



Training Proposal for:

**Santa Clara County Electrical Joint Apprenticeship
and Training Trust**

Agreement Number: ET16-0905

Panel Meeting of: August 28, 2015

ETP Regional Office: San Francisco Bay Area **Analyst:** D. Woodside

PROJECT PROFILE

| | | | |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Contract Attributes: | Retrainee Apprenticeship Priority Rate | Industry Sector(s): | Construction Green Technology Priority Industry: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| County Served: | Santa Clara | Repeat Contractor: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Union: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No International Brotherhood of Electrical Workers (IBEW) Local 332 | | |
| Turnover Rate: | ≤20% | | |
| Managers/Supervisors: (% of total trainees) | N/A | | |

FUNDING DETAIL:

| | | | | |
|----------------------|---|----------------------|---|--------------------------|
| Program Costs | + | Support Costs | = | Total ETP Funding |
| \$521,600 | | \$36,000 8% | | \$557,600 |

TRAINING PLAN TABLE

| Job No. | Job Description | Type of Training | Estimated No. of Trainees | Range of Hours | | Average Cost per Trainee | Post-Retention Wage |
|---------|------------------------------------------|--------------------------------------------------------------------------|---------------------------|----------------------|-----|--------------------------|---------------------|
| | | | | Class / Lab | CBT | | |
| 1 | Retrainee Journeyman Priority Rate | Commercial Skills, Business Skills, Computer Skills, OSHA 10/30 | 200 | 8-200 | 0 | \$564 | \$31.97 |
| | | | | Weighted Avg: 24 | | | |
| 2 | Retrainee Apprentice Priority Rate | Commercial Skills, OSHA 10 | 160 | 8-210 | 0 | \$2,780 | \$20.78 |
| | | | | Weighted Avg: 200 | | | |

Minimum Wage by County: \$20.55 per hour for SET Statewide priority industry.

Health Benefits: Yes No This is employer share of cost for healthcare premiums – medical, dental, vision.

Used to meet the Post-Retention Wage?: Yes No Maybe

Health benefits are provided but are not needed to meet the post-retention wages.

Wage Range by Occupation

| Occupation Titles | Wage Range | Estimated # of Trainees |
|---------------------------------------|------------|-------------------------|
| Journeyman Electrician/Inside Wireman | | 180 |
| Apprentice Electrician/Inside Wireman | | 132 |
| Journeyman Residential Electrician | | 20 |
| Apprentice Residential Electrician | | 28 |

INTRODUCTION

The Santa Clara County Electrical Joint Apprenticeship and Training Trust (Santa Clara JATT) (www.ejatic33w.org) was founded in 1958. The trust is funded through collective bargaining between signatory employers that are members of the National Electrical Contractors Association (NECA) and the International Brotherhood of Electrical Workers (IBEW) Local 332.

Santa Clara JATT currently serves approximately 363 Apprentices (an increase of 104 apprentices from 2014) and 1,119 Journeymen. There are 346 employer signatories to the collective bargaining agreement. The JATT sponsors two apprenticeship programs: Inside Wireman (5 years) and Residential Electrician (3 years). The trainees learn to work on electrical panels, wiring, conduit, piping, test equipment, transformers, motors, grounding, over-current protection, security, solar home systems, home automation systems, and power distribution systems.

The JATT provides skills upgrade courses to keep Journeymen technologically current. Journeymen need new certifications and skills to install, maintain, and integrate a wide variety of evolving systems. In addition, the JATC must prepare Journeymen and Apprentices to meet new electrical standards set out in the State’s Title 24 laws.

EMPLOYER DEMAND FOR TRAINING

Apprentices and Journeymen will work in Silicon Valley, building and maintaining facilities for California's high technology companies. High profile projects include the ongoing expansion of Apple Corporation headquarters which is estimated to require up to 500 electricians working under three different construction contractors. There is also the BART extension into San Jose; the Lucille Packard Children's Hospital expansion; the new Stanford Hospital; Veteran's Administration hospital construction; and the Santa Clara Square office, retail, and residential development.

This proposal will emphasize advanced training to meet local employer demand for specialized skills and critical employer-mandated certifications. In addition, both Apprentices and Journeymen will gain skills in emerging technologies focusing on clean energy, the shift from analog to digital equipment, testing and auditing equipment, and new programmable control systems.

