



The HVACR Workforce: Demand Heats Up as Supply Melts Away

A PROJECTION OF THE COMING SHORTFALL OF
HVACR WORKERS AND HOW TO FIX IT

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A Summary of Reports Presented by the

HVACR
WORKFORCE DEVELOPMENT
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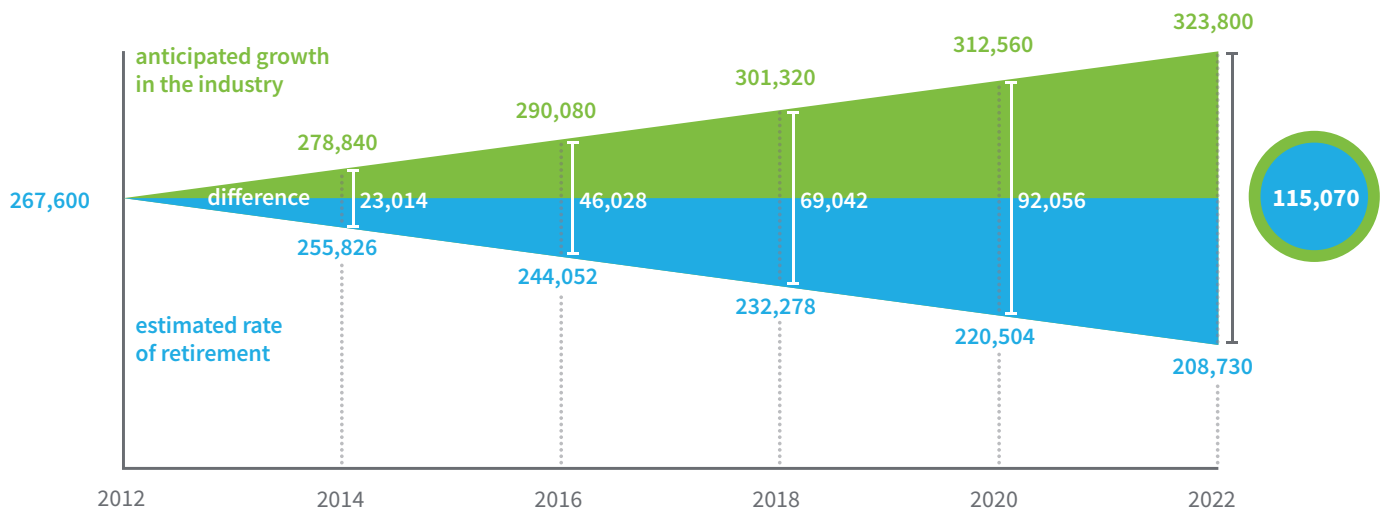
www.CareersinHVACR.org



The heating, ventilation, air conditioning, and refrigeration (HVACR) industry is the quiet gatekeeper to our personal comfort. We take for granted that we can live and work comfortably year-round in all climates. We take for granted that our perishable foods and medicine will remain properly refrigerated. And we take for granted that the air we breathe indoors is clean and odor-free. But it may be harder to secure these comforts in the future.

As the economy hits full stride coming out of the Great Recession, the Bureau of Labor Statistics (BLS) estimates that the number of HVACR mechanic and installer jobs will increase by 21 percent through 2022, nearly twice the growth of employment overall. Likewise, the Social Security Administration estimates 22 percent of the U.S. workforce will retire during this time. As demand heats up, the supply of trained HVACR talent is not keeping pace and may even be shrinking.

FIGURE 1: The growing HVACR talent gap



The BLS estimates there are currently 267,600 HVACR mechanics and installers in the U.S. A new study estimates 115,000 new HVACR workers must be trained by 2022 to meet the anticipated demand.

WHAT IS THE CAUSE OF THIS TALENT GAP, AND WHAT CAN WE DO TO CLOSE IT?

To help answer these questions, the HVACR Workforce Development Foundation commissioned three studies to explore workforce supply and demand in the United States and Canada. The goal was to understand the opportunities available for HVACR workers and address the unique issues constraining the pipeline of talent for HVACR roles.

Here is what the studies found.

Many HVACR jobs are available—and they are everywhere

Burning Glass Technologies¹ (BGT), a leading employment data analytics firm, conducted an analysis of employer demand across the HVACR industry and found 220,734 openings for all types of HVACR jobs (see Table 1) in 2014—a number far higher than BLS employment estimates suggest. And the demand is everywhere. HVACR workers are needed across the U.S.

¹ The following is excerpted from the report titled *Heating Up: The Sweltering Demand for Heating, Ventilation, Air Conditioning, and Refrigeration Workers*. Read the full report here: www.careersinhvacr.org.

