



Training Proposal for:
San Mateo County Electrical Joint Apprenticeship
Training Committee
Agreement Number: ET15-0907

Panel Meeting of: August 22, 2014

ETP Regional Office: San Francisco Bay Area **Analyst:** A. Nastari

PROJECT PROFILE

Contract Attributes:	Priority Rate SET Retrainee Apprentice	Industry Sector(s):	Construction Green Technology Priority Industry: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Counties Served:	San Mateo	Repeat Contractor:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Union(s):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No International Brotherhood of Electrical Workers AFL-CIO, Local 617		
Turnover Rate:	≤20%		
Managers/Supervisors: (% of total trainees)	N/A		

FUNDING DETAIL

<table border="1"> <tr><td align="center">Program Costs</td></tr> <tr><td align="center">\$241,344</td></tr> </table>	Program Costs	\$241,344	+	<table border="1"> <tr><td align="center">Support Costs</td></tr> <tr><td align="center">\$16,650 8%</td></tr> </table>	Support Costs	\$16,650 8%	=	<table border="1"> <tr><td align="center">Total ETP Funding</td></tr> <tr><td align="center">\$257,994</td></tr> </table>	Total ETP Funding	\$257,994
Program Costs										
\$241,344										
Support Costs										
\$16,650 8%										
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In-Kind Contribution:	50% of Total ETP Funding Required		Inherent							

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 Priority Rate Journeyman	Commercial Skills, Business Skills, Computer Skills OSHA 10/30	60	8 - 200	0	\$564	\$51.00
				Weighted Avg: 24			
2	Retrainee Priority Rate Apprentice	Commercial Skills OSHA 10	126	24-210	0	\$1,779	\$20.32
				Weighted Avg: 128			

Minimum Wage by County: Job Number 1: \$14.90 per hour for San Mateo County; Job Number 2 (Priority Industry): \$20.32 per hour.

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

Although employer provides health benefits, they are not being used to meet Post-Retention Wage.

Wage Range by Occupation		
Occupation Titles	Wage Range	Estimated # of Trainees
Job Number 1:		
Journeyman Electrician		60
Job Number 2:		
Apprentice Electrician		126

INTRODUCTION

San Mateo County Electrical Joint Apprenticeship Training Committee (SMJATC) is a nonprofit training organization, founded in 1947, and located in San Carlos, is dedicated to providing up-to-date industry skills training and secure high-quality job opportunities for its members. SMJATC is governed by a Board of Trustees comprised of four labor and four management representatives, and is a joint effort of the International Brotherhood of Electrical Workers (IBEW) Local 617 and the National Electrical Contractors Association (NECA). With ETP funding, SMJATC proposes to train Journeymen and Apprentices, all of whom are members of IBEW Local 617. The union currently represents over 1,000 Electricians in San Mateo County.

This is SMJATC's third ETP Agreement. The JATC reports that as a result of the ETP funding it graduated 16 Apprentices in 2013 and expects 18 Apprentices will graduate in 2014. This is a 5-year program.

SMJATC seeks funds to assist with its Journey Level Upgrade Training program. This program is intended to bring work skills and knowledge up-to-date. SMJATC will also utilize some of the funding to train second through fifth year Apprentices. The SMJATC trains inside wiremen who install the power, lighting, controls and other electrical equipment in commercial and industrial buildings.

Through a partnership with local employers, the JATC develops enhanced education standards to meet the competitive challenges and to support California's energy efficiency efforts. New building standards and requirements covered under the California Energy Commission, Title 24, will create major challenges for staffing California's unionized workers in the electrician industry. Due to mandated changes in state energy requirements and the utilities, workers need to be trained in both installation of the systems and in certifying that the systems comply with mandated requirements for building occupancy. Through the training workers will acquire the skills needed as energy efficiency codes become more stringent.

The Apprentice training will prepare Apprentices to replace the high level of retiring Journeymen Electricians and to accommodate the increased need for Electricians in the San Mateo area. Through direct engagement of the unionized employers, the apprenticeship program is uniquely designed to place its graduates into apprenticeships that provide a quality wage and entry into a rigorous trade education. During the term of apprenticeship a worker will work 8,000 hours on-the-job for a five-year program with various electrical contractors. In addition, they will attend school for five years, totaling 800 hours.

Apprenticeship Pilot

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 DAS. The Panel provides reimbursement for the Related and Supplemental Instruction (RSI) portion of an apprenticeship training program. RSI is delivered as class/lab training, in affiliation with a Local Educational Agency (San Mateo Community College District). ETP provides reimbursement for a maximum of 200 hours of RSI plus OSHA 10. All training will be delivered by the class/lab method.

