



ESA Energy Systems Associates, Inc.

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www.esa-engineers.com

ESA

ENERGY SYSTEMS ASSOCIATES INC.

**EXPERIENCE RECORD
and
RESUMES**

**As Of
May, 2010**

- Electrical Power Distribution System(s) Design
- Lighting Design
- Fire Alarm and Detection System Design
- Heating, Ventilation, Air-Conditioning (HVAC) Systems
- MEP System Design
- Energy Management & Efficient Project Design
- Systems Commissioning
- Thermal Imaging Analysis
- Indoor Air Quality Analysis

EXPERIENCE RECORD
GENERAL INFORMATION



TECHNICAL SERVICES EXPERIENCE RECORD

Since 1982, ESA ENERGY SYSTEMS ASSOCIATES, Inc., has completed professional engineering services for more than 500 facilities around the nation. Client contacts and project descriptions are listed in this section.

A significant portion of the projects delineated represent contracts which allowed us to develop and teach energy auditing techniques, or are design projects resulting from the preparation of investment grade energy audits. ESA's background in the field of energy audit/design programs is summarized as follows:

- A. Prepared HVAC, Electrical Power, Lighting and Controls sections of energy efficiency/energy auditing manuals for the states of Texas, Louisiana, Tennessee, Oregon, Washington, New Mexico and Pennsylvania. Area specific energy auditing techniques and recommendations are included in each of these manuals.
- B. Presented over 260 technical training workshops designed to teach energy auditing methods.
- C. Completed energy efficiency reports for more than 320 public school, higher education, hospital, governmental, and commercial facilities with over 185 of these being "investment grade" audits resulting in the design and installation of energy conserving systems.
- D. Provided technical review of DOE funded ICP audits submitted to both Texas and New York to determine feasibility of projects and quality of calculations.
- E. One of three technical advisors in the development of the State of Texas LoanSTAR Audit Guidelines and Training Manual. This manual has been used to produce audit reports resulting in over \$100 million in energy efficiency projects throughout the state.
- F. Third party technical reviewer for Performance Contracting recommended projects presented by various ESCO companies.
- G. Presenter of seminars for *Investment Grade Energy Audits* for the Association of Energy Engineers; presenter of IGA strategies for European Conferences in Hungary and Italy; represented World Bank to establish ESCO agencies in three major cities in China.

PROJECT TYPE:

- I. **DESIGN:** [See *Texas Specific Design Projects, Page 6*]
Institutional and Commercial design projects including all Mechanical, Electrical, and Plumbing (MEP) requirements, as well as Building Automation, Safety/Security, Access Control and Lighting.

Working primarily with schools and hospitals, all types of *HVAC, Controls, Electrical (including Lighting), and Security System* projects have been completed by ESA's staff.

Special projects include:

- Natural Gas Engine Driven Chillers
- Ammonia Refrigerant Chillers
- Geothermal Heating Systems
- Thermal Storage Systems

II. ENERGY ANALYSIS: Analysis of existing facilities resulting in maintenance and operation modifications or in extensive redesign of the system has been provided for clients under the following State and Federally funded programs:

- A. Energy Efficient School Partnership Program: Energy data collection and on-site energy system evaluations for 105 West Texas school districts, 40 plus hospitals and 5 universities from 1997 - 2006.
- B. Institutional Conservation Program (ICP): Professional engineering analyses and project design for 36 Schools Districts and 15 Hospital Districts within the State of Texas and New Mexico.
- C. Institutional Energy Efficiency Partnership Program (IEEPP): Energy audits and economic evaluations provided for 90 school facilities in Pennsylvania.
- D. Energy Conservation Retrofit Opportunity (ECRO): Conducted through the State of Texas sponsored On-Site Energy Evaluation Program. esa identified annual energy savings opportunities of approximately \$1.4 million in 130 Texas school, hospital and government facilities. Recommended actions for these districts involved electrical modifications, HVAC controls, exterior renovations and M&O revisions.
- E. Texas LoanSTAR Program: Completed LoanSTAR Energy Assessment Reports with the resulting design and installation for twenty-nine (29) schools, hospitals and college/universities.
- F. Predominant Use Studies: Conducted building surveys to determine the flow of energy and equipment energy consumption in thirty-three (33) industrial facilities in Texas. Calculations included an itemized listing of equipment consumption and system operation for industrial processes.
- G. Utility Bill Analyses: Provided analyses of past utility billings to determine accuracy of billing process. Calculations developed for discovery of past billing errors in most major utility suppliers in the State of Texas.
- H. Institutional Conservation Program (ICP) Review for State of New York: Prepared analysis of TA reports submitted to the New York Energy Office from 1986 through 1990. Analysis of both technical quality of reports and program effectiveness was conducted and presented.
- L. Institutional Conservation Program (ICP): Reviewed all audits submitted to the State of Texas Energy Office during the years of 1984 and 1985. Review included evaluation of technical feasibility of recommended projects.
- M. School, Hospital and Government Partnership Program (SECO): Texas 270 Audits
- N. Federal Reserve Bank: San Antonio, TX
- O. Pantex Plant: Amarillo, TX, 18 Buildings.

III. INDOOR AIR QUALITY: In association with the Indoor Environment Institute, ESA Energy Systems Associates provides services related to the indoor environment in public, private and commercial facilities recognizing the close inter-relationship between energy efficiency and indoor air quality.

Our firm has also been selected by the Texas State Energy Conservation Office (SECO) to conduct seminars for public schools, local governments, hospitals and state agencies regarding EPA requirements for improved IAQ construction and operating practices.

IV. THERMAL IMAGING: Thermal scanning of electrical systems, roofing systems and other heat transfer components are provided by trained and accredited ESA staff members. In addition to the trained technician providing the analysis, the results are reviewed and approved by a licensed Professional Engineer to insure accuracy and provide additional assurance of report results. Recommendations for repair and/or replacement are verified by our engineers before submitting the final report to the Owner.

V. MASTER PLANS: Five Year Master Plans for Mechanical, Electrical and Plumbing system replacement, M&O revisions, Preventive Maintenance programs, Energy Management programs, Electric Deregulation policies, and Code/Standard compliance

| | | |
|-------------------------|-------------|----------------|
| Round Rock ISD | Ed Sevcik | (512) 464-5012 |
| Angelo State University | Jay Halbert | (325) 942-2355 |
| State Bar of Texas | Al Cumming | (512) 463-1463 |
| Eanes ISD | Les Reddin | (512) 732-9045 |

VI. SYSTEMS COMMISSIONING:

[Approved Retro-Commissioning Agent for:](#)

CenterPoint Energy, Calvin Burnham, Program Administrator, (713) 207-3423

Nexant, Krishnan Umamaheswar, Contract Administrator, (713) 982-5561

[Retro-Commissioning \(Existing Buildings\):](#)

Cypress Fairbanks ISD, Glen Rhoden, CEM, Director- Energy Management Department, (281) 807-8918. Schools ranged in size from 73,000 to 500,000 sf.

| | |
|-------------------------------|---------------------------|
| <i>Cy-Fair High School</i> | <i>Danish Elementary</i> |
| <i>Cy-Ridge High School</i> | <i>Gleason Elementary</i> |
| <i>Cy-Springs High School</i> | <i>Matzke Elementary</i> |
| <i>Hamilton Middle School</i> | <i>Farney Elementary</i> |
| <i>Thornton Middle School</i> | <i>Frazier Elementary</i> |
| <i>Aragon Middle School</i> | <i>Horne Elementary</i> |
| <i>Goodson Middle School</i> | <i>Millsap Elementary</i> |

Klein ISD, Chad Corbitt, CEM, Energy Manager, (832) 249-4474

| | |
|----------------------------|----------------------------|
| <i>Collins High School</i> | <i>Frank Elementary</i> |
| <i>Kreinhop Elementary</i> | <i>Metzler Elementary</i> |
| <i>Benignus Elementary</i> | <i>McDougle Elementary</i> |

Humble ISD, John Conn, Energy Manager, (281) 641-8704

| | |
|---------------------------------|---------------------------------|
| <i>Hidden Hollow Elementary</i> | <i>Humble Middle School</i> |
| <i>Park Lakes Elementary</i> | <i>Eagle Springs Elementary</i> |
| <i>Shadow Forest Elementary</i> | <i>Timberwood Middle School</i> |

Northside ISD, Vernon Dunagin, Executive Director of Construction and Engineering, (210) 371-1290

O'Connor High School

Spring-Branch ISD , **Rebecca Cordeiro, CEM**, Energy Manager, (713) 365-5700, ext. 154

Stratford High School

Spring ISD, Tamara Tillman, Energy Manager, (281) 587-3966

Spring High School

Alief ISD, Matthew Browne, Energy Manager, (281) 498-8110

Alief High School

Commissioning (New Construction):

Round Rock ISD:

Westwood High School

Construction Cost: \$73,000,000
Building Size: 173,000 sf
Commissioning Level: LEED Silver – Enhanced Level

Cedar Ridge High School

Construction Cost: \$75,000,000
Building Size: 320,000 sf
Commissioning Level: LEED Silver – Enhanced Level

Round Rock High School

Construction Cost: \$37,000,000
Building Size: 160,000 sf
Commissioning Level: LEED Silver – Enhanced Level

Central Kitchen

Construction Cost: \$9,000,000
Building Size: 38,000 sf
Commissioning Level: LEED Prerequisite Level

Stone Oak Elementary

Construction Cost: \$30,000,000
Building Size: 133,000 sf
Commissioning Level: LEED Silver – Enhanced Level

Perkins + Will – AIA, Kathryn Miller, RA, LEED AP, Austin, Texas, (214) 283-8777

Westminster Manor

Construction Cost: \$65,000,000
Building Size: 248,000 sf
Commissioning Level: AEGB (USGBC) Basic Services

ESA
ENERGY SYSTEMS ASSOCIATES Inc.

