

CORPORATE STAFF

PROFESSIONAL STAFF (RESUMES FOLLOWING):

- James P. Waltz, P.E., President, Principal Engineer
- Donald C. Anderson, P.E., Energy Systems Consultant
- Arthur G. Craig, P.E., Project Electrical Engineer
- David J. Cuthbertson, E.I.T., C.E.T., Senior Electrical Engineer
- Timothy L. Denham, Facilities Operations Specialist
- Erwin Hagele, Heating Systems Specialist
- R. Michael Kearns, Staff Engineer
- James L. Kozelka, Project Engineer
- David Rifkin, Mechanical Engineering Specialist
- Duane M. Robinson, R.A., Architecture Planning and Design Specialist
- James S. Rothfuss, P.E., Senior Electrical Engineer
- Craig D. Shulenberger, E.I.T., Project Mechanical Engineer
- Thomas R. Staton, P.E., Control Systems Specialist
- Frederick Sena, P.E., Senior Structural Engineer
- Vernon Taylor, Refrigeration Systems Specialist
- Michael J. Waltz, E.I.T., Staff Mechanical Engineer

SUPPORT STAFF:

- Mary Jane Waltz, Vice President
- Rebecca Lawrie, Office Manager
- Alice Waltz, Assistant Office Manager
- Tom Ellis, Computer Systems Manager

JAMES P. WALTZ, P.E.

PRESIDENT, PRINCIPAL ENGINEER: Energy Resource Associates, Inc., Livermore, California. In this capacity Mr. Waltz is responsible for the day-to-day conduct of ERA's consulting and engineering activities, including project management, definition and review of technical scope, budget and schedule determination, technical approach and procedures, supervision and execution of detailed analyses, documentation and report writing, and technical staff training and development. Mr. Waltz has personally conducted detailed energy retrofit feasibility studies in more than 30,000,000 square feet of buildings and designed the follow-on retrofit projects in more than 24,000,000 square feet of buildings, including single-loop variable flow chilled water conversions, variable air volume conversions, direct digital, pneumatic and electric controls, building automation systems, lighting control systems, lighting fixture retrofit, cogeneration systems, and air and wet-side economizers. Mr. Waltz performs programming, start-up and trouble-shooting of direct digital control and building automation systems. He has also personally designed central chilled water plants, entire HVAC installations, chilled and hot water distribution systems, fuel oil piping systems, HVAC restorations and numerous other projects. While maintaining a close involvement and active hand in all projects undertaken by the firm, Mr. Waltz is the firm's principal specialist in expert testimony work, measurement & verification, training and seminars, and management consulting.

ENGINEERING MANAGER: AMTECH Energy Services, Subsidiary of American Building Maintenance Industries, San Francisco, California. Responsible for development and implementation of a streamlined computer assisted approach to identifying, presenting and executing Total Energy Retrofit in large commercial buildings. Major accomplishments included the analysis, development, design and construction supervision of three large Total Energy Retrofit projects. Technical execution activities included training of support personnel in use of TRACE and DOE-2, supervision of engineering and trade staff, establishing short-cut data collection procedures, cost estimating and defining scope of work, and writing technical proposals.

PROJECT MANAGER: Resource Recovery and Energy Conservation Division, Brown and Caldwell Consulting Engineers, Walnut Creek, California. Responsible for technical and financial accuracy of energy conservation and alternate energy source studies. Trained staff in the proper use of computers to perform energy calculations. Sales engineering activities included target account identification and development, proposal preparation and presentation, and contract negotiations.

DIRECTOR, ENERGY MANAGEMENT GROUP: Lawrence Livermore Laboratory, Livermore, California. Led the energy management program at the Laboratory. Formulated policy, represented the Laboratory in energy related issues involving the Department of Energy. Conducted an active energy conservation publicity campaign for Laboratory employees. Technical accomplishments included the supervision of professional engineers researching improved energy audit techniques and efficient building design and retrofit projects. Taught project engineers the use and application of computer simulation for energy efficient building design which led to the adoption of new energy efficiency building standards at the Laboratory.

SPECIAL ENERGY CONSULTANT: Air Force Logistics Command, Wright-Patterson Air Force Base, Ohio. Responsible for development and implementation of the energy resources program. A major accomplishment was the design and field demonstration of a new concept for using municipal refuse as a district heating boiler fuel. This work led to the passage of a federal law enabling widespread adoption of the process.

STAFF MECHANICAL ENGINEER: Air Force Logistics Command, Wright-Patterson AFB, Ohio. Designed mechanical and HVAC systems, steam distribution, plumbing, etc. Engineering Manager for all Base heating systems (five major coal-fired boiler plants, distribution systems, and heating systems in 500+ buildings). Arranged and supervised field surveys and design work by consultants. Project engineer on a \$30,000,000 boiler modernization/abatement project.

CIVIL AFFAIRS OFFICER (S-5): 101st Aviation Group, 101st Airborne Division, Camp Eagle, Republic of Vietnam. Served as group liaison to local civilian communities. Major additional assignment was as Officer-in-Charge of Echo Sector of the base camp perimeter defense.

PLATOON LEADER: Alpha Battery, 6th Battalion/67th Air Defense Artillery Regiment, 1st Infantry Division, Fort Riley, Kansas. Served as platoon leader for one of four Vulcan cannon platoons for the Battery. Additional assignments were as Assistant Operations Officer for the Battalion staff S-3 and as Chemical/Biological/Radiological (CBR) Officer for the Battalion.

PRODUCT ENGINEER: Chrysler Airtemp, Dayton, Ohio. Responsible for developing new and existing air conditioning product lines including prototype building and laboratory testing and modification. Conducted product performance testing, quality control testing, assemblyline trouble shooting, evaluation of purchased components and writing assembly specifications.

