

Tuesday – PDC 3

Principles of Industrial Ventilation Systems Design

TUESDAY, 4 November, 2014 | 8:00 a.m.–5:00 p.m.

Early Registration (by 29 August 2014)

Member Price \$1250 RM (\$390 USD) / Non Member Price \$1480 RM (\$460 USD)

Advance Registration (by 29 August 2014)

Member Price \$1410 RM (\$440 USD) / Non Member Price \$1640 RM (\$510 USD)

Limit: 40

8 CM Credits/0.8 CEU/COC/0.5 CMP/7.0 SDUs/5.0 CEP Points

Level: Introductory

Topic:

Ventilation

Description:

This introductory Industrial Ventilation Systems Design course will cover designs of both general ventilation and local exhaust ventilation systems. Industrial and occupational hygienists are frequently engaged in the design and troubleshooting of industrial ventilation systems. Both qualified ventilation engineers and industrial hygienists need to understand how general ventilation and exhaust ventilation systems work. This course is designed for those who are interested in IH industrial ventilation but who have less engineering background. Basic theory, principles and concepts will be explained in a plain language prior to ventilation system design. The course is also useful for a qualified ventilation engineer who has less industrial hygiene background as both industrial hygiene and ventilation engineering are combined.

Value Added:

All answer sheets for problem sets in the course materials will be provided after completing the course for self-study and self-check-up.

Prerequisites:

None

Learning Aids:

Participants must bring a scientific calculator.

Outcomes:

Upon completion, participants will be able to

- explain and calculate atmospheric pressure, static pressure and velocity pressure.
- calculate optimum ventilation rate for dilution ventilation in a given situation.
- calculate minimum exhaust ventilation rate to design local exhaust systems
- decide the duct size, calculate real duct velocity and velocity pressure
- calculate pressure drop by the length and shape changes of duct
- identify fan types and select fan using a fan performance curve

Outline:

This course covers both general ventilation and local exhaust ventilation systems.

- Introduction of basic theory and concept of dilution ventilation
- Determine how to calculate the required ventilation rate for six typical cases
 - steady state (case 1)
 - dynamic state (case 2)
 - accidental leak (case 3)
 - fire protection (case 4)
 - IAQ ventilation (case 5) and
 - ventilation for heat (case 6)
- For the local exhaust ventilation systems, all related topics will be covered logically and briefly including:
 - fundamental principles
 - hood design and calculation of ventilation rate,
 - duct design and sizing
 - calculation of energy required at the hood and duct
 - understanding air cleaning devices, and
 - selection and operation of fans.

Transfer of Knowledge:

Instructors will evaluate participants understanding of the materials presented based on

- Practice Exercises

Instructor:

- Doo Yong Park, DrPH, CIH, Hansung University, Seoul, S. Korea