

CAREER AND TECHNICAL EDUCATION – SUPPLEMENTAL QUESTIONS

Welding 2021

CTE programs must conduct a full program review every 4 years. The full review includes answering these supplemental questions. Every two years (once between full reviews) these supplemental questions must be answered and submitted to Academic Affairs for posting on the College website.

Use labor market data, advisory committee input, institutional data, and the provided CTE 2-year Program Review data to respond to the following questions:

1. How strong is the occupational demand for the program? As you analyze demand over the past 5 years and projected demand for next 5 years, address state and local needs for the program.

The demand for welders has been steadily growing. Due to the pandemic, death and retirement rate of present welders, and the fact that over recent years that there has been a major push for “college” education excluding the trades, the decline in finding qualified welders is a big issue. According to the Department of Labor and Statistics:

Job Outlook, 2020-30

The projected percent change in employment from 2020 to 2030. The average growth rate:

Quick Facts: Welders, Cutters, Solderers, and Brazers	
<u>2020 Median Pay</u>	\$44,190 per year \$21.25 per hour
<u>Typical Entry-Level Education</u>	High school diploma or equivalent
<u>Work Experience in a Related Occupation</u>	None
<u>On-the-job Training</u>	Moderate-term on-the-job training
<u>Number of Jobs, 2020</u>	418,200
<u>Job Outlook, 2020-30</u>	8% (As fast as average)
<u>Employment Change, 2020-30</u>	34,100

[What Welders, Cutters, Solderers, and Brazers Do](#)

Welders, cutters, solderers, and brazers use hand-held or remotely controlled equipment to join, repair, or cut metal parts and products.

[Work Environment](#)

Welders, cutters, solderers, and brazers may work outdoors, often in inclement weather, or indoors, sometimes in a confined area. They may work on a scaffold, high off the ground, and they occasionally must lift heavy objects and work in awkward positions. Most work full time and overtime is common.

[How to Become a Welder, Cutter, Solderer, or Brazer](#)

A high school diploma or equivalent, combined with technical and on-the-job training, is typically required for anyone to become a welder, cutter, solderer, or brazer.

[Pay](#)

The median annual wage for welders, cutters, solderers, and brazers was \$44,190 in May 2020.

[Job Outlook](#)

Employment of welders, cutters, solderers, and brazers is projected to grow 8 percent from 2020 to 2030, about as fast as the average for all occupations.

About 49,200 openings for welders, cutters, solderers, and brazers are projected each year, on average, over the decade. Many of those openings are expected to result from the need to replace workers who transfer to different occupations or exit the labor force, such as to retire.

Job Outlook

About this section Welders, Cutters, Solderers, and Brazers

Percent change in employment, projected 2020-30



Note: All Occupations includes all occupations in the U.S. Economy.

Source: U.S. Bureau of Labor Statistics, Employment Projections program

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Employment

The nation’s aging infrastructure will require the expertise of welders, cutters, solderers, and brazers to help rebuild bridges, highways, and buildings.

Employment projections data for welders, cutters, solderers, and brazers, 2020-30

Occupational Title	SOC Code	Employment, 2020	Projected Employment, 2030	Change, 2020-30		Employment by Industry
				Percent	Numeric	
	51-4121	418,200	452,200	8%	34,100	

SOURCE: U.S. Bureau of Labor Statistics, Employment Projections program

Avg. Annual Openings

California Welders, Cutters, Solderers, and Brazers 3,800 41,700 3,600 8.6 5,650

Welding, Soldering, and Brazing Workers

Note: The following data reflects the job market in the Compton College 7.5-mile service area.

Job Estimates - 2020: 1,985 (11% above national average in terms of job availability per area)

Percent Change in Number of Jobs from 2015-2020: +0.7% (National average: +4.5%)

Projected Change in Jobs from 2018-2022: -1.7% (National average: +4.6%)

Area Location Quotient: 1.11 (Numbers above 1.00 mean the occupation is more concentrated in the area compared to the nation. Numbers below 1.00 mean the occupation is less concentrated in the area.)

Top 10 Industries Employing Welding, Soldering, and Brazing Workers (Compton College Service Area)

Industry	% of Occupation in Industry (2015)	% Change in Industry Jobs (2015-2020)
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	19.1%	0%
Sheet Metal Work Manufacturing	4.7%	+11%
Machine Shops	4.1%	+4%
Ornamental and Architectural Metal Work Manufacturing	3.6%	-1%
All Other Miscellaneous Fabricated Metal Product Manufacturing	2.5%	+25%
Nonferrous Forging	2.5%	+23%
Temporary Help Services	2.4%	+14%
Travel Trailer and Camper Manufacturing	2.2%	+42%
Other Industrial Machinery Manufacturing	2.2%	0%
Motor Vehicle Body Manufacturing	1.9%	+15%

Note: The following data reflects the job market in California.

