I DID IT MY WAY: PACIFIC AIR'S JOURNEY IN MANAGEMENT

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After years of ownership and experience, Brian Gonzalez of Pacific Air, Heating & Air Conditioning knew it was finally time to expand his company into the local market, but high employee turnover posed a serious threat. While demand was growing for his services, and his reputation for quality work gave him confidence, Brian struggled to find the appropriate technicians for his anticipated expansion. To expand his business and sustain growth, Brian had to stabilize his workforce and formalize operations within the Company. Without the right team and systems in place, could Brian's vision for growth become reality?

Brian Gonzalez started a small HVAC (heating, ventilation, and air-conditioning) business in 2008, based in Los Angeles. Since 2003, Brian had gained experience alongside a seasoned HVAC technician, focusing on hands-on learning and self-directed research. Fast forward five years, and Brian established his company, Pacific Air, Heating & Air Conditioning. Initially, it was far from perfect. Brian dedicated himself to bettering the company that he established from scratch. Although there were moments when he felt uncertain about solving a problem, his vision kept him focused; no minor obstacle could deter him. He would return home to do extensive research until he could ensure every customer felt satisfied.

Brian is a pseudonym for a real HVAC business owner based in Los Angeles. His name has been changed to protect his privacy. Pacific Air, Heating & Air Conditioning is a pseudonym for Brian's HVAC business. The names of Pacific Air employees are also pseudonyms used to protect their privacy and preserve anonymity.

The authors developed the case for class discussion rather than to illustrate either effective or ineffective handling of the situation. The case and its accompanying instructor's manual were anonymously peer reviewed and accepted by the ***Journal of Case Research and Inquiry***, Vol. 11, 2026, a publication of the Western Casewriters Association. Qualified educators may request the instructor's manual at editor@jcri.org. Contact Katelyn Guevara, 14218 Christine Dr., Whittier, CA 90605, (562) 968-6336, Katelynguevara99@gmail.com

Brian's Early Life

Brian experienced economic hardship during his early life, as his family consistently faced financial difficulties. Brian remembered how happy he felt receiving a box of Corn Flakes whenever the church delivered his family's grocery bag from the food pantry. As a child, Brian was unaware of his family's financial struggles until his teenage years.

Following a tragic series of events, Brian and his five siblings were all separated, leaving the young children and teens to fend for themselves. Brian took drastic measures to provide for his younger siblings. Emancipating himself at 16, Brian began working to help support his younger siblings in foster care. At this time, Brian also joined a junior firefighter program. The fire department took him under its wing and gave him life and career stability. From here on, Brian learned from experience and mentorship that there was no room for failure or excuses. In the fire department, he was taught discipline: waking up early and tackling the day, keeping a clean appearance, and performing the task right because performing subpar could cost somebody's life. He would go on to become an EMT, start a business flipping houses, and build Pacific Air. His hard work guaranteed that his own family would never see financial scarcity like he did growing up.

Pacific Air's Early Years

In the initial stages of the business, Brian employed a close-knit team of two technicians, James and Marcus, who were both family friends. Brian gradually imparted his knowledge of the trade to them, creating a relaxed atmosphere filled with playful banter. They consistently produced quality work, but when their performance fell short, Brian did not attempt to hold back his criticism.

Throughout this period, Brian dedicated himself to transforming the Company into its best version. He led a vibrant team that consistently delivered high-quality work and played an active role in marketing initiatives. The Company experienced much growth and established a strong reputation in the local community.

Around the same period, both of his technicians decided to leave. James relocated to be closer to his family, while Marcus believed his pay was insufficient. Marcus had previously requested a raise from Brian, who declined. Instead, Brian opted to give Marcus generous monetary gifts during holidays. As time passed, Marcus began regularly requesting advances, which Brian initially granted until the requests became excessive. Meanwhile, Marcus's work performance began to decline, which frustrated Brian. Ultimately, both recognized they could not meet each other's expectations and mutually agreed to part ways.

From then on, Brian established a pattern of hiring new employees but retaining them only briefly. With an employee turnover ratio of 15:2, Brian explained, *"80% were let go and the other 20% parted ways on their own."* The employees who were let go were due to underperformance and a general lack of expertise, while the remaining 20% departed as they found the work more challenging than anticipated and discovered a dislike for the HVAC industry.

Brian noted that the new generation of technicians tended to be *sensitive*, making conversations challenging. He struggled particularly with less experienced technicians, stating, *"Transparency works well for some, especially older technicians, but it doesn't resonate with the younger ones."* Brian speculated that the training from the local trade schools was insufficient, or perhaps the newer technicians lacked motivation. Unless he could find a way to attract and retain stronger talent, Brian recognized that his vision for expansion might never happen.

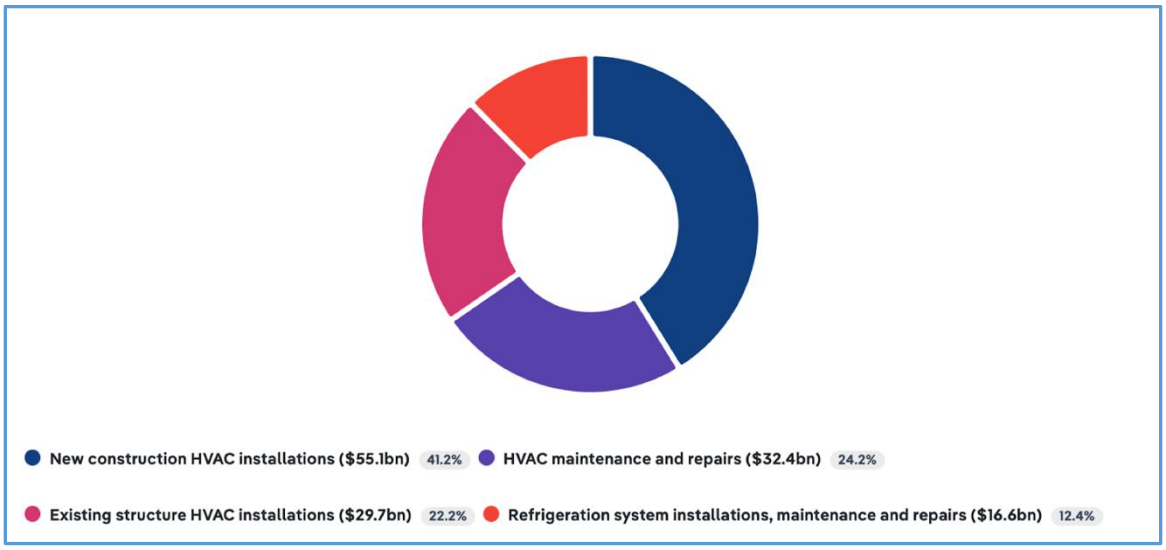
The United States HVAC Industry

The Heating and Air Conditioning Contractors industry (US 23822A) experienced increasing profitability. Revenue was projected to grow by 1.9% from 2024 to 2029 (Pigott 2024). In 2024, the sector had reached revenue of $133.7 billion (see Appendix A). As temperatures continued to rise, there was an increasing demand from households and businesses for climate control solutions to maintain comfort amidst climate change. Although fluctuations in weather catalyzed investments in HVAC systems, elevated interest rates created challenges for consumers to allocate funds, potentially holding back additional industry growth.

Revenue was distributed across different service segments within the HVAC industry. Figure 1 shows significant service segments, including installations, maintenance, and service.

Figure 1. HVAC Service Segments

Source: Pigott, 2024



Job Categories

Installation. An installation referred to the process of *"setting up heating, cooling, and ventilation systems in a building or space to provide a controlled and comfortable indoor environment"* (Arial 2023). This process consisted of electricity, plumbing, and gas systems. The price of installing a system (see Appendix B) could vary dramatically depending on:

- Unit type
- Brand
- Efficiency rating (SEER, AFUE, HSPF) (see Appendix C)
- Size and layout of the property
- Additional material, such as ductwork
- Complexity of the project (Freitas 2023).

Installations could include installing a system where a system did not already exist, or replacing a system with a new one. Replacing a system was sometimes referred to as a *change-out*.

Maintenance. Performing maintenance involved preventative measures to improve and extend the system's life. Maintenance done twice a year, once in spring and once in fall, was standard for keeping units running efficiently and discovering areas for repair or replacement. Routine maintenance could include:

- Cleaning coils, drains, and other elements
- Inspecting connections, motor operations, and thermostat functionality
- Monitoring refrigerant pressure
- Testing safety controls
- Lubricating moving parts.