EDUCATION:

University of Dayton, Dayton, Ohio - Bachelor of Mechanical Engineering
California State University, Hayward, California - Master of Business Administration

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Registered Professional Engineer, California, Nevada, Ohio
Charter Member, Association of Energy Engineers (AEE)
Certified Energy Manager, Association of Energy Engineers (AEE)
International Energy Engineer of the Year, 1993, Association of Energy Engineers (AEE)
Vice President, Region-V, 1996, 1997, Association of Energy Engineers (AEE)
Scholarship Program Chair, 2001-2003, Association of Energy Engineers (AEE)
Member, American Society of Heating, Refrigeration & Air Conditioning Engineers (ASHRAE)
Diplomate, ABFET / American College of Forensic Examiners
Charter Member, Demand Side Management Society (DSMS)
Member, Cogeneration Institute
Member, Association of Energy Services Professionals (AESP)
Member, California Society for Healthcare Engineering (CSHE)
Instructor, University of California, Berkeley
Contributing Editor, *Heating Piping and Air Conditioning*, Penton Publishing
Contributing Editor, *Energy & Environmental Management*, Penton Publishing
Editorial Board, *Strategic Planning for Energy and the Environment*, The Fairmont Press

PUBLICATIONS:

Management, Measurement and Verification of Performance Contracting, First Edition, 2003, The Fairmont Press.

"Low-Rise Building Pressure: Basics and Case Studies." *HPAC Engineering*. February 2003, pp. 28-34.

"Making Buildings Work. A case study of an innovative cold air retrofit." *HPAC Engineering*. February 2002, pp. 50-54.

"Performance Contracting for School Districts." *HPAC Engineering*. January 2002, pp. 73-76.

"The Measurement & Verification is Wrong.....now what do you do?" *Proceedings of the West Coast Energy Management Congress*. 2001

"Factor in the Human Equation to: Optimize Operating Efficiency." *Energy & Environmental Management*. Third Quarter 2000, pp. 43-45.

"Building Simulation and Performance Contracting." *Strategic Planning for Energy and the Environment*. Vol 20, No. 1, 2000, pp. 6-11.

Computerized Building Energy Simulation, First Edition, 2000, The Fairmont Press.

"Investment Grade Energy Audits... Fact? Or Fiction?" *Cogeneration and Competitive Power Journal*. Vol 14, No. 4, Fall 1999, pp. 9-19.

"Measurement & Verification Options for Performance Contracts." *Energy & Environmental Management*. Spring 1998, pp. 36-43.

"Don't Ignore Variable Flow." *Contracting Business*. July 1997, pp. 108-114.

"Performance Contracting - How to be Sure it Works Well." *Strategic Planning for Energy and the Environment*. Vol 16, No. 4, 1997, pp. 38-49.

"Variable Flow Chilled Water Systems." *Energy & Environmental Management*. Fall 1996, pp. 44-47.

"How to Marry an ESCo (and not have to worry about divorce)." *Energy & Environmental Management*. Fall 1995, pp. 22-27.

"Whole-Building Energy Efficiency." *Energy Users News*. June 1995, pp. 23-42.

"Finding the Silver Lining in CFC Chiller Retrofit." *RETSIE Proceedings*. 1995

"Integration, Reducing the Cost of CFC Chiller Replacement." *Consulting-Specifying Engineer*. January 1995, pp. 43-48.

"Chapter 16: Computer Software for Energy Audits." *Handbook of Energy Audits*. Fourth Edition, pp. 403-441, 1995, The Fairmont Press.

"Chapter 13: Demand-Side Management and the Energy Services Industry." *Retrofitting Buildings for Energy Conservation*. Second Edition, pp. 185-230, 1994, The Fairmont Press.

"Computerized Building Simulation... A DSM Strategy?" *GLOBALCON Proceedings*. 1994

"Monitoring and Evaluating DSM and Energy Services Projects." *Cogeneration and Competitive Power Journal*. Vol 8, No. 3, 1993, pp. 62-73.

"Energy Service Projects: Case studies in Success and Failure." *DSM Quarterly*. Summer 1992, pp. 21-26.

"Effective Energy Management Planning." *Hospital Energy Management Strategies Seminar*. PG&E's Pacific Energy Center, 1992

"Practical Experience in Achieving High Levels of Accuracy in Energy Simulations of Existing Buildings." *ASHRAE Transactions*. Symposium AM-92-1-2.

"Variable Flow Conversions for Chillers." *Energy Engineering*. Vol 21, 1989, pp. 59-65.

"Single Loop Variable Flow Chilled Water Systems." *HVAC & Building Systems Congress Proceedings*. 1989

"The Four M's of Energy Management." *Buildings Design Journal*. June 1987, pp. 16-21.

"The Energy Maze: How Computers Can Help You Choose the Right Retrofit Options." *MANAGEMENT Insights*. Winter 1981, pp. 3-11.

"Building Energy Performance Standards: Problem or Opportunity?" *5th Federal Energy Management Program Symposium*. 1979

"Field Demonstration of Refuse Derived Fuel for District Heating at Wright Patterson Air Force Base." *Energy and the Environment Proceedings*. 1975

DONALD C. ANDERSON, P.E.

ENERGY SYSTEMS CONSULTANT: Energy Resource Associates, Inc., Livermore, California. In this capacity Mr. Anderson is in responsible charge of a wide variety of engineering activities associated with the execution of facility investigations and project development. Mr. Anderson's work includes detailed field surveys, data analysis, computerized load calculations, mechanical and electrical system analysis, report writing and direction of other engineering sub consultants.

PRESIDENT: Lafayette Engineers, Inc., Lafayette, California. In this capacity Mr. Anderson directs the firm's day-to-day consulting and engineering activities, including project management, definition and review of technical scope, budget and schedule determination, technical approach and procedures, supervision and execution of detailed analyses, and report writing. The firm's specialization is energy analyses for industrial, school and commercial buildings. Mr. Anderson has personally served as State Energy Auditor Instructor for the State of California's Schools and Hospitals Program.

