**Welding Occupations**

**Labor Market Information Report**

**College of Marin**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

April 2021

# Recommendation

Based on all available data, there appears to be an undersupply of Welding workers compared to the demand for this cluster of occupations in the Bay Region and in the North Bay Sub-Region (Marin, Napa, Solano and Sonoma). There is a projected annual gap of about 5,447 students in the Bay Region and 774 students in the North Bay Sub-Region.

**Introduction**

This report also provides student outcomes data on employment and earnings for TOP 0956.50-Welding Technology programs 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 College of Marin and in the region.

This report profiles Welding Occupations in the 12 county Bay Region and in the North Bay Sub-Region for a proposed new program at College of Marin.

|  |
| --- |
| * **Maintenance and Repair Workers, General (49-9071):** Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of a building in repair. Duties may involve pipe fitting; HVAC maintenance; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs.
 |
| Entry-Level Educational Requirement: High school diploma or equivalent |
| Training Requirement: Moderate-term on-the-job training |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 38% |
|  |
| * **Welders, Cutters, Solderers, and Brazers (51-4121):** Use hand-welding, flame-cutting, hand-soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products.
 |
| Entry-Level Educational Requirement: High school diploma or equivalent |
| Training Requirement: Moderate-term on-the-job training |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 33% |
|  |
| * **Plumbers, Pipefitters, and Steamfitters (47-2152):** Assemble, install, alter, and repair pipelines or pipe systems that carry water, steam, air, or other liquids or gases. May install heating and cooling equipment and mechanical control systems. Includes sprinkler fitters.
 |
| Entry-Level Educational Requirement: High school diploma or equivalent |
| Training Requirement: Apprenticeship |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 33% |
|  |
| * **Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders (51-4122):** Set up, operate, or tend welding, soldering, or brazing machines or robots that weld, braze, solder, or heat treat metal products, components, or assemblies. Includes workers who operate laser cutters or laser-beam machines.
 |
| Entry-Level Educational Requirement: High school diploma or equivalent |
| Training Requirement: Moderate-term on-the-job training |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 33% |
|  |

**Occupational Demand**

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Occupation** | **2019 Jobs** | **2024 Jobs** | **5-Yr Change** | **5-Yr %Change** | **5-Yr Open-ings** | **Average Annual Openings** | **25% Hourly Wage** | **Median Hourly Wage** |
| Plumbers, Pipefitters, and Steamfitters | 13,733 | 14,079 | 346 | 3% | 8,626 | 1,438 | $24.29 | $34.03 |
| Maintenance and Repair Workers, General | 36,733 | 37,403 | 670 | 2% | 20,636 | 3,439 | $18.17 | $23.79 |
| Welders, Cutters, Solderers, and Brazers | 5,621 | 5,861 | 240 | 4% | 3,544 | 591 | $19.85 | $25.59 |
| Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders | 465 | 489 | 23 | 5% | 298 | 50 | $16.24 | $20.53 |
| **TOTAL** | **56,554** | **57,832** | **1,279** | **2%** | **33,103** | **5,517** | **$19.81** | **$26.43** |

*Source: EMSI 2020.4*

**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 Welding Technology Occupations in North Bay Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Occupation** | **2019 Jobs** | **2024 Jobs** | **5-Yr Change** | **5-Yr %Change** | **5-Yr Open-ings** | **Average Annual Openings** | **25% Hourly Wage** | **Median Hourly Wage** |
| Plumbers, Pipefitters, and Steamfitters | 1,873 | 1,900 | 27 | 1% | 1,161 | 194 | $22.77 | $32.25 |
| Maintenance and Repair Workers, General | 5,254 | 5,279 | 25 | 0% | 2,887 | 481 | $16.57 | $21.96 |
| Welders, Cutters, Solderers, and Brazers | 1,016 | 1,084 | 68 | 7% | 679 | 113 | $18.23 | $24.05 |
| Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders | 47 | 46 | -1 | -2% | 28 | 5 | $15.88 | $20.56 |
| **TOTAL** | **8,189** | **8,308** | **118** | **1%** | **4,755** | **792** | **$18.19** | **$24.57** |

