

# ARIZONA HEAT PUMP COUNCIL

## SPRING 2025

- Master Heat Pump Technician Certificate Program  
*(Now being offered online & in-person.)*

**NEW** Heat Pump Installer Energy Skilled Certificate  
*Recognized by the U.S. Dept. of Energy*

- HVAC System Consultant Series
- Commercial Technician Series
- HVAC Certification Seminars
- Multiple online instructor-led courses available

## CONTINUING EDUCATION PROGRAM

*CHECK OUT OUR ONLINE CLASSES!*



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Phone: 602.263.0115  
education@elaz.org



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## Who We Are

The Arizona Heat Pump Council (HPC) is part of the Electric League of Arizona (ELA) founded in 1960. HPC members are an active group of professionals who are committed to benefiting Arizonans through the use of energy efficient heating, ventilation, air conditioning, and refrigeration (HVACR) products and services. Visit [www.ELAZ.org](http://www.ELAZ.org) for more information.

## Educational Opportunities

Since 1985, Arizona Heat Pump Council has offered a full array of continuing education opportunities for HVACR professionals. Thousands of individuals have chosen HPC courses to enhance their knowledge and skills in the industry.

- All HPC courses qualify for North American Technician Excellence (NATE) Continuing Education Units.
- Many HPC courses qualify for Building Performance Institute (BPI) Continuing Education Units.



### Certificate Programs

#### Master Heat Pump Technician



The Master Heat Pump Technician (MHPT) Program is designed specifically for the technician who is seeking to gain the skills and certification to take them to the next level in their career. Technicians completing this seven-course program with a "B" or better become Master Heat Pump Technicians and earn a patch to proudly display on their uniforms as well as a certificate of completion. All seven courses are offered each semester. We strongly recommend courses be taken in the order they are outlined. A one-time certificate fee is required – see [Course Registration Form](#) to register.

#### HVAC System Consultant

The HVAC System Consultant (HSC) Program is specifically designed for the individual in the position of consulting and designing the right system for their customers. The series is designed to give the consultant the knowledge and skills required to properly assess the customer's needs and to help the customer find the best system to meet those needs. Consultants completing the seven-course program receive a certificate of completion. A one-time certificate fee is required – see [Course Registration Form](#) to register.

#### Master Heat Pump Installer Energy Skilled Certificate NEW\*\*

In alignment with our commitment to excellence, the ELA has expanded the Master Heat Pump Technician certificate curriculum to meet the knowledge requirements for the U.S. Department of Energy's Energy Skilled Heat Pump Installer designation. Contractors and students seeking the Energy Skilled Heat Pump Installer designation will be required to complete the Master Heat Pump Technician Certificate Program along with three additional courses. This initiative underscores our dedication to producing highly skilled HVAC professionals equipped to meet the evolving demands of the industry.

#### Heat Pump Council Education Requirements

For existing members to maintain an active status in Heat Pump Council Referral Program, the following requirements apply:

**Each company must accrue a minimum of eight continuing education credits (2 classes) during each semester (Spring & Fall).** Contractors may select various employees to attend courses based on their specific needs. More than one person may attend the same class to receive credit as long as a passing grade of "C" or better is earned. By emailing, mailing or faxing your registration, you are committing to attend the designated classes and therefore are eligible to participate in the referral program.



## Business & Introductory Courses

### HPC 126 Refrigeration Fundamentals

Date: January 9, 2025 Fees: \$150 Non-Members/\$120 Members/\$85 APS Qualified Contractor Rate  
Time: 6:00pm - 9:30pm Credits: 4 Continuing Education Credits/3.5 NATE Continuing Education Hours  
Instructor: Rich Porter Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004



**What You Can Expect:** This class covers all the fundamentals of refrigeration and is highly recommended to take prior to the popular Refrigeration Theory & System Diagnosis.

**Who Should Attend:** This is a great class for beginning technicians and non-technical staff but is also highly recommended for anyone wanting to brush up on their refrigeration knowledge.

### HPC100L – Lab Refrigeration System Diagnostics

Date: April 10, 2025 Fees: \$150 Non-Members/\$120 Members/\$85 APS Qualified Contractor Rate  
Time: 5:00pm - 8:30pm Credits: 4 Continuing Education Credits/3.5 NATE Continuing Education Hours  
Instructor: Rich Porter Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004



**Note:** This is a hands-on lab and requires the student to bring some diagnostic tools. Meters, temperature clamps, thermometers, manifold gauges and digital Manometers or Magnehelic gauges will be needed for this class.

**What You Can Expect:** This new course is a "Hands-On" lab designed to give the ENTRY level technician a better understanding of where and how to get the readings necessary to properly diagnose any system. This class focuses on the fundamentals needed to work safely and efficiently around all residential/light commercial systems. Special emphasis on voltage, amperage, capacitors, superheat, sub cool, static pressure, and temperature split as well as preventative maintenance procedures are the main focus of this 3-hour lab.

**Who Should Attend:** Especially suited for the ENTRY level technicians. Anyone new to the industry, or with less than 2 years' experienced individuals will benefit the most from this class. Maintenance/warranty repair technicians and anyone who wants to brush up on the BASICS.

