



COLTON REDLANDS YUCAIPA
REGIONAL OCCUPATIONAL PROGRAM
Inspiring Possibilities

2016-2017
Manufacturing and Product
Development



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2016-2017 Manufacturing and Product Development (9/2016 & 10/2016)

CRY-ROP piloted several different models of course advisories this year and the Manufacturing and Product Development Advisory consisted of three separate five-hour job shadows attended by the manufacturing instructors. The job shadows were hosted by Sorenson Engineering and California Steel Inc. (CSI). During the job shadows, the instructors were tasked with gathering answers to the advisory questions from multiple company representatives while observing daily operations, learning about new technology and touring the facilities at each site. The information contained in this report is a culmination of the three job shadows.

Question 1

What does your hiring process look like?

Question 2

What interpersonal skills are lacking in today's workforce?

Question 3

What foundational/technical skills are necessary for entry level positions within your industry?

Question 4

What skills/knowledge is being required of new employees to address the latest trends in technology, equipment, regulations, laws, etc.?

Question 5

What skills have become obsolete in your industry due to changes in technology, equipment, regulations, laws, etc.?

Question 6

What types of training, education, certifications, or credentials are desirable for entry level positions in your field?

Industry Advisors

Al V., Hot Strip Finishing Operations, California Steel Inc.

Angie N., Human Resources Manager, Sorenson Engineering

Bart V., Technology Engineering, Sorenson Engineering

David E., Cold Sheet Mill, California Steel Inc.

David U., Cold Sheet Mill Planner, California Steel Inc.

Eddie A., California Steel Inc.

Mario A., CNC Order Fulfillment, Sorenson Engineering

Mario C., Human Resources Manager, California Steel Inc.

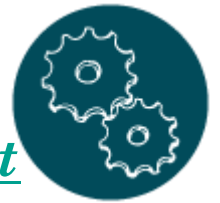
Nathan K., Technology Engineering, Sorenson Engineering

Rafael O., QA & Meteorology Engineering, Sorenson Engineering

Rex E., California Steel Inc.

Rick P., Human Resources Representative, California Steel Inc.

Sal S., Maintenance Planner, California Steel Inc.



Manufacturing and Product Development

Question 1: What does your hiring process look like?

Sorenson

Always accepts applications, requires personality testing and general knowledge testing. Candidates must have a high school diploma or a GED with technical training or machine shop experience. Candidates complete a 3-month trial period before being hired as a full time employee. Candidates must demonstrate attention to detail and the ability to follow written and oral instructions.

CSI

CSI works closely with the Community College District in support of a paid internship program. This intern position is for the Mechanic Level I position. These interns attend class 3 days a week and work on site 2 days a week. This is a very competitive program where as many as 100 applicants begin and as few as 10 finish. CSI also hires employees the traditional way. In which, they take strong interpersonal skills, a willingness to work, and a proper level of maturity into consideration. New hires can increase their position and level of pay depending on the number of jobs they learn to perform, their dependability as an employee and their continued training.

Question 2: What interpersonal skills are lacking in today's workforce?

Sorenson

Knowledge of proper attire for the job at hand, importance of teamwork and asking questions.

CSI

Many are lacking punctuality, reliability and have an attitude of entitlement. Attention to detail because of distraction by cell phone. Open minded ability to communicate and work well with others. Initiative, a drive to succeed and a willingness to learn.

Question 3: What foundational/technical skills are necessary for entry level positions within your industry?

Sorenson

Candidate's need a keen eye for detail, spatial awareness, be able to think in a three dimensional perspective, use mathematics, and understand dimensional inspection. They should be able to use micrometers and digital calipers to make precise measurements.

CSI

Being computer literate is necessary with experience in excel being highly desirable. Having knowledge of mechanical tools and processes, being mechanically minded, and demonstrating a willingness to learn since all positions have a high rate of cross training. Main component looked at for entry level employment is soft skills.

