

# Fire risk minimisation guidance for the food industry

Second edition

**InFiReS**  
*Insurers' Fire Research Strategy funding scheme*



**airmic**

**CFA** **CSIF**  
CHILLED FOOD ASSOCIATION  
Food Industry Panels Group

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### The Food Industry Panels Group – FIPG

The Food Industry Panels Group (FIPG) was set up in autumn 2001 by Chilled Food Association together with the Ice Cream Federation, the UK Association of Frozen Food Producers, and the Cold Storage Distribution Federation. Membership is made up of members of the individual associations, brokers, selected design engineer consultancies, and composite panel manufacturers.

FIPG also links into a network of food manufacturing associations and has catalysed the establishment of the Food & Distribution Industry Forum (FDIF), a special interest group at the Association of Insurers and Risk Managers in Commerce (AIRMIC).

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- representing members interests with the government, regulators and others;
- the development of risk management tools, techniques and publication of guidance;
- providing a platform for the exchange of information and ideas; and
- encouraging the effective use of insurance.

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## SECTION 1. INTRODUCTION AND OBJECTIVES

Fire has been and continues to be one of the major issues facing the food processing and storage and distribution industries in the UK. Whilst there have been a number of attempts in the past to evolve a generally agreed standard that food companies can work towards, there has been no universal consensus on what is a proper and economic way to control fire risk in the food industry.

Given the competitiveness of the food industry and the margins available to most companies, it is recognised that it will take many years to bring all food companies up to a standard that represents best industry practice. In particular, given the widespread use of composite panels (combustible, fire resistant and non-combustible) and the cost of wholesale sprinklering, it will take a number of years to achieve this. Historically, guidance has advocated a gradual improvement approach to past problems, with the aim of removing all combustible panels when parts of existing facilities are refurbished, using approved products for new builds, and sprinklering premises and/or process hazards as appropriate.

This guidance, therefore, is the latest attempt to address the two most prominent problems of recent years in the insurer-food industry relationship. The Food Industry Panels Group (FIPG) – formed as a result of the problems referred to above and assisted by the Association of Insurance and Risk Managers in Industry and Commerce (AIRMIC) – has worked with the Risk Control group of InFiReS at the Fire Protection Association (FPA) to produce this guidance. InFiReS comprises a group of insurers which includes many that underwrite food industry risks in the UK. The first objective of this guidance is to produce a Code of Practice that is acceptable to insurers. Secondly, the guidance establishes a generic property loss control standard that companies can aspire to in the expectation that damage to the assets and earnings of their businesses will, at best, be prevented or, at worst, be

minimised. The approach is to encourage ongoing gradual improvement that is economically viable. Given the changes to fire safety legislation, the guidance also updates the approach that individual companies must take to ensure that they are fully compliant with legislative requirements.

This guidance builds on earlier work by various bodies – including the Loss Prevention Council, the Refrigerated Food Industry Confederation and the Food Industry Panels Group – on fire risk minimisation in both new and existing structures. It is designed to provide advice across all the various sectors of the food industry.

Fire risk exposures in the industry can be created by the presence of high hazard processes and are not helped by the widespread use of combustible construction materials. Typically, premises are not sprinkler protected. In addition, a large number of premises are located in remote areas with limited cover provided by the local fire brigade.

This guidance is in four main sections:

- the minimisation of fire risk – core requirements;
- the minimisation of fire risk – specific processes, equipment and materials;
- the minimisation of fire risk – fire protection and detection equipment; and
- emergency response and contingency planning.

Where additional guidance is available elsewhere, appropriate reference is made within the body of the document.

*Note: Any food company or other organisation making use of this information must also consult with their property insurance company to ensure that any actions taken or measures implemented are acceptable to their insurers.*

## SECTION 2.

### COMPLIANCE WITH LEGISLATION AND MANAGEMENT OF FIRE RISKS

A major change in fire safety legislation occurred with the introduction of the Regulatory Reform (Fire Safety) Order 2005 which became law in October 2006. This legislation affects all non-domestic premises in England and Wales with similar legislation being introduced in Scotland and Northern Ireland. With the advent of the Regulatory Reform (Fire Safety) Order and its sister legislation in Scotland and Northern Ireland, fire certificates were abolished and ceased to have legal status. In common with other areas of health and safety legislation, the new regulatory regime introduced to fire safety the concept of “responsible person”. In place of the system of fire brigade inspection and certification, employers (where they fit the description of the “responsible person”) will be responsible for complying with a provision of the Order which specifies fire risk assessment as the preferred tool to focus on the safety of “all relevant persons” in case of fire. In essence, employers will be required to:

- assume the role of responsible person and, where there is more than one responsible person in any type of premises, all must take reasonable steps to work with each other;
- carry out a fire risk assessment which will focus on the safety of all relevant persons and pay particular attention to:

- those at special risk, such as the disabled and those with special needs; and
- consideration of any dangerous substance likely to be on the premises; and
- use their fire risk assessment(s) to identify risks that can be removed or reduced and to decide the nature and extent of the general fire precautions they need to take to protect people against the fire risks that remain.

