Arizona Heat Pump Council

FALL 2022

- Master Heat Pump Technician Program
- HVAC System Consultant Series
- Commercial Technician Series

Continuing Education Program

Safety Notice

Courses being held in person will adhere to the latest public health guidance and state and local orders. We are closely monitoring health department and Centers for Disease Control and Prevention (CDC) guidelines to ensure a safe classroom and office environment.

edu.elaz.org
Phone: 602.263.0115
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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 benefitting Arizonans through the use of energy efficient heating, ventilation, air conditioning, and refrigeration (HVACR) products and services. Visit 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**.

Heat Pump Council Membership Benefits

In the Arizona Heat Pump Council referral program, members enjoy all the benefits the ELA has to offer plus some unique opportunities to grow their business and participate in cooperative marketing initiatives with Arizona utilities. This referral program provides consumers with a fast and efficient response to their needs and supplies Council members with quality sales and service referrals. **For more information on membership, contact 602-263-9391 or visit www.elaz.org**.

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: August 4, 2022 | Fees: $146 Non-Members/$116 Members/$81 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: October 3, 2022 | Fees: $146 Non-Members/$116 Members/$81 APS Qualified Contractor Rate
Time: 5:00pm - 8:30pm | Credits: 4 Continuing Education Credits/3 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: October 4, 2022 | Fees: $146 Non-Members/$116 Members/$81 APS Qualified Contractor Rate
Time: 6:00pm - 9:30pm | Credits: 4 Continuing Education Credits/3.5 NATE Continuing Education Hours
Instructor: Travis Howard | 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 (To be offered Spring 2023)

HPC 161 Introduction to Home Performance

Date: October 12, 2022 | Fees: $136 Non-Members/$106 Members/$74 APS Qualified Contractor Rate
Time: 5:30pm - 8:30pm | Credits: 4 Continuing Education Credits/3 NATE Continuing Education Hours
Instructor: Brandon Walton | Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004

What You Can Expect: This course will bring your knowledge and skills full circle! Learn the basic fundamentals of Home Performance and how they directly relate to the quality of service you provide. Hands on performance training. Learn why air leakage, duct leakage, static pressure and insulation affect the performance of the HVAC system and directly relates to the Manual J load calculation. In this course you will learn how to calculate ACH50 (Air Changes per Hour), CAZ testing, Static Pressure Diagnosis, Duct Leakage testing, room pressure diagnosis, Infrared scanning and the importance of proper air sealing insulation techniques. In this course you will also get hands on blower door training. The course will review thermal dynamics, energy modelling, pressure boundaries, and combustion safety testing as well as techniques to promote home performance to your customers. Requirements to qualify and participate in the Home Performance with ENERGY STAR Program® will also be discussed.

Who Should Attend: HVAC Technicians, owners, managers and office staff who wish to further their knowledge and offer quality service.

HPC 164 Low GWP Refrigerant Safety NEW COURSE!

Date: November 7 & 9, 2022 | Fees: $174 Non-Members/$144 Members/$101 APS Qualified Contractor Rate
Time: 6:00pm - 9:00pm | Credits: 4 Continuing Education Credits/6 NATE Continuing Education Hours/3 BPI Continuing Ed. Hours
Instructor: Travis Howard | Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004

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

What to 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, 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.

Master Heat Pump Technician Program

HPC 101 Refrigeration Theory & Systems Diagnosis

Session 1: August 8 & 10, 2022 | Fees: $155 Non-Members/$125 Members/$87 APS Qualified Contractor Rate
Session 2: October 11 & 13, 2022 | Credits: 4 Continuing Education Credits/7 NATE Continuing Education Hours
Time: 6:00pm - 9:30pm | Session 1 Location: SRP Pera Club, 1 E. Continental Drive, Tempe, AZ 85281
Instructor: Rich Porter | Session 2 Location: Online

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 from this course. This course is also part of the Master Heat Pump Technician program.