The following skills will assist in getting someone considered for employment: Electrician training, conventional machinist training, understanding of mechanical principles, hydraulic and pneumatic principals and systems. Heat control during welding / repair processes, understanding of how to layout and keep fixtures and assemblies symmetrical during the welding/tacking process.

Question 4: What skills/knowledge is being required of new employees to address the latest trends in technology, equipment, regulations, laws, etc.?

Sorenson

The ability to manage time to meet deadlines, basic to advanced measurements, conversion between metric and standard measurements, knowledge of computer software and programs such as, Fusion 360, and Auto Desk, and the ability to take clear and concise notes for documentation purposes.

CSI

Employees at CSI that have training in electrical and mechanical processes are an asset to the company. However, employees with knowledge of PLC's and computer programs that control processes at various mills, SCAQMD regulations, and manual machining skills are all highly sought after. In addition to these skills, knowledge in the multiple types of non-destructive testing of metals such as radiographic, ultrasonic and penetrant dye testing are also important and will increase the value of the employee by increasing the number of jobs the employee is qualified to complete within the mill.

Question 5: What skills have become obsolete in your industry due to changes in technology, equipment, regulations, laws, etc.?

Sorenson

Technology that is becoming obsolete is Rockwell PLC and Ladder logic. The new technology is Twin Cat-3 by Beckhoff. Manual measurement tools are being used less for simple tasks to create faster and more efficient quality control testing, while manual measurement tools measure complicated parts. Sorenson has eliminated third parties and begun performing processes in house to ensure quality and timeliness of production. This has increased efficiency while reducing profit loss.

CSI

Many processes are now automated and employees use conventional machining less, however they still need to have knowledge of it in case of equipment breakdowns. Computers now calibrate machines instead of levers and wheels. Gauges are relied on less to determine the positions of steel in machines as digital interfaces can monitor and adjust this when needed.

Question 6: What types of training, education, certifications, or credentials are desirable for entry level positions in your field?

Sorenson

Training and/or certifications in the following are strongly recommended for entry level positions: Twin Cat-3 by Beckhoff, Auto Desk Fusion 360, and programming code. For entry level positions hands on experience and a strong foundation in geometric dimensioning and tolerance is a very great leg up on the competitive market in California. Sorenson seeks individuals who have completed an internship or are in the process of gaining a degree in engineering.

