

HVAC Occupations

in San Diego & Imperial Counties

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San Diego & Imperial Counties Region

Introduction

This report profiles Heating, Ventilation and Air Conditioning (HVAC) occupations in San Diego and Imperial Counties. The following occupations were determined to capture HVAC job titles:

- **Heating, Air Conditioning, and Refrigeration Mechanics and Installers (SOC 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 Certificate
Training Requirement: Long-term on the job training
Percentage of Community College Award Holders or Some Postsecondary Coursework: 44%
- **Plumbers, Pipefitters and Steamfitters (SOC 47-2152):** Lay out, assemble, install, or maintain pipe systems, pipe supports or related hydrauling or pneumatic equipment for steam, hot water, heating, cooling, lubricating, sprinkling or industrial production or processing systems. Assemble, install, or repair pipes, fittings, or fixtures of heating, water, or drainage systems, per specifications or plumbing codes.
Entry-Level Educational Requirement: HS Diploma / equivalent
Training Requirement: Apprenticeship
Percentage of Community College Award Holders or Some Postsecondary Coursework: 31%
- **First-line Supervisors of Mechanics, Installers and Repairers (SOC 49-1011):** Directly supervise and coordinate the activities of mechanics, installers and repairers.
Entry-Level Educational Requirement: HS Diploma / equivalent
Training Requirement: N/A
Percentage of Community College Award Holders or Some Postsecondary Coursework: 43%

Occupational Demand

In 2016, there were 9,974 HVAC related jobs in San Diego & Imperial Counties that typically require a community college degree or less (Table 1). Looking forward to 2021, the labor market demand for HVAC occupations in the region is projected to grow by 12 percent (growth of 1,165 jobs). There will be 850 open positions due to retirements or other replacement factors in the next five years.

Table 1. Employment Outlook for HVAC Occupations (San Diego & Imperial Counties)

Occupation	2016 Jobs	2021 Jobs	5-Yr Change	5-Yr % Change	5-year Openings	Annual Openings
Plumbers, Pipefitters, and Steamfitters	4,538	5,111	573	13%	898	180
First-line Supervisors of Mechanics, Installers and Repairers	3,265	3,469	204	6%	543	109
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	2,171	2,559	388	18%	574	115
Total	9,974	11,139	1,165	12%	2,015	403

The median hourly wages for these occupations range from \$26.22 to \$31.41 (San Diego County) and \$20.08 to \$33.30 (Imperial County). A more in-depth wage breakdown can be found in Table 2.

Table 2. Wages for HVAC Occupations (San Diego & Imperial Counties)

Occupation	County	10 th percentile	25 th percentile	Median Wage	75 th percentile	90 th percentile
Plumbers, Pipefitters, and Steamfitters	San Diego	\$15.32	\$20.00	\$26.22	\$32.53	\$43.06
	Imperial	\$15.96	\$17.37	\$20.08	\$23.87	\$29.53
First-line Supervisors of Mechanics, Installers and Repairers	San Diego	\$19.36	\$24.19	\$31.41	\$37.12	\$47.30
	Imperial	\$15.92	\$21.35	\$33.30	\$47.11	\$58.56
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	San Diego	\$14.91	\$20.68	\$26.26	\$30.20	\$36.40
	Imperial	\$14.89	\$19.18	\$24.87	\$28.78	\$32.58

Job Postings in San Diego & Imperial Counties

To identify job postings related to HVAC occupations, the SOC codes listed in above were used. In 2016 there were 1,480 job postings related to HVAC occupations, indicating high demand for this group of occupations. Table 3 shows the number of job postings associated with each SOC code.

Table 3. Number of Job Postings by Occupation in 2016 (San Diego & Imperial Counties)

Occupation	San Diego	Imperial
First-line Supervisors of Mechanics, Installers and Repairers	685	11
Plumbers, Pipefitters and Steamfitters	392	1
Heating, Air Conditioning and Refrigeration Mechanics and Installers	383	8

The most common job title in the employer job postings was plumber (240 job postings). See Table 4.

Table 4. Top Job Titles (San Diego & Imperial Counties)

Common Title	2016 Job Postings
Plumber	240
Maintenance Supervisor	181
Pipefitter	106
HVAC Technician	88
Maintenance Manager	54

Industry Concentration

Table 5 below shows the distribution of HVAC jobs among industries. The industry with the highest number of HVAC jobs is Plumbing, Heating and Air Conditioning Contractors (4,961 jobs in 2016).

