PRINCIPLES OF INDUSTRIAL VENTILATION SYSTEM DESIGN AND OPERATION

Learning Outcomes

- Understand the hierarchy of occupational hygiene control measures.
- Learn about the importance of understanding ventilation system air properties to ensure proper ventilation system performance.
- Learn important component specifications to enhance the energy efficiency of industrial ventilation systems.
- Learn the importance of appropriate ventilation system monitoring, maintenance, and change management.
- Develop an understanding of the importance that good project management plays in keeping costs down when having an industrial ventilation system installed on site.

Abstract

This PDC provides the occupational hygienist with the fundamental principles pertinent to the effective and efficient use of industrial ventilation to control employee exposures to toxic substances or agents. Presented at an introductory-to-moderate level, the PDC will address the following topics:

- The occupational hygiene hierarchy of control measures applicable to protecting the health of employees in the workplace.
- The importance of understanding the properties of the air that will be captured, conveyed, and controlled by the industrial ventilation system.
- Types of industrial ventilation system records and documentation and their importance towards proper system management.
- Successful hood design to effectively capture and control the contaminant of interest.
- Energy-efficient duct components and industrial ventilation system design considerations.
- A basic understanding of air contaminant control devices and industrial fans.
- The relevance of industrial ventilation system exhaust stack design to the successful control of air contaminant exposures.
- The relevance of ensuring the appropriate amount of replacement air in workplaces where industrial ventilation systems are utilized.
- The value of ensuring industrial ventilation system performance and implementing a successful industrial ventilation system monitoring and preventative maintenance program.
- The important connection between industrial ventilation systems and change management programs.

Agenda

Time	Topic
00:00 – 00:15	PDC Introduction
00:15 – 00:25	Hierarchy of Occupational Hygiene Control Measures
00:25 – 00:35	Preliminary System Design and Documentation
00:35 – 00:50	Ventilation System Air Properties
00:50 – 01:10	Successful Hood Design
01:10 – 01:30	Energy-Efficient Duct Components
01:30 – 02:00	Break
02:00 – 02:10	Air Pollution Control Devices
02:10 – 02:25	Fans for Industrial Ventilation Systems
02:25 – 02:35	Exhaust Stacks
02:35 – 02:45	Replacement Air
02:45 – 03:00	Ventilation System Monitoring and Preventative Maintenance
03:00 – 03:10	Change Management
03:10 – 03:25	Ventilation Project Management Case Study
03:25 – 03:30	PDC Closing

Presenters, affiliations, and biography *

Gregg Grubb

Gregg Grubb is President of Grubb Industrial Hygiene Services, LLC, which provides industrial ventilation, combustible dust, confined space, and additional comprehensive occupational hygiene and safety consultation and education services. Gregg is a Certified Industrial Hygienist (CIH) and holds a B.S. in Chemical Engineering from Michigan State University. He currently serves as the Executive Director of the non-profit Michigan Industrial Ventilation Education and Training, which hosts the annual Michigan Industrial Ventilation Conference; Gregg has led the conference for over 20 years. As a lecturer for the University of Michigan, Ann Arbor, Gregg has taught EHS654, Control of Exposures to Airborne Contaminants, since 2014. Thus far, Gregg has taught about industrial ventilation on five continents. Also, Gregg formerly served on the ACGIH Industrial Ventilation Committee for 15 years, where he contributed to the publication of seven industrial ventilation manuals and taught industrial ventilation webinars and courses.