Table 1: Top HVACR occupation families

OCCUPATION FAMILY	TOTAL POSTINGS
Installation, Maintenance, and Repair	104,233
Architecture and Engineering	24,701
Construction	14,753
Sales and Related	12,506
IT	9,534
Production	9,002
Office and Administrative Support	8,303
Transportation and Material Moving	6,237
Business and Financial Operations	5,655
Building and Grounds Cleaning and Maintenance	5,338

Postings for technician and installer jobs—which constitute the bulk of HVACR openings—remained open 12 percent longer than other similarly-skilled jobs nationally. This suggests that the demand for HVACR workers outstrips the supply, causing employers to struggle to fill key HVACR roles (see Figure 2 on page 3).

While the workforce gap is present in the HVACR landscape as a whole, it is highly pronounced in key HVACR maintenance and installation roles. Students in HVACR training and education programs will likely have little trouble finding jobs upon graduation.

HVACR jobs provide good salaries for a good quality of life

HVACR jobs will remain strong opportunities for workers with appropriate skills, training, certifications or work experience. In 2014, 70 percent of HVACR job postings were for middle-skill occupations that offered advertised average salaries of \$49,259 that can go higher with signing bonuses and opportunities for promotion.

HVACR jobs are stable, with year-round employment that cannot be offshored. A majority of HVACR jobs are open to sub-baccalaureate workers, exhibit robust demand, and provide strong living-wage salaries. And HVACR jobs are in demand across all states and across many occupation families. As a result, workers with HVACR skills have the opportunity to move and find work in the industry.

HVACR jobs are available for a diverse level of skill sets

HVACR jobs exist across a range of occupation types, including architecture and engineering, sales, production, office and administrative support, and transportation and material moving. These roles support key functions at HVACR manufacturers, wholesale distributors, contractors, engineering firms, and other firms across the HVACR supply chain. According to the BGT analysis, the majority of the 220,000 job openings were for technicians and installers, but job openings exist throughout the entire HVACR sector. See Table 1 for occupational postings for 2014.

The core HVACR installation, maintenance, and repair occupations are among the most difficult to fill in the United States. There is a significant undersupply of talent that has created a skills gap for the most critical of HVACR positions.

HOW CAN WE CLOSE THE SKILLS GAP?

We know that a significant number of jobs exist; just as we know there are not enough skilled workers to fill them. So, how can we close that skills gap? To answer this question, we went right to the source — HVACR educators, the ones who help guide those interested in HVACR jobs through training and into the workforce.

The HVACR Workforce Development Foundation worked with Lockwood Education Analysis Consulting to construct an online survey, which was administered in early 2015. Respondents included educators and instructors responsible for HVACR education in secondary and post-secondary institutions in the U.S. and Canada.²

The Canadian experience is comparable to what we find in the U.S., but our colleagues to the north have a head start on addressing the HVACR workforce challenge. An earlier survey in 2007 identified a series of factors that were causing skills shortages in the HVACR industry similar to those discussed below. Since then, a refocus on training programs offered in the technical college system have added to the skilled workforce.

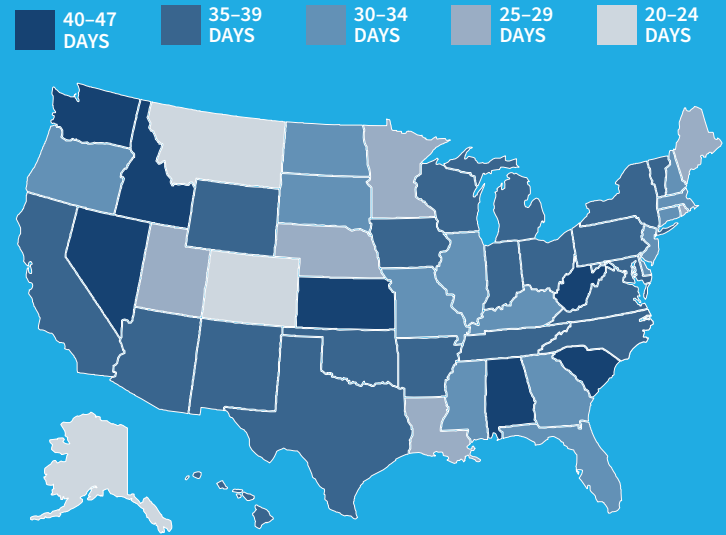
Also, a concerted effort was made by the Heating, Refrigeration and Air Conditioning Institute of Canada to provide a variety of tools for employees, potential students and schools.³ The key strategy in Canada has been to attract more young people into the industry, and it's working.

² The following is excerpted from the report titled *The Next Generation of HVACR Installers and Technicians: What Instructors are Saying and What Needs to be Done About It*. Read the full report here: www.careersinhvacr.org.

³ For more information on the work of the Heating, Refrigeration and Air Conditioning Institute of Canada workforce effort see the report titled *A Labour Market Investigation of the HVACR Sector* prepared by Prism Economics and Analysis. The full report is available here: www.careersinhvacr.org.

FIGURE 2: How long it takes to fill an HVACR job

Average posting duration for HVACR jobs by state and each state's relative rank. Longer durations suggest a larger skills gap in HVACR roles.



Source: Appendix 3 of the report titled *Heating Up: The Sweltering Demand for Heating, Ventilation, Air Conditioning, and Refrigeration Workers*.

