

Electrical (TOP 0952.20)

Regional Program Demand Report

Foothill College, San Francisco larger MSA

Introduction and Contents

Contents

<i>Executive Summary</i>	3
<i>Job Outlook Summary</i>	4
<i>Inverse Staffing Patterns</i>	7
<i>Regional Graduation Summary</i>	8
<i>Occupational Programs & Completers</i>	10

Purpose and Goals

This report is designed to integrate and analyze data from multiple sources to help educational institutions discover regional labor market needs for certain postsecondary programs of study. The overall goal is to help a college align their program offerings the economy and labor market of its service region. To do this, the report selects a set of focus occupations, determines the regional job outlook for them, and compares this to the number of recent graduates in related programs at regional educational institutions. While this is a first step toward a supply/demand analysis, for increased accuracy it could be extended with survey-based information from local employers regarding their hiring outlook and recruitment sources.

The occupation employment and wage numbers are from EMSI's national Complete Employment database, which is built using numerous published data sources from the federal Bureau of Labor Statistics, Bureau of Economic Analysis, and Bureau of the Census. In addition, the report uses industry/occupation data and projections created by the State of AnyState. The completions-by-program and program-to-occupation links use data from the U.S. Department of Education.

These data sources have been specially processed and harmonized to provide more complete and detailed data than any individual source used. For more information, see the final page of this report.

Focus College

Foothill College

Region Definition

Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara

Key Terms and Concepts

Programs: Courses of postsecondary study defined by CIP (Classification of Instructional Programs) codes.

Occupation: A category of workers defined by the Standard Occupational Classification (SOC).

Relating occupations to Programs: EMSI determines these links using information from the U.S. Department of Education.

Replacement Jobs: The estimated number of job openings in an occupation due to retirement, turnover, and other factors aside from job growth. Based on national percentages by occupation.

Annual openings: The sum of new jobs and estimated replacement jobs for a given occupation, divided by the number of years in the timeframe.

Earnings: For industries, total annual earnings per worker is reported; these earnings include wages, salaries, profits, and benefits. Occupational earnings are reported as median hourly wage only.

Jobs: Full-time and part-time positions held by proprietors and payroll employees in the public or private sector. May exceed actual worker count.

Projections: Estimates of future job or population numbers based on (1) recent historical regional trends and (2) published forecasts created by a consensus of state and federal agencies.

Executive Summary

Overview

This report focuses on **6 occupations** which are expected to provide **427 annual job openings** from 2008-2013 in the San Francisco larger MSA 6-county area. Meanwhile, in 2007, area colleges produced **587 graduates** in **23 programs** related to these occupations. The numbers do not conclusively show an opportunity for area colleges to expand their offerings in this field.¹

Focus Occupations

The following occupations were selected for analysis in this report:²

- First-line supervisors/managers of construction trades and extraction workers
- Electricians
- Helpers, electricians
- Electrical and electronics repairers, powerhouse, substation, and relay
- Security and fire alarm systems installers
- Signal and track switch repairers

Focus Programs

The key occupations above correspond to the following standard postsecondary program titles:³

- Mason/Masonry
- Carpentry/Carpenter
- Electrical and Power Transmission Installation/Installer, General
- Electrician
- Lineworker
- Electrical and Power Transmission Installers, Other
- Building/Property Maintenance and Management
- Concrete Finishing/Concrete Finisher
- Building/Home/Construction Inspection/Inspector
- Drywall Installation/Drywaller
- Glazier

1. Annual job openings: new plus replacement jobs divided by years in the timeframe. Note that openings may be filled from various sources besides new graduates, and that graduates may work in occupations unrelated to their degree.

2. Occupations are defined by the federal SOC system.

3. Programs are defined by the federal CIP system. The occupation-program crosswalk is based on the CIP-SOC crosswalk published by the U.S. Department of Education.