CORPORATE ENERGY MANAGER: Hexcel Corporation, Dublin, California. Spearheaded creation of the company's energy conservation program, resulting in a 27% reduction of energy use company-wide. Developed long-range plans for energy-efficient siting and layout of production facilities.. Provided liaison to the Department of Energy and other Federal agencies for the corporation. As Engineering Manager for the firm, directed design and construction of new production buildings and equipment, including the successful establishment of 5 production-related patents (in Mr. Anderson's name, assigned to the firm).

ENGINEERING MANAGER FOR PACKAGING SYSTEMS: Schjeldahl Company, Northfield Minnesota. Supervised engineering department in development and implementation of new polyethylene bag manufacturing system. Led marketing effort and industrial expositions promoting new manufacturing process.

MANAGER, PROCESS EQUIPMENT DEVELOPMENT: Proctor & Gamble Company, Cincinnati, Ohio. Management activities included reorganizing the Equipment Development Division and administering the 400+ employee Engineering Division. Technical activities included the design of mechanical equipment for processing lines and design and installation of entire processing lines in plants throughout the U.S. Acquired numerous patents (assigned to the firm). projects, performed energy savings calculations and performed design drafting.

EDUCATION:

Bachelor of Science in Electrical Engineering, University of Minnesota

Graduate, Navy Electronic Technicians School

PROFESSIONAL REGISTRATION AND ASSOCIATIONS:

Registered Professional Engineer, California, Ohio and Minnesota

Member, Association of Energy Engineers (AEE)

ARTHUR G. CRAIG, P.E.

PROJECT ELECTRICAL ENGINEER: Energy Resource Associates, Inc., Livermore, California. In this capacity, Mr. Craig is responsible for power distribution and digital control systems engineering activities, including project management, definition and review of technical scope, budget and schedule determination, technical approach and procedures, supervision and execution of detailed analyses, documentation and report writing and project start-up and commissioning.

MANAGER OF ENGINEERING SERVICES: R. F. Mital and Associates, Inc., Pittsburgh, PA. Responsible for marketing of electrical and general engineering services. In addition, he performed power distribution and lighting system design for numerous public and private renovation and new construction projects including schools, churches, retail facilities and municipal water treatment plants. He also provided minor engineering services related to structures, piping design, HVAC and control systems. Supervised the purchase and installation of computer drafting work stations (AutoCad and Softdesk) and equipping the rest of the office with an Ethernet LAN, PC's and software.

MANAGER OF ENGINEERING: Qual-Tech Engineers, Inc., Pittsburgh, PA. Directed and performed electrical engineering work, including industrial plant power distribution systems, high voltage cable fault studies, high voltage transmission lines, production equipment installations and industrial control systems.

ARTHUR G. CRAIG, CONSULTING ENGINEER: Mr. Craig's private practice included electrical system design for commercial office buildings and shopping centers and industrial projects including computerized numerical machine control and wind turbine control systems.

CHIEF ELECTRICAL ENGINEER: Jacob Engineering, Martinez, CA. Supervised the Electrical Design Department on steel industry modernization projects, including demolition and rebuilding of electrical systems, providing for computer controlled production lines, furnaces and shipping areas. He directed the design of high voltage power distribution equipment, motor control centers, alarm and communication facilities and relay protection systems.

SENIOR APPLICATIONS ENGINEER: Aluminum Company of America. Over a career spanning 32 years, Mr Craig held many positions including Senior Applications Engineer. In this position he was responsible for national technical assessment of aluminum applications in the electrical, electronics and power industries. He developed design and engineering practices for aluminum conductors, connectors and other products such as heat sinks. He authored and presented numerous IEEE papers and authored other publications and was active in the Alcoa Wind Turbine Project.

EDUCATION:

University of California, Berkeley
Bachelor of Science, Electrical Engineering

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Registered Professional Engineer, Pennsylvania, California

DAVID J. CUTHBERTSON, E.I.T., C.E.T.

SENIOR ELECTRICAL ENGINEER: Energy Resource Associates, Inc., Livermore, California. Mr. Cuthbertson is responsible for engineering of electrical power distribution (including emergency power and cogeneration), electrical metering, lighting and electrical control systems, including field surveys, final design, cost estimating, equipment selection, construction supervision, and consultation on start-up, operation and maintenance of electrical systems.

UTILITIES FOREMAN/SUPERVISOR: Port of Oakland, Oakland, California. Supervised electricians, plumbers and BME's in construction and maintenance activities. Prepared budgets and job estimates, did purchasing, and designed field changes on mechanical and electrical systems.

OWNER: Cuthbertson Electric, Dublin, California. Owned and operated this electrical contracting company. Bid and performed electrical contracting work for numerous industrial and commercial clients.

ELECTRICAL DESIGNER: University of California, Lawrence Livermore Laboratory, Livermore, California. Designed building and utility electrical power systems and controls, preparing blueprints drawings and specifications for construction of electrical power systems.

ADMINISTRATIVE ASSISTANT: Lockheed Missiles and Space Co., Sunnyvale, California. Supervised energy conservation program including energy accounting and reporting, and conservation project development and execution.

PLANT ELECTRICIAN: Lockheed Missiles and Space Co., Sunnyvale, California. Performed maintenance and construction work on electrical power and control systems. Served as an Administrative Assistant for one year supervising the energy program which required reporting on and control of the energy conservation program.