### HPC 149 HVAC Troubleshooting

Date: February 27, 2025 Fees: \$140 Non-Members/\$110 Members/\$78 APS Qualified Contractor Rate  
Time: 6:00pm - 9:00pm Credits: 4 Continuing Education Credits/3.5 NATE Continuing Education Hours  
Instructor: Will Richards Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004



**What You Can Expect:** This course will discuss proper steps and procedures for effective troubleshooting. We will discuss troubleshooting tool usage, calibration and care. We will review troubleshooting charts for electrical and mechanical heating and cooling.

**Who Should Attend:** New service technicians and all installation technicians.

### HPC 152 Delivering Professional Service

Date: April 30, 2025 Fees: \$140 Non-Members/\$110 Members/\$78 APS Qualified Contractor Rate  
Time: 6:00pm - 9:00pm Credits: 4 Continuing Education Credits/3 NATE CEUs  
Instructor: Carl Bartoli Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004



**What You Can Expect:** This class is designed to create a professional service technician, who can deliver a consistent level of service that exceeds your customer's expectations and creates a loyal customer. Learn correct invoice writing, how to market repairs or replacements in a positive way, and how quality service can overcome price objections.

**Who Should Attend:** Principals, supervisors and technicians who want to deliver a higher level of service and create a more professional service technician and provide a professional experience for their customer.

#### HPC200L - HVAC Electrical Workshop (Lecture + Hands-On Lab) **NEW COURSE!**

Dates: April 2 & 4, 2025 Fees: \$230 Non-Members/\$200 Members/\$140 APS Qualified Contractor Rate  
Lecture: April 2, 2025 Credits: 4 Continuing Education Credits  
Time: 6:00pm - 9:00pm Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004  
Lab: April 4, 2025 Instructor: Will Richards  
Time: 8:30am - 12:30pm Materials: Includes Essential Electrical Skills for HVACR textbook.

**Note:** Students are required to attend the lecture and lab for credit. Students will need to bring tools on day two.

**What You Can Expect:** Many of the components in an HVAC system are electrically operated. HVAC systems operate using different voltages. This combined lecture + hands-on lab workshop is designed to teach participants about HVAC high and low voltage. You will gain an understanding of the different high voltages used in HVAC, as well as low voltage (24 volts), used to power thermostats, circuit boards, & other control devices to operate the system. The hands-on lab component will allow participants assemble electrical training boards, make them function, troubleshoot, & diagnose faults.

**Who Should Attend:** Especially suited for the ENTRY level apprentices. Anyone new to the industry, or with less than 2 years' experienced individuals will benefit the most from this class. Installers and anyone who wants to brush up on the electrical BASICS.

#### HPC201L - Piping, Brazing, Evacuation, & Charging Workshop (Lecture + Hands-On Lab) **NEW COURSE!**

Dates: April 23 & 25, 2025 Fees: \$230 Non-Members/\$200 Members/\$140 APS Qualified Contractor Rate  
Lecture: April 23, 2025 Credits: 4 Continuing Education Credits  
Time: 6:00pm - 8:30pm Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004  
Lab: April 25, 2025 Instructor: Will Richards  
Time: 8:00am - 4:30pm Lab Location: Howard Air Service Center

**Note:** Students will be required to attend the lecture and lab for credit. Students will need to bring tools on day two.

**What You Can Expect:** It is important to be familiar with the types of uses of piping in HVAC. Accurate modification of piping provides the basis of effective equipment operation and longevity. When Piping and Brazing the technician must use proper cutting and joining techniques to ensure both the technician's own safety and the quality of work. The evacuation process and the refrigerant charge is critical to the performance, efficiency, comfort level, and span of the system. This lecture + hands on training class will cover all the steps and process for proper Piping, Brazing, Evacuation, and Charging.

**Who Should Attend:** Especially suited for the ENTRY level apprentices. Anyone new to the industry, or with less than 2 years' experienced individuals will benefit the most from this class. Installers and anyone who wants to brush up on the BASICS.

#### HPC202L - Airflow & Ductwork **NEW COURSE!**

Dates: May 12, 14 & 16, 2025 Fees: \$350 Non-Members/\$320 Members/\$270 APS Qualified Contractor Rate  
Lecture: May 12 & 14, 2025 Credits: 4 Continuing Education Credits  
Time: 6:00pm - 8:30pm Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004  
Lab: May 16, 2025 Lab Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004  
Time: 8:30am - 1:00pm Instructor: Travis Howard

**Note:** Students are required to attend the lectures and lab for credit. Students will need to bring tools on day two.

**What You Can Expect:** Students will delve into static pressure and its relationship to airflow performance tables throughout this course. They will also learn to determine the airflow rate for various types of equipment, the necessary airflow for each room in a home, and ensure proper distribution. In the lab the students will learn how to assemble duct fitting that meet industry standards set forth by the International Residential Code (IRC), Sheet Metal And Air Conditioning Contractors National Association (SMACNA), and ACCA Q19 for verifying the quality of HVAC installations.

