NASRC Workforce Development Assessment Report

Data-driven recommendations to grow
the commercial refrigeration technician workforce

NORTH AMERICAN
Sustainable
Refrigeration
Council

Executive Summary

The commercial refrigeration industry faces an increasingly critical technician shortage that is disrupting essential operations, creating a bottleneck to transitioning away from hydrofluorocarbon (HFC) refrigerants, and threatening U.S. supermarkets' ability to meet new regulatory requirements.

The North American Sustainable Refrigeration Council (NASRC) conducted this assessment with research support from Good Green Work to evaluate challenges and opportunities to grow the technician workforce. This report outlines data-driven findings and recommendations to improve technician recruitment, training, and retention.

Key Findings

I. This career offers distinct advantages
II. This career's unique drawbacks pose limitations
III. Commercial refrigeration training opportunities are lacking
IV. Individual recruitment efforts are insufficient

Key Recommendations

I. Improve pre-recruiting and recruiting strategies
II. Focus on retention
III. Increase training opportunities
IV. A coordinated industry effort is needed

Coordinated implementation of the recommendations detailed in this report will help to address the industry-wide labor market need for additional qualified commercial refrigeration technicians. Visit nasrc.org/workforce-development for more information or to get involved.

Good Green Work

About Good Green Work
Good Green Work supports local, national, and global green career education and workforce development efforts that address climate change and social inequity to build a world that supports all Earth's systems and species. Good Green Work is led by Emily Courtney who has over 20 years of experience at the intersection of environmental, jobs skills, and entrepreneurship education, working with diverse communities around the world to develop pathways out of poverty and into quality careers that address the climate crisis.

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Introduction

The commercial refrigeration industry faces a growing technician shortage at a critical time. New regulatory requirements are driving an industry-wide transition away from HFC refrigerants in U.S. supermarkets. However, **the shrinking technician workforce is creating a bottleneck, slowing the transition, and threatening the industry's ability to meet regulatory timelines.**

To evaluate challenges and opportunities to grow the commercial refrigeration technician workforce, NASRC conducted this assessment in partnership with stakeholders in the commercial refrigeration industry. This report summarizes key findings from the assessment and outlines strategies to coordinate effective recruitment, training, and retention activities to address the technician workforce shortage.

Background

Once considered a suitable substitute for ozone-depleting refrigerants, HFC refrigerants are super-polluting greenhouse gases with thousands of times more heat-trapping power than carbon dioxide. By contrast, natural refrigerants, including ammonia, carbon dioxide (CO_2), and propane, have zero or near-zero global warming potential (GWP) and are considered a future-proof solution. Still, a unique set of market barriers—such as upfront cost premiums, technology limitations, and service workforce readiness—have prevented widespread adoption in U.S. supermarkets.

A growing body of policymakers has identified HFCs in supermarkets as a "low-hanging fruit" to achieve their climate targets, resulting in unprecedented regulatory pressures stimulating the industry's transition away from HFC refrigerants. However, there are currently not enough commercial refrigeration technicians to enable this transition and meet regulatory deadlines.

Anecdotal evidence from NASRC member contractors has long pointed to a shortage of commercial refrigeration technicians that has increasingly disrupted critical operations and servicing. Data from the Bureau of Labor Statistics (BLS) on Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR) has also demonstrated the growing workforce gap. According to BLS data, 40,100 job openings for HVACR mechanics and installers are projected each year between 2021-2031[1].

However, the BLS data does not delineate statistics on the refrigeration workforce. Data specific to the commercial refrigeration workforce gap is needed to better characterize challenges and opportunities to grow the technician workforce. This report seeks to further substantiate the demand for additional refrigeration technicians and identify strategies to address this industry challenge.

[1]Occupational Outlook Handbook: Heating, Air Conditioning, and Refrigeration Mechanics and Installers. U.S. Bureau of Labor Statistics. (2022, September 8).

Methodology

In this assessment, NASRC utilized interviews and surveys with various stakeholders in the refrigeration workforce sector to characterize challenges and identify effective solutions. Though some national data was collected, the initial assessment primarily focused on California due to the stringent regulatory requirements that have already accelerated the transition from HFCs in the state.

