

Cool and legal

Nearly every commercial and industrial building has refrigeration plant. Some is well maintained, some not – until things go wrong. John Cherry updates plant engineers on their regulatory duties

Over the past two or three years, new legislation has been introduced covering cooling equipment, air conditioning plant, process cooling and heat pump systems involving mechanical refrigeration plant. The most recent came into effect in July this year and, throughout, the purpose has been to ensure that refrigeration plant is maintained, leak tested and assessed for energy efficiency on a regular basis.

However, there appears to be confusion concerning both the requirements for compliance and whose responsibility it is. Looking first at air conditioning inspections for buildings, legislation introduced in 2009 requires the user, owner or operator of the equipment to ensure inspection every five years. This applies only to comfort cooling or heat pump systems installed in buildings, with a nominal rated cooling duty totalling more than 12kW – whether one large plant or several small systems.

Exemptions include refrigeration plant for food processing or storage, and process cooling equipment for production plant or machinery. That said, a central cooling plant for both process and comfort cooling will require an inspection, as will a computer room. Systems rated at over 12kW and installed after 1 January 2008 must be inspected within five years of commissioning; plant from 12 to 250kW installed prior to that date should have been inspected before 4 January 2011; and systems over 250kW installed prior to 1 January 2008 should have been inspected before 4 January 2009.

An inspector calls

The inspection, which should be carried out by an approved and accredited inspector, must cover the equipment, as well as checking the conditioned space size, estimated system loads and the maintenance regime. Plant operators should expect a report, with recommendations for improvements, and this should be retained for future inspection and as proof that the inspection has been carried out.

Moving on, the F-Gas regulations are designed to control the use of environmentally damaging substances that may cause global warming. Hence their applicability to mechanical refrigeration systems, nearly all of which contain refrigerants with a GWP (global warming potential), while older refrigerants also have an ODP (ozone depletion potential). Exceptions include ammonia (R717) and water.

To comply, all users of mechanical refrigeration plant for any application have a statutory obligation

to ensure that it is free from refrigerant leaks and is periodically inspected by an F-Gas certified organisation. Leakage inspections are required at least once every 12 months for systems with a refrigerant charge of 3–30kg; every six months for 30–300kg; and systems having charges of more than 300kg require fixed leakage detection systems and a manual inspection every six months. Also, should a refrigerant leak be discovered and repaired during maintenance or a breakdown, the repair must be rechecked within one month.

The only exceptions are very small systems having a refrigerant charge of less than 3kg – or less than 6kg, if the system is hermetically sealed. That said, the owner/operator still has a duty of care and could face prosecution, if the system leaks and steps are not taken to repair it.

Furthermore, since July this year all refrigeration and air conditioning service firms have been required to register with DEFRA (Department for Environment, Food and Rural Affairs). Currently, nearly 50% remain unregistered, so are now trading illegally – and companies using their services face prosecution.

As for who is responsible for compliance and enforcement, in a small company the owners or directors have the burden of responsibility, but in a large company responsibility may have been delegated to maintenance engineers and plant or facilities managers. Either way, the statutory obligations and duty of care remain the responsibility of senior management. With fines from several hundred pounds to tens of thousands, you have been warned. **PE**

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All refrigeration systems are subject to regular examination

