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BRITISH REFRIGERATION ASSOCIATION

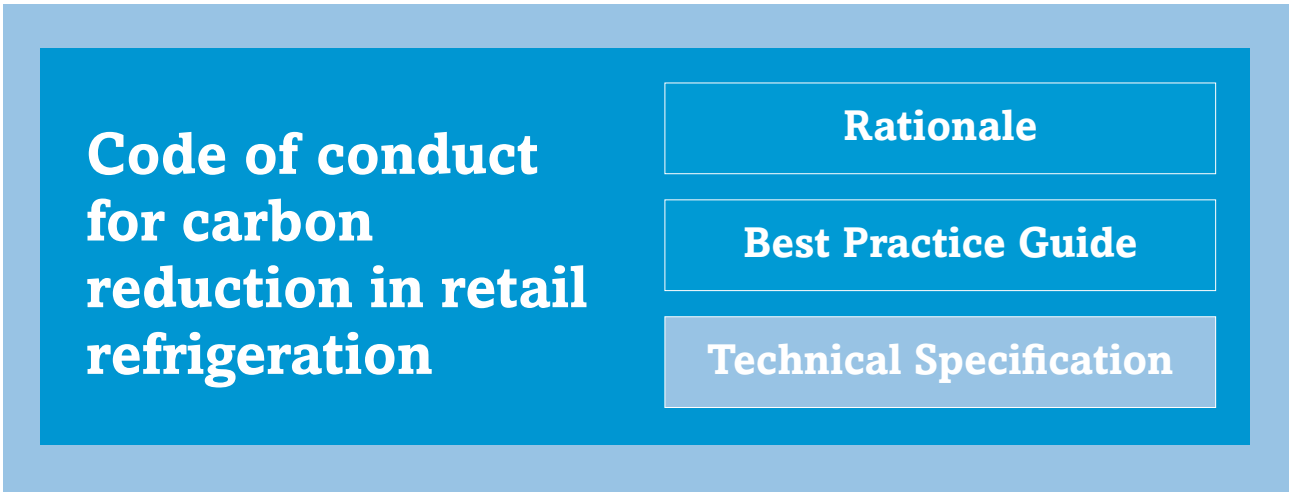
Code of Conduct for carbon reduction in the retail refrigeration sector

Technical specification

Contents

Introduction

This document is the Best Practice Guide for the Code of Conduct for carbon reduction in the retail refrigeration sector (the Code).



It is the third in a suite of three documents that make up the Code and is designed to signpost users of the Best Practice Guide towards relevant further information and guidance.

How to use this document

This document should be used in conjunction with the Best Practice Guide. All references used in the Best Practice Guide are described in more detail in this document and guidance on where any specific documents or websites can be found is also given.

This document has an 'Index' section, which helps users navigate to the reference that they are looking for. Users should select the relevant best practice area within the index (i.e. training and skills, containment, buildings or testing and inspection). Within each of these areas are contents tables, which are numbered in line with the best practice document. Users must select the relevant best practice number for their area, identify the reference title that they are looking for, and navigate to it using either the hyperlink or page number provided.

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The Institute of Refrigeration (IOR)

The IOR is an independent organisation for refrigeration and air conditioning professionals and those interested in refrigeration technology. It promotes information and provides guidance and learning to people all over the world through the provision of services to its members including:

- access to information through technical guidance notes, codes of practice, etc
- updates on legislation and standards
- access to certified continuing professional development (CPD) opportunities.
- seminars and events.
- members of the IOR can register with the Engineering Council at Chartered Engineer, Incorporated Engineer or Engineering Technician Level.
- UK representation at the International Institute of Refrigeration, an inter-governmental community of refrigeration expertise.

Further information on the IOR can be found at: www.ior.org.uk

The British Refrigeration Association (BRA)

The BRA is the trade association for manufacturers, importers, wholesalers, distributors, contractors, specifiers and end-users of refrigeration plant, equipment and components. The BRA works to further the interests of the refrigeration industry by working with governments, public bodies and other organisations, both in the UK and overseas.

Further information on the BRA can be found at: www.feta.co.uk/bra/index.htm

Engineering Council

The Engineering Council is the UK regulatory body for professional engineers. The Council holds the national registers for Chartered Engineers (CEng), Incorporated Engineers (IEng), Engineering Technicians (EngTech) and Information and Communications Technology Technicians (ICTTech). The Engineering Council also sets and maintains the internationally recognised standards of that govern the award and retention of these titles.