The new legislation – whilst aimed primarily at life safety – will give employers the opportunity to improve their approach to fire risks which should benefit property protection and business continuity. This second edition of the Fire Risk Minimisation Guidance for the Food Industry has been jointly produced by the food industry and insurers with the intention of building on the progress made to date on fire risk management in the food sector.

Users of this guidance need to be fully aware of their responsibilities under current legislation and, if possible, they should use this document to help them meet their responsibilities and to improve their approach to the control of fire risk in the industry.

## SECTION 3.

### THE MINIMISATION OF FIRE RISK – CORE REQUIREMENTS

#### 3.1 Arson and wilful fire raising

Many fires are caused by arson, particularly in commercial premises. Although exposures vary geographically, all businesses are at risk and should implement a management control programme to minimise this exposure. Motives for arson include vandalism, concealment of crime, revenge or grievance, protest, industrial sabotage and fraud.

Factors that increase susceptibility to malicious arson include:

- location – inner city or deprived areas, isolated locations and premises close to venues attracting large crowds;
- a previous arson history in the immediate area, including that of surrounding properties;
- where occupation is of a multiple tenure nature;
- where there is unrestricted public access;
- where buildings are unoccupied for a prolonged period;
- warehouses and educational buildings;
- occupancies that are likely to attract the attention of extremists, activists or pressure groups;
- locations with poor labour relations, which can increase the risk of arson;
- premises adjacent to railway lines; and
- premises with external storage of combustible materials particularly where these are close to or up against buildings or external fencing.

An appropriate management control programme should include:

- review of existing security arrangements including assessing which or all of the following may be required:
  - manned security;
  - CCTV;
  - security (as opposed to perimeter) fencing;
  - intruder alarm (see section 3.2 below);
  - adequate lighting; and
  - access control system;
- ensure that the arson exposure is addressed in the monthly housekeeping/fire safety checklist (see Housekeeping Fire Checklist – section 7.1);

- ensure high standards of external housekeeping are maintained (see section 3.12);
- ensure that the condition of perimeter fencing, lighting and CCTV is in good condition;
- complete a tour of the facility at the end of each working day, if the site is unoccupied during idle hours, to ensure that all protections are operative/fully maintained;
- if security guards are employed, the relevant procedures outlined in section 3.12 should be used;
- ensure that staff recruitment procedures include following up references and that any security staff provider has a similar policy; and
- develop a strategy to recognise and manage changes to the business which may disturb/concern staff.

#### 3.2 Security

Security is becoming an increasingly important function for property loss control. Not only does it play a critical part in protecting premises from the threat of arson and malicious damage, but it also provides 24-hour cover for summoning the emergency services.

Any security policy is based on the assumption that if someone wants to gain entry to the premises, they will. The basis of security policy is therefore to:

- prevent access to target goods or buildings for as long as possible;
- delay entry to allow police intervention; and
- record details of intruders to provide evidence for prosecution and prevent a recurrence.

For each site, an effective security policy should be developed and the following should be considered:

- a full-time on-site security presence should ideally be provided with a gatehouse constantly staffed. The recommended minimum presence is for one guard plus adequate CCTV. The presence of a second guard, on patrol, is desirable;
- any security guards employed must be licensed as required by law. For further details see the Security Industry Association website, [www.the-sia.org.uk](http://www.the-sia.org.uk);

*Note: the Data Protection Act 1998 requires that signs should be displayed so that the public are aware that they are entering an area covered by CCTV surveillance equipment. These signs should be clearly visible and legible to the public.*

- the identity of the person or organisation responsible for administering the CCTV scheme;



- the purpose of the CCTV scheme;
- details of whom to contact regarding the CCTV scheme;
- patrols must be logged and monitored using clocking points at salient locations throughout the facility;
- all access to site should be via the security function;
- references for in-house guards must be taken up and checked by the company (including criminal records);
- contracts with third-party firms must comply with the above;
- all visitors unfamiliar with the site must be accompanied at all times;
- visitors must only be allowed on site if visits are pre-arranged;
- intruder alarm systems are installed in accordance with BS 4737 or PD 6662: 2004 (BS EN 50131-1: 2006) as appropriate by an approved installer recognised by a UKAS-accredited, third-party certification body such as NACOSS or SSAIB;
- intruder alarm systems are maintained to BS 4737 or PD 6662: 2004 (BS EN 50131-1: 2006) as appropriate by an approved company recognised by a UKAS-accredited, third-party certification body such as NACOSS or SSAIB;
- CCTV systems are installed and maintained by an approved company recognised by a UKAS-accredited, third-party certification body such as NACOSS or SSAIB; and
- if remotely monitored CCTV is adopted, it should be installed and maintained by an approved company recognised by a UKAS-accredited, third-party certification body such as NACOSS or SSAIB and installed in accordance with BS 8418.

