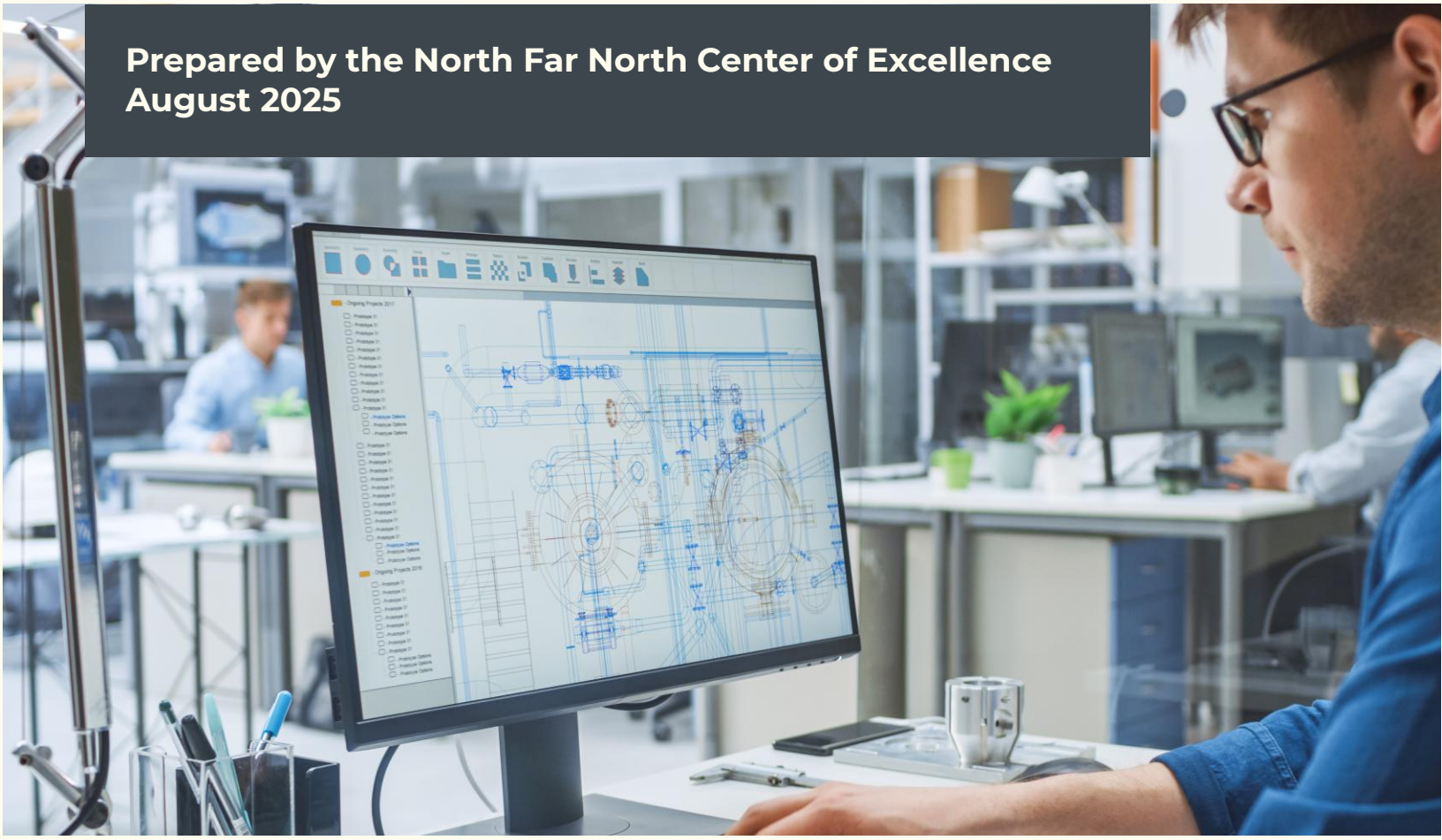
Labor Market Analysis for Program Recommendation:

