

Residential Maintenance

Inland Empire/Desert Region (Riverside and San Bernardino counties)

This workforce demand report uses state and federal job projection data developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.

Summary

- Community college construction crafts technology programs provide the knowledge, skills, and abilities that lead to the maintenance and repair workers, general occupation.
- Employment is expected to increase by 8% through 2025, with 1,471 job openings available annually over this period.
- This occupation's median hourly earnings are \$21.57 per hour, below the regional \$24.36 per hour self-sustainable earnings standard for a single adult with one child.
- Regional community colleges have issued 25 awards annually in construction crafts technology programs over the last three academic years. Other postsecondary education providers in the region have issued 48 awards annually in programs related to construction crafts technology.
- The Centers of Excellence recommends expanding construction crafts technology programs to meet regional demand for maintenance and repair workers. For more information, see the [recommendation section](#).

Introduction

This report aims to quantify regional supply and demand related to residential maintenance workers. California Community College construction crafts technology (TOP 0952.00) programs provide the training most likely to prepare students for employment in residential maintenance positions. Construction crafts technology programs prepare students for employment through instruction related to the lay out, fabrication, erection, installation, and repair of buildings, highways, airports, and other structures and fixtures, including framing, construction materials, estimating, blueprint reading, and use of tools (Taxonomy of Programs, 2012). Construction crafts technology programs' knowledge, skills, and abilities lead to the maintenance and repair worker, general occupation.

Maintenance and Repair Workers, General (SOC 49-9071)

Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of a building in repair. Duties may involve pipe fitting; HVAC maintenance; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs.

Sample job titles: Building Mechanic, Equipment Engineering Technician, Facilities Technician, Maintenance Engineer, Maintenance Journeyman, Maintenance Man, Maintenance Mechanic, Maintenance Specialist, Maintenance Technician, Maintenance Worker

Entry-Level Educational Requirement: High school diploma or equivalent

Work Experience Required: None

Training Requirement: Between one- and twelve-months on-the-job training

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 39%

Job Counts and Projections

In 2020, there were 13,954 maintenance and repair worker jobs across all industries in the Inland Empire/Desert Region. Employment for all industries is projected to increase by 8% through 2025; 1,471 annual job openings are expected over this period. Exhibit 1 displays the job counts, five-year projected job growth, job openings, and the share of incumbent workers age 55 years and greater in the region.

Exhibit 1: Five-year projections, 2020-2025

2020 Jobs	2025 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
13,954	15,076	8%	7,356	1,471	32%

Source: Emsi 2021.3

Industry Employers

The labor market information provided in this report represents employment across all industries. Residential maintenance industries reported 3,332 maintenance and repair workers, general jobs in 2020, or 24% of this occupation's regional employment. Employment for maintenance and repair workers is projected to increase by 7% through 2025 in residential maintenance industries.

Residential maintenance industries include:

- Real Estate (NAICS 531)
- Nursing and Residential Care Facilities (NAICS 623)
- Traveler Accommodation (7211)
- Rooming and Boarding Houses, Dormitories, and Workers' Camps (7213).

Other major industries employing maintenance and repair workers, general include:

- Government (23.5% of maintenance and repair workers, general jobs. Mostly local government, excluding education and hospitals, 13.4%)
- Transportation and warehousing (18.2% of jobs, mostly warehousing and storage, 9.5%)
- Manufacturing (10.4% of jobs)

A search of online job advertisements over the last 12 months for maintenance and repair worker jobs was conducted to reveal the details about the employers seeking residential maintenance workers, including the time it takes to fill positions, earnings information, and in-demand skills. The job advertisement search for maintenance and repair workers was limited to the industries likely to employ residential maintenance workers. Approximately 21% (729 job ads) of the 3,516 job advertisements for maintenance and repair workers were posted in industries that employ residential maintenance workers.

Exhibit 2 shows the number of job ads posted during the last 12 months in the region and the regional and statewide average time to fill this job. On average, regional employers fill online job advertisements in 35 days, the same as the statewide average time to fill. Time to fill information indicates that regional employers face similar challenges filling open positions as other employers in California.

