

TOSHIBA

Leading Innovation >>>



TOSHIBA CPD Courses Approved by



for Consulting Engineers & Designers

A guide to fundamental legislation and energy topics

Toshiba CPD Courses approved by CIBSE

Toshiba are pleased to offer a range of Continual Personal Development (CPD) courses approved by the Chartered Institution of Building Services Engineers (CIBSE). On completion a one hour credit certificate is issued toward the annual CPD learning schedule.

Each CPD is delivered by an industry experienced presenter and currently cover the following areas:

CPD
1.0

The Application of Part L 2010

This CPD covers the application of Part L and in particular its relevance to the design of air conditioning systems. We investigate the key drivers behind the main elements of Part L and how it is involved into the document structure we use today. Focus is placed on the key changes that were made in 2010 to the document.

The main element of the CPD details how to demonstrate compliance and provide data to give a true Building Emission Rate (BER), that meets the reduced CO₂ emissions targets to achieve compliance.

Key Learning Outcomes

- ✓ Understanding of the structure of Part L in relation to air conditioning systems.
- ✓ Demonstration of Part L compliance.
- ✓ Key changes to Part L.

CPD
2.0

F-Gas and Toshiba

This CPD covers the application and requirements of the F-Gas regulations. Detailing the parties affected, types of detection, record keeping, operator requirements and key regulation implementation dates.

We also look at the implications the F-Gas regulations may have on the application of Toshiba's range of air conditioning systems.

Key Learning Outcomes

- ✓ Understanding of the reasons for having an F-Gas regulation.
- ✓ Who the key effected parties are and why they need to understand the F-Gas regulation.
- ✓ Qualifications required to be achieved by engineers working on systems covered by the F-Gas regulation.
- ✓ What is Refcom.

CPD
3.0

The Application of SEER and COP for VRF Systems

The CPD looks at the information provided by the Part L 2nd tier document.

Non-domestic building services compliance guide, with particular emphasis given to those sections that apply to the application of VRF systems.

Key Learning Outcomes

- ✓ EER/SEER and COP/SCOP calculation methodology.
- ✓ Practical application of SEER and SCOP values.
- ✓ Understanding of the Simplified Building Energy Model (SBEM).
- ✓ Demonstration of Toshiba's SEER and SCOP calculation software.
- ✓ The key components of a VRF.

CPD
4.0

VRF System Technology

The CPD covers the different types of VRF systems that are currently in the market today. It looks at the main components of the systems and what makes a VRF system work. The CPD also focuses on the main technology improvements that have been made in the design of VRF systems over recent years as well as the key system design considerations that should be taken into account when applying these types of systems.

Key Learning Outcomes

- ✓ Understanding of the key components of a VRF system.
- ✓ The different types of compressor technology used in VRF systems.
- ✓ The advantages of using DL Hybrid Inverter technology.
- ✓ Key elements required to design an efficient VRF system.

**CPD
5.0**

VRF Compressor Technology

This CPD looks at the history of Compressor Technologies used in air conditioning systems with a focus on VRF systems. The presentation highlights how these compressors work, their typical application and the advances in modern day technology that has pushed the boundaries of energy efficiency.

The CPD also covers other technological improvements related to compressors such as inverters, oil management control systems and Pulse Modulation Valves (PMV). We also expand on the compressor technology extensively used in Toshiba's air conditioning systems, highlighting some of the key advantages.

Key Learning Outcomes

- ✓ Different types of compressor technology and how they work.
- ✓ VRF compressor classifications and their benefits.
- ✓ Key advantages of twin inverter technology.

**CPD
6.0**

An Introduction to Air to Water Heat Pump Technology

This CPD outlines what an air to water heat pump system is and the benefits of installing this type of product. It also describes the different types of systems that can be found in the market place and also looks at the main design considerations that should be taken when applying this product. Cost and energy saving comparisons are made against more traditional systems for providing heating and hot water.

Key Learning Outcomes

- ✓ Understanding of the different types of air source heat pumps and how they work.
- ✓ Key components of an air source heat pump.
- ✓ Design requirements to select the most efficient air source heat pump.
- ✓ Comparison against other technologies.