Computer-Aided Drafting and Design (CAD/CADD) Skills in Greater Sacramento

Prepared by the North Far North Center of Excellence
August 2025



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CENTER OF EXCELLENCE FOR LABOR MARKET RESEARCH
NORTH FAR NORTH

Summary

The North Far North Center of Excellence for Labor Market Research (NFN COE) prepared this report to provide an analysis of occupational demand and educational supply for the studied occupations employed across the 22-county North Far North region. This report aims to determine if demand in the local labor market is unmet by the supply from existing community college programs and other postsecondary training providers, with a primary focus on training that leads to living wage jobs in middle-skilled occupations.[1]

Key Findings

- **Occupations outside of Drafting-specific roles show a moderate demand for CADD-related skills.** Eight out of the top 10 occupations that were most likely to request CADD-related skills in their job postings were outside of drafting-specific roles.
- **Possessing CADD-related skills does not always translate into higher salaries.** Among the top 10 occupations most likely to request CADD-related skills, median advertised salaries were generally similar between postings that required CADD skills and those that did not. Among the bachelor-degree and beyond occupations in particular, postings requiring the CADD skill group did not have a higher median advertised salary.
- **There is a supply gap for CADD-related skills.** Only 25 annual awards are granted in mechanical and electro-mechanical drafting. The annual openings for drafting occupations alone (Mechanical Drafting and Drafters, All Other) exceed this supply, with 30 annual openings between them.

Recommendation

Based on the findings, the North Far North COE recommends that community colleges **exercise caution** in developing new programs related to CADD skills. Community colleges should **modify existing programs** to keep them in line with labor market needs. Key considerations include:

- Many occupations demonstrated demand for skills covered in this report, especially for SolidWorks/Computer-Aided Design skills. However, these skills do not provide a salary premium.
- The drafting programs offered at community colleges do not prepare students for transfer and do not offer Associate's transfer degrees.
- The supply gap for the drafting-focused occupations is small (5 annually).
- Completing a CADD-focused program is likely insufficient training for students to secure entry-level employment in the listed occupations, except for drafting occupations. Students interested in the following career paths should seek additional training relevant to those careers.

[1] Pursuant to California Education Code §78015, labor market information (LMI) is required for all new career education certificate and degree program proposals, and the North Far North Regional Consortium (NFNRC) requires LMI to come from the NFN COE. This report should serve to satisfy those requirements.

Introduction

The North Far North Center of Excellence (COE) was asked to provide labor market information for a newly proposed career education program at a regional community college. (See Appendix A for methodology and data sources.)

Traditionally, engineering industries employed drafting professionals to manually draw technical diagrams. This work has shifted over the years to relying on Computer-Aided Drafting and Design (CAD/CADD) software. Now, drafting is often a skill within engineering occupations as opposed to the focus of a singular occupation. This historic decline in drafting occupations was covered in greater detail in a report by the COE in March 2025 on Computer-Aided Design and Drafting that covered all drafting occupations.[2]

At Sierra College, the CADD-focused curriculum is split into civil/architectural drafting and mechanical drafting. While these pathways have coursework in common, the underlying software differs between these two fields. This report examines the value of CADD skills in mechanical and manufacturing engineering professions, specifically, in the Greater Sacramento subregion.

[2] Benzing, Ebony. 2024. "Computer-Aided Design and Drafting (CADD/CAD) in the Greater Sacramento Subregion." https://coeccc.net/greater-sacramento/2025/06/computer-aided-design-and-drafting-2/

Demand for CADD Skills

A search of online job postings revealed moderate demand for CADD-related skills. Postings were filtered to focus on roles in fields closely related to mechanical engineering (not civil or architectural).

Between September 2024 and August 2025, there were 668 online job postings for CADD-related skills in the Greater Sacramento subregion.[3] The number of postings by each type of skill searched is shown in Exhibit 1. These four skills will be referred to as the CADD skill group for this report.

