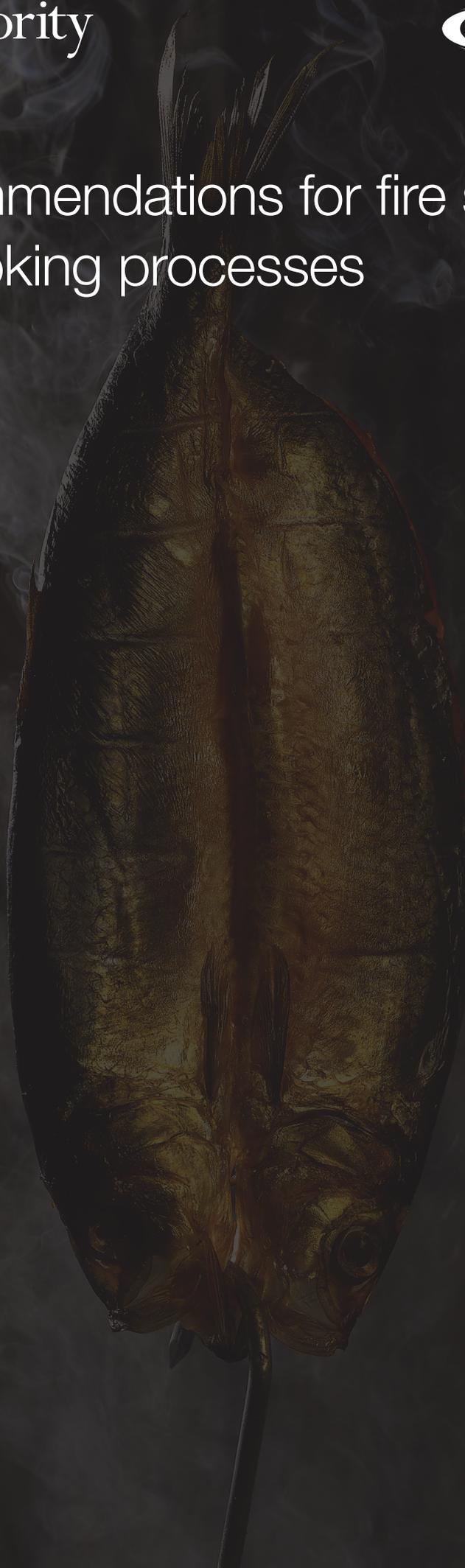


RC60: Recommendations for fire safety with food smoking processes



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Contents

1.	Introduction	3
2.	Scope	3
3.	Synopsis	3
4.	Definitions	4
5.	Recommendations	4
5.1	Compliance with fire safety legislation	4
5.2	Business continuity	4
5.3	Fire safety management (general)	5
5.4	Fire safety with food smoking equipment	6
5.5	Traditional smoking kilns	8
5.6	Fire protection	8
6.	Checklist	10
7.	References	14

Summary of Key Points

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Comply with the law	<ul style="list-style-type: none">Where significant quantities of fuel pellets are stored there is a danger of carbon monoxide being produced and thus an assessment should be undertaken by a competent person in accordance with the Dangerous Substances and Explosive Atmospheres Regulations 2002 (as amended in 2015).
Ensure the continued well being of your business	<ul style="list-style-type: none">Fire hazards and the threats to the business are increased where food smoking processes have to continue during the night or over weekends when few or no staff may be present. The implications of this should be addressed when equipment is being specified and when the fire risk assessment is undertaken. Appropriate measures include those set out in RC42: <i>Fire safety of unattended processes</i>.
Fire safety management	<ul style="list-style-type: none">Stocks of combustible packaging materials in the food processing area should be kept to a minimum.All staff who work in an area where smoke is produced as part of a process should be carefully trained in the use of the smoking equipment.Smoking equipment should be located in a fire compartment with a fire rating as agreed with the insurers of the property.Wood chips, sawdust and similar fuels for smoke generators should be stored outside the building with only sufficient material in the factory for the current work period.All ductwork, including exhaust flues, should be constructed of galvanized or stainless steel and fittings should be external to the duct to prevent introducing a grease trap within the duct.
Traditional smoking kilns	<ul style="list-style-type: none">Where a smoking room is built as part of factory premises, it should be located on an external wall and open directly to the outside. Walls and structural elements between the smoking room and other parts of the premises should provide a fire rating as agreed with the insurer.
Fire protection	<ul style="list-style-type: none">The production area should be protected by an automatic fire detection and alarm system designed to take into account the possible presence of smoke from the smoke chamber when the food is removed at the end of the process.High temperature alarms should be provided in the ductwork, exhaust flues, smoke generator and smoke chamber.Because of the nature of the process, an automatic fire suppression system (steam, sprinkler or water mist) designed and installed to a recognised standard or code of practice should be provided in the ductwork, exhaust flue, smoke generator and smoke box in consultation with the insurers.

