

**Program Endorsement Brief: 0956.40 – Sheet Metal and Structural Metal
Metal Fabrication Technology (Associate in Science)
Semi-Automatic Welding (Certificate)**

Los Angeles/Orange County Center of Excellence, November 2021

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 Los Angeles/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 five middle-skill occupations:

- *Boilermakers (47-2011);*
- *Sheet metal workers (47-2211);*
- *Structural iron and steel workers (47-2221);*
- *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 in the region for the five occupations of interest. Although approximately one-third of current workers in the field have completed some college or an associate degree, the majority of annual openings for the occupations in this report have entry-level wages below the self-sufficiency standard wage in both Los Angeles and Orange counties. **Due to some of the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

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.

Demand:

- **Supply Gap Criteria** – Over the next five years, there is projected to be **1,699 jobs available annually** in the region due to retirements and workers leaving the field, **which is more than the 370 awards conferred annually** by educational institutions in the region.
- **Living Wage Criteria** – In Los Angeles County, **the majority (85%) of annual job openings for the occupations of interest have entry-level wages below the self-sufficiency standard wage (\$18.10/hour).**²
- **Educational Criteria** – The Bureau of Labor Statistics (BLS) lists high school diploma or equivalent as the typical entry-level education for the five occupations in this report.
 - However, national-level educational attainment data indicates that **between 32% and 34% of workers in the field have completed some college or an associate degree.**

Supply:

- Between 2017 and 2020, **12 community colleges** in the LA/OC region issued awards in sheet metal and structural metal and/or welding technology programs, conferring an average of **280 awards**.
- Between 2016 and 2019, non-community college institutions in the region conferred an average of **90 awards in relevant programs**.

² Self-Sufficiency Standard wage data was pulled from The Self-Sufficiency Standard Tool for California on 12/1/2021. For more information, visit: <http://selfsufficiencystandard.org/california>.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for the five occupations of interest. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to decrease by 2% through 2025. However, there will be approximately 1,700 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 full impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the full 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	11,791	11,513	(278)	(2%)	1,112
Orange	6,130	6,137	7	0%	586
Total	17,921	17,650	(271)	(2%)	1,699

Wages

The labor market endorsement in this report considers the hourly wages for the five occupations in Los Angeles County, as they relate to the county's self-sufficiency standard wage. Orange 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.

Los Angeles County — The majority (85%) of annual openings for the occupations of interest have entry-level wages **below** the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$15.27 and \$29.44. The only two occupations in this report with entry-level wages above the self-sufficiency standard wage are *boilermakers* (\$29.44), and *structural iron and steel workers* (\$20.45). Experienced workers can expect to earn wages between \$22.58 and \$48.94, which are above the self-sufficiency standard wage estimate.

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.

Orange County — The majority (84%) of annual openings for the occupations of interest have entry-level wages **below** the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$16.01 and \$30.49. The only two occupations in this report with entry-level wages above the self-sufficiency standard wage are *boilermakers* (\$30.49), and *structural iron and steel workers* (\$21.27). Experienced workers can expect to earn wages between \$23.55 and \$50.70, which are above the self-sufficiency standard wage estimate.

Job Postings

Over the past 12 months, there have been 1,810 online job postings related to the five occupations of interest in the region. The highest number of job postings were for welder, TIG welder, fabricator, sheet metal worker, and MIG welder. The top skills were welding, MIG and TIG welding, repair, welding equipment, hand tools, power tools, and soldering. The top employers, by number of job postings, in the region were SpaceX, Pearce Services, Honeywell, Waste Management, and AMETEK Inc.

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 full 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 all five of the occupations in this report. However, national-level educational attainment data indicates that between 32% and 34% of workers in the field have completed some college or an associate degree. Of the 40% of job postings listing a minimum education requirement in Los Angeles/Orange County, 99% (723) requested high school or vocational training, and 1% (7) requested an associate degree.

Educational Supply

Community College Supply — Exhibit 2 shows the annual and three-year average number of awards conferred by community colleges in Sheet Metal and Structural Metal (TOP 0956.40), and Welding Technology (TOP 0956.50). The college with the most completions in the region is Cerritos. Over the past 12 months, there were five other related program recommendation requests from regional community colleges.

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

TOP Code	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
0956.40	Sheet Metal and Structural Metal	Long Beach	1	15	1	6
		LA Subtotal	1	15	1	6
Supply Subtotal/Average			1	15	1	6
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-Tech	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 Subtotal/Average			219	324	280	274
Supply Total/Average			220	339	281	280

Non-Community College Supply — For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that may provide the necessary training for the occupations of interest. Exhibit 3 shows the annual and three-year average number of awards conferred by these institutions in Welding Technology/Welder (CIP 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.

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

CIP Code	Program	Institution	2016-17 Awards	2017-18 Awards	2018-19 Awards	3-Year 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. 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)
Boilermakers (47-2011)	142	149	7	5%	14	\$29.44	\$38.10	\$48.94
Sheet Metal Workers (47-2211)	2,253	2,294	41	2%	213	\$15.65	\$23.19	\$36.58
Structural Iron and Steel Workers (47-2221)	1,425	1,475	50	4%	153	\$20.45	\$29.71	\$42.56
Welders, Cutters, Solderers, and Brazers (51-4121)	7,277	6,986	(291)	(4%)	671	\$15.64	\$19.76	\$25.77
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders (51-4122)	693	609	(84)	(12%)	61	\$15.27	\$18.59	\$22.58
Total	11,791	11,513	(278)	(2%)	1,112			

Exhibit 5. Orange County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Boilermakers (47-2011)	77	78	1	1%	7	\$30.49	\$39.46	\$50.70
Sheet Metal Workers (47-2211)	1,274	1,321	47	4%	126	\$17.59	\$25.97	\$41.03
Structural Iron and Steel Workers (47-2221)	854	864	10	1%	86	\$21.27	\$30.81	\$43.89
Welders, Cutters, Solderers, and Brazers (51-4121)	3,521	3,496	(25)	(1%)	330	\$16.15	\$20.30	\$26.33
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders (51-4122)	406	379	(27)	(7%)	37	\$16.01	\$19.45	\$23.55
Total	6,130	6,137	7	0%	586			

Exhibit 6. Los Angeles and Orange Counties

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Typical Entry-Level Education
Boilermakers (47-2011)	219	227	8	4%	21	HS diploma or equivalent
Sheet Metal Workers (47-2211)	3,527	3,615	88	2%	340	HS diploma or equivalent
Structural Iron and Steel Workers (47-2221)	2,279	2,339	60	3%	239	HS diploma or equivalent
Welders, Cutters, Solderers, and Brazers (51-4121)	10,797	10,482	(315)	(3%)	1,001	HS diploma or equivalent
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders (51-4122)	1,099	987	(112)	(10%)	98	HS diploma or equivalent
Total	17,921	17,650	(271)	(2%)	1,699	

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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