Exhibit 1. Job Postings for CADD Skill Group

Skill	Number of Job Postings
SolidWorks/Computer-Aided Design	332
Solid Modeling/3D Modeling	155
Geometric Dimensioning and Tolerancing	146
Document Control	130
Greater Sacramento Total	**668**

*Many job postings featured multiple skills, so the total is less than the sum of each individual skill.

The following sections provide individual job search results and traditional labor market data for occupations associated with CADD skills.

The following sections summarize the percentile hourly earnings for the selected occupations. Those occupations with entry-level earnings below the living wage for a single working adult are highlighted in red. The living wage for a single working adult and a working family residing in the county of the community college district that requested this report is reported in Exhibit 2. For additional information about changes to NFN COE's living wage comparisons, see Appendix B.

Exhibit 2. Community college district's living wage

Requesting College	Living Wage – Working Adult	Living Wage – Working Family
Sierra	$23.92	$48.86

[3] The 22-county North Far North is a dual region. It is represented by the North (Greater Sacramento) subregion that covers seven counties, including El Dorado, Nevada, Placer, Sacramento, Sutter, Yolo, and Yuba, and the 15-county Far North subregion which includes Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama, and Trinity.

Top Occupations Requesting CADD Skill Group

Exhibit 3 shows the top 10 occupations with the most job postings requesting the skill group from September 2024 to August 2025 within the Greater Sacramento subregion. Job Postings with Skill Group is the number of job postings with any of the CAD-related skills. All relevant job postings show the total number of job postings for that occupation that are still focused on mechanical engineering, regardless of whether they include CADD skills or not. For a more comprehensive list of all occupations associated with the CADD skill groups, please contact the COE.

Exhibit 3. Top 10 Occupations with Job Postings Requesting CADD-related Skills

Occupation	Job Postings with Skill Group	Median Advertised Salary with Skill Group	Percentage of Occupational Job Postings with Skill Group	All relevant Job Postings	Median Advertised Salary without Skill Group
Mechanical Engineers	128	$51.08	34.9%	367	$52.80
Industrial Engineers	67	$54.03	25.3%	265	$54.03
Machinists	43	$35.48	31.2%	138	$32.62
Inspectors, Testers, Sorters, Samplers, and Weighers	41	$26.09	10.9%	376	$26.46
Production Workers, All Other	38	$19.94	5.6%	679	$20.92
Drafters, All Other	32	$27.57	76.2%	42	$31.02
Commercial and Industrial Designers	32	$38.81	61.5%	52	$59.82
Project Management Specialists	24	$55.51	3.9%	609	$56.74
First-Line Supervisors of Production and Operating Workers	15	$37.54	7.3%	206	$38.52
Mechanical Drafters	14	$24.98	66.7%	21	$28.43
Total	**434**	**$37.54**		**2755**	**$35.08**

Exhibit 4 displays the current employment, projected annual job change and openings, hourly wages, and entry-level education for the top 10 occupations associated with the CADD skill group. These job counts include all jobs in each occupation, regardless of whether they are related to mechanical engineering.

Exhibit 4. 2024 - 2029 Employment, annual job openings, and entry-level education requirements

Occupation	2024 Jobs	2024-2029 Projected Job Change	Average Annual Job Openings	25th Percentile Hourly Earnings	Median Hourly Earnings
Mechanical Engineers (17-2141)	1,329	9%	99	$41.86	$55.35

Occupation	2024 Jobs	2024-2029 Projected Job Change	Average Annual Job Openings	25th Percentile Hourly Earnings	Median Hourly Earnings
Industrial Engineers (17-2112)	723	19%	73	$40.94	$52.37
Machinists (51-4041)	795	8%	97	$28.75	$36.55
Inspectors, Testers, Sorters, Samplers, and Weighers (51-9061)	2,259	4%	285	$20.73	$24.52
Production Workers, All Other (51-9199)	2,008	0%	226	$16.83	$18.29
Drafters, All Other (17-3019)	119	0%	11	$26.27	$31.61
Commercial and Industrial Designers (27-1021)	137	10%	12	$27.21	$37.86
Project Management Specialists (13-1082)	7,111	6%	586	$40.33	$56.15
First-Line Supervisors of Production and Operating Workers (51-1011)	2,392	8%	274	$28.44	$36.06
Mechanical Drafters (17-3013)	202	2%	19	$28.75	$36.55
Greater Sacramento Total	**17,075**	**6%**	**1,682**		