Service. Servicing involved system inspections that could determine the need for repairs or replacing parts. Replacement parts would be suggested for components that were worn out or

to enhance efficiency. Indicators that a unit required service included rising energy bills, unusual sounds and odors, and temperature issues (Strada 2024).

Technician Levels

In the HVAC industry, technicians could have various levels and responsibilities depending on their experience. Some of the major levels of HVAC technicians included Entry-Level Technician, Journeyman, Senior or Lead Technician, and Master Technician (see Appendix D).

Entry-Level Technician. The Entry-Level Technician was typically a recent graduate of a trade school or someone new to the HVAC workforce. This level was commonly referred to as a *'helper'* or *'apprentice.'* After being hired, they worked under the guidance of an experienced technician to gain hands-on experience for fundamental problems. It was recommended that a technician have at least four years of experience as an apprentice before becoming a Journeyman.

Journeyman Technician. A Journeyman was an intermediate-level technician with at least four years of experience. This was someone who had sufficient expertise to solve complex problems and demonstrate leadership to the entry-level technicians.

Senior/Lead Technician. A Senior or Lead Technician has high-level knowledge and five to seven years of experience. These technicians would generally oversee projects, diagnose complex problems, and schedule and train other technicians.

Master Technician. A Master technician was someone who had reached the peak level of expertise. This person was known to have five to ten years of experience and might own his/her own business, or work at a high-level role for a large company (see Appendix D).

Technician Standards

Technician requirements could vary between companies and states. In California, for example, training, certifications, and licenses were typical requirements for employment as an HVAC technician.

Education and Training. While it was not be mandatory, it was recommended that technicians complete training through a trade school or community college. The courses could give technicians a theoretical background and hands-on experience. In a survey from *World of Advice TV*, technicians in the HVAC field were asked what they felt was a sufficient level of schooling for technicians (see Appendix E). Out of 828 votes, a majority believed that school was not needed, and it was best to learn on the job.

Certifications and Licensing. While many in the HVAC felt school was not necessary, certifications would help technicians showcase their knowledge and credibility for better job opportunities. Focused on the fundamentals of job knowledge and skills, the *"Ready-to-Work"* certificate was earned by passing an entry-level exam for technicians just starting in the HVAC field, with little to no formal education or training (North 2025). As technicians surpassed the basic levels of HVAC, higher-level certifications would be expected. A NATE (North American Technician Excellence) HVAC Professional certification was available for technicians with at least three years of experience and focused on HVAC fundamentals, electrical and controls, comfort and airflow, installation, and service. This certification was highly respected and recognized in the HVAC industry (Brownson 2025).

Aside from technical knowledge certifications, certifications were also available for handling specific supplies and equipment. The Clean Air Act required technicians to obtain an EPA Section 608 Certification for those who handled refrigerants. Depending on the type of systems being serviced, the appropriate level of certification should be reflected. There were four types: Type I, II, III, or universal (see Appendix F). Generally, HVAC technicians who worked on residential and commercial properties should be at least Type II technicians (Environmental, 2023). Any person registered as an apprentice with the U.S. Department of Labor's Office of Apprenticeship was exempt from the certification, provided they are closely supervised by a certified technician (Environmental 2023).

Onboarding and Workplace Integration. During the onboarding process, each company had a different approach to preparing the technician to work independently in the field. According to an article on training new HVAC employees, all companies should implement the following five things: (1) a developed and seamless onboarding process that followed a new-by-step process for each employee to align the employee to the company properly; (2) an assessment of the existing skill sets to have identify potential needs; (3) utilized online training services; (4) implemented ride-along requirements for each new hire; and (5) encouraged ongoing collaboration and communication (Ochoa 2023). The ride-along was the most variable part of the onboarding process. Each company would approach the ride-along in its own way. Some technicians were partnered with a journeyman for a period ranging from only a week to eight months, with the average being six months before taking on solo jobs (Reddit 2023).

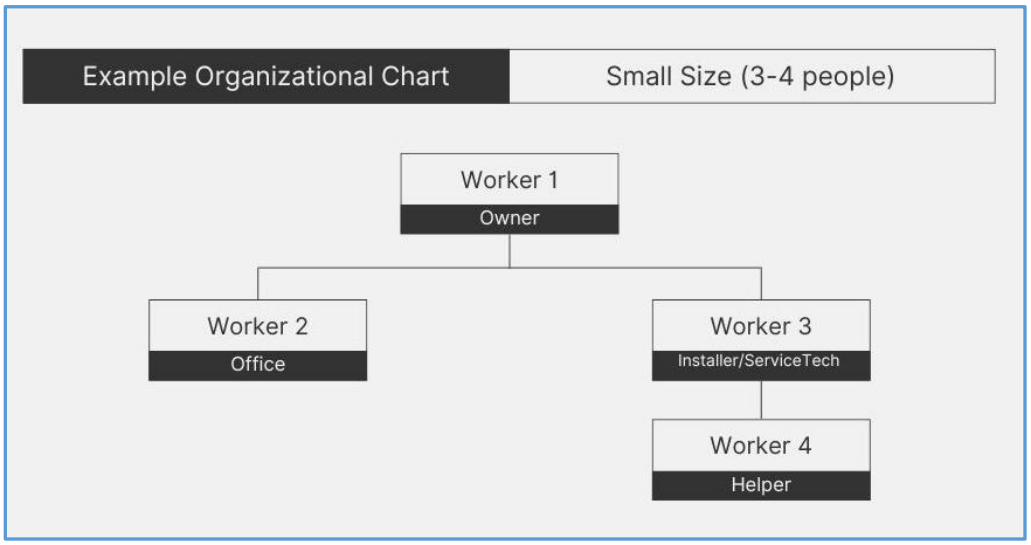
Staffing the HVAC Company

According to Al Levi, an experienced consultant in trade solutions, a good rule of thumb was, *"For every two techs or installers out there doing the work, there should be one inside (support) person. This is the best of staffing ratios* [… is] *2:1"* (Levi 2009). For a small HVAC company that

consisted of 3-4 employees, roles often overlapped. Figure 2 illustrates how a small company would distribute roles internally.

Figure 2. Small HVAC Company Organization Structure Sample

Source: Guevara, 2025



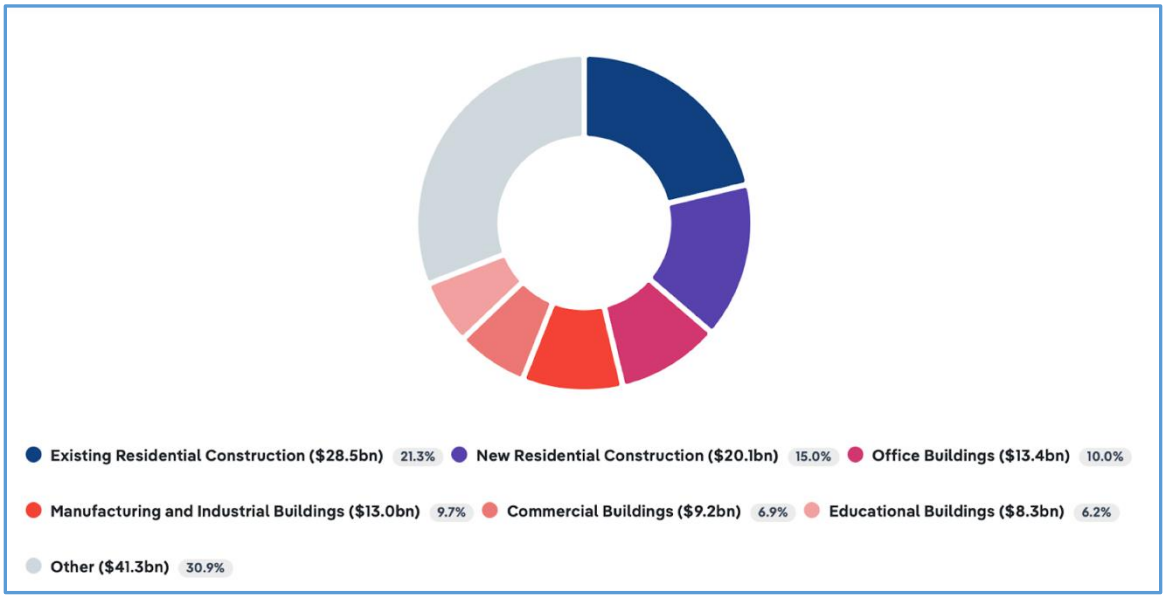
The HVAC Market

The HVAC industry covered various market segments, but as Figure 3 shows, it could be categorized into five general market segments: residential, commercial, industrial, and educational facilities, and other.