Table 5. Industries hiring HVAC related occupations (San Diego & Imperial Counties)

Industry	Jobs in Industry (2016)	% in Industry (2016)
Plumbing, Heating and Air Conditioning Contractors	4,961	49.7%
Local Government, Excluding Education and Hospitals	409	4.1%
Ship Building and Repairing	279	2.8%
Natural Gas Distribution	264	2.6%

Top employers posting the most number of job advertisements for HVAC occupations are Jiffy Lube, Human Potential Consultants, and Marriott International Incorporated.

Table 6. Top Employers Posting Jobs (San Diego & Imperial Counties)

Employer	2016 Job Postings
Jiffy Lube	21
Human Potential Consultants	16
Marriott International Incorporated	16
Cintas	16
Lincoln Military Housing	15

Educational Supply

In San Diego and Imperial Counties, only community colleges provide education and training for the HVAC related careers.

Currently, there are programs in two different TOP codes training for the HVAC related positions. Table 7 shows the annual average awards granted by community colleges. Of the two TOP programs, the environmental control technology has the highest headcount number and student completions. Overall, there are over 500 awards conferred on annual basis by community colleges. However, only about 100 of these awards are credit certificates or associate degrees. The remaining are non-credit awards. Considering that non-credit program often training incumbent workers or provide introductory level of instruction, not of the non-credit wards can be counted as part of annual supply.

Table 7. Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions for HVAC Occupations (2012-15 Average)

TOP06	TOP06 Title	CC Headcount	CC Associate Degrees	Certificates or Other Credit Awards	Noncredit Awards	Total CC Awards
094600	Environmental Control Technology	332	11	66	277	332
095230	Plumbing, Pipefitting & Steamfitting	132	1	23	156	179
Total		464	12	89	433	511

Student Outcomes

Based on the information available in the CTE Launchboard, students taking courses in the two TOP codes in the San Diego and Imperial Counties region are showing successful employment outcomes.

094600 Environmental Control Technology in San Diego & Imperial Region community colleges:

- 62% of students were making a living wage after the coursework at a community college in the region
- The entry level wage of students who completed this program is \$35,838
- There is a 37% increase in earnings after completing this program

095230 Plumbing, Pipefitting & Steamfitting in San Diego & Imperial Region community colleges:

- 70% of students were making a living wage after the coursework at a community college in the region
- The entry level wage of students who completed this program is \$31,429.
- There is a 27% increase in earning after completing this program
- 100% of students are employed in the field of study

Skill & Certifications

Table 8 provides the list the top skills and certifications that appeared to be frequently listed in the job advertisements for HVAC occupations. Most frequently sought skills included repair, plumbing, HVAC, inspection and hand tools.

Table 8. Top Skills & Certifications for HVAC Occupations (San Diego & Imperial Counties)

Skill	2016 Job Postings	Certification	2016 Job Postings
Repair	714	Environmental Protection Agency Certification	65
HVAC	421	Security Clearance	59
Plumbing	397	HVAC Technician Certification (e.g., EPA 608)	38
Supervisory Skills	253	Refrigeration Technician Certification (e.g., CFC Type 2)	26
Inspection	250	Occupational Safety and Health Administration Certification	16

Approximately 61 percent of job advertisements studied did not list a degree level. Of those postings that list the requirement, 78 percent are looking for HVAC workers who have a high school diploma (or equivalent), some vocational school education, or an associate degree.

Table 9. Education Requirements (San Diego & Imperial Counties)

Education (minimum advertised)	2016 Job Postings
High school or vocational training	393
Associate Degree	55
Bachelor's Degree or higher	124

Recommendation

Total annual demand is estimated to be about 400 job openings. Total annual supply is unclear as only one-fifth of the awards (100) are credit awards and the purpose and depth of instruction of the non-credit awards is not clear from the available data. Since HVAC technicians are required to have at minimum a Postsecondary Certificate, it is our recommendation not to count non-credit awards as part of annual supply. With that, there might be a shortage of HVAC technicians in the region and more completers are needed to meet employer demand for credentialed workers.

Methodology

Occupations for this report were identified by use of HVAC skills listed in O*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCCO Data Mart.

Sources

O*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

CTE LaunchBoard www.calpassplus.org/Launchboard/

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

Living Insight Center for Community Economic Development

Chancellor's Office MIS system