

RC16A
First published 1980
Version 05

Risk Control

Recommendations for fish and chip frying ranges



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➤ CONTENTS

Scope	3
Synopsis	3
Definitions	3
Introduction	3
Recommendations	3
1. Compliance with fire safety legislation	3
2. Business continuity	4
3. Fire safety management	4
4. Siting and location	4
5. Equipment	4
6. Extractor systems	5
7. Operations	6
8. Maintenance	6
9. Fire protection	7
10. Checklist	8
Good practice when handling hot oil or fat	6
References	14
Further reading	14

➤ SCOPE

These recommendations provide fire safety advice regarding the installation, management, operation and maintenance of commercial fish and chip frying ranges in premises that are open to the public. Guidance regarding other forms of catering equipment, including general purpose deep fat fryers, is set out in RC16B: **Recommendations for fire safety in commercial kitchens** (ref. 1).

These recommendations are not applicable to the use of small, domestic style table top fryers or to vehicle-based fish frying outlets. Industrial frying, including the cooking of fish and chips in specially designed 'cells' in factories is also outside the scope of this document.

Throughout this guidance, the terms 'fat' and 'oil' are used interchangeably to indicate the frying medium.

These recommendations apply to ranges fuelled by mains gas, LPG and electricity. Several paragraphs are also relevant to the few coal fired frying ranges that are still in operation.

➤ SYNOPSIS

These recommendations provide practical guidance regarding the fire safety management of commercial deep fat frying ranges of the style that are used for the preparation of fish and chips. The advice applies to electric, gas and LPG powered equipment.

Emphasis is given to the need for a specific fire risk assessment of the extract ventilation system, the training of staff and the provision of an automatic fire suppression system.

➤ DEFINITIONS

Duct:

A circular or rectangular metal enclosure which connects the extract canopy, hood or grille with the outside of the building.

Fat:

A mixture of combustible organic compounds, containing about 50% saturated fat, that is solid or soft at room temperatures, and often originating from animal origins.

Hood:

A metal box containing filters, intended to collect contaminated air from above a cooking appliance.

Oil:

A combustible organic substance, generally of vegetable origins, that contains about 10% saturated fat and is liquid at room temperatures.

Type F:

A class of fire extinguisher containing a wet chemical agent that is designed to fight fires in cooking appliances involving cooking fats and oils.

➤ INTRODUCTION

Fish and chips has long been recognised as one of the UK's favourite meals. Although the meal is no longer being served wrapped in newspaper, the method of cooking, by immersion of the food in hot fat or oil, together with the associated fire hazards, remains unchanged.

Frying normally takes place in small premises dedicated to this task and it is to these traditional fish and chip shops that these recommendations apply.

Fish and chip frying ranges present a high fire hazard to both life and property as a result of the large volumes of hot fat used in the process. Where old ranges – manufactured before 1975 – are still in use, they may be particularly at risk as they were supplied without a thermostat. Some ranges are also in use that are not fitted with filters.

There are only small differences between the maximum safe cooking temperature of cooking fat or oil (about 205°C), the temperature at which flammable vapours are given off (about 230°C) and that at which spontaneous ignition occurs (between 310°C and 360°C). The fire-related properties of fats change during use; one indication of this is the darkening of the colour resulting from oxidation. Monitoring the discoloration can be carried out using proprietary charts, available from the manufacturers or suppliers of the product. In practice, if the fat is heated to too hot a temperature or is not changed sufficiently often it can impair the quality and flavour of the cooking.

Other causes of fire include the spillage or overfilling of fat when changing or replenishing supplies, especially when the appliance is hot. If deposits of grease are allowed to accumulate in fume extract ducting, the introduction of an ignition source may cause the deposits to ignite and the resulting flames could spread rapidly throughout the complete ducting system. The fire may rapidly spread to other parts of the building and the resulting damage to the ductwork and the structure of the premises could be serious enough to necessitate lengthy and costly remedial work resulting in considerable interruption to business operations.

Cooking oil and fat fires develop rapidly and produce considerable quantities of heat and smoke. In confined cooking areas this makes firefighting using hand appliances difficult and dangerous, even if the operators have suitable types of extinguishers and have received appropriate training and instruction in their use.

Since the withdrawal of BS 6350: 1983: **Specification for gas heated fish and chip frying ranges**, there is no British Standard regulating the design and construction of commercial scale deep fat fryers, nevertheless, in the absence of a standard, it cannot be over emphasised that thorough cleaning and regular servicing of all equipment is essential.

These recommendations should be read in conjunction with RC44: **Recommendations for fire risk assessment of catering extract ventilation** (ref. 2), which are not reproduced in this publication.