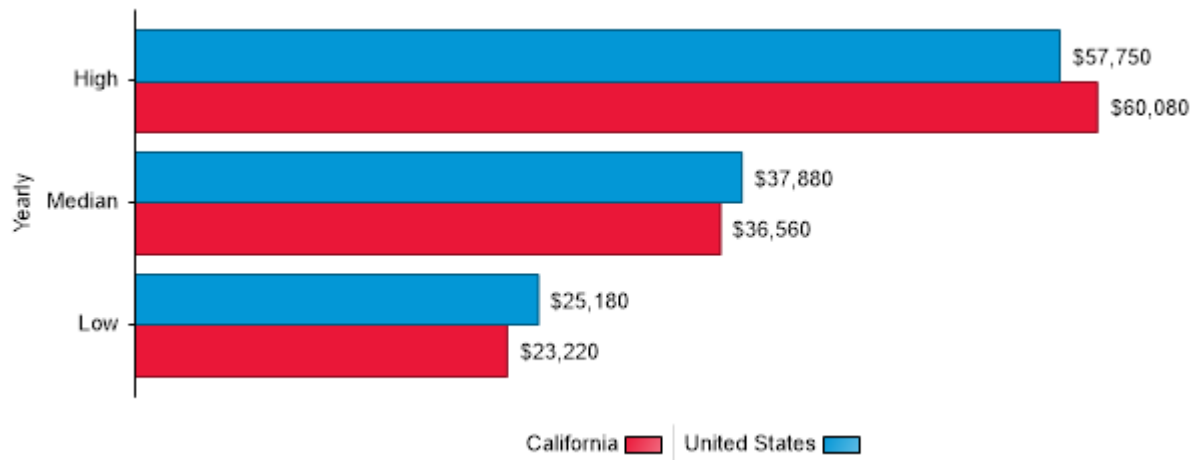
CSI

Most of the entry level positions at California Steel do not require any credential, previous training or education although they encourage their staff to continually improve themselves. Being trained in electrical, mechanical fabrication, and PLC Controls can be extremely beneficial. CNC operators require prior experience. Additional training that would be helpful: welding experience the equivalent of AWS D1.1 Welding certification, industrial and mechanical repair training, machinist, fabrication, and pipefitting training.

Labor Market Information: Advanced Manufacturing I & II

<https://www.onetonline.org/>

Yearly Wages for Computer-Controlled Machine Tool Operators, Metal and Plastic in CALIFORNIA

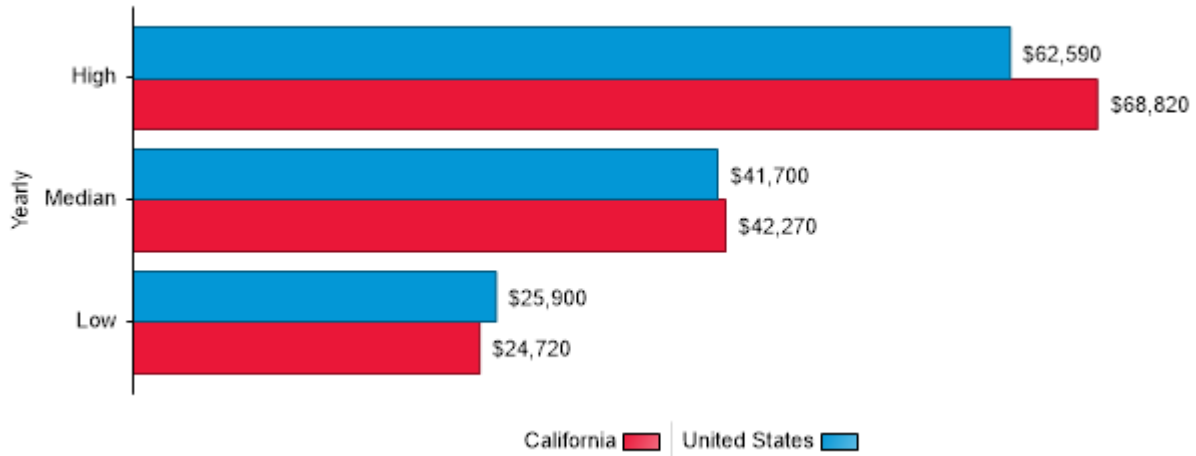


Projected Employment for Computer-Controlled Machine Tool Operators, Metal and Plastic in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	148,800	174,800	18%	7,120

