

**Labor Market Information Report**

**Refrigeration Technology Occupations**

**Laney College**

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

**September 2022**

## Recommendation

Based on all available data, there appears to be an “undersupply” of Refrigeration Technology workers compared to the demand for this cluster of occupations in the Bay region and in the East Bay sub-region (Alameda, Contra Costa counties). There is a projected annual gap of about 2,515 students in the Bay region and 944 students in the East Bay Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 0946.00 - Environmental Control Technology (HVAC) 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 Laney College and in the region.

This report profiles Refrigeration Technology Occupations in the 12 county Bay region and in the East Bay sub-region for a program modification (substantial change) at Laney College. Occupational data is not available for Solar Thermal Installers and Technicians (47-2152.04) at the eight-digit SOC level, so the data for this occupation is included in Tables 1 & 2 as part of Plumbers, Pipefitters, and Steamfitters (47-2152.00).

* **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%
* **Control and Valve Installers and Repairers, Except Mechanical Door (49-9012):** Install, repair, and maintain mechanical regulating and controlling devices, such as electric meters, gas regulators, thermostats, safety and flow valves, and other mechanical governors.
  Entry-Level Educational Requirement: High school diploma or equivalent
  Training Requirement: Moderate-term on-the-job training
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 49%
* **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: 43%
* **Stationary Engineers and Boiler Operators (51-8021):** Operate or maintain stationary engines, boilers, or other mechanical equipment to provide utilities for buildings or industrial processes. Operate equipment, such as steam engines, generators, motors, turbines, and steam boilers.
  Entry-Level Educational Requirement: High school diploma or equivalent
  Training Requirement: Long-term on-the-job training
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 35%

## Occupational Demand

**Table 1. Employment Outlook for Refrigeration Technology Occupations in Bay Region**

| **Occupation** | **2020 Jobs** | **2025 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Plumbers, Pipefitters, and Steamfitters | 11,251 | 12,117 | 866 | 8% | 6,847 | 1,369 | $26 | $37 |
| Control and Valve Installers and Repairers, Except Mechanical Door | 890 | 1,001 | 111 | 12% | 495 | 99 | $26 | $32 |
| Heating, Air Conditioning, and Refrigeration Mechanics and Installers | 9,360 | 9,961 | 601 | 6% | 5,213 | 1,043 | $22 | $30 |
| Stationary Engineers and Boiler Operators | 1,095 | 1,109 | 14 | 1% | 698 | 140 | $41 | $49 |
| **Total** | **22,596** | **24,188** | **1,593** | **7%** | **13,254** | **2,651** |  |  |
| Source: EMSI 2022.1 |

**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 Refrigeration Technology Occupations in East Bay Sub-region**

| **Occupation** | **2020 Jobs** | **2025 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Plumbers, Pipefitters, and Steamfitters | 4,040 | 4,489 | 449 | 11% | 2,608 | 522 | $30 | $46 |
| Control and Valve Installers and Repairers, Except Mechanical Door | 271 | 319 | 48 | 18% | 167 | 33 | $24 | $28 |
| Heating, Air Conditioning, and Refrigeration Mechanics and Installers | 3,231 | 3,533 | 302 | 9% | 1,893 | 379 | $22 | $29 |
| Stationary Engineers and Boiler Operators | 402 | 406 | 4 | 1% | 258 | 52 | $41 | $48 |
| **Total** | **7,943** | **8,746** | **803** | **10%** | **4,926** | **986** |  |  |
| Source: EMSI 2022.1 |

**East Bay Sub-Region includes:** Alameda, Contra Costa Counties

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

**Table 3. Number of Job Postings by Occupation for latest 12 months**

| **Occupation** | **Bay Region** | **East Bay** |
| --- | --- | --- |
| Heating and Air Conditioning Mechanics and Installers | 2,465 | 404 |
| Plumbers | 985 | 55 |
| Stationary Engineers and Boiler Operators | 278 | 83 |
| Control and Valve Installers and Repairers, Except Mechanical Door | 269 | 34 |
| Pipe Fitters and Steamfitters | 175 | 19 |
| Refrigeration Mechanics and Installers | 165 | 17 |
| Source: Burning Glass |

