

**Labor Market Analysis for Program Recommendation**

**Ironworker Occupations**

**San Jose City College**

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

### February 2023

## Recommendation

Based on all available data, there appears to be an “undersupply” of Ironworkers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara county). There is a projected annual gap of about 892 students in the Bay region and 171 students in the Silicon Valley Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 0952.00 - Construction Crafts 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 San Jose City College and in the region.

This report profiles Ironworker Occupations in the 12 county Bay region and in the Silicon Valley sub-region for a proposed new Ironworkers Apprenticeship program at San Jose City College.

* **Reinforcing Iron and Rebar Workers (47-2171):** Position and secure steel bars or mesh in concrete forms in order to reinforce concrete. Use a variety of fasteners, rod-bending machines, blowtorches, and hand tools. Includes rod busters.
  Entry-Level Educational Requirement: High school diploma or equivalent
  Training Requirement: Apprenticeship
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 20%
* **Structural Iron and Steel Workers (47-2221):** Raise, place, and unite iron or steel girders, columns, and other structural members to form completed structures or structural frameworks. May erect metal storage tanks and assemble prefabricated metal buildings. Excludes “Reinforcing Iron and Rebar Workers” (47-2171).
  Entry-Level Educational Requirement: High school diploma or equivalent
  Training Requirement: Apprenticeship
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 31%
* **Riggers (49-9096):** Set up or repair rigging for construction projects, manufacturing plants, logging yards, ships and shipyards, or for the entertainment industry.
  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: 43%
* **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%

## Occupational Demand

**Table 1. Employment Outlook for Ironworker 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** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Reinforcing Iron and Rebar Workers | 696 | 699 | 3 | 0% | 346 | 69 | $17 | $26 |
| Structural Iron and Steel Workers | 1,641 | 1,641 | 0 | -0% | 870 | 174 | $26 | $40 |
| Riggers | 265 | 274 | 9 | 3% | 146 | 29 | $24 | $33 |
| Welders, Cutters, Solderers, and Brazers | 5,660 | 6,216 | 556 | 10% | 3,670 | 734 | $22 | $26 |
| **Total** | **8,262** | **8,830** | **568** | **7%** | **5,032** | **1,006** |  |  |
| 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 Ironworker Occupations in Silicon Valley 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** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Reinforcing Iron and Rebar Workers | 65 | 69 | 4 | 6% | 35 | 7 | $13 | $22 |
| Structural Iron and Steel Workers | 240 | 249 | 9 | 4% | 134 | 27 | $27 | $44 |
| Riggers | 30 | 31 | 1 | 3% | 16 | 3 | $25 | $32 |
| Welders, Cutters, Solderers, and Brazers | 1,537 | 1,672 | 135 | 9% | 976 | 195 | $22 | $27 |
| **Total** | **1,872** | **2,021** | **149** | **8%** | **1,162** | **232** |  |  |
| Source: Lightcast 2022.3 |
| **Silicon Valley Sub-Region includes:** Santa Clara County |

### Job Postings in Bay Region and Silicon Valley Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (Jan. 2022 - Dec. 2022)**

| **Occupation** | **Bay Region** | **Silicon Valley** |
| --- | --- | --- |
| Welders, Cutters, Solderers, and Brazers | 707 | 173 |
| Structural Iron and Steel Workers | 85 | 21 |
| Riggers | 32 | 10 |
| Reinforcing Iron and Rebar Workers | 3 | 0 |
| Source: Lightcast |

**Table 4a. Top Job Titles for Ironworker Occupations for latest 12 months (Jan. 2022 - Dec. 2022) - Bay Region**

| **Title** | **Bay** | **Title** | **Bay** |
| --- | --- | --- | --- |
| Welders | 203 | Ride Mechanics | 15 |
| Welders/Fabricators | 92 | Certified Welding Inspectors | 13 |
| TIG Welders | 38 | Ironworkers | 13 |
| Soldering Technicians | 35 | Certified Welders | 11 |
| Tower Hands | 23 | Shift Leaders | 11 |
| Fitters/Welders | 20 | Mechanics/Welders | 10 |
| MIG/TIG Welders | 17 | Shop Welders | 9 |
| Riggers | 17 | AWS Certified Welding Inspectors | 8 |
| Structural Welders | 16 | Field Workers | 8 |
| Source: Lightcast |

