

# Building Services Explained

## Agenda

### Day 1

10:00

#### **Session 1: Energy Consumption and Electrical Services**

- How new building construction affects building services
- Buildings energy consumption
- Electrical supplies and distribution
- Electrical circuits
- Fuse boards and circuit breakers

#### **Session 2: Electrical Generation and Renewables**

- Power Factor Correction
- Voltage Optimisation
- Combined Heat and Power (CHPs)
- Uninterruptible Power Supplies (UPS)
- Photo Voltaic Panels (PVP)
- Lighting
- Lighting Alternatives

13:30

*Lunch (30 mins)*

14:00

#### **Session 3: Renewables**

- Solar Thermal Hot Water
- Photo Voltaic Panels
- Wind Turbines
- Transpired Solar Collectors

For more information about this course contact the training team:

[training@cibse.org](mailto:training@cibse.org) | [cibse.org/training](http://cibse.org/training) | +44 (0)20 8772 3660

## Day 1 - Continued

### Session 4: Ventilation and Heat Recovery

- Fresh Air Requirements
- Night Time Ventilation Strategy
- Ventilation with enhanced thermal coupling to structure
- Demand control ventilation
- Plate heat exchangers
- Heat pipes
- Thermal wheels
- Run around coils
- Motors and Drives

### Q & A

**16.00**      **End of Day One**

For more information about this course contact the training team:

[training@cibse.org](mailto:training@cibse.org) | [cibse.org/training](http://cibse.org/training) | +44 (0)20 8772 3660

## Day 2

10:00

### Session 1: Building Heating

- Types of heating systems
- Boilers
- Heat Pumps
- Under floor Heating
- Electric Heating
- Oil and LPG Boilers
- District Heating
- Radiant Heaters
- Biomass

### Session 2: Hot Water and Controls

- Hot water supplies
- Heating Controls
- Building Managements Systems (BMS)
- Smart Metering
- Metering, Monitoring and Targeting
- Data Logging

13:30

*Lunch (30 mins)*

14:00

### Session 3: Simple Cooling

- Why Cooling is needed
- Cooling Loads
- Evaporative Cooling
- Splits and Multi-Splits
- Variable Refrigerant Flow (VRFs)
- Indoor packaged cabinet

### Session 4: Complex Cooling

- Indoor Packaged Cabinet
- Air Cooled Chillers
- Water Cooled Chillers
- Chilled Beams
- Dry coolers and Cooling Towers

### Q & A

16.00

**End of Day Two**

For more information about this course contact the training team:

[training@cibse.org](mailto:training@cibse.org) | [cibse.org/training](http://cibse.org/training) | +44 (0)20 8772 3660

## Day 3

### 10:00 **Session 1: Cooling Continued**

- Air Handling Units
- Variable Air Volume (VAV)
- Constant Volume systems
- Fan Coil Units
- CRAC Units (Up-flow and Down-flow units in server rooms)
- Phase Change Materials

### **Session 2: Maintenance**

- Condition of plant and equipment
- Maintenance issues and how they affect system efficacy
- Life of an asset.
- Maintenance scheduling
- F-gas Legislation

13:30 *Lunch (30 mins)*

### 14:00 **Session 3: Legislation and Statutory Requirements**

- Energy Performance of Building Directive (EPBD)
- Energy Savings Opportunity Scheme (ESOS)
- Renewable Heat Incentive (RHI)
- Legionella Bacteria Control
- Regulatory Reform Fire Safety
- LOLER – Thorough Examination & Inspections
- Fixed Installation and Portable Appliance testing

### **Session 4: Drainage, Water Services and Building Regulations**

- Plumbing and Drainage Systems
- Rainwater Harvesting
- Building Regulations

### **Q & A**

16.00 **End of Day Three**

For more information about this course contact the training team:

[training@cibse.org](mailto:training@cibse.org) | [cibse.org/training](http://cibse.org/training) | +44 (0)20 8772 3660