**Who Should Attend:** This class is designed for the Master Heat pump Technician, advanced technician, and system designers.

## Master Heat Pump Technician Program

#### HPC 101 Refrigeration Theory & Systems Diagnosis

Session 1: January 14 & 16, 2025 Session 1 Location: Online  
Session 2: March 3 & 5, 2025 Session 2 Location: SRP Pera Club, 1 E. Continental Drive, Tempe, AZ 85281  
Time: 6:00pm - 9:30pm Fees: \$157 Non-Members/\$127 Members/\$89 APS Qualified Contractor Rate  
Instructor: Rich Porter Credits: 4 Continuing Education Credits/7 NATE CEUs/3.5 BPI CEUs

**Note:** Included with this class is a SuperCool Slide Rule.

**What You Can Expect:** This course will review mechanical refrigeration theory and system troubleshooting. The four basic components, reversing valves, superheat, sub-cooling, sensible heat, latent heat and BTU's are all reviewed. This course will focus on heat pump operation and diagnosis. If you do not have service experience and/or refrigeration training, **Refrigeration Fundamentals** is a recommended prerequisite.

**Who Should Attend:** This class is designed for those wanting to master the heat pump refrigerant system. Technicians of all levels will benefit.

#### HPC 102 Charging, Piping, & Dehydration

Session 1: Jan. 21, 23 & 28, 2025 Session 1 Location: Online  
Session 2: March 10, 12 & 17, 2025 Session 2 Location: SRP Pera Club, 1 E. Continental Drive, Tempe, AZ 85281  
Time: 6:00pm - 9:30pm Fees: \$179 Non-Members/\$149 Members/\$104 APS Qualified Contractor Rate  
Instructor: Kevin Styles Credits: 4 Continuing Education Credits/10.5 NATE CEUs/5.25 BPI CEUs

**What You Can Expect:** Did you know factory studies of failed compressors show that a large amount of compressor failures are caused by improper refrigerant levels? This is not a well-known fact in our industry. Refrigerant charge imbalances cause slow degradation of the compressor bearings, valves and motor windings. This results in compressor failures occurring some time after the charge becomes unbalanced, making the connection between refrigerant levels and malfunctions difficult. Improper piping and contaminants are also big offenders.

**Who Should Attend:** Technicians of all experience levels will benefit from this course.

#### HPC 103 Electrical Fundamentals for Heat Pumps

Session 1: February 18 & 20, 2025 Session 1 Location: Online  
Session 2: April 1 & 3, 2025 Session 2 Location: SRP Pera Club, 1 E. Continental Drive, Tempe, AZ 85281  
Time: 6:00pm - 9:30pm Fees: \$151 Non-Members/\$121 Members/\$85 APS Qualified Contractor Rate  
Instructor: Carl Bartoli Credits: 4 Continuing Education Credits/7 NATE CEUs

**What You Can Expect:** This class will focus on basic electricity as it pertains to heat pump operations. Topics to be covered include basic electron theory, electromagnetism and PSC motor theory. You will understand how compressors run and start systems work. Having an understanding of capacitor and potential relay operation on an electron level can help the service technician diagnose and avoid malfunctions that are commonly overlooked.

**Who Should Attend:** Technicians of all experience levels will benefit from this course. Master Heat Pump Technician program.

#### ✦ HPC 104 Control Systems for Heat Pumps

Session 1: March 18 & 20, 2025      Session 1 Location: Online  
Session 2: May 6 & 8, 2025      Session 2 Location: SRP Pera Club, 1 E. Continental Drive, Tempe, AZ 85281  
Time: 6:00pm - 9:30pm      Fees: \$151 Non-Members/\$121 Members/\$85 APS Qualified Contractor Rate  
Instructor: Carl Bartoli      Credits: 4 Continuing Education Credits/7 NATE CEUs

**What You Can Expect:** Participants will attain the knowledge to design an entire electrical system for a residential heat pump. You will also learn the theory of operations and diagnostics of heat pump control circuitry including calibration and testing of common brands of thermostats, cooling and heating anticipation circuits, and commonly used electromechanical and electronic defrost systems.

**Who Should Attend:** HVAC technicians who want a better working knowledge of heat pump controls.



#### ✦ HPC 105 Customer Service & Selling Skills

Session 1: January 30, 2025      Session 1 Location: Online  
Session 2: March 19, 2025      Session 2 Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004  
Time: 6:00pm - 9:30pm      Fees: \$149 Non-Members/\$119 Members/\$83 APS Qualified Contractor Rate  
Instructor: Rich Porter      Credits: 4 Continuing Education Credits/3.5 NATE CEUs

**What You Can Expect:** What is the importance of quality service? How do you provide it? This real-world customer service program will help you develop the techniques to provide top quality service. Win with customers when they are angry or complaining. Listen and learn about what your customer needs. Do you know when to service and when to sell? There comes a time when it is no longer in your customer's best interest to repair the HVACR equipment any longer. Learn how to make your customer's lives better, educate the customer and arouse their interest; provide additional information and benefits, and offer maintenance agreements and/or new equipment.

