Chiller Plant



South Mountain Community College Central Plant

office/TI 30,000 SF + above

ASU Foundation Building & TI, Tempe, AZ; 135,000 SF, LEED Certified
AECOM Corporate Office, Phoenix, AZ; 31,500 SF, LEED Certified
AIG Offices, 2929 N. Central Ave., Phoenix, AZ; 65,000 SF
AIG Personal Lines Call Center, Phoenix, AZ; 102,600 SF
American Express Offices, Metropolitan Phoenix, AZ
Chase Sky Harbor Operations Center, Phoenix, AZ, 400,000 GSF
CVS Caremark Tenant Improvement, Scottsdale, AZ; 47,500 SF
Charles Schwab Offices, Metropolitan Phoenix, AZ
Circle K Corporate Office, Tempe, AZ; 75,000 SF
Climatec Office Building, Phoenix, AZ; 103,000 SF
Energy Systems Design TI, Scottsdale, AZ; 10,600 SF, LEED Platinum CI
First American Title TI, Phoenix, AZ; 90,000 SF
Freeport McMoRan at Cotton Center, Phoenix, AZ 35,000 SF
Global Crossing Office, Phoenix, AZ; 65,000 SF
Liberty Mutual, Metropolitan Phoenix, AZ; San Diego, AZ
Marina Heights Tenant Finish Buildout, Tempe, AZ; 1,600,000 GSF
Merrill Lynch, Esplanade V, Phoenix, AZ; 39,700 SF
Motorola Diablo Renovation, Tempe, AZ; 250,000 SF
Phelps Dodge Tower, Phoenix, AZ
SAP America Inc TI, Scottsdale Galleria Corporate Center, Scottsdale, AZ, 75,000 SF
Scottsdale Galleria Corporate Center, Multiple On-going TIs, Scottsdale, AZ, 600,000 GSF
SkySong 1 and SkySong 2 and TI, Scottsdale, AZ; 157,000 SF Each, LEED Silver
SRP Project Administration Building Betterment Project, Tempe, AZ, 315,000 GSF Restack
Starwood Hotels Corporate Office, Scottsdale, AZ 50,000 SF, LEED Certified
State Farm 4 Gateway Operations Center & 2 Gateway Operations Center, Phoenix, AZ; 240,000 SF
State Farm Discovery Center Buildings 2104 & 2118, Tempe, AZ; 300,000 SF
State Farm Priest Call Center & Papago Buttes Conference Center, Phoenix, AZ; 100,000 SF
United Health Group, Multiple Locations, Metropolitan Phoenix, AZ
Wells Fargo New Call Center, Phoenix, AZ; 75,000 SF
Wells Fargo Tempe Operations Center, Tempe, AZ; 110,000 SF
Wells Fargo, Warner Crossing I Adjustments Department, Tempe, AZ; 51,000 SF
Wells Fargo Ocotillo Center, Chandler, AZ; Two 4-story, 200,000 SF office buildings
Vanguard Financial, Multiple Projects, Scottsdale, AZ
Vemma Office TI, Tempe, AZ, 49,000 SF
Yelp.com Office, Scottsdale, AZ, Multiple Expansions & Renovations, currently 71,000 GSF



SkySong Buildings I and II



McKesson Conference Room



ASU Foundation Building



CVS Caremark TI



Allen + Philp Corporate Office



Phelps Dodge Tower

corporate office & tenant improvement

universities and colleges



McCord Hall
ASU New School of Business
Tempe, AZ

higher education

Our range of higher education experience encompasses projects from labs to recreational facilities, student centers to dormitories. Additionally, we engineered the Central Plants on each of Maricopa Community College District's 10 campuses. ESD has provided MPE engineering for well over 200 projects in the last 10 years for the colleges and universities listed below.

Arizona State University

Tempe; Polytechnic; & Downtown Phoenix Campuses

University of Arizona

Tucson, AZ

Northern Arizona University

Flagstaff, AZ

Central Arizona College

Superstition Mountain Campus; Signal Campus

Central New Mexico Community College

Main Campus; West Side Campus

Le Cordon Bleu College of Culinary Arts

Scottsdale, AZ

Brown Mackie College

Phoenix, AZ

Thunderbird School of Global Management

Glendale, AZ

Northcentral University

Prescott Valley, AZ

Chandler-Gilbert Community College Pecos Campus, Williams Campus

Estrella Mountain Community College Avondale, AZ

GateWay Community College Phoenix, AZ

Glendale Community College Glendale, AZ

Maricopa Skill Center Phoenix, AZ

Mesa Community College Mesa, AZ

Paradise Valley Community College Paradise Valley, AZ

Phoenix College Phoenix, AZ

Rio Salado Community College Phoenix, AZ

Scottsdale Community College Scottsdale, AZ

South Mountain Community College Phoenix, AZ

Embry Riddle Prescott, AZ

Everest College Online Phoenix, AZ



ASU Foundation, LEED



CNMCC Student Center



PVCC Life Sciences



GCC Life Sciences



learning environments

ESD has provided mechanical, plumbing, electrical and fire protection design for more than 75 K-12 educational projects throughout the metropolitan Phoenix area over the past 10 years. The projects have included new construction; remodeling and/or additions to existing facilities; energy analyses and studies; and site and infrastructure design. Facilities have included elementary, middle/junior high and high schools, warehouse/ maintenance facilities, vehicle maintenance facilities and administrative complexes.