Exhibit 2: Job ads and time to fill

Job Ads	Regional Average Time to Fill (Days)	Statewide Average Time to Fill (Days)
729	35	35

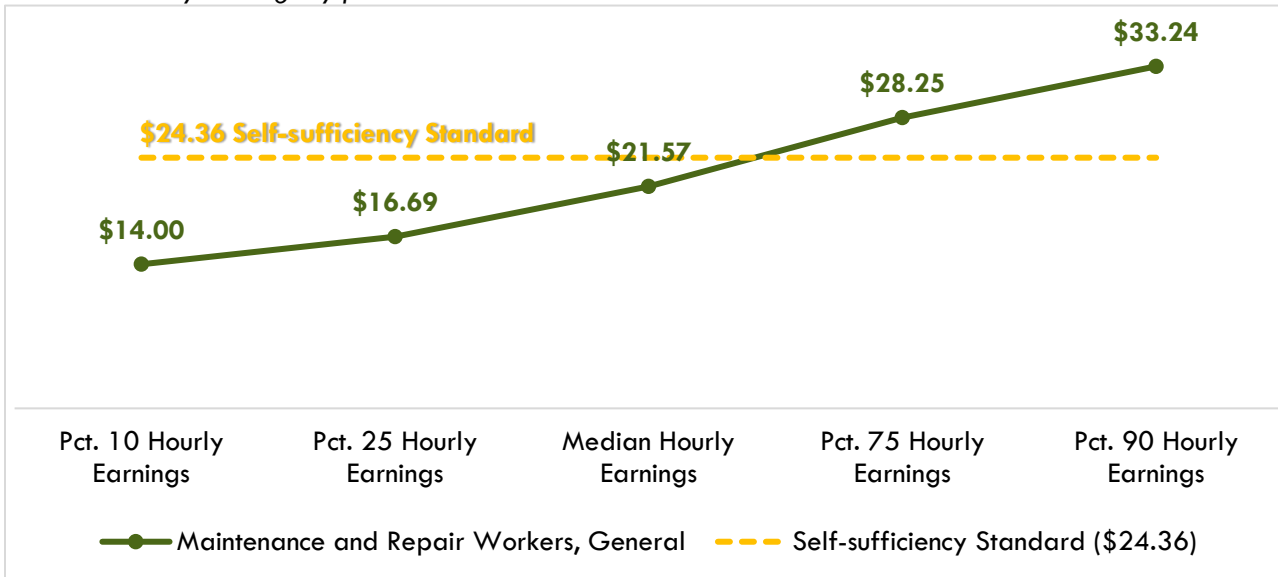
Source: Burning Glass – Labor Insights

Earnings and Benefits

Community colleges should ensure their training programs lead to employment opportunities that provide self-sustainable income. The University of Washington estimates that a self-sufficient hourly rate for a single adult with one school-age child is \$24.36 per hour or \$51,452 annually in Riverside County; \$23.73 per hour or \$50,119 annually in San Bernardino County (Pearce, 2021). For this study, the higher hourly earnings requirement in Riverside County is adopted as the self-sufficiency standard for the two-county region.

Exhibit 3 displays the hourly earnings for maintenance and repair workers. The hourly earnings for maintenance and repair workers do not surpass the regional self-sufficiency standard until the 75th percentile, indicating that at least 25% of workers in the field earn a self-sustainable wage.

Exhibit 3: Hourly earnings by percentile



Source: Emsi 2021.3

According to the occupational guides developed by the California Labor Market Information Division, many maintenance and repair workers receive health and disability insurance plans, paid vacation, holiday, and sick leave (Detailed Occupational Guides, 2021).

Advertised Salary from Online Job Ads

Exhibit 4 displays online job ad salary data for residential maintenance workers over the last 12 months in the region. Online job ad salary information reveals that employers are willing to pay residential maintenance workers a median annual salary of \$37,000, below the region's \$51,452 annual (\$24.36 hourly) self-sufficiency standard. Consider the salary information with caution since only 39% (284 out of 729) of online job advertisements for this occupation provided salary information. The salary figures are prorated to reflect full-time, annual earnings status.