**Who Should Attend:** This course is geared specifically to the HVAC service technician.



#### ✦ HPC 106 HVAC Code & Safety

Session 1: February 4 & 6, 2025      Session 1 Location: Online  
Session 2: March 24 & 26, 2025      Session 2 Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004  
Time: 6:00pm - 8:45pm      Fees: \$280 Non-Members/\$250 Members/\$163 APS Qualified Contractor Rate  
Instructor: Travis Howard      Credits: 4 Continuing Education Credits/7 NATE CEUs/2.0 BPI CEUs

**\*New:** Included in this class is a copy of the current **\*2021 International Residential Code.**

**What to Expect:** This class is designed to make you more comfortable with the International Residential Code. In this interactive class, popular code issues and interpretations will be discussed. Come prepared to discuss your personal experiences with the Code.

**Who Should Attend:** Principals, supervisors and technicians who want a practical insight on code and safety in the mechanical trade.



#### ✦ HPC 107 Airflow Dynamics

Session 1: February 11 & 13, 2025      Session 1 Location: Online  
Session 2: April 15 & 17, 2025      Session 2 Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004  
Time: 6:00pm - 9:30pm      Fees: \$151 Non-Members/\$121 Members/\$85 APS Qualified Contractor Rate  
Instructor: Rich Porter      Credits: 4 Continuing Education Credits/7 NATE CEUs/3.5 BPI CEUs

**Note:** Included in this class is a **Duct Calculator.**

**What You Can Expect:** Airflow is one of the most critical issues for customer comfort. Many comfort complaints and improper system operation problems are a result of poor air distribution. A thorough understanding of airflow dynamics can enable you to uncover and resolve system problems. This course will help you identify inadequate or excessive airflow issues. It will help you solve hot spot, drafty, noisy and stale air complaints. Frequently airflow problems can be easily solved by a minor adjustment or changing to a better register.

**Who Should Attend:** Anyone involved in estimating and home sales. Service technicians and installers will definitely benefit from this class.



## HVAC System Consultant Series

#### ✦ HPC 105 Customer Service & Selling Skills (See above for specific class information.)

#### ✦ HPC 106 HVAC Code & Safety (See above for specific class information.)

#### ✦ HPC 108 Wake Up To Heat Pumps

Date: April 28, 2025      Fees: \$138 Non-Members/\$108 Members/\$76 APS Qualified Contractor Rate  
Time: 6:00pm - 8:00pm      Credits: 4 Continuing Education Credits/2 NATE CEUs  
Instructor: Rich Porter      Location: Online

**Note:** Recommended course for new members.

**What to Expect:** Wake Up To Heat Pumps is a class designed to educate the student on all the benefits of Heat Pump operation. The hows and whys will be covered in depth, as well as the economical value that these systems provide. Natural Laws, Efficiency, Heat Transfer, and definitions are also covered in this class as well as why this climate is perfect for Heat Pumps.

**Who Should Attend:** This class is for anyone who wants a better understanding of this viable alternative to the standard electric or gas furnace.



#### ✦ HPC 111 Proper Installation Procedures

Session 1: April 22 & 24, 2025      Session 1 Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004  
Session 2: May 13 & 15, 2025      Session 2 Location: Online  
Time: 6:00pm - 9:30pm      Fees: \$205 Non-Members/\$175 Members/\$125 APS Qualified Contractor Rate  
Instructor: Rich Porter      Credits: 4 Continuing Education Credits/7 NATE CEUs/3.5 BPI CEUs

**Note:** Included in this class is a copy of the reviewed **Technicians Guide for Quality Installation.**

**What You Can Expect:** This course focuses on all the skills required for proper installations of split and package heat pumps. You will learn the tricks of the trade and how to avoid common installation mistakes made in the field. Other topics include: proper trap and condensate design, brazing techniques, refrigerant line design and setup, flex duct installation and application, control wiring fundamentals, thermostat installation and more. Send your installer to this class to make your installation department more profitable as well as reduce post installation service problems.

**Who Should Attend:** This class is designed primarily for installers and those service technicians that want to gain knowledge of what proper installations should look like.



#### ✦ HPC 115 Manual J

Dates: March 6, 11 & 13, 2025  
Time: 6:00pm - 8:00pm  
Instructor: Alex Williams

Fees: \$226 Non-Members/\$196 Members/\$137 APS Qualified Contractor Rate  
Credits: 4 Continuing Education Credits/9 NATE CEUs/3 BPI CEUs  
Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004



**Note:** Day two will include hands-on training; A laptop with a Manual J/load calculation software is highly recommended. (ELA will have a limited number of laptops available upon request). Included in this class is a copy of ACCA's Manual J SAE.  
**What You Can Expect:** Learn about the basic principles of heat transfer, R-Values, heat transfer multipliers and important components of thermal envelope design often overlooked. A step-by-step example of single-zone, single-family, or detached calculation for a whole house will be reviewed using an ACCA approved Manual J software program on day two. Attendees will learn the fundamental processes involved in Manual J and be able to identify the data and components that form a load calculation. Sample calculations for multi-zone, variable air-volume systems, multi-zone split-coil systems, and mobile home load will also be discussed.  
**Who Should Attend:** Anyone involved in estimating or in-home sales including technicians, supervisors, and owners looking to increase technical skills.