Job Estimates - 2020: 47,335 (33% below national average in terms of availability per state)

Percent Change in Number of Jobs from 2015-2020: +10.5% (National average: +7.5%)

Projected Change in Jobs from 2020-2024: +5.9% (National average: +6.6%)

State Location Quotient: 0.65 (Numbers above 1.00 mean the occupation is more concentrated in the state compared to the nation. Numbers below 1.00 mean the occupation is less concentrated in the state.)

Top 10 Industries Employing Welding, Soldering, and Brazing Workers (California Statewide)

Industry	% of Occupation in Industry (2019)	% Change in Industry Jobs (2014-2019)
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	10.6%	+3%
Sheet Metal Work Manufacturing	5.9%	+20%
Machine Shops	5.5%	+10%
Temporary Help Services	5.3%	+21%
Framing Contractors	3.6%	+94%
Fabricated Structural Metal Manufacturing	3.2%	+16%
Metal Window and Door Manufacturing	3.0%	+33%
Semiconductor Machinery Manufacturing	3.0%	+39%
Commercial and Institutional Building Construction	2.8%	+39%
Ship Building and Repairing	2.6%	-9%

Since welding is such a versatile trade, it is compatible with almost every other counterpart of the construction trades. Some of the various occupations that can be attained by having welding knowledge and skills will be listed.

Summary

Quick Facts: Plumbers, Pipefitters, and Steamfitters	
<u>2020 Median Pay</u>	\$56,330 per year \$27.08 per hour
<u>Typical Entry-Level Education</u>	High school diploma or equivalent
<u>Work Experience in a Related Occupation</u>	None
<u>On-the-job Training</u>	Apprenticeship
<u>Number of Jobs, 2020</u>	469,900
<u>Job Outlook, 2020-30</u>	5% (Slower than average)
<u>Employment Change, 2020-30</u>	23,400

Summary

Quick Facts: Ironworkers	
<u>2020 Median Pay</u>	\$53,210 per year \$25.58 per hour
<u>Typical Entry-Level Education</u>	High school diploma or equivalent
<u>Work Experience in a Related Occupation</u>	None
<u>On-the-job Training</u>	Apprenticeship
<u>Number of Jobs, 2020</u>	93,100
<u>Job Outlook, 2020-30</u>	6% (As fast as average)
<u>Employment Change, 2020-30</u>	5,400

Summary

Quick Facts: Sheet Metal Workers	
<u>2020 Median Pay</u>	\$51,370 per year \$24.70 per hour
<u>Typical Entry-Level Education</u>	High school diploma or equivalent
<u>Work Experience in a Related Occupation</u>	None
<u>On-the-job Training</u>	Apprenticeship
<u>Number of Jobs, 2020</u>	135,400
<u>Job Outlook, 2020-30</u>	4% (Slower than average)
<u>Employment Change, 2020-30</u>	4,800

Summary

Quick Facts: Boilermakers	
<u>2020 Median Pay</u>	\$65,360 per year \$31.42 per hour
<u>Typical Entry-Level Education</u>	High school diploma or equivalent
<u>Work Experience in a Related Occupation</u>	None
<u>On-the-job Training</u>	Apprenticeship
<u>Number of Jobs, 2020</u>	14,900
<u>Job Outlook, 2020-30</u>	-1% (Little or no change)
<u>Employment Change, 2020-30</u>	-200

Summary

Quick Facts: Jewelers and Precious Stone and Metal Workers	
<u>2020 Median Pay</u>	\$41,900 per year \$20.14 per hour
<u>Typical Entry-Level Education</u>	High school diploma or equivalent
<u>Work Experience in a Related Occupation</u>	None
<u>On-the-job Training</u>	Long-term on-the-job training
<u>Number of Jobs, 2020</u>	32,400
<u>Job Outlook, 2020-30</u>	-1% (Little or no change)
<u>Employment Change, 2020-30</u>	-300

2. How does the program address needs that are not met by similar programs in the region?

Compton's Welding program intends to address the needs that are not met by similar programs, by first incorporating an onsite AWS/LADBS Certified Testing lab, developing innovative programs such as Pipe training and including Robotic programming certifications.

3. What are the completion, success, and employment rates for the students? Discuss any factors that may impact completion, success, and employment rates. If applicable, what is the program doing to improve these rates?

