



Training Proposal for:
**San Mateo County Electrical Apprenticeship and
 Training Committee**

Agreement Number: ET16-0910

Panel Meeting of: September 25, 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:	San Mateo	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 Local 617		
Turnover Rate:	≤20%		
Managers/Supervisors: (% of total trainees)	N/A		

FUNDING DETAIL:

Program Costs	+	Support Costs	=	Total ETP Funding
\$395,800		\$27,360 8%		\$423,160

In-Kind Contribution:	50% of Total ETP Funding Required	Inherent
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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, OSHA 10/30	75	8-200	0	\$564	\$53.90
				Weighted Avg: 24			
2	Retrainee Apprentice	Commercial Skills, OSHA 10	137	8-210	0	\$2,780	\$24.26
				Weighted Avg: 200			

Minimum Wage by County: SET/Priority Industry: \$20.55 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

Wage Range by Occupation

Occupation Titles	Wage Range	Estimated # of Trainees
Journeyman Electrician/Inside Wireman		75
Apprentice Electrician/Inside Wireman		137

INTRODUCTION

Founded in 1947, the San Mateo County Electrical Apprenticeship and Training Committee (SMJATC) (www.smjatc617.org) is located in San Carlos. 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 train National Electrical Contractors Association (NECA).

ETP funding will be used to train both Journeymen and Apprentices, all of whom are members of IBEW Local 617. The union currently represents over 927 Electricians in San Mateo County. The JATC is dedicated to provide up-to-date industry skills training, and secure long-term, high wage job opportunities for its members. More than 40 employers are signatory to the collective bargaining agreement. Of these, 75% are small businesses.

This is SMJATC's fourth ETP Agreement. The JATC reports that with the assistance of ETP funding, it graduated 24 Apprentices in 2015 and expects 21 Apprentices will graduate in 2016. SMJATC also reports that the number of registered Apprentices has increased by 40% since the approval of its current ETP Agreement. Continued high demand for training and the fact that the SMJATC has delivered enough training under its current Agreement to earn 100% of the funds, is driving SMJATC's new funding request.

SMJATC is requesting funding for Apprentice and Journeyman training. Apprentices will receive training on the Related and Supplemental Instruction (RSI) curriculum, which is required to

become Journeymen Electricians. ETP funding will allow the SMJATC to expand its upgrade training for journeymen to meet the needs of local employers and property owners.

Employer Demand for Training

The Inside Wiremen install and maintain all of the various types of electrical and conduit systems found in commercial and industrial facilities. The proposed training program will help employers meet the challenges of staying competitive.

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

Electricians, both Journeyman and Apprentices, will be working on new construction and upgrades of libraries, schools, and colleges in San Mateo County, the San Francisco International Airport, and other commercial and public works projects for such entities as CalTrain (the commuter train serving San Mateo County), which is implementing increased electrification of its trains. All training provides skills required by electricians to work on any electrical related function at any of these construction sites.

Green Technology

This training will provide electrical workers with skills in new and emerging technologies including renewable energy and highly efficient electrical control systems. Green technology continues to provide work for many electricians in retrofitting local commercial buildings with outdated power systems. The goal of building owners is to reduce the use of energy by these older buildings. The equipment rooms in these buildings often contain energized equipment such as hubs, file servers, or telephone switches. These devices are configured and connected to the communications network that serves the building, and must not be interrupted because of work performed by unqualified workers.

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.

RSI is 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 case, the College of San Mateo). The Apprenticeship Program allows reimbursement for up to 200 hours of RSI plus OSHA10.

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.

To ensure ETP does not displace Montoya Funds, Apprenticeship reimbursement is reduced by \$5.00, reducing the priority industry rate from \$18 to \$13 per hour. ETP wage for Apprentices

cannot be less than \$20.55 per hour. This is the Special Employment Training Statewide for 2015 as modified for priority industries, which is used for ease of administration. However, the actual wages paid are shown in the Training Plan Table and contract when they exceed \$20.55.

DAS Completion Rates

The completion rate for this DAS-approved program for 2009-2013 is 94.32% and exceeds the industry completion percentage of 66.13%. This meets Panel standards.

PROJECT DETAILS

All training is center-based training. The SMJATC training facility is newly remodeled and offers hands-on class/lab sessions in advanced lighting technology, fire alarm installations, data/voice installations and installation of the energy efficiency technology. Additionally, the training facility is equipped to provide the latest training on energy efficiency in an ever-changing environment of power conservation.

