

Storage of the gas cylinders outside the building significantly reduces the risk. However, the piping is also subject to potential leaks at junctions, particularly in the case of manifold systems. When these are located within a cellar or other room, adequate ventilation or gas monitoring will be necessary.

A SAFE SYSTEM OF WORK

The publican must devise and implement a safe system of work. This is a controlled and considered way of doing work which eliminates or reduces the risk to health and safety as far as practicable. It sets out the manner in which the work is to be done and the precautions to be taken. The precautions required will depend on the conclusions derived from the risk assessment.

A safe system of work will normally include the following elements:

- 1 Deliveries should be arranged to keep gas cylinder numbers in the cellar at a minimum.
- 2 The gas dispense area should be kept tidy and all cylinders securely tied.
- 3 In the event of a significant leak of dispense gas, either adequate and reliable ventilation should be available to refresh the atmosphere or a gas-monitoring system with warning alarm should be installed.
- 4 Access to confined spaces should be restricted to designated personnel. Personnel who operate the dispense gas system, should be suitably trained to follow the gas supplier's instructions (including emergency procedure).
- 5 The publican should ensure that supplier-warning signs are erected in a suitable location and that these signs are maintained.
- 6 The publican should make designated personnel aware of the specific risks associated with dispense gas (asphyxiation etc.).
- 7 An annual inspection of the dispense gas system should be carried out by a competent contractor.

8 Associated safety equipment, such as ventilation fans or a gas-monitoring system, should be inspected and maintained in accordance with manufacturer's instructions.

9 The publican should carry out a weekly visual inspection of the dispense gas pipe-work and manifold system to detect leaks.

10 Emergency arrangements should be in place, including a system of raising the alarm and effecting evacuation. Relevant personnel should be trained in these procedures.

RESPONSIBILITIES OF DISPENSE GAS SUPPLIER (GAS INSTALLER)

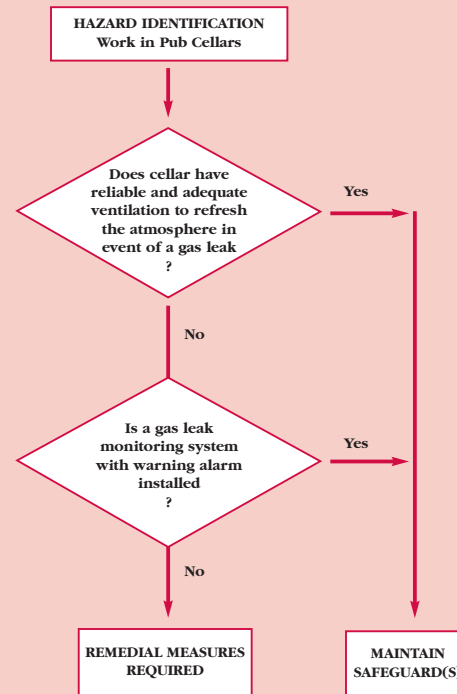
Where it is evident to the dispense gas installer/supplier that a serious or unacceptable risk would arise in the event of a gas system leak, this should be brought to the attention of the publican/client. The degree of risk will depend on the quantity of gas that could leak and the degree of ventilation provided in the cellar. The gas supplier has a duty to ensure that his/her employees and/or persons under his/her control are not knowingly put at risk in a cellar.

The following is a useful publication which gives guidance on the installation, operation and maintenance of dispense gas systems:

Code of Practice for Dispense of Beer Systems in Licensed Premises, 1994, issued by the Brewers and Licensed Retailers Association (now the British Beer and Pub Association)

RELEVANT LEGISLATION

- 1 Safety, Health and Welfare at Work Act, 1989
- 2 Safety, Health and Welfare at Work (General Application) Regulations, 1993
- 3 Safety, Health and Welfare at Work (Confined Spaces) Regulations, 2001 and supporting Code of Practice "Safe Work in Confined Spaces"



© This document is published by the Health and Safety Authority. No part of this publication may be stored or reproduced without prior permission. E&OE. ISBN 1-84496-013-7

GUIDELINES FOR SAFE WORKING IN CELLARS OF PUBS AND OTHER LICENSED PREMISES



BACKGROUND

The practice of using pressurised gas, carbon dioxide or nitrogen, for the purpose of dispensing drinks, is long established in public houses and licensed premises. The equipment involved, often described as a dispense gas installation, includes pressurised gas cylinders (or “bottles”) of varying sizes together with pipework and associated control and mixing equipment. The gas composition (usually mixtures of carbon dioxide and nitrogen) varies depending on the application.

Wherever gases such as these are used in a confined environment, the risk of a serious accident involving asphyxiation is known to exist. The location of the dispense gas installation is less than ideal in many pubs. Where the gas bottles or associated pipework are located in a poorly ventilated pub cellar, especially one located below street level in the traditional style of construction, there is a real risk of a tragic accident occurring in the event of a dispense gas leak.

For the purposes of this guide, a cellar is anywhere in a pub that has the potential to accumulate dangerous levels of gas, should a leak of dispense gas occur. Subterranean cellars are the main focus but pub storage rooms or cold rooms are also at risk. If these spaces are poorly ventilated and contain dispense gas bottles or associated piping, they are likely to fulfil the definition and characteristics of a confined space, as defined by the Safety, Health and Welfare at Work (Confined Spaces) Regulations 2001. These locations are, therefore, subject to the Regulations and publicans have a duty to adequately address the risks involved.