NASRC gathered information through interviews and written surveys from training, service, and human resource stakeholders, summarized below.

Interview Summary

- **7 service contractors representing over 5,000 employees**
- **2 food retailers with over 1,400 in-house technicians**
- **8 training directors and faculty representing 37 school programs**
- **3 associations representing the HVACR sector**

Surveys

- **102 technicians and service managers**
- **6 human resources managers representing nearly 4,000 technicians**
- **3 HVACR school training programs**

Note:
An important limitation of the data gathered is that technician input only represents active technicians in the commercial refrigeration industry. No feedback was collected from technicians that have exited the industry.

Key Findings

Key findings based on the data collected are summarized below.

I. This Career Offers Distinct Advantages

A refrigeration technician career has strong advantages—notably, the high pay rate. Among the 102 technicians surveyed, **at least 85% exceeded the living wage threshold** according to the MIT Living Wage Calculator (11% provided insufficient data, and 5% are not currently earning a living wage, mainly due to being new entrants to the profession).

Technicians reported rapid pay increases, especially with more than two years of experience and the ability to make independent service calls. Wages commonly start between $20-$30 per hour. More seasoned technicians who can make service calls independently and problem-solve reliably often earn $50-$60 per hour.

Job satisfaction was also ranked highly. **85% of technician survey respondents were satisfied or very satisfied with their current job and career.** By comparison, 65% of U.S. employees were satisfied with their jobs in February 2022[2] . Additionally, 82% of survey respondents were likely or very likely to recommend a career in refrigeration.

In addition to the high earnings potential, other key advantages reported in survey and interview responses included:

- Job security
- Recession-proof
- Geographic flexibility
- Low-to-no educational debt
- Satisfaction of ensuring the food supply
- Joy of problem-solving

[2] 11 Surprising Job Satisfaction Statistics. Apollo Technical LLC. (2022, November 20).

The advantages of a career in commercial refrigeration, in the words of technicians:

- *"I enjoy the problem solving and science involved with the trade. I take pride in the fact that I've obtained a high aptitude for the many disciplines involved (i.e., electrical, controls, EMS, plumbing, sheet metal, thermodynamics, etc.)."*
- *"Great pay, [you] always have a job, [are] always learning new things, great feeling fixing something that is critical in customers' operation."*
- *"For me, some advantages have been the pay, namely. The experience with equipment that helps me out in life outside of work as well. My mechanical knowledge has been wildly increased over the years from doing this job more than anything else I can imagine, and that is personally satisfying. Getting to work on different things and solve problems can be fun. I've also got great benefits and retirement, which speak for themselves. Also, having a work van is a huge benefit. Reducing my vehicle and commute costs is essentially an addition to my income that I appreciate."*

II. This Career's Unique Drawbacks Pose Limitations

Though job satisfaction amongst the technicians surveyed was high, several key occupational disadvantages were also reported, including:

- Unpredictable hours
- On-call on nights and weekends
- Seasonal inconsistency
- Working under pressure
- Long drive times
- Physically challenging work
- Lack of respect from some customers

The top challenges reported were the lack of work-life balance and unpredictable work schedules. **When asked about the disadvantages of the occupation, more than 65% of respondents mentioned their work schedule:** long hours, lack of work-life balance, on-call hours, and unpredictable schedules, all of which make it challenging to spend time with and be reliable to their friends and family.

The refrigeration technician workforce is caught in a reinforcing burnout loop: A shortage of technicians is leading to demanding, unsustainable schedules, which is causing some technicians to leave the field, further exacerbating the workforce shortage and leading to more unsustainable schedules.