**Table 4b. Top Job Titles for Ironworker Occupations for latest 12 months (Jan. 2022 - Dec. 2022) Silicon Valley Sub-Region**

| **Title** | **Silicon Valley** | **Title** | **Silicon Valley** |
| --- | --- | --- | --- |
| Welders | 38 | Certified Welders | 4 |
| Soldering Technicians | 23 | Industrial Workers | 4 |
| Welders/Fabricators | 17 | Rework Technicians | 4 |
| Ride Mechanics | 13 | Steel Fabricators | 4 |
| TIG Welders | 10 | Structural Welders | 4 |
| Riggers | 8 | Tower Hands | 4 |
| Certified Welding Inspectors | 5 | Cable Technicians | 3 |
| Sheet Metal Workers | 5 | MIG/TIG Welders | 3 |
| Shift Leaders | 5 | Solder Assemblers | 3 |
| Source: Lightcast |

## Industry Concentration

**Table 5. Industries hiring Ironworkers 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 | 601 | 680 | 13% | 7% |
| Sheet Metal Work Manufacturing | 484 | 586 | 21% | 6% |
| Structural Steel and Precast Concrete Contractors | 496 | 499 | 1% | 5% |
| Commercial and Institutional Building Construction | 438 | 475 | 9% | 5% |
| Automobile Manufacturing | 343 | 458 | 34% | 4% |
| Glass and Glazing Contractors | 339 | 364 | 7% | 4% |
| Framing Contractors | 300 | 270 | -10% | 3% |
| Machine Shops | 278 | 320 | 15% | 3% |
| Temporary Help Services | 222 | 248 | 11% | 3% |
| Plumbing, Heating, and Air-Conditioning Contractors | 216 | 223 | 3% | 3% |
| Source: Lightcast 2022.3 |

**Table 6. Top Employers Posting Ironworker Occupations in Bay Region and Silicon Valley Sub-Region (Jan. 2022 - Dec. 2022)**

| **Employer** | **Bay** | **Employer** | **Silicon Valley** |
| --- | --- | --- | --- |
| Aerotek | 33 | Randstad | 13 |
| Randstad | 22 | Anytime Welding | 9 |
| Pearce Services | 20 | California's Great America | 6 |
| Tradesmen International | 16 | Aerotek | 5 |
| Kleinfelder | 12 | Kleinfelder | 5 |
| LB Construction | 12 | Northrop Grumman | 5 |
| Life Chiropractic College West | 11 | Quality Circuit Assembly | 5 |
| GPAC | 10 | Employnet | 4 |
| Anytime Welding | 9 | Nesco Resource | 4 |
| Acara Solutions | 8 | Pmg Incorporated | 4 |
| Source: Lightcast |

## Educational Supply

There are four (4) community colleges in the Bay Region issuing 69 awards on average annually (last 3 years ending 2019-20) on TOP 0952.00 - Construction Crafts Technology. In the Silicon Valley Sub-Region, there is one (1) community college that issued 49 awards on average annually (last 3 years) on this TOP code.

There are a three (3) other CTE educational institutions in the Bay Region issuing 45 awards on average annually (last 3 years ending 2019-20) on CIP 46.0415 - Building Construction Technology/Technician. There is one (1) other CTE educational institution in the Silicon Valley Sub-Region issuing 12 awards on average annually (last 3 years) on this CIP code.

**Table 7a. Community College Awards on TOP 0952.00 - Construction Crafts Technology in Bay Region**

| **College** | **Subregion** | **Associate Degree** | **High unit Certificate** | **Low unit Certificate** | **Noncredit award** | **Total** |
| --- | --- | --- | --- | --- | --- | --- |
| Diablo Valley | East Bay | 0 | 0 | 12 | 0 | 12 |
| San Francisco | Mid-Peninsula | 0 | 0 | 4 | 0 | 4 |
| San Jose City | Silicon Valley | 8 | 11 | 30 | 0 | 49 |
| Santa Rosa | North Bay | 0 | 0 | 0 | 4 | 4 |
| **Total** |  | **8** | **11** | **46** | **4** | **69** |
| Source: Data Mart |
| Note: The annual average for awards is 2017-18 to 2019-20. |

