



Electrician

Program Report For Greater South Bay and Peninsula Region (Santa Clara and San Mateo Counties)

November 2016

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Electrician

CIP 2010: A program that prepares individuals to apply technical knowledge and skills to install, operate, maintain, and repair electric apparatus and systems such as residential, commercial, and industrial electric-power wiring; and DC and AC motors, controls, and electrical distribution panels. Includes instruction in the principles of electronics and electrical systems, wiring, power transmission, safety, industrial and household appliances, job estimation, electrical testing and inspection, and applicable codes and standards.

Target Occupations‡

First-Line Supervisors of Construction Trades and Extraction Workers (47-1011)

Electricians (47-2111)

Helpers--Electricians (47-3013)

Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)

Security and Fire Alarm Systems Installers (49-2098)

Signal and Track Switch Repairers (49-9097)

‡Based on EMSI crosswalk of the Classification of Instructional Programs (CIP) codes with Standard Occupational Classification (SOC) codes as published by the U.S. Department of Education.

In 2016, the number of Electrician jobs in the target occupations in Santa Clara and San Mateo Counties totaled 14,687. The Bureau of Labor Statistics (BLS) expects the total number of positions to increase by about 10% over the next three years.

Occupation Summary for Electricians

14,687 Jobs (2016) ¹ 3% below National average ²	10.4% % Change (2016-2019) ³ Nation: 1.9%	\$35.76/hr Median Hourly Earnings Nation: \$26.00/hr
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¹Based on total number of jobs for target occupations in Santa Clara and San Mateo Counties.

²Represents occupation density as compared to national average (national average=1).

³Based on turnover and new jobs.

Target occupations that are mapped to the Electrician program are disaggregated to see which occupations are projected to see the highest number of annual openings (Electricians), highest percentage rate of growth over the next three years (Helpers--Electricians), and the highest median hourly earnings (First-Line Supervisors of Construction Trades and Extraction Workers). While Security and Fire Alarm Systems Installers are expected to experience job growth (14%) these occupations are more represented and concentrated in our region (Santa Clara and San Mateo Counties) compared to the national average.

Target Occupations

Occupation	2016 Jobs	Annual Openings	Median Hourly Earnings	Growth (2016 - 2019)	Location Quotient (2016)
Electricians	7,796	477	\$37.08/hr	13.30%	1.12
First-Line Supervisors of Construction Trades and Extraction Workers	5,224	148	\$37.97/hr	5.00%	0.82
Security and Fire Alarm Systems Installers	875	66	\$24.31/hr	13.94%	1.21
Helpers--Electricians	646	41	\$16.66/hr	15.02%	0.82
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	117	5	\$35.97/hr	6.84%	0.49
Signal and Track Switch Repairers	29	1	\$33.41/hr	3.45%	0.32

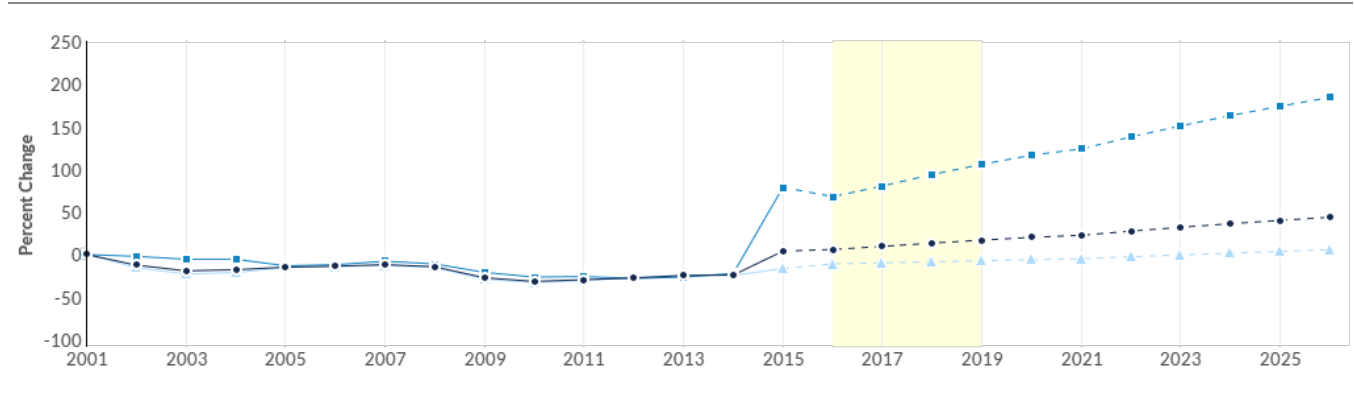
Growth in Electrician occupations show how each occupation is projected to increase in jobs over the next three years. A growth of about 10% is expected in the next three years for Electricians.

