



# Labor Market Analysis for Program Recommendation Plumbing and HVAC Refrigeration Occupations Santa Rosa Junior College

Prepared by the San Francisco Bay Center of Excellence for Labor Market Research

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## Recommendation

Based on all available data, there appears to be an “undersupply” of Plumbing and HVAC Refrigeration workers compared to the demand for this cluster of occupations in the Bay region and in the North Bay sub-region (Marin, Napa, Solano, Sonoma counties). There is a projected annual gap of about 3,666 students in the Bay region and 635 students in the North Bay Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 0952.30 - Plumbing, Pipefitting and Steamfitting programs in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Santa Rosa Junior College and in the region.

This report profiles Plumbing and HVAC Refrigeration Occupations in the 12 county Bay region and in the North Bay sub-region for a proposed new Apprenticeship Plumbing, HVAC Refrigeration AS degree program at Santa Rosa Junior College.

- **First-Line Supervisors of Construction Trades and Extraction Workers (47-1011):** Directly supervise and coordinate activities of construction or extraction workers.  
Entry-Level Educational Requirement: High school diploma or equivalent  
Training Requirement: None  
Percentage of Community College Award Holders or Some Postsecondary Coursework: 29%
- **Plumbers, Pipefitters, and Steamfitters (47-2152):** Assemble, install, alter, and repair pipelines or pipe systems that carry water, steam, air, or other liquids or gases. May install heating and cooling equipment and mechanical control systems. Includes sprinklerfitters.  
Entry-Level Educational Requirement: High school diploma or equivalent  
Training Requirement: Apprenticeship  
Percentage of Community College Award Holders or Some Postsecondary Coursework: 34%
- **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: Long-term on-the-job training  
Percentage of Community College Award Holders or Some Postsecondary Coursework: 45%

## Occupational Demand

**Table 1. Employment Outlook for Plumbing and HVAC Refrigeration Occupations in Bay Region**

Occupation	2022 Jobs	2027 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
First-Line Supervisors of Construction Trades and Extraction Workers	18,174	18,959	785	4%	8,404	1,681	\$35	\$45
Plumbers, Pipefitters, and Steamfitters	11,106	11,607	501	5%	5,440	1,088	\$26	\$34
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	9,659	10,247	588	6%	4,791	958	\$24	\$33
<b>Total</b>	<b>38,939</b>	<b>40,813</b>	<b>1,874</b>	<b>5%</b>	<b>18,635</b>	<b>3,727</b>	<b>\$30</b>	<b>\$39</b>

Source: Lightcast 2024.1

**Bay Region includes:** Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for Plumbing and HVAC Refrigeration Occupations in North Bay Sub-region**

Occupation	2022 Jobs	2027 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
First-Line Supervisors of Construction Trades and Extraction Workers	3,384	3,527	143	4%	1,571	314	\$33	\$42
Plumbers, Pipefitters, and Steamfitters	1,870	1,899	29	2%	872	174	\$24	\$30
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1,593	1,621	28	2%	734	147	\$22	\$27
<b>Total</b>	<b>6,848</b>	<b>7,047</b>	<b>200</b>	<b>3%</b>	<b>3,178</b>	<b>635</b>	<b>\$28</b>	<b>\$35</b>

Source: Lightcast 2024.1

**North Bay Sub-Region includes:** Marin, Napa, Solano, Sonoma Counties

## Job Postings in Bay Region and North Bay Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (May 2023 - Apr. 2024)**

Occupation	Bay Region	North Bay
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1,368	215
Plumbers, Pipefitters, and Steamfitters	1,128	211
First-Line Supervisors of Construction Trades and Extraction Workers	908	175

Source: Lightcast

**Table 4a. Top Job Titles for Plumbing and HVAC Refrigeration Occupations for latest 12 months (May 2023 - Apr. 2024) - Bay Region**

Title	Bay	Title	Bay
HVAC Technicians	168	Foremen	69
Plumbers	128	Refrigeration Technicians	64
Solar Installers	128	HVAC/Refrigeration Service Technicians	54
HVAC Service Technicians	106	Construction Foremen	53
Plumbing Technicians	99	Crew Leaders	49
HVAC Installers	93	Journeyman Plumbers	45
Electrical Foremen	85	Plumbing Installers	40
Plumbing Apprentices	73	Refrigeration and Appliance Repair Technicians	34
Commercial Refrigeration Service Technicians	70	Service Plumbers	34

Source: Lightcast

**Table 4b. Top Job Titles for Plumbing and HVAC Refrigeration Occupations for latest 12 months (May 2023 - Apr. 2024) - North Bay Sub-Region**

Title	North Bay	Title	North Bay
Plumbers	41	Plumbing Installers	12
Plumbing Technicians	29	Plumbing Apprentices	10
Solar Installers	29	Refrigeration Technicians	8
HVAC Installers	27	Commercial Refrigeration Service Technicians	7
HVAC/Refrigeration Service Technicians	25	Construction Supervisors	7
HVAC Technicians	24	HVAC Installers Apprentice	7
Foremen	23	HVAC Refrigeration Technicians	7
HVAC Service Technicians	18	Journeyman Plumbers	7
Electrical Foremen	14	Solar Technicians	7