For the construction trades, where it is not customary for workers to be employed for 90 consecutive days with one employer, the Panel may substitute hours worked for retention. The modified retention period must be no less than 500 hours within 272 days with more than one employer.

To ensure ETP does not displace Montoya Funds, Apprenticeship Pilot reimbursement is reduced by \$5.00, reducing the priority industry rate from \$18.00 to \$13.00 per hour. ETP wage for Apprentices will be \$20.03 per hour. This is the Special Employment Training Statewide as modified for priority industries which is being used for all Apprentice occupations, for ease of administration.

Employer Demand For Training

Participating employers and union representatives have identified the following additional reasons for training: new energy efficiency regulations, the need to reduce costs to remain competitive, higher quality standards, the increasing complexity of construction projects, and a retiring workforce.

Electricians, both Journeyman and Apprentices, will be working on new construction and upgrades of hospitals, schools, and colleges in San Mateo County, water treatment plants for

Hetch Hetchy, the San Francisco International Airport, and other commercial and public works projects. All training provides skills required by electricians to work on any electrical related function at the construction sites.

Green Technology

Electrical workers require skills in new and emerging technologies including renewable energy and highly efficient electrical control systems. Green technology will provide additional employment opportunities for San Mateo County electricians as participating employers are engaged in retrofitting commercial buildings. These buildings often contain specialized equipment rooms with energized equipment such as hubs, file servers, or switches. Such devices are configured and connected to the communications network that serves the building, and must not be interrupted as a result of work performed by unqualified workers or those only partially trained.

Training Plan

The classes needed by Journeyman are listed below:

Commercial Skills (80%) - Green training is expected to be the centerpiece of the program because of the demand for energy efficient construction methods and technologies by participating employers and property owners. Training will cover energy-efficient technologies and products such as green building materials, solar photovoltaic panels, new motor controls, advanced welding, green materials testing and audit equipment.

Business Skills (5%) - Electricians are faced with understanding new national building codes and green practices; following certification guidelines; 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 their 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 lead teams in an effective and efficient manner.

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

OSHA 10/30 (10%) - OSHA 10/30 training is a series of courses "bundled" by industry sector and occupation. It consists of 10 hours of training for journey-level and 30 hours for frontline supervisors.

This training is not required as a condition of doing business in California. However, the coursework must be approved by, and the instructors must be certified by Cal-OSHA. When delivery is by CBT all training hours must be delivered in a classroom over a finite number of time, and the vendor must have a certified instructor present to confirm attendance.

Completion of the training results in a certificate that expands employment opportunities. To ensure that each trainee receives certification, ETP will only consider payment earned upon completion of the full 10-hour or 30-hour course. OSHA 10/30 is not included in the 10% limitation on safety training

This training provides a complete overview of occupational safety and health so that workers are more knowledgeable about workplace hazards and understand their rights as workers. Equipment and materials not used correctly can also lead to injuries for the worker and puts other people in the area in potential danger.

The classes needed by the Apprentices are listed below:

Commercial Skills (93%) - Apprentices learn to install, maintain, and repair various types of electrical and electronic equipment in commercial, industrial and residential establishments. They will also learn to install connect and test electrical wiring systems for lighting, heating, air conditioning and communications in any building or structure. This training will provide the skills to perform the following:

- Installing New Wiring and Repairing Old Wiring
- Installing Receptacles, Lighting Systems and Fixtures
- Troubleshooting and Repairing Electrical Systems
- Establishing Grounding Systems
- Installing Service to Buildings and Other Structures
- Providing Power and Controls to Motors, HVAC, and Other Equipment
- Installing Fire Alarm and Security Systems
- Installing, Maintaining and Repairing Lightning Protection Systems

OSHA 10 (7%) - Electricians work under extremely dangerous conditions which requires considerable physical effort on the part of the Apprentice to do lifting, climbing, crouching, and working in cramped areas. There is the potential for injury or death for themselves and other people in the work area vicinity. The participating employers and property owners need electricians to undergo additional training to ensure that their skills are up to date and that they can perform their work efficiently and safely.

Curriculum Development

SMJATC, 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 industry. IBEW Local 617 was directly involved in the development of this curriculum and training plan and is in full support of the training for its members. A hundred percent of the training is center-based training.

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 National Joint Apprenticeship and Training Center (NJATC) was created over 58 years ago and local programs affiliated with the NJATC have trained over 300,000 apprentices to journeyman. Through the NJATC, the IBEW and NECA have hundreds of local programs offering apprenticeship and training. The NJATC works directly with equipment manufacturers and technology developers of a variety of tools, equipment and supplies, searching for the most up-to-date information available. Once a new training need has been identified, the NJATC designs an appropriate training course, provides instructor training and distributes the training materials to local JATCs to help them meet their local training need requirements.