HPC 102 Charging, Piping, & Dehydration

Session 1: August 16, 18 & 23, 2022 | Fees: $177 Non-Members/$147 Members/$103 APS Qualified Contractor Rate
Session 2: October 17, 19 & 24, 2022 | Credits: 4 Continuing Education Credits/10.5 NATE Continuing Education Hours
Time: 6:00pm - 9:30pm | Session 1 Location: Online
Instructor: Joel Harris | Session 2 Location: SRP Pera Club, 1 E. Continental Drive, Tempe, AZ 85281

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. This course is also part of the Master Heat Pump Technician program.

HPC 103 Electrical Fundamentals for Heat Pumps

Session 1: August 29 & 31, 2022 | Fees: $149 Non-Members/$119 Members/$83 APS Qualified Contractor Rate
Session 2: November 14 & 16, 2022 | Credits: 4 Continuing Education Credits/7 NATE Continuing Education Hours
Time: 6:00pm - 9:30pm | Session 1 Location: SRP Pera Club, 1 E. Continental Drive, Tempe, AZ 85281
Instructor: Carl Bartoli | Session 2 Location: Online

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. This course is also part of the Master Heat Pump Technician program.

HPC 104 Control Systems for Heat Pumps

Session 1: September 27 & 29, 2022 | Fees: $149 Non-Members/$119 Members/$83 APS Qualified Contractor Rate
Session 2: November 29 & December 1, 2022 | Credits: 4 Continuing Education Credits/7 NATE Continuing Education Hours
Time: 6:00pm - 9:30pm | Session 1 Location: Online
Instructor: Carl Bartoli | Session 2 Location: SRP Pera Club, 1 E. Continental Drive, Tempe, AZ 85281

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. This course is also part of the Master Heat Pump Technician program.

HPC 105 Customer Service & Selling Skills

Session 1: August 25, 2022 | Fees: $147 Non-Members/$117 Members/$82 APS Qualified Contractor Rate
Session 2: October 27, 2022 | Credits: 4 Continuing Education Credits/3.5 NATE Continuing Education Hours
Time: 6:00pm - 9:30pm | Session 1 Location: SRP Pera Club, 1 E. Continental Drive, Tempe, AZ 85281
Instructor: Rich Porter | Session 2 Location: Online

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. This course is also part of the Master Heat Pump Technician program.

HPC 106 HVAC Code & Safety

Session 1: September 6 & 8, 2022 | Fees: $251 Non-Members/$221 Members/$155 APS Qualified Contractor Rate
Session 2: December 6 & 8, 2022 | Credits: 4 Continuing Education Credits/7 NATE Continuing Education Hours
Time: 6:00pm - 9:30pm | Session 1 Location: SRP Pera Club, 1 E. Continental Drive, Tempe, AZ 85281
Instructor: Travis Howard | Session 2 Location: Online

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

What to Expect: This class is designed to make you more comfortable with the International Residential Code. In this inter-active 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. This course is also part of the Master Heat Pump Technician program.

HPC 107 Airflow Dynamics

Session 1: September 13 & 15, 2022 | Fees: $149 Non-Members/$119 Members/$83 APS Qualified Contractor Rate
Session 2: December 13 & 15, 2022 | Credits: 4 Continuing Education Credits/3.5 BPI Continuing Education Credits
Time: 6:00pm - 9:30pm | Session 1 Location: Online
Instructor: Rich Porter | Session 2 Location: SRP Pera Club, 1 E. Continental Drive, Tempe, AZ 85281

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. This course is also part of the Master Heat Pump Technician program.

HVAC System Consultant Series

HPC 105 Customer Service & Selling Skills (See page 3 for specific class information.)

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

HPC 108 Wake Up To Heat Pumps

Date: October 25, 2022 | Fees: $136 Non-Members/$106 Members/$74 APS Qualified Contractor Rate
Time: 6:00pm - 8:00pm | Credits: 4 Continuing Education Credits/2 NATE Continuing Education Hours
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: September 20 & 22, 2022 | Fees: $192 Non-Members/$162 Members/$114 APS Qualified Contractor Rate
Session 2: December 5 & 7, 2022 | Credits: 4 Continuing Education Credits/7 NATE Continuing Education Hours
Time: 6:00pm - 9:30pm | Session 1 Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004
Instructor: Rich Porter | Session 2 Location: Online

Note: Included in this class is a copy of the reviewed **ACCA Technician's 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: November 1, 3 & 8, 2022 | Fees: $224 Non-Members/$194 Members/$136 APS Qualified Contractor Rate
Time: 6:00pm - 8:00pm | Credits: 4 Continuing Education Credits/9 NATE Continuing Education Hours
Instructor: Alex Williams | Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004

Note: Day two will include hands-on training; A laptop or smart device 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 8AE**.