education: K-12

Rancho Solano Private Schools
New Ventura Campus

ASU Polytechnic Preparatory Academy Creativity Hall

Chinle School District
New Junior High School
Warehouse & Food Service Building
Miscellaneous Building Renovations

Littleton Elementary School District
Four New Elementary Schools

Tolleson Elementary School District
AZ Desert Elementary School Addition

Isaac Elementary School District
Butler Elementary School Site Lighting
Cafeteria/Gymnasium Lighting

Avondale Elementary School District
Six New Elementary Schools
Multiple Gymnasium Additions
Several Other Various Renovations and Remodels and Additions

Casa Grande Elementary School District
Casa Grande Middle School Renovations
Casa Grande Junior High Remodel

Brophy Preparatory College
Scott Eller Fine Arts & Central Plant

Phoenix Union High School District
Alhambra Elementary School Conference Center

Phoenix Elementary School District
Suns Diamondbacks Academy
One New Performing Arts Center
Multiple Classroom Remodels and Additions
Emerson Court, District Office Facility Remodel
Technology Upgrades at 13 schools

Sunnyside Unified School District
Classroom Modifications (shop conversion into classrooms)

Agua Fria Union High School District
Desert Ridge High School Phase II, Silver LEED Commissioning

Peoria Unified School District
Data Center Upgrade

Tempe Union School District
High School Mechanical Modifications
Compadre High School and Central Plant

Tolleson Unified School District
Three New High Schools
Two New Performing Arts Buildings
Various Other Upgrades and Additions

St. Mary's High School
Renovation to Food Service Area;
Classroom Remodel

Dilcon Community School

stadiums, ballfields, aquatics, gymnasiums and fitness clubs

Mariners Baseball Clubhouse Major Renovations Commissioning at Peoria Sports Complex, Peoria, AZ
Padres Baseball Clubhouse New Facility Commissioning at Peoria Sports Complex, Peoria, AZ
City of Peoria Sports Complex Field Lighting Upgrade, Peoria, AZ
City of Mesa Hohokam Stadium & Fitch Park Major Renovations and Additions for Oakland A's, Mesa, AZ
City of Mesa Kino Pool Renovation, Mesa, AZ
City of Phoenix Encanto Pool SES Replacement, Phoenix, AZ
City of Phoenix Perry Pool SES Replacement, Phoenix, AZ
City of Phoenix Falcon Pool SES Replacement, Phoenix, AZ
City of Phoenix Washington Park Soccer Field Lighting Design, Phoenix, AZ
City of Phoenix Hermosa Park Sports Field and Security Lighting, Phoenix, AZ
City of Phoenix Little Canyon Park Soccer Field Lighting, Phoenix, AZ
City of Phoenix Westtown Park Athletic Field and Security Lighting, Phoenix, AZ
City of Scottsdale Tournament Players Club Golf Clubhouse Expansion and Renovation, Scottsdale, AZ
City of Scottsdale Chaparral Park Aquatic Center Remodel, Scottsdale, AZ
Robson Ranch Golf Clubhouse Addition, Casa Grande, AZ
Desert Highlands Golf Clubhouse Analysis, Scottsdale, AZ
Arizona State University Sun Devil Stadium Suites Renovation, Tempe, AZ
Arizona State University Sun Angel Stadium Training Building Renovation and Expansion, Tempe, AZ
Arizona State University Softball Field Lighting Upgrade, Tempe, AZ
Arizona State University Intercollegiate Athletics (ICA) Multipurpose Building Feasibility Study, Tempe, AZ
Scottsdale Community College New Baseball Competition Field, Scottsdale, AZ
Scottsdale Community College Football Field Lighting Upgrades, Scottsdale, AZ
Scottsdale Community College Softball Field Lighting Upgrades, Scottsdale, AZ
Scottsdale Community College Fitness New SRP Service, Scottsdale, AZ
Paradise Valley Community College Baseball Field Power, Phoenix, AZ
Paradise Valley Community College Softball Field Lighting Upgrade, Phoenix, AZ
South Mountain Community College Gymnasium Building Mechanical System Replacement, Phoenix, AZ
Centerra Mirage School Gym Addition, Goodyear, AZ
Desert Star School Gym Addition, Goodyear, AZ
Desert Thunder Elementary School Gym Addition, Goodyear, AZ
Many Farms Junior High School Gym, Chinle, AZ
Silvestre S. Herrera Elementary School Gym Addition, Phoenix, AZ
Callinan Sports and Fitness Center Photovoltaic System Power, Rohnert Park, CA
Apollo Fitness Center Expansion, Phoenix, AZ
Acacia Creek Village Shops Fitness Studio, Scottsdale, AZ
Gold's Gym Electrical Repair, Tempe, AZ
LA Fitness Lighting Upgrade, Glendale, AZ
YMCA Ahwatukee Foothills, Phoenix, AZ
YMCA Tempe Remodel, , Tempe, AZ
Hyatt Place Pool Renovation, Mesa, AZ
Renaissance Club Sport Hotel Fitness Center, Chandler, AZ