Further information on the Engineering Council can be found at: www.engc.org.uk

Heating and Ventilating Contractor's Association (HVCA)

The HVCA represents the interests of firms that are active in the design, installation, commissioning and maintenance of heating, ventilating, air conditioning, heat pumps and refrigeration products. Members are subject to regular, third-party inspection and assessment to ensure the standard of their technical and commercial competence.

Further information can be found at: www.hvca.org.uk

IOR/BRA Guide to Good Commercial Refrigeration Practice, Part 1 – Introduction

The Guide to Good Commercial Refrigeration Practice has been produced to advise organisations and their employees on good practice requirements across all the disciplines of refrigeration practice. Part 1 introduces the series of guides (Parts 1 -10) and discusses the vapour compression cycle.

The guide is available at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE or www.feta.co.uk/bra/bra-06.htm

IOR/BRA Guide to Good Commercial Refrigeration Practice, Part 2 – System Design and Component Selection

The Guide to Good Commercial Refrigeration Practice has been produced to advise organisations and their employees on good practice requirements across all the disciplines of refrigeration practice. Part 2 advises on system design and component selection across the following areas:

- compressors
- evaporators
- chilled and frozen food cabinets
- condensers
- expansion valves
- refrigerant pipe work
- design considerations
- load calculations
- plant room design.

The guide is available at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE or www.feta.co.uk/bra/bra-06.htm

IOR/BRA Guide to Good Commercial Refrigeration Practice, Part 3 – Safety and Environmental Considerations and Standards

The Guide to Good Commercial Refrigeration Practice has been produced to advise organisations and their employees on good practice requirements across all the disciplines of refrigeration practice. Part 3 advises on the standards, health and safety and environmental considerations and practices applicable to good refrigeration practice.

The guide is available at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE or www.feta.co.uk/bra/bra-06.htm

IOR/BRA Guide to Good Commercial Refrigeration Practice, Part 4 – System Installation

The Guide to Good Commercial Refrigeration Practice has been produced to advise organisations and their employees on good practice requirements across all the disciplines of refrigeration practice. Part 4 advises on aspects of system installation, including:

- operatives' responsibilities
- health and safety requirements
- locations and positioning of plant and equipment
- pipework routing arrangements
- pipework installation
- electrical installation work
- condensate drainage
- pre-commissioning system testing and preparation
- drawings.

The guide is available at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE or www.feta.co.uk/bra/bra-06.htm

IOR/BRA Guide to Good Commercial Refrigeration Practice, Part 5 – System Commissioning

The Guide to Good Commercial Refrigeration Practice has been produced to advise organisations and their employees on good practice requirements across all the disciplines of refrigeration practice. Part 5 advises on aspects of system commissioning, including:

- pre-commissioning system testing and preparation
- preparation for commissioning
- initial checks
- operational checks
- handover documentation.

The guide also contains commissioning checklists for cold stores, cabinets and packs, and condensing units.

The guide is available at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE or www.feta.co.uk/bra/bra-06.htm

IOR/BRA Guide to Good Commercial Refrigeration Practice, Part 6 – System Maintenance and Service

The Guide to Good Commercial Refrigeration Practice has been produced to advise organisations and their employees on good practice requirements across all the disciplines of refrigeration practice. Part 6 advises on aspects of system maintenance and service, including:

- energy efficiency
- service (systems breakdowns)
- refrigeration systems faults
- personal protective equipment
- risk assessments
- procedures
- schedules
- tools.

The guide contains examples of model risk assessments and task procedures, as well as a typical refrigeration maintenance schedule and sample engineers toolkit.

The guide is available at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE or www.feta.co.uk/bra/bra-06.htm

IOR/BRA Guide to Good Commercial Refrigeration Practice, Part 7 – System Decommissioning and Waste Disposal

The Guide to Good Commercial Refrigeration Practice has been produced to advise organisations and their employees on good practice requirements across all the disciplines of refrigeration practice. Part 7 advises on decommissioning and waste disposal, including:

- pre-decommissioning checks
- removal of refrigerant from system
- removal of oil from system
- disposal (hazardous waste regulations)
- safe storage and handling.

The guide is available at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE or www.feta.co.uk/bra/bra-06.htm

IOR/BRA Guide to Good Commercial Refrigeration Practice, Part 8 – Refrigerants and Retrofitting

The Guide to Good Commercial Refrigeration Practice has been produced to advise organisations and their employees on good practice requirements across all the disciplines of refrigeration practice. Part 8 advises on refrigerants and retrofitting across the following areas:

- regulatory considerations
- refrigerant types
- refrigerant selection
- refrigerants commercially available
- leak detection.