Apprenticeship Program

The Panel is authorized to fund Apprentice training that does not displace any other source of government funds, or replace an existing apprenticeship program approved by the Division of Apprenticeship Standards (DAS). The Panel adopted the Apprenticeship Training Program as a pilot in March 2012. It is designed to supplement cost of delivery for the Related and Supplemental Instruction (RSI) portion of DAS-approved apprenticeship training.

Apprenticeships are a multi-year training program that results in DAS certification to work as a Journeyman. They are authorized in California under the Shelly-Maloney Apprenticeship Labor Standards Act of 1939. Apprentices commit to training under contract with an apprenticeship program sponsor. They advance through a series of apprenticeship levels as they complete modules of RSI and on-the-job training. Wages are paid for hours worked on the job, in progression with a series of advancements up to the Journeyman level.

Apprentice programs are typically sponsored by a Joint Apprenticeship Training Committee (JATC). A JATC is created through collective bargaining, with an equal number of members appointed by union and management, with employer contributions to a training trust fund. The employers are not "participants" but are signatories to the Collective Bargaining Agreement. As in this proposal, a joint trust may administer two or more apprenticeship programs.

Depending on the type of trade, apprenticeship programs vary in length, typically from 2-6 years. They also vary in size, ranging from less than 10 to several hundred apprentices at any given point in time. Several types of trainees are eligible under the Apprenticeship Program: Apprentices (second-year), Journeymen and Pre-Apprentices. First-year Apprentices are not eligible due to the higher drop-out rates associated with this entry-level.

RSI is traditionally delivered as class/lab, and ETP does not reimburse CBT delivery for apprenticeship training. The curriculum is developed with input from DAS and a designated Local Educational Agency (LEA); in this proposal the LEA is Foothill Community College. The Apprenticeship Program allows reimbursement for up to 200 hours of RSI plus OSHA10, per-apprentice.

For the building trades, it is not customary for workers to be employed for a standard retention period of 90 consecutive days with one employer. In that instance, the Panel may substitute non-consecutive hours worked for retention. This modified retention period must be no less

than 500 hours within 272 days with more than one employer. Both the standard and modified retention periods will apply to this proposal.

Because ETP funding cannot displace another source of government funds, the fixed fee rate is reduced by \$5 to account for adult education funding appropriated each year for Apprentice training through the California Community College Chancellor's Office and Department of Education. This changes the ETP Priority Industry Rate from \$18 to \$13 per hour for all Apprentice Job Numbers.

In addition, the Panel adopted a "blended rate" for Journeymen, reflecting the fact that they may be employed by a variety of contractors over the two-year term of contract ranging from large to small employers. The rate is \$22 per hour, midway between the Priority Industry standard rate (\$18) and Small Business rate (\$26). [Note: This "blended rate" has been extended to Pre-Apprentices, for ease of administration.]

Under the Apprenticeship Training Program, the post-retention wage has been standardized to a minimum of \$20.55 per hour reflecting the Special Employment Training (SET) wage for a Priority Industry. This wage was chosen for ease of administration, recognizing that most Apprentices and all Journeymen exceed the highest ETP wage requirements. However, the actual wage is displayed in the Training Plan Table and contract, if it exceeds \$20.55.

DAS Completion Rates

The completion rate for this DAS-approved program for the most recent five year period (2009-2013) is 78.10% and exceeds the industry completion percentage of 66.13% for that same time period.

PROJECT DETAILS

Training Plan

All class/lab training is center-based and will be delivered at the JATT Santa Clara Training Center in San Jose. This is a 30,000 sq. ft., state-of-the-art facility with numerous computer and technical labs in addition to classrooms.

Journeyman Training:

Commercial Skills (80%) – This training will improve electrician skills installing, maintaining and repairing various types of electrical and electronic equipment in commercial, industrial and residential establishments. They will also learn advanced skills for installing, connecting, and testing electrical wiring systems for lighting, heating, air conditioning, and communications in any building or structure. Trainees may receive specialized training that may include courses leading to certification. Santa Clara JATT has been certified by Electric Power Research Institute as the only nationally-certified lab and testing facility in northern California to certify Level B Technicians.

Business Skills (5%) - This training will focus on using more collaborative bidding and project development practices; meeting budgets; interacting with other types of construction workers; and implementing green solutions in traditional work environments. The proposed training will give trainees the tools to plan, organize, and manage construction projects so that they can complete them efficiently and on time. Training will also include team-building and leadership skills so that electricians can participate and lead teams in an effective and efficient manner.