City of Mesa Kino Pool Renovation



YMCA Ahwatukee Renovation



assisted living & retirement

senior living

Maravilla Retirement Village, Scottsdale, AZ

3- & 4-level, 851,000 SF Assisted Living 'AL' and Independent Living 'IL' buildings; (5) 1- and 2-level Casitas buildings encompassing 173,600 SF. The IL/AL buildings contains one main kitchen, main dining, bistro/lounge, private dining, theater, hair salon, wellness center, retail, fitness, lounges, library, storage, back of house, lobby, bar and administrative offices.

Grandview Terrace Care Center Addition, Sun City, AZ

Three-story, 64,000 sf, 81 bed addition to elderly care center, an 8,200 sf child care center with kitchen, and 4,200 sf Outpatient Rehab Clinic.

Friendship Village of Tempe Retirement Facility, Tempe, AZ

During our 20-year relationship with this owner, ESD completed multiple large-scale projects including a new 158,000 sf Care Center, an Alzheimer's unit, Skilled Nursing Care, Hospice and Common areas. Project also included a new 230,000 sf Wellness Center, a 2-story Assisted Living building, a 5-story Independent Living building, Village Center with dining, food service & administration areas, and an underground parking garage. Previous Assisted Living projects included M&P services for a \$2.5 million, 330,000 sf, 2-story addition; 8,500 sf remodel in existing facility; and an addition of 3,600 sf of common dining & walkways for the assisted living units. ESD also provided MPE design for modification of a 2,000 sf lobby; a new workshop area; and an electrical systems retrofit, energy efficiency study & modifications to the central plant.

senior living related projects

Pinal County Long-Term Care Facility Expansion, Pinal County, AZ

Santa Rita Care Center, Green Valley, AZ

Devonshire Senior Center, Phoenix, AZ

Senior Center, New River, AZ

North Tempe Multi-Generational Center, Tempe, AZ

Gilbert Community Center, Gilbert, AZ

Maravilla Luxury Retirement Village



Scottsdale Center for Dentistry



medical

Kindred Healthcare Facility, Phoenix, AZ
80,000 SF, 3 story new building with 110 private and semiprivate units, nurses' stations, administration spaces, rehabilitation therapy spaces, commercial laundry facility and a commercial kitchen.

Dr. Julien Dental Retreat, Greenville, SC

Journey Healing Center, Scottsdale, AZ

Arizona State Hospital Aspen Hall Water Piping Upgrade, Phoenix, AZ

Scottsdale Center Shell Medical Office Building, Scottsdale, AZ

Papago Medical Park Plaza, Phoenix, AZ

Cigna Facility Building Addition, Mesa, AZ

BMA Dialysis Group, 3 Phoenix Locations, Phoenix, AZ

Catalina Behavioral Health Services, Medical Offices, Mesa, AZ

Pediatric Therapy Specialists, Arrowhead Medical Dental Plaza, Glendale, AZ

Clinic for Digestive Diseases, Royal Oaks Medical Plaza, Sun City, AZ

Lutheran Healthcare Clinic, Phoenix, AZ

Centercare Dentistry at Arizona Center, Phoenix, AZ

Papago Medical Building, Arizona National Guard, Phoenix, AZ

Ahwatukee Foothills Medical Center Office Complex, Chandler, AZ

Maricopa County Family Practice Center, Maricopa County Medical Center, Phoenix, AZ