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	10,400	13,100	+26%	590

Yearly Wages for Machinists in CALIFORNIA

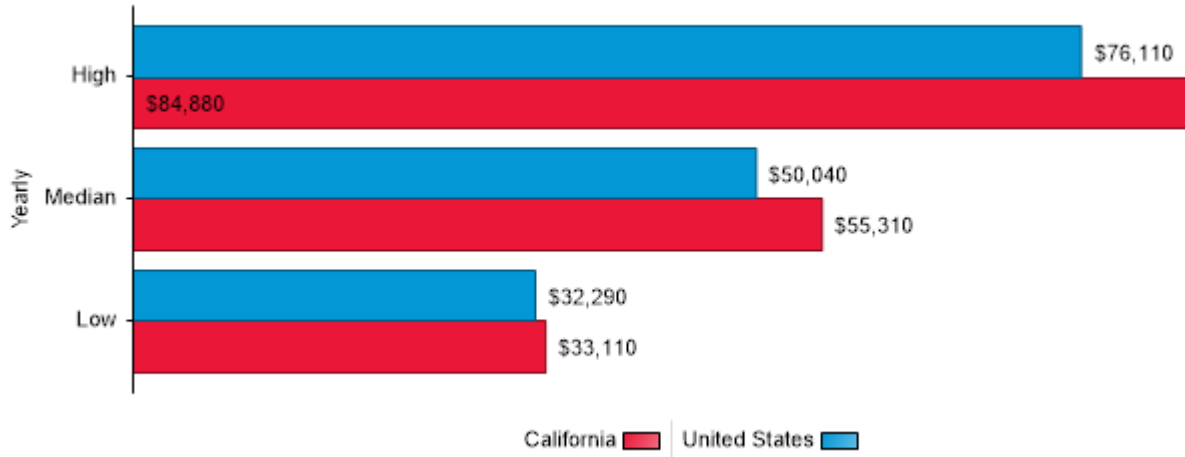


Projected Employment for Machinists in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	399,700	438,900	10%	15,470

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	33,800	40,200	+19%	1,620

Yearly Wages for Industrial Machinery Mechanics in CALIFORNIA



Projected Employment for Industrial Machinery Mechanics in CALIFORNIA

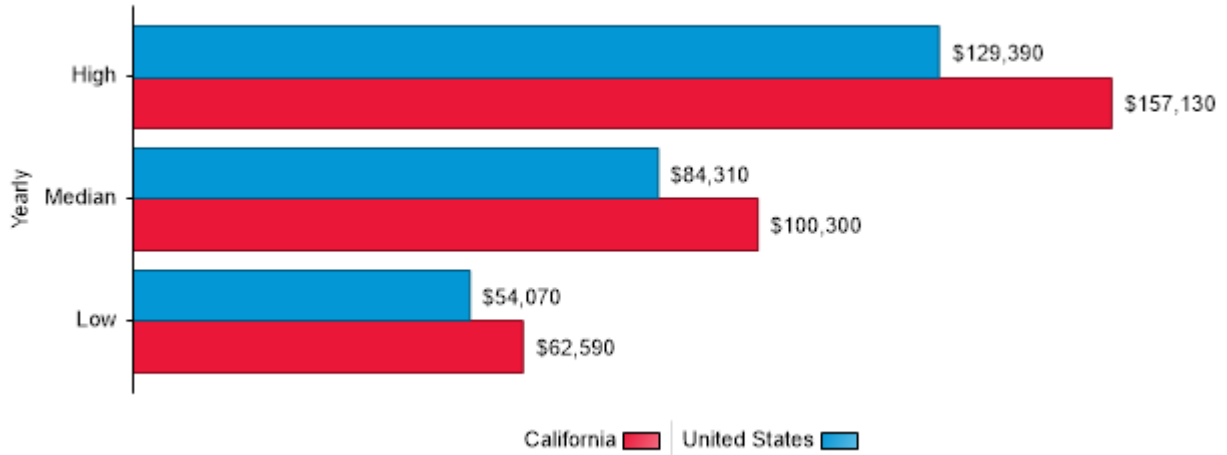
National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	332,200	391,900	18%	14,590