*Source: EMSI 2020.4*

**North Bay Sub-Region includes:** Marin, Napa, Solano and Sonoma Counties

### Job Postings in the Bay Region and North Bay Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (April 2020 – March 2021)**

|  |  |  |
| --- | --- | --- |
| **Occupation** | **Bay Region** | **North Bay Sub-Region** |
| Maintenance and Repair Workers, General | 13,002 | 2,024 |
| Plumbers | 1,012 | 122 |
| Welders, Cutters, and Welder Fitters | 506 | 56 |
| Pipe Fitters and Steamfitters | 188 | 23 |
| Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders | 48 | 4 |
| Solderers and Brazers | 16 | 0 |
| **TOTAL** | **14,772** | **2,229** |

*Source: Burning Glass*

**Table 4a. Top Job Titles for Welding Occupations for latest 12 months (April 2020 – March 2021) Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| **Common Title** | **Bay** | **Common Title** | **Bay** |
| Maintenance Technician | 1,904 | Welder | 108 |
| Service Technician | 628 | Service Technician Sign-On | 99 |
| Field Service Technician | 590 | Building Engineer | 84 |
| Installation Technician | 243 | Facilities Maintenance Technician | 82 |
| Facilities Technician | 232 | Equipment Technician | 65 |
| Technician | 208 | Maintenance Technician I | 63 |
| Field Service Representative | 188 | Mobile Device Repair Technician | 60 |
| Field Service Engineer | 174 | Senior Maintenance Technician | 59 |
| Maintenance | 166 | Repair and Tool Technician | 53 |
| Plumbing Service Technician | 143 | Porter | 51 |
| Maintenance Worker | 138 | Service Plumber | 49 |
| Maintenance Technician II | 134 | Pool Service Technician | 48 |
| Plumber | 130 | Plumbing Technician | 48 |
| Apartment Maintenance Technician | 122 | Facility Maintenance Technician | 46 |

*Source: Burning Glass*

**Table 4b. Top Job Titles for Welding Occupations for latest 12 months (April 2020 – March 2021) North Bay Sub-Region**

|  |  |  |  |
| --- | --- | --- | --- |
| **Common Title** | **North Bay** | **Common Title** | **North Bay** |
| Maintenance Technician | 323 | Mobile Device Repair Technician | 15 |
| Field Service Technician | 90 | Welder | 14 |
| Service Technician | 87 | Maintenance Technician I | 14 |
| Field Service Representative | 49 | Facilities Assistant | 14 |
| Maintenance Technician II | 36 | Maintenance II | 12 |
| Maintenance Worker | 35 | Maintenance I | 12 |
| Maintenance | 34 | Fire Sprinkler Fitter | 12 |
| Installation Technician | 30 | Service Technician Ice Machines | 11 |
| Service Technician Sign-On | 28 | Plumbing Technician | 10 |
| Apartment Maintenance Technician | 27 | Trenchless and Repair Technician | 9 |
| Facilities Technician | 24 | Plumbing Service Technician | 9 |
| Technician | 22 | Maintenance Person | 9 |
| Plumber | 22 | Facility Maintenance Technician | 9 |
| Senior Maintenance Technician | 21 | Facilities Maintenance Technician | 9 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Welding Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Industry – 6 Digit NAICS (No. American Industry Classification) Codes** | **Jobs in Industry (2019)** | **Jobs in Industry (2024)** | **% Change (2019 - 2024)** | **% of Occupation Group in Industry (2020)** |
| Plumbing, Heating, and Air-Conditioning Contractors | 9,682 | 9,983 | 3% | 17% |
| Local Government, Excluding Education and Hospitals | 3,653 | 3,794 | 4% | 7% |
| Residential Property Managers | 2,654 | 2,742 | 3% | 5% |
| Hotels (except Casino Hotels) and Motels | 2,821 | 2,397 | -15% | 4% |
| Offices of Real Estate Agents and Brokers | 2,202 | 2,429 | 10% | 4% |
| Lessors of Residential Buildings and Dwellings | 1,462 | 1,404 | -4% | 3% |
| Religious Organizations | 947 | 965 | 2% | 2% |
| Colleges, Universities & Professional Schools (State Govt.) | 912 | 954 | 5% | 2% |
| Nonresidential Property Managers | 862 | 874 | 1% | 2% |
| Lessors of Nonresidential Buildings (except Mini-warehouses) | 817 | 868 | 6% | 1% |
| Elementary and Secondary Schools (Local Government) | 790 | 775 | -2% | 1% |
| Commercial & Industrial Machinery & Equipment (except Automotive & Electronic) Repair & Maintenance | 660 | 692 | 5% | 1% |
| Residential Remodelers | 632 | 721 | 14% | 1% |
| Temporary Help Services | 662 | 643 | -3% | 1% |
| Semiconductor Machinery Manufacturing | 595 | 661 | 11% | 1% |

