

CAREER AND TECHNICAL EDUCATION – SUPPLEMENTAL QUESTIONS

CTE programs must conduct a full program review every 4 years. The full review includes answering these supplemental questions. Every two years (once between full reviews) these supplemental questions must be answered and submitted to Academic Affairs for posting on the College website.

Use labor market data, advisory committee input, institutional data, and the provided CTE 2-year Program Review data to respond to the following questions:

1. How strong is the occupational demand for the program? As you analyze demand over the past 5 years and projected demand for next 5 years, address state and local needs for the program.

Heating, Air Conditioning, and Refrigeration Mechanics and Installers

Note: The following data reflects the job market in the Compton College 7.5-mile service area.

Job Estimates - 2018: 1,455 (2% below national average in terms of job availability per area)
Percent Change in Number of Jobs from 2013-2018: +16.1% (National average: +21.7%)
Projected Change in Jobs from 2018-2022: +6.3% (National average: +7.9%)

Area Location Quotient: 0.98 (Numbers above 1.00 mean the occupation is more concentrated in the area compared to the nation. Numbers below 1.00 mean the occupation is less concentrated in the area.)

Top 10 Industries Employing Heating, Air Conditioning, and Refrigeration Mechanics and Installers (Compton College Service Area)

Industry	% of Occupation in Industry (2018)	% Change in Industry Jobs (2013-2018)
Plumbing, Heating, and Air Conditioning Contractors	57.7%	+25%
All Other Specialty Trade Contractors	6.4%	+8%
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	4.1%	-17%
Site Preparation Contractors	2.8%	+8%
Residential Remodelers	1.7%	+39%
Local Government, Excluding Education and Hospitals	1.7%	+9%

Electrical Contractors and Other Wiring Installation Contractors	1.5%	0%
Other Personal and Household Goods Repair and Maintenance	1.2%	+20%
Finish Carpentry Contractors	0.9%	+8%
Elementary and Secondary Schools (Local Government)	0.9%	0%

Note: The following data reflects the job market in California.

Job Estimates - 2018: 34,282 (28% below national average in terms of availability per state)

Percent Change in Number of Jobs from 2013-2018: +25.1% (National average: +21.7%)

Projected Change in Jobs from 2018-2022: +10.1% (National average: +7.9%)

State Location Quotient: 0.72 (Numbers above 1.00 mean the occupation is more concentrated in the state compared to the nation. Numbers below 1.00 mean the occupation is less concentrated in the state.)

Top 10 Industries Employing Heating, Air Conditioning, and Refrigeration Mechanics and Installers (California Statewide)

Industry	% of Occupation in Industry (2018)	% Change in Industry Jobs (2013-2018)
Plumbing, Heating, and Air Conditioning Contractors	57.6%	+35%
Residential Remodelers	3.1%	+40%
Electrical Contractors and Other Wiring Installation Contractors	2.5%	+4%
All Other Specialty Trade Contractors	2.3%	+8%
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	1.7%	-11%
Site Preparation Contractors	1.6%	+2%
Other Personal and Household Good Repair and Maintenance	1.5%	+20%
Local Government, Excluding Education and Hospitals	1.4%	+15%
Painting and Wall Covering Contractors	1.4%	+2%
New Single-Family Housing Construction (except For-Sale Builders)	1.3%	+23%

Compton College's 7.5-mile circumferential service area illustrates ten industries employing Heating, Air Conditioning, and Refrigeration Mechanics and Installers: (a) Plumbing, Heating, and Air Conditioning Contractors (b) All Other Specialty Contractors, (c) Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance (d) Site Preparation Contractors, (e) Residential Remodelers, (f) Local Government, Excluding Education and Hospitals, (g) Electrical Contractors and Other Wiring Installation Contractors, (h) Other Personal and Household Goods Repair and Maintenance , (i) Finish Carpentry Contractors , and (j) Elementary and Secondary Schools (Local Government).

Of these ten industry areas, four encompass the highest percentages of occupations in the industry: (a) Plumbing, Heating, and Air Conditioning Contractors 57.7% , (b) All Other Specialty Contractors 6.4%, (c) Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance 4.1%, and (d) Site Preparation Contractors 2.8%. Together, they make up more than 70% of occupations in the industry. As a result, these are the primary focal points analyzed in determining the occupational demand for our program.

For example, from 2013 to 2018 there was a 25% increase in Plumbing, Heating, and Air Conditioning Contractors, an 8% increase in All Other Specialty Contractors, a 17% decrease in Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance, and an 8% increase in Site Preparation Contractors. Overall, the change in primary industry jobs looks very favorable, with a combined 41% increase in employment for Heating, Air Conditioning, and Refrigeration Mechanics and Installers.

Compton College's service area displays a job estimate of 28% below the national average in terms of availability per state in 2018 for Heating, Air Conditioning, and Refrigeration Mechanics and Installers. However, the national average projected change in jobs from 2018 through 2022 shows an increase of 7.9%. Another positive insight is seen in California's projected job growth of 10.1% from 2018 through 2022. The growth in the national average and in the state of California may positively affect new jobs in Compton College's service area, in relation to the Heating, Air Conditioning, and Refrigeration industry.

California's top ten industries statewide to employ Heating, Air Conditioning, and Refrigeration Mechanics and Installers show sustainable growth in primary HVAC industry areas. For example, in 2018 Plumbing, Heating, and Air Conditioning Contractors grew by 57.6%, Residential Remodelers by 3.1%, Electrical Contractors and Other Wiring Installation Contractors by 2.3%, and All Other Specialty Trade Contractors by 8%.

