Testing, Adjusting, and Balancing (TAB) Seminar

February 1-4, 2024

NEBB Firm Disciplines

· Professionals with a strong background in HVAC and TAB work considering an extensive review to enhance their technical education.
· Facility Managers
· Facility Operators
· Mechanical Contractors
· Engineers
· Energy Auditors
· Building Commissioning Agents
· Other Professionals interested in learning about TAB.
· Qualified Candidates for the NEBB TAB CP.
· Experienced NEBB CT seeking to advance to the NEBB CP level

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Location:

IMI Training Center
1000 Holcomb Woods Pkwy
Suite 124
Roswell, GA 30076

Registration Deadline:
January 1, 2024

Our COVID-19 Response Plan

Considering COVID-19, NEBB has taken several proactive steps to help ensure the health and safety of our attendees and instructors. Precautions such as constant sanitization of the seminar area, increased attention to high-touch areas in the rooms, limits on the number of attendees during the seminar and protective gear for our instructors are in place. NEBB also will be practicing social distancing and maintaining 6 feet apart.

Our COVID-19 Response Plan

- If you are experiencing any symptoms of COVID-19 like running a fever, coughing, or shortness of breath, please do not attend the seminar.
- You have been exposed to someone who has tested positive for COVID-19 in the last 14 days.
- You have a compromised immune system or are considered “high risk.”
- Wearing a mask is requested during the seminar and gloves can be worn if desired.
- Sanitize hands prior to entering the seminar location.
- Avoid shaking hands or engaging in any unnecessary physical contact.
- Signing a waiver prior to the seminar

Seminar Instructors:

Travis Short, NEBB CP

Travis Short is a Lead Commissioning Specialist for Henderson Building Solutions, a Nationwide Commissioning and Construction Management firm. Travis has 21+ years' experience and received his Bachelor of Science in Mechanical Engineering from the Missouri University of Science & Technology. Travis is a NEBB Certified Professional in both Building Systems Commissioning and Testing, Adjusting and Balancing of Environmental Systems. His capabilities range from large central utility plants to geothermal heat pump technologies and all mechanical systems in-between. His advanced knowledge of Building Automation & Management Systems stems from the fact that he has designed, built, installed, and programmed various systems ranging from HVAC controls to PLC's. He is a published author with chapters in the following: "Web Based Energy Information and Control Systems" and "Web Based Enterprise Energy and Building Automation Systems."

Brian Sharkey, NEBB CP

Brian Sharkey has worked in the test and balance field since 1991. He began as a test and balance technician while attending the University of Texas in Arlington. After graduating in 1993, he formed his own TAB firm and worked as a NEBB Certified Professional and Operations Manager. In 2018, Brian joined Airadigm Solutions in Denver, Colorado as the firm's Chief Training Officer and provides training, technical expertise, and support to regional offices and the national staff. Working in the industry for 30 years, Brian has tested and commissioned various environmental systems and designs. He is consistently working in the field to train but additionally to keep up with changes in the industry. Brian is a NEBB Certified Professional in Testing, Adjusting and Balancing of Environmental Systems, Sound Measurement, Vibration Measurement and Whole Building Technical Commissioning of New Construction.

Donald Pittser, NEBB CP

Donald Pittser, President of JEDI Balancing Inc. founded in 2000 in Colorado, has more than 34 years' experience with his first TAB project in 1986. He obtained NEBB TAB Certified Professional Certification in 1999. Mr. Pittser was awarded the Golden Castle Award by the United States Army Corps of Engineers (USACE) for his work in Afghanistan from 2012-2015 completing 68 projects for the USA Department of Defense (DoD) under Combat Zone security threat and completed over 165 DoD International Projects. Donald is a NEBB Certified Professional in Testing, Adjusting and Balancing of Environmental Systems (1999), Whole Building Technical Commissioning of New Construction (2005), Sound Measurement & Vibration Measurement (2017).

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About This Seminar:

Building owners and tenants are concerned that environmental performance of buildings must be optimal while operating costs should be minimal. These goals can only be accomplished when a building's HVAC and hydronic systems are properly balanced. Three major steps used to achieve the proper operation of the HVAC and hydronic systems and a desirable climate are testing, adjusting, and balancing (TAB).