EDUCATION:

Diablo Valley College, Pleasant Hill, California
International Correspondence School, Scranton, PA. Electrical Engineering

Las Positas College, Livermore, California
Associate of Arts, Natural Sciences

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Registered Engineer in Training, California

Electrical Contractor License C-10 #382947 (inactive)

Certified Engineering Technician in Electrical Engineering Technology, CET #066547

TIMOTHY L. DENHAM

FACILITIES OPERATIONS SPECIALIST. Energy Resource Associates, Inc., Livermore, California. In this capacity, Mr. Denham performs facility efficiency evaluations relative to plant operations, maintenance and efficiency in acute care hospitals and other facilities, orientated towards cost containment and budget management while maintaining quality. Evaluations include consideration of numerous maintenance functions for central plant equipment, medical gas systems, life safety systems, biomed, and building envelope and grounds. Mr. Denham also supports ERA's Performance Contracting Services program and is the company's lead construction management consultant, having overseen many projects for ERA clients from design through bidding, construction oversight and project closeout. Serves as internal consultant to the entire firm regarding building codes and regulations (UBC, UMC, NFPA, ADA, Title 22, Title 24, JCAHO, NEC, OSHA, OSHPD, OSA) and other governing agencies related to construction and maintenance.

PROJECT OPERATIONS/MANAGEMENT/CONSULTING. T.D. Enterprises, Campbell, CA. Coordinated projects, construction and installation of equipment in new and existing facilities. Participated in the planning and development of various projects with owners, architects, engineers, contractors, and inspectors. Implemented policies and procedures for personnel, and conducted training programs for various clients.

DIRECTOR/CHIEF ENGINEER. Salinas Valley Memorial Hospital, Salinas, CA. Responsibilities included day to day operation of the Engineering department which included buildings and grounds, Biomedical engineering, and construction projects. Responsible for the evaluation of, hiring of and disciplinary actions for thirty-two employees. Developed and implemented:

- department computer network system
 - work order and preventative maintenance programs
 - annual budgets for Engineering, Biomedical, and construction projects
 - cost containment programs (which included direct management of an Energy Savings Performance Contract with a Fortune-500 ESCo, which exceeded \$500,000/year in savings)
- Revised the preventative maintenance programs in Biomed and Engineering resulting in an additional \$500,000 savings. Chair of the Hazmat committee, Utilities committee, Safety sub-committee. Prepared the Engineering and Biomed Departments for JCAHO. Supervised construction and renovation projects with architects, inspectors, contractors, engineers, and administration.

OPERATIONS MANAGER. Marriott Corporation at O'Connor Hospital, San Jose, CA. As a contract manager, supervised and directed 26 employees including the Chief, and two Assistant Chief Engineers. Involved with architects, contractors, inspectors and engineers on the interstitial construction and the renovation of the Oncology Unit. Assisted with preparation of JCAHO. Participated on safety committee, disaster committee, hazardous materials and various other committees.

ASSISTANT DIRECTOR, PROJECT MANAGEMENT. Good Samaritan Hospital, San Jose, CA. Responsible for building and grounds, architects, engineers, contractors, inspectors, construction and project implementation. Member of Safety committee, Biohazardous waste committee and Disaster planning committee. Made key decisions in emergency situations. Assisted the Director of Facilities and assumed those responsibilities in his absence. Responsible for the

management and supervision of personnel, which included hiring, assignment of staff, evaluations, development of policies and procedures, preventive maintenance programs, and budgets for the engineering/biomed departments. Coordinated energy savings program.

PETTY OFFICER. U.S. Coast Guard Petty Officer - Honorable Discharge.

EDUCATION:

University of Phoenix - Completing BA in Business Administration

San Jose State - Completed courses in engineering and computer science.

San Jose City College - AS Degree in air conditioning and refrigeration. Course work included industrial/construction management and supervision classes. Various course in electronics, computer and industrial arts.

Certificates:

- Project Management/Construction
- Management
- Refrigeration
- Air Conditioning
- Electrical Code
- Sales and Training
- Time Management
- Asbestos Handling
- Energy Management
- Hazmat Program and Training

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Boiler Operator License, San Jose

Member, California Society of Healthcare Engineering (CSHE)

Member, American Society of Healthcare Engineering (ASHE)

Member, American Hospital Association (AHA)

Member, National Fire Protection Association (NFPA)

Member, International Conference of Building Officials (ICBO)

ERWIN HAGELE

HEATING SYSTEMS SPECIALIST: Energy Resource Associates, Livermore, California. In this capacity, Mr. Hagele is responsible for diagnostic evaluation of complex heating system problems and troubleshooting of steam and hot water boilers. Also involved in combustion testing, natural gas, oil, propane, waste gases, analyzers and convective adjustment to meet the BACMD (Apco) environmental requirements. Troubleshoots, converts and modifies boilers and combustion flame safeguard controls. Redesigns and modernizes systems to meet the required boiler safety code requirements. Hydronic systems testing, diagnostic evaluation, performed complex hydro system corrective modifications. Mr. Hagele serves as senior consultant to the entire firm regarding combustion equipment and heating systems.

HYDRONIC SYSTEM AND BOILER SUPERVISOR: Comm Air Mechanical Services, Oakland/Foster City, California. Thirty-two years of heating systems, steam, and hot water installation, troubleshooting, repair and service. Responsible for total rebuild, retube, repairs, and refractory replacement of steam and hot water boiler systems. Serviced safety controls on hydronic system and associated controls field trouble shooting. Also involved in diagnostic evaluations, redesign, venting, and correcting system maladies.

REFRIGERATION AND AIR CONDITIONING SPECIALIST: York and Linde Hallford, Montreal Canada. Responsible for industrial process refrigeration including ammonia, breweries, fisheries, ice arenas.

CONSTRUCTION FOREMEN: Responsible for installation of complex industrial and commercial heating and air conditioning systems throughout his career as a service technician.

INSTRUCTOR: Union Local 38. Over a 20 year period gave instructional classes to journeymen on boilers, hydronics, electro pneumatic, microprocessors, and combustion.