The disadvantages of a career in commercial refrigeration, in the words of technicians:

- *"Advantage: high pay; Disadvantage: no life, insane hours."*
- *"This job is lonely."*
- *"I love the work but sacrifice so much with my family. Personal time isn't even an option. Most of us have few friends and are alone all the time. It is a lonely trade, and I believe it takes its toll on all of us psychologically."*
- *"Hurry up, we need the help."*

III. Commercial Refrigeration Training Opportunities are Lacking

Training gaps were identified across all stages of a refrigeration technician career, starting at the trade school level. **Industry stakeholders reported that curriculum does not align with industry needs.** In contrast, school leaders and faculty reported a lack of support and information from the industry to better prepare students for employment. Several factors contributing to this disconnect included but were not limited to:

- Lack of industry participation in school advisory boards;
- Insufficient commercial refrigeration curriculum and training equipment for schools;
- Shortage of faculty with commercial refrigeration expertise and limited training opportunities for faculty.

Respondents also highlighted continuing training gaps upon entering the field. Many industry leader participants reported the need to provide their own training for up to two years to prepare entry-level technicians to work independently. One technician surveyed remarked, "Young technicians are thrown to the wolves."

> **"Young technicians are thrown to the wolves."**
>
> - Surveyed technician

However, there is little-to-no time available for training during the busy season. Most training happens in the off-season, but training can be resource intensive, especially for smaller contractors without internal training facilities. Industry participants also reported that **technicians promoted to supervisory positions are often not provided with the necessary managerial training** to support employee satisfaction and technician retention.

IV. Individual Recruitment Efforts are Insufficient

There was consensus amongst survey and interview participants that current recruitment efforts by individual companies are not attracting enough qualified candidates to meet the industry's labor market needs.

> **"Recruiting needs to improve overall in this industry. There is so much opportunity for anyone interested in this field!"**
>
> - Surveyed technician

Opportunities were identified across all stages of recruitment, starting at a young age. In every interview, participants highlighted the following:

- Challenges of a decline in societal preference for trades occupations;
- A lack of knowledge among young people and parents about the benefits and sophistication of HVACR occupations; and
- A decrease in youth exposure to activities that build mechanical aptitude and an affinity for technical problem-solving.

As a result, fewer and fewer students are choosing to pursue a career in the trades.

Students who pursue a trade career highlighted a general lack of awareness of the existence and benefits of the HVACR trade as a barrier to entry. Finally, those students studying for HVACR careers are not choosing the commercial refrigeration trade often enough to close the industry's labor market gap.

Though all participating companies reported recruitment as a priority, industry recruitment efforts are led by individual companies, resulting in uncoordinated and siloed activities that cannot meet the workforce recruitment need. As one technician stated, "Recruiting needs to improve overall in this industry. There is so much opportunity for anyone interested in this field!"

Recommendations

Based on the findings above, we recommend the following interventions.

I. Improve Pre-Recruiting & Recruiting Strategies

Coordinated industry "pre-recruiting" activities can help remedy the lack of youth exposure to activities that build mechanical aptitude while informing and preparing K-12 students for trade careers. This includes two key categories:

- Develop partnerships and programs to engage youth in activities that develop mechanical aptitude and technical skills.
- Develop a coordinated industry effort to increase early exposure to and awareness of refrigeration technician careers.

Additionally, we recommend the following recruitment strategies to improve existing recruitment efforts and attract more students and technicians to the industry:

- Showcase the benefits of the commercial refrigeration technician occupation, including advantages listed in Finding I, through recruitment materials and events. This includes data provided on technician satisfaction and up-to-date, regionally-specific earnings information.
- Broaden target audience to attract non-traditional audiences, such as women.
- Develop region-specific recruitment initiatives to build stronger pipelines from local training partners to industry employers.
- Increase "learn and earn" on-the-job training opportunities for students.

II. Focus on Retention

The most cost-effective strategy for the industry to address the technician shortage is to focus on technician retention. Retaining technicians with three to five years experience is valuable to the industry.

We recommend the following retention strategies:

- Be transparent about the disadvantages of the occupation in the recruitment stage to set realistic expectations.
- Utilize technology and customer process improvements to service problems during conventional business hours and the off-season.
- Increase "learn and earn" on-the-job training opportunities for entry-level technicians.
- Pair experienced technicians with new technicians during the off-season when additional experienced staff capacity exists.
- Provide managerial and field mentorship training to create career advancement opportunities for technicians who are late in their careers and have difficulty with the physical nature of the work.
- Focus managerial training on technician satisfaction and retention strategies.

