Low Carbon Consultant / Building Design (EPC)

Pre-requisites & Pre-course Reading

This is a course designed for those wishing to become Low Carbon Consultants and also those who want to gain accreditation as Low Carbon Energy Assessors able to produce Energy Performance Certificates.

This document sets out reading and preparation that is required of candidates in advance of joining the two day training course for the production of Energy Performance Certificates and the Low Carbon Consultants Design Training.

You are strongly advised that this preparation should be taken seriously. The required reading will be referred to and expanded upon during the training and you should have a thorough knowledge of the documents in advance in order to gain further knowledge in their application. The examination will feature some questions on the content of these documents.

There is a set of questions at the end of this document entitled 'Routemap' These should guide you to some of the relevant sections of the essential reading list below and provide you with some quick self- assessment questions to test whether you have read and absorbed what is required.

The essential reading can either be downloaded from on the links provided or from www.cibse.org. You will need to log in or register to get access to these areas.

Essential Reading

- The Recast Energy Performance of Buildings Directive
  www.gov.uk/government/publications/improving-the-energy-efficiency-of-our-buildings

- Approved Document L2A: Conservation of fuel and power (New buildings other than dwellings)
  https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/540328/BR_PDF_AD_L2A_2013_with_2016_amendments.pdf

- Approved Document L2B: Conservation of fuel and power (Existing buildings other than dwellings)
  https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/540329/BR_PDF_AD_L2B_2013_with_2016_amendments.pdf

- Energy Performance of Buildings Regulations Statutory Instrument
  www.legislation.gov.uk/uksi/2012/3118/made

- CLG Guide to energy performance certificates for construction, sale and let of non-dwellings
  https://www.cibsecertification.co.uk/Certification/DCLG-Guidance-Documents-(1)

- Commercial EPC Conventions – Issue 6
  https://www.cibsecertification.co.uk/QA-Portal/Conventions/EPC-Conventions

- National Calculation Methodology (2013)
  http://www.uk-ncm.org.uk/filelibrary/NCM_Modelling_Guide_2013_Edition_21October2016.pdf

- Non-Domestic Building Services Compliance Guide (2013)
  www.planningportal.gov.uk/uploads/br/domestic_building_services_compliance_guide.pdf

- Guide F - Energy efficiency in buildings (2012)
  Download from www.cibse.org

- Energy Use in Offices ECG 019

http://www.cibse.org/getmedia/7fb5616f-1ed7-4854-bf72-2dae1d8bde62/ECG19-Energy-Use-in-Offices-(formerly-ECON19).pdf.aspx

- CIBSE Certification Code of Conduct
  https://www.cibsecertification.co.uk/Certification/Code-of-Conduct

Other useful reading material

- Approved Document F - Ventilation (2013 edition)
- AM10: Natural ventilation in non-domestic buildings
- TM22: Energy, assessment and reporting methodology
- TM39: Building energy metering
- Commissioning Code M: Commissioning management
- TM31: Building log book toolkit
- TM37: Design for improved solar shading control
- The UK Climate Change Programme (DEFRA)
- The design team's guide to environmentally smart buildings GPG287
- TM38: Renewable energy sources for buildings
- GPG388 CHP for Buildings (Carbon Trust)

Web sites to visit

- https://www.cibsecertification.co.uk
- www.cibse.org
- http://www.uk-ncm.org.uk
- www.thecarbontrust.co.uk

Route Map

The following provides a route through some of the key information by a series of actions and questions. You can self-assess yourself against the answers provided overleaf. We have reduced the size of these answers so that you don't look at them by mistake! To convert to a readable form simply highlight the answer and convert back to normal sized font.

1. What do TER and BER stand for in ADL2A. Establish how they relate in compliance.
2. Where are the u-vales for the Notional Building found?
3. In ADL-2A What air permeability is allowed in SBEM for buildings less than 500m2 if you do not wish to carry out a pressure test ?
4. In ADL-2B, what are the minimum values of consequential works required when extending a building over 1,000m^2?
5. In ADL-2B, what is the minimum lighting efficacy required when upgrading a lighting system in an office?
6. In the Non Domestic Building Services Compliance Guide, what is the minimum effective heat generating seasonal efficiency for a single natural gas fired boiler >2 MW output?
7. In the Commercial EPC Conventions what should the efficiency of an electric room heater be?
8. In CIBSE Guide F, 2012, Section 8, what is the typical energy use for refrigeration in an air conditioned prestige office?
9. In CIBSE Guide F, 2012, Section 18, what is the typical efficiency of a three phase 30 kW motor?
10. In CIBSE Guide F, 2012, Section 20, what is the typical electricity consumption of a supermarket?
11. In CIBSE Guide F, 2012, Appendix A1, what is the calorific value of dry domestic wood and dry short rotation coppice?

1. Target emissions Rating & Building Emissions Rating.
2. The NCM Modelling Guide 2013
3. 15 $m^3/m^2/hr$
4. Not less than 10% of the value of the principal works
5. The requirements would be met if the installed lighting has an average lamp plus ballast efficacy of not less than 60 lumens per circuit-Watt.
6. 86%
7. 100%
8. 100 -135 W/m^2.
9. 90%
10. 1026 $kWh/m^2/yr$
11. 18.6 GJ/tonne