Where intruder alarms are installed to PD 6662: 2004 (EN50131-1: 2006) the grade of system to be installed should be confirmed with the insurer and will thereafter be subject to a risk assessment.

*Note: from 1 October 2005, intruder alarms should be designed to the appropriate part of European Standards (EN 50131) and fitted in accordance with BSI PD 6662: 2004: Scheme for the application of European Standards for intruder and hold up systems. The grade of the system to be installed should be confirmed with the insurer and will thereafter be subject to a risk assessment; installation and maintenance should be approved by a UKAS accredited organisation such as NSI or SSAIB.*

### 3.3 Housekeeping and self inspection

Maintaining high standards of housekeeping is a key part of any successful property loss control plan. Loss experience has shown that should a fire start in a facility exhibiting good housekeeping, the loss will probably be



Poor housekeeping can lead to blocked escape routes

considerably less serious than in a similar facility with poor housekeeping. Various versions of housekeeping checklists are available, including that contained in section 7. The items in this checklist are not exhaustive and it should be tailored to meet an individual facility's needs.

A good housekeeping programme comprises:

- monthly, weekly or even daily (depending upon your fire risk assessment) recorded loss control inspections using a checklist;
- identification and targeting for remedial action of consistent problem areas whether the cause is short or long term;
- review of the completed checklists by senior management at regular review meetings, where actions can be assigned. This is particularly important as it is essential that defects in housekeeping are not only flagged up to management but that there is a robust system in place to address them. Also, any self-inspection system employed should be monitored on an ongoing basis so that recurring patterns of bad practice are identified and appropriate action taken;
- involvement of suitably trained employees to develop the overall level of fire safety and general loss control awareness among staff. The frequency of review and development of such a regime will always depend upon many variables, including the size of the facility, changes in use, building alterations, employee turnover and the number of items requiring action from previous inspections; and
- examples of areas to be targeted by staff to ensure that housekeeping is good and where particular exposures arise include:
  - yard areas, particularly those areas within 10m of buildings;
  - electrical installations (no storage in electrical rooms; no combustibles within 1.5m of any live electrical installation);
  - electrical and gas installations and similar to be kept clear so that they are easily accessible in the event of an emergency;



- computer rooms (keep free of storage/combustibles);
- roof voids (keep free of storage and combustibles; if this area has not been subject to inspection before, it should be rigorously cleaned up and added to the areas to be inspected on a regular basis); and
- cooking equipment and processes, hot surfaces, and ductwork and the like to be kept clear of combustible materials.

### 3.4 Contractors and engineering, maintenance and other staff

A wide variety of ancillary work (engineering, maintenance and so on) – associated with production and support activities – needs to be performed to aid the effective operation of any industrial premises. Such tasks will be carried out by company employees or contract staff or a combination of both.

This is particularly true in a dynamic industry such as food processing where customers' requirements and product development are ever changing and, consequently, the attendant risk exposure is constantly variable. To accommodate such changes, the necessary works and activities required are much more numerous than in many other industries.

Past experience shows that the risks related to such activities constitute an above average exposure for the industry and must be strictly controlled. A number of control methods are covered in the following sections. In particular, however, it is necessary to:

- ensure that all fire risk assessments are reviewed and altered as necessary if changes to processes or layout warrant such action;
- ensure that all staff – including cleaners – are conversant with all fire hazards that could affect life safety or property protection;
- provide training to all staff and contractors in order that they can properly minimise or address any fire hazards to which they are exposed;
- provide contractors with site induction in order that they have a full understanding of the site and the site's inherent risks; and
- check contractors' public liability insurance arrangements annually so that cover is current at all times. Limits should be required depending upon the nature of the work to be carried out and the size of the company involved. For example, it would be inappropriate to demand the same level of cover from a contractor cutting grass and one carrying out hot work in a production area. The exposure that each contractor poses should be assessed and limits demanded as appropriate. As a general rule of thumb, a minimum of £5m should be sought, rising as necessary (depending upon the nature of the work) to £10m and even higher should circumstances warrant.