TEXAS
DESIGN PROJECTS

through
May, 2010

DESIGN EXPERIENCE RECORD

Projects designed by ESA staff similar to the type of installation under consideration.
(STATE OF TEXAS Projects Only)

I. SCHOOL DISTRICTS, HOSPITALS and HIGHER EDUCATION INSTITUTIONS

Current Projects:

❖ **Round Rock ISD**, Ed Sevcik, Director of Facilities & Construction, Round Rock, Texas (512) 464-5012 (*LoanSTAR and Bond*)

- New Construction, MEP Design for 5th High School 320,000 sf
AIA: Perkins + Will \$75,000,000 (est.)
K.A. Hickman, Architects
CM @ Risk: American Constructors

- Renovation of Original Round Rock High School \$84,000,000 (est.)
 - Mechanical, Electrical, Safety/Security, and Fire Alarm Design Projects:
 - Bluebonnet Elementary
 - Brushy Creek Elementary
 - Canyon Vista Middle School
 - Deepwood Elementary
 - Deerpark Middle School
 - Double File Trail Elementary
 - Fern Bluff Elementary
 - Forest Creek Elementary
 - Forest North Elementary
 - Gattis Elementary
 - Grisham Middle School
 - Kathy Caraway Elementary
 - Laurel Mountain Elementary
 - Live Oak Elementary
 - Old Town Elementary
 - Pond Springs Elementary
 - Purple Sage Elementary
 - Round Rock High School
 - Spicewood Elementary
 - Transportation-East Facility
 - Transportation-West Facility
 - Voigt Elementary
 - Wells Branch Elementary
 - Westwood High School
 - DISTRICT-WIDE - Energy Management DDC Controls
 - DISTRICT-WIDE - Lighting Renovation Program
 - DISTRICT-WIDE -Emergency Power for Fiber Optic Super-Ring

- District Consulting Services:
 - Districtwide Master Plan for MEP Systems 2001 and 2004
 - Districtwide Preventive Maintenance Program 2004
 - Electric Deregulation Consultation
 - Energy Management Services (Watt Watcher Program Implementation, Savings Verification Reporting)
 - Thermal Image Photography Services for Roofs and Electrical Systems
 - Bond Program Estimating Services – 2000, 2005, 2006 and 2008

❖ **Bastrop ISD**, Thomas Dowdy, Director of Construction & Maintenance, Bastrop, Texas (512) 321-7307 (*Bond Program*)

- New Construction MEP Design for High School 285,000 sf
AIA: Pfluger Associates \$58,000,000 (est.)
CM @ Risk: American Constructors
- ❖ **Pedernales, Manor, Montgomery County and Liberty Hill Fire Stations**
 - New Construction Projects including Mechanical, Electrical, Plumbing and Security System
Both Projects done as sub-consultant to: KAHickman, Architects and Interior Designers, (512) 255-9690
- ❖ **Austin ISD, Curt Shaw, Executive Director, Construction Department, Austin, Texas (512) 414-8949 (Bond Program)**
 - Design of HVAC, Card Access & Video Surveillance Systems for:
 - Allan Elementary
 - Baker Center
 - Bryker Woods Elementary
 - Campbell Elementary
 - Carruth Administrative Offices
 - Dawson Elementary
 - Lee Elementary
 - Murchison Middle School
 - Ortega Elementary
 - Pearce Middle School
 - Pease Elementary
 - Travis Heights Elementary
 - Zavala Elementary
- ❖ **City of Round Rock, Larry Madsen, 2008 Enterprise Drive, Round Rick, Texas 78664**
 - Business Center Renovation
 - Design of HVAC, Electrical and Plumbing for renovation of downtown buildings
- ❖ **Eanes ISD, Les Reddin, Director of Maintenance & Operations, 610 Camp Craft Road, Austin, Texas 78746-6512, (512) 732-9045**
 - Westlake High School renovation \$11,000,000 (est.)
 - Renovation of Auditorium, Library, and NOC Center MEP Systems
 - Electrical Analysis for entire School District
- ❖ **Amarillo ISD, Jim Lawson, Director of Facilities, Amarillo, Texas, (806) 371-5553 (Bond Program)**
 - Design of HVAC, Lighting, Electrical and Roofing projects \$23,000,000 (est.)
 - 38 campuses in the district
- ❖ **Angelo State University, John Russell, Facilities Director, or Jay Halbert, Physical Plant Director, San Angelo, Texas, (325) 942-2355**
 - Master Plan for Mechanical and Electrical Systems \$13,000,000 (est.)
 - Design of Central Plant Renovation, Facility Air Distribution, Campus Water Distribution Systems
 - Infrared Scan of Electrical Systems and Roofing
- ❖ **El Paso ISD, Al Anderson, Construction Department, El Paso, Texas, (915) 887-5415 (LoanSTAR)**
 - Design of Central Plant Renovation for 12 campuses. \$9,000,000 (est.)

- Design of Lighting Renovation for 91 campuses and two football stadiums
 - Design of **Solar Photo-Voltaic System** (30 kW) for *Demand Side Management*
- ❖ **Ward Memorial Hospital**, Viki Yates, Administrator, Monahans, Texas (432) 943-2511
(*LoanSTAR*)
 - Design of HVAC renovation \$900,000
 - ❖ **Eastland ISD**, Don Hughes, Superintendent, Eastland, Texas (254) 631-5120
 - Design of HVAC renovation
 - ❖ **Hardeman County Hospital**, Scott Nail, Administrator, Quanah, Texas (940) 663- 2795
 - Design of Renovation of HVAC system
 - ❖ **Johns Community Hospital**, Ernest Balla, Administrator, Taylor, Texas (512) 352- 7611
 - Design of Renovation of HVAC and lighting systems
 - Design of Electrical renovation

Completed Projects (Prior to 2005):

- ❖ **Texas Tech University**, David Bradshaw, Physical Plant, Lubbock, Texas (806) 742-2761
(*LoanSTAR*)
 - *Design of Variable Frequency Drives and Lighting Renovation for 36 buildings*
- ❖ **Shannon Medical Center**, Dale Droll, Director of Engineering, San Angelo, Texas (915) 657-5229 (*LoanSTAR*)
 - *Design of Chiller Plant, Cooling Tower, “Free Cooling” Flat Plate Heat Exchanger, Controls and Lighting System Retrofit*
- ❖ **Coon Memorial Hospital**, LeRoy Schaffner, Administrator, Dalhart, Texas (806) 244-4571
(*Municipal Lease*)
 - *Design of Central Plant, HVAC, Controls, Electrical and Lighting*
- ❖ **Archer City ISD**, Randel Beaver, Superintendent , Archer City, Texas (940) 574-4536
(*LoanSTAR*)
 - *Design of replacement HVAC units*
 - *Design of renovated Lighting System*
 - *Design of replacement Windows*
- ❖ **Thomason Hospital**, Benson Lewis, Facilities Director, El Paso, Texas (915) 521-7488
(*Performance Contract*)
 - *Co-Design MEP with Bath Engineering (local El Paso firm) for \$18 million Infra-Structure Renovation*
 - *Design of Central Plant Renovation, Controls, Air Distribution, Water Distribution, Heat Recovery, Plumbing*

- ❖ **Sonora ISD**, Brant Myers, Superintendent, Sonora, Texas (915) 387-2545 (*LoanSTAR and Bond*)
 - Design of HVAC in High School campus
 - Design of Lighting throughout school district
- ❖ **Mexia ISD**, James Sandifer, Assistant Superintendent, Mexia, Texas (254) 562-2888 (*LoanSTAR*)
 - Heating system retrofit for Sims Intermediate School and Cooling system replacement for High School
- ❖ **Hillsboro ISD**, Billy Sullins, Superintendent, Hillsboro, Texas (254) 582-4167
 - Indoor Air Quality and DDC district wide
 - Plumbing Renovation Hillsboro Jr. High
- ❖ **Albany ISD**, Dr. Jeri Pfeifer, Superintendent, Albany, Texas (915) 762-3974
 - HVAC and Lighting Renovation
- ❖ **Austin ISD**, Jack Crier – AIA, Principal, Austin, Texas (512) 478-0741 (*Bond Program*)
 - Renovation of existing facilities and addition of Library building at Lee Elementary. Renovation of existing facilities, addition of Library extension and new Gymnasium at Pease Elementary. Renovation of existing facilities and addition of new Gymnasium at Bryker Woods Elementary.
- ❖ **Brownfield ISD**, Jay Lashaway, Brownfield, Texas (806) 637-2591 (*LoanSTAR*)
 - HVAC Renovation and DDC system at Brownfield High School
 - HVAC, Indoor Air Quality, and DDC at Colonial Heights Middle School
- ❖ **Angelina College**, Steve Watters, CFO, Lufkin, Texas (936) 633-5281 (*LoanSTAR*)
 - HVAC Renovation (Chiller, Boiler, Pumps)
 - DDC (5 Buildings)
- ❖ **Del Valle ISD**, Paul Tutt, Project Manager, Del Valle, Texas (512) 386-5630 (*LoanSTAR*)
 - LoanSTAR Project: Lighting Retrofit and Controls
- ❖ **Nocona ISD**, Harold Reynolds, Superintendent, Nocona, Texas (940) 825-3267 (*LoanSTAR*)
 - DDC district wide in progress Nocona ISD
 - LoanSTAR Project: Lighting Retrofit, HVAC Retrofit, Controls
- ❖ **Bandera ISD**, Gus Pfeiffer, Superintendent, Bandera, Texas (830) 796-3313 (*LoanSTAR*)
 - LoanSTAR Project: Lighting Retrofit, HVAC Retrofit, Controls
- ❖ **Bynum ISD**, Polly Boyd, Superintendent, Bynum, Texas (817) 623-4251 (*LoanSTAR*)
 - LoanSTAR Project: Lighting Retrofit, HVAC Retrofit, Controls
 - Design of Additional Classrooms and Cafeteria