Symbols used in this guide



Good practice



Bad practice



Discussion topic



Frequently asked question

1 Introduction

Smoking is the process of flavouring, cooking, or preserving food by exposing it to the smoke from burning or smouldering plant materials, most often wood. Meats and fish are the most commonly smoked foods, though cheeses, vegetables, and ingredients used to make beverages such as beer, smoked beer, and lapsang souchong tea are also smoked.

The smoke is produced by heating wood pellets, chips, saw dust or similar materials by electrical or gas ignition. Smoke may also be produced by heating the fuel by friction or superheated steam (at about 300°C) using appropriate proprietary ignition systems.

There are three forms of smoking. Cold smoking involves hanging the food in smoke at a temperature of 20°C to 30°C. At this temperature a flavour is imparted to the food, but it is not cooked during this process. Hot smoking is generally carried out between 50°C and 80°C, when the food is both flavoured and fully cooked. A third process, smoke roasting, is carried out at higher temperatures and is akin to barbecuing.

Modern factories may automate the whole food production process by linking smoking equipment to cooking, cooling and freezing operations. In other processes, control of the temperature and the humidity of the smoke filled atmosphere is used to initiate fermentation of, for example, sausages and raw ham products.

The relatively low temperatures of the smoking process, even in hot smoking, in the smoke box may induce a sense of complacency with regard to fire safety. However, with thermal degradation of wood chip and other materials taking place at temperatures of between 230°C and 400°C, the risk of fire is very real.

Historically, farms often included a small building called a smokehouse, where meats could be smoked and stored. This was generally well-separated from other buildings both because of the fire danger and because of the smoke emissions. However, developments in Scotland in the middle of the 20th century resulted in the introduction of small food smoking kilns that could be sited within existing buildings. These kilns allowed for precise control of smoking parameters like air temperature, flow and humidity and thus allowed uniform mass-smoking.

Refinements in technique introduced motor-driven fans instead of natural convection, electric heaters, temperature sensors, air-diffusers and photo-electric sensors for smoke density control. The process is therefore now much more complex to allow for a consistent quality of product. The new technology has, however, resulted in the introduction of more fire hazards into the workplace.

FAQ

- How hot is the smoking process – does it also cook the food?



- Food smoking processes introduce smoke into the workplace without there being a fire. What implications does this have for staff training and the planned actions that should be taken in the event of an emergency?

2 Scope

These recommendations set out fire safety measures that should be addressed when carrying out smoking of food products in a commercial environment. They are applicable, in the most part, to batch processes carried out within modern food production facilities but advice is also provided for traditional outdoor smoking kilns. The document does not address food safety issues when using the processes.

3 Synopsis

These recommendations provide advice regarding the smoking of food both in a modern factory environment and with traditional kilns.

Advice is given regarding good management of a process that involves the generation of smoke within the workplace and the precautions that should be taken to minimise the frequency of false and unwanted fire alarm actuations associated with the procedures.

Smoke box

The area in which the food is exposed to smoke that is produced in the smoke generator.

Smoke generator

The area of the equipment in which smoke is produced from sawdust, wood chips or a similar material.

Smoke stripper

A cold water spray that is often situated between the smoke generator and the smoke box and used to wash out undesirable materials from the smoke.

5.1 Compliance with fire safety legislation

- 5.1.1 In premises to which the Regulatory Reform (Fire Safety) Order 2005 (or equivalent legislation in Scotland and Northern Ireland) (refs 1, 2, 3, 4 and 5) apply, a fire risk assessment should be carried out and recorded. The assessment should be reviewed whenever there is a significant change in the process, the food being smoked or the area in which the equipment is housed.
- 5.1.2 All fire risk assessments should consider the possibility of deliberate fire setting, which is of particular importance where the premises are not occupied 24 hours a day.
- 5.1.3 Where significant quantities of pellets are stored there is a danger of carbon monoxide being produced and thus an assessment should be undertaken in accordance with the Dangerous Substances and Explosive Atmospheres Regulations 2002 (as amended in 2015), (DSEAR) (ref 6). In common with the fire risk assessment, this should be undertaken by a competent person.

5.2 Business continuity

- 5.2.1 In the food industry the fire hazards and thus the threats to the business are increased by the need for some processes, such as the smoking of food, to continue during the night or over weekends when few or no staff may be present. It is therefore paramount that careful consideration be given to all fire safety implications when the equipment is being specified and the fire risk assessment is undertaken. Further advice is set out in RISC Authority RC42: *Fire safety of unattended processes* (ref 7).
- 5.2.2 All organisations 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 and other perceived disasters 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 alternative sources of smoking equipment or smoked food.
- 5.2.3 When complete, the emergency plan should be rehearsed by means of a tabletop exercise, with the results being assessed and amendments made to the plan as necessary.
- 5.2.4 Consideration may be given to applying commercially available computer programmes, such as the ROBUST software (Resilient Business Software Toolkit) that is available to download from the internet (ref 9), or other appropriate product, to develop and check the adequacy of the plan.



