



# 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

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#### 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
<b>Total</b>	<b>8,262</b>	<b>8,830</b>	<b>568</b>	<b>7%</b>	<b>5,032</b>	<b>1,006</b>		

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
<b>Total</b>	<b>1,872</b>	<b>2,021</b>	<b>149</b>	<b>8%</b>	<b>1,162</b>	<b>232</b>		

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%

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)
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
<b>Total</b>		<b>8</b>	<b>11</b>	<b>46</b>	<b>4</b>	<b>69</b>

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
<b>Total</b>		<b>45</b>	<b>45</b>

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%

Education Level	Job Postings	% of Total
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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](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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