- ❖ **Lockhart ISD**, Darrell Hess, Director of Maintenance, Lockhart, Texas (512) 398-2371
 - HVAC, Electrical and Plumbing Retrofit for Jr. High, Intermediate, Plum Creek and Clearfork Elementary facilities (4 Campuses): Central Chilled and Hot Water Systems, Power, Lighting, Communications, Districtwide Computer Network, Fire Safety, Plumbing, ADA Compliance Retrofit, Split Systems.
- ❖ **Troy ISD**, Jerry Hargrove, Principal, Troy, Texas (817) 938-2561
 - HVAC, Electrical and Plumbing Design for New Classroom Addition
- ❖ **Bastrop ISD**, Mike Horton, Construction Supervisor, Bastrop, Texas (512) 321-2292
 - HVAC, Electrical and Plumbing Design for new Transportation Offices and Facilities.
- ❖ **Fayetteville ISD**, Jon Forsythe, Superintendent, Fayetteville, Texas (409) 378-4242
 - HVAC, Electrical and Plumbing Retrofit of Existing Facilities and Design of New Classroom Addition: Heat Pumps, Power, Lighting and Plumbing
- ❖ **Harris County Hospital District**, Lawrence Bell, Executive Director, Houston, Texas (713) 566-6590
 - Lighting Renovation
 - HVAC Renovation
 - Energy Control System
- ❖ **Balmerhea ISD**, Mary Lou Carrasco, Superintendent, Balmerhea, Texas (915) 375-2223
(*LoanSTAR and Bond*)
 - Replace HVAC units
 - Retrofit Lighting System
 - Replace Windows
- ❖ **Groom ISD**, Joyce Hutsell, Business Administrator, Groom, Texas (806) 248-2021
 - HVAC System Revision: Boilers and Controls
 - Lighting System Revision
 - LoanSTAR Project: Lighting Retrofit, HVAC Retrofit, Controls and Electrical Renovation
- ❖ **Columbus ISD**, John Saul, Superintendent, Columbus, Texas (409) 732-2651
 - HVAC System Revision: Chiller, Kitchen Cooling, Packaged Units, Room Split Systems, Energy Management System.
- ❖ **Lefors ISD**, Earl Ross, Superintendent, Lefors, Texas (806) 835-2533
 - HVAC System Revision: Boiler, Fancoil Units, Controls
 - Lighting System Revision
- ❖ **Leuders - Avoca ISD**, David Hims, Leuders, Texas (915) 228-4211

- HVAC System Revision: Energy Management System
- ❖ **Georgetown ISD**, Georgetown, Texas
 - HVAC System Revision: Energy Management System
- ❖ **Abilene Christian University**, Carlos Rodriguez, Director of Maintenance, Abilene, Texas (915) 674-2233
 - HVAC System Revision: Packaged Rooftop Heat/Cool Units, Controls
- ❖ **Huston-Tillotson College**, Dwaine Terry, Director of Maintenance, Austin, Texas (512) 476-7421
 - HVAC System Revision: Boilers, Controls
 - Lighting System Revision
- ❖ **Woodsboro ISD**, Barbara Shaver, Superintendent, Woodsboro, Texas (512) 543-4518
 - HVAC System Revision: Chiller, Fancoil Units, Controls
 - Lighting System Revision
- ❖ **McGregor ISD**, Jack Keltner, Business Manager, McGregor, Texas (817) 840-2828
 - Individual room split systems and central controls for Elementary Campus
 - Heat pump system for High School
- ❖ **Southwest Texas State University**, Alan Goidapp, San Marcos, Texas (512) 245-2148
 - Lighting revision for Psychology and History buildings.
- ❖ **Marion ISD**, Tom DeKunder, Assistant Superintendent, Marion, Texas (210) 914-4111
 - Design and Construction Management of complete HVAC replacement for Jr. High facility.
- ❖ **Meridian ISD**, Johnny Hauerland, Superintendent, Meridian, Texas (817) 435-2081
 - Design of Energy Management System for High School facility.
- ❖ **Groesbeck ISD**, Glynis Rosas, Superintendent, Groesbeck, Texas (817) 729-3808
 - Creation of Master Plan for replacement of energy consuming equipment for the entire district.
- ❖ **Spearman ISD**, Willard Murrey, Superintendent, Spearman, Texas (806) 659-3233
 - HVAC System Revision: Elementary Boilers, Air Handling Units, Energy Management System
 - Lighting System Revision
- ❖ **Port Arthur ISD**, Gary Phillips, Port Arthur, Texas (409) 729-0565 (*LoanSTAR*)

- Creation of Master Plan for replacement of energy consuming equipment for the entire district.
 - District Wide HVAC and DDC Renovation
- ❖ **Carrizo Springs CISD**, Gustavo Martinez, Superintendent, Carrizo Springs, Texas (830) 876-3503 (*LoanSTAR*)
 - Replacement of HVAC and Lighting Systems for entire district.
 - ❖ **St. John's Hospital**, Steve Palmer, Director of Engineering, San Angelo, Texas (915) 657-5229
 - HVAC, Plumbing, Fire Alarm, and DDC System Renovation.
 - ❖ **Archer City ISD**, Randal Beavers, Superintendent, Archer City, Texas (940) 574-4536 (*LoanSTAR*)
 - HVAC Renovation
 - Lighting Renovation
 - ❖ **Warm Springs Rehabilitation Hospital**, Dave Gumper, Administrator, Gonzalez, Texas (512) 672-6592
 - HVAC System Revision: Geothermal Chiller/Boiler, AHU Speed Control
 - Lighting System Revision
 - ❖ **Coleman County Medical Center**, Douglas Langley, Administrator, Coleman, Texas (915) 625-2135 (*LoanSTAR*)
 - HVAC Renovation and Controls
 - Lighting Renovation
 - ❖ **Memorial Hospital**, Jack Huebner, Director of Engineering, Houston, Texas (713) 776-5133
 - HVAC System Revision: Airside and Boiler Exhaust Heat Recovery
 - ❖ **Columbus Community Hospital**, Tom Simmons, Administrator, Columbus, Texas (409) 732-2371
 - HVAC System Revision: Energy Management System
 - Lighting System Revision
 - ❖ **Hill Country Memorial Hospital**, David Pitts, Business Manager, Fredericksburg, Texas (512) 997-4353
 - HVAC System Revision
 - ❖ **McKenna Memorial Hospital**, Johnny Johnson, Administrator, New Braunfels, Texas (512) 625-9111
 - HVAC System Revision: Chiller, Boilers, Energy Management System
 - ❖ **Michael Angelo's Gourmet Foods**, Mike Griffith, Round Rock, Texas (512) 632- 3799

- Renovation of HVAC and Lighting
- ❖ **Houston County Hospital**, Kathlene Wegener, Administrator, Crockett, Texas (409) 544-2002
 - HVAC System Revision: AHU Speed Control, Boiler, Chiller
 - Lighting System Revision
- ❖ **Austin American-Statesman**, Fletcher Mack, Director of Maintenance, Austin, Texas (512) 445-3500
 - HVAC System Revision: Energy Management System, VAV Control, Pump Speed Control, Natural Gas Engine Driven Chiller using Ammonia as refrigerant.
- ❖ **MHMR – Bluebonnet**, Robert Ham, Round Rock, Texas (512) 255-1720
 - Mechanical, Plumbing, and Electrical Design for new building
- ❖ **Bowie Memorial Hospital**, Joyce Crumpler, Administrator, Bowie, Texas (940) 872-1126 (*Lease*)
 - *Design* of Central Plant Renovation and Lighting Systems
- ❖ **Hemphill County Hospital**, Robert Ezell, Administrator, Canadian, Texas (806) 323-6422 (*LoanSTAR*)
 - *Design* of Central HVAC system
- ❖ **Comstock ISD**, Kenn Norris, Superintendent, Comstock, Texas (915) 292-4444 (*LoanSTAR and Bond*)
 - *Design* of replacement HVAC units
 - *Design* of replacement lighting system
- ❖ **Sierra Blanca ISD**, Dr. Joseph Gallegos, Superintendent, Sierra Blanca, Texas (915) 369-3741 (*Lease & Grant*)
 - *Design* of replacement HVAC throughout district
 - *Design* of Lighting Systems renovation
 - *Design* of new control system installation
- ❖ **Cogdell Memorial Hospital**, Jay Wesson, Snyder, Texas (325) 574-7371 (*LoanSTAR*)
 - *Design* of HVAC Renovation
- ❖ **ATMI**, Cliff Whitt, Plant Manager, Burnet, Texas (512) 756-7314
 - *Design* of renovation of Laboratory Ventilation System, Central Plant and Air Distribution systems
- ❖ **Dilley ISD**, Jack Seals, Superintendent, Dilley, Texas (830) 965-1912 (*LoanSTAR*)
 - *Design* of HVAC Renovation
 - *Design* of Lighting Renovation

