Certified Program:

Training managed by:

Class XI: Refrigerant Charge & Airflow (2008 Standards)

Class Code: 140521RS

Location:	ServPro of San Bernardino County *(see hotel/shuttle info at end of this flyer)* 9070 Rancho Park Court, Rancho Cucamonga, CA 91730
Date/Time:	Wednesday, May 21, 2014 8:00 am-5:00 pm *(lunch provided)*
Instruction Time:	7.5 Hours of Instruction
Cost:	$325 per person* You can sign up for the class on-line and pay via credit card at: www.calcerts.com or call 916.985.3400x301

Please Note: There is an annual $120.00* subscription fee due if you choose to become a CalCERTS HERS Rater. This fee covers your CalCERTS HERS membership and the administrative duties on our part to maintain your records. Project uploads for compliance verifications, whole-house ratings, and/or Energy Star certifications are also subject to additional fees*.
***Prices subject to change without notice**

Target Market for this Course:

The **Refrigerant Charge & Air Flow** class is only for current CalCERTS Field Verification and Diagnostic Testing Raters who are seeking the credential to be authorized to test and verify refrigerant charge and air flow for ducted HVAC systems for T-24 compliance and did not receive the education in the "Class II: Hands on Lab" they attended.

Learning Objectives:

Class XI: Refrigerant Charge & Airflow is a 1 day class taught by qualified CalCERTS, Inc. trainers and long-time experts on energy efficiency programs and diagnostic testing. The intent of this class is to provide candidates with background knowledge about, and the California rules/standards/calculations for the tests, as well as detailed hands-on instruction on how to perform the Refrigerant Charge & Airflow test and inspection as outlined in Section RA3.2 of the California 2008 Reference Appendices (CEC-400-2008-004-CMF). This course will take place in a classroom and in a lab setting, where stations are specifically designed to train candidates on the proper procedure to conduct a Refrigerant Charge & Airflow test on an Air Conditioning unit. After successful completion of this class candidates will be qualified to perform the following:

- Obtain Accurate pressure/temperature readings from refrigeration gauges
- Obtain accurate temperature readings from electronic thermometer and temperature sensors.
- Check the calibration of refrigerant gauges
- Check the calibration of electronic thermometers/sensors
- Determining appropriate locations for instrument attachment
- Calculate the measured superheat and temperature split
- Determine the required superheat and temperature split based on conditions
- Determine if measured values are within acceptable range

Contractors and HVAC technicians who are already EPA 608 Type II or Universal certified AND are experienced charging residential A/C systems may challenge the exam (take the exam without sitting through the class) by providing a copy of your EPA certificate and evidence of previous training (e.g., NATE, Check-Me, utility training, etc.). You must also sign an affidavit stating that you are qualified to perform refrigerant charge verification and provide a copy of your driver's license. Candidates seeking to "challenge" the course by taking the exam are highly advised to study section RA3.2, as referenced above, before taking this test or it is very unlikely that you will pass.

For questions about the training call the training office at 916-985-3400 x301 or e-mail training@calcerts.com.

Incoming Skills Necessary:

If you intend to collect the credential that allows refrigerant charge verification by a Rater, the EPA certification that you need is EPA 608 Type II or Universal. The EPA training and certificate is NOT included in this course.

Raters who are already EPA certified will need to bring a valid copy of their EPA 608 Type II or higher certification along with photo ID. You may take this course prior to EPA certification, however, you will NOT be certified to test Refrigerant Charge until we receive confirmation that you have completed EPA certification.

In addition, to better prepare candidates for work in the HERS industry, we strongly suggest candidates possess some knowledge, skills, and abilities in the California HERS Program (HERS Basics) and the construction industry. An understanding of the diagnostic tests required of a HERS Rater is also expected.

In the course of your rater work you may also be required to have the following knowledge, skills, and abilities required which are not taught in any CalCERTS trainings:

- High School diploma or GED
- 10th Grade English & Math minimal (especially fractions, percentages, geometry)
- Computer literacy
- Firm grasp of the English language (most codes and regulations are only in English)
- Ability to lift heavy objects (50 lbs. or more)
- Ability to inspect dark, tight, spaces

Prerequisites (for achieving a HERS Rater credential that allows refrigerant charge testing):

To be able to conduct Refrigerant Charge & Air Flow verifications for T-24 you must be a 2008 CalCERTS HERS Compliance Rater for Alterations **OR** Newly Constructed Homes **AND** meet the EPA 608 Type II or Universal requirements listed above.

Topics Covered in This Class:

- Refrigerant Charge & Airflow types
- Refrigeration Basics
- Refrigeration Definitions & Concepts
- RA3.2 Purpose and Scope
- Standard Charge Measurement Procedure
- Equipment & Instruments
- Calibration of Equipment
- Refrigerant Charge and Metering Device Calculations
- Minimum System Air Flow
- Alternate Charging Method
- Hands-On Lab Testing

Some of the state mandated HERS tests/inspections are not covered in this class if they are specific to a certain credential (e.g., the identification of ice storage air conditioners is only required for Newly Constructed Buildings inspections). These topics are covered in the appropriate class.