Between 2013 and 2018 there was a significant change in the HVAC industry in California. Plumbing, Heating, and Air Conditioning Contractors jobs grew by 35% and Residential Remodelers expanded by 40%. Compton College's location offers many employment opportunities within a small commute being so close to Los Angeles. Overall, the economy is projected to grow, and providing service jobs in the Heating, Air Conditioning, and Refrigeration industry supports economic growth and looks very promising for students being able to reach their career goals.

2. How does the program address needs that are not met by similar programs in the region?

We recognize that our students struggle with housing, food insecurity, and transportation. These are all stress factors that may negatively affect Heating, Air Conditioning, and Refrigeration student attendance, program completion, and success rates in licensure attainment. Therefore, our program has structured missing hours differently than our Community College Heating, Air Conditioning and Refrigeration department counterparts. Other programs, with few exceptions, drop their students upon their reaching a small number of missed hours; we encourage students who are performing academically below par because of poor attendance to drop their courses. Additionally, extra credit assignments, makeup exams, and makeup practical assignments (all on a case-by-case scenario) provide opportunities for students performing below par because of missing hours to raise their grades.

The ACR program offers both evening and daytime courses to offer classes to fit in students' schedules. At the institution level, the College offers and provides a variety of

services through the Student Resource center. These resources are not necessarily available at like institutions, especially trade school institutions.

Our faculty provide many opportunities for our Heating, Air Conditioning and Refrigeration students to meet successful professionals from our surrounding area in the diverse domains of the Heating, Air Conditioning and Refrigeration field. For example, we invite professionals to provide demonstrations in the areas of Heating and Air Conditioning repairs and service. We also offer field trips to supply houses and tradeshow when available. These special visits provide a unique opportunity for our students to make job connections and network in Los Angeles County's HVACR industry and beyond.

It is important for our faculty to create, provide, sustain, and implement equitable program opportunities that support our Heating, Air Conditioning, and Refrigeration students. We believe students are individuals, each with specific needs; with this in mind, our faculty genuinely encourages all HVAC students to flourish. Addressing the needs of our students by providing these diverse opportunities makes our program unique and sets us apart from other programs in the region.

3. What are the completion, success, and employment rates for the students? Discuss any factors that may impact completion, success, and employment rates. If applicable, what is the program doing to improve these rates?

The data provided reveal that since the program's inception in 2014, 6 students have received an A.S. Degree in Environmental Control Technology (HVAC) and 223 students have received Environmental Control Technology (HVAC) certificates since 2014.

The new funding formulas for Community Colleges are changing and earned student certificates will provide additional funding for our college. Therefore, it is highly recommended that the application process be streamlined to no longer require a student signature, and that it become the sole responsibility of our vocational counselor and/or division personnel to ensure all student certificate application forms are completed and finalized with the campus departments in charge of completing this process.

The aggregated student success data below reveal an upward trend since the Environmental Control Technology (HVAC) program was instituted and an exemplary

success rate for HVAC student enrollees. For example, the program’s success rate in Fall 2015 was 94.7 %; by Fall 2016 it had increased to 96.8%, a 2.1% success rate increase. By Spring 2018 the success rate overall declined to 90.5%, after increasing again from a large dip in the Spring of 2017 down to 88.8%.

Overall, the success rates of our Heating, Air Conditioning, and Refrigeration students reflect highly qualified professional instruction using real-world applications, applying up-to-date curricula, and implementing online technology learning tools.

The employment rates for Environmental Control Technology (HVAC) students that graduated from Compton Community College was 56% for the 2014-2015 school year and has had a steady increase to 59% at the 2017-2018 with a spike to 84% in the 2016-2017 school year, proving that the Heating, Air Conditioning, and Refrigeration field is steadily growing and employment consistently increasing.

Associate of Science Degrees Awarded

	2014-2015	2015-2016	2016-2017	2017-2018
Environmental Control Technology (HVAC)	1	1	3	1

Certificates Awarded

	2014-2015	2015-2016	2016-2017	2017-2018
Environmental Control Technology (HVAC)	37	74	81	31

Success Rates

	FA2015	SP2016	FA2016	SP2017	FA2017	SP2018
Air Conditioning and Refrigeration	94.7%	96.3%	96.8%	88.8%	91.1%	90.5%

Employment Rates

	2014-2015	2015-2016	2016-2017	2017-2018
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Environmental Control Technology (HVAC) (TOP Code: 0946)	56%	60%	84%	59%
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Source: CCCCO CTE Core Indicator Summary Report

4. If there is a licensure exam for students to work in their field of study, please list the exam and the pass rate. If there are multiple licensure exams in the program, include them all. Discuss any factors that may impact licensure exam pass rates. If applicable, what is the program doing to improve these rates?
 Just like other programs offered here at CCC (ATEC & ACRP), there are no official or applicable licensing required for the HVACR (ACR) program.

5. Is the advisory committee satisfied with the level of preparation of program graduates? How has advisory committee input been used in the past two years to ensure employer needs are met by the program? Describe any advisory committee recommendations that the program is either unable to implement or is in the process of implementing.
 The minutes and comments from the advisory committee have been requested but were never furnished. If the minutes and comments from the advisory committee can be furnished, then this question can be accurately answered.

California Education Code 78016 requires that the review process for CTE programs includes the review and comments of a program’s advisory committee. **Provide the following information:**

- a. Advisory committee membership list and credentials
- b. Meeting minutes or other documentation to demonstrate that the CTE program review process has met the above Education Code requirement.