❖ **Lytle ISD**, Michelle Smith, Superintendent, Lytle, Texas (830) 709-5100 (*LoanSTAR*)

- *Design of HVAC Renovation*

IV. ARCHITECT REFERENCES:

1. **PFLUGER ASSOCIATES**

209 E. Riverside Dr
Austin, Texas 78704

| | | |
|----------------|--|----------------|
| Brad Pfluger | Primary Contact | (512) 476-4040 |
| Sean Conner: | Bastrop ISD New High School | |
| Kent Niemann: | Lockhart ISD Intermediate School & Plum Creek Elementary | |
| | San Angelo ISD Master Plan | |
| John Williams: | Sonora ISD and Comstock ISD | |
| J. R. Covert: | Lockhart ISD Clear Fork Elementary | |
| Jerry Acevedo: | Bastrop ISD New High School | |

2. **K.A. HICKMAN Architects & Interior Designers**

1517 East Palm Valley Boulevard
Round Rock, Texas 78664

| | | |
|---------------|-------------------------|----------------|
| Keith Hickman | Primary Contact | (512) 255-9690 |
| | Cedar Ridge High School | |

3. **PERKINS + WILL**

330 N. Wabash Ave, Suite 3600
Chicago, IL 60611

| | | |
|----------------|-------------------------|----------------|
| Steven Turckes | Primary Contact | (312) 755-4570 |
| | Cedar Ridge High School | |

4. **PBK**

9442 Capital of Texas Highway
Suite 680
Austin, Texas 78759

| | | |
|-----------------|-----------------|----------------|
| Darrell Pearson | Primary Contact | (512) 340-0676 |
|-----------------|-----------------|----------------|

5. **COFFEE, CRIER & SCHENCK**

509 Oakland Avenue
Austin, Texas 78703

| | | |
|------------|-----------------|----------------|
| Jack Crier | Primary Contact | (512) 478-0741 |
|------------|-----------------|----------------|

6. **O'CONNELL ROBERTSON**

811 Barton Springs Rd., Suite 900
Austin, Texas 78704

| | | |
|---------------|----------------------|--------------------|
| Rick Burnight | Primary Contract | (512) 478-7286 |
| | Troy ISD High School | Classroom Addition |

RESUMES

**Principals
&
Project Managers**

JAMES W. BROWN, P.E.
President

EDUCATION

Bachelor of Science, Mechanical Engineering, University of Texas at Austin, 1972

Post Graduate Study, HVAC Systems and Design, 1973

HONORS AND AFFILIATIONS

Registered Professional Engineer #51926, State of Texas

Honors Graduate, University of Texas at Austin

Member, Pi Tau Sigma Honorary Society

Member, American Society of Heating, Refrigerating and Air-Conditioning Engineers

Member, American Society of Mechanical Engineers

Member, Texas and National Societies for Professional Engineers

Member, Association of Energy Engineers

Member, Texas Energy Managers Association

EXPERIENCE IN FIELD

Energy Management Engineering and Consulting: 37 Years

RELEVANT PROFESSIONAL EXPERIENCE

1982 to Present: ESA Energy Systems Associates, Inc., Round Rock, Texas, President

- Mechanical, Electrical and Plumbing (MEP) New Construction Designs for Public School Districts, University systems, hospital districts and commercial facilities.
- Professional Engineer in charge of analysis and design of over three hundred and fifty (350) facilities requiring energy conservation retrofit projects.
- Texas CHPS Advisory Committee member – Engineering Design sub-committee
- Houston ISD Energy Consultant Project Manager and Team Leader
- Performance Contract and ESCO analyses to review technical quality and/or provide oversight of installation for county governments and school districts.
- Member Texas Energy Performance Contracting Guidelines (TEPCG) Committee to establish guidelines and approval process for energy performance based contracts within state agencies, institutions of higher education, and public school facilities.
- Member of 7 man technical team formed by the World Bank to assist establishment of ESCO/Performance contract teams in three (3) major cities in China in 1997.
- Technical review committee member for analysis of Technical Assistance reports prepared under the Institutional Conservation Program and presented to the Public Utility Commission of Texas in 1984.
- Conducted energy audits and prepared reports with calculated conservation recommendations for eighty-three Texas (83) school districts under the Public Utility Commission's Energy Cost Reduction Opportunity (ECRO) Program from 1985 through 1988.
- Presented energy conservation workshops and provided thirty (30) school districts with a total of ninety (90) building conservation reports in the State of Pennsylvania under contract to the Governor's Energy Council of Pennsylvania in 1989 and 1990.

- Provided analysis of technical accuracy of technical assistance reports prepared by professional engineering firms in the State of New York. Work provided under contract to the New York State Energy Office in 1991.
- Provided technical audits for sixty-three (63) state government and school facilities under the Texas LoanSTAR program from 1989 through 2007.
- Provided local government facility audits for sixty-two (62) facilities under the State of Texas Local Government Program from 1990 through 1991.
- Member of Governor's Office for Energy Resources committee to review feasibility of school bus conversion from gasoline to propane fuel.
- Prepared Predominant Use Study reports for thirty-three (33) commercial and industrial clients from 1989 through 1991.
- Conducted analysis, produced design and provided installation oversight for "state-of-the-art" projects such as:
 - * Thermal Storage
 - * Natural Gas Engine Driven Chiller using Ammonia as Refrigerant
 - * Geothermal Heating
 - * Coil Loop Heat Recovery Projects

Would anything to do with SMART schools need to go under here? I don't see anything about SECO Workshops.

1980-82: ACR Energy Engineering, Inc., Austin, Texas; President

- Professional Engineer in charge of energy audits: conducted thirty-four (34) Southwestern Bell buildings in Texas; member of audit team conducting energy audits in thirty-five (35) facilities at the Department of Energy, Pantex Complex near Amarillo, Texas.
- Participant in Technical Assistance (TA) Engineering Energy Audit and retrofit design of 500,000 sf hospital in Corpus Christi, Texas, and 700,000 sf hospital in Houston, Texas, as well as other TA audits performed by the company technical staff.

1977-80: Planergy, Inc., Austin, Texas; Vice-President. Manager of Commercial Services Department, including:

- Commercial and Industrial Audit Division;
- Commercial Design Division;
- Hospital Audits Director; and
- Local Government Audits Director

Developed workbooks and conducted workshops covering energy conservation for:

- New Commercial Design involving registered engineers and architects.
- Existing Hospital Retrofit. Workshops included topics such as HVAC, lighting, building shell, demand control, discussion of electricity rate structures, ancillary equipment, and establishment of energy management programs at facilities.
- Conducted Energy Auditor Training Workshops in Texas, New Mexico, Maryland, Washington, Oregon, Tennessee and Louisiana.

1976-77: Brown-L Supply Company, Spearman, Texas, Owner/Manager

- Owned and managed a total building wholesale supply and design firm including installation and service of HVAC systems, plumbing, lighting, and electrical systems.

1973-76: Trane Company. Atlanta, Georgia

- Designed and supervised installation of heating, ventilating and air-conditioning systems in the Atlanta service area of the Trane Company, a major supplier of commercial/industrial HVAC equipment.
- Conducted "Conserve Energy by Design" seminars.

PUBLICATIONS:

The Investment Grade Energy Audit: *Making Smart Energy Choices*; Hansen & Brown; Fairmont Press; 2003

Energy Efficiency Manuals for Mechanical and Electrical System Operation in the States of Texas, New Mexico, Oregon, Tennessee, Pennsylvania, Louisiana, and Washington

R.J. (RIK) MORRIS, P.E.
Vice-President

EDUCATION

B.S., Mechanical Engineering Technology, Texas Tech University, Lubbock, Texas 1974

EXPERIENCE IN FIELD

Licensed Professional Engineer, #86477 State of Texas
Certified Energy Manager (CEM) #10364
LEED[®] Accredited Professional, 2007

RELEVANT PROFESSIONAL EXPERIENCE

1999 to Present: ESA Energy Systems Associates Inc., Round Rock Texas, Vice-President

- Recruited Professional Engineers, Designers, and Draftsmen to build a MEP Design Team
- Managed Multiple MEP Project Managers and Teams of Designers. Project size \$1M to \$70M
- Performed Energy Audits for the State of Texas Energy Office. These Reports included Project Cost Estimates, Project Cost Savings, and Project Payback Projections.
- Completed Investment Grade Energy Audits for Public Schools, Hospitals, and Universities.
- Developed and Performed Energy Conservation Training Seminars for the State of Texas Energy Office (SECO).
- Designed +\$100M of Mechanical, Electrical, Plumbing projects including Direct Digital Control Systems.
- Designed Renovation of the Angelo State Central Plant, Science Laboratory Building, Campus Wide Primary CHW Piping System, and New Air Handlers Campus Wide \$13M
- Developed Computer Simulated Energy Consumption Model for Energy Audits
- Developed Campus Wide Hydraulic Chilled Water Computer Models for Angelo State University and Midwestern University for removing secondary chilled water pumps.
- Designed Data Center HVAC Renovation
- Wrote Multiple Assessment Reports for HVAC Systems with Deficiencies, including Cost Estimates for Corrective Action

1990-99: Condea Vista Company R&D, Austin, Texas, Building Engineer

- Designed, contracted, and supervised HVAC projects.
- Developed and maintained automated work order and preventive maintenance Systems.
- Programmed building automation system.
- Negotiated wholesale natural gas contract and new electric demand Charge.
- Maintained utility records and verified correct billing.
- Cross trained others to operate building automation system.
- Managed outside contractors\Interfaced with researchers to find engineering solutions.

