

Program Endorsement Brief: 0956.50/Welding Technology

Gas Tungsten Arc Welding

(Program name revised August 2022)

Orange County Center of Excellence, March 2022

Summary Analysis

Program Endorsement:	Endorsed: All Criteria Met <input type="checkbox"/>	Endorsed: Some Criteria Met <input checked="" type="checkbox"/>	Not Endorsed <input type="checkbox"/>
Program Endorsement Criteria			
Supply Gap:	Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/>
Living Wage: (Entry-Level, 25th)	Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>
Education:	Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/>
Emerging Occupation(s)			
	Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>

The Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to two middle-skill occupations: *welders, cutters, solderers, and brazers (51-4121)* and *welding soldering, and brazing machine setters, operators, and tenders (51-4122)*. Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree.¹ This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

Based on the available data there appears to be a supply gap for these welding occupations in the region. Furthermore, while the occupations in this report typically require a high school diploma or equivalent, nearly one-third of workers in the field have completed some college or an associate degree as their highest level of education. However, entry-level wages are lower than the living wage in both Los Angeles and Orange counties. **Therefore, due to some of the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

Demand:

- **Supply Gap Criteria** – Over the next five years, there is projected to be **1,233 jobs available annually** in the region due to retirements and workers leaving the field, **which is more than the 364 awards conferred annually** by educational institutions in the region.
- **Living Wage Criteria** – Within Orange County, **all annual job openings** for these welding occupations have **entry-level wages below the county's living wage (\$20.63/hour)**.²

¹ The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

² Living wage data was pulled from California Family Needs Calculator on 1/10/2022. For more information, visit the California Family Needs Calculator website: <https://insightcced.org/family-needs-calculator/>.

- **Educational Criteria** – Within the LA/OC region, **all annual job openings** for occupations related to Welding Technology typically require **a high school diploma or equivalent**.
 - However, the national-level educational attainment data indicates **32.1% of workers in the field have completed some college or an associate degree** as their highest level of education.

Supply:

- There are **12 community colleges** in the LA/OC region that issue awards related to Welding Technology, conferring an average of **274 awards annually** between 2017 and 2020.
- Between 2016 and 2019, there was an average of **90 awards conferred annually** in related training programs by non-community college institutions, all of which were generated by **two individual adult education institutions throughout** the region.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for these two welding occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to decrease by 3% through 2025. However, there will be more than 1,200 job openings per year through 2025 due to retirements and workers leaving the field.

This report includes employment projection data by Emsi which uses EDD information. Emsi’s projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy, during the projection period, will be at approximately full employment. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the impacts of COVID-19 into account.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties³

Geography	2020 Jobs	2025 Jobs	2020-2025 Change	2020-2025 % Change	Annual Openings
Los Angeles	7,956	7,576	(380)	(5%)	819
Orange	3,919	3,899	(21)	(1%)	415
Total	11,876	11,475	(400)	(3%)	1,233

Wages

The labor market endorsement in this report considers the entry-level hourly wages for these welding occupations in Orange County as they relate to the county’s living wage. Los Angeles

³ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

County wages are included below in order to provide a complete analysis of the LA/OC region. Detailed wage information, by county, is included in Appendix A.

Orange County: All annual openings for these welding occupations have entry-level wages below the living wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$16.04 and \$16.19. Experienced workers can expect to earn wages between \$23.57 and \$26.39, which are higher than the living wage estimate. Orange County's average wages are below the average statewide wage of \$23.85 for these occupations.

Los Angeles County: All annual openings for these welding occupations have entry-level wages below the living wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$15.28 and \$15.66. Experienced workers can expect to earn wages between \$22.55 and \$25.81, which are higher than the living wage estimate. Los Angeles County's average wages are below the average statewide wage of \$23.85 for these occupations.

Job Postings

There were 1,196 online job postings related to Welding Technology listed in the past 12 months. The highest number of job postings were for welders, TIG welders, MIG welders, and welder fabricators. The top skills were welding, MIG and TIG welding, repair, welding equipment, and soldering. The top three employers, by number of job postings, in the region were SpaceX, Precision Castparts, and Waste Management.