Table 2: Hardest-to-fill middle-skill occupations

RANK	OCCUPATION	AVERAGE POSTING DURATION
1	Refrigeration Technician	44 Days
2	Broadcast Technician	44 Days
3	Neurodiagnostic Technician	43 Days
4	Electrical Designer	42 Days
5	Mechanical Engineering Technician	40 Days
6	Avionics Technician	40 Days
7	Engineering Technologist	39 Days
8	Occupational Therapy Assistant	37 Days
9	Medical Coder	37 Days
10	Network / Systems Support Specialist	36 Days
11	HVAC Mechanic / Installer	36 Days
-	National Middle-Skill Average	29 Days



Here are the key findings from the HVACR instructor survey:

- 1. There are too many empty seats in HVACR classrooms.** Almost 60 percent of instructors report that their programs are under-enrolled and have room for more students.
- 2. We are not training enough students.** For the 2014–2015 school year, an estimated 21,239 new employees were qualified to enter the workforce from technical or community colleges. If we don't do better than this in the coming years, there will not be sufficient new entrants to the HVACR pipeline to meet future demands.
- 3. No clear credentials or accreditation programs.** With a mish mash of national credentials for students and instructors, the skills gap will continue to widen. And if HVACR programs are not held to similar standards, then program quality will suffer.
- 4. We are about to lose many instructors to retirement.** Like the skilled workforce, more than 50 percent of instructors in the U.S. and Canada indicate that they will retire in the next 10 years.
- 5. We need to do a better job training the trainers.** While one-third of instructors participated in professional development programs three or more times a year, more than 50 percent haven't participated in any professional development at all to refresh their knowledge and skills.
- 6. Too many students are unprepared for training programs.** Instructors reported that the biggest challenge facing them is unprepared students, both academically and socially, which makes it harder to retain and graduate students.
- 7. Recruitment practices are lacking.** Instructors reported a need for increased awareness and actions from their institutions to recruit and retain students, particularly for second career workers and veterans, which made up over half of their classes. Companies that need new employees have to do more to help fill the training gap.
- 8. We need to recruit more women and minorities into HVACR training programs.** Many instructors who participated in the survey bemoaned the lack of women and minorities in their training programs.

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NORTH AMERICAN PLAN

Based on the results of the survey and discussions with industry representatives, the HVACR Workforce Development Foundation has developed a North American Plan to close the HVACR skills gap in the United States and Canada. This plan focuses on three broad goals for the industry: training the trainers, establishing uniform accreditation and certifications, and attracting a motivated workforce.

Training the trainers

1. Ensuring that North America has a sufficient supply of highly trained workers requires the preparation and ongoing professional development of the instructors themselves.
2. Creating a centrally located database of qualified HVACR training programs to help instructors find available professional development opportunities.
3. Establishing funds through local and regional HVACR employers earmarked for professional development of HVACR instructors.
4. Using more HVACR industry employers in professional development programs. This helps to ensure that program instructors align curriculum and instruction to workplace needs.
5. Working with local workforce advisory committees and workforce industry boards to ensure that professional development not only focuses on education, but on connection to the workplace.

Develop a unified program for accreditation and certification

6. A national set of standards and certifications should be used for HVACR accreditation and certification.
7. The HVACR industry must come together and endorse national standards for accreditation and certification.
8. Ensure that standards and benchmarks for student progress are carefully designed to align with curricula and certification requirements as well as workplace requirements.

Find ways to attract motivated students into HVACR job training

9. Research alternative routes to the HVACR workforce and survey current and potential students (traditional, veterans and second career) to better understand their needs and get helpful information that programs could use to modify curriculum and instruction.
10. Create opportunities for mentoring programs, job shadowing, ride-a longs, internships, and apprenticeships with HVACR employers to enhance the relationships between students and employers.

Through these and other strategies, relationships between training programs and prospective employers can be built and sustained. These strategies all have the potential to improve collaboration among educators and employers, and/or strengthen existing efforts to ensure a steady pipeline of qualified workers through targeted recruitment, strong retention plans, and ongoing program evaluation.

CONCLUSION

HVACR jobs are respectable jobs with progressive salaries and benefits. These jobs are available across North America in big cities and smaller communities. HVACR jobs are high tech green jobs that use the latest technology and diagnostic tools. A job in this industry provides a solid career path and with the opportunity to advance within the sector, including owning an HVACR company.

HVACR jobs are out there, waiting to be filled today and in the future. Opportunities abound for those who enter this field.

THE WORKFORCE DEVELOPMENT FOUNDATION

The HVACR Workforce Development Foundation is dedicated to leading an industry effort to develop and promote educational projects, programs, and partnerships to attract committed and skilled employees to a career in HVACR.

Foundation Objectives

- To raise the awareness of the HVACR industry and the importance it plays in daily lives.
- Create interest in the HVACR industry as an attractive and profitable career choice.
- To enhance the quality and quantity of available workforce for the HVACR industry.

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American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)



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