➤ RECOMMENDATIONS

1. Compliance with fire safety legislation

1.1 A suitable and sufficient fire risk assessment should be undertaken for all premises to which the **Regulatory Reform (Fire Safety) Order 2005** (or equivalent legislation in Scotland and Northern Ireland) (refs. 3-6) applies. The assessment should include the cooking process and areas occupied by members of the public and staff.

1.2 The risk assessment should also consider the potential for an arson attack from sources within or outside the business. Where necessary, suitable preventive or protective actions should be identified and implemented to protect both the main premises together with any outbuildings, such as timber sheds used to store potatoes and oil.

1.3 As part of the fire risk assessments undertaken to comply with fire safety legislation, a specific assessment of the extract ventilation should be undertaken based on the guidance provided in RC44 (ref. 2).

1.4 Where LPG cylinders or hazardous substances are stored, an assessment will also need to be undertaken in accordance with the **Dangerous Substances and Explosive Atmospheres Regulations 2002** (DSEAR) (ref. 7).

2. Business continuity

Even a small fire can have a disproportionate effect on a business if it occurs in a critical area. Deep fat frying is a hazardous process and must be carefully managed to ensure the efficient functioning of the business.

2.1 All businesses should take steps to ensure the continued smooth running of their business by making a suitable emergency plan. Guidance for this is set out in **Business resilience: A guide to protecting your business and its people** (ref. 8). The emergency plan should address the implications of a fire, flood or other perceived disaster on all facets of the business model. It should indicate the lines of communication that should be followed and the contact details for specialist assistance, providers of alternative accommodation and suppliers of equipment, such as deep fat frying ranges.

2.2 Consideration may be given to applying commercially available computer programmes, such as the **ROBUST** software (**Resilient Business Software Toolkit**) that is available free of charge (ref. 9), or other appropriate product, to develop and check the adequacy of the plan.

3. Fire safety management

3.1 Cooking appliances should be installed, operated and serviced in accordance with the manufacturer's instructions.

3.2 Operators should be thoroughly instructed as to the hazards associated with deep fat frying, the correct use of the ranges and the emergency procedures.

3.3 Cooking equipment should not be left unattended whilst the heat source is operating.

3.4 The installation, servicing and user's instructions should be kept safely for future reference, together with service records.

3.5 A notice showing the action to be taken in the event of fire should be prominently displayed in the cooking area. In particular, the notice should indicate the location of the emergency isolators and require the prompt shut-down of the heat supply and extraction system.

3.6 To prevent a fire occurring as a result of spontaneous heating, any wipes that have been used to mop up spillages of cooking oil should be stored in a metal container with a metal lid.

3.7 Waste oil that is being recycled should be stored in a closed metal (or heat-resistant plastic) container sited outside and away from the building.

4. Siting and location

4.1 Fish and chip frying ranges should be installed in compartments separated from other parts of the building by a structure providing at least 30-minutes' fire resistance. The areas should have non-combustible walls, floors and ceilings, and doorsets leading to other parts of the premises should also provide at least 30-minutes' fire resistance. Doors should be fitted with self-closing mechanisms.

4.2 Any gaps around services entering or leaving the cooking compartment should be filled with suitable material so as to provide at least the same level of fire resistance as the element of construction in which it is located.

4.3 Where necessary, any combustible surfaces should be replaced, overlaid or lined with non-combustible material to provide a Class 0 surface as defined in BS 476-7: **Fire tests on building materials and structures. Method of test to determine the classification of the surface spread of flame of products** (ref. 10) or Euro Class B in BS EN 13501-1: **Fire classification of construction products and building elements. Classification using test data from reaction to fire tests** (ref. 11) before installation of the frying equipment.

4.4 An adequate area should be provided in the immediate vicinity of the equipment to allow for the safe evacuation of staff in the event of fire. This area should be kept clear of obstructions.

4.5 Suitable means of access and clearance should be maintained around the range for cleaning and maintenance purposes.

4.6 Adequate space should be provided to allow easy access to the connections to both the gas and electrical supplies.

4.7 Suitable measures should be taken to deny access to the oil pans and controls of the equipment by unauthorised staff and members of the public.

4.8 The range should not be sited immediately beneath water pipes because of the danger from leaking water. Even a small volume of water coming into contact with hot oil can result in an intense flare and rapidly spreading fire. Similarly, sprinklers should not be installed where discharge may come into contact with hot cooking oil.

5. Equipment

5.1 As the normal temperature for frying fish and chips is in the range 170°C to 180°C, ranges should be equipped with cooking thermostats set to prevent the temperature of the fat rising above 205°C, or the manufacturer's maximum recommended temperature if this is less than 205°C. The possibility, in some designs, of the temperature overshooting the set point should not be ignored.