Affiliated Physical Therapy Tenant Improvement, Phoenix, AZ

Desert Samaritan III, Medical Office Building, Mesa, AZ

Dr. McComb Veterinary Clinic, Chandler and Tucson, AZ

Dr. Garner Dental Office, Tulsa, OK

Dr. Walman Eye Center, Phoenix, AZ

Dr. Art Mollen, Kierland Corporate Center, Scottsdale, AZ

Dr. Ellsworth, Scottsdale Medical Building, Scottsdale, AZ

Camelback Insight New X-ray TI, Phoenix, AZ

Mercer Institute/Scottsdale Center for Dentistry, Phoenix, AZ

medical facilities

hotel, hospitality and mixed use

Palomar Hotel and Residences at CityScape, Phoenix, AZ

New \$90 million, 200,000 SF, ten-story, high-rise hotel. Accommodating approximately 242 guest rooms, each room ranges from 410-1,700 square feet. Located in the heart of Phoenix in the CityScape development, amenities include a rooftop pool on the third floor, on-site restaurant and bar at the Blue Hound Kitchen and Cocktails, as well as offering roughly 10,000 square feet of conference and event space across 10 rooms. Phase 2 of the project involves adding 10 stories of high-end residential condos atop the hotel. ESD provided Level 300 Mechanical BIM and Level 400 Plumbing BIM.

Santa Claran Casino and Hotel, Espanola, NM

The Princess Hotel Restaurant Renovations and Expansions, Scottsdale, AZ

Cazadores Gerber Bar La Hacienda Midnight Oil Bourbon Steak

Hilton Sedona Lobby Renovation, Sedona, AZ

JW Marriot Desert Ridge Restuarnt and Lobby Renovation, Phoenix, AZ

Cheyenne Mountain Conference Resort, New Addition, Colorado Springs, CO

Clubhouse at Rock Shadows RV Resort, Apache Junction, AZ

Eloy-Tohono Golf Clubhouse, Eloy, AZ

Health Spa Renovations, Camelback Inn Resort, Paradise Valley, AZ

Hyatt Place Resort, Fresno, CA and Mesa, AZ

Marriott Hotel, Desert Springs, CA

Phoenician Golf & Tennis Resort Health Club Renovation and Addition, Phoenix, AZ

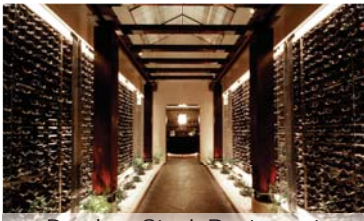
Scottsdale Camelback Resort Renovations, Scottsdale, AZ

Scottsdale Conference Resort Renovation, Scottsdale, AZ

The Grandview Hotel, Las Vegas, NV

Three Springs Mixed Use Retail Development, Durango, CO

South Bridge Mixed Use Development, Scottsdale, AZ



Bourbon Steak Restaurant



Palomar Hotel Lobby



South Bridge Mixed Use Development

multi-family housing

Optima Biltmore Towers, Phoenix, AZ

Mechanical, electrical and plumbing engineering design for a 16- story mixed-use building containing 250 condominiums units totaling 305,000 square feet; approximately 10,000 square feet of retail and office space at grade level. There is an external pool, party and exercise facilities at the Penthouse level, and three levels of underground parking for 375 cars.

Edgewater Condominiums, Tempe, AZ

MPE design for 40 residences on eight floors; includes a small exercise room, mailroom and storage lockers. The building will have two levels of parking below grade with 77 parking stalls (approximately 39,000 sf of parking.)

Bridgeview Condominiums, Tempe, AZ

14-story condominium, with approximately 215 units and amenities (exercise room, mailroom, storage lockers, parking).

Additional Properties:

CityScape / Palomar Hotel Tower Apartments, Phoenix, AZ

Artisan Lofts, Phoenix, AZ

Desert Edge Townhomes, Cave Creek, AZ

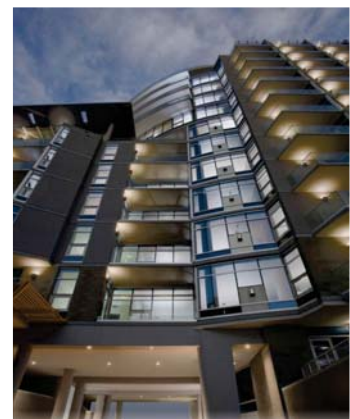
Freedom Plaza, Peoria, AZ

Via Ventura Apartments, Chandler, AZ

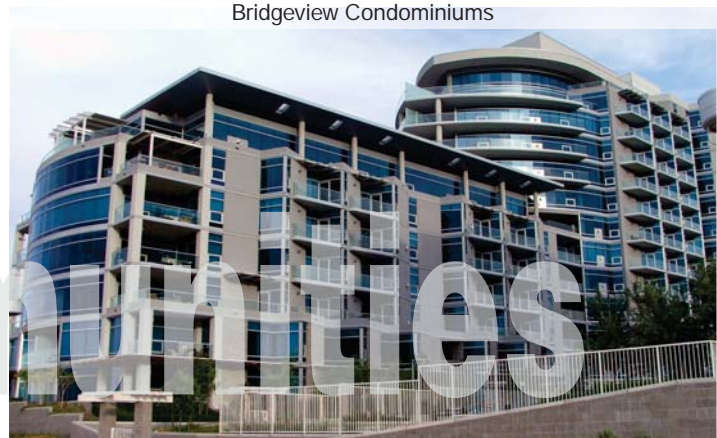
Summit Apartment Complex Renovation, City of Phoenix, AZ