In addition to all recommendations within this guidance, further information can be obtained at [www.thefpa.co.uk](http://www.thefpa.co.uk)

### 3.5 Permits to work

All kinds of facilities, maintenance and engineering work needs to be carried out to support general production activities in a premises. Such work may be carried out by:

- company personnel;
- contractors' personnel; or
- a combination of company and contractors' personnel.

Whoever does the work, it must be carried out in compliance with the conditions of a permit to work system. Various types of work can be covered under such a system, which is intended to safeguard personnel and property against the consequences of irresponsible acts. In all cases, permits should be used.

Before commencing repair, maintenance or other non-routine work in any premises, full precautions should be taken to safeguard the persons carrying out the work, others in the vicinity of the work and to prevent material damage. As with other general activities affecting the risk of fire and of possible injury or death to personnel, adequate risk assessments should be carried out and appropriate controls agreed before any work commences.

Permits to work should be issued on a daily basis by the function responsible for issuing permits on each site. *(Note: sites should ensure that only a person or persons performing a nominated function or functions can issue permits and that those issuing permits are properly trained in the exposures associated with the particular work and permit.)* They should not be issued to cover the duration of the work to be carried out if such work extends beyond one day or beyond a shift change unless safeguards are in place to ensure the process is properly managed beyond shift changes. Permits will:

- be issued subject to an appropriate risk assessment having been carried out;
- specify the date, time and particular work to be performed;
- be issued by an individual who is competent in the required discipline;
- be issued by the nominated jobholder (function) responsible;
- only be issued to employees or contractors competent to carry out the work in question;
- only be issued to site approved contractors *(Note: attention needs to be paid to individual contractors' and subcontractors' staff to ensure that the individual carrying out the work is competent to do so);* and

- be returned to the issuing function at the end of each day for sign off and be kept on file for review.

Further information on permit to work systems is available from HSE website at: <http://www.hse.gov.uk/comah/sragtech/techmeaspermit.htm>

### 3.5.1 Scope of work permits

#### a) General

All sites should operate a general permit to work document. This should identify:

- the individual or contractor carrying out the work;
- the person in charge of the work to be carried out;
- the type and nature of work to be carried out;
- the exact location of the work; and
- whether any specific hazards are associated with the work.

The last point should be used to identify above average exposures where additional controls and precautions are needed. Where such additional controls and precautions are required, each site or company should devise additional permits to strictly control such work. The guidance below looks at the type of extra hazardous work that can be undertaken and sets out the principles to be employed in setting up an effective and comprehensive permit to work system as far as fire risks are concerned. Non-fire related permits are mentioned for information only.

The list is not exhaustive and should be used as a starting point only. It is incumbent upon each site/company to identify exposures demanding additional controls and formulating, as appropriate, a suitable permit to minimise the perceived exposure.

#### b) Hot work permits

See section 3.4

#### c) Work with hazardous materials, including electricity (that is, materials likely to cause fire)

Where work with hazardous materials is involved, the permit should cover:

- the exact location of the work;
- a description of the proposed work;
- protective equipment required (and available);
- hazardous materials involved and their properties (safety data sheets required for hazardous materials);
- the competence of the individuals involved to carry out the work in question;
- an outline of the emergency equipment available and of emergency procedures;
- a risk assessment; and
- a method statement.

#### d) Examples of other permits

These can cover:

- plant isolation;
- work in confined spaces;
- work where there is an environmental/pollution risk;
- working at height; and
- lone working.

*Note: A risk assessment and a method statement should be attached to the permit to work.*

### 3.5.2 Applications for permits

Applications for Permits must be made by the supervisor responsible for carrying out the work, who must specify on the work permit exactly the extent of the work to be carried out.

### 3.5.3 Authorised signatures for permits

- a) Clearance/safety: The competent person responsible should authorise and issue all permits for work to be carried out on the premises. He or she must sign permits, after satisfying him or herself that the work proposed can be carried out properly and safely. The work of two or more groups must be coordinated when the acts of one can directly or indirectly expose others to hazards.
- b) Fire, welding and hot work: The permit must be signed by the competent person responsible and it must specify exactly the area or section in which work is to be carried out.
- c) When large-scale construction/modification work justifies a permanent project engineer on site, the competent person will have discretion to authorise the project engineer to act as his signatory to permits if the project manager is competent to do so.

### 3.5.4 Safeguarding the work site

The importance of rendering the work site safe at all times cannot be stressed too much. Authorised signatories and supervisors should consider the points below before and during the work. The points are examples only and are not a complete list or in order of importance. Local conditions must be taken into consideration.