- **Residential (36.3%):** referred to homeowners and was the largest segment of the HVAC market.
- **Commercial (16.9%):** consisted of office buildings, retail stores, and shopping centers.
- **Industrial (9.7%):** consisted of manufacturing facilities, warehouses, and factories.
- **Educational Facilities (6.2%):** referred to schools, such as college dorms.
- **Other (30.9%):** consisted of the miscellaneous funds of COVID-19 for essential workers, including healthcare facilities, police and fire stations, and recreational buildings.

Figure 3. Major Market Segments in HVAC Contractors Industry

Source: Pigott 2024



HVAC Key Success Factors

Key elements that could contribute to HVAC business success include:

- **Loyal Customer Base:** Loyal customers tended to stick with the same company even during economic downturns. These enduring relationships ensured steady revenue and fostered satisfied customers who were inclined to share recommendations through word-of-mouth.
- **New Customer Acquisition:** Satisfied customers not only returned but also attracted new clients, perpetuating a cycle of referrals through word-of-mouth and gaining market share.
- **Highly Skilled Workforce:** Experienced and highly skilled technicians delivered exceptional service through efficient work practices, thereby minimizing the occurrence of callbacks. This approach fostered trust and credibility, resulting in repeat business from satisfied customers.
- **Efficient Work Practices:** Efficient work practices resulted in the timely completion of projects within budget. Streamlined operations served to reduce costs and enhance profitability, boosting customer satisfaction.
- **Service and Product Quality:** High-quality products and exceptional work yielded dependable results, distinguishing contractors in a competitive market.

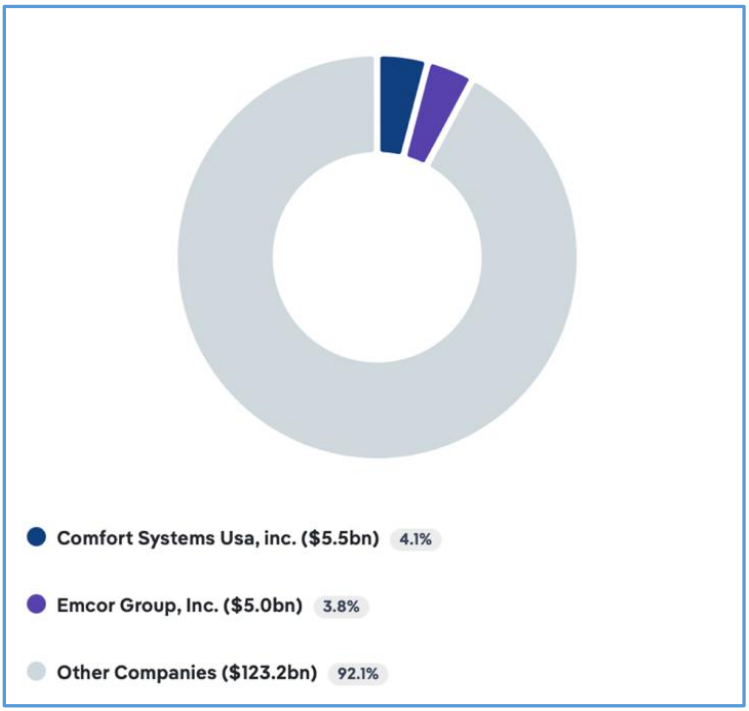
Competition

The HVAC industry had become increasingly accessible, leading to a rise in the number of small businesses and independent contractors, particularly in California (refer to Appendices G and H). The low start-up costs and overall low barriers to entry had lured new entrants, resulting in a fragmented market. With minimal variations among the products offered, these companies sought to stand out by emphasizing unique competencies, particularly in service quality.

According to IBIS World, the principal entities within the HVAC industry included Comfort Systems USA and EMCOR Group, as illustrated in Figure 4. These were publicly traded companies with multiple sectors. They were well-established in the industry; the top competitors primarily in the industrial and commercial sectors. Other various companies collectively dominated a substantial portion of the market.

Figure 4. Major Market Share in the HVAC Contractors Industry

Source: Pigott 2024



Comfort Systems USA, Inc. (4.1%). This Texas-based company had most of its locations in Southeastern United States (see Appendix I). It also had a notable market share in two additional industries: machinery maintenance, heavy equipment repair services, and plumbing.

EMCOR Group, Inc. (3.8%). EMCOR Group was a corporation based in Connecticut. The organization held a market share in two additional sectors: electrical services and plumbing. Within the company, EMCOR operated various divisions that specialized in these sectors. For HVAC services, clients would recognize the brand name *Air Systems, an EMCOR Company.*

Other Companies (92.1%). Since the majority of residential HVAC services were delivered by independently owned and operated contractors, there was no mandated formal reporting requirement. In Los Angeles, major local competitors on the rise included Weather Pros, BestTech, and Air Solutions, Inc. However, while these entities were increasing their visibility within Southern California communities, they remained relatively insignificant in terms of overall market share.

WeatherPros. WeatherPros was a multi-service company offering HVAC and plumbing services for both commercial and residential properties. It became a prominent competitor in the region, establishing a strong market presence through effective marketing. The company quickly grew to eight locations and employed over 400 staff members with higher than average salaries (Figure 5). Since launching in 2016, WeatherPros achieved $30 million in annual revenue within four years and was projected to reach $35 million by 2020 (Lamirand 2020). On May 5, 2022, a private equity firm acquired WeatherPros (Wrench 2022). According to locals who knew the former owner, it is said that WeatherPros sold for $100 million, with the owner serving as CEO for a set number of years. After the company was sold, customers complained of a decrease in the quality of service (Appendix J).

BestTech. Like WeatherPros, BestTech offered services for both HVAC and plumbing for residential and commercial properties. Although employee numbers were not available, BestTech's website listed two locations: one for HVAC and plumbing, and another for plumbing services only. BestTech's technician salaries were competitive with local firms, but installer salaries were below the average (see Figure 5).

Air Solutions, Inc. Air Solutions, Inc. was originally an appliance store that ventured into residential and commercial HVAC in 1977. By 2025, the company employed 15 staff members and operated a single location. Its salaries were right on average compared to local competitors (Figure 5).

Figure 5. Average Salaries of Local Technicians

Source: Indeed, 2025

AVERAGE SALARIES OF LOCAL TECHNICIANS

COMPANY	Average Service Technician Yearly Salary	Average Installer Yearly Salary
PACIFIC AIR	$49,135	$63,683
WEATHERPROS	$69,296	$112,545
BESTTECH	$62,657	$68,637
AIR SOLUTIONS INC	$64,198	$83,278
AVERAGE	$60,572	$82,036

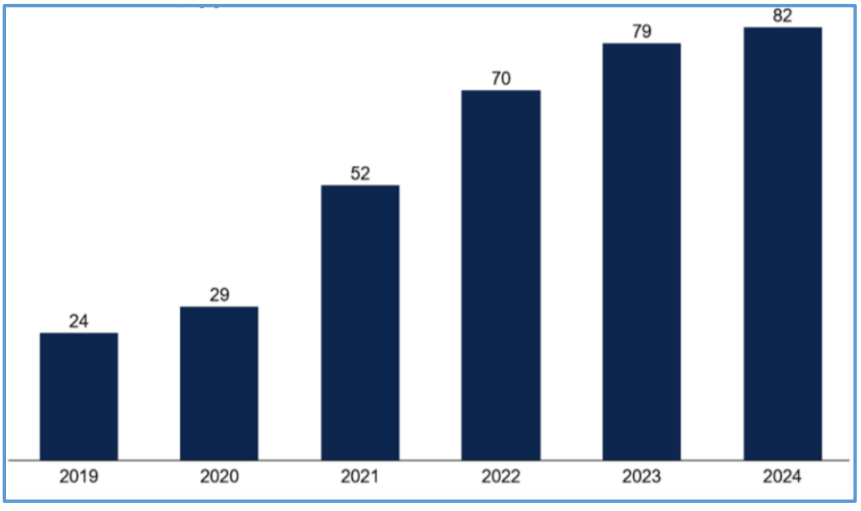
Emerging Trends in the HVAC Industry

The HVAC industry constantly faced evolving trends. Seasonal demand peaks, green technology, and smart home integration were just a few examples that came and went over the years, but two emerging trends had the potential to reshape the future of HVAC.