In-Demand Co-Occurring Skills

Exhibit 7 shows the most co-occurring specialized, common, and software/technology skills associated with the CADD skill group studied in this report.[4]

The skills listed here may be used to further curriculum development within programs focusing on CADD skills and other drafting-related skills.

Exhibit 7. In-Demand Co-Occurring Skills

Specialized Skills	Common or Employability Skills	Software and Technology Skills
• Project Management • Mechanical Engineering • Continuous Improvement Process • Manufacturing Processes • Construction • Tooling/Machining	• Communication • Problem Solving • Management • Operations • Detail Oriented • Microsoft Office	• Microsoft Office • Computer Aided Three-Dimensional Interactive Application (CATIA) • PTC Creo (CAD Suite) • G-Codes • Design Software

[4] Specialized skills are those primarily required to perform specific tasks in an occupation. Common skills are typically related to employability; these are skills that are prevalent across many occupations and usually include a mix of interpersonal attributes and soft skills. Software skills are specific to any software tool or programming component used to accomplish tasks in a job.

• Quality Management Systems • Industry Standards • New Product Development • Computer Numerical Control (CNC)	• Leadership • Writing • Teamwork • Coordinating	• Ansys Simulation Software • Spreadsheets • SAP Applications • Navisworks (BIM Software) • Microsoft Visio

Education and Training Requirements

The U.S. Bureau of Labor Statistics (BLS) assigns each occupation a typical entry-level education, related work experience, and on-the-job training category in its projection data. Exhibit 8 summarizes these requirements by occupation.

Exhibit 8. Typical entry-level job requirements for the studied occupations

Occupation	Entry-Level Education	Work Experience	On-The-Job Training
Mechanical Engineers	Bachelor's degree	None	None
Industrial Engineers	Bachelor's degree	None	None
Machinists	High school diploma or equivalent	None	Long-term on-the-job training
Inspectors, Testers, Sorters, Samplers, and Weighers	High school diploma or equivalent	None	Moderate-term on-the-job training
Production Workers, All Other	High school diploma or equivalent	None	Moderate-term on-the-job training
Drafters, All Other	Associate's degree	None	None
Commercial and Industrial Designers	Bachelor's degree	None	None
Project Management Specialists	Bachelor's degree	None	None
First-Line Supervisors of Production and Operating Workers	High school diploma or equivalent	Less than 5 Years	None
Mechanical Drafters	Associate's degree	None	None

The U.S. Census Bureau tracks the highest education level attained by workers in all occupations. Exhibit 9 presents this data for the current U.S. workforce in the studied occupations.

Exhibit 9. Educational attainment for workers 25 years and older by occupation, 2021-22

Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards issued in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.

TOP Program and Code	Aligned CIP Programs and Codes
• Drafting Technology (0953.00) • Electrical, Electronic, and Electro-Mechanical Drafting (0953.30) • Mechanical Drafting (0953.40)	• Drafting and Design Technology/Technician, General (15.1301) • CAD/CADD Drafting and/or Design Technology/Technician (15.1302) • Electrical/Electronics Drafting and Electrical/Electronics CAD/CADD (15.1305) • Mechanical Drafting and Mechanical Drafting CAD/CADD (15.1305)