EDUCATION/TRAINING:

Apprenticeship in Mechanical Refrigeration, Stuttgart Germany
Certified Journeymen - Graduate of Local 38
University of California Extension courses
Hydronic Engineering Training (ITT/Bell & Gossett)
Boiler Institute of America
Certified Factory Boiler Training (Kewanee, and Cleaver-Brooks)
Honeywell control seminars

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

California State Teaching Credential

R. MICHAEL KEARNS

STAFF ENGINEER: Energy Resource Associates, Inc., Livermore, California. In this capacity, Mr. Kearns performs numerous duties, including field surveys of as-built conditions, computer simulation (employing EnergyPro [Title-24] and DOE-2), project layout utilizing CADD, structural and mechanical detailing, heating and cooling load calculations, heating and cooling system component sizing (piping and ducts), specification writing, contractor walk-throughs, construction observation and assists with start-up troubleshooting. Serves the entire firm as a CADD technology consultant and as resident graphic artist and humorist.

CARPENTER / FOREMAN: Veri Built Construction, Orangevale, California. Mr. Kearns supervised over 40 carpenters and was responsible for framing inspection and remediation of framing errors. Coordinated structural systems with structural design engineers and building inspectors.

REMODELING CARPENTER / FOREMAN: American Development, Concord, California. Mr. Kearns supervised residential remodeling projects, including kitchens, upgrading electrical and plumbing systems, and custom cabinetry design, fabrication and installation.

EDUCATION/TRAINING:

AutoDesk AutoCAD Certification

Journeyman Carpenter

JAMES L. KOZELKA

PROJECT ENGINEER: Energy Resource Associates, Inc., Livermore, California. In this capacity, Mr. Kozelka is intimately involved in facility investigations, including field surveys, data analysis, computer simulation, project development, cost estimating and report writing. In addition, Mr. Kozelka performs final project design (both mechanical and electrical), including surveying field conditions, load and system design calculations, system layout, specification writing, contractor walk-throughs, construction observation and start-up commissioning and troubleshooting. His projects include energy retrofit feasibility studies, HVAC system problem investigations, design of chiller installations, chilled water piping, entire HVAC systems, comprehensive energy retrofit projects, digital control and building automation systems, HVAC restoration projects and cogeneration projects. Mr. Kozelka serves as cogeneration system consultant for the entire firm.

OPERATIONS MANAGER: Stanford Energy Systems, Inc., Palo Alto, California. Provided all cogeneration and solar energy system design, electrical and mechanical engineering, and installation project management and field supervision. Managed company operations relating to the maintenance, repair, troubleshooting and customer-relations management for cogeneration systems owned by Stanford and resident in host buildings under third-party power production contracts.

Notable projects included:

- the 1200 California Street, San Francisco, CA, cogeneration installation, the first within PG&E's San Francisco Network
- John Muir Medical Center, Walnut Creek, CA, 180 KW (three units) cogeneration installation
- YMCA cogeneration installations at the Presidio, Richmond Hilltop, San Mateo "Peninsula" and Central San Jose locations

PROJECT MANAGER AND FOREMAN: Union Solar, Inc., Palo Alto, California. In this capacity, Mr. Kozelka provided all solar energy system design as well as project management and field installation supervision.

EDUCATION:

Bachelors Degree: Mathematics and Psychology, Hobart College, Geneva NY

Electrical Engineering Certificate, North Carolina State University

Certificates, Variable Flow Chilled Water and Steam Design, ITT

HVAC Certificate Program, University of California, Berkeley

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Member, Association of Energy Engineers (AEE)

Member, California Society for Healthcare Engineering (CSHE)

California Contractors Licenses, B and C-10

DAVID RIFKIN

MECHANICAL ENGINEERING SPECIALIST: Energy Resource Associates, Livermore, California. In this capacity, Mr. Rifkin is primarily responsible for field work in connection with the firm's many projects in construction. In this role he meets with contractors, reviews contractor submittals, reviews and approves change orders, provides on-site construction observation, technical coordination with contractors, commissioning and final project close-out. Mr. Rifkin also serves as a senior consultant to the entire engineering staff regarding constructability aspects of mechanical system design.

SPECIAL PROJECTS MANAGER: Linford Service Co. Served as a Commercial Estimator for Tenant Improvement Projects, Code Upgrades, and DDC control systems. Developed technical training programs for technicians for the home office. Main customers included: Safeway, Union Oil Refinery, William Wilson Co. Developers.

PROJECT MANAGER/ENGINEER: The Linford Co. Mr. Rifkin performed the mechanical design for the Safeway Headquarters Building, Pleasanton, and the 1st Nationwide Bank Computer Center, West Sacramento. Responsible for client and architect coordination, contract negotiation, purchasing, and supervision of construction, and commissioning of the system. Involved with the complete retrofit to VAV from multi-zone systems at the Japan Cultural Center, San Francisco.

HVAC ESTIMATOR/PROJECT MANAGER: A & B Metal Products. Managed extensive retrofit for Safeway Computer Center, Walnut Creek and large Uranium reclaim installation at the Lawrence Livermore National Laboratory with high vacuum exhaust systems. Installed DDC controls in two large US Postal Service facilities.

SPECIAL PROJECTS MANAGER/DESIGN ENGINEER: Bay Point Controls. Performed as Construction Manager for controls and service contractor, EMS systems, retrofit commercial air conditioning systems, troubleshooting, and training for technical staff.

MANAGER/PARTNER: Computer Conditioning Systems. Sales and service of support equipment for computer rooms (air conditioners, power centers, cabinetry, etc). Involved in a corporate merger.

PARTNER: Cooling and Heating Engineers. Served as partner for this manufacturers' representative for several lines of engineering equipment including sales and application.

CONTRACTOR/CONSULTANT: Serviced as an independent manufacturer's representative for major manufacturers of HVAC equipment.

SALES ENGINEER: Lillard Company. As a sales engineer, managed the engineering and dealer training departments and did heating and air conditioning equipment sales.

SALES ENGINEER: Foreman Supply Company. Sales of heating and air conditioning equipment to contractors and engineers.

SALES ENGINEER: Marvin Manufacturing Company. Responsible for lighting equipment

engineering and applications.