Acquisitions. From 2019 to 2024, the HVAC industry had seen a rising trend in the acquisition of small HVAC businesses by private equity firms, as seen in Figure 6. The goal of private equity firms was to generate investment returns with a strategy called consolidation, where a base company was used to absorb smaller companies to achieve scale. This strategy enabled the parent company to take on the existing customers of the acquired companies, while also making space for new clients associated with a more well-known local brand.

Figure 6. HVAC Consolidators, by Year

Source: Capital IQ, Factset, Pitchbook data



Investors regarded the HVAC industry as highly appealing due to numerous factors that underscored the potential for substantial returns. Key data trends that backed the acquisition investment include a resilient industry during recessions, a fragmented market ripe for a

market leader, growth driven by extreme temperatures, recurring revenue from maintenance contracts, below-average employee turnover, opportunities in both residential and commercial sectors, and potential for diversification into complementary services (McCombie 2024).

The Toolbelt Generation. Another trend that had emerged was Gen Z abandoning college in favor of trade schools, primarily due to concerns over significant college debt (Appendix K), the pursuit of improved job security, and the potential for competitive pay when compared to those in professional services. With the retirement of Baby Boomers, many trade industries experienced a shortage of skilled workers, leading to an increase in salaries and wages. According to Curt Nordal, a California-based recruiter specializing in commercial HVAC roles, some recent trade program graduates faced difficulties securing positions as new construction slowed down. Even with a shortage of technicians, employers preferred experienced candidates (Chen 2024).

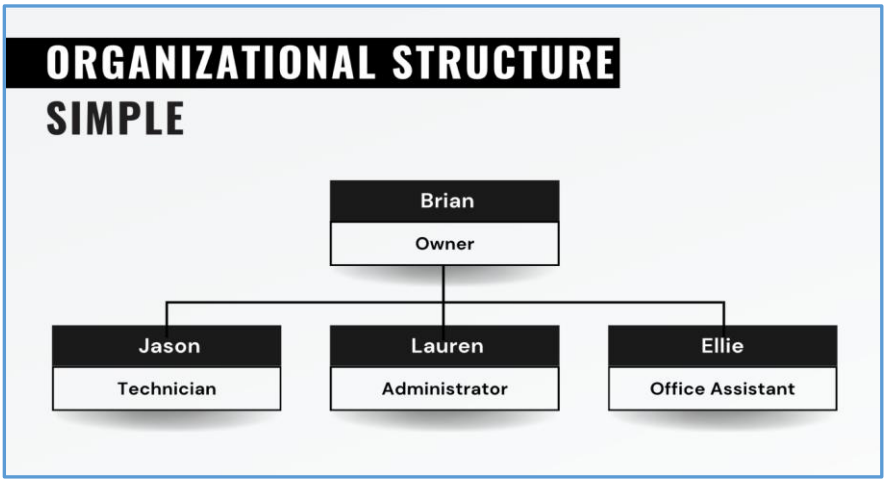
Pacific Air Heating & Air-Conditioning

Management

Pacific Air had a team of four members that operated out of a home office (Appendix L). Figure 7 displays the organizational structure and illustrates how Brian, the owner, oversaw three employees: (1) Jason, the lead technician; (2) Lauren, the administrator and wife of Brian; (3) Ellie, the office assistant and daughter of Brian. Despite no formal structure or job descriptions, the company maintained a simple organizational framework in which all employees reported directly to Brian.

Figure 7. Pacific Air Simple Organizational Structure

Source: Belloso, A., Dondeti, A., Garcia, M., Guevara, K. Personal Communication. 2024



Due to the numerous responsibilities of being a business owner, Brian frequently experienced high levels of stress. One of his biggest challenges as an owner was his struggle with delegation. Lacking proper training, employees often turned to him for assistance, diverting his attention in various directions. While he realized the need for additional managers and technicians, he struggled to find the time to train them.

When hiring new technicians, Brian prioritized candidates with relevant experience and education to ensure they could work independently. Given that Pacific Air charged premium prices, he anticipated that the quality of work would surpass basic expectations. Brian knew he must perform better than his local competitors, Weather Pros and BestTech, who executed the same strategy as Pacific Air, as depicted in Figure 8. However, new hires often exaggerated their qualifications, resulting in Brian being sought after once more for help. They expected that once they got the job, Brian would personally train them. After attempting to perform to standard, the employees often failed. This cycle frustrated Brian, leading him to make condescending remarks toward his staff. Consequently, many of the newly hired employees felt defeated and slowed down in their attempts to impress Brian. Ultimately, the newly hired employees would leave within their first few weeks on the job. As a result of this high turnover, the employee turnover ratio for Pacific Air skyrocketed to 15:2.

Figure 8. Pacific Air's Strategy Compared to Competition

Source: Belloso, A., Dondeti, A., Garcia, M., Guevara, K. Personal Communication. 2024

Training and Procedures

Due to Pacific Air's lack of formal training, each employee adopted a distinct approach to work. Whether in the office or the field, employees utilized their preferred methods. In the office, sometimes both Lauren and Brian prepared invoices; however, Lauren's invoices differed from Brian's, resulting in confusion for both employees and customers.

When technicians checked their schedules, the job description outlined the issues that customers faced as described to Lauren over the phone (Appendix M). Technicians were expected to anticipate the potential causes of the problem the customer faced. Employees loaded their trucks at the home office, where Brian expected them to know the contents and any additional items needed for the job. It was not uncommon for technicians to overlook an essential item, forcing them to either return to the home office to retrieve the item or purchase a replacement, which delayed the job. Such oversights irritated Brian, leading him to express frustration and again make condescending remarks to the staff.

At a job site, service technicians became aware of the problems the system was experiencing. Each technician would use his or her judgment to determine the root cause when diagnosing the issue. Quite often, the technician's first guess was incorrect. Because the technicians were jumping around what should be done in sequence, they spent more time than necessary at the site. This created an excess of overtime (see Appendix N) and caused the next job to be delayed. This chain reaction would lead to upset customers, who were told they would be serviced on a certain day but instead had their appointments canceled and had to make other arrangements. Brian explained, *"A senior technician can burn out 20 calls a day,"* while a *"lower-level technician can do 10 calls."* At the pace they worked, without a proper system in place senior technicians were only finishing 3-5 service or maintenance calls per day.

Company Performance

While Brian knew the Company could do much better, Pacific Air was doing well financially and was experiencing rapid sales growth relative to the industry (see Appendix O). He charged a premium price for the quality work produced, and speaking to the customer personally almost guaranteed that he would close the deal. Clients often liked Brian's personality and trusted that, with their connection, Brian would be available to take care of them when they needed him.

The home office maintained low overhead by keeping only universal items in stock, which generally had a lower cost. When a customer requested a service or repair, the technician diagnosed the issue and identified the necessary part number. Since different systems varied in size and brand, ordering specific parts tailored to each customer's system was essential, and these parts tended to be more expensive. The inventory for these specific parts adhered to a just-in-time inventory system.

Marketing

Most of Pacific Air's customers came through word of mouth, with 75% of clients in the residential sector and 25% in the commercial sector. Some clients discovered Pacific Air via the phone number on work trucks or through Google or Yelp. They were often impressed by the Company's performance, especially given its 4.0 online rating. While Brian enjoyed a solid base of loyal customers who valued him and his business, the few available reviews made negative feedback more prominent. Many of the negative reviews were complaints stating Brian was *"arrogant."* In the few reviews available, Brian's replies were made public, either thanking the positive feedback or deflecting the criticism in a lengthy response paragraph. From his perspective on customer reviews, Brian believed it was up to the customer to decide whether to leave one, and he did not actively seek out any reviews.

Pacific Air aimed to uphold its reputation for outstanding quality service. Consequently, the company exclusively installed top-tier brands unless a customer specified a particular brand. This commitment to high-quality products and services enabled Pacific Air to command a premium for its offerings. In this regard, it aligned itself with most local HVAC companies.

