



Advanced HVAC Training for TECH Clean California Contractors & Distributors

# Residential HVAC System Performance & Electrification



Learn and practice the skills you need to perform ASHRAE 221-compliant Field Measured System Performance testing. Connect all the dots between the various NCI TECH training courses with a coherent method to assess potential electrification projects and tailor solutions to unique project requirements.



Are you ready to move beyond the SEER and HSPF trap? Want to avoid going back to jobs to install a larger heat-pump or electric heat strips to address customer comfort issues? This training program provides the keys to delivering true system performance. True system performance leads to enhanced comfort, safety, and energy efficiency for your customers. The class also covers the importance of proper heat-pump installation to ensure high efficiency and comfort. This is key to installations that meet and exceed California's electrification standards.



Leading the Industry in  
High-Performance HVAC™

# TECH CLEAN CALIFORNIA NCI TRAINING

## Learn to Deliver True System Performance for Your Residential Customers

### Learn how to:

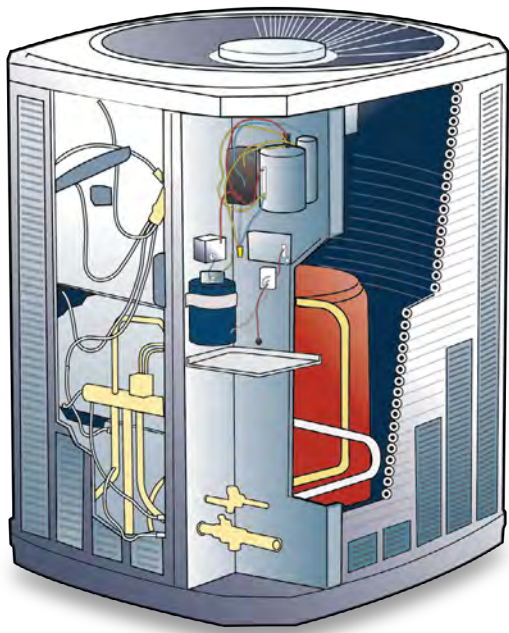
- Discover hidden defects in existing furnaces and duct systems that would prevent a heat pump retrofit from providing efficiency and comfort
- Reduce call-backs and increase customer satisfaction
- Guarantee results using NCI's exclusive System Delivered Btu technology
- Measure field system performance and qualify for additional TECH Clean California incentives
- Test both new and existing installations
- Provide real solutions through system renovations and documented results.
- Enhance profitability by selling highly profitable services at gross margins generally exceeding 60%
- Use HVAC performance diagnostic techniques to identify and solve system performance issues, improve IAQ and reduce energy consumption
- Establish yourself in your marketplace as a true beyond-the-box HVAC expert, and the go-to contractor to solve long-standing problems.

### Benefits:

- Open the door to increased sales and customer loyalty through professional testing and diagnostics services
- Increase average equipment changeout tickets by 100% or more by uncovering and repairing hidden system defects that lead to reduced comfort and increased energy consumption
- Reduce warranty and call-back costs by up to 70% by diagnosing and correcting the real problem the first time
- Improve field-measured system operating efficiency from average of 57% to over 90% – with the ability to prove your results to your customers



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## AGENDA

### Day 1

#### The Key Elements of HVAC System Performance

- Review the typical sales call and its shortcomings
- Overview of test methods to identify performance issues
- Test instruments review – the good, the bad and the ugly
- Testing principles of static pressure, airflow and temperature
- Verifying Btus at the equipment and at the registers
- Airflow testing and verification methods
- Static pressure measurement – a key diagnostic tool
- Measuring dry bulb temperatures and diagnostic properties
- Understanding total system performance
- Introduction to ComfortMaxx Pulse™ software.

### Day 2

#### Diagnose and Improve Poor System Performance

- Review of test methods, measurement and calculations
- Temperature, humidity, and enthalpy measurement
- Equipment Btus versus delivered Btus at the registers
- Measuring airflow using NCI's 3 test methods: Static Pressure/Fan Tables, Balancing Hood, and Duct Traverse
- Rating operating HVAC system performance
- Sharing findings with customers in easy to understand terms
- Air distribution system renovation and repair
- Review ComfortMaxx Pulse™ and full test-in and test-out software.

***The day concludes with NCI's exclusive Residential HVAC System Performance certification exam.***

### Day 3

#### Electrification (7:30 am to 12 pm)

#### Module One - Introduction to Electrification Projects

- Electrification Principles – what it is
- Electrification Pros and Cons – what a high-performance HVAC professional should expect
- How your NCI training ties into Electrification
- What we will cover and not cover in these modules
- Additional knowledge needed beyond this course

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## Module One - Introduction to Electrification Projects *(continued)*

- A tale of two heat pump quotes – one measured, the other didn't
- Project expectations and customer communication
- Assessing an electrification project – overview
- Various heat pump options to consider
- Electrification project levels – overview
- Electrification assessment report – overview
- Section recap.

## Module 2 – Complete an Electrification Assessment Report

- Generate customer discussion
- Heating and cooling equipment inspection
- Initial duct system inspection
- Initial electrical service inspection
- Initial heating and cooling system testing

- Initial building information
- Identifying other trades in the project
- Estimating the electrification project level
- Section recap.

## Module 3 – Evaluate an Electrification Project

- Evaluating an electrification project
- Electrification project guidelines – detailed
- System performance testing
- The building side of the duct system
- Common building defects and visual clues
- Blower door testing introduction
- Creating a scope of work
- Next steps to consider
- Section recap.

***\*Registration Fee will be applied to a future class upon successful completion of the training.***



Scan the QR Code  
to Learn More  
and Register.

Register now and discover the  
High-Performance HVAC™ Difference!

For more information, call 800-633-7058  
or visit [NationalComfortInstitute.com](https://NationalComfortInstitute.com)