The following points should be considered for clearance and safety:

- have pipelines on which work is to be carried out been properly isolated?
- have operating sections been warned of the disconnection?
- has the electrical supply been cut off and have precautions been taken to ensure that it cannot be reconnected – for example, have notices been displayed and lockout padlocks been used?

*Note: the removal of electrical fuses cannot be considered to constitute a safe system of work.*

- has the equipment been properly isolated?
- have warning notices been posted?
- is it necessary for the area to be properly isolated and has this been done?
- is a fire (hot work) permit or permit other than the general permit required?
- if roadblocks are to be used or are in use, has provision been made to permit access to emergency vehicles (such as fire tenders and ambulances) if required?
- are utility services interrupted? If so, will hazardous conditions be created in other plant operations?

### 3.6 Hot work permits

Hot work is one of the top causes of fire loss in commercial property. Maintaining a strict control over this source of fire hazard is a vital part of any fire safety plan for the protection of property and the business itself. Taking the recommended precautions will ensure that, should a fire start, it will quickly be controlled. The resulting loss will be far less serious having taken precautions.

A good hot work management programme will include the following:

- following the golden rule – ‘one permit, one person, one place’;
- permits must be issued for a maximum of one day only, allowing for cover if shift changes are involved;
- hot work permits apply to own staff as well as to contractors anywhere in the facility except in a properly arranged and authorised area, typically in the engineering workshop;
- a fully documented procedure covering the hot work should be in place;
- full examination of alternative safer methods, other than hot work, before authorising hot work to take place:
  - is hot work *in situ* absolutely necessary or can it be done elsewhere?
  - is the work site free from flammables and other combustible materials?
  - will it remain so throughout the period covered by the permit?
  - are any other operations to be carried out which might introduce a fire hazard? What special fire precautions are necessary and do we need to inform the fire authority?
- insisting upon a hot work permit for any temporary operation involving the production of open flame or

sparks. This includes, but is not limited to: brazing, cutting, grinding, soldering, pipe thawing, torch applied roofing, welding and all friction processes. Always consider what is on the other side of the job to be cut or welded – for example, painted surfaces, insulations and cladding and so on;

- prohibiting any hot work without a signed hot work permit;
- only allowing authorised persons knowledgeable in hot work to sign permits;
- insisting that the Precautions Checklist (see permit example in section 7) on the reverse side of the permit is completed, signed and adhered to;
- ensuring that after the hot work the area is inspected and passed safe. This will involve a fire watch for 1 hour after the work has been completed;
- providing refresher training for all persons involved with the hot work permit system; and
- reviewing completed permits regularly to ensure compliance. A sample Hot Work Permit is provided in section 7, which details the controls and precautions needed to ensure that the exposure presented by the ignition source is kept to an absolute minimum.

Further details are available from the information booklet RC7: *Recommendations for Hot Work*, issued by the FPA. The FPA also produces a CD which allows the user to set up such a permit system.

### 3.7 Electrical maintenance

Electrical equipment and systems are vital to production continuity. They are also one of the top four causes of fires in commercial premises. A properly instituted preventative maintenance programme will minimise the possibility of an electrical outage causing an interruption to production and/or fire.

A good preventative maintenance programme should include the following:

- an effective maintenance regime which takes full account of manufacturers’ maintenance guidelines;
- all persons working on electrical systems must be appropriately trained, experienced, and fully conversant with the requirements of BS 7671 (the IEE Wiring Regulations);
- key equipment should be identified and a critical/strategic spares policy developed;
- the mains electrical supply system must be tested and visually inspected at three-year intervals in accordance with BS7671, IEE Guidance Note No 2 and any later amendments or editions;
- portable and transportable equipment, including hand tools (as used by maintenance engineers) or personal electrical equipment allowed on site, must

be thoroughly inspected, examined and tested at six-month intervals by a competent person – Portable Appliance Testing (PAT). For further information, see HSG 107, Maintaining portable and transportable electrical equipment. (*Note: the responsibility for leased equipment such as vending machines should be properly addressed to ensure that such equipment is included in the testing programme*);

- conduct tightness testing and thermal scanning annually on electrical distribution systems;
- plant and machinery must be inspected and tested annually by a suitable qualified person;
- damaged electrical equipment must be taken out of service and repaired promptly or replaced;
- maintain records of equipment including cost, specification, usage, condition, service and inspection and maintenance performed;
- electrical maintenance programmes should be supplemented by annual thermographic surveys covering such kit as: transformers, main switches, high voltage cable runs, main distribution panels and switches, key motors, pumps, control panels and bearings of running equipment; and
- conduct a risk assessment and implement inspection and test procedures in accordance with the Electricity at Work Regulations 1999.