Exhibit 4: Advertised salary information

Number of job ads	Real-Time Salary Information				Median Annual Salary
	Less than \$35,000	\$35,000 to \$49,999	\$50,000 to \$74,999	More than \$75,000	
284	39%	52%	5%	4%	\$37,000

Source: Burning Glass – Labor Insights

Employers, Skills, Education, and Work Experience

Exhibit 5 displays the employers that posted more than ten job ads for residential maintenance workers in the region over the last 12 months. Showing employer names provides some insight into where students may find

employment after completing a program. Marriott International, Inc. posted the most job ads for residential maintenance workers in the region.

Exhibit 5: Employers posting the most job ads for residential maintenance workers

Top Employers	Job Ads
Marriott International, Inc.	44
FPI Management	36
Cushman & Wakefield	28
ConAm Management Corporation	23
Lincoln Property Company	18
Advanced Management Company	17
MG Properties	15
Motel 6	14
Hilton Worldwide Holdings, Inc.	14
WinnCompanies	12
Atria Senior Living	11
All other employers	497
Total	729

Source: Burning Glass – Labor Insights

Exhibit 6 lists a sample of specialized and employability skills employers' seek when looking for workers to fill residential maintenance positions. Specialized skills are occupation-specific skills that employers request for industry or job competency. Employability skills are foundational skills that transcend industries and occupations; this category is often referred to as "soft skills." The skills requested in job ads may be utilized to guide curriculum development. Please note that while residential maintenance jobs require skills such as carpentry, HVAC, and plumbing, these workers are not specialists in these disciplines.

Exhibit 6: Sample of in-demand skills from employer job ads

Specialized skills (n=712)	Employability skills
<ul style="list-style-type: none"> • Plumbing • HVAC • Painting • Carpentry • Cleaning 	<ul style="list-style-type: none"> • Preventive Maintenance • Physical Abilities • Troubleshooting • Communication Skills • Organizational Skills

Source: Burning Glass – Labor Insights

According to the Bureau of Labor Statistics, approximately 39% of incumbent workers in this field hold a community college-level of educational attainment; "some college, no degree" and an "associate degree." The vast majority (99%) of the job advertisements for residential maintenance workers sought candidates with a high school diploma or vocational training. Exhibit 7 displays the typical entry-level education, educational attainment, and minimum advertised education requirements for maintenance and repair workers.

Exhibit 7: Typical entry-level education, educational attainment, and minimum advertised education requirements

Typical Entry-Level Education Requirement	CC-Level Educational Attainment*	Real-Time Minimum Advertised Education Requirement			
		Number of Job Ads	High school or vocational training	Associate degree	Bachelor's degree or higher
High school diploma or equivalent	39%	371	99%	1%	-

Source: Emsi 2021.3, Burning Glass – Labor Insights

*Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework

Exhibit 8 displays the work experience typically required and the real-time work experience requirements from employer job ads for maintenance and repair workers. Most employers sought residential maintenance workers with zero to two years of work experience.

Exhibit 8: Work experience required and real-time work experience requirements

Work Experience Typically Required	Number of job ads	Real-Time Work Experience		
		0 – 2 years	3 – 5 years	6+ years
None	347	85%	15%	-

Source: Emsi 2021.3, Burning Glass – Labor Insights

Student Completions and Programs Outcomes

Exhibit 9 displays completion data for construction crafts technology (0952.00) programs in the region.

Construction crafts technology programs prepare students for employment related to the lay out, fabrication, erection, installation, and repair of buildings, highways, airports, and other structures and fixtures, including framing, construction materials, estimating, blueprint reading, and use of tools (Taxonomy of Programs, 2012). While construction crafts technology programs provide the broad educational experience needed to prepare students for employment as maintenance and repair workers, regional construction crafts technology programs do not provide education specific to residential maintenance.