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	24,400	30,600	+25%	1,250

Labor Market Information: STEAM Shop

<https://www.onetonline.org/>

Yearly Wages for Industrial Engineers in CALIFORNIA

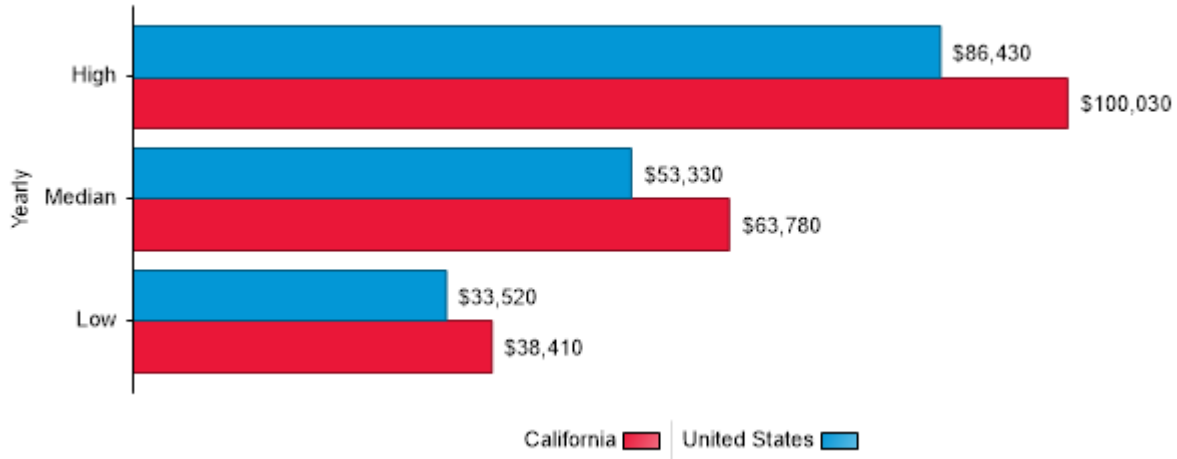


Projected Employment for Industrial Engineers in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	241,100	243,200	1%	7,280

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	24,700	27,200	+10%	980

Yearly Wages for Industrial Engineering Technicians in CALIFORNIA

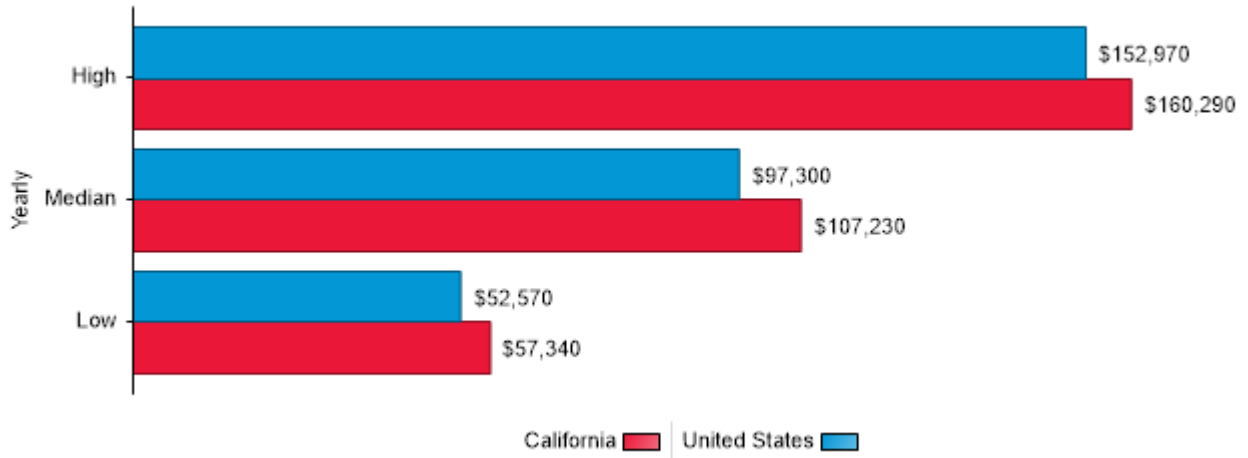


Projected Employment for Industrial Engineering Technicians in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	66,500	63,500	-5%	1,630