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. An optional procedure for making leakage and infiltration CFM calculations on a component-by-component basis will also be reviewed.

Who Should Attend: Anyone involved in estimating or in-home sales including service technicians, supervisors, managers and owners looking to expand business and increase technical skills.

HPC 116 Duct Design/Manual D

Dates: November 28 & 30, 2022 | Fees: $224 Non-Members/$194 Members/$136 APS Qualified Contractor Rate
Time: 6:00pm - 9:30pm | Credits: 4 Continuing Education Credits/3.5 BPI Continuing Education Credits
Instructor: Travis Howard | Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004

Note: Included in this class is a copy of the reviewed **ACCA Residential Duct Systems/Manual D**.

What You Can Expect: Duct system types, application and selection (examples of duct sizing calculation, constant volume system, flexible duct, junction box systems, multiple zones, and two story systems). How duct leakage affects air quality and the combined performance of the envelope equipment systems. (duct losses and noise control).

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

HPC 137 Consulting for Better Sales

Date: November 22, 2022 | Fees: $136 Non-Members/$106 Members
Time: 6:00pm - 9:00pm | Credits: 4 Continuing Education Credits/3 NATE Continuing Education Hours
Instructor: Bruce Martz | Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004

What You Can Expect: This class is designed to give added value to your customer. Its emphasis is on the importance of taking the opportunity to make additions or adjustments to your customer's system to improve comfort. This course will also discuss common system problems that affect comfort and operating cost. Sales techniques and technical training covered in the HVAC System Consultant Series will be briefly recapped as well as offering additional suggestions on how to improve your presentation style and effectiveness.

Who Should Attend: Sales Managers, technicians or anyone who has the responsibility of customer in-home sales and customer satisfaction.

Advanced Technician Courses

HPC 139 Duct Diagnostics & Repair

Date: November 17, 2022 | Fees: $191 Non-Members/$161 Members/$113 APS Qualified Contractor Rate
Time: 5:30pm - 9:30pm | Credits: 4 Continuing Education Credits/2 BPI Continuing Education Credits
Instructor: Alex Williams | Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, 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, system designers and other HVAC professionals.

HPC 155 Gas Furnace Safety & Operation

Date: November 2, 2022 | Fees: $170 Non-Members/$140 Members/$98 APS Qualified Contractor Rate
Time: 6:00pm - 9:30pm | Credits: 4 Continuing Education Credits/3.5 NATE Continuing Education Hours
Instructor: Travis Howard | Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004

Note: Included in this class is a copy of the **ESCO Gas Heating: Furnaces, Boilers, Controls & Components training manual**.

What You Can Expect: This class focuses on proper operation and safety for residential gas heating systems. Practices for servicing and testing to ensure safe operation will be reviewed, and will cover combustion, furnace construction, furnace controls, ignition systems, sequence of operation and basic service procedures.

Who Should Attend: Service technicians and installation technicians.

HPC 158 Wi-Fi Controls

Dates: November 10, 2022 | Fees: $136 Non-Members/$106 Members/$74 APS Qualified Contractor Rate
Time: 6:00pm - 9:00pm | Credits: 4 Continuing Education Credits/3 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 will help take the "WHY" out of Wi-Fi. We will cover the principles of Wi-Fi, wireless, and communicating controls. Special attention will be given on wiring and connecting to the internet. Also covered is the technology needed to operate these "Smart Thermostats". Customers want to be able to monitor and adjust their controls from everywhere as well as being notified if there is any problem. Wi-Fi enabled thermostats do this and so much more…. Give your customers what they are asking for.

Who Should Attend: This class is for anyone who does not feel comfortable with this new technology.