Community college supply

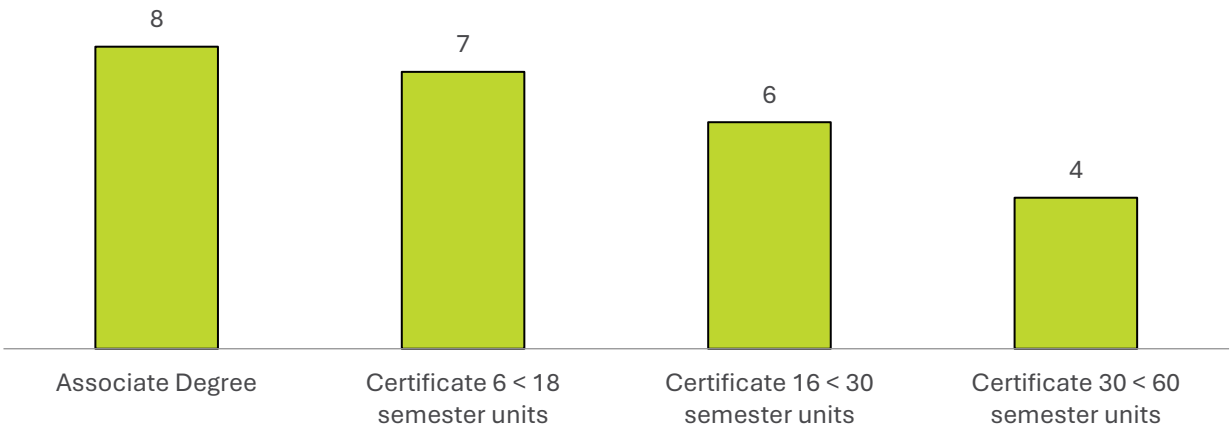
Exhibits 10 and 11 summarize the three-year average of awards (certificates and degrees) conferred by the subregion's community college programs relevant to the occupations studied. There are no other postsecondary institutions outside of the community colleges currently offering the aligned programs within the Greater Sacramento subregion.

Exhibit 10. Average annual community college awards by TOP program

TOP Program and Code	College	2021-22 Annual Awards	2022-23 Annual Awards	2023-24 Annual Awards	Three-Year Average Awards
Drafting Technology (0953.00)	American River	8	6	16	10
	Sacramento City	4	6	10	7
	Sierra	5	5	3	4
Subtotal		**17**	**17**	**29**	**21**
Electrical, Electronic, and Electro-Mechanical Drafting (0953.30)	Sacramento City	0	1	4	2
Subtotal		**0**	**1**	**4**	**2**
Mechanical Drafting (0953.40)	Sierra	2	5	1	3
Subtotal		**2**	**5**	**1**	**3**
Totals		**19**	**23**	**34**	**25**

Note: Values in the table are rounded to the nearest whole number. However, subtotals and totals are calculated using unrounded values.

Exhibit 11. Average annual community college awards by award type and program area



Conclusion and Recommendations

Data insights

Demand— A total of 668 job postings requested skills in the CADD skill group. Many of these occupations were outside of drafting-specific roles.

Living Wage—Eight out of the top 10 occupations with job postings advertising the CADD skill group had entry-level hourly wages that exceeded the living wage of $23.92 for a single working adult in Sierra College's community college district, with the exception being Inspectors, Testers, Sorters, Samplers, and Weighers and Production Workers, All Other. Median hourly wages advertised in job postings were generally higher than the 25th percentile for hourly wages.

Education—Five occupations within the top 10 (Mechanical Drafter; Inspectors, Testers, Samplers, and Weighers; Machinists; First-Line Supervisors of Production and Operations Workers; and Drafters, All Other) were middle-skill occupations that had educational attainment that aligned well with community college offerings. Four occupations within the top 10 (Project Management Specialist, Industrial Engineers, Mechanical Engineers, and Commercial and Industrial Designers) were above-middle skill occupations that had educational attainment that aligned well with transfer opportunities.

Supply Gap— An average of 25 awards related to electro-mechanical and mechanical drafting are granted annually in the Greater Sacramento subregion. Amongst the top 10 occupations, the annual openings for just the drafting occupations (Mechanical Drafting and Drafters, All Other) exceeded this supply with 30 annual openings between them.