- The ductwork, smoke generator and smoke box should be protected by a suitable automatic fire suppression system.



- Staff controlling and operating the smoking process should receive fire safety instruction specific to the equipment that they are using.

5.3 Fire safety management (general)

- 5.3.1 In all large premises, close liaison should be established with the fire and rescue service from the initial planning stage. The service may wish to visit the site to establish the location and extent of water supplies available in the locality. They will also need to be provided with details of automatic fire sprinkler systems and any other automatic fire suppression installations that have been provided in the factory.
- 5.3.2 The benefits of a comprehensive fire safety management regime coupled with appropriate fire safety procedures and adequate staff training that is observed and embraced by all staff cannot be over-emphasised.
- 5.3.3 Stocks of combustible packaging materials in the food processing area should be kept to a minimum. Bulk supplies should not be kept outside; they should be stored in a separate building or in a separate fire compartment within the factory.
- 5.3.4 All combustible waste removed from the premises should be contained in secure, enclosed metal skips or bins with a compactor being used where necessary. Where the use of open-topped skips is necessary, they should be located not less than 10m clear of the buildings and any external storage. Further advice is set out in an FPA publication *Fire safety and waste materials* (ref 10).
- 5.3.5 Where smoking is to continue unattended or in an area where few staff may visit, the advice set out in RISCAuthority RC42: *Fire safety in unattended processes* (ref 7) should be observed. These measures include:
- provision of dedicated power supplies and isolation systems for the smoking equipment;
 - suitable fire detection and warning installations in case of fire;
 - provision of appropriate portable firefighting equipment;
 - installation of an appropriate fixed fire suppression system;
 - development of an emergency action plan to protect life and property and ensure the continuing functioning of the business in case of fire; and
 - staff training in the safe operation of the smoking process and the actions to take in the event of fire, including the safe shut down of the equipment and evacuation of the premises.
- 5.3.6 Unless unavoidable, no hot work such as welding, flame cutting and similar activities should take place in the food processing area. If for justified reasons hot work is necessary all such activities should be conducted under an effective Permit to Work system and in strict accordance with the RISCAuthority RC7: *Recommendations for hot work* (ref 11).
- 5.3.7 All relevant staff should be trained in the use of the smoking equipment. Instruction should include:
- safety systems (to include settings, alarms and interlocks);
 - smoke box control systems;
 - start up and shut down procedures;
 - shift reporting and smoke box log requirements;
 - operator checks;
 - troubleshooting of smoke box system; and
 - emergency procedures.

5.4 Fire safety management with food smoking equipment

- 5.4.1 The equipment used for smoking foods consists of three main elements: the smoke generator, smoke box and the ductwork and exhaust flues. All of these should consist of proprietary equipment and carry the CE marking.
- 5.4.2 Smoking equipment should be located in a fire compartment with a fire rating as agreed with the insurers of the property (usually between 2 and 4 hours). Composite panels forming any parts of the compartment wall or ceiling should comply with the requirements of LPS 1181 and LPS 1208 (refs 12 and 13).
- 5.4.3 The equipment should be installed, operated and maintained in accordance with the manufacturers' instructions.
- 5.4.4 A competent person should make an inspection of the clean-in-place (CiP) plant and process equipment at the start of each period of smoking to check that all essential maintenance has been carried out and the smoking chamber is free of any build up of food residues. Checks should also be made of the parameters for the next process and that safety devices are operational. All reported defects should be corrected before equipment is used.
- 5.4.5 Wood chips, sawdust and similar fuels for smoke generators should be stored outside the building with only sufficient material in the factory for the current work period. Fuel should be kept in a locked, dedicated store, closed bin or other container so as to protect the material from the weather and deny access to a potential arsonist. Stored fuel should be located at least 10m from buildings and external storage.