The guide is available at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE or www.feta.co.uk/bra/bra-06.htm

IOR/BRA Guide to Good Commercial Refrigeration Practice, Part 9 – Competence, Training and Skills

The Guide to Good Commercial Refrigeration Practice has been produced to advise organisations and their employees on good practice requirements across all the disciplines of refrigeration practice. Part 9 provides details of qualifications accepted by the refrigeration industry and the core attributes that should be possessed by refrigeration staff. It also discusses vocational qualifications and the employment of apprentices.

The guide is available at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE or www.feta.co.uk/bra/bra-06.htm

IOR/BRA Guide to Good Commercial Refrigeration Practice, Part 10 – Leak Prevention

The Guide to Good Commercial Refrigeration Practice has been produced to advise organisations and their employees on good practice requirements across all the disciplines of refrigeration practice. Part 10 advises on leak protection and includes the following:

- designing out leakage
- installing to prevent leakage
- commissioning to prevent leakage
- planned maintenance and leakage testing
- servicing to prevent leakage
- qualifications
- refrigerant management.

The guide is available at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE or www.feta.co.uk/bra/bra-06.htm

IOR Guidance Note 18 - Refrigerant Selection and System Design – the role of HFCs

This guidance note provides advice on the effects of refrigerant choice and system design on the carbon footprint of a refrigerating system. Two effects are considered: the direct global warming potential of the refrigerant selected and the climate change effect of energy use by the system. Strategies for the reduction of carbon footprint include designing more efficient systems, minimising sources of leakage through the selection of more robust system components, reducing the quantity of refrigerant required to operate the system in order to mitigate the effect of a large leak and substituting refrigerants with a high GWP for those with a lower potential.

The guidance note is available via the IOR website at: www.ior.org.uk/ior_filter_technical.php?r=W8EMUHQIAK

IOR Guidance Note 20 – Fixed Refrigerant Detection Systems

This Guidance note is designed for those involved in the design, specification and installation of multi-point fixed refrigerant detection systems to monitor hydrofluorocarbon (HFC) and hydrochlorofluorocarbon (HCFC) refrigeration systems. It covers regulatory requirements, effective system design, available technologies, response procedures and maintenance.

The guidance note is available via the IOR website at: www.ior.org.uk/ior_filter_technical.php?r=W8EMUHQIAK

IOR – Code of Practice for Minimising Refrigerant Emissions from Refrigerating Systems

This IOR Code of Practice is designed to provide advice on minimising emissions from all types of refrigerating systems. It provides recommendations related to F-Gas and o requirements which apply to HFC and HCFC refrigerants.

The guidance note is available via the IOR website at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE

BRA Fact Finder No13 – Practical Guide to the F-Gas Regulation

This fact finder guide has been produced to inform the refrigeration user supply chain on its obligations under the F-Gas regulation. It covers the following aspects:

- requirements for leak prevention and detection
- reporting
- minimum training requirements
- second leak check requirement following a repair
- definition of operator.

Plus a BRA recommendation on storage of unused refrigerant at customers' sites.

Further information is available from: www.feta.co.uk/bra/downloads/BRA%20Factfinder%20No%2013%20-%20Practical%20Guide%20F-Gas%20(incl%20Annex%20and%20log%20book).pdf

REAL Zero

REAL Zero is an IOR-led initiative which works across industry with the aim of providing support to help reduce emissions from refrigerant leakage. It provides guidance through measures such as publications and training.

Following on from the success of REAL Zero, is Real Skills Europe. This is an EU project which aims to achieve reductions in refrigerant leakage through improved awareness, education and training. Its aim is to produce information, guidance notes and carbon emission and refrigerant management tools in various European languages. It will implement a pan-European, multilingual e-learning and assessment scheme across all participating countries and provide opportunities for accreditation for refrigerant leakage reduction specialists.

Further information on REAL Zero can be found at: www.realzero.org.uk

Further information on Real Skills Europe can be found at: www.realskillseurope.eu

REAL Zero training

REAL Zero provides training opportunities to refrigeration engineers to help them to advise equipment users on ways to reduce refrigerant leakage. These skills are supplementary to F Gas Qualifications and help engineers to:

- survey and leak test existing plant, and identify improvements
- analyse the environmental and financial impact of leakage, and make a business case for action
- advise on design, installation and maintenance issues related to minimising leakage
- outline legal requirements and responsibilities
- audit compliance and maintenance on sites through structured reports.

Competent service and maintenance engineers who are site aware and have sufficient practical experience can carry out these tasks using the guidance and training support from REAL Zero.