Computer Skills (5%) - Training will include scheduling, planning and modeling software. AutoCAD and Job Tracking applications will provide trainees with the tools to modify blueprints, look up project requirements, build budgets and timelines, design virtual buildings, and adjust computerized control systems.

Apprenticeship Training

Commercial Skills (90%)

Inside Wireman Apprentices will learn to install, maintain and repair various types of electrical and electronic equipment in commercial, industrial and residential establishments. Training will also include how to install, connect and test electrical wiring systems for lighting, heating, air conditioning and communications in any building or structure. The Inside Wireman Apprentice program is a five-year training program.

Residential Wireman Apprentices will learn to install and connect electrical systems in homes, condos and apartments. Today's homes are being equipped with computer networks, energy management systems, security systems, fire alarm systems, and new power distribution systems. Residential Wiremen must have the knowledge and the skills necessary to make these systems work for today's homeowner. The Residential Wireman apprentices complete a three-year training program.

Curriculum Development

Santa Clara JATT, with input from both labor and management representatives, has developed and customized the national electrical curriculum to address the local needs of its members, participating employers, and the construction industry. The apprentice program uses the National Joint Apprenticeship and Training Committee's Curriculum which was developed for the exclusive use of IBEW-NECA JATC'S. The Journeyman curriculum meets the needs of the participating employers because it is employer-driven. Local hiring demands in Santa Clara County include the need for electricians with the ability to work with green materials on more technically advanced construction projects. Feedback on the curricula comes directly from employers and union representatives based on workplace performance, customer requests, the industry and course evaluations completed by trainees.

Trainer Qualifications

All trainers are former or current members of the trade and some have received Master Certification status by the National Joint Apprenticeship and Training Committee. In addition, all instructors meet standards set by the LEA.

Impact/Outcome

Upon successful completion of the apprenticeship program, each Apprentice will receive Certificates of Completion from: National Santa Clara Electrical JATT; State of California DAS; and from Foothill Community College. Apprentices also receive an OSHA 10 certification upon completion of training.

Certifications for journeymen may include OSHA 10/30, Arc Flash Safety Awareness, Building Automation Systems, Green Audits, California Advanced Lighting Control Program (CALCTP) Installer and Lighting Acceptance Testing, and Title 24 Lighting Installation and Codes.

Commitment to Training

Signatory employers will continue to make contributions to the training trust for every hour worked by Apprentices and Journeymen. General safety training is, and will continue to be, provided by participating employers in accordance with all pertinent requirements under state and federal law.

Marketing and Support Costs

Santa Clara JATT is requesting 8% in support costs to fund recruiting and qualifying additional participating employers for this program. There are five staff people in the JATC office assisting with the marketing, recruitment, and needs assessments.

Program information is disseminated through direct mailings, informational flyers, personal contacts, telephone calls, public service announcements, emails, and the website throughout the year to electricians as well as to the electrical contractors who employ them. While many participating employers have already been recruited, additional recruitment and assessment activities are ongoing to support apprenticeship training and refine journeymen training courses. Staff recommends 8% support costs.

Tuition Reimbursement

In accordance with Title 22, CCR, Section 4412.1, Santa Clara JATT represents that students enrolled in the ETP-funded program will not be charged tuition, fees, or any other costs associated with training. The representation will be made a condition of the Agreement.

RECOMMENDATION

Staff recommends approval of this proposal.

CURRENT CONTRACT PERFORMANCE

The following table summarizes performance by Santa Clara JATT under its current ETP Agreement:

| Agreement No. | Approved Amount | Term | No. Trainees Estimated | No. Completed Training | No. Retained |
|---------------|-----------------|-------------------------|-----------------------------------|-------------------------------------|--------------|
| ET14-0915 | \$328,640 | 03/03/2014 – 03/02/2016 | Apprentice – 103 Journeymen-75 | Apprentice – 194 Journeymen - 69 | 92 |

Based on the ETP tracking system, 33,335 reimbursable hours have been tracked, sufficient to earn 100% of funding.