- Designed and coordinated installation of auxiliary humidity control system for the ASTM room.
- Supervised tradesmen, landscaping contractors, and janitors.
- Supervised personnel and purchased supplies for maintaining central plant, hoods, and industrial equipment.
- Issued safety permits and gave safety orientations.
- Developed new strategies to operate laboratory hoods.

1986-90: Young and Pratt Service, Inc., Austin, Texas, Director of Energy Management

- Completed Energy Audits for more than 100 sites.
- Designed DDC Systems for more than 100 sites. Arranged financing for 40 projects.
- Trained employees and customers to use Building Automation Systems. Supervised multiple installations, appeared before the Laredo Junior College Board of Trustees' and the Austin City Council. Negotiated shared savings contracts and guaranteed savings contracts. Managed personnel and inventories, and developed new control strategies.

1981-86: Oliver Energy Master, Inc., Dallas, Texas, Vice President

- Completed Energy Audits for 60 sites.
- Designed DDC Systems and arranged financing for 35 projects.
- Directed installation of energy conservation projects. Work included surveying prospective sites, analyzing energy histories, developing proposals, selecting equipment, supervising installations, and monitoring results. Sites included banks, data processing centers, schools, plants, office buildings and others.

PROFESSIONAL ASSOCIATIONS

| | |
|-----------------|--|
| 1986 to Present | Member, ASHRAE, Austin Chapter |
| 1982 to Present | Member, Association of Energy Engineers, Atlanta |
| 1985 | President, North Texas Chapter of AEE, Dallas |
| 1985 to Present | Certified Energy Manager-Association of Energy Engineers, Atlanta, Ga. |
| 1986 to 1988 | Vice President, Region IV (Texas, Louisiana, Oklahoma), AEE |
| 1991 to Present | Charter Member, AEE, Austin Chapter |

PUBLISHED PAPERS

| | |
|------|---|
| 1986 | "Subjective Analysis of Energy Management Projects" <i>Strategies for Energy Efficient Plants & Intelligent Buildings</i> , World Energy Engineering Congress, Atlanta, Georgia |
| 1987 | "Subjective Analysis of Energy Management Projects" <i>Strategic Planning and Energy Management</i> , Vol. 6, No. 3 Lilburn, Georgia |

JAMES B. (JIM) WATT, P.E.

EDUCATION

Master of Science, Mechanical Engineering, Texas A&M University, 1997

- Research Assistant, Energy Systems Laboratory
- Completed Thesis while employed by CES/Way International

Bachelor of Science, Electrical Engineering, Texas A&M University, 1991

EXPERIENCE IN FIELD

- Automatic Control Systems
- Central utility plants
- Cogeneration plants
- Commissioning of complex systems
- Design & Specification
- Energy Audit & Solution Development
- Licensed Professional Engineer, #85622, State of Texas
- Measurement & verification (M&V)
- Metering & instrumentation systems
- Modeling of buildings and processes
- Operator training
- Project engineering & management
- Re-, Retro-commissioning

RELEVANT PROFESSIONAL EXPERIENCE

Cogeneration Plant – FDA Federal Research Center, Silver Spring, MD

New Cogeneration plant design, construction and commissioning

- Phase I: 5.6MW dual fuel engine generator, exhaust gas heat recovery, jacket water & lube oil heat recovery, heat rejection systems, cooling water system, 3400T chilled water plant, 30MMBtu/hr dual fuel Hydronic heating plant, fuel oil tank farm and distribution.
- Phase II: 3 x 4.4MW gas turbine generators, exhaust gas heat recovery, heat rejection systems, cooling water system 7100T chilled water plant expansion (bringing total to 10500T) including 2200T of absorption cooling.
- Mechanical engineering design team member.
- Control system design, installation, and commissioning leader.

Investment Grade Audit – Vandenberg Air Force Base, VAFB, CA

Building energy systems investment grade audit, savings calculations, ESPC solutions development

- 6 million sf. base.
- Audit team leader, including solutions development as well as savings calculation and reporting.
- Direct on-site supervision, client briefings and reporting.

Central Utility Plant – University of Colorado Health Science Center, Aurora, CO

New Central Utility Plant design, construction and commissioning

- Phase 1: 270kpph steam plant, 2 x 150kpph de-aerators, condensate return, feed water pumping, 2400T chiller plant, 600T free cooling HX, cooling water system, expansion tank, and auxiliaries.
- Phase II: 6000T chilled water plant expansion bringing total to 8400T.
- Phase III: 6000-T chilled water plant expansion bringing total to 14400T.
- CHW and Steam generation and distribution control systems design, installation and commissioning leader.

Steam Boiler – Rice University, Houston, TX

New steam boiler addition to existing central cogeneration plant

- Design and construction of new 40kpph boiler and associated systems, feed water pumping, de-aerators, condensate return, auxiliaries.
- Control system design, construction and commissioning leader.

ESPC/Steam system conversion – Northeastern State University, Tahlequah, OK

Campus-wide Energy Savings Performance Contract

- Convert central steam heating to distributed hot water systems, air-cooled chiller replacements, AHU conversions, RTU replacements, cooling tower replacements, campus-wide DDC integration.
- Control system design, construction and commissioning leader.

ESPC/Central utility plant renewal – Baylor University, Waco, TX

Campus-wide Energy Savings Performance Contract

- 3.7 million sf. campus.
- Central chiller replacements, new chiller installation, convert constant speed pumping distribution to variable speed, cooling tower replacement with variable air flow, constant volume air-side systems to VAV systems, EMCDS system enhancements and retro-commissioning.
- Mechanical design and construction team.
- EMCS (control system) design and commissioning team leader.
- Measurement and verification plan development and team leader.

District Heating & Cooling – Harris County, Houston, TX

New district heating and cooling plant design and construction serving several Harris County government buildings in downtown Houston

- 7200T chilled water distribution, 150kpph steam distribution plant.
- Conversion of connected building chilled water systems to variable flow.
- Control system design, specification, and commissioning leader.

ESPC/Thermal Storage – Houston ISD, Houston, TX

Energy Saving Performance Contract covering fifteen schools and the HISD headquarters complex

- Twelve thermal storage systems, EMCS renewal and retro-commissioning, constant to variable flow pumping, CV to VAV air-side systems, DX to CHW conversions.
- Included chilled water storage and ice storage systems.
- Mechanical and process design team member.
- Control system design, installation, and commissioning leader.

Investment Grade Audit – Houston ISD, Houston, TX

Investment grade audit of high school, middle school, and elementary school buildings including the HISD office headquarters complex in mid-town Houston

- Energy conservation audit and solutions development team member.

EMPLOYMENT

ESA ENERGY SYSTEMS ASSOCIATES, INC.
Houston Office, Project Manager

- June 2008 – Joined company as Project Manager for Houston area projects.

HONEYWELL

Director Monitoring & Controls, Honeywell Building Solutions SES

- Leader of control systems design for large ESPC and design-build projects.
- Leader of monitoring activities associated with ongoing measurement and verification.
- Solutions development leader for key competitive ESPC contracts.
- Includes mechanical and control systems designs, construction, and commissioning duties.

SEMPRA ENERGY

Director Measurement, Verification & Monitoring, Sempra Energy Solutions

- Leader of ESPC M&V plan development, presentation, and implementation.
- Leader of performance phase monitoring and reporting.
- Includes mechanical and control systems design, construction, and commissioning duties.

Project Engineer, Sempra Energy Solutions – CES/Way International

- Energy audit and solutions development team.
- Mechanical and controls engineering design and construction team.

Patrick E. Nolan, P.E.

EDUCATION

Texas Tech University B.S. Electrical Engineering, August 1979

HONORS AND AFFILIATIONS

Member National Society of Professional Engineers
Registered with National Council of Examiners for Engineering and Surveying (NCEES)

CURRENT REGISTRATIONS

Licensed Professional Engineer #81711, State of Texas
Virginia, Maryland, Washington DC, Missouri, Oklahoma, Wyoming, New Jersey, New York

STRENGTHS AND EXPERIENCE

Project Management

Client Development & Relations
Team Building
Contract Negotiations
Compliance
Deadline & Budget Constraint Compliance

Project Production

Electrical System's Specification & Design
Load, Fault & Voltage Drop Calculations
NFPA Including National Electrical Code
Delegation of Tasks to EIT's, Designers & Draftsmen

SELECTED EMPLOYMENT HIGHLIGHTS

Jan 09 – Present: *ESA Energy Systems Associates, Inc.* Project Manager, Sr. Electrical Engineer

- Electrical Engineer of Record responsible for all aspects of the electrical power distribution design comprised of the drawings and specifications. Central point of contact for the electrical design team and communication between ESA and the Project Owner or Manager, Vendors, Utilities and other Consultants.

