

HVAC for Industrial Hygienists & Other Non-HVAC Professionals
A One Day Workshop
Wednesday, May 17-Greensboro, NC
8:00 AM-5:00 PM

General Information: At the request of a team of Certified Industrial Hygienists, this one-day, hands-on, practical workshop was developed by Doug Gunnell, P.E. in collaboration with the requesting hygienists and a number of their peers.

The objective of this workshop is to familiarize the Industrial Hygienist or other non-HVAC professional with HVAC, and thus enable them to become more proficient when encountering industrial hygiene issues, such as Indoor Air Quality (IAQ), related to HVAC systems. *[The underlying theme of this workshop is Industrial Hygiene.]*

Topics Include:

- | | |
|------------------------------------|--|
| -Developing an HVAC System | -Psychrometrics |
| -HVAC System Definitions | -Vapor Compression Refrigeration Cycle |
| -Heat Transfer and Heat Generation | -HVAC Systems |
| -Heating and Cooling Loads | -HVAC & Indoor Air Quality |
| -ASHRAE Standard 62.1 | -HVAC-IAQ Case Studies |

Learning Objectives

- Present and discuss selected HVAC definitions, as well as, heat transfer and heat generation fundamentals to establish / confirm a common basic understanding.
- Explain and discuss the determination of Heating and Cooling loads to identify critical load factors.
- Review and discuss ASHRAE Standard 62.1 “Ventilation for Acceptable Indoor Air Quality” relative to its application in addressing IAQ problems.
- Explain and discuss Psychrometrics, “the science that deals with the thermodynamic properties of moist air”. The use of the psychrometric chart will be demonstrated and utilized to identify and determine the values of these thermodynamic properties.
- Present and discuss the “Vapor Compression Refrigeration Cycle” as integrated into both direct-expansion and chilled water systems.
- Identify selected commercial, institutional, and industrial HVAC equipment and associated air distribution, as well as, air-to-air energy recovery equipment, and discuss from an application – operation vantage point.
- Identify typical Indoor Air Quality problems, associated with HVAC systems that the Industrial Hygienists encounters. From case studies, discuss underlying causes and solution strategies.

About The Instructor

Mr. Gunnell is President of Gunnell Engineering Services with more than 45 years of experience in engineering design and management with a Fortune 500 company, and as a consulting engineer in private practice. He is a Registered Professional Engineer and a Life member of the *American Society of Heating, Refrigerating, and Air-Conditioning Engineers* (ASHRAE). His areas of concentration include commercial and industrial HVAC systems, industrial ventilation and exhaust systems, indoor air quality and energy management. Mr. Gunnell has authored a number of engineering articles and been awarded two United States patents. He is an engineering graduate of North Carolina State University where he has been a consultant, instructor, and lecturer for the Mechanical and Aeronautical Engineering Department, and Continuing and Professional Education over a period of more than 45 years.

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PAST PARTICIPANTS HAVE SAID....

This seminar was presented at the Carolinas AIHA, Fall 2014 PDC & Conference (50 plus attendees), and as a targeted training program in Greensboro, NC. Attendees' comments included:

- "One of our better PDCs"

- "A comprehensive review of the design and operation of HVAC systems as they apply to Indoor Air Quality. A must for the Indoor Air Quality Professional."

- "The case studies of common IAQ problems relating to poor design, operation, and maintenance of HVAC systems are most valuable. This course has enabled me to better diagnose HVAC related issues when conducting IAQ investigations."

CM POINTS-HVAC for IH contains 6.5 hours of technical contact time and is eligible for ABIH CM credit. We estimate 1 CM point based on technical content and ABIH guidelines.

Location-Wednesday, May 17-Training Center, 420-B Gallimore Dairy Road, Greensboro, NC

Workshop Fee: \$300 per person AIHA Carolinas Members-\$250 per person
Registration fee includes training manual, lunch and breaks.

REGISTER NOW

Wednesday, May 17-Greensboro, NC

Workshop Fee \$300/person \$250/person AIHA Carolinas Members

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