It is important to note that the job postings data included in this section reflects online job postings listed in the past 12 months and does not yet demonstrate the impact of COVID-19. While employers have generally posted fewer online job postings since the beginning of the pandemic, the long-term effects are currently unknown.

Educational Attainment

The Bureau of Labor Statistics (BLS) lists a high school diploma or equivalent as the typical entry-level education for *welders, cutters, solderers, and brazers* and *welding soldering, and brazing machine setters, operators, and tenders*. In the LA/OC region, all annual job openings typically require a high school diploma or equivalent. However, the national-level educational attainment data indicates 32.1% of workers in the field have completed some college or an associate degree as their highest level of education. Of the 32% of Welding Technology job postings listing a minimum education requirement in Los Angeles/Orange County, 96.6% (371) requested high school or vocational training and 2.1% (8) requested an associate degree.

Educational Supply

Community College Supply—Exhibit 2 shows the three-year average number of awards conferred by community colleges in the related TOP code: Welding Technology (0956.50). The colleges with the most completions in the region are: Cerritos and Santa Ana. Over the past 12 months, there was one other related program recommendation requests from regional community colleges.

Exhibit 2: Regional community college awards (certificates and degrees), 2017-2020

TOP Code	Program	College	2017-2018 Awards	2018-2019 Awards	2019-2020 Awards	3-Year Award Average
0956.50	Welding Technology	Cerritos	85	131	118	111
		Compton	5	1	2	3
		El Camino	25	33	30	29
		Glendale	-	2	4	2
		LA Trade	27	16	26	23
		Long Beach	-	11	8	6
		Mt San Antonio	15	28	23	22
		Pasadena	2	11	4	6
		Rio Hondo	18	2	10	10
		LA Subtotal	177	235	225	212
		Fullerton	10	9	8	9
		Orange Coast	8	20	19	16
		Santa Ana	24	60	28	37
		OC Subtotal	42	89	55	62
		Supply Total/Average			219	324

Non-Community College Supply—For a comprehensive regional supply analysis, it is also important to consider the supply from other institutions in the region that provide training programs for Welding Technology. Exhibit 3 shows the annual and three-year average number of awards conferred by these institutions in the related Classification of Instructional Programs (CIP) Code: Welding Technology/Welder (48.0508). Due to different data collection periods, the most recent three-year period of available data is from 2016 to 2019. Between 2016 and 2019, non-community college institutions in the region conferred an average of 90 awards annually in related training programs.

Exhibit 3: Regional non-community college awards, 2016-2019

CIP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
48.0508	Welding Technology/Welder	Hacienda La Puente Adult Education	31	21	5	19
		Tri-Community Adult Education	-	103	111	71
Supply Total/Average			31	124	116	90

Appendix A: Occupational demand and wage data by county

Exhibit 4. Orange County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Welders, Cutters, Solderers, and Brazers (51-4121)	3,516	3,527	11	0%	374	\$16.19	\$20.34	\$26.39
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders (51-4122)	403	372	(32)	(8%)	41	\$16.04	\$19.47	\$23.57
Total	3,919	3,899	(21)	(1%)	415			

Exhibit 5. Los Angeles County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Welders, Cutters, Solderers, and Brazers (51-4121)	7,269	6,979	(290)	(4%)	751	\$15.66	\$19.78	\$25.81
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders (51-4122)	687	598	(90)	(13%)	68	\$15.28	\$18.59	\$22.55
Total	7,956	7,576	(380)	(5%)	819			

Exhibit 6. Los Angeles and Orange Counties

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings
Welders, Cutters, Solderers, and Brazers (51-4121)	10,785	10,506	(279)	(3%)	1,124

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders (51-4122)	1,091	969	(121)	(11%)	109
Total	11,876	11,475	(400)	(3%)	1,233

Appendix B: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor’s Office Management Information Systems (MIS)
- California Family Needs Calculator, Insight Center for Community Economic Development
- Chancellor’s Office Curriculum Inventory (COCI 2.0)

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