Optima Biltmore Towers



Bridgeview Condominiums



Bridgeview Condominiums

places to connect

public libraries, museums and community centers

White Tank Public Library, LEED Platinum
Waddell, AZ

Desert Broom Library, LEED Silver
Phoenix, AZ

Cesar Chavez Library, LEED Silver
Phoenix, AZ

Maricopa County Parks Estrella Nature Center, LEED Certified
Goodyear, AZ

Prescott Valley Public Library
Prescott Valley, AZ *(Pictured below)*

South Mountain Community Library
Phoenix, AZ (Partnership Between City of Phoenix and South Mountain Community College)

Winslow Public Library
Winslow, AZ

Harmon Library
Phoenix, AZ

Palo Verde Library & Community Center
Phoenix, AZ

Apache Junction Library
Apache Junction, AZ

Cholla Library Renovation
Phoenix, AZ

Mustang Library
Scottsdale, AZ

Scottsdale Museum of Contemporary Art
Scottsdale, AZ

Phoenix Art Museum Renovation
Phoenix, AZ

Children's Museum of Phoenix
Phoenix, AZ

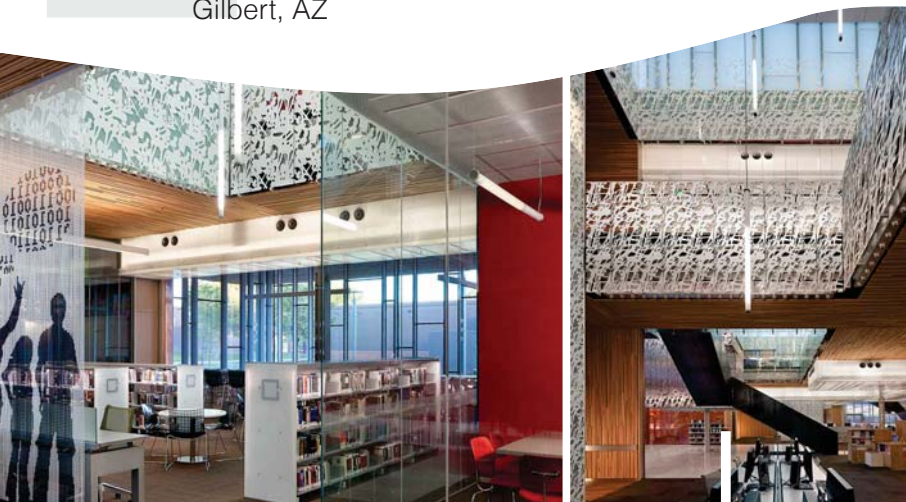
North Mountain Interpretive Center
Phoenix, AZ

Glendale Bead Museum
Glendale, AZ

Peoria Community Center
Peoria, AZ

Chinle Community Center
Chinle, AZ

Gilbert Community Center
Gilbert, AZ



South Mountain Community Library, a Partnership Between SMCC and City of Phoenix

airport related

- PSHIA Phoenix Sky Train 1A Level 400 BIM Phases 1A and 4, Plumbing Only, Phoenix, AZ
- Phoenix-Mesa Gateway Airport West Terminal Expansion Level 400 BIM, Plumbing Only, Mesa, AZ
- PSHIA Multiple Restroom Renovations, Terminal 4, Concourse N3 & N4; S4, Phoenix, AZ
- PSHIA ACAMS, Emergency Power, Phoenix, AZ
- PSHIA Aircraft Rescue Fire Fighting Facility Storage Building, Phoenix, AZ
- PSHIA Chiller/Cooling Tower Replacement, Terminal 3, Phoenix, AZ
- PSHIA Air Handling Unit and Chiller/Boiler, FAA North Terminal, Phoenix, AZ
- PSHIA Executive Terminal Police Station HVAC Upgrade, Phoenix, AZ
- PSHIA Retail Space Modifications, Terminal 3, Phoenix, AZ
- Deer Valley Airport HVAC System Study & Upgrades, Phoenix, AZ
- PSHIA Light and Glass Wall, Terminal 4, Phoenix, AZ



