

Environmental Control Technology Occupations

Riverside-San Bernardino-Ontario Metropolitan Statistical Area (Riverside and San Bernardino counties combined) and California

Job Opportunities

In 2016, there were nearly 31,500 heating, air conditioning, and refrigeration mechanics and installers (HVAC) jobs in California. About 11%, or 3,400 of these job opportunities were located in the Riverside-San Bernardino-Ontario MSA. Across the local region, HVAC employment is expected to increase 18% through 2021, slightly faster than the state overall (15%) during the same timeframe. Employers in the Riverside-San Bernardino-Ontario MSA will need to hire more than 2,400 workers over the next five years to fill new jobs and to backfill jobs that workers are permanently leaving (includes retirements).

Exhibit 1: Five-year projections for the HVAC occupation in the Riverside-San Bernardino-Ontario MSA and California

Region	2016 Jobs	2021 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
Riverside-San Bernardino-Ontario MSA	3,423	4,052	629	18%	2,407	481
California	31,467	36,138	4,671	15%	20,807	4,161

Source: EMSI 17.3

According to real-time job posting data, there were 222 job advertisements (ads) for HVAC jobs in the Riverside-San Bernardino-Ontario MSA during the last 12 months (September 2016 to August 2017). In the full-year 2016 there were 337 job ads; 275 job ads in 2015, and 175 job ads in 2014. Exhibit 2 shows the top job titles from the HVAC job ads posted during the last 12 months.

Exhibit 2: Top HVAC job titles in job ads in the Riverside-San Bernardino-Ontario MSA during the past year (Sep 2016 – Aug 2017)

Job Titles	Job Postings
HVAC Technician	34
HVAC Installer	32
Refrigeration Technician	31
HVAC Service Technician	20

Source: Burning Glass

Earnings

Wages for HVAC mechanics and installers are above the Self-Sufficiency Wage of \$12.00 for Riverside County and \$11.54 for San Bernardino County for a single adult with no children living in these areas. The average annual earnings for HVAC mechanics and installers in the region is \$45,500 per year, assuming full-time employment. Wage details for HVAC mechanics and installers in the Riverside-San Bernardino-Ontario MSA and California can be found below in Exhibit 3.

Exhibit 3: Earnings for HVAC mechanics and installers in the Riverside-San Bernardino-Ontario MSA and California

Region	Entry to Experienced Hourly Earnings Range*	Avg. Annual Earnings
Riverside-San Bernardino-Ontario MSA	\$14.38 to \$32.10	\$45,500
California	\$14.02 to \$40.46	\$51,400

*Entry Hourly is 10th percentile wage and experienced is 90th percentile wage.

Source: EMSI 17.3

Work Locations, Skills, and Education

The top worksite cities in the region for HVAC jobs were Riverside, Temecula, Rancho Cucamonga, San Bernardino, and Corona. Exhibit 4 lists the top specialized, soft, and software and programming skills that employers listed in online job postings when looking for workers to fill HVAC jobs.

Exhibit 4: Top skills in greatest demand for HVAC jobs in the Riverside-San Bernardino-Ontario MSA, Sep 2016-Aug 2017

Occupation	Specialized skills	Soft skills	Software and Programming skills
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	<ul style="list-style-type: none"> • HVAC • Repair • Inspection • Ventilation 	<ul style="list-style-type: none"> • Preventative Maintenance • Troubleshooting • Communication Skills • Physical Demand 	<ul style="list-style-type: none"> • Microsoft Office • Microsoft Word • Microsoft Excel • Microsoft PowerPoint

Source: Burning Glass

Exhibit 5 displays the typical entry-level education requirement according the Bureau of Labor Statistics, educational attainment for incumbent workers age 25 and older, and education level requested by employers in online job ads.

