

# HVAC Technical Service Training 2024 Course Offerings – US Military

**Carrier Hawaii Training Center**  
**2060 Lauwiliwili Street**  
**Kapolei, HI 96707**



*Carrier Hawaii and Air Conditioning Training Specialists, Inc. are pleased to provide advanced technical training courses for HVAC dealers, mechanical contractors, US Military, and end user customers. Listed are descriptions of our course offerings for 2024.*



We are very proud to say that this year represents the 47<sup>th</sup> year that the training has been conducted at Carrier Hawaii. Please visit our web site at [www.CarrierHawaii.com](http://www.CarrierHawaii.com) for additional course description and registration forms. At the top of our web page look for the section on “**Training**” and click on the PDF “**2024 HVAC Technical Service Training - Contractor Course Offerings**” link. US Government entities should click on the “**2024 HVAC Technical Service Training – US Military Course Offerings**” link.

During the last few years, we were all forced to face many challenging issues due to the COVID-19 pandemic. In order to address any possible and unforeseen outbreaks that might arise in 2024 we will initiate the following procedures to help ensure the safety of all students and employees while attending our training classes:

- We recommend that all students follow the State of Hawaii mandated guidelines regarding masks and vaccinations while attending class.
- We will sanitize the class room and lab area each day in an attempt to provide a safe working environment.
- Class sizes will be limited to help provide appropriate social distancing.
- Seats are limited and fill quickly so please register early to guarantee your seat in the class of your choice.
- Hopefully any outbreaks will subside by this fall and ease restrictions and concerns.
- The class room will utilize a portable air cleaning system incorporating both HEPA and MERV filtration to provide a healthier environment.

## NEW SEMINAR - TRANSITIONING TO THE USE OF A2L REFRIGERANTS (2 DAYS) - \$500.00

The next generation of refrigerants are here and although there are some similarities with refrigerants used in the past, there are differences and safety issues that technicians must be aware of. The Environmental Protection Agency has initiated, by law, the phase down of high global warming potential (GWP) refrigerants and mandating the use of more environmentally friendly replacements. Starting January 01, 2025, it will be illegal, in the United States, to manufacture new residential systems and light commercial rooftops using high GWP refrigerants such as R-410A. The EPA is mandating the new regulations in support of international treaties such as the Montreal Protocol, Kyoto Protocol, Kigali Amendment, as well as the US AIM ACT to reduce the HVAC industry's contribution to global warming. Engineers have worked diligently and analyzed possible refrigerant replacement choices that provide efficient performance, that are environmentally friendly, provide reliable and safe operation without requiring major design equipment changes. Industry manufactures have chosen refrigerants such as R-32 and R-454B as acceptable replacements. The ASHRAE 34 safety group classification rating for these refrigerants is A2L (mildly flammable). As the industry transitions to the use of these more environmentally friendly refrigerants the tradeoff is safety concerns. Building and safety codes have and are still in the process of be updated to address these issues. It is imperative that technicians be trained and updated on how to safely handle and work with the new A2L refrigerants.

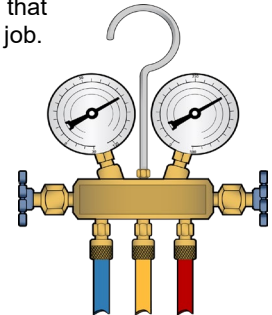
### TOPICS TO INCLUDE:

- Historical Refrigerant Transitions – Background Issues – Phase Down – Safety Issues
- Refrigerant Classifications: HFC's, HFO's & HFC/HFO Blends
- Refrigerant Chemical Composition & Derivation - Lewis Structures
- Ozone Depletion – Global Warming – Atmospheric Life – TEWI Effect
- Refrigerant Families – 400 Series – NARMs & Zeotropes
- Pressure/Temperature Calculations for 400 Series Refrigerants
- Temperature Glide – Blend Fractionation – Bubble Point – Dew Point
- Fixed Orifice & TXV Charging Procedures Superheat/Subcooling Methods
- R-454B Comparison to R-410A (pressures/temperatures/oil/performance)
- Flame Propagation – Flame Speed - Fuel/Air Ratios – LFL/UFL - Ignition
- Equipment Changes - Indoor/Outdoor Units
- Active Dissipation Systems – Refrigerant Sensors – Dissipation Boards
- Special Tools/Instruments – Recovery/Vacuum Pumps/Recovery & Refrigerant Tanks – Left-Handed Threads – Leak Detectors
- ASHRAE 34 Safety Group Classification Ratings A1,A2,A2L & A3
- UL Code 60335-2-40 Requirements
- Safe Handling, Transportation (DOT) and Storage of A2L Refrigerants
- National Fire Protection Association (NFPA) Placards
- EPA Recovery Levels Per Section 608 Clean Air Act – EPA SNAP
- US Climate Alliance – American Innovation and Manufacturing Act (AIM)