The smoke generator

- 5.4.6 The smoke generator should be located outside the production area within an enclosed fire compartment wherever possible.
- 5.4.7 Adequate gangways should be available and kept unobstructed around the smoke generator.
- 5.4.8 No combustible material should be located within 1m of the smoke generator.
- 5.4.9 Where a fresh air intake is provided from outside the building, it should be fitted with an automatic fire damper to prevent further air intake in the event of ignition. The location of the fresh air supply should be remote from stores of gas cylinders, flammable substances and vehicle parking areas.
- 5.4.10 Igniting the smoke generator manually is poor practice, even in cases where the igniters have been damaged, and should not be permitted.
- 5.4.11 Smoke generator doors should normally be kept shut. Any smoke seen escaping around the edges of the doors should be reported and prompt action taken to ensure that the doors fit tightly. This not only ensures an efficient smoke generation process but also serves to minimise the occurrence of unwanted fire alarms.
- 5.4.12 Controls must include a high temperature safety thermostat and an independent upper temperature limit shutdown device. Maintenance of the equipment should include calibration of the thermostat and shutdown sensors.
- 5.4.13 Each time ash is removed from the smoke generator it must immediately be placed in a stainless steel container with closed metal lid, be damped down with water to quench the heat and removed for external storage at least 10m from the building. Ash containers should be suitably marked to prevent other combustible materials being introduced.
- 5.4.14 Cooled ash should be stored in a metal container with a metal lid located in a dedicated area outside the building to await removal from the site. This storage area is to be at least 10m from the buildings and external storage. No other combustible material may be stored in the container with the ash.

The smoke box

- 5.4.15 The smoke box should be of non combustible construction and the doors should be kept shut when in operation.
- 5.4.16 Routine inspection and cleaning of the equipment should be based on a risk assessment dependent on the degree of use and the processes being undertaken.



- Doors to smoke generators and smoke boxes must fit well and be kept shut.



- Traditional smoking kilns should not be designed or located such that a fire in the kiln could spread to buildings, structures, outside storage or plant.



- Areas in which food smoking is being carried out should be protected by flame detectors or detectors with multiple sensors that detect smoke, heat and carbon monoxide so as to minimise unwanted fire alarm actuations.

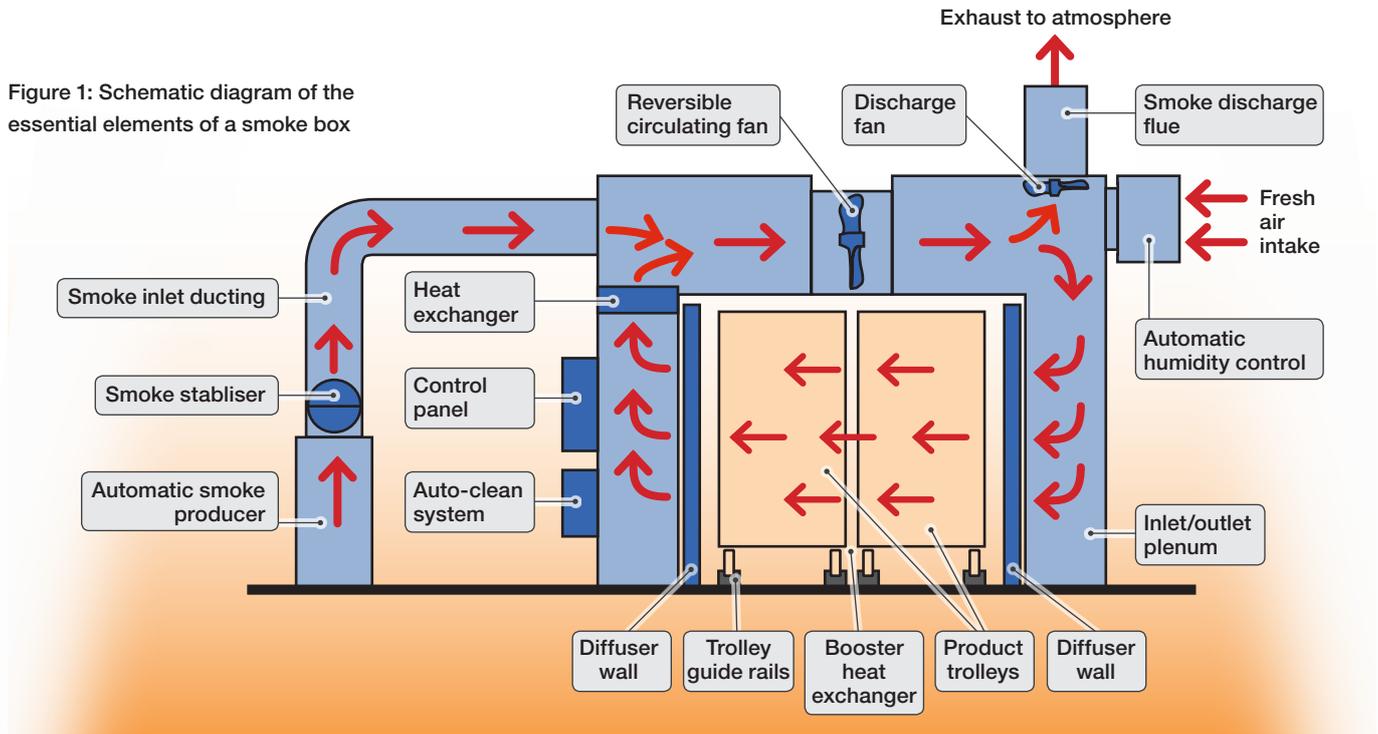
This should, as a minimum, be in accordance with best practice (ref 14) as follows:

- heavy use (more than 12 hours per day): three-monthly;
- moderate use (6-12 hours per day): six-monthly; and
- light use (2-6 hours per day): 12-monthly.

