

Air Conditioning Inspections what's in it for you and your clients?

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Today's presentation aims to:

- Describe the proposed approach to air conditioning inspections, including proposed methodology and administrative arrangements.
- Address the question of who can undertake inspections and what qualifications, training and accreditation may be required for air conditioning assessors.



What's to do?



What's the issue?

- Article 9 of the Energy Performance in Buildings Directive requires inspections of air conditioning systems over 12kW rated output.
- the Energy Performance of Buildings (Certificates and Inspections) (England and Wales) Regulations 2007 (SI 991:2007 implement Articles 7 – 9 of the Directive (in England and Wales)



Requirement

Part 4 of the Regulations requires:

- regular inspection of air conditioning systems over 12kW
- must include an assessment of the capacity and efficiency of the system in relation to the load, together with recommendations for its possible replacement, improvement, or alternative solutions
- preparation of a report on the inspection



The Regulations (1)

Part 4, Regulations 20 – 24 apply

20 (1) This Part applies to a-c systems with an effective rated output of more than 12kW

20 (2) Where the relevant person has the power to control the temperature of more than one individual air-conditioning unit in a building, each unit shall be considered to be a component of a single air-conditioning system for the purposes of paragraph (1)



The Regulations (2)

(3) In this Part "effective rated output" means the maximum calorific output specified and guaranteed by the manufacturer of the system as being deliverable during continuous operation while complying with the useful efficiency indicated by the manufacturer.



The Regulations (3)

21. Inspections of air-conditioning systems

Systems must be inspected by the relevant date and then every 5 years:

systems installed after 1.1.2008 must be inspected within 5 years of installation

Existing systems over 250kW must be inspected by 4.1.2009

Existing systems over 12kW by 4.1.2011



The Regulations (4)

The inspection report must include an assessment of the air-conditioning efficiency and the sizing of the system compared to the cooling requirements of the building, and contain appropriate advice on possible improvements to the system, replacement of the system and alternative solutions.



The Regulations (5)

The inspection report must include the following information—

- (a) the address of the building in which the system is located;
- (b) the name of the energy assessor;
- (c) the name and address of the energy assessor's employer, or, if he is self-employed, the name under which he trades and his address;
- (d) the date on which the inspection occurred; and
- (e) the name of the approved accreditation scheme of which the energy assessor is a member.



Regulation 22 - outputs

- regular inspections
- systems of “effective rated output of more than 12kW”
- “assessment” of efficiency and sizing
- provision of advice
- provision of a report



When do we have do it?



Coming Into Force (non-domestic)

Dates	Duties
6 Apr 08	EPCs for: construction sale/rent of non-dwellings over 10,000m ² .
4 July 08	EPCs for construction sale/rent of non-dwellings over 2,500m ² .
1 Oct 08	EPCs for construction sale/rent of all other non-dwellings. DECs required for all buildings affected.
4 Jan 09	First inspection of all existing AC >250 kW must have occurred.
4 Jan 11	First inspection of all existing AC >12 kW must have occurred.



How do we do it?

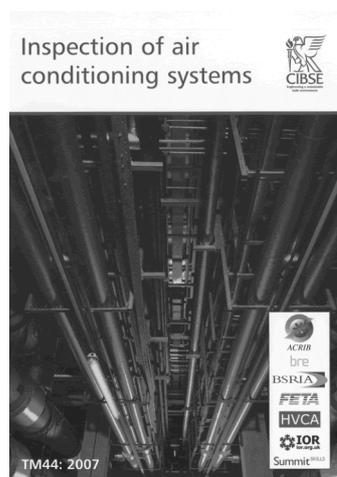


Background

- a joint working group led by CIBSE with ACRIB/IOB, BSRIA, FETA, HVCA and with support from DCLG has developed guidance on Article 9 implementation
- CIBSE TM 44 published in July
- Gives guidance on assessment methodology and reporting



Air conditioning inspections



- Methodology for inspections of AC systems >12kW
- gives guidance on assessment and reporting
- requires accredited inspectors



Air conditioning systems with over 12kW rated cooling output could comprise:

- Individual split systems
- Multi-split systems
- Centralised systems
- Distributed heat pump systems
- The rated cooling output of a system may exceed 12kW where a number of individual units of less than 12kW rated output have common control



Overall approach

- Simplicity of inspection, minimising costs and disturbance to operation
- While providing useful advice to owner / operator
- Simplest level to identify poor performers
- Minimise burden where systems are well maintained
- Non-invasive 'observation' basis
- Minimise risks and potential liabilities to inspector



Inspection methodology

- Two track approach
 - simple systems – simple inspections
 - complex systems – a more detailed inspection
- Broadly, systems with air distribution ductwork (rather than flexible pipes) will require the more detailed inspection



Process

three key stages in the inspection

- 1 off- site paperwork and energy data (if available)
- 2 on site examination
- 3 report and proposals for possible improvements



Documentation

- Plant and system descriptions & commissioning records
 - Plant types, sizes, locations
 - Factors such as Specific Fan Power
- Building log-book
- Relevant details from energy performance certification
- Energy / hours run records
 - Could help indicate control problems



Inspection – basic procedure

- Review documentation
- Compare maintenance with industry good practice
- Inspect system components
- Assess controls and settings
- Estimate cooling load
- Review potential for improvement or alternatives
- Report findings and advice



Who will do it?



Why do we need energy assessors?

To provide certificates and reports for:

- new (non domestic) buildings – on construction
- existing buildings – on sale or rent
- public buildings – annually for display
- air conditioning systems (>12kW)



Accreditation Schemes

To join an approved accreditation scheme Assessors must:

- show evidence of competence to join the scheme
- work to approved scheme rules
- follow working & QA procedures set out by the scheme and by CLG
- be subject to random audits
- have professional indemnity insurance

CLG seeking scheme applications – CIBSE will apply



Accreditation schemes

- There will be separate schemes, or subsets of schemes, for each aspect of assessment or inspection:

on construction

existing buildings on sale or rent

display certificates

air conditioning inspections



Accreditation schemes

- A “suitably qualified and/or accredited person acting in an independent manner”
- DCLG to decide on “independent manner”
- requires a specified methodology and an accreditation scheme with a QA/audit system
- CIBSE Certification Ltd has applied to run schemes
- Need to finalise qualification and training requirements with sector skills council(s) and scheme operators



Possible approach to quality and independence of inspectors

- **Methodology** - CIBSE TM
- **Qualification** – NVQ (to be developed)
- **Accreditation/QA** - Technical audit, possibly via membership of industry/trade body
- **Benefits** - Low cost, quick to establish, increased rigour, feedback and audit mechanisms
- **Drawbacks** - Limited number of membership bodies available



Wider issues (1)

Core data requirements prior to inspection

- Linkage to the Building Logbook in section 3 of the current ADL2
- Also links to Display assessments, which also require knowledge of what is in the building
- Assembling the core data should be seen as a separate task from preparing air conditioning inspection reports



Wider Issues (2)

- Making owners/occupiers aware of the legal requirement to inspect – how might they be made aware of the introduction of this duty?
- Gathering data on completed inspections – should there be a repository for reports?



Useful weblinks

The Energy Performance Regulations can be found at:-

<http://www.opsi.gov.uk/si/si2007/20070991.htm>

The Departmental Circular can be found at:-

<http://www.communities.gov.uk/publications/planningandbuilding/circularenergy>

The HIP Regulations can be found at:-

<http://www.opsi.gov.uk/si/si2007/20070992.htm>



Thank you for listening

Any questions?