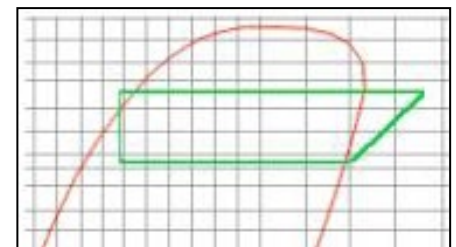
## Refrigeration - Technical Service & Troubleshooting Course (4.75 Days) - \$995.00

**Course Description:** This course is designed to teach the principles of the mechanical refrigeration process. Students will gain an understanding of the basic skills necessary to properly service, troubleshoot and maintain modern HVAC systems. Studies of adult education have identified that the majority of adults learn by doing and our state-of-the-art lab does just that. Technical lecture material taught in the classroom is re-enforced in our supervised lab where students will work on actual equipment and put to practice what was just learned in the classroom. Attendees will be taught practical service procedures and troubleshooting techniques that will enhance their performance back on the job. This course was developed for equipment operators, maintenance personnel and service technicians who maintain, troubleshoot, and service residential and commercial HVAC.



### Topics to include:

- Identification of essential system component parts and accessories
- Review of ARI system classifications
- Thermodynamic mechanical refrigeration cycle analysis
- Pressure enthalpy diagrams and practical applications
- Direct and indirect cooling systems
- System troubleshooting to include – identifying refrigerant over/under charge, low air flow evaporator/condenser, restricted liquid line, and system non-condensables
- Superheat and sub cooling determination for common refrigerant types
- Proper system evacuation and dehydration techniques
- Machine room guidelines and refrigeration safety concerns
- Basics of heat transfer methods and measurement
- Identifying refrigeration system irregularities and proper use of refrigerant data logs
- Refrigerant charging procedures
- EPA concerns and guidelines per section 608 US Clean Air Act
- Single component and blended refrigerant mixture service considerations
- HVAC service practices and procedures
- System performance factors and design considerations
- Common compressor types, operation, service and troubleshooting
- Compressor and system capacity control methods
- Air- and water-cooled condenser types, evaporators & metering devices operation, service and troubleshooting
- Effective system clean up after mild and severe burnouts

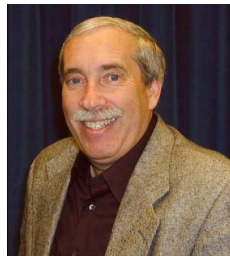


## Electrical - Technical Service & Troubleshooting Course (4.75 Days) - \$995.00

**Course Description** – The majority of field problems in the HVAC industry are the result of electrical system malfunctions. Properly identifying and correcting these malfunctions in a timely manner represents the greatest challenge to the skills of service technicians. This course was specifically designed to address these concerns and give attendees the “technical tools” and confidence necessary to fix the problem right the first time and reduce costly callbacks. The course takes a logical and practical approach in teaching wiring diagram interpretation and the application of time proven troubleshooting procedures and techniques. Studies of adult education have identified that the majority of adults learn by doing and our state-of-the-art lab does just that. Technical lecture material taught in the classroom is re-enforced in our supervised troubleshooting lab where students will work on actual equipment and put to practice what was learned in the classroom by troubleshooting actual systems with electrical faults. Attendees are taught practical service procedures and troubleshooting techniques that will enhance their performance back on the job. This course was developed for maintenance personnel and service technicians who maintain, troubleshoot, and service residential and light commercial HVAC equipment.