HPC 159 Zone Systems

Dates: November 15, 2022 | Fees: $136 Non-Members/$106 Members/$74 APS Qualified Contractor Rate
Time: 6:00pm - 9:00pm | Credits: 4 Continuing Education Credits/3 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 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 - *REVAMPED COURSE!*

Dates: October 18 & 20, 2022 | Fees: $146 Non-Members/$116 Members/$81 APS Qualified Contractor Rate
Time: 6:00pm-9:00pm | Credits: 4 Continuing Education Credits/3 NATE Continuing Education Hours
Instructor: Travis Howard | Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004

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. Participants will also get a general understanding of how inverter systems work.

Who Should Attend: Service Managers, service technicians and installation technicians.

HPC 163 Advanced HVAC Troubleshooting

Dates: October 6, 2022 | Fees: $136 Non-Members/$106 Members/$74 APS Qualified Contractor Rate
Time: 6:00pm-9:00pm | Credits: 4 Continuing Education Credits/3 NATE Continuing Education Hours
Instructor: Travis Howard | Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, 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.

HPC 167 - NATE Exam Overview & Testing

Dates: December 2, 2022 | Fees: $477 Non-Members/$427 Members/$299 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 2020, 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.

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.

Commercial Technician Courses

HPC 143 Indoor Air Quality

Dates: October 26, 2022 | Fees: $146 Non-Members/$116 Members
Time: 6:00pm-9:30pm | Credits: 4 Continuing Education Credits/3.5 NATE Continuing Education Hours
Instructor: Derrick Denis | Location: ELA Training Center, 2702 N. 3rd Street, Suite 2020, Phoenix, AZ 85004

What You Can Expect: The purpose of this course is to familiarize the attendees with common indoor air quality (IAQ) issues, how they impact a structure, and how to react appropriately. Technicians will become familiar with basic IAQ terminology, common IAQ issues facing structures in the southwestern US, as well as which types of common building materials are regulated by local, state, and federal agencies. They will also be able to recognize complaints from customers that may indicate indoor environmental issues are occurring, develop basic preventative plans to avert/educate IAQ concerns, and prepare basic response plans to immediately address IAQ issues that arise.

Who Should Attend: Anyone involved in estimating and home sales, or who wishes to increase their knowledge on Indoor Air Quality. Service technicians and installers will definitely benefit from this class.

HPC 165 Design & Operation of Commercial Chilled Water Systems

Dates: December 12 & 14, 2022 | Fees: $147 Non-Members/$117 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.

Quality Instructors = Quality Education

Derrick Denis
As a practitioner, inventor, educator and volunteer, Mr. Denis has provided professional environmental health and safety (EH&S), industrial hygiene (IH) and indoor environmental quality (IEQ) services for over 27 years and 20,000 projects domestically and abroad. He has served 21 years as V.P. of IEQ with the environmental consulting firm Clark Seif Clark, Inc. Mr. Denis is an inventor of Sewer Gas Solutions, a product preventing sewer gas infiltration by inhibiting the evaporation of water from plumbing traps. His history of volunteerism included positions on numerous Boards of Directors for IEQ Industry Organizations (e.g. IAQA, EIA-AZ, ACAC, etc.). Mr. Denis is currently Phoenix IAQA Chapter Director. He holds a B.S. degree in Environmental Science and numerous relevant certifications/accreditations (e.g. CIEC, CEOP, CIAQP, CAC, etc.).

Joel Harris
Mr. Harris has worked for over 29 years in the HVAC industry. Joel's extensive residential and commercial expertise is in troubleshooting, special applications and design which contribute to his successful training and management abilities utilized in daily operations.

Carl Bartoli
Mr. Bartoli has been in the HVACR industry for 35 years and is starting his 30th year with Donley Service as Director of Operations. Carl over sees all departments, air conditioning and plumbing service, installation, solar and call center. Mr. Bartoli takes an active role in training Donley Service's 60 employees, for technical, marketing and customer service.

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. Travis is a firm believer in continuing education to stay up-to-date of the latest advancements, standards, and technology in the HVAC industry. As the Assistant Service Manager at Howard Air he utilizes his experience to provide technical support and training to all service technicians and installers to aid in problem solving and continuing education. He also provides field technical support to solve operational problems and give personal attention to customers to ensure a high level of satisfaction during complicated HVAC system problems.