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	4,100	4,400	+7%	130

Yearly Wages for Engineers, All Other in CALIFORNIA

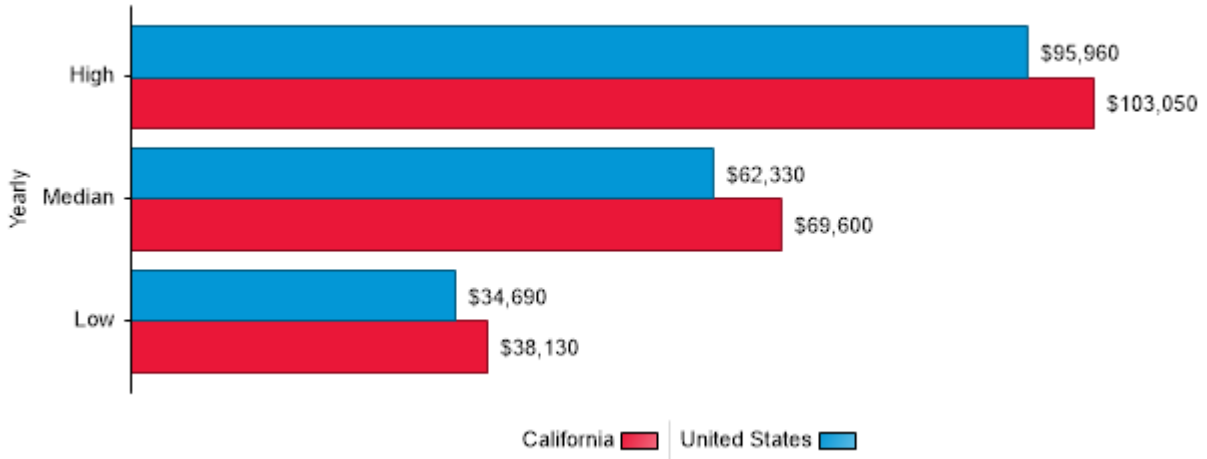


Projected Employment for Engineers, All Other in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	136,900	142,300	4%	3,300

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	18,500	21,100	+14%	630

Yearly Wages for Engineering Technicians, Except Drafters, All Other in CALIFORNIA

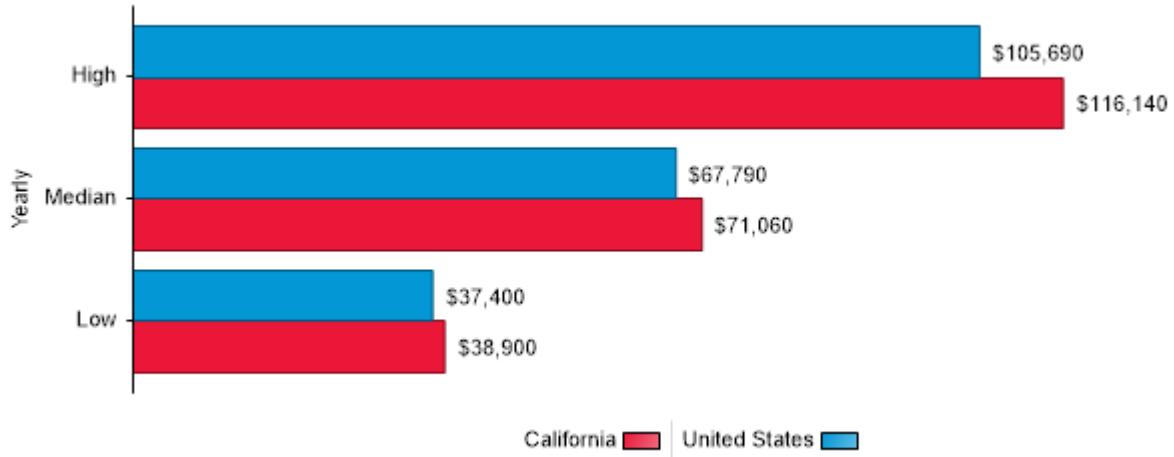


Projected Employment for Engineering Technicians, Except Drafters, All Other in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	70,100	69,900	0%	1,710