NEW

## Master Heat Pump Installer Energy Skilled Certificate

Recognized by the U.S. Dept. of Energy



#### ✦ Master Heat Pump Technician Certificate Program (HPC 101-HPC 107)

(See above for specific class information.)

#### ✦ HPC 111 Proper Installation Procedures (See above for specific class information.)

#### ✦ HPC 162 HVAC Variable Capacity Systems

Dates: April 7 & 9, 2025  
Time: 6:00pm-9:00pm  
Instructor: Travis Howard

Fees: \$152 Non-Members/\$122 Members/\$85 APS Qualified Contractor Rate  
Credits: 4 Continuing Education Credits/3 NATE CEUs/3 BPI CEUs  
Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004



**Note:** Course will be held in-person for students, while at the same time, synchronously online to students who opt to attend remotely.  
**What You Can Expect:** This course will discuss variable capacity systems that include equipment with compressors that are 2-Speed, 5-Speed, and Variable Frequency Drives including mini-splits. You will gain an understanding of the differences between a Mini-Split, Multi-Split, and Variable Refrigerant Flow system. We will discuss system operational sequences, system components and controls to help develop proper maintenance and diagnostic procedures used to troubleshoot and isolate common failures with Variable Capacity Systems.  
**Who Should Attend:** Service Managers, service technicians and installation technicians.

#### ✦ HPC 166 HVAC Commissioning **NEW COURSE!**

Dates: April 29, 2025  
Time: 6:00pm-9:00pm  
Instructor: Travis Howard

Fees: \$172 Non-Members/\$142 Members/\$99 APS Qualified Contractor Rate  
Credits: 4 Continuing Education Credits  
Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004

**Note:** Included in this class is a copy of the ANSI/ACCA 9 – (HVAC Quality Installation Verification Protocols) Standard.  
**What You Can Expect:** This course delves into the critical aspects of HVAC system performance, focusing on fault detection, commissioning procedures, and Quality Installation Verification Protocols (ACCA Q19). Interpretation and analysis of HVAC system documentation, such as mechanical specifications, mechanical drawings, control drawings, and test and balance reports.  
**Who Should Attend:** Service Managers, service technicians, and installation technicians.

## Advanced Technician Courses

#### ✦ HPC 139 Duct Diagnostics & Repair

Date: March 31, 2025  
Time: 5:30pm - 9:30pm  
Instructor: Alex Williams

Fees: \$193 Non-Members/\$163 Members/\$114 APS Qualified Contractor Rate  
Credits: 4 Continuing Education Credits/4 NATE CEUs/2 BPI CEUs  
Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004



**Note:** Included in this class is a copy of ACCA's Technician's Guide for Duct Diagnostics and Repair.  
**What You Can Expect:** This class will help you understand major duct issues concerning efficiency, comfort, health, and safety. Get practical tips on installation, repair, testing and diagnosing duct systems.  
**Who Should Attend:** This class is designed for the Master Heat Pump Technician, advanced technician, and system designers.

#### ✦ HPC 159 Zone Systems

Dates: April 8, 2025  
Time: 6:00pm - 9:00pm  
Instructor: Rich Porter

Fees: \$138 Non-Members/\$108 Members/\$76 APS Qualified Contractor Rate  
Credits: 4 Continuing Education Credits/3 NATE CEUs/1.5 BPI CEUs  
Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004



**What You Can Expect:** This informative class focuses on the installation, set-up, wiring, and troubleshooting of Zone Systems. Participants will gain full working knowledge of these systems. Regardless of brand, the technician will be empowered to properly diagnose, by-pass (to provide temporary comfort), and repair these often confusing systems.  
**Who Should Attend:** This class is designed for anyone who wants the understanding to build confidence and professionalism.

#### ✦ HPC 162 HVAC Variable Capacity Systems (see above for specific class information.)

#### ◆ HPC 163 Advanced HVAC Troubleshooting

Dates: March 4, 2025 Fees: \$138 Non-Members/\$108 Members/\$76 APS Qualified Contractor Rate  
Time: 6:00pm-9:00pm Credits: 4 Continuing Education Credits/3 NATE CEUs  
Instructor: Will Richards Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004

**What You Can Expect:** This course will help the technician develop a systematic approach to HVAC troubleshooting. We will begin developing and working out solutions and methods for diagnosing electrical, mechanical, refrigerant cycles and air flow. We will learn how to diagnose advanced components such as communicating controls and variable frequency drives.

**Who Should Attend:** Service Technicians and Installation Technicians.



## Commercial Technician Courses

#### ◆ HPC 147 Commercial Refrigeration

Dates: April 21, 2025 Fees: \$138 Non-Members/\$108 Members  
Time: 5:00pm - 8:00pm Credits: 4 Continuing Education Credits/3.5 NATE CEUs  
Instructor: Kevin Styles Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004

**What You Can Expect:** This course will discuss commercial refrigeration systems, including walk-in refrigerators and freezers. Operating conditions, refrigerants and refrigerant selection will be reviewed. The focus will be on wiring, defrost control and operating strategies, and we will discuss refrigeration theory as it applies to product cooling. Mechanical and electrical troubleshooting will also be covered.