### 3.8 General maintenance

Implementing a preventative maintenance programme will help to prevent building or equipment failure, ultimately reducing costly interruption to production.

A good general maintenance policy should include the following:

- identify key equipment and develop a critical and strategic spares policy;
- implement a written or computerised planned preventative maintenance programme and keep written or computerised records of inspections and corrective actions;
- adopt manufacturers' maintenance guidelines as a minimum;
- maintain historic records of equipment including cost, specification, usage, condition, service and inspection and maintenance performed;
- keep installation records up to date to reflect all changes to equipment;
- links between vital information such as details of maintenance carried out, list of specialist maintenance contractors, spare parts inventory, details of specialist suppliers, specifications for replacement parts and precautions for safe systems of work during maintenance operations;

- each building should have its separate record, including inspection and cleaning of roofs and drainage arrangements;
- lightning conductor systems should be inspected and tested by a specialist contractor; and
- ductwork and filters venting hazardous materials (including the by-products of cooking processes) should be inspected and cleaned with sufficient frequency by a competent person/contractor to prevent the build up of combustible deposits. Pre- and post-cleaning reports and photographs should be provided by the contractor.

### 3.9 Lighting

Lighting, to a certain extent because it is always there, tends to be taken for granted, but it remains a steady source of fires in the UK. The two biggest causes of major losses involving lighting are, first, placing combustibles too close to lighting and, secondly, faulty equipment and cabling.

A number of simple actions can be taken to reduce this exposure:

- include lighting in the site's housekeeping checklist;
- ensure that all lights are included in the planned preventative maintenance regime;
- high-intensity discharge lights (which may be mercury, sodium or metal halide) installed in storage areas which contain highly combustible materials should be protected with borosilicate glass covers under the bulbs to prevent any shattering hot glass falling onto combustible materials should the lights fail. If the lights are kept on 24/7, they should be "cycled" once a week – that is, turned off for at least five minutes and then turned on so that if a failure occurs, it will be in safer mode (see RC 37 quoted below for further details);
- tungsten lamps (preferably high frequency) can be a good alternative in warehouses up to 10m high;
- lighting in warehouse and storage areas should be arranged between racks and aisles and not directly over goods stored in the racks;
- a safe clearance should be provided between lighting fixtures and combustible materials. A distance of at least 1m should be kept between high pressure lamps and stored goods; and
- sodium bulbs should not be used.

Further information can be found in the FPA publication RC37: *Recommendations for the control of fire hazards arising from electrical lighting in commercial and industrial premises*.

### 3.10 Smoking policy

Smoking is a major cause of fire loss in commercial property. Implementing a carefully managed smoking policy that has employee support and approval will



significantly reduce the exposure to your facility from this ignition source.

Following the implementation of legislation across the UK requiring public places and workplaces to become smoke free it may be appropriate to provide external smoking areas or shelters for staff who wish to smoke. The location and construction of such shelters must be:

- subject to a specific fire risk assessment
- constructed of non-combustible materials,
- subject to the results of the risk assessment sited away from hazardous materials storage areas and where practicable at least 10m away from any building or structure
- provided with suitable metal ashtrays and a separate metal waste bin with a fitted lid

The immediate area around the shelter and the shelter itself should be kept clear of combustible materials including windblown debris and vegetation.

Raised, slatted floors / decking should not be used and concealed or semi open spaces should be sealed to ensure combustible debris cannot accumulate beneath the shelter. The use of combustible curtains, canopies and drapes must also be avoided. If the use of portable heaters is proposed the guidance contained in RC15: *Recommendations for the use of portable and transportable heaters in commercial and industrial premises* should be followed.

Management must be alert to secret smoking particularly in relation to visitors and contractors and the subsequent need for an increased level of supervisory awareness, including regular inspections of areas not often occupied – for example, plant rooms, roof voids, store rooms;

Prompt remedial action, including disciplinary sanctions, should be taken against offenders. In this respect, sites should consider including the consequences of contravening the smoking policy within employee contracts of employment and in their contractual arrangements with contractors.

### 3.11 Fork lift trucks

Fork lift trucks cover all mobile lifting appliances, which include battery, diesel and gas powered trucks. Because of the hazards surrounding the fuels used to power such trucks, all recharging locations must be:

- well ventilated, ideally directly to the atmosphere; and
- kept clear of ignition sources.