This guide provides advice on how to manage the risk of a person collapsing due to asphyxiation caused by a dangerous concentration of gas while entering or working in a pub cellar. This guide also refers to other hazards associated with work in pub cellars. These other hazards should be addressed systematically in line with good health and safety management practice using the risk assessment technique.

Under the general health and safety legislative framework, the publican is responsible for the health and safety of persons working in or entering the cellar area insofar as the activity, workplace and equipment is under the publican’s control.

For pubs with cellars, this means that the publican has a legal duty to:

- 1 Perform a formal risk assessment for the cellar area to identify potential hazards. A competent person should carry out this risk assessment. A competent person is someone with sufficient experience of, and familiarity with, the cellar and its operation so that he or she understands the risks involved and can devise the necessary precautions and emergency arrangements to ensure safety and health. The purpose of this risk assessment is to identify the relevant hazards and formulate a safe system of work. This risk assessment should be periodically reviewed and repeated if there is a significant change made to the cellar area (structural, operational or procedural).
- 2 Implement precautionary measures to eliminate or reduce as far as practicable the identified risks (i.e. put in place a safe system of work).
- 3 Communicate findings of the risk assessment to staff and provide training on the relevant safety practices. Employees should be consulted on all matters to do with their workplace safety.
- 4 Incorporate findings of risk assessment in safety statement. Every public house, being a place of work, will have a safety statement. The safety statement is a practical tool for managing health and safety. Employees should be fully conversant with all aspects of the safety statement which apply to themselves.
- 5 Prepare for an emergency. For foreseeable incidents where emergency action will be required, there is a need to develop appropriate emergency arrangements in terms of planning, information and training.

THE HAZARDS OF PUB CELLARS

The first step in ensuring safety and health is to identify all the hazards to persons entering and working in the cellar. The following is a brief overview of the most commonly occurring hazards associated with pub cellars. It is not intended to be an exhaustive list. A formal risk assessment for each individual cellar is still required to identify any additional or unique hazards. The items listed here may serve as a basic checklist:

A. CONFINED SPACE HAZARDS

Toxic Atmosphere/Oxygen Deficiency

Dispense gas in the form of nitrogen and/or carbon dioxide if released in sufficient quantities can contaminate the atmosphere leading to headaches and dizziness. In sufficient concentration, it can result in oxygen displacement and subsequent deficiency of oxygen. This can cause impaired judgement, unconsciousness and death. The gases involved can be heavier or slightly lighter than air, depending on their composition and temperature.

Asphyxiation can occur rapidly, not giving an entrant sufficient time to evacuate. Evacuation is more difficult if it entails climbing stairs from a basement cellar.

Dangerous concentrations are more likely to arise:

- in confined locations where there is poor ventilation
- when a large gas leak occurs
- when a relatively small leak continues over a long period of time and remains undispersed.

B. OTHER HAZARDS

Other possible hazards include the following:

- Impacts from falling kegs, gas bottles, etc.
- Manual handling
- Slips/Trips/Falls
- Excessive cold (in case of cold room)
- Infection due to the presence of rats (Weils Disease)
- Cleaning agents, broken glass, etc.

ASSESSMENT OF RISKS

An assessment of the risks is a careful weighing up of whether enough precautions have been taken or more should be done to prevent the identified hazards causing injury or harm. The risk assessment must evaluate the hazards to all personnel entering or working in the cellar, including employees, self-employed workers, contractors, visitors, etc. Each identified hazard should be addressed with the objective of putting in place suitable and adequate protective measures.

This guide provides advice on assessing risks in relation to the dispense gas hazard only.

The risk relating to a potential dispense gas leak in a pub cellar will depend largely on the quantity of gas that can

leak, the cellar design/location and the available level of ventilation. Even a small dispense gas cylinder can produce a potentially dangerous atmosphere if fully discharged and dispersed in a typical reasonable-sized air-tight cellar.

It is essential that, if a significant leak of dispense gas can occur, either adequate ventilation is available to refresh the atmosphere or a gas monitoring system with warning alarm is installed.

Ventilation in a cellar may be natural (passive) or forced (mechanical). Natural ventilation or natural draught is produced by local differences in air pressure (wind) or temperature. It is facilitated by the presence of openings at high and low level in the building. The openings may be in the form of vents or grills. These usually create an upward flow of air or “stack” effect. If the openings are on opposite sides of the building, good cross-flow ventilation is achievable. The greater the area of the openings, the better will be the ventilation. Natural ventilation is not usually an effective option for a subterranean cellar.

Forced or mechanical ventilation makes use of fans to extract air from a building or to supply fresh air from the outside. A combination of well-positioned extract and supply fans can ensure good and effective ventilation throughout a room or building. It is important that the mechanical ventilation system should operate reliably and that persons entering the cellar are warned (by alarm signal or otherwise) if the system is not functioning. To ensure a safe atmosphere for any person entering, the ventilation system should operate continuously. All new pub cellars should be designed and constructed to incorporate effective natural or forced ventilation.

Where the provision of adequate and reliable ventilation to safely disperse a gas leak is not reasonably practicable, the use of a gas-monitoring and alarm system to detect and provide a warning of an unsafe atmosphere will be necessary. The gas-monitoring instrument should provide an audible or visual alarm on detection of an unsafe atmosphere (high level of carbon dioxide or low level of oxygen). The system should be designed to warn the cellar user of the danger before he/she enters the danger area. It should operate continuously. The atmosphere should be tested on a representative basis, taking into account the geometry of the cellar. This equipment should be maintained in good working order and calibrated as appropriate by a competent person.