5.2 Ranges should additionally be equipped with a separate high temperature limit control, of a non-self-resetting type, to shut off the energy source should the temperature of the fat exceed 230°C. This high temperature limit device shall not operate the same gas supply valve as any automatic temperature control.

5.3 While it is possible to retro-fit thermostats to existing frying ranges, the manufacturers of the equipment should be consulted if this is contemplated. This is because retro-fitting requires considerable expertise if the thermostats are to operate effectively.

5.4 Gas heated ranges should be equipped with a flame failure device to cut off the fuel supply in the event of flame failure.

5.5 Gas frying ranges should also be equipped with devices that prevent gas being supplied to the main burner when the extract system is not in operation. Similarly, the controls of electrically heated ranges should be interlocked so that it is only possible to switch the heating elements on when the extraction system is operating to remove flammable vapours.

5.6 All ranges should be equipped with lids or shutters above the cooking pans capable of immediate and safe closure in the event of fire.

5.7 Where it may be difficult to approach the range if a fire were to occur, a long-handled hook or other device should be provided to enable the lid to be closed from a safe distance. All cooking staff should be instructed in the use of any hook or similar tool provided for this purpose.

5.8 The connection of the equipment to the power or gas supply should be carried out either by the manufacturer or by a contractor who, in the case of electrical equipment, is on the roll of the National Inspection Council for Electrical Installation Contracting (NICEIC) or a member of the Electrical Contractors' Association (ECA) (or, in Scotland, the Scottish Electrical Contractors' Association SECA). In the case of gas equipment the installer should be suitably qualified Gas Safe registered engineer.

5.9 All electrical equipment should be installed in accordance with the current edition of BS 7671: **Requirements for electrical installations. IET Wiring Regulations** (ref. 12).

5.10 Where heating is by liquefied petroleum gas, the recommendations relating to the use of liquefied petroleum gas (ref. 13) should be complied with.

5.11 Fuel piping and electrical equipment should be sited so that they are not susceptible to the effects of heat, water vapour and grease.

5.12 Means should be provided for the remote emergency shutdown of power, fuel supply and the extraction system to all cooking equipment. This emergency shutdown device should be clearly labelled, easily accessible and safely located. The emergency shutdown device may be linked to the automatic fire detection and alarm installation so as to shut off the source of heat automatically in the event of the fire alarm actuating.

5.13 Specialist advice should be sought if consideration is being given to installing a second hand gas frying range.

6. Extraction system

6.1 All ranges should have mechanical ventilation for the extraction of heat and fumes and, in the case of fryers heated by gas, for the extraction of combustion products. In the latter case, it is important that the heat and fume extraction ducting is separate from the ducting that extracts combustion products from the burners.

In addition, in the case of gas fuelled ranges, the gas supply should be interlocked to ensure that the gas supply is shut down in the event of failure of the extraction system.

6.2 Extract ducting should be as short as practicable and the design should comply with any local byelaws. The duct should preferably pass directly to the open and should not pass through, or be contained within, floor or ceiling voids, or roof spaces where exposed combustible materials are present.

6.3 Ducts should not pass through fire break walls.

6.4 Discharges to the open should be arranged in such a manner that grease will not be deposited on the building or adjoining premises.

6.5 Ducts, canopies, extract plenum and hoods should be constructed of (and supported by) galvanised or stainless steel of a substantial gauge, having all seams and joints liquid-tight, with smooth surfaces to facilitate cleaning. Spiral ducting is only suitable for the extraction of combustion products and not for the extraction of fat fumes and steam as its construction can allow fat to leak from the joints that run its entire length. Ducts should not be constructed from aluminium because of the low melting point of this material.

6.6 Ducts should have a clearance of at least 150mm from combustible material, including combustible partitions and floors and, where necessary, should be protected with a non-combustible insulating material. Where ducts pass through any combustible material, it should be cut away for a distance of at least 150mm from the duct and the space filled with non-combustible insulation.

6.7 Ductwork should be routed so that it cannot be touched by staff or customers. Where concealed, ducts should be encased in non-combustible material having at least 30-minutes' fire resistance.

6.8 Brick chimneys or flues should not be used to conduct grease fumes away from ranges unless they are lined with an impervious, non-combustible material.

6.9 The whole of the ducting (including lined chimneys or flues) should be accessible for cleaning. Bends or dips, which might collect residues, should be eliminated as far as possible. At each major change in direction an opening with a grease-tight cover should be provided to allow for inspection and cleaning.

6.10 Filters, traps or other forms of grease removal devices should be provided. These should include a residue trap at the base of any vertical riser or incorporated into the extract unit. They should not be sited where they may be liable to direct flame impingement or hot flue gases.

6.11 Traps, sumps or other grease-removal devices should be provided as close to the range as possible and should also be installed in a readily accessible position to facilitate cleaning. They should not, however, be nearer than 500mm to the heat source for the range unless suitably protected, for example by a steel baffle plate.