**Who Should Attend:** This class is designed for the Master Heat Pump Technician, Commercial Technician, and other advanced level technicians.

**Prerequisites:** HPC 101 Refrigeration Theory & Systems Diagnosis



#### ◆ HPC 156 Variable Frequency Drives

Date: May 13, 2025 Fees: \$138 Non-Members/\$108 Members/\$76 APS Qualified Contractor Rate  
Time: 5:30pm - 9:00pm Credits: 4 Continuing Education Credits/3.5 NATE CEUs  
Instructor: Bruce Martz Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004

**What You Can Expect:** An overview of modern AC VFD design and component layout. An overview of AC Induction Motors and how they work with VFDs. How motors in variable fan and pump applications correspond to fan/pump affinity laws, how this saves energy and why VFDs are used for these purposes.

**Who Should Attend:** Principals, Supervisors and Technicians who want to better understand this and who want to deliver a higher level of service and create a more proficient Technician in the process.



#### ◆ HPC 165 Design & Operation of Commercial Chilled Water Systems

Dates: May 5 & 7, 2025 Fees: \$149 Non-Members/\$119 Members  
Time: 5:00pm-8:00pm Credits: 4 Continuing Education Credits/6 NATE Continuing Education Hours  
Instructor: Vic Pietkiewicz Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004

**What You Can Expect:** This two-night class provides an overview of the design & operation of building chilled water systems including piping design systems and equipment.

**Who Should Attend:** This class is designed for the Master Heat Pump Technician, Commercial Technician, and other advanced level technicians.



## HVAC Certification Seminars

#### ◆ HPC 164 Low GWP Refrigeration Safety

1-Day: April 14, 2025 (No certification exam) Fees: \$168 Non-Members/\$138 Members/\$78 APS Qualified Contractor Rate  
2-Day: April 14 & 16, 2025 (Cert. exam incl'd) Fees: \$206 Non-Members/\$176 Members/\$124 APS Qualified Contractor Rate  
Time: 6:00pm - 9:00pm Credits: 4 Continuing Education Credits/3.5 NATE CEUs/3 BPI CEUs  
Instructor: Travis Howard Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004

**Note:** Included with this class is a copy of the ESCO Low GWP Refrigerant Safety training manual.

\*\*Students interested in the certification exam need to register for the 2-day course (laptop required for exam).

**What You Can Expect:** Refrigerants that were once common are now being phased out and being replaced with more energy efficient, environmentally friendlier refrigerants, known as Low GWP refrigerants. This course will cover refrigerant safety, introduction to Low GWP refrigerants, refrigerant properties and characteristics, working with refrigerant blends, proper installation and service guidelines, flammable refrigerant considerations and review codes and standards for A2L refrigerants.

**Who Should Attend:** Students and technicians requiring additional training for the safe handling and transportation of these new refrigerants.



#### ◆ HPC 167 - NATE Certification Exam Overview & Testing

Dates: March 28, 2025 Fees: \$554 Non-Members/\$500 Members/\$374 APS Qualified Contractor Rate  
Time: 8:00am-4:30pm Credits: 4 Continuing Education Credits  
Instructor: Rich Porter Location: ELA Training Center, 2702 N. 3rd Street, Suite 2035, Phoenix, AZ 85004

**Note:** We strongly recommend that before taking this course you are certified as an Arizona Heat Pump Council Master Heat Pump Technician or are re-certifying for a NATE Exam you've previously passed in preparation for the exams. Please bring a valid driver's license or state issued ID. Laptop required for exam; ELA will have a limited number of laptops available upon request.

**What You Can Expect:** This course will provide the student with study knowledge in preparation for the 1.5-hour Core Exam and 2.5-hour Specialty Exam for North American Technician Excellence (NATE) Certification. Topics covered include safety, tools, heat transfer, comfort, basic science, basic electrical, installation, planned maintenance, system components, and design considerations. Sample test questions will be reviewed. The NATE Exams will be administered by the certified proctor directly after the exam overview.

**Who Should Attend:** This class is designed for the Master Heat Pump Technician, advanced technician, system designers, and other HVAC professionals.

## SPRING 2025 COURSE REGISTRATION

### Special Discounts May Apply

The APS Qualified Contractor Discount Rate applies only to contractors participating in the APS Residential Qualified Contractor Program. For more information on how to take advantage of these great training rates and other program benefits, call the APS Energy Answer Line at 602-371-3636.