Recharging units must be kept at least 2m clear from combustible materials including materials used in the construction of premises. Ideal locations for recharging facilities can be:

- a separate dedicated non-combustible building;



The storage of idle pallets and waste materials should be carefully controlled

- a compartment used solely for recharging operations and separated from adjoining buildings by construction of 120 minutes' fire resistance; or
- a part of a building designated as a recharging area where:
  - all combustible materials, including materials used in the construction of premises, are to be kept at least 2m clear from the battery charging area;
  - charging units should be located against a masonry or other non-combustible wall; and
  - an adequate number of carbon dioxide fire extinguishers suitable for use on electrical equipment is provided in close proximity.

Further information can be found in the FPA publication RC11: *Recommendations for the use of fork lift trucks*.

### 3.12 Waste management and control of external exposures, including yard storage

Given its huge production output, the food processing and manufacturing industry invariably produces a large amount of waste, including packaging from the goods inwards department, by-products of the process itself and other waste. In addition, storage space is generally at a premium and this can result in large amounts of storage, most of it combustible, being located against factory buildings or under canopied areas. The presence of large amounts of wooden or plastic pallets adds to the fire loading. Such an exposure has resulted in a number of major losses so it is important that such risks are minimised.

A number of actions can be taken to control this exposure. These include:

- yard and other storage of combustible waste and materials should be prevented, at best, and limited, at worst;
- idle wooden pallets and other combustible goods (including plastic crates, pallets or containers, waste skips and compactors) should be stored at a

- minimum distance of 10m from any important building or installation/structure. If this is not possible, a formal risk assessment and effective management of the exposure is required to ensure that such storage is arranged as far from buildings as possible;
- all idle wooden pallets and other combustibles should also be located at least 2m from open external fencing to prevent a possible arson fire;
- being aware of the potential for flowing liquid fire risks, involving plastic pallets, containers, crates and the like. Containment measures should be reviewed and altered, if necessary;
- lorries and cars should not be parked during idle times close to buildings or external fencing to reduce the exposure to arson. The 2m and 10m rules above apply in this instance too; and
- LPG tanks should be located in clear open space away from important buildings and external fencing and where large volumes of gas are concerned a risk assessment should be carried out to determine the exact distance. Such tanks should be located to “point away” from important buildings.

Further advice is available in *Fire Safety and Waste Materials*, an FPA publication.

### 3.13 Flammable liquids and other high-risk substances: management and storage

Bulk storage of flammable liquids presents a particular fire hazard. In addition, it is increasingly common for food processors to store liquid ingredients whose characteristics include very low flashpoints. Because of the high-risk characteristics of such substances, it is essential that risk assessments on all exposures are carried out in line with the requirements of the Regulatory Reform (Fire Safety) Order 2005 and the Dangerous Substances and Explosive Atmospheres Regulations 2002. The latter regulations require employers to:

- find out what dangerous substances are *in situ* and what their fire and explosion hazards are;



Gas cylinder compounds should be secure and prominently signed

- put control measures in place to remove these hazards or, if this is not possible, control them;
- put controls in place to reduce the effects of any incidents involving such substances;
- prepare plans and procedures to deal with any incidents or emergencies involving them;
- make sure employees are properly informed about and trained to deal with the hazards from the substances; and
- identify and classify areas of the workplace where explosive atmospheres may occur and avoid ignition sources in these areas.

For further information, please refer to <http://www.hse.gov.uk/fireandexplosion/dsear.htm>

For external bulk storage, the following should apply:

- separate storage from important buildings by at least 20m;
- if the 20m rule cannot be implemented and the storage threatens important buildings then fixed fire protection should be provided – for example, spot sprinkler protection. Indeed, sprinkler protection or other fire suppression should be considered as part of the risk assessment carried out in relation to the building as a whole or to particular high risk areas identified;
- provide drainage (with sumps and suitable isolation or shut-off valves where appropriate) and bunding to prevent flammable liquids flowing towards important buildings;
- implement an audit process of drainage and bunding to ensure that the integrity of the installation is maintained at all times;
- earth bonding and grounding should be provided to all equipment and to containers used for dispensing in order to prevent static discharge and possible explosion; and
- storage areas should be provided with natural ventilation and dispensing areas with forced ventilation. If mechanical ventilation is employed, this must comply with the requirements of the Dangerous Substances and Explosive Atmospheres Regulations 2002.

For internal storage of flammable liquids and other flammable substances:

- working stocks in production areas should be kept to an absolute minimum;
- back up stocks should be kept in purpose-built, fire-resisting and locked fire stores or cabinets used for such substances. Such storage must be secure to prevent unauthorised access to such materials;
- any electrical installation or equipment must comply with the Dangerous Substances and Explosive Atmospheres Regulations 2002; and



Effective staff training avoids the introduction of unsafe working practices

- a full risk assessment should be carried out to cover both storage and dispensing risks.