**Table 4a. Top Job Titles for Refrigeration Technology Occupations for latest 12 months - Bay Region**

| **Title** | **Bay** | **Title** | **Bay** |
| --- | --- | --- | --- |
| Plumber | 201 | Fleet Technician I | 51 |
| Service Technician | 193 | Journeyman Plumber | 40 |
| Plumbing Service Technician | 177 | Refrigeration Technician | 40 |
| Hvac Technician | 165 | Service Plumber | 39 |
| Stationary Engineer | 149 | Fleet Technician II | 36 |
| Hvac Service Technician | 115 | Hvac Service Technician/R | 31 |
| Plumbing Technician | 110 | Lead Hvac Installer | 30 |
| Hvac Installer | 93 | Pipefitter | 30 |
| Hvac Project Manager | 90 | Journeyman | 29 |
| Source: Burning Glass |

**Table 4b. Top Job Titles for Refrigeration Technology Occupations for latest 12 months - East Bay Sub-Region**

| **Title** | **East Bay** | **Title** | **East Bay** |
| --- | --- | --- | --- |
| Stationary Engineer | 48 | Hvac Service Technician/R | 12 |
| Plumbing Service Technician | 42 | Hvac Technician Preventative Maintenance | 11 |
| Fleet Technician I | 32 | Entry-level Hvac Service Technician | 10 |
| Hvac Service Technician | 28 | Hvac Installer | 9 |
| Hvac Technician | 26 | Pipefitter | 7 |
| Service Technician | 14 | Stationary Engineer Per Diem | 6 |
| Fleet Technician II | 14 | Plumber | 6 |
| Source: Burning Glass |

## Industry Concentration

**Table 5. Industries hiring Refrigeration Technology Workers in Bay Region**

| **Industry - 6 Digit NAICS (No. American Industry Classification) Codes** | **Jobs in Industry (2020)** | **Jobs in Industry (2025)** | **% Change (2020-25)** | **% Occupation Group in Industry (2020)** |
| --- | --- | --- | --- | --- |
| Plumbing, Heating, and Air-Conditioning Contractors | 13,750 | 14,313 | 4% | 59% |
| Natural Gas Distribution | 1,175 | 1,578 | 34% | 7% |
| Residential Remodelers | 724 | 816 | 13% | 3% |
| Local Government, Excluding Education and Hospitals | 582 | 626 | 8% | 3% |
| Electrical Contractors and Other Wiring Installation Contractors | 406 | 473 | 17% | 2% |
| New Single-Family Housing Construction (except For-Sale Builders) | 314 | 309 | -1% | 1% |
| All Other Specialty Trade Contractors | 310 | 306 | -1% | 1% |
| Commercial and Institutional Building Construction | 348 | 276 | -21% | 1% |
| Colleges, Universities, and Professional Schools (State Government) | 238 | 230 | -4% | 1% |
| Site Preparation Contractors | 218 | 210 | -4% | 1% |
| Source: EMSI 2022.1 |

**Table 6. Top Employers Posting Refrigeration Technology Occupations in Bay Region and East Bay Sub-Region**

| **Employer** | **Bay** | **Employer** | **East Bay** |
| --- | --- | --- | --- |
| Sysco Corporation | 118 | Sysco Corporation | 65 |
| Coolsys Inc | 73 | Tesla | 29 |
| Blue Mountain Air Incorporated | 67 | Coolsys Inc | 21 |
| Sears | 64 | Blue Mountain Air Incorporated | 21 |
| Work With Your Handz | 55 | Work With Your Handz | 24 |
| Mobile Mini Incorporated | 55 | Sunbelt Rentals Incorporated | 12 |
| Tesla | 51 | Service Experts Llc | 12 |
| Kaiser Permanente | 39 | Johnson Controls Inc. | 12 |
| Sunbelt Rentals Incorporated | 38 | Kaiser Permanente | 12 |
| Air | 33 | CBRE | 11 |
| Source: Burning Glass |

## Educational Supply

There are four (4) community colleges in the Bay Region issuing 136 awards on average annually (last 3 years ending 2018-19) on TOP 0946.00 - Environmental Control Technology (HVAC). In the East Bay Sub-Region, there is one (1) community college (Laney) that issued 42 awards on average annually (last 3 years) on this TOP code.