DAS Completion Rates

The DAS completion rate for the SMJATC for the years 2008 - 2012 was 96%. This is above the apprenticeship retention for the industry sector as a whole, which has an aggregated average of 65%.

Trainer Qualifications

The JATC has eight part-time trainers providing training. All trainers are former or current members of the trade and have received Master Certification status by the National Joint Apprenticeship and Training Committee.

Impact/Outcome

SMJATC offers certification classes in topics such as Green Audits, Arc Flash Safety Awareness, OSHA 10/30, Building Automation Systems, Electric Vehicle Infrastructure and

Marketing and Support Costs

Through direct mailings, informational flyers, personal contacts, telephone calls, public service announcements, emails, and the website, class information will be disseminated throughout the year to all Apprentice and Journeyman Electricians within San Mateo County as well as to the electrical contractors who employ them. Application announcements for the program are disseminated to local, state and federal agencies as well as to local high schools and community colleges; community based organizations are also included in this effort (mailings and onsite job fairs).

There are three staff people in the JATC office who will assist with the marketing, recruitment, and employer needs assessments. SMJATC is requesting 8% retrainee support costs to fund its staff in recruiting and qualifying additional participating employers for this program. While many participating employers have already been recruited, additional recruitment and assessment activities with employers and the JATC must occur to support apprenticeship training. SMJATC reports that projected budget costs for personnel alone will exceed the ETP support cost funding. The JATC agrees to cover these additional costs. Staff recommends 8% support costs.

Commitment to Training

SMJATC represents that ETP funds will not displace the existing financial commitment to training of participating employers. Each of the participating employers contributes \$.90 per worker hour to fund the apprenticeship program. SMJATC anticipates that the opportunity for enhanced training made possible by ETP funds will encourage an ongoing financial commitment to both apprenticeship and journeymen upgrade training. Safety training is provided by the participating employers in accordance with all pertinent requirements under state and federal law.

Tuition Reimbursement

SMJATC 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.

ACTIVE PROJECTS

The following table summarized performance by Riverside CCD under an active ETP Agreement:

Agreement No.	Approved Amount	Term	No. Trainees (Estimated)	No. Completed Training	No. Retained
ET13-0912	\$277,345	10/29/12-10/28/14	175	191	35

Based on ETP Systems, 20,401 reimbursable hours have been tracked for potential earnings of \$280,278 (100% of approved amount). The Contractor is within the last 90 days of the end term date of the Agreement. It has completed all training and will complete the remainder of retentions by the end term date of the Agreement.

PRIOR PROJECTS

The following table summarizes performance by SMJATC under an ETP Agreement that was completed within the last five years:

Agreement No.	Location (City)	Term	Approved Amount	Payment Earned
			\$	\$ %
ET09-0111	San Carlos	07/01/08 – 06/30/10	\$80,800	\$28,059 (35%)

Payment earned for this Agreement was lower than anticipated because of the impact of the recession on the construction industry. According to the JATC, Electricians were experiencing higher than normal unemployment rates. The fact that so many Electricians were out of work or had only part-time employment meant lower retention. Because of the employer demand outlined above in this proposal and the inclusion of apprenticeship training, the SMJATC expects to utilize all of the proposed funding. The JATC reports an upswing in its apprenticeship program. Last year the JATC graduated 38 apprentices and this year 42 will graduate.

DEVELOPMENT SERVICES

Strategy Workplace Communications in Oakland assisted with development at no cost.

ADMINISTRATIVE SERVICES

Strategy Workplace Communications will also perform administrative services for an amount not to exceed 13% of payment earned.

TRAINING VENDORS

N/A

Exhibit B: Menu Curriculum

Class/Lab Hours

8 - 200 Job Number 1

Trainees may receive any of the following

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 Bounding
- 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

24-210 Job Number 2

Apprentice

Trainees may receive any of the following:

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

Personal Development

- Orientation to organization and structures
- Working with others
- Personal financial development

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)

Note: Reimbursement for Job Number 1 training is capped at 200 total training hours per trainee. **Reimbursement for Job Number 2 Apprenticeship training is capped at 200 total training hours per trainee in Commercial Skills and 10 hours of OSHA10 for a total of 210 hours.** Safety training cannot exceed 10% of total training hours for any individual trainee. This 10% safety training cap does not apply to Hazardous Materials or OSHA 10/30 training.