Sky Train Phase 1A Terminal 3 BIM Model

municipal work

- City of Phoenix South Transit Facility Refurbishment, Phoenix, AZ
- Deck Park Tunnel Study, Phoenix, AZ
- MCDOT Administration Building Electric Vehicle Chargers, Phoenix, AZ
- City of Phoenix North Transit Refurbishment Study, Phoenix, AZ
- Peoria Courts Expansion, LEED Gold, Peoria, AZ
- City of Peoria, Administration and Information Technology Building, Peoria, AZ
- City of Chandler Police Master Plan, Chandler, AZ
- Chandler Property and Evidence Storage Facility Addition and Renovation, Chandler, AZ
- Peoria Municipal Operations Center Expansion, Peoria, AZ
- Peoria Community Center Master Plan, Peoria, AZ
- Chandler IT Building Backup Generator, Chandler, AZ
- Electrical Service for Desert Breeze Park, Temporary Fire Station, Chandler, AZ
- Apache Junction City Hall & Multi-generational Buildings Commissioning, LEED Certified, Apache Junction, AZ
- City of Phoenix North and South Division Transit Operating Facilities, Phoenix, AZ
- Scottsdale Water District, Chilled Water Building Modifications & Mechanical Commissioning, Scottsdale, AZ
- Loloma Station: Scottsdale Transportation Center, Scottsdale, AZ
- Maricopa County Administration Building Restack, Phoenix, AZ
- Vehicle Processing Center Maricopa County Sheriff's Office, Phoenix, AZ
- Peoria City Hall Expansion and Renovation, Peoria, AZ
- Tempe City Hall Renovation, Tempe, AZ



City of Peoria Municipal Court, LEED Gold



City of Peoria Municipal Court, LEED Gold

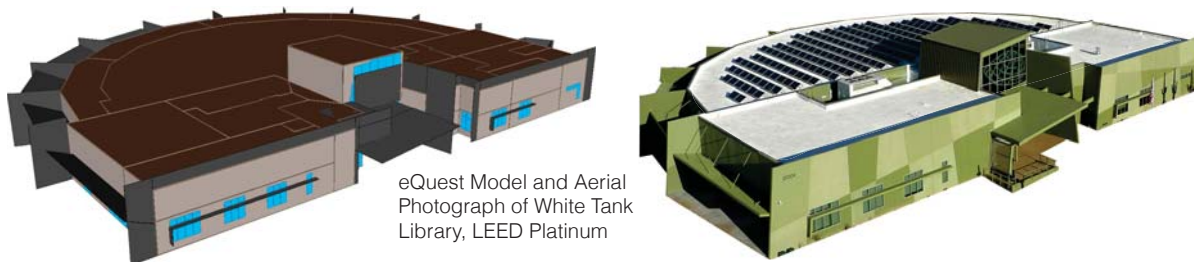
building energy simulation

ESD uses building energy simulation software to predict the energy consumption and operating costs of facilities. We use this software to determine the most energy efficient design for a new or renovated facility, to demonstrate compliance with local energy code requirements, to determine energy savings of the building over a baseline building required for LEED projects and to determine energy savings required for EPACT Tax Deductions.

eQUEST is a building energy modeling program based on the DOE-2 engine. HAP is a similar program developed by Carrier Corporation. These programs create a 3D representation of a building and calculate the annual energy consumption of the total building and each individual end-use (lighting, heating, cooling, etc.). Our team has used this software extensively to develop energy simulation models for our clients since 2008.

Benefits:

- Determine the most energy efficient method design for your facility.
- Provide input to architects and engineers on the impacts of building construction, lighting and HVAC on energy consumption.
- Demonstrate local energy code compliance when prescriptive measures can not be met.
- Calculate energy savings over an ASHRAE baseline building for the LEED Optimize Energy Performance Credit.
- Determine energy savings of the facility over its lifetime and ASHRAE baseline building to achieve EPACT Tax Deductions for energy efficient designs.



building modeling

value-added modeling

We are dedicated to learning and working with the latest and most advanced 3D Building Information Modeling (BIM) software. In addition to completing several Revit projects, our team has committed over 800 hours to training so that our engineers and designers are proficient in the most current versions of Revit MEP. Revit is an intuitive engineering tool that allows for complete 3D coordination of all trades during the design phase. Building owners, architects and engineers all have access to a rendered model to see the finished product before construction even begins. Revit does much more than produce 3D drawings; it can incorporate heating and cooling load calculations and verify duct pressure losses.

Design Phase Benefits:

- Interference detection between all trades, allowing for more accurate coordination.
- File sharing, allowing more detailed coordination between architect and engineer.
- Maximum use of available spaces above and below ceilings.
- 3D rendering of conceptual and finished design for better visualization of the space.
- Quick and easy production of building sections, 3D views, and elevations for all involved trades.
- Integrated heating and cooling load calculation, which detects changes in electrical and architectural design.

