Does your Air-Conditioning System require Refrigerant Leak Detection?

Air-conditioning in hotel bedrooms, offices and luxury residential properties is becoming increasingly popular with significant numbers of VRF systems being installed. In recent years the number of fan coil units connected to each condensing unit has increased and as a result so has the overall refrigerant system charge. Currently all the VRF systems installed use HFC type refrigerants and if the gas leaks into the atmosphere can be hazardous to health and detrimental to the environment.

Legislation

The potential hazards to health have been recognised in EN378:2008; which is a European wide standard which address the Safety and Environmental requirements for Refrigeration systems and heat pumps. All refrigeration, air conditioning and heat pump systems must comply with the guidelines specified in EN378:2008.

The environmental concerns regarding the leakage of HFC refrigerants are addressed within the European Union by the 'F' gas directive which has been mandatory since 2007 and was revised in April 2014. In the UK schemes such as BREEAM are also applied to many new buildings which encourages environmentally friendly design and construction practices.

When refrigerants are purchased the manufacturers provide Material Safety Data Sheets which include details of the substance together with any health and safety precautions. These MSDS or COSHH details will include personnel exposure limits for the specific refrigerant together with time limits which should be considered.

EN378:2008

One of the fundamental requirements of the standard when applied to VRF type air-conditioning systems states that if the refrigerant concentration can exceed the 'critical level' in a room when the complete charge is lost due to a leak, a fixed position refrigerant leak detector must be installed to warn the occupant. The detector must provide both audible and visual alarm indication in the occupied room and in hotels alert personnel at a permanently staffed location such as reception. A simple calculation can be undertake to determine whether a room requires refrigerant detection provided the following information is confirmed:-

Room volume (M^3)

Refrigerant type and overall system charge (kg)

The standard also includes recommendations associated with refrigerant detection in internal plant rooms where the compressor and associated equipment are located inside the building.

'F' Gas Directive

The requirements of the directive are extensive and focus on reducing the emissions of fluorinated gases into the atmosphere which contribute towards global warming. Until 31st December 2016 the primary focus of the directive is on systems with a system charge of over 3kg (or 6kg for hermetically sealed equipment). Within the legislation there are mandatory requirements for leak checking and for systems beyond a specific size fixed refrigerant leak detection is mandatory or can be installed to reduce the frequency of manual leak checking by 50%. Contact CPC (UK) or look on our website for further details of the implications of the recently revised regulations.

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CPC UK Bulletin

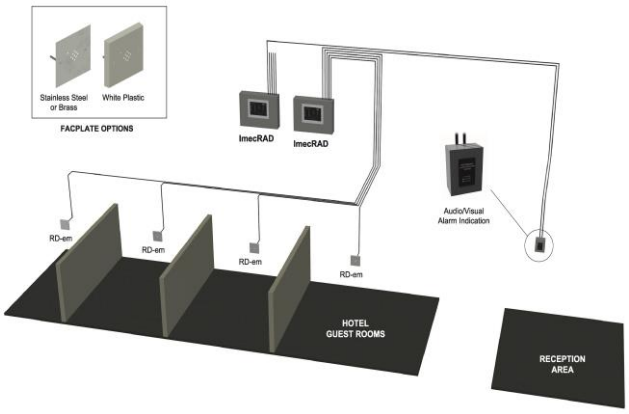
BREEAM

The scheme was developed by the Building Research Establishment (BRE) and encourages the design and construction of buildings with a low environmental impact. A straightforward scoring system is employed to assess the benefits of a range of initiatives which include refrigerant leak detection for air conditioning systems which employ HFC refrigerants with additional credits for an automated pump down.

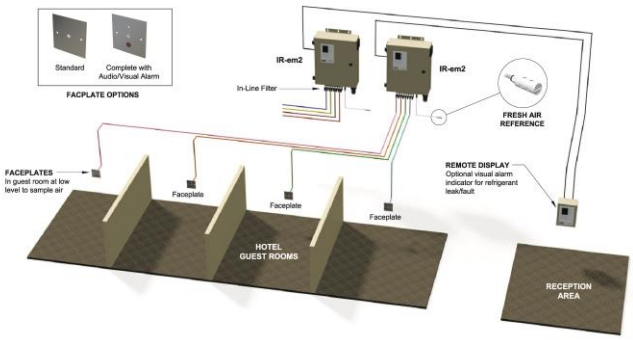
Can we assist?

CPC (UK) have been supplying refrigerant leak detection systems since 1992 and with over 20+ years of experience would welcome the opportunity to discuss your application. We have recently released a new range of equipment specifically focused on the air-conditioning sector which demonstrates a number of stylish designed products which are in obtrusive and compliment room decoration.

The RD-em product range provides a simple standalone room detector with integral sensor and audible visual alarm/status indication. The IR-em2 is the heart of an alternative aspirated refrigerant detection system which samples air from potentially contaminated rooms and will alert the necessary individuals. Both products employ different technologies and identifying which is best suited to your application can be determined by contacting one of our team.



RD-em based Refrigerant Leak detection system for Hotel/multi-room application. RD-em can also be sold as a standalone device



IR-em2 based Refrigerant Leak Detection system for Hotel/multi-room application. RD-em can also be sold as a standalone multi room system

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