Growth for Electricians

14,687 2016 Jobs	16,212 2019 Jobs	1,525 Change (2016-2019)	10.4% % Change (2016-2019)
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Occupation	2016 Jobs	2019 Jobs	Change	% Change
First-Line Supervisors of Construction Trades and Extraction Workers (47-1011)	5,224	5,485	261	5%
Electricians (47-2111)	7,796	8,833	1,037	13%
Helpers--Electricians (47-3013)	646	743	97	15%
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)	117	125	8	7%
Security and Fire Alarm Systems Installers (49-2098)	875	997	122	14%
Signal and Track Switch Repairers (49-9097)	29	30	1	3%

Regional Trends

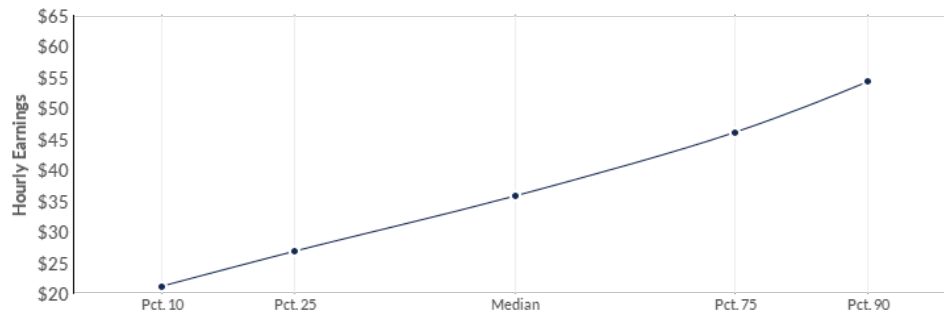


Region	2016 Jobs	2019 Jobs	Change	% Change
● Region	14,687	16,212	1,525	10.4%
● San Mateo County, CA	4,976	6,101	1,125	22.6%
● Santa Clara County, CA	9,711	10,111	400	4.1%

The percentile earnings table shows the range the Electrician occupations earn in the region. While the median earnings are approximately \$35/hour, wages can range from below \$26/hour to above \$46/hour. Each of the target occupations' range in wages is also displayed.

Percentile Earnings for Electricians

\$26.80/hr 25th Percentile Earnings	\$35.76/hr Median Earnings	\$46.10/hr 75th Percentile Earnings
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Occupation	25th Percentile Earnings	Median Earnings	75th Percentile Earnings
First-Line Supervisors of Construction Trades and Extraction Workers (47-1011)	\$29.38	\$37.97	\$49.80
Electricians (47-2111)	\$26.95	\$37.08	\$47.42
Helpers--Electricians (47-3013)	\$13.51	\$16.66	\$20.94
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)	\$32.50	\$35.97	\$40.28
Security and Fire Alarm Systems Installers (49-2098)	\$19.08	\$24.31	\$31.28
Signal and Track Switch Repairers (49-9097)	\$27.92	\$33.41	\$38.52

Program Completion Data

Program data reviews completion information about awards by institution and types of awards conferred in the region (Santa Clara and San Mateo Counties). Foothill College is the one of three regional institutions that is supporting and preparing for Electrician occupations.



Program Summary for Electricians

3	117	848
Regional Institutions	Regional Program Completions (2015)	Annual Openings (2015)
had Completions in the last 13 years	Foothill College Completions: 1	

Regional Completions by Institution

Institution	Certificates (2015)	Degrees (2015)	Total Completions (2015)
Institute for Business and Technology	115	0	115
Foothill College	0	1	1
College of San Mateo	0	1	1

Regional Completions by Award Level

Award Level	Completions (2015)	Percent
Award of less than 1 academic year	115	98.3% 
Associates degree	2	1.7% 








Target Occupations Demographics

The demographics among those employed in Electrician occupations in Santa Clara and San Mateo Counties for 2016 show that a majority are male (96%) and half are between the ages of 25-44 (50%) and more than half are White (58%).








Occupation Gender Breakdown

Gender	2016 Jobs	2016 Percent
Males	14,165	96.4% 
Females	522	3.6% 

Occupation Age Breakdown

Age	2016 Jobs	2016 Percent
14-18	39	0.3% 
19-24	863	5.9% 
25-34	3,482	23.7% 
35-44	3,861	26.3% 
45-54	3,854	26.2% 
55-64	2,101	14.3% 
65+	489	3.3% 

Occupation Race/Ethnicity Breakdown

Race/Ethnicity	2016 Jobs	2016 Percent
White	8,485	57.8% 
Hispanic or Latino	4,379	29.8% 
Asian	956	6.5% 
Black or African American	496	3.4% 
Two or More Races	241	1.6% 
Native Hawaiian or Other Pacific Islander	74	0.5% 
American Indian or Alaska Native	56	0.4% 

Industries Employing Electrician Occupations

A number of industries in Santa Clara and San Mateo Counties employ those trained in Electrician work and its related occupations. The following table represents a regional industry breakdown of the number of Electrician positions employed, the percentage of Electrician employed by industry and the percentage Electrician jobs represent within all jobs by each industry. While Electrical Contractors and Other Wiring Installation Contractors employed 55% of all regional Electrician positions in 2016, Electricians also composed about half of all jobs in that industry (53%).