Recommendation

Based on the current analysis, the North Far North COE recommends that community colleges **exercise caution** in creating new programs related to CADD skills. The COE will defer to community colleges for program modifications.

New Program Recommendation		
Proceed	Use Caution	Do Not Proceed
☐	☒	☐

Support for Program Modification	
Yes	No
☒	☐

Appendix A. Methodology and Data Sources

Labor market and educational supply data compiled in this report derive from a variety of sources. Occupations were identified by using the Center of Excellence TOP-to-CIP-to-SOC Crosswalk: http://coeccc.net/. This report's findings were primarily determined with labor market and educational supply data from the Bureau of Labor Statistics (BLS), the economic modeling firm and job postings aggregator Lightcast, and the California Community Colleges Chancellor's Office.

Data Sources

The following table summarizes the data sources used in this study.

Data Type	Source
Labor Market Information and Job Postings	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast's occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and non-QCEW employee classes of worker) and the American Community Survey (self-employed and extended proprietors). For more information, see https://lightcast.io/.
Living Wage	The living wage is derived from the Insight Center's California Family Needs Calculator, which measures the income necessary for an individual or family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. The Chancellor's Office uses wage data to calculate the percentage of students who attained a regional living wage. For more information, visit https://selfsufficiencystandard.org/California/.
Typical Education Level, On-the-job Training, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, visit https://www.bls.gov/emp/documentation/education/tech.htm.
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	The O*NET database includes information on skills, abilities, knowledge areas, work activities, and interests associated with occupations. For more information, visit https://www.onetonline.org/help/online/.
Labor Force, Employment and Unemployment Estimates	The California Employment Development Department's Labor Market Information Division is a source of labor market and workforce data. For more information, visit labormarketinfo.edd.ca.gov.
Educational Supply	The CCCCO Management Information Systems (MIS) Data Mart provides information about students, courses, student services, outcomes, and faculty and staff. For more information, visit https://datamart.cccco.edu. The Chancellor's Office Curriculum Inventory System (COCI) collects data on courses and programs offered by the California Community Colleges. For more information, visit https://coci2.ccctechcenter.org/. The National Center for Education Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS) collects data from providers of postsecondary education, including the number of postsecondary awards earned (completions). For more information, visit https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions.

Living Wage

Beginning in October 2024, to determine if an occupation meets the living wage threshold, the NFN COE compared the 25th percentile hourly wage of an occupation in the subregion to the

living wage for a single adult (no dependents) living in the county where the requesting community college district was located.

This change aligned with the Chancellor's Office methodology for calculating the share of students earning a living wage after leaving the California Community College system, as reported in the Data Vista living wage metric (802S). For details, see the *DataVista Metric Definition Dictionary*.

The NFN COE updated this practice as needed to remain consistent with the Chancellor's Office. The table below summarizes hourly living wages by community college district and county.

		2024 Single Adult Living Wage	
Community College District	**County**	**Hourly**	**Annual**
Butte-Glenn	Butte	$16.77	$35,416
Feather River	Plumas	$15.11	$31,909
Lake Tahoe	El Dorado	$22.11	$46,703
Lassen	Lassen	$14.81	$31,274
Los Rios	Sacramento	$21.17	$44,709
Mendocino-Lake	Mendocino	$17.06	$36,039
Redwoods	Humboldt	$16.59	$35,046
Shasta-Tehama-Trinity Joint	Shasta	$16.99	$35,874
Sierra Joint	Placer	$23.92	$50,519
Siskiyou Joint	Siskiyou	$14.51	$30,639
Yuba	Sutter	$17.08	$36,074
California Minimum Wages			
All industries, except fast food and healthcare (Effective January 2025)		$16.00	$33,280
Fast food (Effective April 2024)		$20.00	$41,600
Healthcare (Effective October 2024)		$18.00-$23.00, depending on facility type	$37,440-$47,840

Sources: University of Washington Self Sufficiency Standard and State of California Department of Industrial Relations, "Minimum Wage," https://www.dir.ca.gov/dlse/minimum_wage.htm

For more information, contact:

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