MOTOR MACHINIST MATE 1ST CLASS: U.S. Navy. Served on shipboard duty: USS Colusa APA-74 Auxiliary Division Petty Officer. Attended Internal Combustion School (Iowa State University), Advanced Engine School (San Diego), and served as Landing Craft Base Instructor (San Diego).

EDUCATION:

Bachelor of Science, Mechanical Engineering, University of California Berkeley

Associate of Arts, Engineering, Los Angeles City College

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Member, American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), Golden Gate Chapter - served on Code Committee, Solar Energy Committee, Seminar Committee, Board of Directors, and as Chapter President

Charter Member, Association of Energy Engineers

NEBB, SMACNA, Oakland Chapter - Conducted Certification Program for TAB Supervisors and ran technical seminars annually for certification renewals.

DUANE M. ROBINSON, ARCHITECT

ARCHITECTURE PLANNING AND DESIGN SPECIALIST: Energy Resource Associates, Inc., Livermore, California. As an Architecture Planning and Design Specialist, Mr. Robinson is responsible for planning and design of facilities. Mr. Robinson is the company-wide consultant, including expert witness assignments on architecture planning and design.

PRINCIPAL: The Space Management and Design Group, Mariposa, California. Since 1985, in this capacity Mr. Robinson has been directing the firm's day-to-day architectural planning and design activities including, project management, design, planning, review, budget, schedule determination, technical approach, and supervision. The firm's specialization is retail and college facilities. Specific projects include the I. Magnin Palo Alto and Carmel stores which were completed in 1985 and 1986. Additionally, a new 70,000 square foot department store in Woodland, California was finished in 1986. College projects included a new T.V. studio for Foothill College as well as numerous other renovation projects for the Foothill and DeAnza Community College District. More recently, the projects under his direction have been more complex in their scope of work. The projects remain focused in the areas of retail and college facilities, however, the variety has become more extensive and more challenging. Some examples include a 3500 seat "stadium," including press-box, for DeAnza College, a two story 7,000 square foot addition to Foothill College's Campus Center, a major renovation and additions to Rothschild's Specialty Department Store in Oklahoma City (60,000 square feet), a new two story specialty store for McCaulou's Department Store in Napa, California (40,000 square feet), a restaurant called Quiet Storm at the Cannery in San Francisco, and a 10,000 square foot "Gold's Gym" in San Francisco. Ongoing projects for the Foothill and DeAnza College District include classrooms, chemistry and biology buildings and numerous others. I. Magnin Palo Alto and Carmel stores, a 70,000 square foot department store in Woodland, CA, Foothill College, DeAnza College, a major renovation and addition to Rothschild's Specialty Department Store in Oklahoma, a new two story energy analyses for industrial, school and commercial buildings.

EDUCATION:

Bachelor of Architecture, University of Oregon.

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Of significance, Mr. Robinson received a **Certificate of Appreciation and Recognition** for his "bold design, patience and rapport" in the construction of the Foothill College Campus Center Expansion and received a **Design Merit Award** from the Department of the Navy in recognition of exceptional merit for the design of the Enlisted Dining Facility at Castle Air Force Base, California.

JAMES S. ROTHFUSS, P.E.

SENIOR ELECTRICAL ENGINEER: Energy Resource Associates, Inc., Livermore, California. In this capacity, Mr. Rothfuss is responsible for ERA's electrical engineering activities, including project management, definition and review of technical scope, budget and schedule determination, technical approach and procedures, supervision and execution of detailed analyses, documentation and report writing, and technical staff training and development.

ELECTRICAL PROJECT ENGINEER: Lawrence Livermore National Laboratory, Livermore, California. Responsible for the design and management of various plant and facilities projects, including new facility electrical systems, high voltage power distribution systems, industrial instrumentation and monitoring systems, control and alarm systems and site communications systems.

STAFF ELECTRICAL ENGINEER: Edwards Air Force Base, California. As member of the aircraft instrumentation group, inspected and tested instrumentation systems, devised field retrofit, investigated chronic in-flight systems operational difficulties,, provided input to higher headquarters regarding design and manufacturing of new instrumentation systems.

EDUCATION:

California Polytechnic State University, San Luis Obispo
Bachelor of Science, Electrical Engineering

University of California, Davis
Master of Science in Engineering

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Registered Professional Engineer in California and Nevada

CRAIG D. SHULENBERGER, E.I.T.

PROJECT MECHANICAL ENGINEER: Energy Resource Associates, Inc., Livermore, California. In this capacity, Mr. Shulenberger is in responsible charge of the execution of facility investigations, including field surveys, data analysis, computer simulation, project development, cost estimating and report writing. In addition, Mr. Shulenberger performs final project design, including load calculations, system layout, specification writing, contractor walk-throughs, construction observation and start-up commissioning and troubleshooting. His projects include energy retrofit feasibility studies, HVAC system problem investigations, design of chiller installations, chilled water piping, entire HVAC systems, comprehensive energy retrofit projects, digital control and building automation systems, and HVAC restoration projects. Mr. Shulenberger serves as senior estimator and as CADD consultant for the entire firm.

PROJECT MANAGER/ENGINEER: Comm Air Mechanical Services, Oakland, California. Estimated, designed and managed the installation of HVAC and refrigeration construction projects, including data center and extreme-climate laboratory facilities. Provided engineering support to nine outlying branch offices. Established CADD standards for the company. Performed computerized design calculations, Title-24 compliance and building simulation for energy savings calculations. Maintained engineering department computer database. Procured instruments and maintained certified instrument calibrations for test and balance (TAB) department.

ESTIMATOR: Plant Construction, Inc., San Francisco, California. In this capacity, Mr. Shulenberger estimated construction costs and prepared proposals for various construction projects, including large tenant-improvements, building facade restoration, seismic reinforcement, small new buildings, etc. Maintained the estimating department's database of construction costs, vendors and subcontractors.

