

**Labor Market Analysis for Program Recommendation**

 **Welding Occupations**

**Las Positas College**

## Prepared by the San Francisco Bay Center of Excellence for Labor Market Research

## November 2023

## 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 East Bay sub-region (Alameda, Contra Costa counties). There is a projected annual gap of about 914 students in the Bay region and 381 students in the East Bay Sub-Region.

## Introduction

This report 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 Las Positas College and in the region.

This report profiles Welding Occupations in the 12 county Bay region and in the East Bay sub-region for a proposed new Production Welder program at Las Positas College.

* **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: 32%
* **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: 32%

## Occupational Demand

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

| **Occupation** | **2021 Jobs** | **2026 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Welders, Cutters, Solderers, and Brazers | 5,684 | 6,624 | 940 | 17% | 4,318 | 864 | $22 | $26 |
| Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders | 877 | 989 | 112 | 13% | 631 | 126 | $18 | $24 |
| **Total** | **6,561** | **7,614** | **1,053** | **16%** | **4,949** | **990** |  |  |
| Source: Lightcast 2022.3 |
| **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 Occupations in East Bay Sub-region**

| **Occupation** | **2021 Jobs** | **2026 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Welders, Cutters, Solderers, and Brazers | 2,170 | 2,635 | 465 | 21% | 1,788 | 358 | $21 | $27 |
| Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders | 322 | 412 | 90 | 28% | 289 | 58 | $17 | $22 |
| **Total** | **2,492** | **3,048** | **556** | **22%** | **2,077** | **416** |  |  |
| Source: Lightcast 2022.3 |
| **East Bay Sub-Region includes:** Alameda, 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 (Nov. 2022 - Oct. 2023)**

| **Occupation** | **Bay Region** | **East Bay** |
| --- | --- | --- |
| Welders, Cutters, Solderers, and Brazers | 389 | 154 |
| Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders | 67 | 18 |
| Source: Lightcast |

**Table 4a. Top Job Titles for Welding Occupations for latest 12 months (Nov. 2022 - Oct. 2023) - Bay Region**

| **Title** | **Bay** | **Title** | **Bay** |
| --- | --- | --- | --- |
| Welders | 134 | TIG Welders | 9 |
| Soldering Technicians | 38 | Certified Welding Inspectors | 8 |
| Welders/Fabricators | 20 | Finishing Technicians | 7 |
| Robot Operators | 18 | Welding Inspectors | 7 |
| Journeyman Welders | 13 | AWS Certified Welding Inspectors | 6 |
| SMT Operators | 12 | MIG/TIG Welders | 6 |
| Rework Technicians | 11 | Robotic Welders | 6 |
| Mill Operators | 10 | MIG Welders | 5 |
| Robotics Techs | 10 | Spot Welders | 5 |
| Source: Lightcast |

**Table 4b. Top Job Titles for Welding Occupations for latest 12 months (Nov. 2022 - Oct. 2023) - East Bay Sub-Region**

| **Title** | **East Bay** | **Title** | **East Bay** |
| --- | --- | --- | --- |
| Welders | 56 | Robotic Welders | 4 |
| Journeyman Welders | 8 | Combo Drivers | 3 |
| Welders/Fabricators | 8 | Fabrication Welders | 3 |
| Certified Welding Inspectors | 7 | MIG/TIG Welders | 3 |
| Robot Operators | 7 | Orbital Analysts | 3 |
| TIG Welders | 6 | Robotics Techs | 3 |
| Soldering Technicians | 5 | SMT Operators | 3 |
| AWS Certified Welding Inspectors | 4 | Solderers | 3 |
| MIG Welders | 4 | Structural Welders | 3 |
| Source: Lightcast |

## Industry Concentration

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

| **Industry - 6 Digit NAICS (No. American Industry Classification) Codes** | **Jobs in Industry (2021)** | **Jobs in Industry (2026)** | **% Change (2021-26)** | **% Occupation Group in Industry (2022)** |
| --- | --- | --- | --- | --- |
| Semiconductor Machinery Manufacturing | 683 | 727 | 7% | 9% |
| Sheet Metal Work Manufacturing | 479 | 536 | 12% | 7% |
| Automobile and Light Duty Motor Vehicle Manufacturing | 546 | 574 | 5% | 6% |
| Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance | 453 | 428 | -5% | 6% |
| Machine Shops | 302 | 360 | 19% | 4% |
| Semiconductor and Related Device Manufacturing | 294 | 301 | 2% | 4% |
| Railroad Rolling Stock Manufacturing | NA | 314 | NA% | 3% |
| Temporary Help Services | 216 | 221 | 3% | 3% |
| Electronic Computer Manufacturing | 114 | 186 | 64% | 2% |
| Plumbing, Heating, and Air-Conditioning Contractors | 132 | 133 | 1% | 2% |
| Source: Lightcast 2022.3 |

**Table 6. Top Employers Posting Welding Occupations in Bay Region and East Bay Sub-Region (Nov. 2022 - Oct. 2023)**

| **Employer** | **Bay** | **Employer** | **East Bay** |
| --- | --- | --- | --- |
| Aerotek | 31 | Randstad | 11 |
| Randstad | 29 | Center Mfg. | 9 |
| Sanmina | 19 | Adecco | 6 |
| Tradesmen International | 12 | Aerotek | 6 |
| Center Mfg | 9 | Southwire | 6 |
| Comtech Ef Data | 8 | Bloom Energy | 4 |
| Source: Lightcast |

## Educational Supply

There are 10 community colleges in the Bay Region issuing 61 awards on average annually (last 3 years ending 2021-22) on TOP 0956.50 - Welding Technology. In the East Bay Sub-Region, there are four (4) community colleges that issued 35 awards on average annually (last 3 years) on this TOP code.