Training material covers the following topics:

- Module 1 - Environmental, cost and legal aspects of refrigerant leakage.
- Module 2 - Reducing leakage through appropriate maintenance and service.
- Module 3 - Minimising leakage in new systems
- Module 4 - Reducing leakage through site specific surveys and advice.

Evidence of successfully completed REAL Zero training can be used to obtain IOR CPD certificates.

Further information on REAL Zero training can be found at: www.realzero.org.uk/training

REAL Zero – Guide to Good Leak Testing

This REAL Zero guide provides best practice advice on testing for refrigerant leakage. It covers the following topics:

- why leaks matter
- leak testing
- getting the best from your electronic leak detector
- pressure testing to find leaks
- leak test procedure
- reducing leakage and common leak points
- refrigerant charging
- records
- F-Gas record sheet.

The guide can be obtained from:
www.realzero.org.uk/web_images/guidance/GN1%20-%20Good%20practice%20A4%20DONE.pdf

REAL Zero – Illustrated guide to 13 common leaks

This REAL Zero guide aims to make service and maintenance routines more effective by detailing the top 13 most common leak points. The causes of these leaks are explained, together with advice on how they can be avoided. The 13 leak points described are:

- shut-off and ball valves
- schrader valves
- flare joints
- mechanical joints and flanges
- pressure relief valves and fusible plugs
- shaft seals
- condensers
- line tap valves
- pressure switches
- o rings
- capillary tubes
- return bends on evaporators and condensers
- condensate tray pipework.

The guide can be obtained from:
www.realzero.org.uk/web_images/guidance/GN2%20-%2013%20common%20leaks%20A4r.pdf

REAL Zero – Designing out Leaks: Design Standards and Practices

This guide provides information on aspects of design and installation standards that prevent or reduce refrigerant leakage. It provides specific advice on:

- minimising refrigerant charge
- system construction
- pressure relief valves
- installation practice
- fixed leak detection systems
- commissioning tests
- documentation and handover.

The guide can be obtained from REAL Zero:
www.realzero.org.uk/web_images/guidance/GN3%20-%20Designing%20out%20Leaks1.pdf

REAL Zero – Leakage Matters: The service and maintenance contractor's responsibilities

This guide highlights the responsibilities of service and maintenance contractors which are directly related to refrigerant leakage. It covers the following information:

- top ten tips for contractors
- the true cost of leakage
- legal responsibilities
- design and commissioning – your role in preventing catastrophic leaks
- maintenance and system monitoring
- applying industry best practice in the field
- working with end users to achieve zero leakage.

The guide can be obtained from:
www.realzero.org.uk/web_images/guidance/GN4%20-%20Leakage%20Matters%20Contractors.pdf

REAL Zero – Leakage Matters: The equipment owner's responsibilities

This guide highlights the responsibilities of equipment owners that are directly related to refrigerant leakage. It covers the following information:

- leakage and the environment
- legal responsibilities
- why leaks happen and how to reduce them
- specifications for equipment design, installation, service and maintenance
- service and maintenance contracts
- criteria for selecting a contractor
- leakage reduction skills
- service and maintenance of equipment
- your obligation to manage refrigerant strategically.

The guide can be obtained from REAL Zero:
www.realzero.org.uk/web_images/guidance/GN5%20-%20Leakage%20Matters%20End%20Users.pdf

REAL Zero stickers

REAL Zero stickers help to raise employee awareness of refrigerant leakage. They are available for refrigerant cylinders, hand-held leak testers and systems that have been leak tested. Applying them to equipment will help to promote the REAL Zero approach to reducing leakage.

The stickers can be downloaded from REAL Zero: www.realzero.org.uk/NKCWNA200511

REAL Zero – Refrigerant logging spreadsheet tool

This REAL Zero tool enables users to record refrigerant additions and removals, leak tests and repairs. It also provides a summary of the refrigerant usage (as a percentage of system charge) per system and its carbon equivalent.

The tool is available from REAL Zero at: www.realzero.org.uk

IOR Safety Code of Practice for Refrigerating Systems Utilising A1 Refrigerants

The object of this Code of Practice is to define minimum requirements for safety in the design, construction and installation, commissioning, inspection and maintenance of vapour compression refrigerating systems utilising refrigerants in Group A1 (Low toxicity, non-flammable) as defined in EN 378:2008.

The guide is available on the IOR website at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE

IOR Safety Code of Practice for Refrigerating Systems Utilising A2 and A3 Refrigerants

The object of this Code of Practice is to define minimum requirements for safety in the design, construction and installation, commissioning, inspection and maintenance of vapour compression refrigerating systems utilising refrigerants in Group A2 and A3 (non-toxic and flammable) as defined in EN 378:2008.