Completion rates have been hindered due to the 2020 Covid Pandemic. Our facility closed, and our program was mandated to be instructed online only. When we could return on campus, it was for a minimum of two days a week. This was not enough time to instruct the hands-on portion of each course offered. Also. Many students were still insecure about returning to live instruction. Since there were only a few students that completed or a few that were able to complete a half of the certification, only a few students were able to find employment in this field.

The welding program plans to promote welding courses and re-establish student interest in welding training. We will host class visits to our shop and visit schools and organizations that have potential students that may desire to learn welding.

Associate Degrees Awarded

	2017-2018	2018-2019	2019-2020	2020-2021
Welding Technology	<5	<5	<0	<0

Certificates Awarded

	2017-2018	2018-2019	2019-2020	2020-2021
Welding Technology	<5	<5	<5	<5

Success Rates

	FA2016	SP2017	FA2018	SP2019	FA2020	SP2021
Welding	16	18	10	5	4	4

Employment Rates

	2017-2018	2018-2019	2019-2020	2020-2021
Welding Technology (TOP Code: 095650)	10	8	2	2

Source: Institutional Effectiveness Website

- *The following success numbers are from my personal log of students that have attained welding licensure from both LA City and AWS.*

4. If there is a licensure exam for students to work in their field of study, please list the exam and the pass rate. If there are multiple licensure exams in the program, include them all. Discuss any factors that may impact licensure exam pass rates. If applicable, what is the program doing to improve these rates?

<u>License</u>	<u>Passage Rate in 2020-21</u>
• <i>AWS 3G/4G Practical exam</i>	<i>4</i>
• <i>Los Angeles City Structural Steel Certification</i>	<i>2</i>
• <i>GTAW Certification</i>	<i>1</i>
• <i>GMAW Certification</i>	<i>0</i>
• <i>FCAW Certification</i>	<i>1</i>

In 2020, we had approximately 4 students attempt and pass 3G/4G Practical exams either under an AWS or at a non-AWS testing lab. Out of those 4, 2 have passed the LA City written exam for structural steel through the LA City certification.

One factor that heavily impacted exam rates, was the pandemic, which caused the closure of the welding shop and then the reduced hands on hour times for students to practice. To improve rates, the campus must remain open to allow students enough hands on time. Another factor that caused a decline was the shutdown of all businesses which included testing facilities that our students would need to go to in order to take their exams. Examples are the Los Angeles Department of Building and Safety and Accurate Test Labs.

5. Student satisfaction with the program rates?

Out of the students polled, 99% were satisfied with Compton's course offerings and hours set for classes to begin and end. One percent was concerned that there were not Saturday classes offered since they were employed and could not attend either the morning session or evening sessions during the work week. Hence, overall, student satisfaction is in good standing.

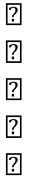
6. Employer satisfaction with program graduates rate.

Since the instructor maintains a personal log of all students that complete and remains in contact with students even after they leave the college, verifying employer satisfaction is available. Companies that have employed some of our completers and graduates, often contact us to see if we have any students that would like to work for them. Thus, employer satisfaction is in good standing.

(Ex: See the following email)

Melanie Bustos <bustosm@thermalequipment.com>

Thu 3/10/2022 11:34 AM



To:

• Pamela N Richardson

Cc:

• Melanie Bustos <bustosm@thermalequipment.com>

Welder-Fitter12-19 Agency.pdf

138 KB



Good morning Ms. Richardson,

I am reaching out to you as we have a few positions open and Armando Mendoza provide me your information.

TEC is looking for Welders (not sure how many at this moment– but at least a few) and one Shop Maintenance/Helper. These are full-time positions and would like to know if you have any past or present students that stood out to you that may have the qualifications we are looking for.

See both job requirements below:

Shop Maintenance/Helper (floater) - Wage \$15-\$20 depending on skills sets and interview

Below is a list of the types of tasks we would like to assign to this role (basically a handyman type).

- Inspection and light maintenance of TEC equipment
- General housekeeping, organizing Job Shelf area, sorting old inventory (hardware on shelves, etc.) lighting maintenance
- Minor tool and electrical repairs, painting
- Assist in the shipping dept.: shipping/packaging as needed
- Will Calls (Only if necessary, so a Clean Driving Record)
- Basic skills of blue print reading a plus

Welder-Fitter - Wage \$15-\$20 depending on skills sets and interview

Job description is attached for the Welder/Fitter position. If they also have moderate experience/skills with Plumbing/Pipe Fitting (see below brief overview note) this would be a plus. Please send over the candidates resume and their pay rate for our review.