Standards of Candidate Evaluation (for individual certificate issuance):

At the end of Class XI: Refrigerant Charge & Airflow training, all participants will take an open-book, multiple-choice written exam based upon; all the written materials (including resource materials) provided to the candidate, the presentations in class, and the verbal education by the Trainer(s) within the classroom and the lab.

CalCERTS HERS Rater Written Exam Policies

These rules are intended to ensure fairness, accuracy, consistency and validity of exam results. Failure to abide by these rules could result in ejection, or other disciplinary action.

1. At the beginning of each exam, the proctor will announce the time allowed for the exam. The time allowed is based on the number of questions on the exam.
2. The written exam must be taken on the day of instruction (or on the last day of a multiple day delivery), no exceptions.
3. A Scantron form, exam packet and #2 pencil will be provided to the candidate.
4. Fill in (shade) your answers firmly and neatly on the Scantron form. Completely erase any changed answers with a soft eraser. Do NOT staple, fold, tear or crumple the form. Do NOT draw or write on the bar code black lines on the left hand side of the exam. Do NOT write on or in the exam packet.
5. Print your first and last name where indicated on the Scantron form.
6. Print exam version (located on front page of exam packet) in the area above your name.
7. Print the name of the class (i.e. Class I, Class II, etc.) on the "subject" line of Scantron form.
8. Print the date you are taking the exam where indicated on the Scantron form.
9. A score of 80% is required to pass the CalCERTS written exam.
10. Candidates will not be informed which questions they have missed. They will only be informed of their score and whether they passed or failed.
11. Candidates must be prepared to show a valid Photo ID.
12. No cell phones may be used during the exam. Calculators will be provided.
13. No laptop computers may be used during the written exam.
14. The CalCERTS training manuals are the only written materials that may be referenced during the written exam. No other books or notes may be used. The answer to every question may be found or deduced from information in the training manuals. No other materials are needed to pass the exam.
15. Candidates may leave the room during the exam, but must hand over exam packet to Proctor until their return. No time will be added to time allotment for exiting exam.
16. Candidates may NOT write in training manual or exam booklet during exam. Scratch paper will be provided.
17. This is a professional level exam. THERE IS NO TALKING OR COMMUNICATING ALLOWED DURING THE EXAM. You must demonstrate your knowledge of the subject matter without assistance. You may NOT assist others during the exam.
18. There are multiple versions of each exam. They are similar to each other in terms of the topics covered and types of questions. Candidates will take a different version than those sitting to either side of them.
19. ALL exam packets must be turned in to the Proctor at the end of the exam.

Written Exam Re-test Policies

1. Candidates will be given one re-test opportunity to pass each written exam (the initial attempt plus one re-test attempt).
2. Candidates must wait at least 48 hours to re-take any exam.
3. There will be an additional $75.00 charge for a re-test attempt.
4. All of the above exam policies apply to a re-test as well (except item #2 above)

5. Candidates who do not pass an exam on their second attempt must retake the entire class, at full retail price, and pass the written exam if they wish to continue their pursuit of certification.
6. If a candidate does not pass the written exam after retaking the course, they will be excluded from becoming a CalCERTS HERS Rater for that classification indefinitely (i.e. New Construction Rater).

Compliance Field House Exam Policy

1. Candidates must schedule and pass the Compliance Field House practical exam within six months of completing all course work required for certification as an Alterations rater (Classes I, II & III) or New Construction Rater (Classes I, II & IV), whichever occurs first. Six months will start with the attendance date of the final class regardless of whether all written exams associated with those courses were passed.

2. Any written exam re-tests from the associated course work must be completed before attending the field house and within the same six month window. Candidates who fail to pass written exam re-tests shall be required to re-take the associated class at full cost. If during this period the six month window expires for the field house, the candidate will also be required to re-take Class II - Hands-On Lab, at full cost and will then have another 6 month window to pass the Compliance Field House.

3. If a candidate fails their first attempt at the Compliance Field House, then the one allowed re-test of the field house must be completed within the original six month window. Candidates who fail to pass the Compliance Field House within six months, or who exhaust their re-test eligibility, shall be required to re-take Class II - Hands-On Lab, at full cost and will then have another 6 month window to pass the Compliance Field House.

Materials utilized in this Course:

Each participant will be given a Candidate Binder with all the applicable written course materials as described in the Course Outline above.

Candidates should bring to class; pencil/pen, calculator, and notepad.

Any required diagnostic testing equipment and associated sundries will be provided by CalCERTS, Inc. Candidates are welcome to bring their own equipment if they'd like (may not be appropriate for all classes).

For questions about any of our trainings call 916.985.3400 x301 or e-mail training@calcerts.com.

AYRES HOTELS: Ayres offers a complimentary Shuttle to/from Ontario International Airport & to/from Servpro Rancho Cucamonga Training Facility. Complimentary Full Hot Breakfast, WIFI, Parking & Evening Reception (Mon. –Thurs.)

Ayres Inn & Suites Ontario at the Mills Mall $82.00
4395 E. Ontario Mills Parkway • Ontario, CA 91764
Call (909) 987-5940 – Ask for Servpro Preferred Rate

Ayres Hotel & Suites Ontario Convention $89.00
1945 East Holt Blvd • Ontario, CA 91761
Call (909) 390-7778 - Ask for Servpro Preferred Rate