6.12 Sufficient air circulation should be provided around air-cooled motors powering fans used for extraction.

7. Operation

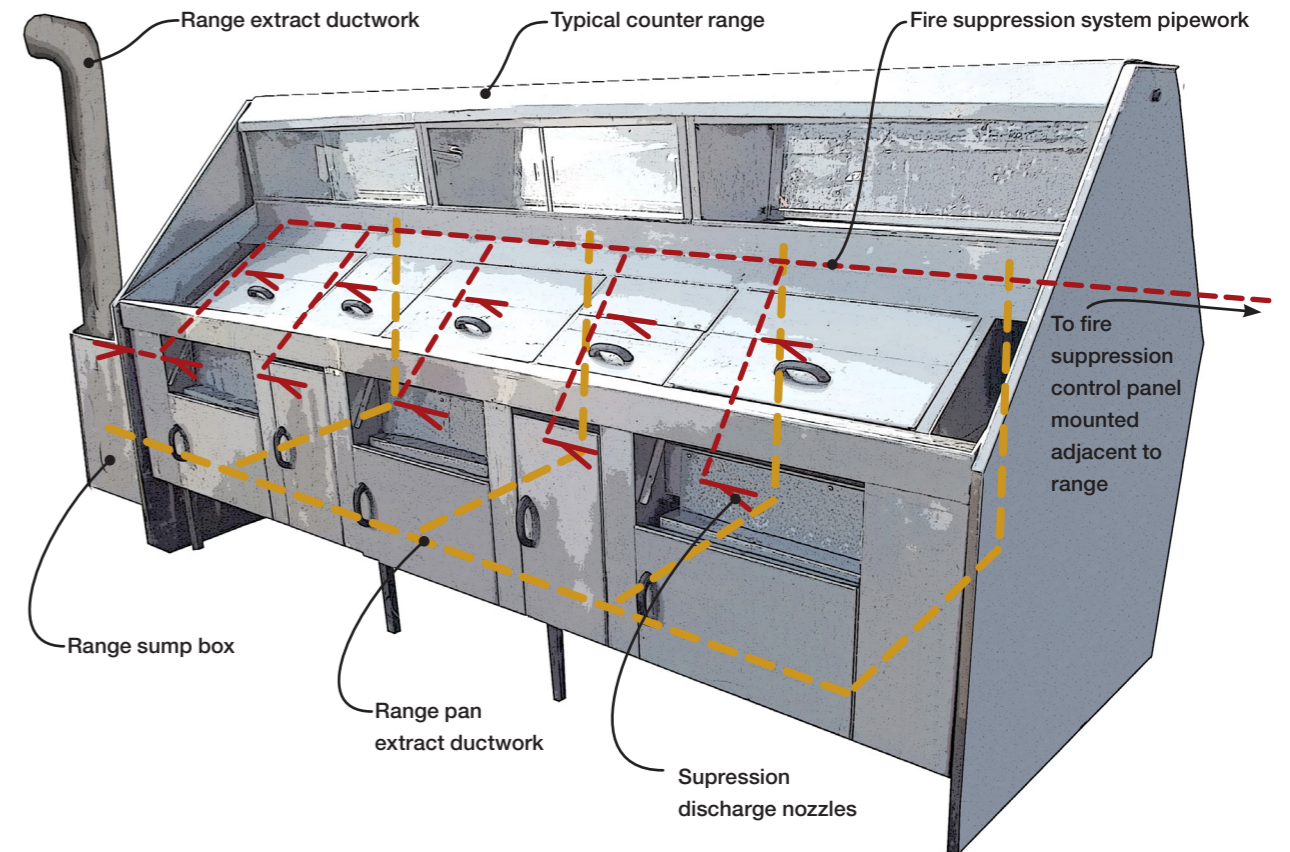
- 7.1 Before use, a check should be made to ensure that the surface of the cooking oil in the pans to be used is between the minimum and maximum levels marked for safe operation.
- 7.2 In the case of gas-heated ranges the extractor fan should be switched on and be allowed to run at least two minutes before lighting up.
- 7.3 Extractor fans should be run at all times during frying and for 20 minutes after frying is finished, to cool down the range.
- 7.4 In addition to turning the burner or heater controls off, the main gas cock or electricity supply should be isolated at the mains after each frying session. In the case of LPG-heated ranges, the gas should be turned off at the gas cylinder(s), which should be located outside the building.
- 7.5 'Cracklings' should be placed in closed metal containers and removed from the premises at the close of business each day. Operators should be aware that spontaneous combustion of cracklings can occur.

8. Maintenance

- 8.1 Electrical power to the range should be isolated before commencing cleaning or maintenance operations.