**CPD
7.0**

Design and Application of Air Cooled VRF Systems

This CPD is ideal for those engineers that are both not familiar with VRF systems or require additional knowledge. The presentation aims to demonstrate where VRF type systems can be utilised and the key components that make up a complete system.

The concepts of system loading and building diversity are investigated, with application software used to demonstrate these two concepts.

The main aim of the CPD is to highlight the key components of a VRF system and the key design considerations that should be taken into account to get the true energy efficiencies from this type of air conditioning system.

Following on from this is a comprehensive, step by step guide to designing a typical system from the beginning using technical data.

An example of a computer aided design and selection program is also shown.

The presentation will then conclude with how the systems selected will tie in with examples of SEER and COP calculations to SBEM.

Key Learning Outcomes

- ✓ Understanding of what a VRF system is and where it can be applied.
- ✓ Key system components of a VRF system.
- ✓ Key system design consideration to make sure you select the most energy efficient VRF system.
- ✓ Understanding the differences between load diversity and building diversity.
- ✓ System efficiency calculation SEER and SCOP.

**CPD
8.0**

Building Management Controls (BMS) - by special request only

This CPD offers an insight into the concept of controls used in conjunction with air conditioning systems.

The key emphasis being to relate the latest BMS controls platforms that are used within the industry from Open Protocol to IP (or Internet connection). The presentation will take you through the basics of each controls philosophy and then demonstrate its use in real life air conditioning applications.

Key Learning Outcomes

- ✓ Understanding the need for plant control and how this works.
- ✓ The differences between closed and open control systems.
- ✓ Understanding of IP based control systems.



BREEAM Refrigerant Pump Down Credit & BSEN378 (leakage into occupied space)

This CPD looks at how leak detection pump down systems work and how such a system can comply with current legislation regarding leak detection for occupied areas such as hotels.

The key focuses being on how you can demonstrate compliance for BREEAM credits and compliance with the British Standard of EN378 when applied to the safety of occupied spaces.

We also look at some of Toshiba's support tools that can support compliance as well as demonstrating some real life application case studies.

Key Learning Outcomes

- ✓ Understanding of how a leak detection pump down system works.
- ✓ The requirements to demonstrate compliance with both BREEAM and BSEN378.



EcoDesign LOT10 Energy Labelling Directive

In this CPD we look at the reasons behind the introduction of the new EcoDesign LOT10 directive for demonstrating the energy labelling for air conditioning systems rated at 12.5kw and under.

We highlight the key facts behind the directive and what the minimum energy efficiencies that need to be achieved from this type of technology.

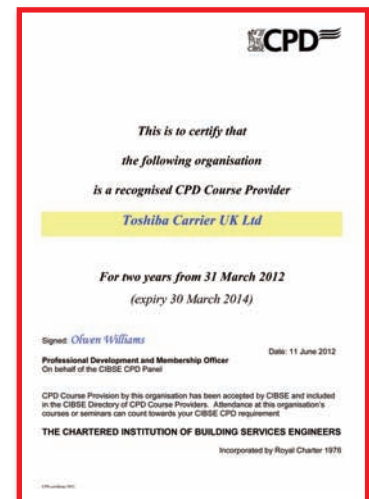
The CPD also demonstrates the calculation methods required to produce an energy label figure for both heating (SCOP) and cooling (SEER) operation cycles.

Key Learning Outcomes

- ✓ Understanding the reasons behind the new EcoDesign LOT10 directive.
- ✓ How the new energy labelling is calculated.
- ✓ The key impact on being able to achieve minimum efficiency targets.

Toshiba are recognised as an officially approved CPD provider by CIBSE. All CPD's are delivered by trained presenters and upon completion a one CPD Credit Certificate is issued to all attendees.

To arrange your FREE of charge CPD either at your offices or another convenient location please contact the Toshiba CPD team, marketing.uk@toshiba-ac.com or arrange through your local Toshiba Distributor <http://toshiba-aircon.co.uk/distributors>



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