Construction Phase Benefits

- Minimizing coordination mistakes to reduce surprises in the field.
- Coordinated spaces, allowing better clearances for equipment maintenance.
- Installation per intended design.
- Quicker decision making to reduce construction and equipment delivery time.
- A more efficient project overall, saving time and cost, thus creating greater client satisfaction.



Custom Adiabatic Units

verification

commissioning

We pride ourselves in ensuring that the engineering systems and equipment are designed, have been installed, and are performing to meet the Customer's requirements. ESD has provided commissioning services for numerous projects including LEED certified projects. The Commissioning process can be basic or comprehensive, and can be provided for new or existing buildings. During the commissioning process ESD will lead a collaboration with the contractors at the beginning of the construction phase to create a Commissioning Plan document, which includes:

- Installation and Operational Checklists
- Inter-discipline Prerequisite and Coordination Activities
- Equipment and Systems Start-up Procedures
- Multi-Phase Testing Procedures
- Identification of Primary Responsible Persons
- Witness Equipment Testing at the Factory
- Performance Verification Procedures - for all expected events and modes of operation
- Training Procedures and Identification of Required Participants
- Documentation Requirements
- Milestone Dates - coordinated with the general contractor's construction schedule

In addition, during the Commissioning Process ESD will:

- Witness and verify performance of Commissioning Plan tasks and testing procedures, and related documentation.
- Coordinate and participate in systems interactions and performance verification procedures.
- Review operational and maintenance manuals.
- Participate in training facilities' operating personnel.
- Prepare a Commissioning Report, which documents the results of all activities, and which indicates operational compliance with the systems design intent and the Customer's requirements.

test and balancing

In 1996, we recognized the value of a test and balance department as an integral part of our engineering practice, and we established a separate test and balance division. Because we are involved in our projects from inception of design through construction completion and owner occupancy, it is imperative that the installed equipment be tested and balanced to meet its design intent. Our testing and balancing technicians are equipped with flow measuring devices for chilled water and airflow to test system efficiencies both before and after design/construction. They verify proper operation of the equipment, and calibrate the controls - assuring our clients of safe and efficient building systems.

Because our test and balance work is conducted under the overall supervision of a registered professional engineer, our balance reports are reviewed by a registered engineer.

In addition to commissioning new facilities, we also provide test and balance services to existing buildings, either to improve efficiency, to correct problems, or in anticipation of renovations. As we evaluate specific areas of a building, we take measurements on existing equipment to determine how it is operating with respect to the original design intent. This gives us insight as to what, if any, revisions are necessary. We will also test the existing equipment to determine which equipment may be reused and what equipment requires replacement.

Our test and balance division provides the following services:

- Air and Water Balance
- Indoor Air Quality
- Temperature and Humidity Monitoring
- Water Flow Monitoring
- Energy Surveys and Audits
- Preliminary Engineering Surveys
- Systems Commissioning
- Clean Room Balancing/Process Equipment and Exhaust
- Operating Room Certification/Room Pressure Relations
- Systems Testing and Troubleshooting
- Smoke Detector Testing and Certification
- Sound and Vibration Testing