Looking Toward the Future

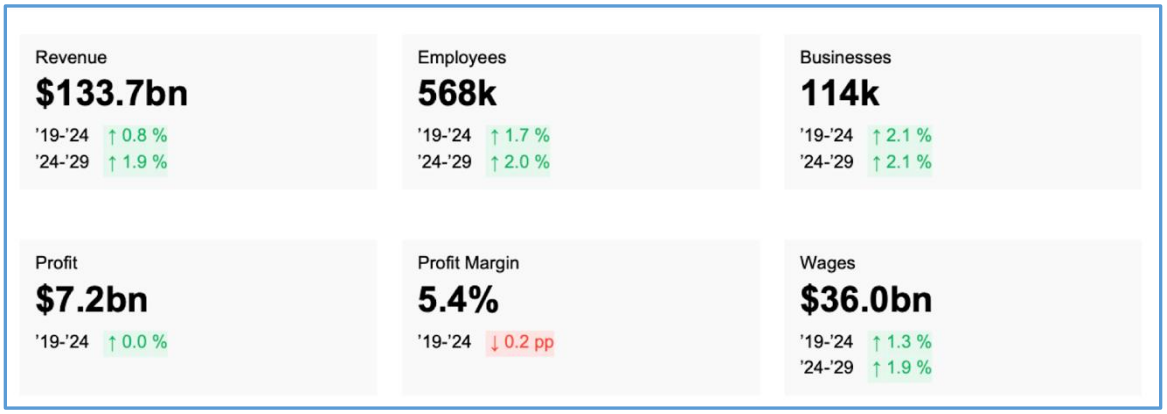
To expand Pacific Air successfully, Brian needed to address his main challenges of employee turnover, leadership, and organizational structure. Addressing these issues would help Brian assess whether Pacific Air was truly prepared for expansion.

What steps should Brian take to ensure his Company was operationally ready for expansion? Would implementing formal systems like training, clear job descriptions, and delegation truly help his expansion efforts? Should Brian reconsider his current organizational structure or leadership style to promote growth? Making the right choice could mean the difference between sustainable growth and overextending resources.

KATELYN GUEVARA graduated from California State University, Los Angeles, in 2024, earning her Master of Science in Business Administration with a focus on management. She is passionate about supporting entrepreneurship and plans to continue working closely with small businesses. Katelyn is dedicated to fostering community-centered economic development and aims to use her management expertise to empower business owners and inspire long-term success.

Appendix A. Key Takeaways

Source: IBIS World, Oct. 2024



Appendix B. Pricing Based on Unit Type

Source: Bank Rate, https://www.bankrate.com/homeownership/hvac-installation-cost/

A/C unit type	Cost (including installation)
Window and portable units	$150 – $500
Ductless split system	$2,000 – $14,500
Central air conditioning system	$1,900 – $5,500

Furnace type	Cost (including installation)
Electric furnace	$1,600 – $6,900
Natural gas furnace	$3,800 – $10,000
Oil furnace	$6,750 – $10,000

Heat pump type	Cost (including installation)
Air source	$4,500 – $8,000
Geothermal	$6,000 – $20,000
Mini-split	$1,300 – $8,000
Hybrid	$2,500 – $10,000
Solar	$18,000 – $34,000
Supplemental electric	$2,500 – $40,000

Appendix C. Energy Efficiency Ratings

Source: Strada Services, https://stradaservices.com/about-us/blog/what-does-hvac-service-include/

SEER Rating

SEER stands for Seasonal Energy Efficiency Ratio. A SEER rating shows how efficient your air conditioner or heat pump is by comparing the cooling output it delivers against the electric energy it consumes in one cooling season. Most modern systems have a rating of 13 to 21.

A higher rating translates to more comfort and reduced energy bills. Usually, units with a higher rating will cost more than units with a lower rating.

AFUE Rating

AFUE means Annual Fuel Utilization Efficiency. The rating determines your heating system's efficiency by measuring how efficiently it converts fuel to heat in one year. High-efficient units have a rating of 90% to 98.5%, while mid-efficient systems have a rating of 80% to 83%.

According to the U.S. Department of Energy, a system with a lower rating than 80% is inefficient. While shopping for a new unit, you'll find the AFUE rating on the Energy Guide sticker or the owner's manual.

HSPF Rating

Before buying and **installing a new heat pump**, it's essential to consider its HSPF rating. A Heating Seasonal Performance Factor shows how efficient your heat pump is in a heating season.

It measures the heating output your heat pump offers against the energy it consumes. A highly efficient heat pump has an HSPF rating of between 9 and 10.

ENERGY STAR-certified heat pumps have a minimum HSPF of 9.2 and a SEER of 16. ENERGY STAR is a body that helps consumers identify efficient heating and cooling systems.

Appendix D. Technician Levels

Source: Level One HVAC, https://levelonehvac.com/2024/02/21/hvac-career-paths-navigating-the-ranks/

Entry-Level Technician

As a fresh-faced trade school graduate or newcomer to the HVAC field, you'll most likely start your career as an entry-level technician. At this stage, you are typically considered a helper or apprentice, working under the guidance of seasoned technicians to gain practical experience.

Responsibilities:

- Assisting in the installation and maintenance of HVAC systems
- Learning to troubleshoot basic problems
- Acquiring HVAC tools and learning their proper uses
- Understanding safety protocols and best practices in the field

Skills Developed:

- Technical understanding of HVAC systems and their components
- Hands-on experience in varied situations
- Customer service and communication skills

Senior/Lead Technician

As a senior or lead technician, you've built a reputation for expertise and reliability. Technicians at this level often take on supervisory roles and manage projects or teams.

Responsibilities:

- Overseeing HVAC projects from start to finish
- Scheduling and coordinating tasks among team members
- Training juniors and conducting evaluations
- Interacting with customers, providing consultations, and ensuring satisfaction

Skills Developed:

- Strong leadership and project management capabilities
- In-depth system diagnostics and complex problem-solving techniques
- Advanced customer service and business acumen

Journeyman Technician

After gaining experience and potentially passing certain certifications, a technician can graduate to the journeyman level. This intermediate level indicates a solid foundation in HVAC knowledge and hands-on experience.

Responsibilities:

- Independently installing, servicing, and repairing HVAC units
- Reading and interpreting blueprints and schematics
- Mentoring entry-level technicians
- Ensuring compliance with local HVAC codes and regulations

Skills Developed:

- Advanced problem-solving abilities
- Leadership and training capabilities
- Detailed knowledge of regulatory standards

Master HVAC Technician

The title of "Master" is often reserved for those who have reached the peak of practical HVAC expertise. Master technicians may own their own business or work in high-level roles within larger companies.

Responsibilities:

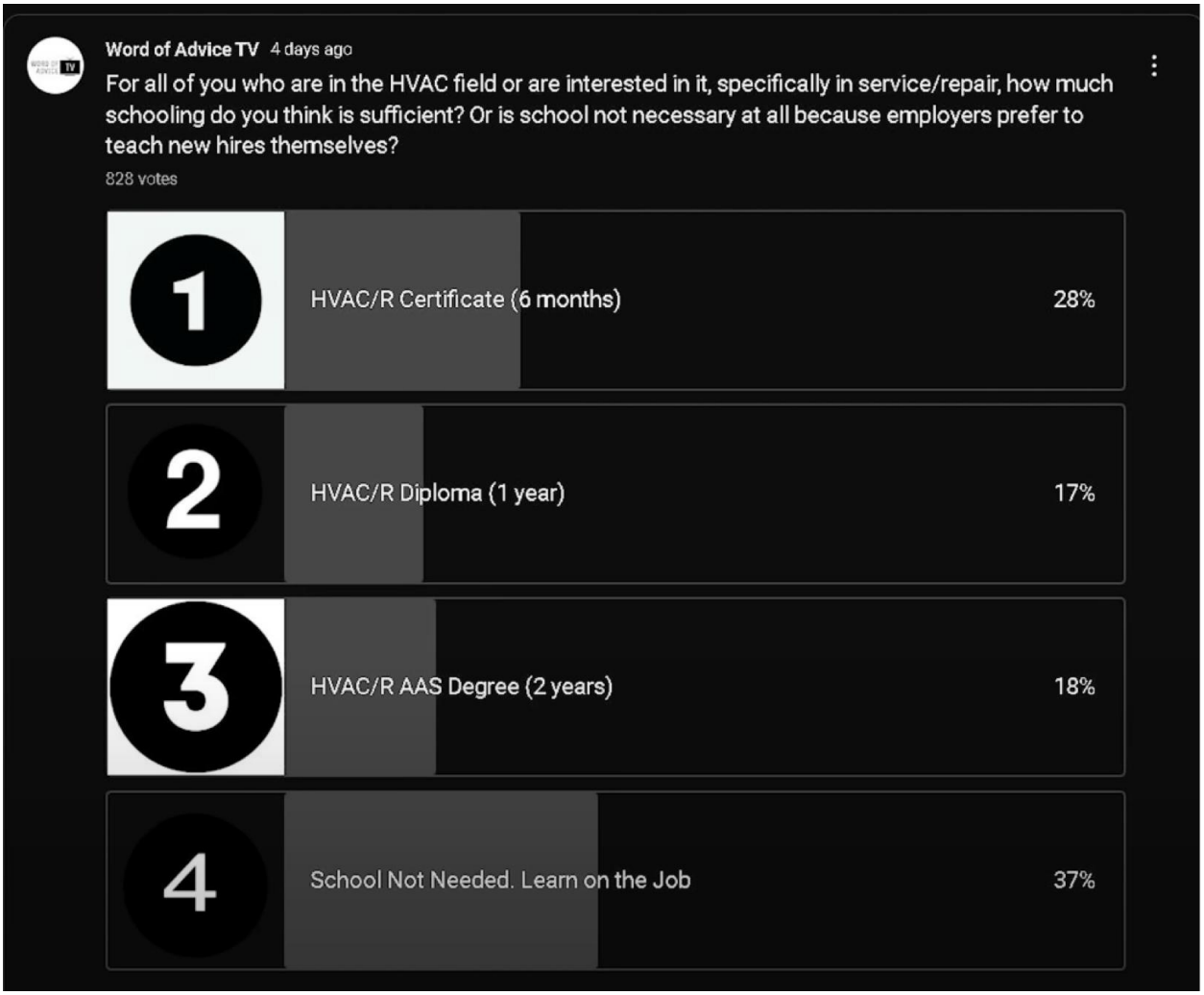
- Directing operations of an HVAC business or department
- Specializing in specific types of systems or technical challenges
- Cultivating client relationships and business development
- Consulting on and resolving the most challenging HVAC issues

Skills Developed:

- Advanced business operations and management
- Mastery of specialized HVAC technology
- Strategic planning and customer relationship management

Appendix E. Survey Results: Sufficient Level of Schooling

Source: Word of Advice TV, April 2025, https://www.youtube.com/watch?v=C_N2vQjz0QQ



Appendix F. Types of EPA Certifications

Source: EPA, https://www.epa.gov/section608/section-608-technician-certification-requirements

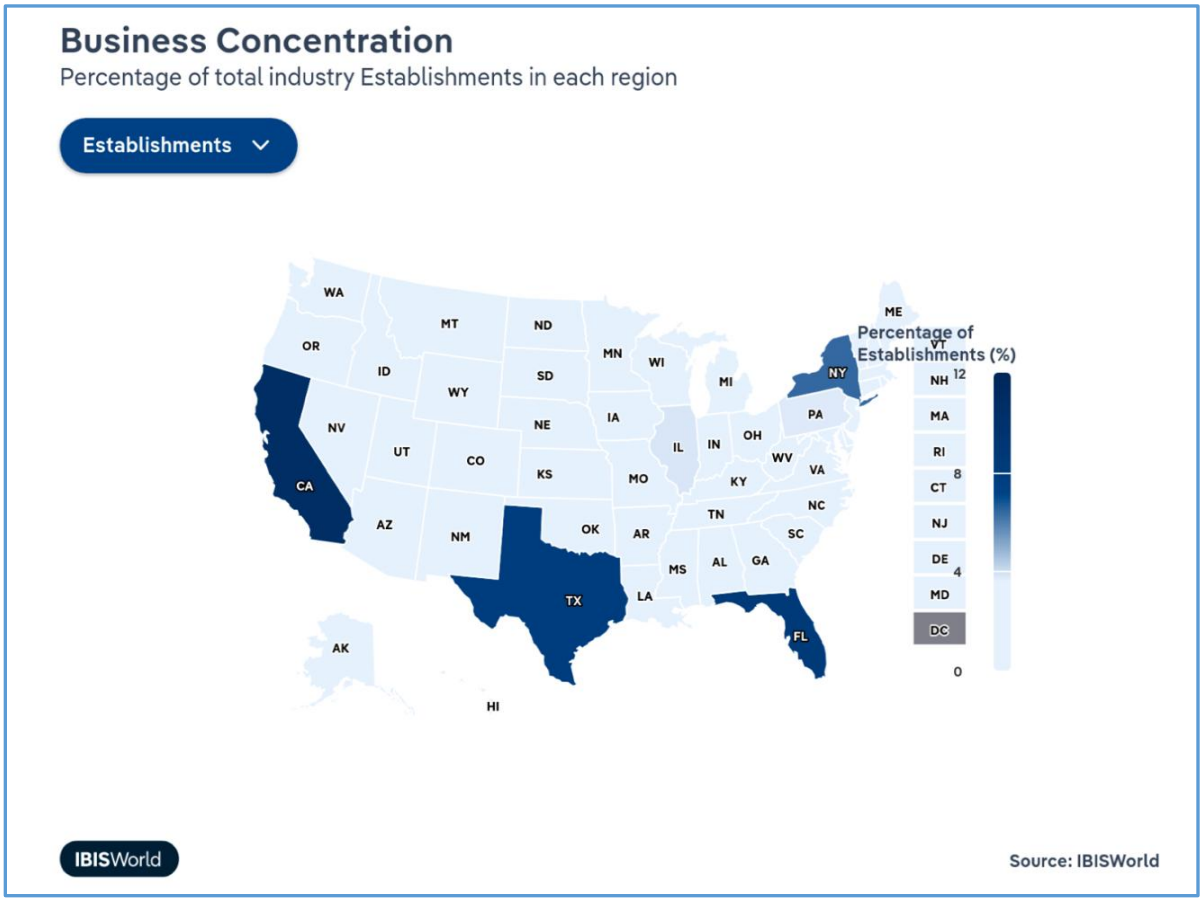
Types of Certifications

EPA has developed four types of certification:

1. For servicing small appliances (Type I).
2. For servicing or disposing of high- or very high-pressure appliances, except small appliances and MVACs (Type II).
3. For servicing or disposing of low-pressure appliances (Type III).
4. For servicing all types of equipment (Universal).