*Source: EMSI 2020.4*

**Table 6. Top Employers Posting Welding Occupations in Bay Region and North Bay Sub-Region (April 2020 – March 2021)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Employer** | **Bay** | **Employer** | **Bay** | **Employer** | **North Bay** |
| FPI Management Inc. | 253 | Roto Rooter Plumbing  | 62 | FPI Management Inc. | 74 |
| Greystar | 174 | The Home Depot Inc. | 59 | Marriott International Inc. | 35 |
| Thermo Fisher Scientific Inc | 141 | John Stewart Company | 59 | Rollins Incorporated | 30 |
| Jones Lang Lasalle Inc. | 118 | United Site Services | 58 | Scanscape | 24 |
| Rollins Incorporated | 114 | Leslie's Poolmart | 58 | McDonald's | 24 |
| Essex Property Trust | 114 | Equity Residential | 58 | Kens Beverage Inc. | 20 |
| Marriott International Inc. | 99 | Life Chiropractic College West | 56 | Jones Lang Lasalle Inc. | 19 |
| Roto Rooter | 93 | Woodmont Real Estate Services | 49 | WinnCompanies | 17 |
| Tesla | 92 | WinnCompanies | 49 | Leslie's Poolmart | 17 |
| McDonald's | 92 | Leslie’s | 48 | Orkin Incorporated | 15 |
| Orkin Incorporated | 89 | Apollo Retail Specialists | 43 | Fixt | 15 |
| Avalon Bay Communities | 84 | Sanmina Corporation | 41 | Eden Housing Inc. | 15 |
| Scanscape | 73 | Eah | 40 | MG Properties | 14 |
| CBRE | 71 | Adt | 38 | Leslie’s | 14 |
| Eden Housing Incorporated | 69 | Ubreakifix | 36 | Marin Roto Rooter | 13 |
| Fixt | 68 | Prometheus Real Estate Group | 36 | CBRE | 11 |

*Source: Burning Glass*

# Educational Supply

There are nine (9) community colleges in the Bay Region that issued 70 awards on average annually (last 3 years ending 2018-19) on TOP 0956.50-Welding Technology. In the North Bay Sub-Region there are three (3) community colleges that issued 18 awards on average annually (last 3 years) on this TOP code.

**Table 7. Awards on TOP 0956.50-Welding Technology in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **College** | **Sub-region** | **Associate** | **Certificate Low Unit** | **Total** |
| Cabrillo | Santa-Cruz Monterey | 0 | 2 | 2 |
| Chabot  | East Bay | 2 | 1 | 3 |
| Hartnell | Santa-Cruz Monterey | 3 | 3 | 6 |
| Laney | East Bay | 4 | 8 | 12 |
| Las Positas | East Bay | 4 | 3 | 7 |
| Los Medanos | East Bay | 5 | 16 | 21 |
| Napa | North Bay | 3 | 0 | 3 |
| Santa Rosa | North Bay | 0 | 9 | 9 |
| Solano | North Bay | 2 | 4 | 6 |
| **Total Bay Region** | **22** | **48** | **70** |
| **Total North Bay Sub-Region** | **5** | **13** | **18** |