Over the last three academic years, from 2017 to 2020, regional colleges have issued 25 awards annually from construction crafts technology programs. The student completion and outcome methodology are available in the Appendix.

Exhibit 9: 2017-20, Annual average community college awards for construction crafts technology programs in the region

TOP 0952.00 – Construction Crafts Technology (Local Program Title)	Associate Degree	Certificate requiring 18 to <30 semester units	Certificate requiring 16 to <30 semester units	Certificate requiring 6 to <18 semester units	Total CC Annual Average Awards, Academic Years 2017-20
Mt. San Jacinto (Construction Technology)	-	-	-	-	0
Palo Verde (Building Construction Technology)	1	1	1	18	20
Victor Valley (Building Construction, Construction Technology, Basic Framing and Carpentry)	3	1	0	0	4
Total	4	2	1	18	25

Source: MIS Data Mart, COCI

California program outcome data may provide a useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP code and region is provided in Exhibit 10. The outcome methodology is available in the appendix section of this report.

Exhibit 10: 0952.00 – Construction crafts technology strong workforce program outcomes

Strong Workforce Program Metrics: 0952.00 – Construction Crafts Technology Academic Year 2018-19, unless noted otherwise	Inland Empire/Desert Region	California
Unduplicated count of enrolled students (2019-20)	318	3,884
Completed 9+ career education units in one year (2019-20)	34%	33%
Perkins Economically disadvantaged students	80%	65%
Students who attained a noncredit workforce milestone in a year (2019-20)	-	86%
Students who earned a degree, certificate, or attained apprenticeship (2019-20)	-	461
Transferred to a four-year institution (transfers)	-	40
Job closely related to the field of study (2017-18)	82%	79%
Median annual earnings (all exiters)	\$33,844	\$40,010
Median change in earnings (all exiters)	2%	25\$
Attained a living wage (completers and skills-builders)	59%	57%

Sources: LaunchBoard Community College Pipeline and Strong Workforce Program Metrics

Exhibit 11 displays awards reported by other postsecondary education providers in building construction technology (CIP 46.0415) programs. Completion data is compiled from the Integrated Postsecondary Education Data System (IPEDS) for the most recent three years available. On average, two other postsecondary education institutions in the region have issued 48 awards annually over the last three academic years.

Exhibit 11: Other postsecondary educational provider building construction technology training programs, three-year annual average credentials in the region

46.0415 – Building Construction Technology	Award 1<2 Academic Years	Other Educational Providers Annual Average Credentials, Academic Years 2016-19
Center for Employment Training (CET)-Coachella	35	35
Center for Employment Training (CET)-Colton	13	13
Total	48	48

Source: IPEDS

Recommendation

Community college construction crafts technology programs provide the knowledge, skills, and abilities that lead to the maintenance and repair workers, general occupation. Employment for maintenance and repair workers is expected to increase by 8% through 2025, with 1,471 job openings expected annually. This occupation's median hourly earnings are \$21.57 per hour, below the regional \$24.36 per hour self-sustainable earnings standard for a single adult with one child. The hourly earnings for maintenance and repair workers do not surpass the regional self-sufficiency standard until the 75th percentile, indicating that at least 25% of workers in the field earn a self-sustainable wage.

Regional community colleges have issued 25 awards in construction crafts technology (TOP 0952.00) programs over the last three academic years. Other postsecondary education providers in the region have issued 48 awards annually over the previous three academic years. Combined, regional postsecondary education providers have issued 73 awards annually.

The Centers of Excellence recommends expanding construction crafts technology programs aimed at training residential maintenance workers. Colleges considering this program should partner with applicable employers to document their demand for residential maintenance workers and the skills needed for students to earn self-sustainable earnings after exiting the program.