The guide is available on the IOR website at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE

IOR Safety Code of Practice for Refrigerating Systems Utilising Carbon Dioxide Refrigerants

The object of this Code of Practice is to define minimum requirements for safety in the design, construction and installation, commissioning, inspection and maintenance of vapour compression refrigerating systems utilising carbon dioxide refrigerants.

The guide is available on the IOR website at: www.ior.org.uk/ior_technical.php?r=K6EMQWJRAE

BRA Specification – Jointing of Copper Pipework for Refrigeration Systems

This specification provides guidance on copper pipework joints used in refrigeration systems. It has been produced in line with health and safety regulations and legislation.

This specification is available from: www.feta.co.uk/bra/downloads/listing.pdf

BRA – Guideline Methods of Calculating TEWI

These guidelines have been issued by the BRA to provide a standard methodology for calculating total equivalent warming impact (TEWI) for refrigeration and air conditioning systems.

The guidelines are accompanied by a number of spreadsheets to assist with the calculations.

This guidelines are available from: www.ior.org.uk/ior_publication.php?pubid=X4EPE8GKAB

BRA – Model statements of task procedure and risk assessment for commercial refrigeration

The BRA has developed these model statements for risk assessment which organisations can use or adapt to their own circumstances. This will save them time and help them to comply with the management of Health and Safety at Work Regulations.

The model statements are available from the BRA: www.feta.co.uk/bra/index.htm

Chartered Institution of Building Services Engineers (CIBSE)

CIBSE promotes the career of building services engineers by accrediting courses of study in further and higher education, approving work-based training programmes and providing routes to full professional registration and membership, such as Chartered Engineer, Incorporated Engineer and Engineering Technician. It offers continuing professional development services to qualified engineers.

CIBSE also provides best practice advice on building services engineering.

Further information on CIBSE is available at: www.cibse.org.uk

CIBSE Continuing Professional Development (CPD)

CIBSE provides support to members in maintaining professional competence by providing guidance and support for professional development. Members can gain online access to tools which allow them to update and evaluate CPD activities on a continuing basis as the year progresses to maintain a CPD record.

Further information on CIBSE CPD is available at: www.cibsecpd.org.uk

City and Guilds 2079

The City and Guilds 2079 qualifications enable refrigeration engineers to meet legal requirements in terms of the qualifications required to work with fluorinated greenhouse gas (F Gas). City and Guilds 2079 can be split into four categories as follows:

- 2079-11 City and Guilds Level 2 Award in F Gas and ODS Regulations: Category I - lean checking, recovery, installation and service and maintenance of the equipment
- 2079-12 City and Guilds Level 2 Award in F Gas and ODS Regulations: Category II - installation, service and maintenance of equipment with a charge of less than 3kg, (6kg if hermetically sealed) and leakage checking
- 2079-13 City and Guilds Level 2 Award in F Gas and ODS Regulations: Category III - recovery of refrigerant
- 2079-14 City and Guilds Level 2 Award in F Gas and ODS Regulations: Category IV - lean checking

The City and Guilds website contains further information on these qualifications including a qualification handbook, assessment guide and sample questions.

Further information is available from: www.cityandguilds.com/24432.html?search_term=2079

City and Guilds 6187

The City and Guilds 6187 is the National Vocational Qualification to be issued in 2011, relating to refrigeration and air conditioning. This will include continuing professional development units related to hydrocarbons and carbon dioxide.

Further information will be available from: www.cityandguilds.com

Construction Skills (CITB)

Construction Skills provides a variety of skills assessments, training courses and support material in the refrigeration sector. This includes F Gas qualification J11-14:

- J11 Category I – leak checking, recovery, installation and service and maintenance of equipment
- J12 Category II – installation, service and maintenance of equipment with a charge of less than 3kg, (6kg if hermetically sealed) and leakage checking
- J13 Category III – recovery of refrigerant
- J14 Category IV – leakage checking

And E29 Basic refrigeration system electrics

Further information is available from: www.cskills.org

National Vocational Qualifications (NVQs)

NVQs are competence based qualifications designed to industry requirements in refrigeration, air conditioning and heat pumps. NVQs are regularly updated in line with changes in industry and therefore the scheme numbers and titles will change. The current scheme is known as the 6087 and a new scheme will be launched in 2011 with the designation 6187.