Student Name: \_\_\_\_\_ Date: \_\_\_\_\_

Company: \_\_\_\_\_ \*\*\*E-mail: \_\_\_\_\_

Position: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ City: \_\_\_\_\_ State: Arizona

Zip: \_\_\_\_\_ Daytime Phone: \_\_\_\_\_ \*\*\*Fax #: \_\_\_\_\_

Person/Company responsible for payment: \_\_\_\_\_

Are you a member of the ELA?  Yes  No      Are you an APS Qualified Contractor?  Yes  No

\*\*\* We may use this fax number or email address to inform you of similar educational courses. **Email required.**

### Cancellation Policy and No-Shows

A full refund will be issued as long as **written notice is received 48 hours** prior to the class starting time. Due to the number of courses held and registrations received, we do not provide written or verbal confirmation. Returned checks are subject to a \$30.00 returned check fee. **All registrations received by mail or fax are confirmed registrations unless cancelled within the proper time frame. Participants are charged the full fee amount if they register but do not attend. There are no refunds for no-shows.**

\*\* \_\_\_\_\_ Please initial here to indicate you have read, understood, and agreed to this cancellation policy.

Rates:	Non-Member Rate	Member Rate	APS Qualified Contractor Rate
<input type="checkbox"/> Master Heat Pump Technician Cert. Fee	\$60	\$40	
<input type="checkbox"/> HPC 100L – Lab Refrigeration System Diagnostics	\$150	\$120	\$85
<input type="checkbox"/> HPC 101 Refrigeration Theory & Systems Diagnosis (Online)	\$157	\$127	\$89
<input type="checkbox"/> HPC 101 Refrigeration Theory & Systems Diagnosis (In Person)	\$157	\$127	\$89
<input type="checkbox"/> HPC 102 Charging, Piping & Dehydration (Online)	\$179	\$149	\$104
<input type="checkbox"/> HPC 102 Charging, Piping & Dehydration (In Person)	\$179	\$149	\$104
<input type="checkbox"/> HPC 103 Electrical Fundamentals for Heat Pumps (Online)	\$151	\$121	\$85
<input type="checkbox"/> HPC 103 Electrical Fundamentals for Heat Pumps (In Person)	\$151	\$121	\$85
<input type="checkbox"/> HPC 104 Control Systems for Heat Pumps (Online)	\$151	\$121	\$85
<input type="checkbox"/> HPC 104 Control Systems for Heat Pumps (In Person)	\$151	\$121	\$85
<input type="checkbox"/> HPC 105 Customer Service & Selling Skills (Online)	\$149	\$119	\$83
<input type="checkbox"/> HPC 105 Customer Service & Selling Skills (In Person)	\$149	\$119	\$83
<input type="checkbox"/> HPC 106 HVAC Code & Safety (Online)	\$280	\$250	\$163
<input type="checkbox"/> HPC 106 HVAC Code & Safety (In Person)	\$280	\$250	\$163
<input type="checkbox"/> HPC 107 Airflow Dynamics (Online)	\$151	\$121	\$85
<input type="checkbox"/> HPC 107 Airflow Dynamics (In Person)	\$151	\$121	\$85
<input type="checkbox"/> HVAC System Consultant Series Cert. Fee	\$60	\$40	
<input type="checkbox"/> HPC 108 Wake Up to Heat Pumps	\$138	\$108	\$76
<input type="checkbox"/> HPC 111 Proper Installation Procedures	\$205	\$175	\$125
<input type="checkbox"/> HPC 115 Manual J	\$226	\$196	\$137
<input type="checkbox"/> HPC 126 Refrigeration Fundamentals	\$150	\$120	\$85
<input type="checkbox"/> HPC 139 Duct Diagnostics & Repair	\$193	\$163	\$114
<input type="checkbox"/> HPC 147 Commercial Refrigeration	\$138	\$108	
<input type="checkbox"/> HPC 149 HVAC Troubleshooting	\$140	\$110	\$78
<input type="checkbox"/> HPC 152 Delivering Professional Service	\$140	\$110	\$78
<input type="checkbox"/> HPC 156 Variable Frequency Drives	\$138	\$108	\$76
<input type="checkbox"/> HPC 159 Zone Systems	\$138	\$108	\$76
<input type="checkbox"/> HPC 162 HVAC Variable Capacity Systems (In Person)	\$152	\$122	\$85
<input type="checkbox"/> HPC 162 HVAC Variable Capacity Systems (Online)	\$152	\$122	\$85
<input type="checkbox"/> HPC 163 Advanced HVAC Troubleshooting	\$138	\$108	\$76
<input type="checkbox"/> HPC 164 Low GWP Refrigerant Safety (1 day - no exam)	\$168	\$138	\$78
<input type="checkbox"/> HPC 164 Low GWP Refrigerant Safety (2 day - exam included)	\$206	\$176	\$124
<input type="checkbox"/> HPC 165 Design & Operation of Commercial Chilled Water Systems	\$149	\$119	
<input type="checkbox"/> HPC 166 HVAC Commissioning (In Person)	\$172	\$142	\$99
<input type="checkbox"/> HPC 166 HVAC Commissioning (Online)	\$172	\$142	\$99
<input type="checkbox"/> HPC 167 NATE Exam Overview & Testing (includes testing fees)	\$554	\$500	\$374
<input type="checkbox"/> HPC 200L HVAC Electrical Workshop (Lecture + Hands-On Lab)	\$230	\$200	\$140
<input type="checkbox"/> HPC 201L Charging, Piping, Evacuation, & Brazing Workshop (Lecture+ Hands-On Lab)	\$230	\$200	\$140
<input type="checkbox"/> HPC 202L Airflow & Ductwork	\$350	\$320	\$270

\*Note: Online and In-person sessions differ for every class; Please review carefully when selecting your session.

