

# Industry Standard Update 049



## Title: IGEM/UP/19 – Design and application of interlock devices and associated systems used with gas appliance installations in commercial catering establishments

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***This Industry Standard Update provides an overview of this newly published Industry Standard – IGEM/UP/19 - Design and application of interlock devices and associated systems used with gas appliance installations in commercial catering establishments***

### Introduction

Following an HSE decision to revise Catering Information Sheet 23 (CAIS23)<sup>(1)</sup> such that it would be aimed solely at the catering industry (Revision 2 - published July 2013), there became a need to issue guidance to gas businesses and their engineers, regarding ventilation, extract and the use of interlocks for commercial catering installations. During 2012, in conjunction with IGEM, Gas Safe Register issued Technical Bulletin 140<sup>(2)</sup> *Guidance on ventilation and extract requirements for commercial catering installations*. This Technical Bulletin was revised and re-issued during June 2014. During October 2014, IGEM published IGEM/UP/19<sup>(3)</sup> - *Design and application of interlock devices and associated systems used with gas appliance installations in commercial catering establishments*.

Following publication of IGEM/UP/19, Gas Safe Register TB 140<sup>(2)</sup> was withdrawn. TB 093<sup>(4)</sup> - *An overview of the revised Catering Information Sheet No. 23 – Gas safety in catering and hospitality*, had also previously been withdrawn.

The requirements of this new standard come into effect immediately.

To allow registered businesses time to carry out internal up-date training to reflect the technical requirements of the amended Standard, Gas Safe Register will inspect to the new requirements of this Standard from **1 February 2015**. However, this should not restrict businesses from applying the specification sooner.

The following is an overview of the general requirements of IGEM/UP/19<sup>(3)</sup>.

### Section 1 - Introduction.

This section defines that the standard is aimed at clarifying the options and requirements for new and existing catering installations, large and small, primarily covered by BS 6173<sup>(5)</sup>, but also includes installations covered by BS 6172. It defines the purpose of ventilation, extract systems and the requirement for interlock devices in commercial catering establishments. The standard recognises that in some existing and very small installations, engineering judgement may be needed to determine a cost effective option, whilst ensuring the safety of persons.

### Section 2 - Scope

This section defines types of appliance/installations that the standard applies to. It describes the design, specification and application of various air flow and air quality interlock devices that can be used in association with gas appliance installations, in both new and refurbished commercial catering establishments.

**Note 1:** *Catering establishments will normally fall within the definition of a 'Food Business' in The Food Safety (General Food Hygiene) Regulations.*

It also details the requirements for air quality testing of new and existing commercial catering establishments. It does not apply to mobile catering installations, or transportable temporary event catering installations.

Whereas the requirements are not retrospective, it provides guidance on dealing with existing installations, but these are qualified by way of risk assessment, where installations may require improving to achieve adequate safety levels.

This standard applies to installations operating with a maximum operating pressure (MOP) below 100mbar. Gases include heavier and lighter than air flammable gases such as Towns (manufactured) gas, NG, LPG, LPG/air and biogases.

### **Section 3 - Legal and allied considerations**

This section provided details of both primary and secondary legislation that apply to commercial catering, particularly The Food Safety (General Food Hygiene) Regulations.

These Regulations apply to the proprietor of a food business for food safety or wholesomeness, and covers the nature of the food, the manner in which it is handled and packed, any process to which the food is subjected before supply to the consumer, and the conditions under which it is displayed or stored.

"Food business" means any undertaking, whether carried on for profit or not and whether public or private, carrying out any or all of the following operations, namely, preparation, processing, manufacturing, packaging, storing, transportation, distribution, handling or offering for sale or supply, of food.

### **Section 4 - Design and Construction of Equipment used within Interlock Systems**

This section provides guidance on the selection of suitable equipment for interlock systems. It provides descriptions and the essential design requirements of the various different types of interlock systems that can be employed. It provides information on air flow, air pressure and power monitoring types of interlock devices. It introduces information on carbon dioxide (CO<sub>2</sub>) monitoring devices, which may be used in conjunction with other air quality sensors, such as temperature or humidity to provide information to be included in an interlock system. It recognises that CO<sub>2</sub> monitoring may also be used as part of a ventilation demand system.

It makes it clear that where Type B (flued) appliances are required to be installed with a canopy extract system, there is a legal requirement, under the Gas safety (Installation and Use) Regulations<sup>(6)</sup> to prevent the operation of these appliance(s) if the draft fails. This is achieved by the installation of a suitable interlock device which will monitor the draft, using either, air flow, air pressure, or fan power monitoring. However, for Type A (flueless) appliances alone, it provides for an alternative environmental air quality monitoring type of interlock, which utilises CO<sub>2</sub> sensor technology. It follows therefore, that CO<sub>2</sub> monitoring can also be used as additional means of protection, so as to ensure that air quality is safely maintained within any installation.

Type B appliances must be interlocked using either, air flow, air pressure, or fan power monitoring and if required, Type A appliances could be separately protected using a CO<sub>2</sub> monitoring type of interlock.

In installations where CO<sub>2</sub> monitoring is to be employed, this section provides details of the requirements of the trigger levels of CO<sub>2</sub> that will cause an alarm to operate and higher levels that must cause the interlock to shut off the gas supply to the controlled appliances.

### **Section 5 - Ventilation and Interlocks**

This section provides guidance on the various acceptable methods of interlock that can be employed and how they can be set up to interlock with the gas supply. It recognises that different types of establishments will require different solutions.

