

Call 1-877-978-7246



## TROUBLESHOOTING

# HVAC ELECTRICAL CONTROLS & AIR DISTRIBUTION™

Maximize HVAC Comfort and Efficiency, and  
Keep the People in Your Building Happy

A 2-day Seminar on How to Use Fundamental Air Distribution Principles in Buildings, Plants and Facilities



- Reserve your space now either online or by calling us at 1-877-978-7246!
- Check us out online at [live.tpctraining.com](http://live.tpctraining.com) for a complete list of all virtual and in-person seminars.
- This seminar is also available for Virtual or In-Person Private Group Training

“

Excellent instruction and should be taught to all in the HVAC field”

— Charles C., HVAC Controls Technician

### Learning Objectives:

- Basic electricity for HVAC systems
- Determining whether a problem is an electrical, mechanical or air distribution problem
- Control wiring diagrams and schematics for HVAC
- Different HVAC controls, where they are used and what they do
- Troubleshooting and fixing common electrical problems
- Troubleshooting and fixing common mechanical problems
- Determining and improving air flow
- Troubleshooting the air distribution system



## SEMINAR OVERVIEW

Available in both virtual and in-person, instructor-led formats, this HVAC Electrical Controls & Air Distribution course focuses on ensuring an efficient workplace by controlling air distribution for the comfort of the people in it. Designed for any worker involved in air distribution systems, this seminar will take students from the basics of HVAC electrical controls through air distribution and troubleshooting.

Overall, this HVAC Electrical Controls & Air Distribution training program is designed to teach students how to "control" their electrical controls and use fundamental air distribution principles for achieving consistent HVAC comfort and efficiency in buildings, plants and facilities.

## WHAT YOU WILL TAKE HOME

- A laminated, full-color TPC Training Reference Guide detailing all the "must know" information covered in the class. Keep this with you while on the job for immediate knowledge recall.
- Comprehensive classroom materials
- A Personalized Training Certificate with 0.8 TPC Training Continuing Education Units for each day attended, 1.6 for both days.
- All the information you need from asking our instructors specific questions about your own unique equipment or facility.

## CONTINUING EDUCATION

Upon completion of this seminar, the student will receive a Certification of Completion and .8 TPC Training CEUs per day attended. Most employers and many government agencies accept TPC Training CEUs to fulfill their continuing education requirements. If the student needs CEUs to renew a state license, please contact us at 303-867-5039 to ensure the state licensing board has approved the seminar. If we are currently not approved by your state licensing board, we are happy to begin the process as long as we receive your request at least one month before the training date.

## DISCUSSION TOPICS

### Basic Electricity

- Basic electricity & Ohm's Law
- Meters & tools for taking electrical measurements
- Electrical circuits: series & parallel

### Control Circuits

- Schematics
- Ladder Diagrams
- Developing Wiring Diagrams

### Controls

- Overloads
- Relays
- Contactors
- Control Transformer
- Starting Relay
- Defrost Timer
- Thermostat
- High Pressure Control
- Low Pressure Control
- Oil Pressure Control

### Troubleshooting

- General Troubleshooting Techniques
- Common Problem Areas

- Commercial Air Conditioning
  - Heat Pump Control
  - Pump Down Cycle
- Determining and Improving Air Flow
- 400 cfm per ton
  - How many square feet per ton?
  - Air mixture at the cooling coil
- Exhaust Air
- Positive pressure
  - Negative pressure
- Make-Up Air
- Positive pressure
  - Negative pressure
  - Conditioning the "make up" air
- Troubleshooting the Air Distribution System
- Temperature difference across the coil
  - Balance in the system
  - Short cycling
  - Duct sizing
  - Noise
  - How to use a Ductulator

“  
It was a fun and educational class. Thanks”  
— Jason U., Technician

“  
It was great. I learned exactly what I wanted...”  
— Kenneth R., Supervisor

## JOIN OUR CLASSROOM SEMINARS FROM VIRTUALLY ANYWHERE

Our virtual instructor-led training option allows students to connect to a live classroom seminar via a web link, with the ability to participate full in the classroom dialogue, exercises, and Q&A. Online participants get all the benefits of the full classroom experience, plus the convenience of remote access.

### Features include

- Two full days of live, interactive instruction from a TPC Training instructor
- All classroom materials in PDF format
- Certificate of completion for 16 hours of live training
- Full technical support to ensure your online experience is a rewarding one

## SEMINAR FEE & AGENDA

This 2-day course is just \$1195 (Earn 1.6 CEUs)

7:30 am	Registration
8:00 am	Class Begins
12:00 -1:00 pm	Lunch (on your own)
4:30 pm	Class Ends

## NO RISK REGISTRATION & MONEY-BACK GUARANTEE

You can reserve your space in the class at any time and cancel without penalty. Cancellations made more than 14 days prior to the seminar may be refunded or rescheduled. Cancellations made within 14 days may be rescheduled for any future topic and/or date. If you're not satisfied with the course, we'll promptly refund your payment.

## BRING THE TRAINING TO YOUR FACILITY VIRTUALLY OR IN-PERSON

Every public seminar class in our Course Catalog can be conducted virtually or on-site at your facility, with the same expert instructors. To arrange an in-person private group training, call or email us at [virtual@tpctraining.com](mailto:virtual@tpctraining.com).

### Some Advantages of In-Person Private Group Training

- Cost Savings — Save time and travel costs by keeping workers on-site
- Customized Content — Tailor the seminar to your facility and equipment
- Flexibility — Accommodate multiple shifts and different start and end times