- 8.2 Oil should be filtered daily. Grease traps should be emptied and filters cleaned and maintained or replaced at frequent intervals in accordance with best practice. Further details are set out in RC44: **Recommendations for fire risk assessment of catering extract ventilation** (ref. 2).
- 8.3 Appliances should be serviced at least annually by suitably qualified personnel in accordance with the manufacturer's instructions. This service should include inspection of the pans to ensure that there are no cracks developing that could lead to the leakage of oil (especially onto the burners), testing the normal method of temperature control, checking ducts and burners, and cleaning if necessary. All fuel and power connections and controls should be checked.
- 8.4 The extract ductwork should be inspected and cleaned at periods as determined by a risk assessment. Further details are set out in RC44: **Recommendations for fire risk assessment of catering extract ventilation** (ref. 2) and the Building and Engineering Services Association Guide TR/19 (ref. 14).
- 8.5 Flues and grease traps should always be cleaned following servicing or cleaning of the burners. This is because the increased heat output following servicing or cleaning of the burners can result in ignition of fat condensate in the flues.

Figure 1: Frying range fitted with a fire suppression system



Good practice when handling hot oil or fat

Where hot oil or fat is in use, a major fire hazard is present. Care must be taken to ensure that splashes of oil or fat do not interfere with the correct operation of electrical appliances and spillages may significantly affect the fire performance of work surfaces or elements of the structure with which they may come into contact.

The following safety measures should be observed:

- check that the oil is between the minimum and maximum oil level marks, do not overfill the pans;
- break up dripping or fat into small lumps prior to use;
- do not top up heated pans with oil from large containers;
- do not leave the fryer unattended while in use;
- do not introduce water, ice or wet food into the hot oil;
- do not overload the cooking basket;
- do not let the basket drop into the oil;
- clean up spills from the floor immediately;
- take care when shaking food in the basket;
- allow oil to cool before draining; the removal of oil should always be undertaken when it has cooled sufficiently so as to be handled safely; and
- turn off the fryer and allow the oil to cool before cleaning; clean the equipment in accordance with the manufacturer's instructions.

When discarding hot oil, the container in which used oil is to be stored should be:

- made of metal or heat resistant plastic (normal plastic will melt);
- clean and dry, to prevent the risk of explosion and injury;
- fitted with a lid when filled or partially filled, to prevent entry of moisture or leakage if knocked over; and
- in good condition, with no holes or leaking joints.

Gas Safety

If there is a smell of gas on the premises:

- evacuate members of the public from the premises;
- shut down frying and other gas fuelled appliances promptly and safely;
- turn the gas supply off at the main stopcock;
- put out all naked flames;
- open doors and windows to ventilate the building;
- evacuate all members of staff;
- in the case of a leak of mains gas call the 24-hour National Gas Emergency Number: 0800 111999;
- do not search for gas leaks with naked flames;
- do not smoke where there is a smell of gas; and
- do not operate electric switches.

If the leak is from the supply pipes the service provider will advise regarding their repair; if it is from the appliance the service agent or a Gas Safe registered engineer will have to be called.

In the case of a gas cylinder that continues to leak after the valve has been shut the supplier should be contacted for advice.

9. Fire protection

- 9.1 It is recommended that a suitable fixed fire suppression system should be provided, with both manual and automatic operation, covering the frying ranges and ducting system. The operation of the fixed system should automatically shut down the heat supply and extraction system. Such a system should be designed, installed and maintained by a competent engineer.
- 9.2 A suitable number of appropriate portable fire extinguishers should be available and immediately accessible in the case of a fire. Such portable extinguishers should be approved and certified by an independent, third party certification body and be installed in accordance with BS 5306-8: **Fire extinguishing installations and equipment on premises. Selection and installation of portable fire extinguishers. Code of practice** (ref. 15) and inspected and maintained in compliance with BS 5306-3: **Fire extinguishing installations and equipment on premises. Commissioning and maintenance of portable fire extinguishers. Code of practice** (ref. 16).
- 9.3 A minimum of two of these extinguishers should be provided in the cooking area and be of Type F as defined in BS EN 3-7: **Portable fire extinguishers. Characteristics, performance requirements and test methods** (ref. 17), each with a fire rating of numerical value equal to the volume of the oil in the largest pan (for example a pan containing 25 litres of oil should be protected by two extinguishers each having a rating of not less than 25F).
- 9.4 An outbreak of fire involving burning gas should not be extinguished until such time as the gas supply has been shut off. All heat sources should be isolated before tackling a fire.
- 9.5 Operators should be made familiar with the location of the main isolator or shut off valves and the operation and correct method of use of portable fire extinguishing appliances and any fixed fire extinguishing system. They should also be instructed in the actions to take in the event of a fire or an escape of burning gas.