5.4.17 Automatic clean-in-place systems should be provided throughout the unit where these are available from the manufacturer or installer of the equipment.

5.4.18 A sufficient number of inspection hatches should be provided in visually restricted areas to allow the operation of the clean-in-place systems to be validated.

Figure 1: Schematic diagram of the essential elements of a smoke box



Ducts and exhaust flues

5.4.19 All ductwork, including exhaust flues, should be constructed of galvanized or stainless steel, with seamless components properly connected to prevent leakage of smoke and tar. The design of the ductwork should be designed so as to minimise the introduction of bends and horizontal runs where there could be a build up of tar. Joints should be sealed wherever possible.

5.4.20 Fittings should be external to prevent introducing a grease trap within the duct. Other irregularities on the internal surface which may lead to accumulations of grease and other deposits should also be avoided.

5.4.21 Ducts, dampers and flues should be cleaned by a competent specialist contractor on a risk assessed basis to prevent the buildup of tar and ash (see paragraph 5.4.16 and ref 14). The installation should be inspected following the cleaning and checks made that all access hatches have been secured.

5.4.22 Where automatic clean-in-place systems are fitted, they should be installed throughout the length of ductwork and flues. Automated cleaning equipment should be checked daily to ensure normal operation and cleaning agent usage. A low level and fault alarm should be incorporated and the plant configured to isolate on activation.

5.4.23 A sufficient number of inspection hatches should be provided at changes of direction and 2m intervals to allow access to all parts of ducts, flues and dampers for cleaning and for inspections to be made as to the effectiveness of the cleaning operations.



- How can I be sure that contractors are competent to carry out efficient cleaning of the extract ducts and flues?



- Extract ducts and flues should be cleaned regularly by a competent specialist contractor on a risk assessed basis.

- 5.4.24 Ducts and flues should be as short as practicable. Wherever possible, flues should be routed directly through the roof or walls to vent outdoors and not pass through other rooms, fire compartments or roof voids. Where it is necessary for flues to pass through lofts or roof spaces these areas should be kept free of combustible items.
- 5.4.25 Where a flue passes through a combustible element of construction, a proprietary sleeve system should be installed around it to provide a degree of fire rating, usually between two and four hours' fire resistance in terms of integrity and insulation, as agreed with the insurer. Alternatively, the combustible element should be cut back and a proprietary collar and minimum of 150mm of non-combustible material, such as mineral wool insulation, be installed around the flue.
- 5.4.26 Serious consideration should be given to regular thermographic imaging of the ductwork to seek out any grease hot spots or accumulations in the flues. Thermographic analysis may also identify points where hot gases or smoke may be leaking.
-

5.5 Traditional smoking kilns

- 5.5.1 Traditional smoking kilns are detached facilities which may be of brick and/or timber construction, sometimes with the interior coated with tar. They are therefore often combustible structures and should be located as far as practicable from other buildings and plant.
- 5.5.2 Where a smoking room is built as part of factory premises, it should be located on an external wall and open directly to the outside. There should be no direct access from the smoking room to the factory.
- 5.5.3 Walls and other structural elements between the smoking room and other parts of the premises should provide a fire rating as agreed with the insurer (normally between 120 and 240 minutes' fire resistance).
-

5.6 Fire protection

- 5.6.1 Fire protection measures for areas containing smoking kilns should be proportionate to the risk. They should be determined in consultation with the insurer according to the findings of a fire risk assessment.
- 5.6.2 The production area should be protected by an automatic fire detection and alarm (AFD) system designed to take into account the possible presence of smoke from the smoke chamber when the food is removed at the end of the process. To minimise unwanted alarm signals serious consideration should be given to installing flame detection or detector heads with multiple sensors that require more than one form of response before going into alarm mode (eg smoke, heat or carbon monoxide).
- 5.6.3 High temperature alarms should be provided in the ductwork, exhaust flues, smoke generator and smoke chamber.
- 5.6.4 The AFD system should be installed by an engineer with certification from an independent UKAS accredited third party certification body. The system should be to a recognised category of installation in accordance with BS 5839-1 (ref 15).
- 5.6.5 The AFD system should be periodically serviced and maintained by a competent engineer certificated by an independent UKAS accredited third party certification body in accordance with BS 5839-1 (ref 15).
- 5.6.6 The automatic fire detection and alarm system should be monitored either on-site (where staff are present 24 hours a day, seven days a week) or by an off-site alarm receiving centre certified by an independent UKAS accredited third party certification body and operating in accordance with BS 5979 (ref 16).
- 5.6.7 Where the design permits, spark arrestors should be installed in the main smoke ducting within the chamber (see ref 17).

