

PD027
Heating, Ventilating and Air-Conditioning Systems: Sizing & Design

Day One

- Introduction
 - Review of fundamentals: Refrigeration and Heat Transfer
- Psychrometrics
 - Heating, cooling, and dehumidifying
- Equipment and systems
 - Types and characteristics
 - Sizing and selection
- Workshop
 - Psychrometric processes and equipment selection

Day Two

- Design conditions: comfort, indoor and outdoor
 - Infiltration and ventilation
 - Climatic data
- Heat and Moisture Flow in Buildings
- Cooling Load and Heat Loss Calculations
 - Envelope components: Walls, roofs, windows, floors
 - Internal loads: People, lights, equipment
 - Ventilation and infiltration
- Workshop
 - Cooling load and heat loss estimates

Day Three

- Air distribution system design
 - Acoustics, diffuser, grills
 - Duct design
 - Fan, motor, and drive selection
- Water distribution system design
 - Piping design
 - Pump, motor, and drive selection
- Design for system efficiency and economic value
 - System efficiency calculations
 - Measured performance of HVAC systems
 - Controls
- Wrap up Workshop
 - System efficiency calculator
 - Open session: Discussion, Q & A, software review