10. Checklist

		Yes	No	N/A	Action required	Due date	Sign on completion
10.1	Compliance with fire safety legislation (section 1)						
10.1.1	Has a suitable and sufficient fire risk assessment been undertaken for all premises to which the Regulatory Reform (Fire Safety) Order 2005 (or equivalent legislation in Scotland and Northern Ireland) applies, to include the cooking process and areas occupied by members of the public and staff? (1.1)						
10.1.2	Does the risk assessment also consider the potential for an arson attack from sources within or outside the business? (1.2)						
10.1.3	As part of the fire risk assessments undertaken to comply with fire safety legislation, has a specific assessment of the extract ventilation been undertaken based on the guidance provided in RC44? (1.3)						
10.1.4	Where LPG cylinders or hazardous substances are stored, has an assessment will been undertaken in accordance with the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR)? (1.4)						
10.2	Business continuity (section 2)						
10.2.1	Has a suitable emergency plan been drafted to ensure the continued smooth running of the business following the guidance set out in Business Resilience: A Guide to protecting Your Business and its People? (2.1)						
10.2.2	Does the emergency plan address the implications of a fire, flood or other perceived disaster on all facets of the business model, and include the lines of communication that should be followed and the contact details for specialist assistance, providers of alternative accommodation and suppliers of equipment, such as deep fat frying ranges? (2.1)						
10.2.3	Has consideration been given to applying commercially available computer programmes, such as the ROBUST software (Resilient Business Software Toolkit), or other appropriate product, to develop and check the adequacy of the plan? (2.2)						
10.3	Fire safety management (section 3)						
10.3.1	Are cooking appliances installed, operated and serviced in accordance with the manufacturer's instructions? (3.1)						
10.3.2	Are operators thoroughly instructed as to the hazards associated with deep fat frying, the correct use of the ranges and the emergency procedures? (3.2)						
10.3.3	Have measures been taken to ensure that the heating process is not left unattended while the heat source is operating? (3.3)						

		Yes	No	N/A	Action required	Due date	Sign on completion
10.3.4	Are the installation, servicing and user's instructions kept safely for future reference, together with service records? (3.4)						
10.3.5	Is a notice showing the action to be taken in the event of fire prominently displayed in the cooking area, and does it indicate the location of the emergency isolators and require the prompt shut-down of the heat supply and extraction system? (3.5)						
10.3.6	To prevent a fire occurring as a result of spontaneous heating, are wipes that have been used to mop up spillages of cooking oil stored in a metal container with a metal lid? (3.6)						
10.3.7	Is waste oil that is being retained for recycling stored in a closed metal or heat resistant plastic container sited outside and away from the building? (3.7)						
10.4	Siting and location (section 4)						
10.4.1	Are fish and chip frying ranges installed in compartments separated from other parts of the building by a structure providing at least 30-minutes' fire resistance, with non-combustible walls, floors and ceiling? (4.1)						
10.4.2	Do doorsets leading to other parts of the premises also provide at least 30-minutes' fire resistance, with the doors being fitted with self-closing mechanisms? (4.1)						
10.4.3	Are any gaps around services entering or leaving the cooking compartment filled with suitable material so as to provide at least the same level of fire resistance as the element of construction in which it is located? (4.2)						
10.4.4	Have any combustible surfaces been replaced, overlaid or lined with non-combustible material to provide a Class 0 surface as defined in BS 476-7 or Euro Class B in BS EN 13501-1 before installation of the frying equipment? (4.3)						
10.4.5	Has an adequate area, kept clear of obstructions, been provided in the immediate vicinity of the equipment to allow for the safe evacuation of staff in the event of fire? (4.4)						
10.4.6	Are suitable means of access and clearance maintained around the range for cleaning and maintenance purposes? (4.5)						
10.4.7	Has adequate space been provided to allow easy access to the connections to both the gas and electrical supplies? (4.6)						