Appendix G. Business Location Concentration in the US

Source: IBIS World, Oct. 2024

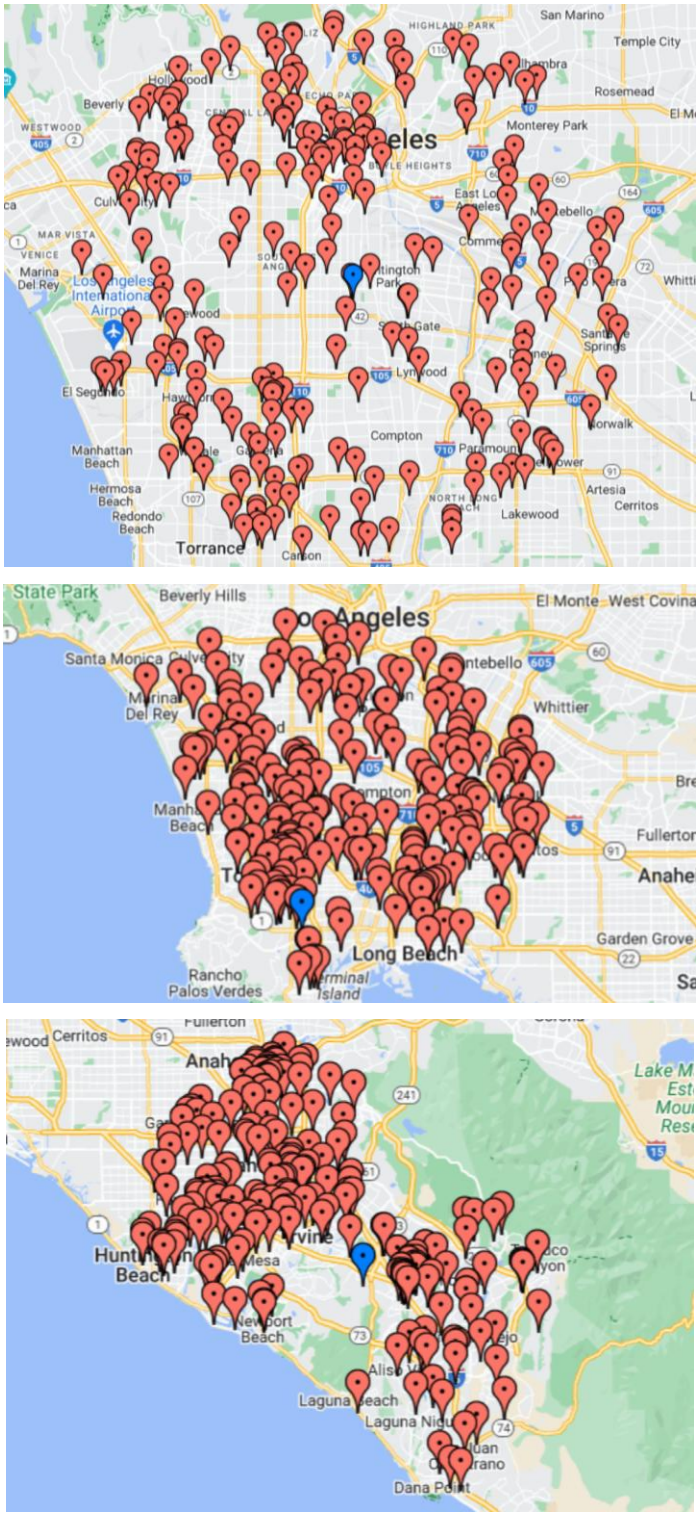


Companies

Company	Market Share (%) 2024	Revenue ($m) 2024	Profit ($m) 2024	Profit Margin (%) 2024
Emcor Group, Inc.	3.8	5,037.7	289.1	5.7
Comfort Systems Usa, inc.	2.8	3,687.7	279.4	7.6
Acco Engineered Systems, Inc.	0.5	713.2	37.8	5.3
US Engineering Company Holdings	0.5	712.6	37.7	5.3
Mckinstry Co., Llc	0.5	683.9	36.2	5.3
Api Group Corporation	0.4	517.7	13.2	2.5
Harder Mechanical Contractors Inc.	0.1	83.3	4.4	5.3

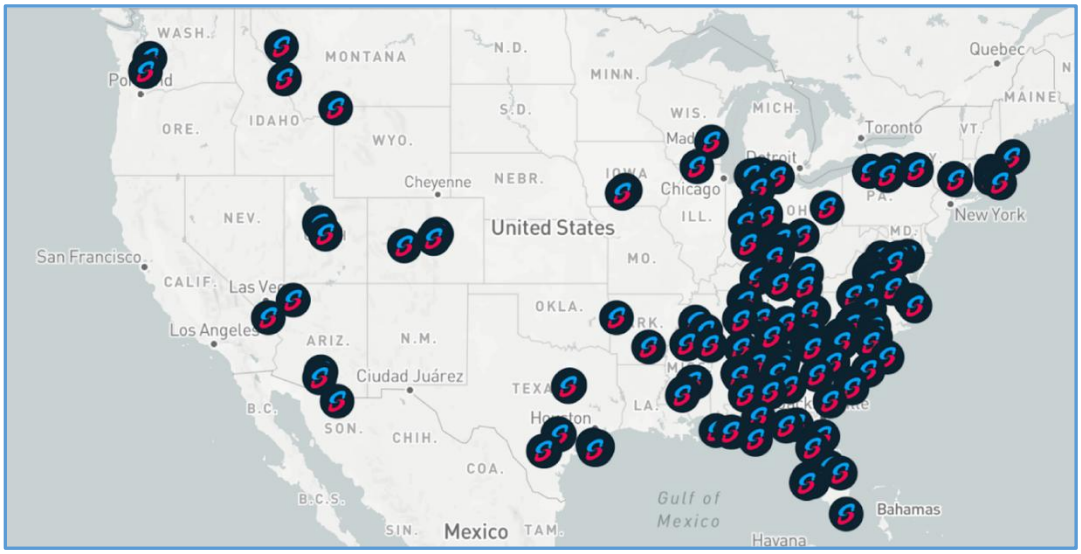
Appendix H. Business Locations in Los Angeles and Orange Counties

Source: Bizminer, 2024



Appendix I. Comfort System Locations

Source: Comfort Systems USA, https://comfortsystemsusa.com/locations/



Appendix J. Company Average Reviews: Strengths & Weaknesses

Source: Angie, n.d.; Birdeye, n.d.; Yelp, n.d.

COMPANY AVERAGE REVIEWS: STRENGTHS & WEAKNESSES

COMPANY (OUT OF 5 STARS)	Stengths	Weaknesses
PACIFIC AIR (4.6)	• HELPFUL TECHNICIANS • PROFESSIONAL • REPONSIVE	• SCHEDULING ISSUES • FOLLOW-UPS • PRICING
WEATHERPROS (4.4)	• RANGE OF SERVICES • RESPONSIVE • SCHEDULING	• INSTALLATION ISSUES • COMMUNICATION • AGGRESSIVE UPSELLING
BESTTECH (4.9)	• FRIENDLY • COMMUNICATION • CLEAN	• SCHEDULE DELAYS • PRICE MIX-UPS
AIR SOLUTIONS INC (4.6)	• KNOWLEDGEABLE • ON-TIME • PROFESSIONAL	• LONG INSTALLS • HIGH COSTS • CLEAN-UP

Appendix K. Summary of Local Los Angeles & Orange County HVAC Programs

Sources: Los Angeles Trade-Technical College, 2025; El Camino College, 2025; Orange Coast College, 2025; Brownson Technical School, 2025.

SUMMARY OF ESTIMATED COSTS

LOS ANGELES & ORANGE COUNTY

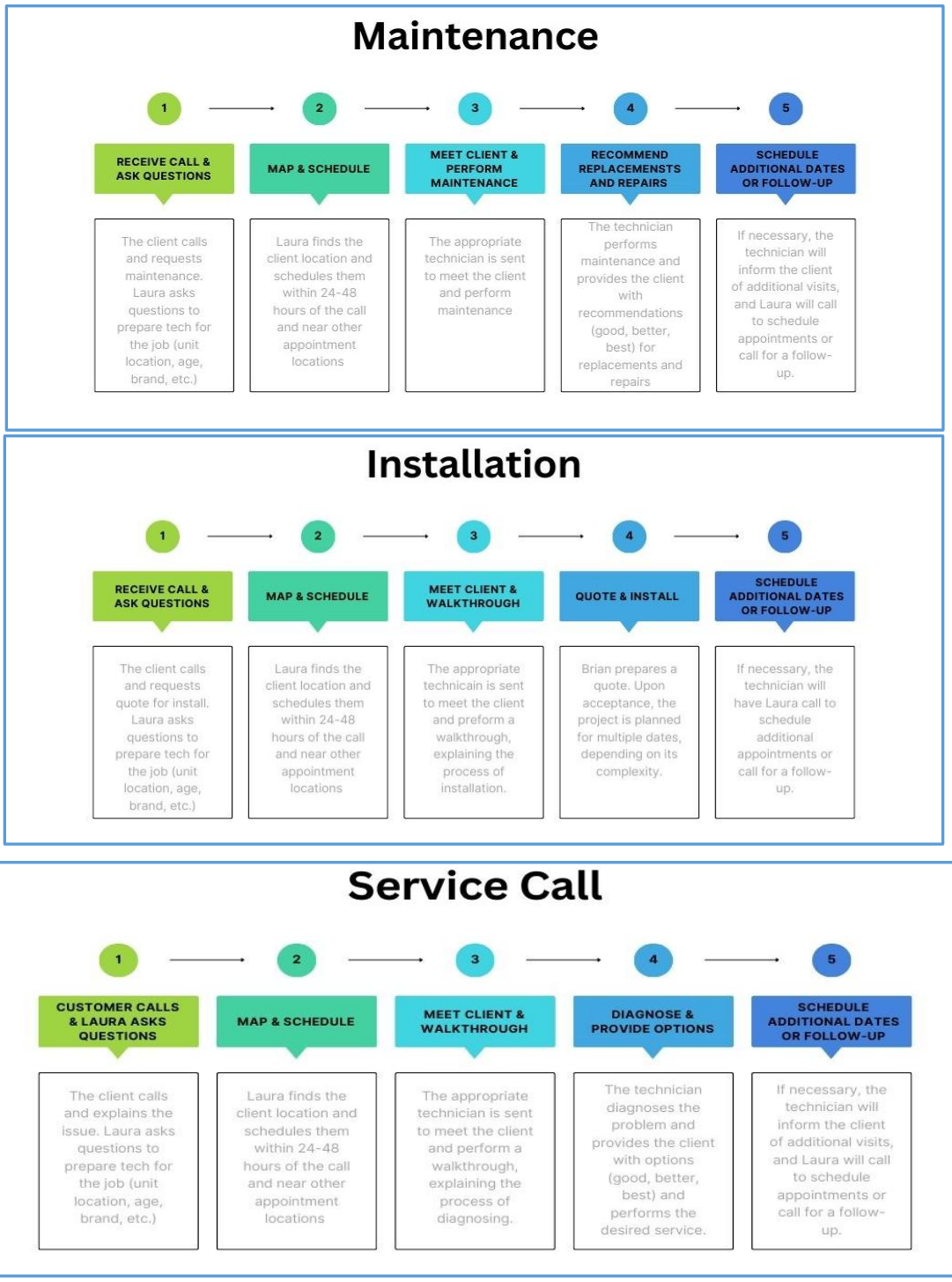
	PROGRAM PROVIDER	PROGRAM TYPE	ESTIMATED COST
LOS ANGELES	LOS ANGELES TRADE-TECHNICAL COLLEGE (LATTC)	AS DEGREE	$2,400
LOS ANGELES	EL CAMINO COLLEGE	AS DEGREE	$2,208
ORANGE COUNTY	ORANGE COAST COLLEGE (OCC)	AS DEGREE	$1,380
ORANGE COUNTY	BROWNSON TECHNICAL SCHOOL	CERTIFICATE	$17,263