It provides guidance on adequate ventilation arrangements for both Type B appliances, where mechanical ventilation systems are required to be employed and also for Type A appliances. It

provides additional guidance for installations that include a combination of both appliance types. It also details the mandatory requirement for interlock arrangements for Type B appliances.

It introduces the concept of carbon dioxide (CO<sub>2</sub>) monitoring, for use with Type A appliances. It provides guidance on the use of CO<sub>2</sub> monitoring systems where they can be used as an additional interlock, where Type B appliances are installed, as a method of determining that combustion products are being adequately removed, and hence ensuring a safe working environment.

This standard recognises domestic sized catering installations and provides guidance on ensuring they can continue to be used safely.

This section makes it clear that manual overrides of interlock systems must not be fitted to new installations and that existing systems, found fitted with manual over-rides should be risk assessed in accordance with the flowchart included as Figure 4 of the standard and categorised in accordance with the current Gas Industry Unsafe Situations Procedure (GIUSP)<sup>(7)</sup>.

This section includes information on existing systems and gives advice on how an existing systems may be risk assessed, so that, were necessary, improvements can be made to make them safe.

It recognises that it may be inappropriate to require an interlock system where a domestic type of installation that is used infrequently and only for short periods, however, it requires that safe systems of work are in place and recommends suitable signage, identifying the ventilation procedures that should be adopted while using the equipment. It details the minimum requirements that must be applied to such installations.

### **Section 6 - Installation, Commissioning and Air Quality Testing**

This section provides guidance on the installation of appliances using the manufacturer's instructions and the appropriate ventilation standards to be complied. It also details the requirement for air quality testing.

This section sets out the requirements for environmental testing and the test equipment to be used and details how the effectiveness of the ventilation provision can be assessed. It provides details in Figures 2a & b, on typical locations for the conducting of environmental testing and also the typical locations for the installation of CO<sub>2</sub> detectors. This section also includes two flowcharts (Figure 3 & 4) providing risk assessment protocols when dealing with both new and existing gas fired commercial catering installation, to assist in correctly identifying unsafe situations and classifying them in accordance with the Gas Industry Unsafe Situation Procedure (GIUSP)<sup>(7)</sup>.

It provides guidance on the minimum period that should be considered for allowing levels of concentrations of CO<sub>2</sub> to settle during environmental testing and the trigger levels of CO<sub>2</sub> that should be used to assess the safety of new and existing installation during commissioning testing and also the actions that should be taken if the trigger levels are exceeded.

### **Section 7 - User Instructions**

This Section details the requirement for ensuring the equipment user instructions are provided to the responsible person and that instruction and training of the users, in the use of interlock systems and the necessary responses required to alarm conditions.

### **Section 8 - Maintenance and inspection**

This section provides details on the legal framework regarding the maintenance and inspection for gas appliances, flues, pipework and safety devices.

### **Section 9 - Records**

This section details the requirement for record keeping for all work undertaken on the gas and ventilation systems.

### **Appendix 3 - Example of a typical basic Mechanical Ventilation System for a Catering Establishment**

The title of this section is self explanatory.

## Appendix 4 - Examples of Typical Interlock Arrangements

The title of this section is self explanatory.

## Appendix 5 - Measurement of Air Flow in a dust System

This section provides guidance on determining the flow of air in ventilation ducts by both measurement and calculation.

## Appendix 6 - Supporting Questions and Advice for Sample Testing of Commercial Installations

The title of this section is self explanatory.

## Summary

As previously stated, this Industry Standards Update is only a brief overview of the information contained in this new Standard. Registered businesses should be aware that they have a responsibility to ensure that they are fully apprised of all of the requirements of the whole published Standard and their practical application.

## Access to Industry Standards from Gas Safe Register

This Standard is included in the list of current Industry Standards available on a subscription basis to the majority of Gas Safe registered business. To subscribe, registered businesses should log into their online account (<https://www.gassaferegister.co.uk/sign-in/>) using their user 'ID' and password and then click on 'Standards Subscriptions'; After choosing the subscription type required, (either one year or three years) and once the subscription is paid for, the business and it's engineers will be able to access the normative documents via Gas Safe Register website.

## Bibliography

- (1) CAIS 23 (Revision 2 - July 2013) – HSE Catering information sheet 23 - Gas safety in catering and hospitality
- (2) TB 140 - Guidance on ventilation and extract requirements for commercial catering installations – Withdrawn
- (3) IGEM/UP/19 – Design and application of interlock devices and associated systems used with gas appliance installations in commercial catering establishments (Communication 1773).
- (4) TB 093 - An overview of the revised Catering Information Sheet No 23 – Gas safety in catering and hospitality – Withdrawn
- (5) BS 6173 : 2009 - Specification for installation and maintenance of gas-fired catering appliances for use in all types of catering establishments (2nd and 3rd family gases)
- (6) Gas Safety (Installation and Use) Regulations 1998 (1998 - SI 1998 No. 2451 England, Scotland & Wales and 2004 - SI 2004 No. 63 in Northern Ireland.)
- (7) TB 001 – The Gas Industry Unsafe Situations Procedure (GIUSP).

**Note:** Gas Safe Register Technical Bulletins and the Legislative, Normative & Informative Document List can be viewed at: <https://www.gassaferegister.co.uk/sign-in/> - login and visit the Technical Information area.

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