



ASSOCIATION OF
CONSULTING ENGINEERS
SINGAPORE

ACES-TROX Training Course 'Air-Side Fundamentals' in ACMV Engineering

TROX[®] ACADEMY

8 x Lessons: 9 Feb 2023 to 30 Mar 2023

Duration: 1.5 hours per Lesson 8.00 pm to 9.30 pm

| Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Lesson 7 | Lesson 8 |
|----------------|-----------------|-----------------|----------------|----------------|-----------------|-----------------|-----------------|
| 9 Feb (Thu) | 16 Feb (Thu) | 23 Feb (Thu) | 2 Mar (Thu) | 9 Mar (Thu) | 16 Mar (Thu) | 23 Mar (Thu) | 30 Mar (Thu) |

Mode of Delivery: Online via Zoom Meeting

CPD: PDU to be confirmed
12 STU (M&E) confirmed

Fee: \$120 for ACES Member
\$150 for M&E RE/RTO
\$200 for Non-member

Register in advance for this meeting:

[https://us02web.zoom.us/meeting/register/tZMrfuGrrzMjE9DXwtJXpzqxEW4h2QuBEEnt](https://us02web.zoom.us/join/zoom/register/tZMrfuGrrzMjE9DXwtJXpzqxEW4h2QuBEEnt)



After registering, you will receive a confirmation email containing information about joining the meeting

COURSE OBJECTIVES

1. To provide training programs (on-line) for graduates and practicing engineers in the ACMV industry who need to either extend or update their knowledge on a particular subject(s) in accordance with current developments in the industry.
2. The training programs are designed to cater for the needs of young graduates, practicing technicians and engineers to provide a better understanding of certain fundamentals as listed in this series of courses.
3. To provide joint training programs with recognised engineering and/or training institutions in the Asia Pacific region.
4. The course is designed to be a flexible, to allow the potential participants to choose either to sign up for the entire series of lessons in the 'Fundamentals' module or select the relevant subject(s) of interest as required.
5. The contents for each lesson is given below as a guide to show what can be expected in the training under each subject.
6. The presentation for each lesson is expected to take 1 hour and 30 minutes including tests and assignments to be completed by the participants and assessed by the trainer. Each participant is also expected to complete five test questions and at least two discussions of their choice, which they can select from a list of five discussion questions.

TRAINING PROGRAMMES:

| 8.00 to 9.30 pm | Topics covered |
|--------------------------|---|
| 9 Feb 2023 (Thu) | Lesson 1 - Thermal Comfort; Content: Terminologies for thermal comfort; Air movement; Indoor Air Quality (IAQ); Outdoor air requirements; Introduction to mechanical ventilation; Importance of good ventilation. |
| 16 Feb 2022 (Thu) | Lesson 2 - Air Distribution; Content: Terminologies for air distribution; Importance of good air distribution; Type of air terminal devices; Factors affecting air distribution; Air Distribution Performance Index (ADPI); Commissioning of ACMV systems; Air flow measurement at site. |
| 23 Feb 2023 (Thu) | Lesson 3 - Duct Design; Content: Ductwork construction standards; Duct sizing methods; Ductwork installation; Final duct connections; Ductwork insulation; Access and measuring stations. |
| 2 Mar 2023 (Thu) | Lesson 4 – Fans; Content: Types of fan; Fan Laws; Fan curve and system characteristic curve; Fan selection; Fans in series and parallel arrangement; Air flow and fan speed control; Fan installation. |
| 9 Mar 2023 (Thu) | Lesson 5 – Psychometrics; Content: Properties of air; Application of psychometric chart; Understanding psychometric processes; Work examples. |
| 16 Mar 2023 (Thu) | Lesson 6 - Acoustics for ACMV systems; Content: Terminologies for acoustics; A-weighting; Noise Criteria (NC) and Noise Rating (NR); Combination of noise levels; Total sound field; Noise reduction with distance; Noise measurement at site. |
| 23 Mar 2023 (Thu) | Lesson 7 - Fire safety in HVAC systems; Content: <u>Content</u> : Standard relating to fire safety; Smoke control; Fire protection systems. |
| 30 Mar 2023 (Thu) | Lesson 8 - Commissioning of HVAC systems; Content: Objectives for commissioning; Setting to work; Measurement of air flow rates; regulation for air flow; Commissioning documentation |

TRAINER



Kenneth Gong

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Academic Qualifications:

BSc Degree in Building Services Engineering (Northumbria University, UK), 1987.
Diploma in Acoustic and Noise Control (Institute of Acoustics, UK), 1989.
Certificate in Quality Management (Institute of Quality Assurance, UK), 1989.
Master of Business Administration (Maastricht School of Management, Netherlands), 2009

Kenneth is a qualified Chartered Building Services Engineer with more than 30 years working experience in the building services industry. After completion of his first degree, he started his career in the UK as a M & E Design Consultant for a period of 10 years before he returned to Malaysia in 1997.

Upon his return, he joint TROX Malaysia Sdn. Bhd., a multi-national manufacturer of air-conditioning components and systems. He is responsible for product research and development, product testing and certification and technical support and training.