Formulas and Their Use

Formulas are used daily by a TAB professional and should be memorized and applied appropriately as needed. Formulas include ratios of speed vs volume vs pressure vs BHP for air and hydronic systems. Other formulas that become necessary on occasion include V-belt length, BTUH, sensible, latent, and total heat, and others. Attendees will receive a list of commonly used formulas for their use and application.

Air Systems

Various configurations of air systems such as supply, return and exhaust systems as well as constant volume, variable volume heat recovery, induction systems, active chill beam systems, and makeup air systems will be reviewed.

Electricity

Attendees will re-familiarize themselves with single vs three phase systems, how to measure voltage and amperage, overload protection, calculation of brake horsepower, and the need for using safe practices and safety equipment for protection while gathering necessary measurements.

Psychometrics

The use of a psychrometric chart as it applies to TAB and related to the physical properties of air and the relations of the properties to each other will be reviewed. Attendees will spend considerable time learning to plot psychrometric charts and understand the principles.

Fan Laws & Curves

Fan affinity laws will be covered, and attendees will review how to apply known data to fan curves. Instructors will discuss individual fan systems as well as fans in series and fans in parallel.

Problem Solving

TAB Professionals identify problems and determine solutions or provide necessary information for responsible parties to address and correct the problem. This involves solid logic capabilities requiring the professional to exercise a systematic approach to the identificatio

Pump Laws & Curves

Pump affinity laws and how to apply known data to pump curves will be discussed and demonstrated. Individual pumping systems as well as open systems, closed systems, pumps in series, and pumps in parallel, and NPSH requirements will be covered.

Engineering Fundamentals

The course will cover basic Heat Transfer and Fluid Mechanics as they relate to TAB.

TAB Procedural Standards and TAB Reports

The course will cover the requirements of the NEBB TAB PS and will address what constitutes a NEBB TAB.

This Seminar has been approved for 27.50 Continued Education Credits

Thursday, February 1, 2024
(7 CECs)

7:00 am: Registration
7:30 am – 4:30 pm: Heat & Heat Transfer, Fluid Mechanics, and Psychometrics (Lunch provided)

Friday, February 2, 2024
(7 CECs)

7:30 am – 4:30 pm: TAB Measurements, TAB Instruments, Electricity, Motors, Controls, Fans, Fan System Relationships, and Duct Systems
(Lunch provided)

Saturday, February 3, 2024
(7 CECs)

7:30 am – 4:30 pm: TAB Reports, TAB Procedural Standards, Pumps, and Pump System Relationships
(Lunch provided)

Sunday, February 4, 2024
(6.5 CECs)

7:30 am – 4:00 pm: Hydronic Systems, Pipe Sizing, Safety/ARC Flash, and Other Requirements
(Lunch provided)

Monday, February 5, 2024

Optional Exam Day
7:30 am: Registration
8:00 am – 1:00 pm: TAB CP Exam

The scheduled activities are subject to change depending on location, instructors, and other factors.

Travel information:

Registration form and payment must reach the NEBB office on or before January 1, 2024. Pre-registration and payment of fees are necessary to ensure your participation in the seminar.

Hotels:

Attendees can make reservations directly with the hotel of their choice. Below is a short list of hotels in close proximity to the training center. Hotel and transportation costs are not covered by the seminar registration fee.

Double Tree by Hilton-Roswell
1075 Holcomb Bridge Road, Roswell, GA 30076
Phone: 770.992.9600

Hyatt Place-Atlanta
7500 North Point Circle, Alpharetta, GA 30022
Phone: 770.594.8788 Holiday

Inn-Atlanta/Roswell
909 Holcomb Bridge Road, Roswell, GA 30076
Phone: 770.817.1414

Airport:

Hartsfield-Jackson Atlanta International Airport (ATL): serves the Roswell area. IMI and the hotels listed below are approximately 30 miles from the airport (about a 45–60-minute drive) Taxi services are available at the airport.