Contact

Michael Goss & Paul Vaccher
Centers of Excellence, Inland Empire/Desert Region
michael.goss@chaffey.edu

References

- Burning Glass Technologies. (2021). *Labor Insights/Jobs*. Retrieved from <https://www.burning-glass.com/>
- California Community Colleges Chancellor's Office. (2021). *Chancellor's Office Curriculum Inventory (COCI), version 3.0*. Retrieved from <https://coci2.ccctechcenter.org/programs>
- California Community Colleges Chancellor's Office. LaunchBoard. (2021). *California Community Colleges LaunchBoard*. Retrieved from <https://www.calpassplus.org/Launchboard/Home.aspx>
- California Community Colleges Chancellor's Office. LaunchBoard. (2021a). *Strong Workforce Program Metrics Data Element Dictionary*. Pg. 3. Retrieved from <https://www.calpassplus.org/MediaLibrary/calpassplus/launchboard/Documents/SWP-DED.PDF>
- California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. (2021). *Data Mart*. Retrieved from <https://datamart.cccco.edu/datamart.aspx>
- California Community Colleges Chancellor's Office, Curriculum and Instructional Unit, Academic Affairs Division. (2012). *Taxonomy of Programs, 6th Edition, Corrected Version*. Retrieved from <https://www.cccco.edu/-/media/CCCCO-Website/About-Us/Divisions/Digital-Innovation-and-Infrastructure/Research/Files/TOPmanual6200909corrected12513.ashx?la=en&hash=94C709CA83C0380828415579395A5F536736C7C1>
- Carnevale, A. P., Jayasundera, T., & Repnikov, D. (n.d.). *Understanding Online Job Ads Data*. Retrieved from <https://cew.georgetown.edu/wp-content/uploads/2014/11/OCLM.Tech.Web.pdf>
- Economic Modeling Specialists International (Emsi). (2021). *Datarun 2021.3*. Retrieved from <https://www.economicmodeling.com/>
- Labor Market Information Division. Employment Development Department of California. (2021). *Detailed Occupational Guides*. Retrieved from <https://www.labormarketinfo.edd.ca.gov/OccGuides/Search.aspx>
- National Center for O*NET Development. (2021). *O*NET OnLine*. Retrieved from <https://www.onetonline.org/>
- Pearce, D. University of Washington. (2021). *Self Sufficiency Standard – California*. Retrieved from <http://www.selfsufficiencystandard.org/california>
- U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics. *Integrated Postsecondary Education System (IPEDS)*. (2021). Retrieved from <https://nces.ed.gov/ipeds/use-the-data>

Appendix: Methodology

Exhibit 9 displays the average annual California Community College (CCC) awards conferred during the three academic years between 2017 and 2020 from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total of associate degrees and certificates issued during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variation that might be present in a single year.

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from California's Employment Development Department's Unemployment Insurance database records. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included in each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2021 a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS), administered by Santa Rosa Junior College (LaunchBoard, 2021 a).

Job advertisement data is limited to the information provided by employers and the ability of artificial intelligence search engines to identify this information. Additionally, preliminary calculations by Georgetown Center on Education and the Workforce found that "just 30 to 40 percent of openings for candidates with some college or an associate degree, and only 40 to 60 percent of openings for high school diploma holders appear online" (Carnevale et al., 2014). Online job advertisements often do not reveal employers' hiring intentions; it is unknown if employers plan to hire one or multiple workers from a single online job ad or collect resumes for future hiring needs. A closed job ad may not be the result of a hired worker.

Table 1. 2020 to 2025 job growth, wages, entry-level education, training, and work experience required for maintenance and repair workers in the Inland Empire/Desert Region (Riverside and San Bernardino counties combined)

Occupation (SOC)	2020 Jobs	5-Year Change (New Jobs)	5-Year % Change (New Jobs)	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage (10 th to 90 th percentile)	Median Hourly Wage (50 th percentile)	Average Annual Earnings	Entry-Level Education & On-The-Job-Training	Work Experience Required
Maintenance and Repair Workers, General (49-9071)	13,954	1,122	8%	1,471	\$14.00 to \$33.24	\$21.57	\$47,800	High school diploma or equivalent & 1-12 months	None

Source: Emsi 2021.3