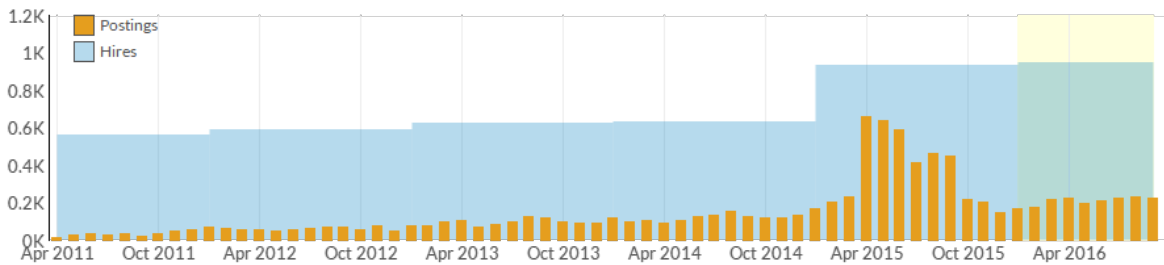
Industries Employing Electricians

Industry	Occupation Group Jobs in Industry (2016)	% of Occupation Group in Industry (2016)	% of Total Jobs in Industry (2016)
Electrical Contractors and Other Wiring Installation Contractors	8,074	55.0%	52.5%
Commercial and Institutional Building Construction	836	5.7%	10.5%
Residential Remodelers	578	3.9%	8.4%
Plumbing, Heating, and Air-Conditioning Contractors	547	3.7%	4.9%
New Single-Family Housing Construction (except For-Sale Builders)	443	3.0%	8.3%

In an average month, there were 208 unique (internet) job postings for Electrician jobs, and 946 actually hired from January 2016 to September 2016. This means there was approximately 4 hires for every 1 unique (internet) job posting for occupations in Electrician. In cases where there were more hires compared to job postings, it suggests that the internet may not be the primary way that job openings for these occupations are advertised.

Job Postings vs. Hires

208	946
Avg. Monthly Postings (Jan 2016 - Sep 2016)	Avg. Monthly Hires (Jan 2016 - Sep 2016)



Occupation	Avg Monthly Postings (Jan 2016 - Sep 2016)	Avg Monthly Hires (Jan 2016 - Sep 2016)
First-Line Supervisors of Construction Trades and Extraction Workers	93	315
Electricians	86	518
Security and Fire Alarm Systems Installers	28	62
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	1	4
Signal and Track Switch Repairers	0	1
Helpers--Electricians	0	45

The top five most relevant hard and soft skills employers list in Electrician job posting descriptions are listed below. The “Postings with Skill” column is the total amount of (internet) job postings that mention the skills listed below. These numbers may be higher than the average monthly postings from above, because this number includes duplicated (internet) job postings. The “Relevance Score” gauge relevance of the skill by indicating the frequency in which this skill is being mentioned in (internet) job postings for Electrician compared to all other (internet) job postings.

Most Relevant Hard Skills

Skill	Relevance Score	Postings with Skill
Circuit Breakers	65.31	752
Transformers (Electrical)	60.94	899
Voltmeter	53.88	610
Electrical Wirings	27.86	928
TIA/EIA-568	25.98	27

Most Relevant Soft Skills

Skill	Relevance Score	Postings with Skill
Active Learning	47.64	581
Active Listening	14.24	581
Critical Thinking	3.58	595
Listening	1.25	600
Coordinating	1.22	741

Appendix A - Data Sources and Calculations

Location Quotient

Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique in comparison to the national average.

Occupation Data

Emsi occupation employment data are based on final Emsi industry data and final Emsi staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level Emsi earnings by industry.

Completers Data

The completers data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

Institution Data

The institution data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

CareerBuilder/Emsi Job Postings

Job postings are collected from various sources and processed/enriched by Careerbuilder to provide information such as standardized company name, occupation, skills, and geography. Emsi performs additional filtering and processing to improve compatibility with Emsi data.

State Data Sources

This report uses state data from the following agencies: California Labor Market Information Department