ASSISTANT MANAGER: Steel Building Division, Aladdin Heating Corporation, San Leandro, California. Estimated construction costs and developed proposals for new construction and remodels for structural steel and sheet metal buildings. Recruited and managed 10-person clerical and drafting staff. Coordinated field labor for construction of projects.. Purchased specialty materials and prefabricated components for special projects. Handled negotiations with shop labor unions to arrange wage and benefit packages competitive with non-union competitors. Developed and coordinated advertising programs.

PRODUCT ENGINEER: Aladdin Heating Corporation, San Leandro, California. Assembled data and prepared specification compliance documentation for air handling products manufactured by the firm. Prepared component part and assembly drawings, including material lists, for production of custom components. Performed periodic quality control inspections of manufactured products. Developed a computer data base of standard product specifications to assist sales representatives. Developed computer programs to standardize the generation of technical data for equipment submittals. Provided technical support to 20+ nation-wide field sales representatives. Performed in-field troubleshooting and correction of problems with installed air handling equipment.

EDUCATION:

University of California, Davis
Bachelors Degree: Architectural Design/Systems Engineering

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Registered Engineer in Training, California

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

Member, Association of Energy Engineers (AEE)

Member, California Society for Healthcare Engineering (CSHE)

THOMAS R. STATON, P.E.

CONTROL SYSTEMS SPECIALIST: Energy Resource Associates, Livermore, California. In this capacity, Mr. Staton is responsible for diagnostic evaluation of complex control system problems and troubleshooting of pneumatic, electric and digital control systems. Redesigns and modernizes control systems to meet the required building and HVAC system operational needs. Mr. Staton serves as senior consultant to the entire firm regarding control systems.

VICE PRESIDENT OF ENGINEERING: Comm Air Mechanical Services, Oakland, California. In this capacity, Mr. Staton oversaw all control system work throughout the company and established engineering and programming standards for the firm. Reviewed and approved all control system proposals throughout the firms many branches. Reviewed design work by others and consulted with clients on long-term controls system strategies.

MANAGER, CONTROL ENGINEERING AND ENERGY MANAGEMENT DIVISIONS: Comm Air Mechanical Services, Oakland, California. In this capacity, Mr. Staton managed the closely-integrated controls and energy management divisions. Prepared quotations for plans-and-spec control jobs and the directed and performed final control system design and programming. Performed energy audits and studies for clients to recommend numerous building automation and HVAC retrofit measures, many of which were ultimately engineered and installed on a design-build basis, under Mr. Station's direction. Developed custom control products which were out-source manufactured and sold and installed by the company

CONTROL DIVISION FOREMAN: Comm Air Mechanical Services, Oakland, California. In this capacity, Mr. Staton directed and oversaw all field controls installation and servicing performed by the firm's union fitters. Developed field-proven control system shortcuts and practical modifications to control system designs. Started up and commissioned numerous digital control and building automation projects, including development of custom, site-specific graphic user interface screens. Performed control system training for all company control technicians.

CONTROL SYSTEMS TECHNICIAN: Lawrence Berkeley National Laboratory, Berkeley, California. In this capacity, Mr. Staton was responsible for designing, installing and maintaining special control systems on various experimental projects, including linear accelerator buildings, experimental buildings and lab computer centers.

CONTROL SYSTEM TECHNICIAN: Standard Oil of California, Richmond, California. Calibrated and set up production control systems in the various refinery plants. Also worked in the process control research division.

FIRE CONTROL MAN: U.S. Navy (Naval Air). Served as a fire control specialist on board numerous aircraft carriers. Served with distinction and was honorably discharged.

EDUCATION/TRAINING:

B.S.M.E, University of California, Berkeley

A.A. Degree, Chemical Engineering, Contra Costa Community College

Instructor Training, Purdue University

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Registered Professional Engineer, California

Certified Test and Balance Supervisor, National Environmental Balance Bureau (NEBB)

California Community College Teaching Credential

Certified Energy Auditor, California Energy Commission

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

Senior Member, Association of Energy Engineers (AEE)

FREDERICK SENA. P.E.

SENIOR STRUCTURAL ENGINEER: Energy Resource Associates, Inc., Livermore California. In this capacity, Mr. Sena is responsible for structural and seismic engineering analysis and design as it pertains to various projects undertaken by the firm. Mr. Sena's work includes field surveys, design load calculations, cost estimates, and material specification for both new and remodel projects. Mr. Sena is especially skillful in identifying and implementing innovative techniques for modifying structures to support mechanical systems in ways which create the minimum disruption to in-service facilities during and after construction.

PRINCIPAL: Robinson/Sena Engineering and Frederick Sena & Associates, Architects and Engineers, Walnut Creek California. Prior to the formation of Robinson/Sena Engineering, Mr. Sena was the Principal of Frederick Sena & Associates, Architects and Engineers. Over his long career, he has had primary responsibility for more than 3,000 projects encompassing all types of structures in both seismic and non-seismic active areas.

Mr. Sena has extensive experience in heavy industrial structures encompasses power, water and wastewater treatment plant, petro/chemical refining and production facilities, and a broad spectrum of projects for various government agencies.

His diverse background in structural engineering is exemplified by an impressive list of projects dedicated to meeting the needs of society, business and commerce. Included in these categories are multi-family housing, schools, hospitals, office buildings, transportation facilities, and shopping centers. He has been involved with the expansion and seismic upgrade of various retail and food stores for Target, Lucky, and Safeway. He is currently actively engaged in the structural engineering aspects of hospital expansions, remodels and refurbishment of seismic upgrade of both essential and non-essential medical facilities.

Other previous projects encompass bridges, recreational facilities, churches, hotels and seismic upgrade of unreinforced masonry structures.

