** Fire Technology Occupations**

**Labor Market Information Report**

**Chabot College**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

January 2019

# Recommendation

Based on all available data, there appears to be a undersupply of Fire Technology workers compared to the demand for this cluster of occupations in the Bay region and in the East Bay sub-region (Alameda and Contra Costa Counties). The gap is about 127 students annually in the Bay region and 5 students annually in the East Bay Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 2133.00 - Fire Technology in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Chabot College and in the region.

# Introduction

This report profiles Fire Technology Occupations in the 12 county Bay region and in the East Bay sub-region for the review of an existing program at Chabot College.

|  |
| --- |
| * **First-Line Supervisors of Fire Fighting and Prevention Workers (SOC 33-1021):** Directly superviseand coordinate activities of workers engaged in fire fighting and fire prevention and control.
 |
| *Entry-Level Educational Requirement: Postsecondary nondegree award* |
| *Training Requirement: Moderate-term on-the-job training* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 58%* |
|  |
| * **Fire Inspectors and Investigators (SOC** **33-2021):** Inspect buildings to detect fire hazards and enforce local ordinances and State laws, or investigate and gather facts to determine cause of fires and explosions.
 |
| *Entry-Level Educational Requirement: Postsecondary nondegree award* |
| *Training Requirement: Moderate-term on-the-job training* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 52%* |
|  |
| * **Firefighters (SOC 33-2011):** Control and extinguish fires or respond to emergency situations where life, property, or the environment is at risk. Duties may include fire prevention, emergency medical service, hazardous material response, search and rescue, and disaster assistance.
 |
| *Entry-Level Educational Requirement: Postsecondary nondegree award* |
| *Training Requirement: Long-term on-the-job training* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 61%* |

# Occupational Demand

**Table 1. Employment Outlook for Fire Technology Occupations in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| First-Line Supervisors of Fire Fighting and Prevention Workers | 697 | 757 | 60  | 9% | 59 | 47 | $27.94  | $61.38  |
| Fire Inspectors and Investigators | 185 | 201 | 16  | 8% | 22 | 19 | $31.30  | $57.34  |
| Firefighters | 7,547 | 8,001 | 454  | 6% | 593 | 502 | $20.21  | $40.73  |
| **Total** | **8,428** | **8,958** | **530** | **6%** | **674** | **568** | **$21.10**  | **$42.80**  |

*Source: EMSI 2018.4*

**Bay Region** includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for Fire Technology Occupations in East Bay Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| First-Line Supervisors of Fire Fighting and Prevention Workers | 115 | 120 | 6  | 5% | 9 | 8 | $53.02  | $77.91  |
| Fire Inspectors and Investigators | 40 | 42 | 2  | 5% | 4 | 4 | $36.03  | $53.43  |
| Firefighters | 1,739 | 1,799 | 60  | 3% | 127 | 115 | $30.94  | $45.71  |
| **TOTAL** | **1,894** | **1,962** | **68**  | **4%** | **140** | **126** | **$32.38**  | **$47.82**  |

*Source: EMSI 2018.4*

**East Bay Sub-Region** includes Alameda and Contra Costa Counties

### Job Postings in Bay Region and East Bay Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (Jan 2018 - Dec 2018)**

| Occupation | Bay Region | East Bay |
| --- | --- | --- |
| Fire Inspectors (33-2021.01) | 148 | 52 |
| Municipal Fire Fighting and Prevention Supervisors (33-1021.01) | 122 | 32 |
| Municipal Firefighters (33-2011.01) | 106 | 40 |
| Forest Fire Fighting and Prevention Supervisors (33-1021.02) | 25 | 1 |
| Forest Firefighters (33-2011.02) | 14 | 4 |
| **Total** | **415** | **129** |

*Source: Burning Glass*

**Table 4. Top Job Titles for Fire Technology Occupations for latest 12 months (Jan 2018 - Dec 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common Title | Bay | East Bay | Common Title | Bay | East Bay |
| Firefighter | 77 | 34 | Fighter | 5 | 4 |
| Battalion Chief | 22 | 1 | Fire Marshal | 5 | 3 |
| Fire Chief | 20 | 6 | Inspector | 5 | 3 |
| Alarm Inspector | 19 | 5 | Specialist | 5 | 0 |
| Fire Sprinkler Foreman | 14 | 4 | Deputy Chief Health Officer, Medical Imaging | 4 | 0 |
| Fire Inspector | 11 | 6 | Deputy Marshal | 4 | 3 |
| Damage Prevention Awareness Spc,Senior | 10 | 3 | Leader | 4 | 0 |
| Sprinkler/Inspector | 8 | 7 | Medic | 4 | 4 |
| Chief | 7 | 0 | Assistant Marshal | 3 | 0 |
| Fire Sprinkler Inspector | 7 | 1 | Be The Boss And Set Own Rate | 3 | 0 |
| Coordinator | 6 | 0 | Captain | 3 | 2 |
| Equipment Operator | 6 | 0 | Deputy Chief | 3 | 1 |
| Technician | 6 | 2 | Field Chief | 3 | 0 |
| Alarm Specialist | 5 | 1 | Fire Inspector I | 3 | 2 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Fire Technology Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2017) | Jobs in Industry (2022) | % Change (2017-22) | % in Industry (2017) |
| Local Government, Excluding Education and Hospitals (903999) | 7,752 | 7,808 | 6% | 92.0% |
| Federal Government, Military (901200) | 117 | 117 |  (2%) | 1.4% |
| All Other Support Services (561990) | 103 | 105 | 2% | 1.2% |
| State Government, Excluding Education and Hospitals (902999) | 99 | 100 | 7% | 1.2% |
| Federal Government, Civilian, Excluding Postal Service (901199) | 89 | 89 | 0% | 1.0% |
| Convention and Trade Show Organizers (561920) | 84 | 83 | 10% | 1.0% |