**Method of Payment:** Payment must be received prior to the start of class. **Please provide email above to receive credit card receipt.**

Total: \_\_\_\_\_ Check enclosed #: \_\_\_\_\_  M/C  Visa

Credit Card #: \_\_\_\_\_ 3 Digit Code: \_\_\_\_\_ Exp. Date: \_\_\_\_\_

Exact Name on Card: \_\_\_\_\_ Signature: \_\_\_\_\_

Billing Address if different: \_\_\_\_\_ City: \_\_\_\_\_ State: AZ Zip: \_\_\_\_\_

**REGISTER ONLINE AT:** <http://edu.elaz.org>

Or mail registration and payment to: Arizona Heat Pump Council, 2702 N. 3rd St, Suite 2020, Phoenix, AZ 85004, or fax to: 602-274-0029 or email to [education@elaz.org](mailto:education@elaz.org). Call 602-263-0115 for more information. [www.elaz.org](http://www.elaz.org)



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## Quality Instructors = Quality Education



### Vic Pietkiewicz

Mr. Pietkiewicz has over 45 years of experience in the engineering and construction industry. He is the Owner of Dove Valley Services, LLC a consultant to the construction industry. Previously he owned his own air conditioning company. Many of his years included creating training programs for mechanical and electrical engineers, managers, estimators, construction workers, and technicians. In addition to holding a technical school certificate in AC Engineering, and a B.Sc. in Engineering Technology (HVAC) he holds three AZ Registrar of Contractors licenses and a Federal EPA license.



### Carl Bartoli

Mr. Bartoli has been in the HVAC industry for 45 years and is starting his 38th year with Donkey AC & Plumbing. Carl oversees air conditioning service, equipment sales & installation. Mr. Bartoli takes an active role in training Donkey's 60 employees, for technical, marketing and customer service. Carl supports and is a member of 5 Advisory boards for trade schools in the valley. Training HVAC, Plumbing & Construction students. He often speaks at these trade schools and enjoys mentoring new members to our HVAC/Plumbing community.



### Travis Howard

Mr. Howard has been working in the HVAC industry in the Phoenix metro area since graduating from Universal Technical Institute (UTI) June 1990. Travis has spent his career in residential and light commercial services. He is NATE certified and has the Heat Pump Master Technician certification through the Arizona Heat Pump Council. As the HVAC Training Manager at Service Champions, he oversees the Installer Training Programs, supports and leads the HVAC Install Trainers, and is responsible for all updates and designs to the hands-on training centers throughout the country for the organization.



### Bruce Martz

Bruce has been in the HVAC-R industry for over 40 years, most of that in Arizona. He has an MBA, and is a licensed Certified Energy Manager as well as a licensed Certified Demand Side Manager. Bruce has worked for companies such as York, Trane, "Siemens", ABM, and two local contractors, performing various roles from management, sales, and project management. He has been and is active in several of our local industry Trade Associations. For the past five years, he has also been teaching HVAC-R and Business at Gateway Community College as a Resident Faculty Professor.



### Rich Porter

Mr. Porter has been in the service industry for over half his life. He is a NCI CO/Combustion Analyst and is also N.A.T.E. certified in the installation and service of gas furnaces, air conditioners, and heat pumps. Rich is proud to serve on the Professional Advisory Committees for RSI, AAI and UEL. He enjoys working with other industry professionals to help shape curriculums and better prepare students for a career in the HVAC industry.



### Kevin Styles

Mr. Styles has over 23 years of experience in multiple areas of the HVAC industry. As service manager of Arizona's Dukes of Air, he leads a team of HVAC technicians, offers advanced technical training, and ensures personnel can deliver quality customer service. Kevin's extensive knowledge of residential air conditioning and commercial and industrial refrigeration allows him to pass on his knowledge through valuable technical training and by building on customer relation skills.



### Will Richards

Will has been in the HVAC industry for over 15 years. He graduated from The Refrigeration School, Inc. (RSI) in 2010. For the duration of his career, Will has worked in residential and light commercial. He started as an apprentice at Arctic Fox and worked his way up to be a senior service technician at Howard Air. Will has taken over the role of service training coordinator for Howard Air and offers service technicians assistance through ongoing continuing education and technical support. Will is NATE and Master Heat Pump certified and excited to pass on the knowledge he has accumulated over the years.



### Alex Williams

Alex is co-owner of Ideal Energy and has a passion for residential energy efficient home construction and mechanical design. After starting his career fresh out of college installing solar photovoltaic panels, he found himself analyzing energy usage in similar sized homes and discovered two very similar homes could be using a drastically different amount of energy. He questioned why this could be and through research found the concept of Building Performance. Alex oversees all aspects of Ideal Energy's construction operations, energy efficiency and mechanical design. He holds a BA from ASU in Design Studies with an emphasis on the Built Environment.