FAQ

- Why doesn't the fire detection and alarm system keep giving false alarms in food smoking factories? (See 5.6.2)

- 5.6.8 Because of the nature of the process, an automatic fire suppression system (steam, sprinkler or water mist) designed and installed to a recognised standard or code of practice should be provided in the ductwork, exhaust flue, smoke generator and smoke box in consultation with the insurers (see also refs 18 and 19).
- 5.6.9 Suppression systems should be tested and maintained according to the requirements of the relevant British or other standard (or the installer's recommendations where they are more onerous) by a competent engineer with certification from an independent UKAS accredited third party certification body. Suitable records should be kept.
- 5.6.10 The installation of automatic fixed fire suppression systems is strongly recommended in production areas where smoking processes are undertaken. Where the risk assessment determines that an automatic fire sprinkler system should be installed, the installation should be designed, installed, commissioned and maintained in accordance with the *LPC Sprinkler Rules incorporating BS EN 12845* (ref 20) by engineers having certification by an independent UKAS accredited third party certification body.
- 5.6.11 A suitable number of appropriate portable fire extinguishers should be provided in all food production areas. Such portable extinguishers should be approved and certified by an independent, third party certification body and be installed in accordance with BS 5306-8 (ref 21).
- 5.6.12 A suitable number of appropriate portable fire extinguishers should be provided at fire point(s) outside detached smoking kilns. Such extinguishers should be protected from the weather and water based extinguishers should also be protected from frost.
- 5.6.13 Portable fire extinguishers should be inspected and maintained by a competent engineer in compliance with BS 5306-3 (ref 22).
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6.0 Checklist

6.1 Compliance with fire safety legislation (Section 5.1)		Yes	No	N/A	Action required	Due date	Sign on completion
6.1.1	In premises to which the Regulatory Reform (Fire Safety) Order 2005 (or equivalent legislation in Scotland and Northern Ireland) apply, has a fire risk assessment been carried out and recorded? (5.1.1)						
6.1.2	Does the fire risk assessment consider the possibility of deliberate fire setting, especially where the premises are not occupied 24 hours a day? (5.1.2)						
6.1.3	Where significant quantities of pellets are stored has an assessment been undertaken in accordance with the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR)? (5.1.3)						
6.2 Business continuity (Section 5.2)							
6.2.1	Has careful consideration been given to all fire safety implications when the smoking process is to continue during the night or over weekends when few or no staff are present? (5.2.1)						
6.2.2	Have steps been taken to ensure the continued smooth running of the business by making a suitable emergency plan? (5.2.2)						
6.2.3	Has the emergency plan been rehearsed by means of a tabletop exercise, with the results being assessed and amendments made to the plan as necessary? (5.2.3)						
6.2.4	Has consideration been given to applying commercially available computer programmes, such as the ROBUST software (Resilient Business Software Toolkit) that is available free of charge or other appropriate product, to develop and check the adequacy of the plan? (5.2.4)						
6.3 Fire safety management (general) (Section 5.3)							
6.3.1	Has close liaison been established with the fire and rescue service from the initial planning stage? (5.3.1)						
6.3.2	Has a comprehensive fire safety management regime coupled with appropriate fire safety procedures and adequate staff training been established and implemented? (5.3.2)						
6.3.3	Are stocks of combustible packaging materials kept to a minimum in the food processing area with bulk supplies being stored in a separate building or in a separate fire compartment within the factory? (5.3.3)						
6.3.4	Is all combustible waste removed from the premises and contained in secure, enclosed metal skips or bins with a compactor being used where necessary? (Where the use of an open-topped skip is necessary, is it located at least 10m clear of the buildings and any external storage?) (5.3.4)						
6.3.5	Where smoking is to continue unattended or in an area where few staff may visit, is the advice set out in RC42 observed? (5.3.5)						
6.3.6	Unless unavoidable, is hot work such as welding, flame cutting and similar activities prohibited in the food processing area? (5.3.6)						
6.3.7	Are all relevant staff fully trained in the use of the smoking equipment, including the emergency procedures? (5.3.7)						
6.4 Fire safety with food smoking equipment (Section 5.4)							
6.4.1	Is the smoking equipment of proprietary origin and does it carry the CE marking? (5.4.1)						
6.4.2	Is smoking equipment located in a fire compartment with a degree of fire resistance as agreed with the insurer? (5.4.2)						