- Painting/Painter and Wall Coverer
- Roofer
- Building/Construction Site Management/Manager
- Building/Construction Finishing, Management, and Inspection, Other
- Plumbing Technology/Plumber
- Well Drilling/Driller
- Blasting/Blaster
- Construction Trades, Other
- Industrial Electronics Technology/Technician
- Security System Installation, Repair, and Inspection Technology/Technician
- Heavy/Industrial Equipment Maintenance Technologies, Other
- Construction Management

Labor Market Outlook

Aggregated data for all focus occupations:

	Region	State[s]	U.S.
2008 total jobs	33,956	190,891	2,021,997
2013 total jobs	33,160	191,869	2,072,284
2008-2013 growth	-796	978	50,288
2008-2013 repl. jobs	2,929	16,509	133,826
Median hourly earnings	\$32.72	\$26.31	\$21.09

Focus Program Completions

"Completions" represents the total number of students to attain an award or degree at each given level in all the above college programs.

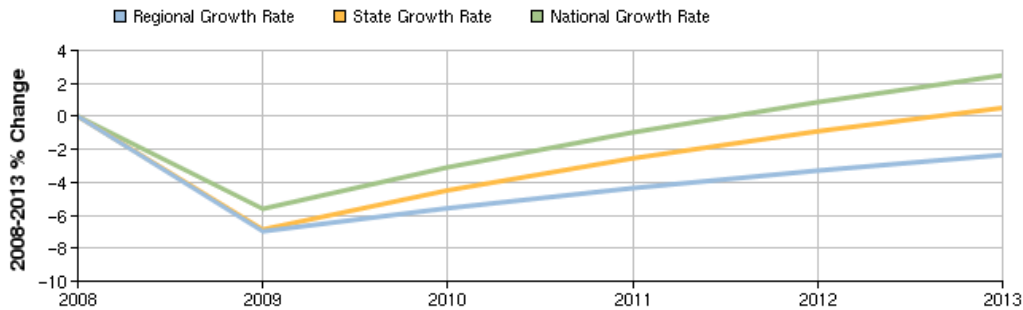
Award Level	2007 Completions (Foothill College)	2007 Completions (All Colleges in Region)
Award < 2 years	200	572
Associate's	0	15
Bachelor's	-	-
Postbaccalaureate Certificate	-	-
Master's	-	-
Doctor's	-	-
Professional	-	-
TOTAL	200	587

Source: U.S. Department of Education, National Center for Education Statistics: Integrated Postsecondary Education Data System (IPEDS).

Job Outlook Summary

Percent Change in Employment, All Focus Occupations

This graph shows yearly percent growth compared to 2008.



The table summarizes the regional job outlook for the focus occupations using employment projections and current wage data, indicating the demand for these kinds of workers and their pay scale. Colleges which strive to be labor market responsive, maximize their economic impact, and generate a return on investment for public funds should generally focus program resources to support high-growth, high-wage occupations.

Detailed Information by Occupation

Occupation Title	2008-13 Avg. Annual Openings			Median Hourly Earnings		
	Region	State[s]	U.S.	Region	State[s]	U.S.
First-line supervisors/managers of construction trades and extraction workers	261	1,885	17,223	\$34.80	\$29.82	\$22.93
Electricians	118	1,238	14,137	\$33.01	\$24.04	\$20.55
Security and fire alarm systems installers	23	140	2,023	\$19.92	\$17.54	\$15.54
Signal and track switch repairers	16	125	747	\$14.12	\$11.33	\$10.92
Electrical and electronics repairers, powerhouse, substation, and relay	6	39	852	\$40.19	\$30.98	\$28.32
Helpers, electricians	3	69	1,840	\$18.36	\$13.97	\$11.98
TOTAL	427	3,497	36,823	\$32.72	\$26.31	\$21.09

Source: EMSI Complete Employment, 3/2008.

Average annual openings: total new plus replacement jobs over the entire timeframe divided by number of years in the timeframe.

1. Projected new and replacement jobs can indicate demand, but are not necessarily equivalent to demand. The number is based on past regional performance of the industries that employ workers in the given occupations, combined with official, biannual state and federal ten-year estimates. Projections may underestimate demand if employers need these kinds of workers but are unable to hire qualified individuals to meet their needs, or if unforeseen business recruitment and growth outpace past trends. Similarly, projections may overestimate demand if there are unforeseen contractions in key employers, entire industries, or the national economy as a whole.