MAJOR PROJECTS

CEDAR RIDGE HIGH SCHOOL

Provided Construction Administration Services for new two story, 320,000 SF High School for the Round Rock ISD, Texas.

CEDAR CREEK HIGH SCHOOL

Provided Construction Administration Services for new two story, 285,000 SF High School for the Bastrop ISD, Texas.

MCLANE ADVANCED TECHNOLOGY OFFICE BUILDING

New 35,000SF, three story base building and interior office building design with central server room systems including generator, uninterruptible power supply (UPS) and dry pipe sprinkler system(s). In addition to office building, project also included a separate campus chilled water central plant/building.

EL PASO ISD MULTIPLE CENTRAL PLANT SECO UPGRADES

Replacement of inefficient chillers and boilers with new more efficient units for twelve (12) campuses as part of the Texas SECO and Loan Star program.

CITY OF ROUND ROCK ADMINISTRATION AND BUSINESS CENTER

Complete base and interior renovation of existing two story downtown office building. Design included complete replacement of electrical distribution system from utility lateral plus all new lighting and fire alarm/detection systems.

SAN ANTONIO NORTHSIDE ISD RICHLAND HILLS DATA CENTER

Renovation of approximate 10,000 SF data center including re-use of existin generator, automatic transfer systems, uninterruptible power supply (UPS) and power distribution units (PDU) with the addition of new overhead branch circuit bus, lighting and dry pipe sprinkler system(s).

Oct 05- Jan 09: *Pagesoutherlandpage*, Austin, Texas, Sr. Associate, Sr. Electrical Engineer

- Electrical Engineer of Record responsible for all aspects of the electrical power distribution design comprised of the drawings and specifications. Central point of contact for the electrical design team and communication between PSP and the Project Owner or Manager, Vendors, Utilities and other Consultants.

MAJOR PROJECTS

- CHICKASAW NATION HEALTH FACILITY
+217,000 sf. Hospital, 141,000 sf. Clinic, 12,000 sf. Central Plant, New Build-to-Suit Base and Interior Health Care Facility, Ada, Oklahoma (In-Construction).
- AMLI BLOCK 22 HIGH RISE RESIDENTIAL APARTMENTS
+340,000 sf. 18 Story Apartment Building with parking, retail and recreational facilities. New Built-to-Suit, Austin, Texas.
- HCA MEDICAL RESEARCH FACILITY RENOVATION
+500,000 sf. Renovation of the Emergency and Essential Equipment Power Distribution Systems, Kansas City, Missouri.
- WATERSTONE CONDOMINIUMS
Eight Building Complex each with 9 to 11 condominiums, new Build-to-Suit, Lago Vista, Texas (In-Construction).
- USAA HQ RENOVATION
+200,000 sf. Interior Renovation, San Antonio, TBuildout, Tyson's, Virginia.
- FROST BANK DATA CENTER
+65,000 sf. Tier3 Data Center with 10,000 sf. White Space, New Build-to-Suit, San Antonio, Texas (In CD's).

Oct 87-Sep 05: *Tolk, Inc.*, Fairfax, Virginia, Vice President, Director of Electrical Engineering, Manager of Tenant Services

- One of the original three members of a management team hired to revitalize and return to profitability a faltering 40 man consulting engineering firm. One year after the new management team and controls were in place, profits were reestablished and to date maintains one of the highest profit margins of any holding company division.
- As part of the revitalization effort I developed the new firm's electrical engineering guidelines and construction Specifications, established firm's interior tenant improvement engineering section, hired and trained new Electrical engineers/designers and developed an interior tenant client base.

- In addition to electrical engineering I have developed a detailed knowledge of most commercial mechanical HVAC and plumbing systems. Personally performed multiple MEP due diligence reports.
- Responsible for developing and leading presentations for several large projects our firm ultimately won.
- Maintained annual personal project billings ranging from \$750,000.00 to \$1,000,000.00 depending on the year. Actual personal project development exceeded these figures as a portion of my work was passed to other Project Managers.

MAJOR PROJECTS

- ROCKWELL INTERNATIONAL SECURED CORPORATE FACILITY
+1,200,000 sf. Base Building & Interior Buildout, Chantilly, Virginia
- ONE FRANKLIN SQUARE
+1,000,000 sf. Base Building & Interior Office Buildout, Washington, DC.
- NATIONAL POSTAL FACILITY BLS HISTORIC RENOVATION
+900,000 sf. Interior Buildout, Washington, DC.
- MOBILE OIL CO. FAIRFAX 2000 CONSOLIDATION
+500,000 sf. Interior Renovation, Fairfax, Virginia
- FREDDIE MAC PHASE 4
+400,000 sf. Interior Buildout, Tyson's, Virginia
- PRICEWATERHOUSECOOPERS INTERIOR CORPORATE CONTRACT-
+350,000 sf. Multiple New and Renovation Projects, Washington Metroplex

Aug 79-Sep 87: *I.A. Naman + Associates*, Houston, Texas

- Started as graduate EIT and advanced to Electrical Project Engineer and ultimately Electrical Group Leader.
- Passed both EIT and Principal and Practice Professional Engineering electrical licensing exams.
- Designed electrical distribution systems for multiple signature high-rise condominium, multi-use and office buildings. Responsible for all aspects of designs including fault current calculations, overcurrent device coordination, voltage drop calculations, load calculations and feeder/branch circuit sizing. See major projects list. Responsible for training new graduates and designers.
- In May of 1984 moved to Dallas Texas to co-manage a branch office for IAN+A. Shared responsibility for all aspects of office management including acquisition of employees, developing a client base as well as acquisition, design and production of projects.

MAJOR PROJECTS

- BANK OF SOUTHWEST TOWER
+2,300,000 sf. 81 Story Conceptual Base Office Building, Houston, Texas
- ENRON HEADQUARTERS
+1,350,000 sf. 50 Story Base Office Building, Houston, Texas

- THE PARK IN HOUSTON CENTER
+790,000 sf. 12 Story Mixed Use Office/Retail Base Building, Houston, Texas
- WARWICK POST OAK HOTEL
+490,000 sf. 14 Story 450 Room Luxury Hotel, Houston, Texas
- WARWICK POST OAK CONDOMINIUM
+ 410,000 sf. 20 Story 133 Suite Luxury Condominiums, Houston, Texas

OSCAR VILLARREAL, P.E.

EDUCATION

Bachelor of Science, Mechanical Engineering, Texas Tech University, 1988

AFFILIATIONS

Member - American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)

EXPERIENCE IN FIELD

Licensed Professional Engineer, #89091 State of Texas

LEED[®] Accredited Professional, 2009

WORK EXPERIENCE

2007 to Present: ESA Energy Systems Associates, Round Rock, Texas, Project Manager

- Responsible for the perform engineering calculations, performing system analysis, select and schedule equipment of HVAC systems, controls, plumbing systems, medical gas systems for commercial office buildings, medical facilities, light industrial facilities, educational facilities, retail facilities, multi-family residential and tenant improvement projects.
- Responsible for coordinating with architects/clients to determine project requirements and provide engineering fee proposals.
- Supervise project designers and production staff to produce contract plans and specifications.

2005-07: Bay & Associates, Project Manager

- Responsible for the perform engineering calculations, performing system analysis, select and schedule equipment of HVAC systems, controls, plumbing systems, medical gas systems for commercial office buildings, medical facilities, light industrial facilities, educational facilities, retail facilities, multi-family residential and tenant improvement projects.
- Responsible for coordinating with architects/clients to determine project requirements and provide engineering fee proposals.
- Supervise project designers and production staff to produce contract plans and specifications.

1998-2005: Talex Inc., Engineers, Mechanical Engineering Consultant

- Mechanical engineering consulting services. Responsible for the design and documentation of HVAC systems, plumbing systems, medical gas systems, HVAC controls and fire protection systems.
- Supervise projects entailing new construction and renovations for hospitals, central cooling plants, commercial spaces, high-rise office buildings, military facilities, schools, and multi-family residential buildings.

1998: Department of Defense - United States Air Force (Goodfellow AFB, TX & Keesler AFB, MS),
Mechanical Design Engineer

- Lead mechanical design engineer for projects including HVAC, process piping, plumbing systems, facility analysis, construction scheduling, and construction administration.
- Developed contract documents to include plans, design analysis, construction cost estimates, and specifications for mechanical systems.
- Prepared statements of work for private Architect-Engineering firms and evaluated contractor's performance for compliance with the statement of work. Served as a committee member on A/E Selection Committees.
- Reviewed and approved construction submittals, inspected construction job sites, and prepared contract modifications.
- Determined short and long range requirements for replacement of HVAC systems of over one hundred facilities at Goodfellow AFB.