		Yes	No	N/A	Action required	Due date	Sign on completion
10.4.8	Have suitable measures been taken to deny access to the oil pans and controls of the equipment by unauthorised staff and members of the public? (4.7)						
10.4.9	Are water supply pipes and sprinkler range pipes routed so that they do not pass directly above the frying range(s)? (4.8)						
10.5	Equipment (section 5)						
10.5.1	Are ranges equipped with cooking thermostats set to prevent the temperature of the fat rising above 205°C, or the manufacturer's maximum recommended temperature if this is less than 205°C? (5.1)						
10.5.2	Are ranges equipped with a separate high temperature limit control, of a non-self-resetting type, to shut off the energy source should the temperature of the fat exceed 230°C? (5.2)						
10.5.3	Will the manufacturers of the equipment be consulted if consideration is being given to retro-fitting thermostats to existing frying ranges? (5.3)						
10.5.4	Are gas heated ranges equipped with a flame failure device to cut off the fuel supply in the event of flame failure? (5.4)						
10.5.5	Are gas frying ranges equipped with devices that prevent gas being supplied to the main burner when the extract system is not in operation? (Similarly, in the case of an electric range, are the controls interlocked so that it is only possible to switch the heating elements on when the extraction system is operating to remove flammable vapours?) (5.5)						
10.5.6	Are all ranges equipped with lids or shutters above the cooking pans capable of immediate and safe closure in the event of fire? (5.6)						
10.5.7	Where it may be difficult to approach the range if a fire were to occur, is a long-handled hook or other device provided to enable the lid to be closed from a safe distance? (5.7)						
10.5.8	Has the connection of the equipment to the power or gas supply been carried out either by the manufacturer or by a contractor who, in the case of electrical equipment, is on the roll of the National Inspection Council for Electrical Installation Contracting (NICEIC) or a member of the Electrical Contractors' Association (ECA) (or, in Scotland the Scottish Electrical Contractors' Association SECA)? (5.8).						
10.5.9	Has all electrical equipment been installed in accordance with the current edition of BS 7671 (the IET Wiring Regulations)? (5.9)						
10.5.10	Where heating is by liquefied petroleum gas, have the recommendations relating to the use of liquefied petroleum gas been complied with? (5.10)						

		Yes	No	N/A	Action required	Due date	Sign on completion
10.5.11	Is fuel piping and electrical equipment sited so that they are not susceptible to the effects of heat, water vapour and grease? (5.11)						
10.5.12	Are means provided for the remote emergency shutdown of power, fuel supply and the extraction system to all cooking equipment? (5.12)						
10.5.13	If consideration is being given to installing a second hand gas frying range has specialist advice been sought? (5.13)						
10.6	Extraction system (section 6)						
10.6.1	Do all ranges have mechanical ventilation for the extraction of heat and fumes and, in the case of fryers heated by gas, for the extraction of combustion products? (In the latter case, is the heat and fume extraction ducting separate from the ducting that extracts combustion products from the burners?) (6.1)						
10.6.2	In the case of gas fuelled ranges, is the gas supply interlocked to ensure that the gas supply is shut down in the event of failure of the extraction system? (6.1)						
10.6.3	Is the extract ducting as short as practicable with the design complying with any local byelaws? (6.2)						
10.6.4	Does the duct pass directly to the open and not pass through, or be contained within, floor or ceiling voids, or roof spaces where exposed combustible materials are present? (6.2)						
10.6.5	Are ducts routed so that they do not pass through fire break walls? (6.3)						
10.6.6	Are discharges to the open arranged in such a manner that grease will not be deposited on the building or adjoining premises? (6.4)						
10.6.7	Are ducts, canopies, extract plenum and hoods constructed of (and supported by) galvanised or stainless steel of a substantial gauge, having all seams and joints liquid-tight, with smooth surfaces to facilitate cleaning? (6.5)						
10.6.8	Do ducts have a clearance of at least 150mm from combustible material, including combustible partitions and floors and, where necessary, and are they protected with a non-combustible insulating material? (6.6)						
10.6.9	Where ducts pass through any combustible material, is it cut away for a distance of at least 150mm from the duct and the space filled with non-combustible insulation? (6.6)						
10.6.10	Is ductwork routed so that it cannot be touched by staff or customer? (6.7)						
10.6.11	Where concealed, are ducts encased in non-combustible material having at least 30-minutes' fire resistance? (6.7)						

	Yes	No	N/A	Action required	Due date	Sign on completion
10.6.12				Are any brick chimneys or flues used to conduct grease fumes away from ranges lined with an impervious, non-combustible material? (6.8)		
10.6.13				Is the whole of the ducting (including lined chimneys or flues) accessible for cleaning, with a grease-tight cover provided to allow for inspection and cleaning at each major change in direction? (6.9)		
10.6.14				Are filters, traps or other forms of grease removal devices provided? (6.10)		
10.6.15				Are traps, sumps or other grease-removal devices provided as close to the range as possible and be installed in a readily accessible position to facilitate cleaning? (6.11)		
10.6.16				Is sufficient air circulation provided around air-cooled motors powering fans used for extraction? (6.12)		
10.7	Operation (section 7)					
10.7.1				Before use, is a check made to ensure that the surface of the cooking oil in the pans to be used is between the minimum and maximum levels marked for safe operation? (7.1)		
10.7.2				In the case of gas-heated ranges is the extractor fan switched on and allowed to run for at least 2 minutes before lighting up? (7.2)		
10.7.3				Are extractor fans run at all times during frying and for 20 minutes after frying is finished, to cool down the range? (7.3)		
10.7.4				In addition to turning the burner or heater controls off, is the main gas cock or electricity supply isolated at the mains after each frying session? (In the case of LPG-heated ranges is the gas turned off at the gas cylinder(s), which are located outside the building)? (7.4)		
10.7.5				Are 'cracklings' placed in closed metal containers and removed from the premises at the close of business each day? (7.5)		
10.8	Maintenance (section 8)					
10.8.1				Is electrical power to the range isolated before commencing cleaning or maintenance operations? (8.1)		
10.8.2				Is the oil filtered daily, with the grease traps being emptied and filters cleaned and maintained or replaced at frequent intervals in accordance with best practice? (8.2)		
10.8.3				Are the internal surfaces of the ducting and the extraction motor cleaned, preferably by a specialist contractor, at intervals in accordance with a risk assessment but not exceeding every 12 months? (8.2)		