In addition to welder/fitter skills below is a brief overview for the Pipefitter skills we need this person to have:

- Installs, assembles, fabricates and repairs mechanical piping systems using carbon steel, stainless steel and copper metals.*
- Skilled processes include cutting, threading, bending, grooving welding and measuring pipes, tubing and conduit.*
- Ability to perform MIG welding (let us know if they have welding skills other than MIG)*
- Must be able to read and understand blueprint drawings.*

The current work schedule is Mon. through Fri., 6:00 am to 2:30 pm.

Anyone working at TEC is required to be fully COVID-19 vaccinated.

Please let me know if you are able to assist us or if you have any other suggestions or contacts.

Sincerely,

Melanie Bustos
Controller/Director of Human Resources
(310) 328-6600 x 3002
(310) 603-9625 Fax

Thermal Equipment Corporation
2030 E. University Drive
Rancho Dominguez, CA 90220

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7. Is the advisory committee satisfied with the level of preparation of program graduates? How has advisory committee input been used in the past two years to ensure employer needs are met by the program? Describe any advisory committee recommendations that the program is either unable to implement or is in the process of implementing.

The advisory committee is satisfied with the level of preparation that Compton 's welding program provides. The committee is also aware that the pandemic of 2020 has hurt the enrollment and completion rate of the welding program well into 2021 but acknowledges that there were a few that did receive their licenses. The instructor has maintained a personal log of student completers and their employment statuses. The committee recommendations for the welding program are in process apart from the new ventilation system. Personnel in the welding department have formed partnerships with local industry

to strengthen collaboration efforts. Partnering with various union and apprenticeship programs, which allow students completing the welding program an opportunity to transfer directly into any one of these JATC's with multiple licenses required by industry. Upon enrollment in the welding program, students are aware of the opportunities of employment in high paying jobs once satisfying completion requirements for the welding Associates degree and licensing exams. The committee suggests that we continue equipment upgrades, attain a certified testing lab, and improve the aesthetics of the training area.

California Education Code 78016 requires that the review process for CTE programs includes the review and comments of a program's advisory committee. **Provide the following information:**

- a. Advisory committee membership list and credentials
 - *Pamela Richardson – Associate Welding Professor – Compton College*
 - *Lisa Legohn – Lead Associate Welding Professor – LATTC/AWS Committee Member*
 - *Alan Ojerio- Account Manager - Airgas*
 - *Ed Campbell –Assistant Teacher/Tool (Welding) – Compton College*
 - *Greg Gayles – LA Certified Welder – Union member Local 433 Ironworkers*

- b. Meeting minutes or other documentation to demonstrate that the CTE program review process has met the above Education Code requirement.



**ADVISORY COMMITTEE MEETING
El Camino Compton Center
October 29, 2021 – 11:00 am – 12:00 pm
Starbucks**

MEMBERS PRESENT

- Pamela Richardson Lead Associate Welding Professor/Compton College
- Lisa Legohn Lead Associate Welding Professor/LA Trade Tech College
- Alan Ojerio Account Manager/Airgas
- Edmund Campbell Assistant Teacher/Tool Attendant/Compton College

OTHERS ATTENDING:

N/A

Handouts

- Agenda
- Certified Testing Lab Documents (AWS and LADBS)

I. Call to Order

The meeting was called to order at 11:00 a.m. by Pamela Richardson.

II. Approval of Minutes

October 29, 2021, was approved with the following changes: Lisa Legohn (moved/ seconded)

III. Responsibilities

Discussion of requirements for a certified AWS/LADBS Testing Lab. How to get the lab certified.

Ms. Legohn offered her opinion about the AWS certification for the lab, since she sits on the board of the Southeast Region Chapter. She stated that she knows the protocol and who to contact, fees required and time frame that it would take from start to finish.

Ms. Richardson stated that she wanted FCAW and multi- process welding machines for the lab that are energy efficient.

Mr. Ojerio offered his opinion on the testing machine (Tinus Olsen) that was purchased by Compton last year. Explaining the varied tests that can be completed with this specific model.

Ms. Richardson inquired about the application process for both organizations' testing labs.

Mr. Campbell stated that he would look up prospective welding machines, and forward to Mr.Ojero for consultation.

Mr. Ojero also suggested a contact person for the LADBS certification portion for the lab. He would send the contact number to Ms. Richardson asap.

Everyone agreed that having a lab that produced both organizations' testing requirements, would draw more students to the welding program.

IV. Testing Stations

Will they be needed? We have two outside that can be redone.

V RECAP

- Ms. Richardson stated that there would be an additional meeting on February 25, 2022, if needed.
- Mr. Ojerio requested to walk thru the shop to identify placement of the new equipment.

VI. Adjournment

Ms. Richardson officially adjourned the meeting at 12:20 p.m.