		Yes	No	N/A	Action required	Due date	Sign on completion
6.4.3	Is the equipment installed, operated and maintained in accordance with the manufacturer's instructions? (5.4.3)						
6.4.4	Does a competent person make an inspection of the clean-in-place plant and process equipment at the start of each period of smoking to check that all essential maintenance has been carried out and the smoking chamber is free of any build up of food residues? (5.4.4)						
6.4.5	Are wood chips, sawdust and similar fuels for smoke generators stored outside the building with only sufficient material in the factory for the current work period? (5.4.5)						
6.4.6	Is the smoke generator located outside the production area? (5.4.6)						
6.4.7	Are adequate gangways available and kept unobstructed around the smoke generator? (5.4.7)						
6.4.8	Is the area within 1m of the smoke generator free of combustible material? (5.4.8)						
6.4.9	Where a fresh air intake is provided from outside the building is it fitted with an automatic fire damper? (5.4.9)						
6.4.10	Are staff aware that igniting the smoke generator manually is not permitted, even in cases where the igniters have been damaged? (5.4.10)						
6.4.11	Are smoke generator doors normally kept shut? (5.4.11)						
6.4.12	Do controls include a high temperature safety thermostat and an independent upper temperature limit shutdown device? (5.4.12)						
6.4.13	Does maintenance of the equipment include calibration of the high temperature safety thermostat and shutdown sensors? (5.4.12)						
6.4.14	Each time ash is removed from the smoke generator is it immediately placed in a stainless steel container with closed metal lid, damped down with water and removed from the building? (5.4.13)						
6.4.15	Is cooled ash stored in a dedicated area outside the building in a metal container with a metal lid to await removal from the site? (5.4.14)						
6.4.16	Is the dedicated ash storage area located at least 10m from the buildings and external storage? (5.4.14)						
6.4.17	Is the smoke box of non-combustible construction with the doors should normally being kept shut? (5.4.15)						
6.4.18	Is the routine cleaning of the equipment based on a risk assessment dependent on the degree of use and the processes being undertaken? (5.4.16)						
6.4.19	Are automatic clean-in-place systems provided throughout the unit where these are available from the manufacturer or installer? (5.4.17)						
6.4.20	Are a sufficient number of inspection hatches provided in visually restricted areas of the smoke box to allow the operation of the clean-in-place systems to be validated? (5.4.18)						
6.4.21	Is all ductwork, including exhaust flues, constructed of galvanized or stainless steel, with seamless components properly designed and connected to prevent leakage of smoke and tar? (5.4.19)						
6.4.22	Are irregularities on the internal surface which may lead to accumulations of grease and other deposits avoided? (5.4.20)						
6.4.23	Are ducts, dampers and flues cleaned by a specialist competent contractor on a risk assessed basis to prevent the buildup of tar and ash? (5.4.21)						
6.4.24	Where automatic clean-in-place systems are fitted, are they installed throughout the length of ductwork and flues? (5.4.22)						

		Yes	No	N/A	Action required	Due date	Sign on completion
6.4.25	Is automated cleaning equipment checked daily to ensure normal operation and cleaning agent usage? (5.4.22)						
6.4.26	Has a low level and fault alarm been incorporated and the plant configured to isolate on activation? (5.4.22)						
6.4.27	Are a sufficient number of inspection hatches provided at changes of direction and 2m intervals to allow access to all parts of ducts, flues and dampers for cleaning and for inspections to be made as to the effectiveness of the cleaning operations? (5.4.23)						
6.4.28	Are ducts and flues as short as possible, and routed directly through the roof or walls to vent outdoors rather than passing through other rooms, fire compartments or roof voids? (5.4.24)						
6.4.29	Where it is necessary for flues to pass through lofts or roof spaces are these kept free of combustible items? (5.4.24)						
6.4.30	Where a flue passes through a combustible element of construction, is a proprietary sleeve system installed around it to provide the appropriate degree of fire resistance as agreed with the insurer? Alternatively, is the combustible element cut back and a minimum of 150mm of non-combustible material, such as mineral wool insulation, installed around the flue? (5.4.25)						
6.4.31	Has serious consideration been given to regular thermographic imaging of the ductwork to seek out any grease hot spots or accumulations in the flues? (5.4.26)						
6.5	Traditional smoking kilns (Section 5.5)						
6.5.1	Are traditional smoking kilns located as far as practicable from other buildings and plant? (5.5.1)						
6.5.2	Where a smoking room is built as part of factory premises, is it located on an external wall and open directly to the outside? (5.5.2)						
6.5.3	Do the walls and other structural elements between the smoking room and other parts of the premises provide a fire rating as agreed with the insurer? (5.5.3)						
6.6	Fire protection (Section 5.6)						
6.6.1	Are the fire protection measures for areas containing smoking kilns proportionate to the risk and determined in consultation with the insurer according to the findings of a fire risk assessment? (5.6.1)						
6.6.2	Is the production area protected by an automatic fire detection and alarm system designed to take into account the possible presence of smoke from the smoke chamber when the food is removed at the end of the process? (5.6.2)						
6.6.3	To minimise unwanted alarm signals has serious consideration been given to installing flame detection or detector heads with multiple sensors that require more than one form of response before going into alarm mode? (5.6.2)						
6.6.4	Are high temperature alarms provided in the ductwork, exhaust flues, smoke generator and smoke chamber? (5.6.3)						
6.6.5	Has the AFD system been installed by an engineer with certification from an independent UKAS accredited third party certification body? (5.6.4)						
6.6.6	Is the AFD system periodically serviced and maintained by a competent engineer certified by an independent UKAS accredited third party certification body in accordance with BS 5839-1? (5.6.5)						