Important Dates and Times:

Arrival in Roswell, GA
Wednesday, January 31, 2024

Seminar Dates:
Thursday-Sunday, February 1-4, 2024

Optional TAB CP Paper-based Exam
Monday, February 5, 2024

Seminar Location:

IMI Training Facility
1000 Holcomb Wood Pkwy
Suite 124
Roswell, GA 30076

NEBB SEPT. TAB SEMINAR REGISTRATION FORM

Registration form and payment must reach the NEBB office on or before January 1, 2024.

Pre-registration and payment of fees are necessary to ensure your participation in the seminar.

Registration form and payment

1. Online through the Certelligence Portal
2. Email this form to training@nebb.org, or
3. Mail this form to: NEBB, 8575 Grovemont Circle, Gaithersburg, MD 20877.

Name: _____

Company: _____

Address: _____

City, State, Zip: _____

Phone/Cell: _____

Email: _____

Please list any dietary restrictions and or ADA accommodations:

_____

Seminar Fees (Check all that apply)

☐ $1600 Seminar Registration Fee (Does not include candidacy application or exam fees)

Publication Fees

☐ $95 NEBB/ $125 Non-NEBB: NEBB Procedural Standard (Please indicate preference: hard copy or electronic)

☐ $250 NEBB/ $300 Non-NEBB: TAB Technical Manual (Please indicate preference: hard copy or electronic)

☐ $200 NEBB/ $250 Non-NEBB: Environmental Systems Technology

☐ $600 NEBB/ $800 Non-NEBB: TAB Professional Home Study Course for CP's

**Prices for publications do not include shipping and handling.*

Date: _____

Optional Exam Opportunity:

Please check the box below. If interested, please email certification@nebb.org for the candidacy application process. Pre-approval and payment are required before the deadline.

☐ Yes, interested in taking the exam

☐ No, not interested in taking the exam

Payment Method

☐ Check enclosed made payable to NEBB

☐ Visa ☐ MasterCard ☐ American Express

Name on Card _____

CC Number _____

Expiration Date _____

Security Code _____

Signature _____

$_____Total Amount Due

Note: Any candidacy or exam fees will be invoiced separately.

Location

Cancellation by registrants, regardless of reason, will be subject to a $250 service charge to cover NEBB's expenses. A refund of the prepaid registration will be made less the $250 service charge. No Shows or late cancellations (those who registered for the seminar who do not cancel at least 14 days prior to the seminar and subsequently do not attend the course) will forfeit the entire registration fee unless a replacement can be found. NEBB reserves the right to cancel any seminars having insufficient registrants, in which case, all prepaid registration fees will be refunded in full. Please advise NEBB and your hotel of your cancellation as soon as possible.

Attendee and Seminar Requirements:

1. Verifiable practical TAB experience.
2. Minimum working capability in mathematics, including geometry and second-year high school algebra.
3. Well-versed in the application of mathematical formulas that are pertinent to TAB.
4. Possess full working knowledge of the instruments required for certification by NEBB.
5. Possess a full understanding of when, where, and how to use the instruments.
6. Attendees are required to bring the following to the seminar:

- **Straight edge**
- **Hand calculator (with square, square root, cube, and cube root functions)**
- **Pencils**
- **Laptop/iPad to review course materials.**

Recommended Publications:

To achieve the best learning results, it is highly recommended that attendees read the following publications BEFORE attending the seminar:

- Testing, Adjusting & Balancing Specifications (available for download at www.nebb.org)
- 2019 Procedural Standard for TAB of Environmental Systems – 9th Edition
- Environmental Systems Technology, 1999
- Instructor's Guide to TAB Manual for Technicians (available to NEBB-certified firms only)
- TAB Manual for Technicians, 2020
- Testing, Adjusting, and Balancing Study Course for CPs
- BoK approved 9/3/18, v. 8

Recommended Publications:

1. Registrations will be filled on a "first come-first served" basis. Please note that class sizes are limited due to Covid Social Distancing Protocol.
2. Seminar fees include course instruction, lunch, am/pm breaks.
3. Seminar fees do not include anything pertaining to certification. 4. For information on certification or exams please contact certification@nebb.org.

Questions About This Seminar?
Call 301-977-3698 or email training@nebb.org