**Table 7b. Other CTE Institutions Awards on CIP 46.0415 - Building Construction Technology/Technician in Bay Region**

| **College** | **Subregion** | **Postsecondary awards** | **Total** |
| --- | --- | --- | --- |
| CET-San Jose | Silicon Valley | 12 | 12 |
| CET-Soledad | SC-Monterey | 16 | 16 |
| CET-Watsonville | SC-Monterey | 17 | 17 |
| **Total** |  | **45** | **45** |
| Source: Data Mart |
| Note: The annual average for awards is 2017-18 to 2019-20. |

## Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 1,006 annual openings for the Ironworker occupational cluster and 114 annual (3-year average) awards for an annual undersupply of 892 students. In the Silicon Valley Sub-Region, there is also a gap with 232 annual openings and 61 annual (3-year average) awards for an annual undersupply of 171 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0952.00 - Construction Crafts Technology**

| **Metric Outcomes** | **Bay All CTE Programs** | **San Jose City All CTE Programs** | **State 0952.00** | **Bay 0952.00** | **Silicon Valley 0952.00** | **San Jose City 0952.00** |
| --- | --- | --- | --- | --- | --- | --- |
| Students with a Job Closely Related to Their Field of Study | 74% | 71% | 76% | 75% | 83% | 83% |
| Median Annual Earnings for SWP Exiting Students | $48,926 | $46,056 | $40,410 | $47,843 | $56,221 | $51,529 |
| Median Change in Earnings for SWP Exiting Students | 23% | 28% | 27% | 18% | 22% | 23% |
| Exiting Students Who Attained the Living Wage | 50% | 38% | 54% | 41% | 49% | 45% |
| Source: Launchboard Strong Workforce Program Median of 2018 to 2021. |

## Skills, Certifications and Education

**Table 9. Top Skills for Ironworker Occupations in Bay Region (Jan. 2022 - Dec. 2022)**

| **Skill** | **Posting** | **Skill** | **Posting** |
| --- | --- | --- | --- |
| Welding | 287 | Structural Steel | 69 |
| Gas Tungsten Arc Welding | 224 | Power Tool Operation | 68 |
| Metal Inert Gas (MIG) Welding | 220 | Soldering | 62 |
| Fabrication | 161 | Flux-Cored Arc Welding | 59 |
| Hand Tools | 108 | Machinery | 51 |
| Aluminum | 103 | Tooling | 51 |
| Sheet Metal | 97 | Calipers | 50 |
| Welding Equipment | 90 | Grinding Machine | 50 |
| Blueprinting | 82 | Forklift Truck | 49 |
| Welding Symbols | 80 | Gas Metal Arc Welding | 43 |
| Source: Lightcast |

**Table 10. Certifications for Ironworker Occupations in Bay Region (Jan. 2022 - Dec. 2022)**

| **Certification** | **Posting** | **Certification** | **Posting** |
| --- | --- | --- | --- |
| Certified Welding Inspector | 33 | 3G Welding Certification | 5 |
| Forklift Certification | 21 | 10-Hour OSHA Industry Card | 4 |
| Certified Welder | 16 | National Apprenticeship Certificate | 4 |
| Aerial Lift Certification | 13 | Security Clearance | 4 |
| American Welding Society Certification | 12 | CSCS Card | 3 |
| ACI Concrete Field Testing Technician | 8 | 4G Welding Certification | 2 |
| ASNT Non-Destructive Tester | 8 | Board Certified/Board Eligible | 2 |
| Structural Welding Special Inspector | 8 | Certified Crane Operator | 2 |
| Transportation Worker Identification Credential (TWIC) Card | 8 | Qualified Rigger | 2 |
| Commercial Driver's License (CDL) | 7 | 6G Welding Certification | 1 |
| Source: Lightcast |

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

| **Education Level** | **Job Postings** | **% of Total** |
| --- | --- | --- |
| High school or GED | 267 | 84% |
| Associate degree | 35 | 11% |
| Bachelor's degree & higher | 17 | 5% |
| Source: Lightcast |
| Note: 66% 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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