**Table 7a. Community College Awards on TOP 0946.00 and CIP 15.0501in Bay Region**

| **College** | **Subregion** | **Associate Degree** | **Award < 1 academic yr** | **Award 1<2 academic yrs.** | **Total** |
| --- | --- | --- | --- | --- | --- |
| City College of San Francisco | Mid-Peninsula | 0 | 15 | 0 | 15 |
| Laney College | East Bay | 9 | 20 | 13 | 42 |
| Mission College | Silicon Valley | 0 | 0 | 5 | 5 |
| San Jose City College | Silicon Valley | 6 | 47 | 21 | 74 |
| **Total** |  | **15** | **82** | **39** | **136** |
| Source: Data Mart |

*Note: The annual average for awards is 2017-18 to 2019-*Gap Analysis

## Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 2,651 annual openings for the Refrigeration Technology occupational cluster and 136 annual (3-year average) awards for an annual undersupply of 2,515 students. In the East Bay Sub-Region, there is also a gap with 986 annual openings and 42 annual (3-year average) awards for an annual undersupply of 944 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0946.00**

| **Metric Outcomes** | **Bay All CTE Program** | **Laney All CTE Programs** | **State 0946.00** | **Bay 0946.00** | **East Bay 0946.00** | **Laney 0946.00** |
| --- | --- | --- | --- | --- | --- | --- |
| Students with a Job Closely Related to Their Field of Study | 74% | 73% | 77% | 77% | 79% | 72% |
| Median Annual Earnings for SWP Exiting Students | $47,419 | $40,660 | $43,437 | $62,506 | $62,720 | $57,500 |
| Median Change in Earnings for SWP Exiting Students | 23% | 14% | 28% | 38% | 50% | 24% |
| Exiting Students Who Attained the Living Wage | 52% | 52% | 65% | 65% | 79% | 77% |
| Source: Launchboard Strong Workforce Program Median of 2017 to 2020. |

## Skills, Certifications and Education

**Table 9. Top Skills for Refrigeration Technology Occupations in Bay Region**

| **Skill** | **Posting** | **Skill** | **Posting** |
| --- | --- | --- | --- |
| HVAC | 2,674 | Customer Contact | 303 |
| Repair | 2,574 | Machinery | 288 |
| Plumbing | 1,915 | Wiring | 287 |
| Customer Service | 881 | Cleaning | 285 |
| Hand Tools | 615 | Electrical Systems | 271 |
| Predictive/Preventative Maintenance | 477 | Water Heaters | 269 |
| Boilers | 417 | Technical Training | 268 |
| Lifting Ability | 398 | Schematic Diagrams | 261 |
| Power Tools | 376 | Plumbing Systems | 244 |
| Scheduling | 374 | Budgeting | 242 |
| Welding | 365 | Sales | 241 |
| Carpentry | 355 | Painting | 237 |
| Ventilation | 325 | Stationary Engineering | 233 |
| Occupational Health and Safety | 305 | Duct Work | 224 |
| Source: Burning Glass |

**Table 10. Certifications for Refrigeration Technology Occupations in Bay Region**

| **Certification** | **Posting** | **Certification** | **Posting** |
| --- | --- | --- | --- |
| Driver's License | 1,929 | Commercial Food Equipment Service Association (CFESA) | 43 |
| Environmental Protection Agency Certification | 377 | Backflow Prevention Certification | 41 |
| EPA CFC/HCFC Certification | 186 | Occupational Safety and Health Administration Certification | 28 |
| Automotive Service Excellence (ASE) Certification | 149 | Cdl Class C | 27 |
| Brake Inspector Certification | 119 | Security Clearance | 25 |
| North American Technician Excellence (NATE) | 99 | Boiler Operator License | 25 |
| Contractors License | 76 | Certified Pool/Spa Operator | 24 |
| Epa 608 | 61 | Air Conditioning (AC) Certification | 19 |
| Plumbing Certification | 59 | CDL Class A | 17 |
| Plumbing License | 47 | OSHA Forklift Certification | 16 |
| Source: Burning Glass |

Note: 45% of records have been excluded because they do not include a certification. As a result, the chart above may not be representative of the full sample.

**Table 11. Education Requirements for Refrigeration Technology Occupations in Bay Region**

| **Education (minimum advertised)** | **Latest 12 Mos. Postings** | **Percent 12 Mos. Postings** |
| --- | --- | --- |
| High school or vocational training | 1,621 | 96% |
| Associate's degree | 63 | 3% |
| Bachelor's degree | 9 | 1% |
| Source: Burning Glass |

*Note: 61% 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 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 CCCCO 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

## Contacts

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