III. Increase Commercial Refrigeration Training Opportunities

Training partners need a clear understanding of the skills and information that industry employers want graduates to know and be able to demonstrate on the job. Building stronger connections and partnerships between industry and training programs will align outcomes and better prepare students for the field. We recommend the following industry actions to align school and industry activities:

- Sit on advisory councils to guide Student Learning Outcomes (SLOs) and curriculum.
- Compile commercial refrigeration training needs to inform school programs.
- Participate in student hiring events.
- Provide work-based learning opportunities for students.
- Lead faculty training opportunities.
- Support faculty recruitment efforts to ensure instructors have experience and skills specific to the commercial refrigeration industry.
- Donate equipment for training on new, industry-specific technology.

Still, training does not end after entering the field. We recommend the following activities to address training gaps for current technicians:

- Provide paid training opportunities for technicians in the off-season.
- Identify strategies to sustainably fund ongoing training in the field.
- Offer training on new technology installations to local contractors (end-users).
- Provide employee management training for technicians promoted to managerial and supervisory roles (see Recommendation II).
- Pair experienced technicians with new technicians during the off-season when there is additional experienced staff capacity (see Recommendation II).

IV. A Coordinated Industry Effort is Needed

Commercial refrigeration technician positions are in high demand and have significant occupational benefits. The best approach to address the identified industry-wide labor market gap is strategic and coordinated collective action to recruit, train, and retain technicians.

Consider the following recommendations in the development of an effective industry-wide effort:

- Develop an industry-wide system to regularly collect data on the number of additional technicians needed by location.
- Design region-specific recruitment, training, and retention initiatives.
- Coordinate with local industry and training partners to build a pipeline from key regional training programs to employers.
- Mitigate the work-life balance disadvantages of the occupation through a proactive, coordinated effort with industry partners (e.g., retailers and service contractors).
- Focus individual company recruitment efforts on hiring and training inexperienced, entry-level technicians.

Conclusion

This assessment was vital to expanding evidence of the labor market supply gap for commercial refrigeration technicians and identifying data-driven recommendations to improve recruitment, retention, and training. But the workforce shortage is a persistent challenge that will not be addressed by companies working in isolation. Instead, a coordinated, industry-wide effort to implement the recommendations in this report will be the most effective strategy to fill the labor gap.

For many of the recommendations in this report, a region-specific approach will have the most significant impact. Further research is needed to inform impactful, cost-effective, and region-specific solutions.

1

Recruitment

- Increase youth exposure to activities that develop mechanical aptitude and technical skills.
- Showcase the perks of the commercial refrigeration technician occupation.
- Attract non-traditional audiences, such as women.
- Build robust pipelines between local training partners and industry employers.
- Increase “learn and earn” training opportunities for students.

2

Student Training

- Offer industry guidance to inform trade school curriculum.
- Participate in student hiring events and offer work-based learning opportunities.
- Support ongoing education and training for HVACR faculty.
- Donate equipment for training on new, industry-specific technology.

3

Technician Retention & Training

- Be transparent about occupation’s advantages and disadvantages during recruitment.
- Leverage technology to limit service calls on nights and weekends.
- Increase “learn and earn” training opportunities for entry-level technicians.
- Pair experienced technicians with new technicians during the off-season.
- Provide managerial training to create career advancement opportunities.

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About the North American Sustainable Refrigeration Council (NASRC)
NASRC is a 501(c)(3) environmental nonprofit working to advance climate-friendly natural refrigerants and reduce greenhouse gas emissions caused by traditional hydrofluorocarbon (HFC) refrigerants. We collaborate with stakeholders from across the industry, including over 38,000 food retail locations, to eliminate the barriers to natural refrigerants in supermarkets. To learn more visit nasrc.org or contact us at info@nasrc.org.