Each qualification is made up of theory and practice units. In the new 6187 scheme there will be additional optional units covering Carbon Dioxide at Level 3 and Hydrocarbon at Levels 2 and 3. These optional units will also be available as standalone CPD Certificates for experienced workers.

Further details of the new scheme and CPD units will be available from the NVQ Awarding Body for the RAC sector City and Guilds: www.cityandguilds.com

BS EN378-1:2008 – Refrigerating Systems and Heat Pumps

BS EN 378-1 is the European standard that specifies the requirements relating to safety of persons and property (but not goods in storage), and the local and global environment for:

- stationary and mobile refrigeration systems of all sizes, including heat pumps
- secondary cooling or heating systems
- location of these refrigeration systems.

This European Standard is not applicable to refrigeration systems with air or water as refrigerant.

BS EN 378-1 is applicable to new refrigerating systems and modification of existing refrigeration systems in case the type of refrigerant changed or pressure vessels are replaced. The part dealing with maintenance, repair, operation, recovery, reuse and disposal also applies to existing systems.

This standard contains details of the total equivalent warming impact (TEWI) methodology.

The full standard is available from: www.bsigroup.com

BS EN378-2:2008 – Refrigerating Systems and Heat Pumps

BS EN 378-2 applies to the design, construction and installation of refrigeration systems including piping, components and materials, and ancillary equipment directly associated with these systems. It also specifies requirements for testing, commissioning, marking and documentation.

The full standard is available from: www.bsigroup.com

BS EN378-3:2008 – Refrigerating Systems and Heat Pumps

BS EN 378-3 specifies requirements related to the safety of people and property, and the local and global environment for:

- stationary and mobile refrigerating systems of all sizes, including heat pumps
- secondary cooling or heating systems
- the location of refrigerating systems.

It is applicable to the installation site and specifies site safety requirements.

BS EN 378-3 applies to new refrigerating systems. However, the section covering maintenance, repair, operation, recovery, reuse and disposal also applies to existing systems.

The full standard is available from: www.bsigroup.com

BS EN378-4:2008 – Refrigerating Systems and Heat Pumps

BS EN 378-4:2008 specifies the requirements relating to safety of persons and property, but not goods in storage, and the local and global environment for:

- Stationary and mobile refrigeration systems of all sizes, including heat pumps
- Secondary cooling or heating systems
- Location of refrigeration systems.

BS EN 378-4:2008 specifies requirements for safety and environmental aspects in relation to operation, maintenance and repair of refrigeration systems, and the recovery, reuse and disposal of all types of refrigerant, refrigerant oil, heat-transfer medium, refrigeration system and components.

These requirements are intended to minimise risks of injury to persons and damage to property and the environment resulting from improper handling of the refrigerants or from contaminants leading to system breakdown and resultant emission of the refrigerant.

The full standard is available from: www.bsigroup.com

BS EN12735-1:2010 – Copper and copper alloys

This European standard specifies the requirements related to seamless, round copper tubes for air conditioning and refrigeration, specifically related to tubes for piping systems.

The full standard is available from: www.bsigroup.com

PD 5304: Guidance on safe use of machinery

This Published Document (PD) provides guidance on the safe use of machinery including:

- the selection of protective measures and safeguards
- practical examples of safeguard design and application.

The PD applies to those who have responsibility for the use, refurbishment, upgrade and safeguarding of machinery and other protective devices.

The full standard is available from: www.bsigroup.com

Health and Safety Regulation....a short guide

This HSE guide is relevant for anyone who wants to understand more about how health and safety law in the UK workplace operates. It highlights the important UK legislation and explains what the law requires and the actions that employers and employees are required to take.

This guide is available from: www.hse.gov.uk/pubns/hsc13.pdf

BS 7671 (2008) – Requirements for Electrical Installations (Institution of Electrical Engineers Wiring Regulations)

BS 7671 is not a legal requirement, but sets out best practice for electrical installation. It applies to the design, installation and verification of electrical installations, as well as the upgrade and refurbishment of existing systems.

The full standard is available from: www.bsigroup.com

Defra F-Gas Support

Defra's business support unit, F-Gas Support, was set up to provide guidance for manufacturers, operators, contractors and others that make, sell or work with F gases and associated equipment. F-Gas Support has produced guidance to enable users to find out if the F gas obligations apply to them and which parts of their business are affected. This includes the following information sheets:

GEN 1 – Glossary of terms related to the F Gas and ODS Regulations

GEN2 – Background to F Gases and ODS

GEN3 – Overview of markets and equipment affected by the F Gas and ODS Regulations

GEN4 – Links to the relevant legislation

GEN5 – Refrigerant quantity

F-Gas Support can be found at: www.defra.gov.uk/environment/quality/air/fgas

Defra briefing note BNCR36: Direct Emission of Refrigerant Gases

This briefing note has been produced for the Market Transformation Programme. It describes the direct effects of refrigerants on the environment and carbon emissions. It also explains how direct emission occurs and compares different refrigerants (existing and alternative) and different applications in terms of their refrigerant charge and leakage rates.