*Source: EMSI 2018.4*

**Table 6. Top Employers Posting Fire Technology Occupations in Bay and East Bay Sub-Region (Jan 2018 - Dec 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | East Bay |
| US Army | 34 | Amenify | 3 | US Army | 22 |
| State of California | 24 | Arup | 3 | Johnson Controls Inc | 12 |
| Johnson Controls Incorporated | 17 | Bay Alarm Company | 3 | City Fremont | 9 |
| Todd Morris Fire Protection | 12 | City Hayward | 3 | County Contra Costa | 5 |
| Pacific Gas and Electric Company | 10 | City Oakland | 3 | County Alameda | 4 |
| City Fremont | 9 | City Redwood City | 3 | Todd Morris Fire  | 4 |
| Commercial Fire Protection Incorporated | 8 | City Sunnyvale | 3 | Alameda County | 3 |
| Daily Dispatch | 8 | Contra Costa County | 3 | City Oakland | 3 |
| County Contra Costa | 5 | County Of Monterey Auditor Controller | 3 | Contra Costa County | 3 |
| County Sonoma | 5 | Fiore Industries Incorporated | 3 | Pacific Gas and Electric Company | 3 |
| IBM | 5 | Hue & Cry, Inc | 3 | Stanley | 3 |
| National Testing Network | 5 | Presidio Incorporated | 3 | Bay Area Construction | 2 |
| Capstone Fire & Safety Management | 4 | Stanley | 3 | City Berkeley | 2 |
| City Vallejo | 4 | US Navy | 3 | City Hayward | 2 |
| County Alameda | 4 | Bay Alarm | 2 | Jr Wagner Fire Protection, Inc | 2 |
| Department Army | 4 | Bay Area Construction | 2 | Siemens | 2 |
| Restoration Management Company | 4 | Berkeley Turkish School | 2 | Tesla | 2 |
| Alameda County | 3 | California State University | 2 | Ares Corporation | 1 |

*Source: Burning Glass*

# Educational Supply

There are 10 community colleges in the Bay Region issuing 441 awards annually on TOP 2133.00 - Fire Technology. There are three colleges in the East Bay Sub-Region issuing 121 awards annually on this TOP code.

**Table 7. Awards on TOP 2133.00 - Fire Technology in the Bay Region**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| College | Sub-Region | TOP Code | Headcount | Associates | Certificates | Total |
| Cabrillo | Santa Cruz & Monterey | 213300 |  1,402  | 20 | 1 | 21 |
| Chabot  | East Bay | 213300 |  216  | 12 | 2 | 14 |
| Gavilan | Santa Cruz & Monterey | 213300 | 213 |  |  |  |
| Las Positas | East Bay | 213300 |  202  | 10 | 11 | 21 |
| Los Medanos | East Bay | 213300 |  294  | 24 | 63 | 86 |
| Mission | Silicon Valley | 213300 |  420  | 27 |  | 27 |
| Monterey | Santa Cruz & Monterey | 213300 |  607  | 2 | 2 | 5 |
| San Francisco | Mid-Peninsula | 213300 |  348  | 14 | 56 | 70 |
| San Mateo | Mid-Peninsula | 213300 |  258  | 24 | 23 | 47 |
| Santa Rosa | North Bay | 213300 |  578  | 32 | 102 | 134 |
| Solano | North Bay | 213300 |  183  | 10 | 5 | 16 |
| **Total Bay Region** |  |  **5,961**  |  **175**  |  **265**  |  **441**  |
| **Total East Bay Sub-Region** |  |  **863**  |  **46**  |  **76**  |  **121**  |

# *Source: IPEDS, Data Mart and Launchboard*

NOTE: Headcount of students who took one or more courses is for 2016-17. The annual average for awards is 2014-17 unless there are only awards in 2016-17. The annual average for other postsecondary is for 2013-16.

# Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 568 annual openings for the Fire Technology occupational cluster and 441 annual awards for an annual undersupply of 127 students. In the East Bay Sub-Region, there is a small gap with 126 annual openings and 121 annual awards for an annual undersupply of 5 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 2133.00 - Fire Technology**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay (All CTE Programs) | Chabot College (All CTE Programs) | State (2133.00) | Bay (2133.00) | East Bay (2133.00) | Chabot College (2133.00) |
| % Employed Four Quarters After Exit | 74% | 74% | 77% | 85% | 81% | 89% |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $9,425 | $35,136 | $45,400 | $22,667 | $16,515 |
| Median % Change in Earnings | 46% | 71% | 37% | 34% | 55% | 95% |
| % of Students Earning a Living Wage | 63% | 60% | 68% | 78% | 70% | 68% |

*Source: Launchboard Pipeline (version available on 1/16/19)*

# Skills, Certifications and Education

**Table 9. Top Skills for Fire Technology Occupations in Bay Region (Jan 2018 - Dec 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Fire Protection | 165 | Exercise Treadmill | 25 | Project Management | 18 |
| Repair | 103 | Spirometry | 25 | Life Support | 16 |
| Fire Suppression | 81 | Hand Tools | 24 | Customer Contact | 15 |
| Occupational Health and Safety | 48 | Public Health and Safety | 24 | Technical Training | 15 |
| Customer Service | 42 | Treadmill Test | 24 | Cleaning | 14 |
| Self-Contained Breathing Apparatus (SCBA) | 39 | Cardiopulmonary Resuscitation (CPR) | 23 | Wiring | 14 |
| Telecommunications | 32 | Emergency Medical Care | 23 | Chemistry | 13 |
| Budgeting | 30 | Schematic Diagrams | 22 | Inspection of Safety Equipment and/or Alarm Systems | 13 |
| HAZMAT | 28 | Staff Management | 22 | Power Tools | 13 |
| Scheduling | 28 | Training Programs | 21 | Prevention Activities | 13 |
| Emergency Services | 26 | Equipment Moving | 20 | Advanced Cardiac Life Support (ACLS) | 12 |
| Equipment Operation | 26 | Public administration | 20 | Safety Codes | 12 |
| Exercise Treadmill | 25 | Predictive / Preventative Maintenance | 19 | Claims Knowledge | 11 |
| Spirometry | 25 | Technical Inspections | 19 | Inspection Records | 11 |
| Fire Protection | 165 | Building Codes | 18 | Strategic Planning | 11 |

*Source: Burning Glass*

**Table 10. Certifications for Fire Technology Occupations in the Bay Region (Jan 2018 - Dec 2018)**

Note: 40% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

|  |  |  |  |
| --- | --- | --- | --- |
| Certification | Postings | Certification | Postings |
| Driver's License | 156 | CDL Class D | 9 |
| Emergency Medical Technician (EMT) | 61 | American Heart Association Certification | 8 |
| Firefighter | 41 | Certified Financial Planner (CFP) | 8 |
| Firefighter I | 33 | Driver/Operator Pumper | 8 |
| Certified Patient Account Technician | 23 | NICET II | 7 |
| Paramedic Certification | 21 | Fire Officer III | 6 |
| Firefighter II | 17 | HazMat Operations | 6 |
| Fire Officer | 15 | Cdl Class C | 5 |
| National Registry of Emergency Medical Technicians (NREMT) | 15 | HazMat Incident Commander | 5 |
| Fire Inspector I | 14 | Hazardous Materials Technician | 5 |
| Aerial Rescue and Fire Fighting (ARFF) | 13 | Security Clearance | 5 |
| Airport Firefighter | 12 | Wildland Firefighter | 5 |
| Fire Inspector | 12 | Board Certified/Board Eligible | 4 |
| First Aid Cpr Aed | 12 | Care+ Certification | 4 |
| Driver/Operator Mobile Water Supply | 11 | HazMat Technician | 4 |
| Fire Inspector II | 11 | Medical Examiner's License | 4 |
| Contractors License | 10 | Asbestos Worker | 3 |

*Source: Burning Glass*

**Table 11. Education Requirements for Fire Technology Occupations in Bay Region**

Note: 59% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

|  |  |
| --- | --- |
| Education (minimum advertised) | Latest 12 Mos. Postings |
| High school or vocational training | 118 (69%) |
| Associate Degree | 9 (5%) |
| Bachelor’s Degree or Higher | 44 (26%) |

*Source: Burning Glass*

# Methodology

Occupations for this report were identified by use of skills listed in O\*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCO Data Mart.

# Sources

O\*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

CTE LaunchBoard [www.calpassplus.org/Launchboard/](http://www.calpassplus.org/Launchboard/)

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

Living Insight Center for Community Economic Development

Chancellor’s Office MIS system

# Contacts

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