Regional Job Outlook

The table summarizes the regional job outlook for the focus occupations using employment projections and current wage data, indicating the demand for these kinds of workers and their pay scale. Colleges which strive to be labor market responsive, maximize their economic impact, and generate a return on investment for public funds should generally focus program resources to support high-growth, high-wage occupations. Occupations are sorted by total 2008 jobs.

Occupation Title	2008 Jobs	2013 Jobs	New Jobs	New & Rep. Jobs	Median Hourly Earnings
First-line supervisors/managers of construction trades and extraction workers	18,052	18,169	117	1,303	\$34.80
Electricians	12,825	11,911	-914	591	\$33.01
Security and fire alarm systems installers	1,680	1,688	8	114	\$19.92
Signal and track switch repairers	656	698	42	78	\$14.12
Helpers, electricians	603	551	-52	17	\$18.36
Electrical and electronics repairers, powerhouse, substation, and relay	140	143	3	31	\$40.19
	33,956	33,160	-796	2,133	\$32.72

Source: EMSI Complete Employment - Spring 2009.

State & National Job Outlook

These two tables summarize the state and national job outlook for the focus occupations using employment projections and current wage data, indicating the demand for these kinds of workers and their pay scale. Occupations are in the same order as they are in the regional job outlook table on the previous page.

State Job Outlook

Occupation Title	2008 Jobs	2013 Jobs	New Jobs	New & Rep. Jobs	Median Hourly Earnings
First-line supervisors/managers of construction trades and extraction workers	101,425	104,159	2,734	9,426	\$29.82
Electricians	70,491	68,430	-2,061	6,192	\$24.04
Security and fire alarm systems installers	8,010	8,201	191	701	\$17.54
Helpers, electricians	6,079	5,743	-336	347	\$13.97
Signal and track switch repairers	4,180	4,577	397	627	\$11.33
Electrical and electronics repairers, powerhouse, substation, and relay	706	759	53	194	\$30.98
	190,891	191,869	978	17,487	\$26.31

Source: EMSI Complete Employment - Spring 2009.

National Job Outlook

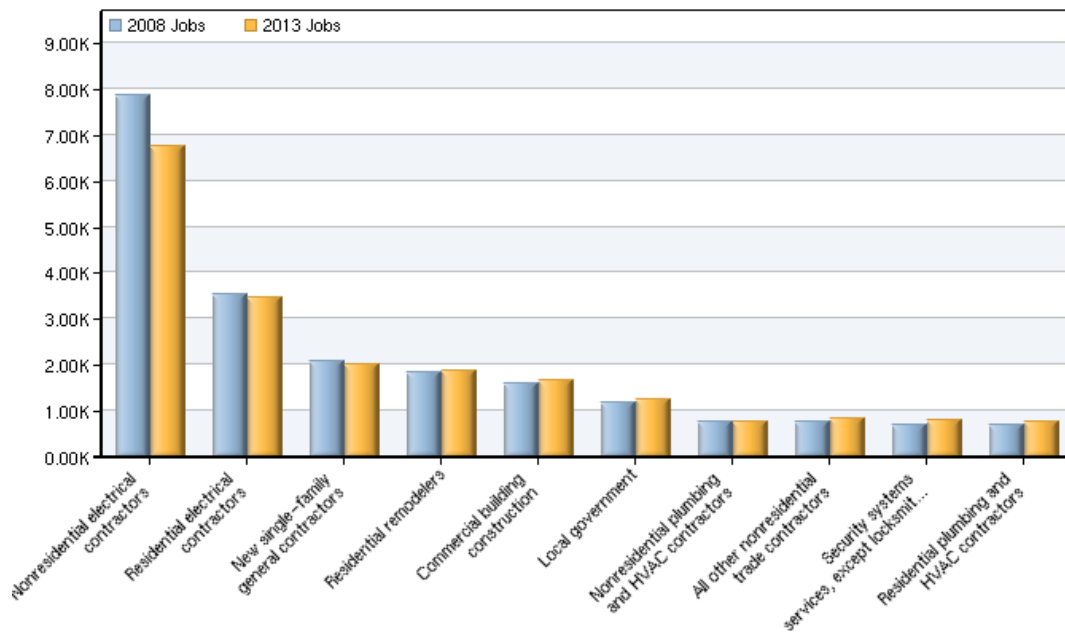
Occupation Title	2008 Jobs	2013 Jobs	New Jobs	New & Rep. Jobs	Median Hourly Earnings
First-line supervisors/managers of construction trades and extraction workers	1,035,970	1,083,211	47,241	86,115	\$22.93
Electricians	750,486	746,884	-3,602	70,687	\$20.55
Helpers, electricians	103,733	101,332	-2,401	9,198	\$11.98
Security and fire alarm systems installers	71,603	77,760	6,157	10,116	\$15.54
Signal and track switch repairers	35,868	39,184	3,316	3,736	\$10.92
Electrical and electronics repairers, powerhouse, substation, and relay	24,337	23,914	-423	4,262	\$28.32
	2,021,997	2,072,284	50,288	184,114	\$21.09