PROJECT SAMPLING

- St. David's MOB, Austin, Texas
- Texas Oncology, Austin, Texas
- Orthopaedics Specialist of Austin, Austin, Texas
- Sage Townhomes, Austin, Texas
- WSG&R, Las Cimas IV, Austin, Texas
- Cunningham Orthodontics, Dripping Springs, Texas
- nVidia Data Center, Riata 3, Austin, Texas
- YMCA Addition, Corsicana, Texas
- Franklin Plaza (Tenant Improvement Projects), Austin, Texas
- One American Center (Tenant Improvement Projects), Austin, Texas
- 300 W. 6th Office Building (Tenant Improvement Projects), Austin, Texas
- Activant, Las Cimas I, Austin, Texas
- Granger Warehouse/Retail Store, Austin, Texas
- State Bar of Texas, Austin, Texas
- Kealing Middle School (AISD), Austin, Texas
- Liberty Elementary School, Liberty, Texas
- Liberty Middle School, Liberty, Texas
- St. David's Hospital – Various Hospital Renovations, Austin, Texas
- Riata Crossing Office Building, Austin, Texas
- Lago Vista Middle and High School – Addition, Lago Vista, Texas
- MidTown Medical Office Building (Shell & Tenant Improvements), Austin, Texas
- Brenham City Hall, Brenham, Texas
- Stonebridge I Office Building (Tenant Improvement Projects), Austin, Texas
- Stonebridge II Office Building (Tenant Improvement Projects), Austin, Texas
- Horizon II Office Building (Shell & Tenant Improvement Projects), Austin, Texas
- Richardson Medical Office Building (Shell & Tenant Improvements), Richardson, Texas
- Urgicare Center, Richardson, Texas
- Baylor Richardson Medical Center Expansion, Richardson, Texas
- Odessa Regional Hospital Expansion, Odessa, Texas
- Odessa Regional Hospital – Emergency Room Expansion – Odessa, Texas

- Quarry Lake Office Building, Austin, Texas
- Gonzales Hospital Additions, Gonzales, Texas
- Ambulatory Surgery Center (ADC), Austin, Texas
- Franklin Banks, Cedar Park & Georgetown, Texas
- Sweeney Memorial Hospital Expansion, Sweeney, Texas
- Sweeney Assisted Living Center, Sweeney, Texas
- Gonzales Memorial Hospital Expansion, Gonzales, Texas
- Sievers Clinic Expansion, Gonzales, Texas
- St. Joseph's Academy & Admin Building, Brownsville, Texas
- Dr Ramirez Dental Office, Austin, Texas
- Texas Neuro Rehab, Austin, Texas
- St. James Hospital, St. James Parish, Louisiana
- Franklin Foundation Hospital, Franklin, Louisiana
- Laredo LTAC Hospital, Laredo, Texas

SPECIAL SKILLS

Proficiency in AutoCAD (Version 2008)
Microsoft Office Suite

R. CHRISTOPHER CARTER, QCxP, CEM, CEP
Director, Energy Management Services

EDUCATION

Bachelor of Science, Civil Engineering Technology, Old Dominion University, Norfolk, Virginia, December, 2008

Master of Education, Texas State University, San Marcos, Texas, 1995

Bachelor of Arts, Psychology Major, Pharmacy Minor, University of Texas at Austin, 1991

AFFILIATIONS

Certified Energy Procurement Professional, A.E.E. 2001 – Present

Certified Energy Manager, A.E.E. 2008

Qualified Commissioning Provider, 2010

PROFESSIONAL EXPERIENCE

1997 to Present: ESA Energy Systems Associates, Round Rock, Texas, Director, Energy Management Services

- Design mechanical, electrical, plumbing and life safety systems for installation in schools, hospitals, and local government facilities. Coordinate all phases of project design.
- Manage construction of energy savings retrofit projects up to five (5) million dollars, including receiving and recommending bid proposals, evaluation and inspection of mechanical, electrical and plumbing systems, and organizing and preparing all phases of project paperwork, including post-installation energy savings verification analyses.
- Conduct energy audits and retro-commissioning studies for schools, hospitals, and local government facilities.
- Assist Commissioning Department with all phases of commissioning process, including document preparation, design review, leading team meetings and commissioning verifications.
- Prepare client request for proposals, receive and analyze proposals for the procurement of electrical energy contracts in deregulated energy market.
- Create and present energy related seminars on Lighting, Utility Bill Analysis, Indoor Air Quality, Personnel Management, Finance and Master Planning for the State Energy Conservation Office, Austin, Texas.

MICHAEL L. CORK, QCxP
Program Manager, Commissioning Services

EDUCATION

Old Dominion University, Virginia. Major area of study: Civil Engineering Technology. January 2008 to Present.

Qualified Commissioning Process Provider University of Wisconsin Madison: February, 2008

Austin Community College, Austin, Texas. Major area of study: Architectural Engineering. Studies in building construction design methods, project management, field surveying, and computer aided design. August 1997 – May 2002

Texas Tech University, Lubbock, Texas. Major area of study: Civil Engineering. Studies in structural design with general course work in english, math, and science and history. September 1996 – May 1997

South Plains College, Levelland, Texas. Major area of study: General. Studies in general courses with course work in court law, math, english, and science. August 1987 – April 1988

CERTIFICATIONS

Commissioning Certifications: QCP, QCxP

PROFESSIONAL ASSOCIATIONS

Member, Association of Energy Engineers, Austin Chapter

Member, ASHRAE, Austin Chapter

Member, Building Commissioning Association, Southwest Chapter

MILITARY SERVICE

United States Navy, Discharge: Honorable

EXPERIENCE

2002 to Present: ESA Energy Systems Associates, Inc., Round Rock, Texas, Program Manager, Commissioning Services

- Developed and implemented a full scale building commissioning and retro commissioning department for Energy Systems Associates.
- Program Manager responsible for overseeing all aspects of commissioning from inception to warranty for multiple projects. Projects range in size from 30k sqft to 480ksqft. Construction Projects costs range from \$3 million to \$93 million dollars.
- Served as lead commissioning agent for multiple UGSBC LEED, TX-CHPS and Austin Energy Green Building projects.

- Project Manager responsible for overseeing the installation and operational performance of HVAC, controls and electrical systems for commercial, healthcare and educational facility renovations. Responsibilities include construction Administration, MEP and special systems commissioning and testing.
- Lead project designer for mechanical, electrical, plumbing, fire alarm, security and access design under the direction of the P.E.
- Assisted the C.E.M. and P.E. in conducting energy audits and surveys for existing facilities.
- Developed material for inclusion into and participation in the state of Texas, State Energy Conservation Office public facilities and maintenance workshops presented throughout the state.
- Developed and implemented construction specifications for new and renovation construction projects.
- Provided assistance for project permitting services as well as code review for clients.

2001: Hendrix Consulting Engineers, Electrical Designer

- Provided electrical design services for all lighting, power, P/A, fire alarm, security, and sight utilities including electrical, telephone, cable, and fiber optics.
- Projects included: elementary, primary, and high schools, municipal buildings, general office, shell/tenant buildings, medical offices, churches, and retail space, including fire alarm, P/A, and security.

2000-01: Self-Employed Contractor, Mike Capt, P.E., Project Manager, Lead Mechanical Designer, Electrical Designer

- Managed a team of five designers in producing more than one hundred projects in a 12-month period.
- Continually met challenging project time-lines while maintaining positive customer relations.
- Established new customers and provided quality engineering services to repeat customers.
- Provided permitting design services as well as code review for clients.
- Projects included new design and retrofit on restaurants, bars, commercial high-rise, medical/dental offices, retail space, theaters, condominiums, car dealerships, parking garages, shell/tenant finish-out.

SOFTWARE PROFICIENCY

- | | | |
|----------------------|------------------|-----------------|
| · AutoCAD 14-2010 | · Microsoft Word | · PowerPoint |
| · Microsoft Excel | · MS Windows | · Adobe Acrobat |
| · DOE Com Check | · HVAC Calc | · Visual |
| · Trane Trace Summit | · ARC View GIS | |

EXPERIENCE
In
NON-DESIGN
PROGRAMS

GOVERNMENTAL PROJECTS:

1. PROJECT NAME: Schools & Local Government Energy Program
CLIENT: Texas Comptroller of Public Accounts /
State Energy Conservation Office
PURPOSE: To assist public entities improve efficiency through improved M&O procedures, equipment installation, workshops, onsite training or Master Plan implementation.
CONTACT: Juline Ferris and Stephen Ross
State Energy Conservation Office
LBJ State Office Building
111 E. 17th Street
Austin, Texas 78774
(512) 936-9283
2. PROJECT NAME: Institutional Conservation Program (ICP)
CLIENT: School and Hospital Districts throughout the State of Texas
PURPOSE: To determine energy savings available through retrofit of existing systems, and obtain grant funds from the Department of Energy to implement those projects.
CONTACT: Karen Raven
State Energy Conservation Office
221 E. 11th Street
Insurance Annex - 2nd Floor
Austin, Texas 78701
(512) 463-1931
3. PROJECT NAME: Texas LoanSTAR Program
CLIENT: State of Texas, Energy Management Center Governor's Energy Division
PURPOSE: To determine cost savings available through installation of energy conservation measures in state owned facilities.
CONTACT: Eddy Trevino
State Energy Conservation Office
LBJ State Office Building
111 E. 17th Street
Austin, Texas 78774
(512) 463-1876
4. PROJECT NAME: Energy Cost Reduction Opportunity (ECRO) Audits
CLIENT: State of Texas Public Utility Commission Energy Efficiency Division
PURPOSE: To provide energy audits and reports for smaller school districts desiring project payback periods of three years or less.
CONTACT: Dr. Mel Roberts - State ICP Director Energy Management Center of the Governor's Office of Budget and Planning
P.O. Box 12428, Capitol Station
Austin, Texas 78758