PRIOR PROJECTS

The following table summarizes performance by the Santa Clara JATT under ETP Agreements completed within the last five years:

| Agreement No. | Location (City) | Term | Approved Amount | Payment Earned \$ % |
|---------------|-----------------|------------------------|-----------------|------------------------|
| ET13-0913 | San Jose | 10/22/12 – 10/21/14 | \$360,907 | \$360,907 (100%) |

DEVELOPMENT SERVICES

California Labor Federation in Sacramento and Strategy Workplace in Oakland assisted with the development of this proposal at no cost.

ADMINISTRATIVE SERVICES

Strategy Workplace will also perform administrative services in connection with this proposal for a fee not to exceed 13% of payment earned.

TRAINING VENDORS

N/A

Exhibit B: Menu Curriculum**Class/Lab Hours**

8-200 (Job Number 1)

Journeyman**COMMERCIAL SKILLS**

Codeology

- National Electrical Code
- Other Recognized Standards (Installation Changes)
- Plan, Build, and Use
- Related Standards (Mandatory and Permissive Rules)
- Special Occupancies and Equipment
- Arc Flash

Analog/Digital Circuit (AC/DC) Principles

- Math for Electricians
- Ohm's Law
- Generators
- Inductance/Reactance
- Series/Parallel Circuits

Grounding

- Grounding and Bonding
- National Electrical Code Article 100-Definitions and Provisions
- National Electrical Code Article 110-Requirements
- National Electrical Code Article 90-Introduction
- National Electrical Code Article Chapters 1-4
- Significant Changes to National Electric Code

Fire Alarm Systems and Installations

- Definitions and Systems
- Initiating Devices and Notification Systems
- National Electrical Code and Installation Requirements
- Start Up and Check Out Procedures
- National Fire Protection Act, 1972 (NFPA 72)

Fire Life Safety

- National Electrical Code (Relating to Fire Alarms)
- National Electrical Code Article 725
- National Electrical Code Article 760
- NFPA 72
- Principles of Electronics

Industrial Motor Control

- Control Relays and Timers
- Jogging and Plugging Controls
- Manual Starters and Magnetic Coils
- Push Buttons, Selector Switches, and Mechanical Devices
- Solid State Electronic Devices
- Variable Frequency Drives

Programmable Logic Control (PLC)

- Developing Ladder Programming
- Introduction to Programmable Equipment
- Programming Programmable Logic Controllers
- Using Timers and Counters in Logic Programs
- Writing a Program

Electrical Design

- 3 and 4-Way Switching
- Design of Electrical Circuits
- Magnetic Motor Control and the Code
- LonWorks and Building Automation
- Transformers and the Code

Voice, Data, and Video

- Audio Distribution
- CCTV Security Surveillance
- Computer Networking
- Fiber Optics
- Telephonic Interconnect

Industry Specific Skills

- Solar Panel Installation
- Solar Photovoltaics
- Building Automation Systems
- Confined Space Entry
- Specialized Tools
- Conduit Bending
- Rigging and Lifting
- Firestop Installation
- Blueprints and Schematics
- Work Flow and Resources
- Proper Installation and Use of Testing and Auditing Materials and Equipment (Green Training)
- Understanding New Technologies and Changes to Industry Standards (Green Training)
- Proper Equipment Set-Up (Green Training)
- Safe Working Practices
- Advanced Instrumentation and Motor Controls
- Programmable Logic Controllers
- Advanced Welding
- Architecture Designs and Advanced Plan Reading
- Management and Monitoring of Materials
- Testing Materials and Equipment – Proper Set-Up and Use (Green Training)
- Understanding Changes to Industry Standards (Green Training)

CALCTP (California Advanced Lighting Control Program)

- Advanced Lighting Control Systems
- Lighting Control Strategies

- Line Voltage Switching Controls
- Low Voltage Switching Control
- Dimming Controls
- Occupancy Sensors
- Photosensors

CALCTP Acceptance Testing
Electric Vehicle Infrastructure Training Program (EVITP)

BUSINESS SKILLS

- Teambuilding Skills
- Green Awareness Training and Green Certifications
- Leadership Skills
- Customer Service Skills
- Conflict Resolution
- Problem Solving
- Decision-Making Skills
- Inventory Checklist
- Advanced Time Management
- Filling Out Work Documents and Reports Accurately
- Project Management
- Creating Project Bids

COMPUTER SKILLS

- Auto Computer-Aided Design (AutoCAD)
- Job Tracking System
- Scheduling & Planning Jobs

OSHA 10/30 (OSHA CERTIFIED INSTRUCTOR)