Journeyman Training

Commercial Skills (80%): Green training will be the focus because of the demand for energy efficient construction methods and technologies by participating employers and property owners. Training will include 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%): Training will include 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. This training will give workers the tools to plan, organize and manage construction projects. Training will also include team-building and leadership skills to lead teams in an effective and efficient manner. A new class is being added, Code of Excellence. This 20-hour class will be an expansion of the foreman class, but with a focus on leadership practices for non-foreman workers.

OSHA 10/30 (15%): OSHA 10/30 training is typically delivered to workers in the building trades. 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. The vendor must also 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 or 30-hour course. OSHA 10/30 is not included in the 10% limitation on safety training.

Apprenticeship Training

This is a 5-year program. During the term of apprenticeship, a worker may work 8,000 hours on the job with various San Mateo County electrical contractors. In addition, Apprentices attend school two nights per week for five years, totaling 800 hours. An Apprentice Electrician works directly under the supervision of a qualified journeyman electrician in installing or maintaining a variety of approved wiring methods.

Commercial Skills (90%): 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.

SMJATC has added two new classes to the 5th year apprentice curriculum: (1) new Code of Excellence class and (2) Foreman class. Although these classes are not yet included in the DAS curriculum, many employers demand that senior Apprentices take leadership roles. Leadership skills, such as taking initiative, guiding others and being self-driven, help keep an Electrician employed after the apprenticeship is over. Funding for this type of additional RSI is allowed under the ETP Apprentice Program

OSHA 10 (10%): This training provides an overview of occupational safety and health so that apprentices are more knowledgeable about workplace hazards and stringent safety standards in the electrical industry.

Curriculum Development

SMJATC, with input from both labor and management representatives, has developed and customized the national electrical curriculum to address local needs. The national program, or National Joint Apprenticeship and Training Committee's (NJATC) curriculum, was developed for the exclusive use of IBEW-NECA JATC'S.

The national program was created over 58 years ago. Since then local programs affiliated with the NJATC have trained over 300,000 apprentices nationwide. 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 new training materials to local JATCs to help meet local employer training needs and requirements.

Impact/Outcome

Certifications earned for the Journeyman and Apprentice training include: OSHA 10, OSHA 30, Rigging and Lifting, Arc Flash Safety Awareness and Code of Excellence.

Commitment to Training

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

➤ Trainer Qualifications

The JATC has 12 part-time trainers assisting with the training. The trainers are former or current members of the trade and some have received Master Certification status by the NJATC.

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 sent 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).

Three staff people at the SMJATC office will assist with marketing, recruitment and employer needs assessments. SMJATC is requesting 8% support costs to fund recruiting and qualifying additional participating employers for this program. While many participating employers have already been recruited, additional recruitment and assessment activities 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 the 8% support costs.

Tuition Reimbursement

In accordance with Title 22, CCR, Section 4412.1, SMTT 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 SMJATC under its current ETP Agreement:

Agreement No.	Approved Amount	Term	No. Trainees Estimated	No. Completed Training	No. Retained
ET15-0907	\$257,994	9/2/14 – 9/1/16	Apprentice-126 Journeymen-60	Apprentice-111 Journeymen-82	0

Based on the ETP tracking system to date, 17,952 reimbursable hours have been tracked which equates to over 100% of the Agreement amount

PRIOR PROJECTS

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

Agreement No.	Location (City)	Term	Approved Amount	Payment Earned \$ %
ET13-0912	San Carlos	10/29/12 – 10/28/14	\$277,345	\$274,299 (99%)

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
 - 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)
- California Advanced Lighting Control Program (CALCP)
 - 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

OSHA 10/30 (OSHA CERTIFIED INSTRUCTOR)

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

APPRENTICE**Class/Lab Hours**

8-210 (Job Number 2)

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
- 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

- 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
- Code of Excellence
 - Taking Initiative On the Job
 - Identifying and Completing Self-Driven Goals On the Job
- Foreman Training
 - Understanding Leadership Roles
 - Communicating Tasks and Expectations Clearly
 - Creating a Productive Work Environment

OSHA 10 (OSHA CERTIFIED INSTRUCTOR)

- OSHA 10 (requires completion of 10 hours)

Safety training cannot exceed 10% of total training hours for any individual trainee.
This 10% safety training cap does not apply to OSHA 10/30 training.

Note: Reimbursement for Job Number 1 Journeymen retraining is capped at 200 total training hours per trainee regardless of the method of training delivery. 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 regardless of the method of training delivery.