**James P. Curley** is the President of Air Conditioning Training Specialists, Inc. (ACTS), a company that provides specialized training and services to the HVACR Industry. Prior to starting this company, Jim was a Master Instructor and Instructional Designer with over 35 years' experience with the Commercial Systems and Services Division of Carrier Corporation, a United Technologies Company. Jim's career at Carrier involved assignments based from Syracuse NY, Los Angeles CA, and Phoenix AZ. Jim grew up in the air conditioning business, as his father was a successful contractor in central New York specializing in commercial refrigeration and air conditioning. Jim



majoring in heating, ventilation, air conditioning, and refrigeration at Hudson Valley Community College and upon completion was hired by Carrier Corporation's headquarters in Syracuse, NY. His first assignment was a technician for the engineering test laboratories from 1969 to 1974. It was in these laboratories that concepts on a piece of paper for equipment design became a reality. Prototype machines were developed and built in a model shop and then tested to meet rigorous manufacturing and industry standards to ensure compliance. This assignment gave Jim the insight to component and system design to add to his practical and theoretical knowledge of air conditioning. From 1974 until his retirement from Carrier in January 2005, Jim was responsible for instructional course development, computer-based training programs, scheduling, marketing and implementation of the factory training operations throughout the United States for the North American Operations of Carrier, Bryant, Day & Night and Payne divisions of Carrier Corporation. Jim was also Carrier's Director of Customer Assurance for the Western United States for the Commercial Unitary Division. This position gave him responsibilities for service engineering and warranty administration on a variety of commercial products. He has designed and managed custom on-site training programs for diverse applications of cooling systems ranging from applications for nuclear power plants, coalmines, oilrigs, submarines, inter-continental ballistic missiles, the federal penitentiary system, water treatment and pumping plants, minesweeping ships and various industrial complexes. He has developed specialized training programs for technician development in air conditioning service, psychrometrics, heat pumps, gas heating, refrigerant management, and chilled water systems. He has conducted several hundred classes and trained several thousand people around the world. Jim has taught on four continents spanning 28 countries. Jim is dedicated to and has extensive training obligations for United States military bases located throughout the world for the US Air Force, US Navy, US Army, US Marines Corps and the US Coast Guard. He has written and published training books for Carrier Corporation on product specific equipment, solar energy, air measurement, psychrometrics, and advanced heat pump systems. Jim is the author of a technical publication titled "Air Flow Measurement" for the Refrigeration Service Engineers Society's SAMS manual. Jim authored the condensed study guide for the EPA Section 608 Technician Certification for Ferris State University. Jim has developed technical training programs for colleges, trade schools, unions, government agencies, end user customers, trade associations, utilities and air conditioning distributors throughout the United States and is committed to training excellence.

*On a personal note, Jim is the father of five daughters and the proud grandfather of 13 grandchildren & 17 great grandchildren. Jim's wife of 47 years unfortunately passed away in 2021. Jim resides in Mesa, Arizona.*

### Topics to include –

- Reading and interpretation of various electrical schematics for residential and light commercial heating and cooling systems - determining the sequence of operation
- Applying factual ladder schematics and component location diagrams to various systems
- Use and application of common electrical meters in electrical troubleshooting
- Developing a logical approach to troubleshooting and timely correction of system malfunctions – prevention of repeat failures
- Troubleshooting common electromechanical safety and operating controls
- Troubleshooting various printed circuit boards and solid state controls – identifying function of boards and testing inputs/outputs
- Develop safe electrical troubleshooting practices and procedures – hopscotch method of troubleshooting
- Troubleshooting single phase motor starting gear – hard and soft start kits
- Single and three phase motor theory and construction
- Troubleshooting common single and three phase motors
- Three phase voltage and current imbalance determination
- Motor testing and replacement guidelines
- Determining root cause and failure analysis

# HVAC Technical Service Training

Please Print Clearly and Fill Out Completely

## Registration Form

<b>Student Information</b>	Name			
	PO Box/Street			
	City	State	Zip Code	
	Tele: (    )	Email		
<b>Company Information</b>	Name			
	PO Box/Street			
	City	State	Zip Code	
	Tele: (    )	Fax: (    )		
	POC:	Email		

PLEASE CHECK DESIRED COURSE, DATE AND LOCATION		Location	Date	Tuition
1. <input type="checkbox"/>	Refrigeration – Technical Service & Troubleshooting Course	Kapolei, HI	Sept. 09-13, 2024	\$995.00
2. <input type="checkbox"/>	Electrical – Technical Service & Troubleshooting Course	Kapolei, HI	Sept. 16-20, 2024	\$995.00
3. <input type="checkbox"/>	<b>NEW!</b> A2L Refrigerant Transition Seminar	Kapolei, HI	Sept. 23-24, 2024	\$500.00
4. <input type="checkbox"/>				