- OSHA 10 (requires completion of 10 hours)
- OSHA 30 (requires completion of 30 hours)

Class/Lab Hours

8-210 (Job Number 2)

Trainees may receive any of the following:

Apprentice

COMMERCIAL SKILLS

Safety

- General Job-Site Safety Awareness
- First Aid/CPR Certification
- Emergency Procedures
- Compliance with OSHA, NFPA and EPA Regulations
- Substance Abuse Awareness

Tools, Materials and Handling

- Proper Care and Use of Hand and Power Tools
- Proper Rigging Methods

- Proper Digging Techniques
- Proper Use of Motorized Equipment: Platform Lifts, Fork Lifts and Bucket Trucks
- Proper Material Lifting and Handling

Math

- Appropriate Mathematical Calculations to Solve for Related Problems.

Electrical Theory

- Basic Electro-Magnetic Principals
- Ohm's Law
- AC/DC Theory
- Series, Parallel and Combination Circuits
- Characteristics of Circuits: Voltage, Current, Power, Resistance, Impedance, Capacitance and Reactance.
- Theory of Superposition and Solving for Multiple Voltage-Sourced Circuits
- Operation and Characteristics of Three-Wire Systems
- Operation and Characteristics of Three-Phase Systems
- Use of Electronics in the Electrical Industry
- Code Requirements
- National Electrical Code and Local Codes

Conductors

- General Characteristics
- Conductor Installation Codes and Techniques
- Methods for Selecting Proper Size and Type of Conductors

Conduit and Raceways

- Terms Associated with Conduits and Raceways
- Procedures for Laying Out Various Types of Bends
- Procedures for Making Proper Bends When Fabricating Conduits
- Conduit Support Systems Recognized by Code

First Aid/CPR

Lighting Systems

- Function, Operation and Characteristics of Various Lighting Systems
- Lighting Distribution and Layout

Installation and Connection of Fixtures

- Over-Current Devices
- Function, Operation and Characteristics of Over-Current Protection Devices
- NEC Requirements for Over-Current Protection Devices
- NEC Requirements for Ground-Fault and Arc-Fault Protection

Grounding Systems

- Functions, Operation and Characteristics of Grounding Systems
- Sizing, Layout and Installation of Grounding Systems

- Insulation and Isolation
- Proper Grounding and Bonding Techniques
- Special Circumstances

Services and Distribution Systems

- Function, Operation and Requirements for Various Panel Boards and Switch Gear
- Grounding Requirements
- Code Requirements

Prints and Specifications

- Creation of Blueprints, Plans and Specification
- Use of Blueprints, Plans and Specification
- Recognizing Information Contained Within Blueprints

Motors, Motor Controllers and Process Controllers

- Function, Operation and Characteristics of Motors (AC, DC, Dual-Voltage)
- Proper Motor Installations
- Motor Controllers, Control Circuits and Control Devices
- Control Transformers, Switches and Relays
- Instrumentation, Process Control Systems and Devices

Generation and Power Supplies

- Principles of Generating Electricity
- Principles of Alternative Energy Generating Systems
- Installation and Maintenance of Uninterruptible Power Supplies (UPS)
- Installation and Maintenance of Emergency Battery Systems

Transformers

- Function, Operation, and Characteristics of Transformers
- Selection and Installation of Transformer Types
- Transformer Grounding Techniques
- Harmonics and Power Quality

Workplace Development

- Orientation to Organization and Structures
- Working Well With Others
- Financial Skills

Electrical Testing

- Steps Used for Various Testing Processes
- Proper Selection and Use of Test Meters
- Utilizing the Results of Testing Procedures

Specialty Systems

- Fire Alarms
- Security Systems

CALCTP

- Advanced Lighting Control Systems

- Lighting Control Strategies
- Line Voltage Switching Controls
- Low Voltage Switching Control
- Dimming Controls
- Occupancy Sensors
- Photosensors

Electric Vehicle Infrastructure Training Program (EVITP)

OSHA 10 (OSHA CERTIFIED INSTRUCTOR)

- OSHA 10 (requires completion of 10 hours)

Safety training cannot exceed 10% of total training hours, per-trainee. (This cap does not apply to OSHA 10/30)

Note: Reimbursement for retraining is capped at 200 total training hours per trainee for Job Number 1 and 210 total training hours for Job Number 2, regardless of method of delivery.