	Yes	No	N/A	Action required	Due date	Sign on completion
10.8.4				Are appliances serviced at least annually by suitably qualified personnel in accordance with the manufacturer's instructions? (8.3)		
10.8.5				Is the extract ductwork inspected and cleaned at periods as determined by a risk assessment? (8.4)		
10.8.6				Are flues and grease traps always cleaned following servicing or cleaning of the burners? (8.5).		
10.9	Fire protection (section 9)					
10.9.1				Has a suitable fixed fire suppression system been provided, with both manual and automatic operation, covering the frying ranges and ducting system? (9.1)		
10.9.2				Are a suitable number of appropriate portable fire extinguishers available and immediately accessible in the case of a fire? (9.2)		
10.9.3				Are there a minimum of two fire extinguishers provided in the cooking area and are these of Type F as defined in BS EN 3-7, each with a fire rating of numerical value equal to the volume of the oil in the largest pan? (9.3)		
10.9.4				Are all employees aware that an outbreak of fire involving burning gas should not be extinguished until such time as the gas supply has been shut off and all heat sources have been isolated? (9.4)		
10.9.5				Are operators made familiar with the location of the main isolator or shut off valves and the operation and correct method of use of portable fire extinguishers and any fixed fire extinguishing system, in addition to the actions to take in the event of a fire or an escape of burning gas? (9.5)		

➤ REFERENCES

1. RC16B: **Recommendations for fire safety in commercial kitchens**, 2012, Fire Protection Association.
2. RC44: **Recommendations for fire risk assessment of catering extract ventilation**, 2006, Fire Protection Association.
3. Regulatory Reform (Fire Safety) Order 2005, SI 2005 No 1541, The Stationery Office.
4. The Fire (Scotland) Act 2005, asp 5, The Stationery Office.
5. Fire Safety (Scotland) Regulations 2006, Scottish SI 2006 No 456, The Stationery Office.
6. Fire and Rescue Services (Northern Ireland) Order 2006, SI 2006 No 1254 (NI9), The Stationery Office.
7. Dangerous Substances and Explosive Atmospheres Regulations (DSEAR), 2002, SI 2002 No 2776, The Stationery Office.
8. **Business resilience: A guide to protecting your business and its people**, 2005, Fire Protection Association.
9. **ROBUST** software (**Resilient Business Software Toolkit**) may be found at <https://robust.riscauthority.co.uk>
10. BS 476-7: 1997: **Fire tests on building materials and structures: Method of test to determine the classification of the surface spread of flame of products**. British Standards Institution.
11. BS EN 13501-1: 2007 + A1: 2009: **Fire classification of construction products and building elements using test data from reaction to fire tests**, British Standards Institution.
12. BS 7671: 2008: **Requirements for electrical installations: IET Wiring Regulations, 17th edition, incorporating amendment No1: 2011**, British Standards Institution.
13. **Code of Practice 24: Part 4. Use of LPG cylinders: The use of LPG for catering and outdoor functions**, March 1999, UKLPG.
14. TR/19: 2002: **HVCA Guide to good practice internal cleanliness of ventilation systems**, Building and Engineering Services Association.
15. BS 5306-8: 2000: **Fire extinguishing installations and equipment on premises: Selection and installation of portable fire extinguishers. Code of practice**. British Standards Institution.
16. BS 5306-3: 2009: **Fire extinguishing installations and equipment on premises: Commissioning and maintenance of portable fire extinguishers. Code of practice**. British Standards Institution.
17. BS EN 3-7: 2004 + A1: 2007: **Portable fire extinguishers. Characteristics, performance requirements and test methods**. British Standards Institution.

➤ FURTHER READING

- Gas Appliances (Safety) Regulations, SI 1995 No 1629, The Stationery Office.
- Gas Safety (Installation and Use) Regulations, SI 1998 No 2451, The Stationery Office.

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Printed by: XXXXXXXXXXXXXXXXXXXX 0.6/01.13