EDUCATION:

B. S., Civil Engineering; University of Illinois

Certificate in Business Management; University of California

Master of Business Administration; University of San Francisco

SPECIAL FIELDS OF KNOWLEDGE:

Seismic Analysis of Equipment and Structures

Heavy Machinery Foundation Design

Concrete and Steel Testing and Inspection

Seismic Support Systems for Piping

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Professional Engineer: Alaska, California, Colorado, and Washington

Structural Engineer: California, Oregon, Nevada, and Washington

American Concrete Institute - Member

American Society of Civil Engineers - Member

James F. Lincoln Arc Welding Foundation Award for “Ideas in the Use of Arc Welded Steel”

American Society of Civil Engineers: Award of Excellence

VERNON TAYLOR

REFRIGERATION SYSTEM SPECIALIST: Energy Resource Associates, Inc., Livermore, California. As Refrigeration System Specialist, Mr. Taylor is responsible for field investigation, inspection, troubleshooting and testing of refrigeration systems and machinery, supervising the installation, and start-up of refrigeration systems for ERA's clients. Mr. Taylor is the company-wide consultant, including expert witness assignments, on refrigeration systems, including packaged units, reciprocating, rotary and centrifugal chillers and absorption chillers. Mr. Taylor also teaches refrigerant management certification courses for the Operations and Maintenance department for ERA clients, such as New United Motor Manufacturing Inc.(NUMMI, a General Motors and Toyota joint venture).

CENTRIFUGAL FIELD SUPERVISOR: CommAir Mechanical Services, Oakland, California. For over 15 years, supervised the installation, maintenance and repair (electrical/mechanical) on lithium bromide absorption chillers, centrifugal chillers, screw and large tonnage reciprocating chillers/direct expansion units. Reviewed contracts related to various tonnage equipment and wrote estimates on incoming work. Systems included sizes ranging from five tons to three thousand tons in buildings, marine, cogeneration and production plants.

AIR CONDITIONING/REFRIGERATION MECHANIC: Operated in this capacity for sixteen years, contracting work for numerous industrial and commercial clients.

PRODUCTION SHOP PLANNER: Mare Island Naval Shipyard, Vallejo, California.

PIPEFITTER: Mare Island Naval Shipyard, Vallejo, California. Nuclear reactors, missile launching equipment, hydraulics.

INSTRUCTOR: (part-time) Contra Costa Community College District. Teaching Apprentice and Journeyman Air Conditioning/Refrigeration classes.

EDUCATION:

AA Degree Solano Community College
University California Extension Classes
Continuing Education, Purdue University, Purdue Indiana
Apprentice Program Graduate, Mare Island Naval Shipyard
Factory Training (York-Borg Warner) absorption, centrifugal and reciprocating chillers and turbo modulators (TM2 variable frequency drive)
Factory training (Graham Company) 1500 and 1600 series variable frequency drives.
Factory training (Dunham Bush) vertical and horizontal screw chillers.
Electronic classes Diablo Valley and Contra Costa Community Colleges.

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

California State Teaching Credentials
Member, Diablo Valley College Curriculum Advisory Committee (Air Conditioning/Refrigeration)

California Contractor's Licenses, C-20 and C38

MICHAEL J. WALTZ, E.I.T.

STAFF MECHANICAL ENGINEER: Energy Resource Associates, Inc., Livermore, California. In this capacity, Mr. Waltz performs numerous duties, including measurement & verification, field surveys, data analysis, computer simulation, report writing, project layout utilizing CADD, load calculations, specification writing, contractor walk-throughs, construction observation and assists with start-up troubleshooting. Is the firm's lead measurement & verification specialist and serves the entire firm as a computer technology consultant.

STAFF ENGINEER: County of Alameda, General Services Department, Oakland, California. In this capacity, Mr. Waltz provided day-to-day technical oversight, management and coordination of the County's Demand Side Management program (as a participant in PG&E's Power Saving Partners Program). This work included energy accounting, field surveys and inspections, project planning, data analysis and simulation, report writing, supervision of sub-contractors installing energy retrofit products and negotiations and coordination with PG&E staff and program management consultants.

ENGINEERING ASSOCIATE: In-House Energy Management Program, Lawrence Berkeley Laboratory, Berkeley, CA. Served as Principal Investigator responsible for a petroleum conservation study at the Laboratory. This study, performed singlehandedly, involved a comprehensive analysis of the Laboratory's fleet of vehicles and explored alternate fleet composition, changes in vehicle operations, and alternate fuels and fueling systems. A number of specific projects were developed and their energy and cost savings analyzed. The data gathered and the analyses performed were assembled into a Study Report which was used as supporting documentation for a \$280,000 funding request to the Department of Energy. This study was acknowledged by management as "a significant contribution to the Laboratory's petroleum use reduction efforts."

ENGINEERING ASSISTANT: Energy Management Program, Lawrence Livermore National Laboratory (LLNL), Livermore, CA. Completed computer database of engineering studies. Constructed model solar water heater and model electric wind turbine for Summer Technology Institute. Participated in instruction at same. Took part in field surveys of plant equipment in LLNL facilities with consultants from ABB-Impell, Inc. Verified equipment inventories, recorded nameplate data, took airflow measurements in large built-up air handling units, and drew control diagrams for existing HVAC systems. Performed lighting surveys and conducted off-hours electricity use survey for LLNL facilities.

ENGINEERING TRAINEE: Energy Management Program, Lawrence Livermore National Laboratory, Livermore, CA. Performed Trakload computer simulations of the energy performance of buildings. Developed a library of CADD graphic symbols for use in proposed projects. Catalogued detailed information from over 400 engineering studies.

DATA ANALYST: Energy Resource Associates, Inc., Livermore, CA. Provide energy accounting services for ERA clients. Prepared and entered technical data, evaluated output for accuracy and performed associated clerical tasks. Additional tasks included customer service and minor engineering tasks.

EDUCATION:

University of California, San Diego
Bachelor of Science, Mechanical Engineering

University of Illinois, Urbana/Champaign
Master of Science, Mechanical Engineering

PROFESSIONAL ASSOCIATIONS/DISTINCTIONS:

Registered Engineer in Training, California

California Society of Hospital Engineers, Robert Mack Scholarship, 1989 and 1990