Source: EMSI Complete Employment - Spring 2009.

Inverse Staffing Patterns

Industrial Makeup

These are your region's top ten growing industries in the selected occupations.



NAICS Code	Description	2008 Jobs	2013 Jobs	Change	% Change
238212	Nonresidential electrical contractors	7,867	6,733	-1,134	-14%
238211	Residential electrical contractors	3,543	3,464	-79	-2%
236115	New single-family general contractors	2,073	2,021	-52	-3%
236118	Residential remodelers	1,827	1,865	38	2%
236220	Commercial building construction	1,597	1,668	71	4%
930000	Local government	1,170	1,234	64	6%
238222	Nonresidential plumbing and HVAC contractors	777	758	-19	-2%
238992	All other nonresidential trade contractors	770	822	52	7%
561621	Security systems services, except locksmiths	707	785	78	11%
238221	Residential plumbing and HVAC contractors	698	766	68	10%

Regional Graduation Summary

Regional graduations ("completions" or number of awards/degrees granted) in the programs tied to the focus occupations are one indicator of workforce supply. (Other sources include in-migration of new workers to the region, promotion from within firms, and currently unemployed workers in the same or similar occupations.) The following table breaks down these graduations by program and award level at AnyRegion college and at all institutions in the region. A zero entry for completers indicates the program is offered but had no completions, while a "-" indicates the program is not offered.

CIP Code	Program Title	Award Level	2007 Completions, Your College	2007 Completions, Entire Region
46.0101	Mason/Masonry	[all]	-	-
46.0201	Carpentry/Carpenter	Award of at least 1 but less than 2 academic years	-	5
		Associate's degree	-	2
46.0301	Electrical and Power Transmission Installation/Installer, General	[all]	-	-
46.0302	Electrician	Award of less than 1 academic year	96	263
		Award of at least 1 but less than 2 academic years	67	82
		Associate's degree	-	1
46.0303	Lineworker	[all]	-	-
46.0399	Electrical and Power Transmission Installers, Other	[all]	-	-
46.0401	Building/Property Maintenance and Management	Award of less than 1 academic year	-	25
		Award of at least 1 but less than 2 academic years	-	91
46.0402	Concrete Finishing/Concrete Finisher	[all]	-	-
46.0403	Building/Home/Construction Inspection/Inspector	Award of less than 1 academic year	-	5
		Award of at least 1 but less than 2 academic years	-	6
		Associate's degree	-	4
46.0404	Drywall Installation/Drywaller	[all]	-	-
46.0406	Glazier	Award of less than 1 academic year	-	-
46.0408	Painting/Painter and Wall Coverer	Award of less than 1 academic year	-	-
46.0410	Roofer	Award of at least 1 but less than 2 academic years	-	-
		Associate's degree	-	-
46.0412	Building/Construction Site Management/Manager	Award of less than 1 academic year	-	-
		Award of at least 1 but less than 2 academic years	-	14
		Associate's degree	-	7
		Award of at least 2 but less than 4 academic years	-	2
46.0499	Building/Construction Finishing, Management, & Inspection, Other	[all]	-	-
46.0503	Plumbing Technology/Plumber	Award of less than 1 academic year	22	25