Source: Lightcast

## Industry Concentration

**Table 5. Industries hiring Plumbing and HVAC Refrigeration Workers in Bay Region**

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2022)	Jobs in Industry (2027)	% Change (2022-27)	% Occupation Group in Industry (2023)
Plumbing, Heating, and Air-Conditioning Contractors	15,356	16,299	6%	40%
Electrical Contractors and Other Wiring Installation Contractors	2,449	2,678	9%	6%
Commercial and Institutional Building Construction	2,255	2,639	17%	6%
Residential Remodelers	2,345	2,464	5%	6%
New Single-Family Housing Construction (except For-Sale Builders)	1,406	1,312	-7%	4%
Local Government, Excluding Education and Hospitals	1,325	1,419	7%	3%
All Other Specialty Trade Contractors	1,012	953	-6%	3%
Natural Gas Distribution	960	977	2%	2%
Site Preparation Contractors	779	751	-4%	2%
Painting and Wall Covering Contractors	757	714	-6%	2%

Source: Lightcast 2024.1

**Table 6. Top Employers Posting Plumbing and HVAC Refrigeration Occupations in Bay Region and North Bay Sub-Region (May 2023 - Apr. 2024)**

Employer	Bay	Employer	North Bay
Coolsys	71	Coolsys	30
Aerotek	62	Blue Mountain Air Incorporated	24
Blue Mountain Air Incorporated	58	Aerotek	20
University of California	34	Ongaro And Sons	16
Roto-Rooter Service	33	Centimark Corporation	12
Rsc Mechanical	33	Pacific Power & Systems	8

Source: Lightcast

## Educational Supply

There are three (3) community colleges in the Bay Region issuing 61 awards on average annually (last 3 years ending 2021-23) on TOP 0952.30 - Plumbing, Pipefitting and Steamfitting. In the North Bay Sub-Region, there are no community colleges that issued awards on average annually (last 3 years) on this TOP code.

**Table 7. Community College Awards on TOP 0952.30 - Plumbing, Pipefitting and Steamfitting in Bay Region**

College	Subregion	Associate Degree	High unit Certificate	Low unit Certificate	Total
Foothill	Silicon Valley	2	47	5	54

College	Subregion	Associate Degree	High unit Certificate	Low unit Certificate	Total
Mission	Silicon Valley	0	5	0	5
San Francisco	Mid-Peninsula	0	0	2	2
<b>Total</b>		<b>2</b>	<b>52</b>	<b>7</b>	<b>61</b>

Source: Data Mart

Note: The annual average for awards is 2019-20 to 2021 -22.

## Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 3,727 annual openings for the Plumbing and HVAC Refrigeration occupational cluster and 61 annual (3-year average) awards for an annual undersupply of 3,666 students. In the North Bay Sub-Region, there is also a gap with 635 annual openings and no annual (3-year average) awards for an annual undersupply of 635 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0952.30 - Plumbing, Pipefitting and Steamfitting**

Metric Outcomes	Bay All CTE Programs	SRJC All CTE Programs	State 0952.30	Bay 0952.30	North Bay 0952.30	SRJC 0952.30
Students with a Job Closely Related to Their Field of Study	74%	76%	84%	96%	N/A	N/A
Median Annual Earnings for SWP Exiting Students	\$53,090	\$46,746	\$80,952	\$113,625	\$130,464	\$130,464
Median Change in Earnings for SWP Exiting Students	24%	31%	62%	92%	163%	163%
Exiting Students Who Attained the Living Wage	54%	61%	79%	85%	100%	100%

Source: Launchboard Strong Workforce Program Median of 2018 to 2021.

## Skills, Certifications and Education

**Table 9. Top Skills for Plumbing and HVAC Refrigeration Occupations in Bay Region (May 2023 - Apr. 2024)**

Skill	Posting	Skill	Posting
HVAC	1,282	Boilers	243
Plumbing	871	Plumbing Systems	243
Construction	549	Blueprinting	234
Preventive Maintenance	319	Refrigerant	211
Roofing	309	Subcontracting	187
Hand Tools	296	Carpentry	178
Project Management	296	Valves (Piping)	172
Power Tool Operation	278	Ventilation	170

Skill	Posting	Skill	Posting
Water Heaters	261	Refrigeration	154
Electrical Wiring	247	Brazing (Metal Work)	153

Source: Lightcast

**Table 10. Certifications for Plumbing and HVAC Refrigeration Occupations in Bay Region (May 2023 - Apr. 2024)**

Certification	Posting	Certification	Posting
Valid Driver's License	1,417	CFC Refrigeration Certification	46
EPA 608 Technician Certification	340	NATE Certification (North American Technician Excellence)	41
EPA Universal Certification	143	EPA Type I Certification	33
Cardiopulmonary Resuscitation (CPR) Certification	101	EPA Type II Certification	29
10-Hour OSHA General Industry Card	94	Certified Industrial Refrigeration Operator (CIRO) Certification	26
First Aid Certification	84	HVAC Certification	26
30-Hour OSHA General Industry Card	80	Contractor License	22
Commercial Driver's License (CDL)	70	Security Clearance	19
NABCEP Certified Energy Practitioner	56	Forklift Certification	12
CDL Class C License	52		

Source: Lightcast

**Table 11. Education Requirements for Apprenticeship Plumbing, HVAC Refrigeration Occupations in Bay Region**

Education Level	Job Postings	% of Total
High school or GED	999	76%
Associate degree	135	10%
Bachelor's degree & higher	180	14%

Source: Lightcast

Note: 66% of records have been excluded because they do not include a degree level. As a result, the chart above may not be representative of the full sample.

## Methodology

Occupations for this report were identified by use of job descriptions and skills listed in O\*Net. Labor demand data is sourced from Lightcast occupation and job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CCCCO Data Mart and CTE Launchboard.

## Sources

O\*Net Online

Lightcast

CTE LaunchBoard [www.calpassplus.org](http://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

## **Contacts**

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