(512) 463-1757

5. PROJECT NAME: Commercial Outreach Program
CLIENT: State of Texas Public Utility Commission Energy Efficiency Division
PURPOSE: Prepare Workbook and present Energy Conservation Techniques throughout the State (40 Workshops)
CONTACT: Judith Carroll
P.O. Box 12428, Capitol Station
Austin, Texas 78758
(512) 463-1931
6. PROJECT NAME: Energy Cost Saving Measure (ECSM) Audits
CLIENT: State of Pennsylvania, Governor's Energy Council
PURPOSE: To provide information through workshops and actual system analyses and to inform districts of various financing methods available to fund the recommended project installations.
CONTACT: Rosemary Mapes
Governor's Energy Council
P.O. Box 8010
Harrisburg, Pennsylvania 17105
(717) 783-9989
7. PROJECT NAME: Energy Service Company (ESCO) Evaluation
CLIENT: County of Kauai, Hawaii
Office of Economic Development
PURPOSE: To review project sites and ESCO recommended projects for feasibility of project and technical accuracy.
CONTACT: Glenn Sato
Director of Office of Economic Development
4280-B Rice Street
Lihue, HI 96766
(808) 241-6390
8. PROJECT NAME: Technical Review of NECPA Audits/1984 -1985
CLIENT: State of Texas Public Utility Commission
Energy Efficiency Division
PURPOSE: To review all applications for NECPA funding to determine technical feasibility of ECM's recommended for installations.
CONTACT: Dr. Mel Roberts - State ICP Director
Energy Management Center of the Governor's Office of Budget and Planning
P.O. Box 12428, Capitol Station
Austin, Texas 78758
9. PROJECT NAME: Technical Assistance Audit and ICP Program Review
CLIENT: State of New York, State Energy Office
PURPOSE: To evaluate the effectiveness of the State's ICP program with particular emphasis on the technical quality of

reports. Reports reviewed from 1986 through 1990 program cycles.
CONTACT: Dr. Shirley Hansen
Kiona International, Inc.
8506 Shawnee Place NW
Gig Harbor, Washington, 98335
(253) 265-3150

10. **PROJECT NAME:** Energy Efficient School Partnership Program
CLIENT: State of Texas, State Energy Conservation Office
PURPOSE: To collect a statewide energy and energy cost database for public schools, and to prepare reports recommending cost saving energy conservation measures for individual campuses.
CONTACT: Dub Taylor, Mel Roberts or Richard Taylor
General Services Commission State Energy Conservation Office
P.O. Box 13047
Austin, Texas 78711-3047
(512) 463-1931

INSTITUTIONAL CONSERVATION PROGRAM (ICP)

SCHOOLS:

1. **CLIENT:** Spearman ISD
403 East 11th Street
Spearman, Texas 79081
PROJECT: High School Campus, TA Audit and ECM Design
CONTACT: Orville Latham, Business Administrator
(806) 659-2116
FACILITY SIZE: 76,448 Square Feet
COMMENT: Project funded on 50/50 basis; ISD return on investment in 11 months.
2. **CLIENT:** Spearman ISD
403 East 11th Street
Spearman, Texas 79081
PROJECT: Elementary/Jr. High Campus, TA Audit and ECM Design
CONTACT: Orville Latham, Business Administrator
(806) 659-2116
FACILITY SIZE: 104,783 Square Feet
COMMENT: Project funded on 50/50 basis; ISD return on investment in 23 months.
3. **CLIENT:** Southwest Texas State University
SWTSU Station
P.O. Box 1002
San Marcos, Texas 78666

- PROJECT: 2 Building Lighting Retrofit, TA Audit
 CONTACT: Alan Goldapp
 (512) 245-2148
- FACILITY SIZE: Psychology Building - 39,142 SF
 Taylor Murphey Building - 27,574 SF
4. **CLIENT:** Huston-Tillotson College
 1820 East 8th Street
 Austin, Texas 78702
- PROJECT: Two Buildings, TA Audit
 CONTACT: Dwaine Terry, Director of Maintenance
 (512) 476-7421
- FACILITY SIZE: 10,000 and 28,000 Square Feet
 COMMENT: TA Audit completed October 1985.
5. **CLIENT:** Abilene Christian University
 P.O. Box 8204
 Abilene, Texas 79699
- PROJECT: 2 Dormitory HVAC, TA Report
 CONTACT: Carlos Rodriguez
 SIZE: Sikes Dormitory - 52,050 SF
 Smith-Adams - 60,160 SF
6. **CLIENT:** Columbus ISD
 P.O. Box 578
 Columbus, Texas 78934
- PROJECT: High School Campus, TA Audit and ECM Design
 CONTACT: John Saul, Superintendent
 (409) 732-2651
- FACILITY SIZE: 80,400 Square Feet
 COMMENT: Installation completed in July 1984; ISD return of investment in 34 months.
7. **CLIENT:** Groom ISD
 P.O. Box 550
 Groom, Texas 79039
- PROJECT: K-12 Campus, TA Audit and ECM Design
 CONTACT: Joyce Hutsell, Business Administrator
 (806) 248-2021
- FACILITY SIZE: 60,000 Square Feet
 COMMENT: Project installed September 1982; ISD return on investment in 19 months.
8. **CLIENT:** Hamshire-Fannett ISD
 P.O. Box 223
 Hamshire, Texas 77622
- PROJECT: High School Campus, East Building TA Audit and ECM Design
 CONTACT: George Morris, Business Administrator
 (409) 243-2133

FACILITY SIZE: 20,267 Square Feet
COMMENT: Project completed in March 1983; ISD return on investment in 10 months.

9. **CLIENT:** Childress ISD
P.O. Box 179
Childress, Texas 79201
PROJECT: Jr. High School Campus, TA Audit and ECM Design
CONTACT: Glen Lowrance, Superintendent
(817) 937-2501
FACILITY SIZE: 36,064 Square Feet
10. **CLIENT:** Childress ISD
P.O. Box 179
Childress, Texas 79201
PROJECT: Lamar Elementary Campus, TA Audit and ECM Design
CONTACT: Glen Lowrance, Superintendent
(817) 937-2501
FACILITY SIZE: 17,000 Square Feet
11. **CLIENT:** LeFors ISD
601 Court Street
LeFors, Texas 79054
PROJECT: TA Audit and ECM Design
CONTACT: Earl Ross, Superintendent
(806) 835-2533
FACILITY SIZE: 31,000 Square Feet
12. **CLIENT:** Lueders-Avoca ISD
P.O. Box 68
Lueders, Texas 79533
PROJECT: K-8 Facility, TA Audit
CONTACT: David Hims
(915) 228-4211
FACILITY SIZE: 28,368 Square Feet

HOSPITALS:

1. **CLIENT:** Warm Springs Rehabilitation Hospital
P.O. Box 58
Gonzales, Texas 78629
PROJECT: Six Buildings, TA Audit and ECM Design
CONTACT: Dave Gumper, Administrator
(512) 672-6592
FACILITY SIZE: 139,000 Square Feet / 68 Beds
2. **CLIENT:** Columbus Community Hospital
P.O. Box 865
Columbus, Texas 78934
PROJECT: One Building, TA Audit and ECM Design

- CONTACT: Tom Simmons, Administrator
(409) 732-2371
- FACILITY SIZE: 33,035 Square Feet / 40 Beds
3. **CLIENT:** McKenna Memorial Hospital
143 Garza
New Braunfels, Texas 78130
- PROJECT:** One Building, TA Audit and ECM Design
- CONTACT:** Mr. Johnny Johnson, Administrator
(512) 625-9111
- FACILITY SIZE:** 64,633 Square Feet / 116 Beds
4. **CLIENT:** Parkview Regional Hospital
312 E. Glendale
Mexia, Texas 76667
- PROJECT:** Patient Wing HVAC Revision, TA Audit
- CONTACT:** Karl Stinson
(817) 562-5332
- FACILITY SIZE:** 34,279 Square Feet
5. **CLIENT:** Houston County Hospital
P.O. Box 1120
Crockett, Texas 7583
- PROJECT:** One Building, TA Audit and ECM Design
- CONTACT:** Kathlene Wegener, Administrator
(409) 544-2002
- FACILITY SIZE:** 58,000 Square Feet / 93 Beds
6. **CLIENT:** Hill Country Memorial Hospital
P.O. Box 835
Fredericksburg, Texas 78624
- PROJECT:** One Building, TA Audit and ECM Design
- CONTACT:** David Pitts, Business Manager
(512) 997-4353
- FACILITY SIZE:** 74,000 Square Feet / 61 Beds
7. **CLIENT:** Memorial Hospital
7600 Beechnut
Houston, Texas 77074
- PROJECT:** Memorial Southwest Unit, TA Audit and ECM Design
- CONTACT:** Jack Huebner, Director of Engineering
(713) 776-5133
- FACILITY SIZE:** 998,575 Square Feet / 600 Beds
8. **CLIENT:** Memorial Hospital
7600 Beechnut
Houston, Texas 77074
- PROJECT:** One Building, TA Audit and ECM Design
- CONTACT:** Jack Huebner, Director of Engineering
(713) 776-5133

FACILITY SIZE: 200,000 Square Feet / 465 Beds