Regional Program Growth Report | Foothill College

CIP Code	Program Title	Award Level	2007 Completions, Your College	2007 Completions, Entire Region
		Award of at least 1 but less than 2 academic years	15	56
		Associate's degree	-	-
46.0504	Well Drilling/Driller	[all]	-	-
46.9999	Construction Trades, Other	[all]	-	-
47.0105	Industrial Electronics Technology/Technician	Award of less than 1 academic year	-	-
		Award of at least 1 but less than 2 academic years	-	-
		Associate's degree	-	1
47.0110	Security System Installation, Repair, and Inspection Technology/Technician	[all]	-	-
47.0399	Heavy/Industrial Equipment Maintenance Technologies, Other	[all]	-	-
52.2001	Construction Management	[all]	-	-
TOTAL			200	589

Source: U.S. Department of Education, National Center for Education Statistics: Integrated Postsecondary Education Data System (IPEDS).

Occupational Programs & Completers

The following section provides detailed information for each focus occupation, including the job outlook information provided above. Each occupation is also associated with one or more postsecondary programs (defined by standard CIP 2000 codes) using information published by the U.S. Department of Education with customizations by EMSI.

A zero entry for completers indicates the program is offered but had no completions, while a "-" indicates the program is not offered.

Summary Table

Occupation	2008-2013 Avg. Annual Openings	2007 Completions, All Related Programs (College)	2007 Completions, All Related Programs (Region)	Total Related Programs	Total Occs. Sharing Same Programs
First-line supervisors/managers of construction trades and extraction workers	261	200	588	20	52
Electricians	118	163	346	1	6
Security and fire alarm systems installers	23	163	346	2	6
Signal and track switch repairers	16	163	346	1	6
Electrical and electronics repairers, powerhouse, substation, and relay	6	163	347	5	16
Helpers, electricians	3	163	346	1	6

Source: EMSI Complete Employment; U.S. Department of Education, IPEDS & Occupational Code Crosswalk - CIP 2000.

An occupation may be related to multiple programs and vice versa. Completions may be double-counted if related to multiple occupations; **do not total**. See columns "Total Related Programs" and "Total Occs. Sharing Same Programs" to refine interpretation of openings versus completions.

Detail Tables

The following tables provide detailed information for focus occupations and related programs, comparing estimated average annual openings in each occupation with recent completions (awards/degrees) in related programs at both AnyRegion College and at all institutions in the region. Many postsecondary programs are linked to multiple occupations; this is shown in the final column of each table and is one indication that fewer program completers will likely enter the given occupation than the overall total would suggest.

Sources for this section: EMSI Complete Employment, 3/2008; U.S. Department of Education, IPEDS.

First-line supervisors/managers of construction trades and extraction workers

2008-2013 Avg. Annual Openings: **261**

Median Hourly Earnings: **\$34.80**

Related Programs	2007 Completions, College	2007 Completions, Entire Region	Other Occupations Linked to Program
TOTAL, ALL RELATED PROGRAMS	200	588	52
Mason/Masonry	-	-	5
Carpentry/Carpenter	-	7	2
Electrical and Power Transmission Installation/Installer, General	-	-	2
Electrician	163	346	4
Lineworker	-	-	-
Electrical and Power Transmission Installers, Other	-	-	-
Building/Property Maintenance and Management	-	116	1
Concrete Finishing/Concrete Finisher	-	-	3
Building/Home/Construction Inspection/Inspector	-	15	1
Drywall Installation/Drywaller	-	-	1
Glazier	-	-	1
Painting/Painter and Wall Coverer	-	-	3
Roofer	-	-	2
Building/Construction Site Management/Manager	-	23	2
Building/Construction Finishing, Management, and Inspection, Other	-	-	1
Plumbing Technology/Plumber	37	81	4
Well Drilling/Driller	-	-	6
Blasting/Blaster	-	-	1
Construction Trades, Other	-	-	13
Construction Management	-	-	-

Electricians

2008-2013 Avg. Annual Openings: **118**

Median Hourly Earnings: **\$33.01**

Related Programs	2007 Completions, College	2007 Completions, Entire Region	Other Occupations Linked to Program
TOTAL, ALL RELATED PROGRAMS	163	346	6
Electrician	163	346	6