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	9,200	10,200	+11%	320

Yearly Wages for Commercial and Industrial Designers in CALIFORNIA



Projected Employment for Commercial and Industrial Designers in CALIFORNIA

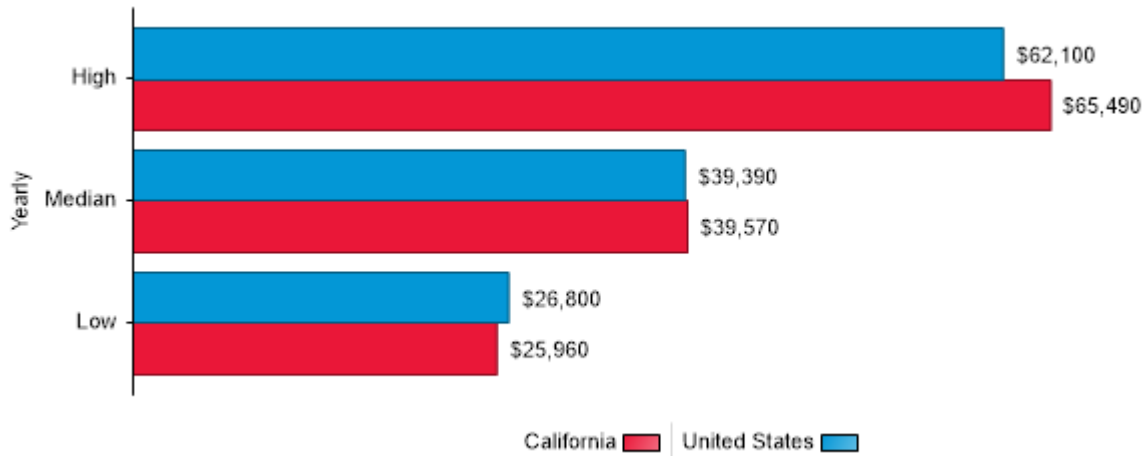
National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	38,400	39,200	2%	990

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	5,300	5,600	+6%	160

Labor Market Information: Welding Occupations

<https://www.onetonline.org/>

Yearly Wages for Welders, Cutters, Solderers, and Brazers in CALIFORNIA

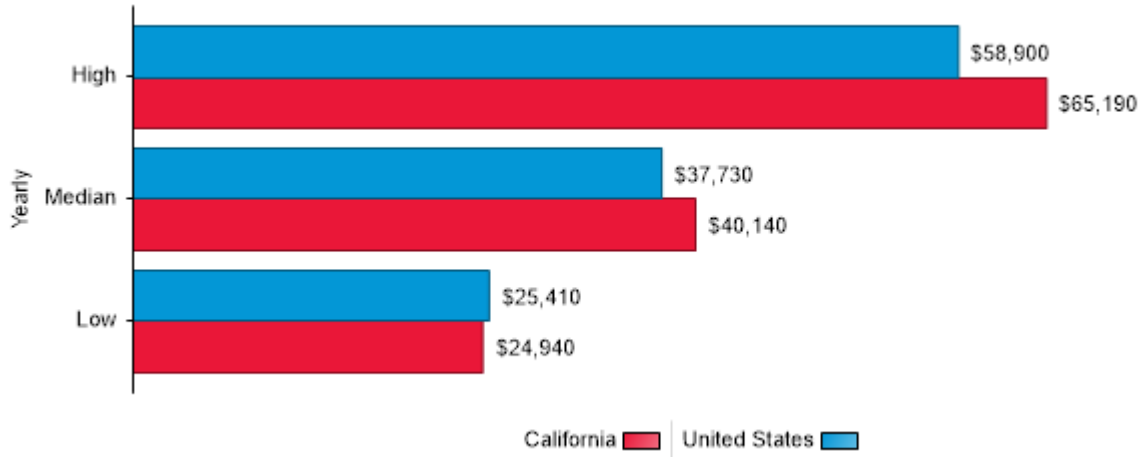


Projected Employment for Welders, Cutters, Solderers, and Brazers in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	397,900	412,300	4%	12,850

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	28,400	31,400	+11%	1,110

Yearly Wages for Structural Metal Fabricators and Fitters in CALIFORNIA



Projected Employment for Structural Metal Fabricators and Fitters in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	79,200	80,800	2%	1,460

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	6,700	7,600	+13%	210