Appendix L. AI-Generated Depictions of Lauren and Ellie's Home Office

Source: ChatGPT, 2025

Appendix M. Customer Process Based on Service Type

Source: Guevara, 2025



Appendix N. Notable Metrics

Source: Belloso, A., Dondeti, A., Garcia, M., Guevara, K. Personal Communication. 2024

	Pacific Air	INDUSTRY	DIFFERENCE
MATERIAL COST	30.0%	44.0%	- 14.0%
MARKETING	0%	0.6%	- 0.6%
WAGES	34.0%	22.0%	12.0%

Appendix O. Annual Sales Trends

Source: Belloso, A., Dondeti, A., Garcia, M., Guevara, K. Personal Communication. 2024

	Pacific Air	INDUSTRY	DIFFERENCE
SALES GROWTH RATE	15.6%	1.9%	13.7%
PRE-TAX NET PROFIT	5.0%	5.4%	- 0.4%

References

American Standard. (2022, September 26). *What is SEER?* American Standard Air. https://www.americanstandardair.com/resources/blog/what-is-seer/

Arial Engineering Services. (2023, October 24). *What is HVAC installation, and why is it important?* LinkedIn. https://www.linkedin.com/pulse/what-hvac-installation-why-important-arial-engineering-services-wqqkc/

Brownson Technical School. (2025, June 10). *How to Become an HVAC Technician in California*. Brownson.edu. https://brownson.edu/news/how-to-become-an-hvac-technician-in-california-step-by-step-guide/

Chen, Te-Ping. (2024, April 1). The Wall Street Journal: How Gen Z is Becoming the Toolbelt Generation. Nasrcc. https://www.nasrcc.org/the-wall-street-journal-how-gen-z-is-becoming-the-toolbelt-generation/

Daswani, Karishma. (2023, November 21). *Types of organizational structure.* Study.com. https://study.com/academy/lesson/types-of-organizational-structures-functional-divisional-matrix-team-network.html#:~:text=Simple%20structure%20is%20a%20basic,or%20rules%20that%20govern%20operation

Environmental Protection Agency. (2023, December 15). *Section 608 technician certification requirements.* EPA.gov. https://www.epa.gov/section608/section-608-technician-certification-requirements

Gartner. *Equity theory.* (2024). Gartner.com. https://www.gartner.com/en/human-resources/glossary/equity-theory#:~:text=Equity%20theory%20is%20a%20theory,inputs%20and%20outputs%20to%20others

Freitas, Taylor. (2023, April 12). *How much does an HVAC install cost?* Bankrate. *https://www.bankrate.com/homeownership/hvac-installation-cost/*

Brigham Young University. *Generic strategies.* (2024). BYU.edu. https://learnstrategy.byu.edu/business-strategy/generic-strategies

Lamirand, D. (2020, October 16). *These key KPIs drove Ismael Valdez from zero to $30M, fast.* ServiceTitan. https://www.servicetitan.com/blog/webinar-recap-ismael-valdez

Levi, Al. (2009). Upside Down and Inside Out…Staffing Ratios. *Roofing Contractor*. https://www.roofingcontractor.com/blogs/16-roofing-contractor-blog/post/86512-upside-down-and-inside-out-staffing-ratios?

Maccoby, M. (2022, January 1). *Narcissistic leaders: The incredible pros, the inevitable cons*. Harvard Business Review. https://hbr.org/2004/01/narcissistic-leaders-the-incredible-pros-the-inevitable-cons

McCombie, David. (2024, July 16). *Private Equity is Coming for Your AC Repairman*. Forbes. https://www.forbes.com/sites/davidwmccombie/2024/07/16/private-equity-is-coming-for-your-ac-repairman/

McLeod, Saul. (2024, January). *Psychodynamic approach in psychology.* Simplypsychology. https://www.simplypsychology.org/psychodynamic.html

North American Technician Excellence. (2025). *NATE Entry Level Certificates*. Natex.org. https://natex.org/technician/take-an-exam/nate-certificates-and-certification-exams

Ochoa, Jenna. (2023, September 4). *5 Expert Tips for Training New HVAC Employees.* JB Warranties. https://blog.jbwarranties.com/5-expert-tips-for-training-new-hvac-employees

Poppulo. *Organizational structure.* (2024, November 22). Poppulo.com. https://www.poppulo.com/blog/functional-organizational-structure-pros-and-cons

Phelan, Julia. (2024, April 2). *Onboarding new employees – without overwhelming them.* Harvard Business Review. https://hbr.org/2024/04/onboarding-new-employees-without-overwhelming-them

Pigott, Matthew. (2024, October). *Heating & air-conditioning contractors in the US (Industry reports US23822)A*. IBISWorld.com

Pilat, D., Krastev, S. (2024). *Expectancy theory.* TheDecisionLab. https://thedecisionlab.com/reference-guide/psychology/expectancy-theory

Porter, L. W., Bigley, G. A., & Steers, R. M. (2003). *Motivation and work behavior* (7th ed.). McGraw-Hill/Irwin.

Quain, Sampson. (2024). *Simple organizational structure.* Chron. https://smallbusiness.chron.com/simple-organizational-structure-63451.html

Reddit. (2023). *Company I Work for Has Apprentices Running Service Calls. Reddit*. https://www.reddit.com/r/HVAC/comments/18uk0l5/company_i_work_for_has_apprentices_running/

Robertson, Connor. (2025, August 7). *How to know if you're the bottleneck.* Dr. Connor Robinson. https://drconnorrobertson.com/dr-connor-robertson-founder-bottleneck-guide

Stech, E. L. (2013). Psychodynamic approach. In P.G Northouse (Ed.), Leadership: Theory and practice (6th ed., pp. 319-348). SAGE Publications.

Strada, Joe. (2024). *What does HVAC service include?* Strada Services. https://stradaservices.com/about-us/blog/what-does-hvac-service-include/

Wrench Group, LLC. (2022, May 5). *NexGen joins Wrench Group, expanding company's reach to Southern California.* Business Wire. https://www.businesswire.com/news/home/20220505005998/en/NexGen-Joins-Wrench-Group-Expanding-Companys-Reach-to-Southern-California