# *Source: Data Mart*

*Note: The annual average for awards is 2016-17 to 2018-19.*

# Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay Region with 5,517 annual openings for the Welding occupational cluster and 70 annual (3-year average) awards for an annual undersupply of 5,447 students. In the North Bay Sub-Region, there is also a gap with 792 annual openings and 18 annual (3-year average) awards for an annual undersupply of 774 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0956.50-Welding Technology**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **2017-18** | **Bay Area All CTE Programs** | **Marin** **All CTE Programs** | **State 0956.50** | **Bay 0956.50** | **North Bay 0956.50** |
| % Employed Four Quarters After Exit | 66% | 59% | 66% | 68% | 66% |
| Median Quarterly Earnings Two Quarters After Exit | $11,466 | $10,082 | $8,698 | $10,685 | $11,569 |
| Median % Change in Earnings | 31% | 27% | 44% | 35% | 33% |
| % Students Earning a Living Wage | 53% | 28% | 61% | 54% | 66% |

*Source: Launchboard Community College Pipeline*

# Skills, Certifications and Education

**Table 9. Top Skills for Welding Occupations in Bay Region (April 2020 – March 2021)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Skill** | **Postings** | **Skill** | **Postings** | **Skill** | **Postings** |
| Repair | 9,417 | Property Management | 1,050 | Inventory Maintenance | 467 |
| Plumbing | 6,297 | Machinery | 1,014 | Masonry | 453 |
| HVAC | 3,501 | Apartment Maintenance | 1,008 | Budgeting | 450 |
| Painting | 3,226 | Personal Protective Equipment (PPE) | 986 | Building Codes | 439 |
| Carpentry | 2,790 | Sales | 978 | Boilers | 411 |
| Customer Service | 2,653 | Customer Contact | 916 | Plumbing Systems | 387 |
| Cleaning | 2,473 | Drywall | 876 | Data Entry | 377 |
| Predictive / Preventative Maintenance | 2,251 | Schematic Diagrams | 739 | Soldering | 371 |
| Scheduling | 1,648 | Appliance Repair | 704 | Drywall Repair | 362 |
| Power Tools | 1,485 | Electrical Systems | 659 | Project Management | 362 |
| Hand Tools | 1,480 | Forklift Operation | 573 | Renovation | 354 |
| Lifting Ability | 1,470 | Technical Support | 553 | Equipment Repair | 352 |
| Occupational Health & Safety | 1,368 | Plumbing Repairs | 530 | Hydraulics | 341 |
| Welding | 1,176 | Wiring | 516 | Staff Management | 337 |
| Facility Maintenance | 1,135 | Test Equipment | 479 | Electrical Work | 336 |

*Source: Burning Glass*

**Table 10. Certifications for Welding Occupations in the Bay Region (April 2020 – March 2021)**

Note: 54% 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 | 5,779 | Epa 608 | 79 |
| Certified Pest Control | 182 | Cdl Class C | 62 |
| Environmental Protection Agency Certification | 163 | Certified Pool/Spa Operator | 59 |
| EPA CFC/HCFC Certification | 149 | Backflow Prevention Certification | 57 |
| Plumbing Certification | 138 | Automotive Service Excellence (ASE) Certification | 48 |
| Plumbing License | 130 | CDL Class A | 47 |
| OSHA Forklift Certification | 116 | Electrician Certification | 41 |
| Welding Certification | 92 | CDL Class B | 40 |
| Applicators License | 87 | First Aid CPR AED | 38 |
| Security Clearance | 80 | Certified Welding Inspector (CWI) | 37 |

*Source: Burning Glass*

**Table 11. Education Requirements for Welding Occupations in Bay Region (April 2020 – March 2021)**

|  |  |  |
| --- | --- | --- |
| **Education level** | **Latest 12 mos. Postings** | **% 12 mos. Postings** |
| High school or vocational training | 6,242 | 94% |
| Associate degree and above | 431 | 6% |

*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

For more information, please contact:

* Leila Jamoosian, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), leila@baccc.net
* John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, jcarrese@ccsf.edu or (415) 267-6544