Exhibit 5: Online job ads with minimum advertised education requirements for HVAC jobs in the Riverside-San Bernardino-Ontario MSA, Aug 2016-July 2017

Occupation	Typical Entry-Level Education Requirement	Educational Attainment (Combined percentage of some college, no degree and associate degree)	Minimum Advertised Education Requirement from Job Ads		
			High school diploma or vocational training	Associate degree	Bachelor's degree or higher
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Postsecondary nondegree award	44%	98%	2%	-

Source: BLS, CPS, Burning Glass

Industry

Exhibit 6 displays the top industries that currently employ HVAC mechanics and installers according to industry staffing patterns online job posting data.

Exhibit 6: Top Industries employing HVAC mechanics and installers in the Riverside-San Bernardino-Ontario MSA

Occupation	Top Industries from staffing pattern (NAICS)	Top Industries from job postings (NAICS)
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	<ul style="list-style-type: none"> • Building Equipment Contractors (2382) • Residential Building Construction (2361) 	<ul style="list-style-type: none"> • Building Equipment Contractors (2382) • Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing (3334)

Source: EMSI 17.3, Burning Glass

Student Completions

Exhibit 7 shows the annual average regional community college awards (associate degrees and certificates) conferred during the three academic years between 2013 and 2016, with the relevant TOP code. Please note an award is not equivalent to a single person in search of a job opening since a student may earn more than one award, such as an associate degree in addition to a certificate.

Community College student outcome information was obtained from the CTE LaunchBoard based on the selected TOP code(s) and region:

Exhibit 7: Annual average community college student completions for the environmental control technology (HVAC) program in the Riverside-San Bernardino-Ontario MSA

0946.00 – Environmental Control Technology (HVAC)	Annual Avg. CC Headcount (2015-2016)	CC Annual Avg. Awards (2013-16)
Desert	136	
Associate Degree		4
Certificate 18 to <30 semester units		15
San Bernardino	130	
Associate Degree		3
Certificate 30 to <60 semester units		12
Riverside	226	
Associate Degree		7
Certificate 18 to <30 semester units		35
Total headcount (2015-16)	545	
Total annual average awards		75



0946.00 – Environmental Control Technology (HVAC) program outcomes in the Riverside-San Bernardino-Ontario MSA in academic year 2014-15:

- The median annual wage after program completion is \$24,293.
- 51% of students are earning a living wage.
- Median change in earnings was 32%
- 66% of students are employed within six months after completing a program

HVAC programs offered by other educational institutions providing training and certifications:

- UEI College
- InterCoast College
- San Joaquin Valley College
- Penn Foster Career School

Beyond these institutions, there are also a few national websites dedicated to locating HVAC training programs in the local area – myhvaccareer.org and hvaccareernow.com appear to be the most popular.

Summary

- Employment for heating, air conditioning, and refrigeration mechanics and installers is expected to increase by 18% through 2021, yielding 2,407 openings.
- The starting wage for heating, air conditioning, and refrigeration mechanics and installers is \$14.38 per hour, above the Self-Sufficiency Wage for both San Bernardino (\$11.54) and Riverside (\$12.00) counties.
- The top industry employing heating, air conditioning, and refrigeration mechanics and installers in the region is Building Equipment Contractors (2382).
- Comparing the projected annual openings for heating, air conditioning, and refrigeration mechanics and installers in the region (481) to the average annual number of awards (75), there appears to be an opportunity for program growth.



Sources

O*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

Employment Development Department, Labor Market Information Division, OES

Employment Development Department, Unemployment Insurance Dataset

CTE LaunchBoard

Statewide CTE Outcomes Survey

Living Insight Center for Community Economic Development

California Community Colleges Chancellor's Office Management Information Systems (MIS)



Appendix A: Occupation definitions, five-year projections, and earnings for HVAC mechanics and installers

Occupation Definitions (SOC code), Education and Training Requirement, Community College Education Attainment

Heating, Air Conditioning, and Refrigeration Mechanics and Installers (49-9021)

Install or repair heating, central air conditioning, or refrigeration systems, including oil burners, hot-air furnaces, and heating stoves.

Entry-Level Educational Requirement: Postsecondary nondegree award

Training Requirement: More than 12 months on-the-job training

*Percentage of incumbent workers with Community College Award or Some Postsecondary Coursework:
44%*