	Yes	No	N/A	Action required	Due date	Sign on completion
6.6.7	Is the automatic fire detection and alarm system monitored either on-site (where staff are present 24 hours a day, seven days a week) or by an off-site alarm receiving centre certified by an independent UKAS accredited third party certification body and operating in accordance with BS 5979? (5.6.6)					
6.6.8	Where the design permits, have spark arrestors been installed in the main smoke ducting within the chamber? (5.6.7)					
6.6.9	Is an automatic fire suppression system designed and installed to a recognised standard or code of practice provided in the ductwork, exhaust flue, smoke generator and smoke box? (5.6.8)					
6.6.10	Is the suppression system tested and maintained according to the requirements of the relevant British or other standard (or the installer's recommendations where they are more onerous)? (5.6.9)					
6.6.11	Where the risk assessment determines that an automatic fire sprinkler system should be installed, has the installation been designed, installed, commissioned and maintained in accordance with the <i>LPC Sprinkler Rules incorporating BS EN 12845</i> by engineers having certification by an independent UKAS accredited third party certification body? (5.6.10)					
6.6.12	Has a suitable number of appropriate portable fire extinguishers been provided? (5.6.11)					
6.6.13	Are portable fire extinguishers provided at fire point(s) outside detached smoking kilns protected from the weather, and water based extinguishers also protected from frost? (5.6.12)					
6.6.14	Are portable fire extinguishers inspected and maintained by a competent engineer in compliance with BS 5306-3? (5.6.13)					

1. Regulatory Reform (Fire Safety) Order 2005, SI 2005 No 1541, The Stationery Office.
2. The Fire (Scotland) Act 2005, asp 5, The Stationery Office.
3. Fire Safety (Scotland) Regulations 2006, Scottish SI 2006 No 456, The Stationery Office.
4. Fire and Rescue Services (Northern Ireland) Order 2006, SI 2006 No 1254 (NI9), The Stationery Office.
5. Fire Safety Regulations (Northern Ireland) 2010, SI 2010 No 325 (N.I.), The Stationery Office.
6. Dangerous Substances and Explosive Atmospheres Regulations 2002 SI 2002 No 2776 (as amended in 2015), The Stationery Office.
7. RC42: *Fire safety of unattended processes*, 2011, Fire Protection Association.
8. *Business resilience: A guide to protecting your business and its people*, 2005, Fire Protection Association.
9. The ROBUST software (Resilient Business Software Toolkit) may be found at <https://robust.riscauthority.co.uk>
10. *Fire safety and waste materials*, 2003, Fire Protection Association.
11. RC7: *Recommendations for hot work*, 2012, Fire Protection Association.
12. LPS 1181: *Series of fire growth tests for LPCB approval and listing of construction product systems*, Issue 2 2005, LPCB.
13. LPS 1208: *LPCB Fire resistance requirements for elements of construction used to provide compartmentation*, Issue 2.2 2014, LPCB.
14. TR/19 *Internal cleanliness of ventilation systems – Guide to good practice*, 2014, Building and Engineering Services Association (B&ES).
15. BS 5839-1: 2013: *Fire detection and fire alarm systems for buildings, Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises*, British Standards Institution.
16. BS 5979: 2007: *Remote centres receiving signals from fire and security systems. Code of practice*, British Standards Institution.
17. RC28: *Recommendations for spark detection and suppression systems on pneumatic conveying installations*, 2006, Fire Protection Association.
18. IQ 1: *Water Mist Questionnaire – Building Protection*, 2015, Fire Protection Association.
19. IQ 2: *Water Mist Questionnaire – Local Application*, 2015, Fire Protection Association.
20. *LPC Rules for automatic sprinkler installations incorporating BS EN 12845: (Fixed firefighting systems. Automatic sprinkler systems. Design, installation and maintenance*, British Standards Institution), 2015, Fire Protection Association.
21. BS 5306-8: 2012: *Fire extinguishing installations and equipment on premises. Selection and positioning of portable fire extinguishers. Code of practice*. British Standards Institution.
22. BS 5306-3: 2009: *Fire extinguishing installations and equipment on premises. Commissioning and maintenance of portable fire extinguishers. Code of practice*, British Standards Institution.

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