Helpers, electricians

2008-2013 Avg. Annual Openings: **3**

Median Hourly Earnings: **\$18.36**

Related Programs	2007 Completions, College	2007 Completions, Entire Region	Other Occupations Linked to Program
TOTAL, ALL RELATED PROGRAMS	163	346	6
Electrician	163	346	6

Electrical and electronics repairers, powerhouse, substation, and relay

2008-2013 Avg. Annual Openings: **6**

Median Hourly Earnings: **\$40.19**

Related Programs	2007 Completions, College	2007 Completions, Entire Region	Other Occupations Linked to Program
TOTAL, ALL RELATED PROGRAMS	163	347	16
Electrical and Power Transmission Installation/Installer, General	-	-	3
Electrician	163	346	4
Electrical and Power Transmission Installers, Other	-	-	-
Industrial Electronics Technology/Technician	-	1	4
Heavy/Industrial Equipment Maintenance Technologies, Other	-	-	5

Security and fire alarm systems installers

2008-2013 Avg. Annual Openings: **23**

Median Hourly Earnings: **\$19.92**

Related Programs	2007 Completions, College	2007 Completions, Entire Region	Other Occupations Linked to Program
TOTAL, ALL RELATED PROGRAMS	163	346	6
Electrician	163	346	6
Security System Installation, Repair, and Inspection Technology/Technician	-	-	-

Signal and track switch repairers

2008-2013 Avg. Annual Openings: **16**

Median Hourly Earnings: **\$14.12**

Related Programs	2007 Completions, College	2007 Completions, Entire Region	Other Occupations Linked to Program
TOTAL, ALL RELATED PROGRAMS	163	346	6
Electrician	163	346	6

About the Data

Introduction

EMSI data is a compilation and harmonization of more than 80 government and private-sector sources. Updated every six months and based on the most recent data available, the dataset covers the entire US population and economy, down to each individual ZIP code. It includes data for industries, occupations, demographics, postsecondary institutions, and selected economic indicators.

Occupation Data

Organizing regional employment information by occupation provides a workforce-oriented view of the regional economy. EMSI's occupation data are based on EMSI's industry data and regional "staffing patterns" (showing the average mix of job types in various industries) taken from the Occupational Employment Statistics program (U.S. Bureau of Labor Statistics). Wage information is augmented by data from the American Community Survey (U.S. Census). Replacement jobs and annual openings estimates are based on national survey data by occupation. As in the official government statistics, occupations are categorized by Standard Occupational Classification (SOC) codes and titles.

Completions Data

Completions are voluntarily reported by postsecondary institutions through the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS). Completions are organized by program using the Classification of Instructional Programs (CIP) codes and titles.

Relating Occupations to Postsecondary Programs

The occupation-to-program (SOC-to-CIP) "crosswalk" is a large table that describes which occupations are generally trained for by each standard postsecondary program (based on Classification of Instructional Programs [CIP] codes and titles, last updated in 2000). EMSI starts with the official crosswalk published by the U.S. Department of Education and customizes it in various ways to make it more accurate and practical for comparing programs to regional labor markets.

About Economic Modeling Specialists

Products and Services

EMSI provides integrated regional economic and labor market data, web-based analysis tools, data-driven reports, and custom consulting services. EMSI specializes in detailed information about regional economies for assessment and planning purposes, bringing together industry, workforce, economic development, and education/training perspectives.

EMSI's expertise is centered on regional economics, data integration and analysis, programming, and design so that it can provide the best available products and services for regional decision makers. EMSI recently merged with its sister company CCbenefits Inc.-well known for conducting socioeconomic impact studies for over 800 community and technical colleges across the nation-to offer an integrated portfolio of solutions for college, workforce, and economic development professionals.

Clients

EMSI's client base includes hundreds of colleges, workforce boards, economic development organizations, governmental agencies, economists, consultants, academics, and private-sector analysts. With over four thousand current clients in the U.S., Canada, and the United Kingdom, EMSI's products and services are critical for informing regional policy.

Contact EMSI

For more information about EMSI, visit us at www.economicmodeling.com, or call us toll-free at 866.999.3674.