The briefing note can be obtained from: www.mtprog.com/cms/product-strategies/viewall/briefing-note

ISO/CD 14903 – Refrigerating systems and heat pumps: qualification of tightness of components and joints

This information from the International Organization for Standardization provides advice on best practice tightness of components and joints in refrigeration systems.

This information can be downloaded from: www.iso.org

ISO 9000 – Quality Management

ISO 9000 is a family of standards (including ISO9001) which provide a framework that sets the standards for quality management systems. It allows organisations to improve the way that they are operated and managed and sets out criteria that they must meet to operate in accordance with the standard and gain certification.

ISO 9000 can be obtained from: www.bsigroup.co.uk

National Inspection Council for Electrical Installation Contracting (NICEIC)

NICEIC offers leading certification services, Building Regulations Schemes, products and support to electrical contractors and other trades in the construction industry. Contractors may register with NICEIC to demonstrate their skills and level of competence to their customers.

Further information can be found at: www.niceic.com

Safety in Pressure Testing Guidance Note GS4

This guidance note targets those carrying out pressure testing of equipment, pipework, pressurised vessels or systems after manufacture, repair or modification.

It provides guidance on how pressure testing can be safely carried out through the application of risk assessment, a safe system of work and suitable safety precautions. It also provides advice on the design of protective barriers for minimisation of risk during testing.

Further information can be found at: www.hse.gov.uk/pubns/books/gs4.htm

COSHH – a brief guide to the regulations: what you need to know about COSHH

This leaflet has been produced to assist employers in meeting their obligations under the Control of Substances Hazardous to Health (COSHH) regulations. It briefly sets out the importance and requirements of COSHH, substances covered by COSHH and how to apply COSHH.

For more information on COSHH visit: www.hse.gov.uk/coshh

CIBSE Guide B: Heating, ventilation, air conditioning and refrigeration

CIBSE Guide B provides advice to engineers on the following:

- heating
- ventilation and air conditioning
- ductwork
- refrigeration and heat rejection
- noise and vibration control for HVAC.

Guide B can be obtained from CIBSE at: www.cibse.org/index.cfm?go=publications.view&item=305

CIBSE Guide F: Energy efficiency in buildings

CIBSE Guide F helps users to understand and compare the energy efficiency of different building types. It includes the following parts:

- designing the building
- operating and upgrading the building
- benchmarks.

Guide B can be obtained from CIBSE at: www.cibse.org/index.cfm?go=publications.view&item=6

Institution of Mechanical Engineers (IMechE)

IMechE promotes the profession of mechanical engineering in the UK through channels such as education, events and training.

Further information on IMechE is available at: www.imeche.org/Home

Institutution of Chemical Engineers (IChemE)

IChemE promotes the profession of chemical engineering in the UK through channels such as education, events and training.

Further information on IChemE is available at: www.icheme.org.uk/

Air Conditioning and Refrigeration Industry Board (ACRIB)

ACRIB provides a central forum for all sectors that fall within or are served by the air conditioning and refrigeration industry. Its activities include:

- running a voluntary register of operatives qualified to supply, install, service, maintain and commission systems designed to contain F-Gas, and a joint badged ACRIB Skillcard scheme
- maintaining active membership of the European Partnership for Energy and the Environment
- working closely with SummitSkills on the development of national qualifications
- responding to issues such as system efficiency and safety, performance standards, food safety and safety at work
- advising UK Government on the implementation of regulations and legislation.

Further information is available from: www.acrib.org.uk

BRE Environmental Assessment Method (BREEAM)

BREEAM is an environmental assessment method for buildings. It sets a standard for best practice in sustainable design and is a measure commonly used to describe a building's environmental performance.

Further information is available from: www.breeam.org

Getting to Grips with Manual Handling – a short guide

This HSE booklet provides guidance on the health and safety problems that may be associated with manual handling and sets out the best practice in how to deal with them in line with the Manual Handling Operations Regulations. It covers general principles, which are relevant to all workplaces.

The booklet can be downloaded from: www.hse.gov.uk/pubns/indg143.pdf

Are you making the best use of lifting and handling aids?