**ENROLL NOW! – REGISTRATIONS ARE ACCEPTED ON A FIRST-COME, FIRST-SERVED BASIS AND SEATS ARE LIMITED.**

**CONSULT YOUR TAX ADVISOR REGARDING INCOME TAX DEDUCTION POSSIBILITIES FOR EDUCATIONAL EXPENSES TO IMPROVE & MAINTAIN YOUR PROFESSIONAL SKILLS**

**UNITED STATES TREASURY REGULATION §1.162-5**

Please Specify Payment Method

### PAYMENT FORM

<b>Credit Card</b>	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 
<b>Name on Credit Card</b>			
<b>Credit Card Number</b>			
<b>Credit Card Billing Information</b>	Street Address or PO Box		
	City	State	Zip Code
<b>Expiration Date:</b>	(    )/(    ) mm/yy	Credit Card Security Code Number (    )	
<input type="checkbox"/> Purchase Order - copy of PO <b>MUST</b> accompany registration PO Number:			
<input type="checkbox"/> Checks - make payable to <b>Air Conditioning Training Specialists, Inc.</b> – <b>Payment Due 10 Days Prior to Start of Class – Must Accompany Registration</b>			

**Questions & Registrations Payments**

Fax or mail this payment form along with the registration form to the appropriate point of contact, then mail tuition check or purchase order.

**For questions please contact**  
**James P. Curley**  
**Cell: (602) 361-4689**

Air Conditioning Training Specialists, Inc.  
 PO Box 20190  
 Mesa, Arizona 85277-0190

Cell: (602) 361-4689  
 Fax: (480) 654-3604  
 Email: [jamespcurleyhvac@aol.com](mailto:jamespcurleyhvac@aol.com)

**We look forward to seeing you in class!**  
 2024 ACTS, AZ

**The Federal Tax Identification Number for Air Conditioning Training Specialists, Inc is 20-3185963.**

# Questions? Point of Contact Information

CARRIER HAWAII



**Point of Contact**

**Kawai Neal Ebalaroza**

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Fax: (808) 682-2828

Email:

[kneal@carrierhawaii.com](mailto:kneal@carrierhawaii.com)

**Class Location**

Carrier Hawaii

2060 Lauwiliwili Street  
Kapolei, HI 96707

Telephone: (808) 677-6339

AIR CONDITIONING TRAINING SPECIALISTS, INC.

**Point of Contact**

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**Mesa, AZ 85277**

Cell: (602) 361-4689

Fax: (480) 654-3604

Email: [jamespcurleyhvac@aol.com](mailto:jamespcurleyhvac@aol.com)



<b>Instructors</b>	Courses are taught by experienced and industry recognized HVAC professionals.
<b>Lodging</b>	Rooms and meals are available at hotels, motels, and restaurants and are within driving distance to course locations. Tuition fee covers cost of the course and related materials. It does not include meals, housing, or transportation. These arrangements are the responsibility of the student.
<b>Hours</b>	Courses begin promptly and run from <b>7:30 am – 5:00 pm</b> .
<b>Payment</b>	<b>Payment for the course is due prior to the start of class.</b>
<b>What to Wear</b>	Comfortable work clothes and work shoes. Class rooms are air conditioned and at times may be too cool for some so dress accordingly.
<b>Acceptance</b>	We will confirm your registration with a confirmation letter and provide detailed information on local lodging and reporting instructions to class: <b>IMPORTANT:</b> Please <b>Do Not</b> make travel reservations until you receive <b>confirmation</b> from us that the class is confirmed. All tuition fees are in US dollars. We reserve the right to change class dates or cancel classes as deemed necessary at which point you may elect to be rescheduled or receive a full tuition refund.
<b>Student Cancellation Policy</b>	Cancellations received <b>16 or more working days</b> prior to the class start date will be refunded in <b>full, 11 – 15 working days prior</b> to the class start date will be <b>charged 50%</b> of the class fee. Cancellations made <b>10 or less working days prior</b> to the class start date <b>no refund</b> will be issued and the full class fee will be charged. Student substitutions are allowed. There will be <b>no tuition refunds</b> issued for <b>NO SHOWS</b> . Students that <b>do not complete</b> the course will be <b>charged the full tuition</b> .