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. In his spare time, you can find him working in his backyard, carving tiki heads, remodeling his home (he's re-done his own attic 3 different times), hiking with his dogs, kayaking, snowboarding and traveling with his brothers and friends!

Brandon Walton
Brandon Walton is a Building Performance Institute Proctor / Trainer with over 25 years' experience in residential building and Home Performance. He is BPI Certified in EP (Envelope Professional) and BA (Building Analysts) plus works as Project Manager for a local award-winning Top 5 Home Performance Contractor. He has personally retrofitted thousands of homes to the highest performance of efficiency, air tightness, airflow, and super insulation.

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.

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 UEI. He enjoys working with other industry professionals to help shape curriculums and better prepare students for a career in the HVACR industry.

FALL 2022 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
☐ HPC 126 Refrigeration Fundamentals	$146	$116	$81
☐ **Master Heat Pump Technician Cert. Fee**	$50	$30	
☐ HPC100L – Lab Refrigeration System Diagnostics	$146	$116	$81
☐ HPC 101 Refrigeration Theory & Systems Diagnosis (Session 1)*	$155	$125	$87
☐ HPC 101 Refrigeration Theory & Systems Diagnosis (Session 2)*	$155	$125	$87
☐ HPC 102 Charging, Piping & Dehydration (Session 1)*	$177	$147	$103
☐ HPC 102 Charging, Piping & Dehydration (Session 2)*	$177	$147	$103
☐ HPC 103 Electrical Fundamentals for Heat Pumps (Session 1)*	$149	$119	$83
☐ HPC 103 Electrical Fundamentals for Heat Pumps (Session 2)*	$149	$119	$83
☐ HPC 104 Control Systems for Heat Pumps (Session 1)*	$149	$119	$83
☐ HPC 104 Control Systems for Heat Pumps (Session 2)*	$149	$119	$83
☐ HPC 105 Customer Service & Selling Skills (Session 1)*	$147	$117	$82
☐ HPC 105 Customer Service & Selling Skills (Session 2)*	$147	$117	$82
☐ HPC 106 HVAC Code & Safety (Session 1)*	$251	$221	$155
☐ HPC 106 HVAC Code & Safety (Session 2)*	$251	$221	$155
☐ HPC 107 Airflow Dynamics (Session 1)*	$149	$119	$83
☐ HPC 107 Airflow Dynamics (Session 2)*	$149	$119	$83
☐ **HVAC System Consultant Series Cert. Fee**	$50	$30	
☐ HPC 108 Wake Up to Heat Pumps	$136	$106	$74
☐ HPC 111 Proper Installation Procedures (Session 1)*	$192	$162	$114
☐ HPC 111 Proper Installation Procedures (Session 2)*	$192	$162	$114
☐ HPC 115 Manual J	$224	$194	$136
☐ HPC 116 Duct Design/Manual D	$224	$194	$136
☐ HPC 137 Consulting for Better Sales	$136	$106	
☐ HPC 139 Duct Diagnostics & Repair	$191	$161	$113
☐ HPC 143 Indoor Air Quality	$146	$116	
☐ HPC 149 HVAC Troubleshooting	$146	$116	$81
☐ HPC 155 Gas Furnace Safety & Operation	$170	$140	$98
☐ HPC 158 Wi-Fi Controls	$136	$106	$74
☐ HPC 159 Zone Systems	$136	$106	$74
☐ HPC 161 Introduction to Home Performance	$136	$106	$74
☐ HPC 162 HVAC Variable Capacity Systems	$146	$116	$81
☐ HPC 163 Advanced HVAC Troubleshooting	$136	$106	$74
☐ HPC 164 Low GWP Refrigerant Safety	$174	$144	$101
☐ HPC 165 Design & Operation of Commerical Chilled Water Systems	$147	$117	
☐ HPC 167 NATE Exam Overview & Testing (includes testing fees)	$477	$427	$299

**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.

Call 602-263-0115 for more information ***www.elaz.org***

Arizona Heat Pump Council
2702 N. 3rd Street
Suite 2020
Phoenix, AZ 85004

Dated educational material:
Please open immediately!