equipment

calibration

performance

recent awards

- 2014 IIDA Southwest Chapter P.R.I.D.E Awards, Education Category: Merit
Glendale Community College T-1 Building Remodel *Deutsch Architecture Group*
- 2014 IIDA Southwest Chapter P.R.I.D.E Awards, "Creativity on a Budget" Category: Merit
Glendale Community College HT-1 Building Remodel *Dick and Fritsche Design Group*
- 2014 AIA Colorado Merit Award in Design
Phoenix College Hannelly Center Expansion and Remodel *RNL*
- 2014 Glendale Community College Hero Of Education Award
Energy Systems Design
- 2013 Best Hospitality Project Award AZRE RED | Arizona Commercial Real Estate Magazine
Hotel Palomar *HACI Mechanical Contractors / W J Maloney Plumbing Company*
- 2013 Best Multi-Family Project AZRE RED | Arizona Commercial Real Estate Magazine
Maravilla Luxury Retirement Village, Phases 1 & 2 *Allen + Philp*
- 2013 NAHB Best of 50+ Housing Awards, Continuing Care Retirement Community, Gold Award
Maravilla Luxury Retirement Village, Phases 1 & 2 *Allen + Philp*
- 2013 Hospitality Design Magazine, Senior Living/Healthcare HD Award Finalist
Maravilla Luxury Retirement Village, Phases 1 & 2 *Allen + Philp*
- 2013 AIA/American Library Association, Library Leadership & Management Association Library Building Award
South Mountain Community Library *Richard + Bauer*
- 2012 Ranking Arizona #1 Electrical Engineering, #2 Mechanical Engineering
Energy Systems Design
- 2012 International Interior Design Association, Southwest Chapter Excellence in Design in Education
South Mountain Community Library *Richard + Bauer*
- 2012 Valley Forward Crescordia Award for Environmental Excellence-Buildings and Structures, Civic; Institutional
South Mountain Community Library *Richard + Bauer*
- 2012 American Institute of Architects, Arizona Chapter Honor Award
South Mountain Community Library *Richard + Bauer*
- 2012 International Interior Design Association, Southwest Chapter Award of Merit in Design in a Public Facility
South Mountain Community Library *Richard + Bauer*
- 2012 ENR Southwest Contractor, Project of the Year & Best Office
DPR Construction Phoenix Regional Office (Commissioning Services) *DPR Construction*
- 2012 Valley Forward Crescordia Award for Environmental Excellence-Buildings and Structures, Commercial & Mixed Use
DPR Construction Phoenix Regional Office (ESD provided Commissioning Services) *DPR Construction*
- 2011 ENR Southwest Best Green Project
White Tank Branch Library & Nature Center *DWL Architects*
- 2011 ENR Southwest Contractor, Higher Education Award of Merit
Central New Mexico Community College Student Resource Center *AECOM*
- 2011 Most Sustainable Building Award AZRE RED | Arizona Commercial Real Estate Magazine
White Tank Branch Library & Nature Center *DWL Architects*
- 2011 APWA Public Works Project of the Year in the Structures (\$5 million - \$25 million)
Peoria Courts Expansion *Dick and Fritsche Design Group (DFDG)*
- 2011 The Architectural Portfolio Citation Award in the Post Secondary category for Outstanding Design
Chandler-Gilbert Community College, Ironwood Hall *Architekton*
- 2010 APWA Public Works Project of the Year
Prescott Valley Library *Richard + Bauer*
- Southwest Contractor Best of 2010 Award, Architectural Design Category
Prescott Valley Library *Richard + Bauer*
- 2010 ACEC Engineering Excellence Grand Award
Peoria City Hall Central Plant Upgrades: "The Root of the Central Plant: Peoria City Hall" *DFDG*
- 2010 AIA Arizona Kemper Goodwin Award
Scottsdale Center for the Performing Arts *Douglas Architecture & Planning*
- 2010 AIA Arizona Honor Award
Scottsdale Community College, Natural Sciences Building
- 2010 AIA Arizona Merit Award
Paradise Valley Community College, Life Sciences Building *Marlene Imirzian*
- 2010 AIA Arizona Citation Award
Chandler-Gilbert Community College, Ironwood Hall *Architekton*
- Southwest Contractor Best of 2009 Award, Cultural Category
City of Phoenix Japanese Friendship Garden Ro Ho En Restroom Building *Sei Chin Studio 4*
- Southwest Contractor Best of 2009 Honorable Mention, Higher Education Category
Glendale Community College, Life Sciences Building *Gould Evans*

excelling engineers

our engineering leaders

Learn. Communicate. Innovate.

“A unique organization made up of multiple disciplines drawn together by a common culture and set of values.”

Our philosophy can be traced directly to our founder, Mo Ardebili. He has built a practice where professionals are encouraged to work together to produce projects of the highest quality. We have an unparalleled commitment to the importance of technical excellence and continuing development. Our breadth of experience equips us to draw together key players within and beyond the firm to bring the best possible team to any given project scope.

We can summarize our approach in one statement:

Our creativity is inherent in our teamwork and belief in sustainability which defines the significant role we play with our Clients and collaborators in forming new environments.



Monte Sturdevant, P.E.
President



Mo Ardebili, P.E.
CEO, Sr. Principal



Ron Korte, P.E.
Principal



Tom Valentino, P.E.
Principal

helping hands

reaching out, giving back

ESD values our local communities and strives to give back each year to causes close to our hearts. We are proud to support local colleges and K-12 schools in their efforts to educate students about the importance of environmental best practices, social responsibility and a more sustainable future.

Since 2007, ESD has provided an annual scholarship to Glendale Community College for students enrolled in GCC's CAD program. This scholarship is given on an academic basis to students planning their future in engineering. In 2013, ESD also sponsored three Scottsdale Community College Sustainability Scholarships. SCC students participated in a recycled art competition called RECYCREATION for a chance to win one of the three scholarships to be used toward tuition for SCC's sustainability courses.

As part of the annual Green Apple Day of Service held in September, ESD donated funds to provide new gardening soil for Scottsdale Unified School District. ESD also served as a sponsor for the Hopi 50, a 50-mile road bicycle ride through northern Arizona which supported Hopi Elementary School.

Supporting the fight to end hunger, ESD made a contributing donation to Deutsch Architecture Group towards their CANstruction "Be 'The Voice' of Hunger" entry in early 2013. Canstruction, a charity committed to ending hunger, uses "one can" as a catalyst for change. This competition directly benefits the St. Mary's Food Bank Alliance, providing thousands of cans of food for those in need.