There is one (1) other CTE educational institution in the Bay Region issuing 15 awards on average annually (last 3 years ending 2021-22) on CIP 48.0508 - Welding Technology/Welder. There are no other CTE educational institution in the East Bay Sub-Region issuing awards on average annually (last 3 years) on this CIP code.

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

| **College** | **Subregion** | **Associate Degree** | **High unit Certificate** | **Low unit Certificate** | **Total** |
| --- | --- | --- | --- | --- | --- |
| Cabrillo | SC-Monterey | 0 | 0 | 8 | 8 |
| Chabot  | East Bay | 3 | 0 | 4 | 7 |
| Hartnell | SC-Monterey | 4 | 2 | 1 | 7 |
| Laney | East Bay | 6 | 0 | 4 | 10 |
| Las Positas | East Bay | 1 | 0 | 2 | 3 |
| Los Medanos | East Bay | 7 | 3 | 5 | 15 |
| Napa | North Bay | 2 | 1 | 1 | 4 |
| San Francisco | Mid-Peninsula | 0 | 0 | 1 | 1 |
| Santa Rosa | North Bay | 0 | 0 | 2 | 2 |
| Solano | North Bay | 1 | 1 | 2 | 4 |
| **Total** |  | **24** | **7** | **30** | **61** |
| Source: Data Mart |
| Note: The annual average for awards is 2019-20 to 2021-22. |

**Table 7b. Other CTE Institutions Awards on CIP 48.0508 Welding Technology/Welder in Bay Region**

| **College** | **Subregion** | **Certificates of at least 1 but < 2 years** | **Total** |
| --- | --- | --- | --- |
| CET-Watsonville | SC-Monterey | 15 | 15 |
| **Total** |  | **15** | **15** |
| Source: Data Mart |
| Note: The annual average for awards is 2019-20 to 2021-22. |

## Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 990 annual openings for the Welding occupational cluster and 76 annual (3-year average) awards for an annual undersupply of 914 students. In the East Bay Sub-Region, there is also a gap with 416 annual openings and 35 annual (3-year average) awards for an annual undersupply of 381 students.

## Student Outcomes

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

| **Metric Outcomes** | **Bay All CTE Programs** | **Las Positas All CTE Programs** | **State 0956.50** | **Bay 0956.50** | **East Bay 0956.50** | **Las Positas 0956.50** |
| --- | --- | --- | --- | --- | --- | --- |
| Students with a Job Closely Related to Their Field of Study | 74% | 69% | 70% | 70% | 74% | 64% |
| Median Annual Earnings for SWP Exiting Students | $53,090 | $49,986 | $39,556 | $46,652 | $49,362 | $50,860 |
| Median Change in Earnings for SWP Exiting Students | 24% | 27% | 40% | 32% | 30% | 50% |
| Exiting Students Who Attained the Living Wage | 54% | 56% | 59% | 56% | 58% | 61% |
| Source: Launchboard Strong Workforce Program Median of 2018 to 2021. |

## Skills, Certifications and Education

**Table 9. Top Skills for Welding Occupations in Bay Region (Nov. 2022 - Oct. 2023)**

| **Skill** | **Posting** | **Skill** | **Posting** |
| --- | --- | --- | --- |
| Welding | 156 | Sheet Metal | 36 |
| Metal Inert Gas (MIG) Welding | 115 | Welding Symbols | 36 |
| Gas Tungsten Arc Welding | 94 | Grinding Machine | 34 |
| Fabrication | 81 | Machining | 32 |
| Soldering | 76 | Bandsaws | 31 |
| Hand Tools | 71 | Brazing (Metal Work) | 31 |
| Welding Equipment | 52 | Overhead Crane Operation | 31 |
| Printed Circuit Board | 45 | Tooling | 31 |
| Aluminum | 43 | Grinding | 30 |
| Blueprinting | 36 | Microscopy | 29 |
| Source: Lightcast |

**Table 10. Certifications for Welding Occupations in Bay Region (Nov. 2022 - Oct. 2023)**

| **Certification** | **Posting** | **Certification** | **Posting** |
| --- | --- | --- | --- |
| Valid Driver's License | 39 | American Concrete Institute (ACI) Certification | 4 |
| Certified Welding Inspector | 22 | ACI Concrete Strength Testing Technician | 4 |
| ACI Concrete Field Testing Technician | 8 | Structural Welding Special Inspector | 4 |
| Certified Welder | 8 | CDL Class A License | 3 |
| American Welding Society Certification | 7 | Security Clearance | 3 |
| Transportation Worker Identification Credential (TWIC) Card | 6 | 30-Hour OSHA General Industry Card | 2 |
| ASNT Non-Destructive Tester | 5 | 10-Hour OSHA General Industry Card | 2 |
| 6G Welding Certification | 4 | Forklift Certification | 2 |
| NICET Level II Certification | 4 | CDL Class C License | 2 |
| NICET Construction Material Testing Certification | 4 |  |  |
| Source: Lightcast |

**Table 11. Education Requirements for Welding Occupations in Bay Region**

| **Education Level** | **Job Postings** | **% of Total** |
| --- | --- | --- |
| High school or GED | 164 | 76% |
| Associate degree | 25 | 12% |
| Bachelor's degree & higher | 26 | 12% |
| Source: Lightcast |
| Note: 58% of records have been excluded because they do not include a degree level. As a result, the chart above may not be representative of the full sample. |

## Methodology

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

## Sources

O\*Net Online
Lightcast
CTE LaunchBoard 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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