This HSE booklet is relevant to managers, employees and anyone else who is involved in lifting and handling operations, including the selection of lifting and handling aids. It provides guidance on the selection of aids for different jobs and case study examples are provided.

The regulations can be downloaded from: www.hse.gov.uk/pubns/indg398.pdf

A short Guide to the Personal Protective Equipment at Work Regulations 1992

This booklet explains what employers and their staff need to do to meet the requirements of the Personal Protective Equipment at Work Regulations. It explains the appropriate personal protective equipment (PPE) to apply to a number of different hazardous circumstances, as well as the appropriate training and maintenance that staff responsible for the use of the PPE must undertake.

The regulations can be downloaded from: www.hse.gov.uk/pubns/indg174.pdf

The Safe Use of Gas Cylinders (HSE Guidance)

This guidance leaflet provides advice on reducing or eliminating the risks associated with the use of gas cylinders (or 'pressure receptacles'). Specifically this includes:

- training
- manufacture and initial examination
- periodic examination
- repair
- filling
- handling and use
- lifting
- transport
- storage.

The guidance also provides a summary of all legislation related to the use of gas cylinders.

This guidance can be downloaded from: www.hse.gov.uk/cdg/pdf/safusgc.pdf

Five Steps to Risk Assessment

This HSE leaflet provides guidance on carrying out risk assessments for health and safety in the workplace. It sets out a five-step procedure on how to assess risks:

Step 1: Identify the hazards

Step 2: Decide who might be harmed and how

Step 3: Evaluate the risks and decide on precautions

Step 4: Record your findings and implement them

Step 5: Review your assessment and update if necessary

The leaflet also provides a simple template for the completion of risk assessments.

The regulations can be downloaded from: www.legislation.gov.uk/uksi/2007/1573/contents/made

Managing Health and Safety in Construction

This guidance is provided by the HSE and is in-line with the Construction Design and Management (CDM) Regulations. It aims to assist the process of embedding health and safety considerations in construction projects through the provision of advice on planning, early identification of risks and targeting of effort to priority areas.

The guidance can be downloaded from: www.hse.gov.uk/pubns/books/l144.htm

Guidance on Temperature Control Legislation in the UK

This document provides guidance on the temperature control requirements set out in the following hygiene legislation:

- EC Regulation 852/20041
- The Food Hygiene Regulations 2006.

The guidance contains advice on the types of food that must be held under temperature control. It also advises on the allowed flexibility in the temperature control requirements.

This guidance can be downloaded from: www.food.gov.uk/multimedia/pdfs/tempcontrolguiduk.pdf

Defra/DECC greenhouse gas conversion factors for company reporting: Methodology paper for emission factor

Defra/DECC provides a wide range of emission factors to assist organisations in converting their activity data into a carbon dioxide equivalent. The methodology papers provide details about how these emission factors are calculated.

Further information can be obtained from:
www.defra.gov.uk/environment/business/reporting/conversion-factors.htm

The Carbon Trust Renewable Energy Sources Technology Overview (CTV010)

This guide introduces readers to the basics of renewable energy. It describes the site suitability, costs and payback periods of a range of renewable energy technologies including:

- wind
- solar
- biomass
- anaerobic digestion
- ground-source heat pumps
- air-source heat pumps
- small-scale hydroelectric power.

The guide can be downloaded from: www.carbontrust.co.uk/publications/pages/home.aspx

Refrigeration Road Map

This document was produced through the collaboration of the IOR, BRA and Carbon Trust. It sets out the carbon reduction technologies for retail refrigeration equipment that will be available in the short, medium and long term, and describes the carbon-saving potential of each one.

The guide can be downloaded from: www.carbontrust.co.uk/publications/pages/home.aspx

The Carbon Trust is a not-for-profit company with the mission to accelerate the move to a low carbon economy. We provide specialist support to business and the public sector to help cut carbon emissions, save energy and commercialise low carbon technologies. By stimulating low carbon action we contribute to key UK goals of lower carbon emissions, the development of low carbon businesses, increased energy security and associated jobs.

We help to cut carbon emissions now by:

- providing specialist advice and finance to help organisations cut carbon
- setting standards for carbon reduction.

We reduce potential future carbon emissions by:

- opening markets for low carbon technologies
- leading industry collaborations to commercialise technologies
- investing in early-stage low carbon companies.

www.carbontrust.co.uk

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ACT ON CO_2 is the Government's initiative to help individuals understand and reduce their carbon footprint. Visit actonco2.direct.gov.uk for more information.

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Making business sense of climate change