### 3.14 Fire safety training

Where a workforce has received fire safety training it will gain awareness that will be a positive benefit to their facility. Fire extinguishers are provided so that staff or others can tackle a small fire and extinguish it before it becomes a major fire. If this is not possible, firefighting should be left to the professionals. If the fire is small and can be extinguished by a suitably trained employee using one extinguisher, that trained individual may tackle the fire if he or she can do so without taking personal risks. If the fire is not extinguished, the employee must evacuate the building immediately by the quickest possible route and must not return until authorised to go back into the premises. Under no circumstances should any personnel enter or re-enter the building specifically to tackle fire.

It is also important that where agency workers, whose first language may not be English, are employed, adequate fire safety training is imparted to them in their native language. Universally understood signage should be used.

In all cases of fire, the fire alarm must be activated immediately in the event of fire and the fire brigade called.

Suitably trained employees will:

- ensure hazards are spotted and reported as a norm;
- recognise and report unsafe working practices; and
- deal quickly and effectively with minor incidents, minimising the possibility of small fires becoming large fires.

Sites should also consider the establishment of a fire safety training syllabus. Fire safety: an employers guide (see section 8 for more details) contains good advice and will assist sites. Within this, shift leaders, team leaders, maintenance staff and members of the facility's emergency organisation should be trained in the following issues:

- raising the alarm and calling the fire brigade;
- awareness of hazardous operations and storages within the facility;
- the facility's hazard reduction systems such as automatic or manual fire detection and fire protection systems;
- hazard spotting;
- portable extinguishers; and
- the location of the company's emergency plan (see section 6: Emergency Response and Contingency Planning).

Where training of all employees in every detail of fire safety is not possible, selected employees should be made aware of:

- how to raise the alarm; and
- who is responsible for calling the fire brigade and the facility's own emergency organisation.

In addition to general fire safety training, all employees who operate any hazardous process should also be trained in the fire exposure aspects of such processes. (See section 4).



## SECTION 4.

# MINIMISATION OF FIRE RISK – SPECIFIC PROCESSES, EQUIPMENT AND MATERIALS

### 4.1 Construction

The food and distribution industries in the UK occupy an immense range of different types and sizes of premises. There is therefore no hard and fast rule concerning construction work that can be applied to every property; each must be dealt with on an individual basis. The vast majority employ composite (or sandwich) panels in either external cladding or internal compartments or both and this aspect is one of great significance and importance for the industries. For a more detailed view of how to manage composite panels see section 4.2 below.

The main problem that faces the food and distribution industries is twofold. First, the widespread use of combustible composite panels adds to the fire load and exposure of buildings. Secondly, much of the building stock has been built up over the years and it is simply not practicable or economic to remove all such construction. Thus this guidance takes a two-tiered approach to construction, differentiating between new builds and existing buildings.

However, irrespective of whether a refurbishment is being carried out or a new build is being erected, new construction employed should be non-combustible or, at least, fire resistant. Where composite panels are employed all such construction should be LPCB approved (see [www.redbooklive.com](http://www.redbooklive.com)) and installed in accordance with the manufacturers' instructions by a properly accredited firm. Upon completion of any such project, the contractor should be asked to provide a certificate of conformance that the composite panels have been installed correctly in accordance with LPCB and manufacturers' instructions.

#### 4.1.1 New builds

Where new building projects are commenced, these should be designed and built to comply with a number



Effective compartmentation must be reinstated following refurbishment

of publications. For general applications, the FPA *Design Guide Essential Principles* should be consulted. For more specific advice the following should be used: the FPA *Design Guide for the Fire Protection of Buildings, Food Processing Factories 1* in the case of food processing; *Warehouses and Storage Buildings 1* in the case of general logistics; and for storage and distribution facilities, *Standalone Cold Stores 1*. These guides provide best practice advice on the general principles of passive and active fire protection. They cover such topics as contribution to fire growth, external fire spread, fire resistance and compartmentation as well as how passive and active fire protection systems should complement one another.

In general, for new builds, external and internal construction should be entirely non-combustible or a combination of non-combustible building materials and LPCB-approved composite panels. Companies should involve their property insurers as soon as any new building project is proposed.

#### 4.1.2 Existing premises

In most cases, it is simply not possible to apply the full range of measures of the FPA Design Guides (referred to in 4.1.1 above) to existing premises. To replace existing construction with non-combustible or LPCB-approved construction is likely to be both prohibitively expensive and very lengthy. In many cases, buildings are simply unable to support the weight of such demands, particularly in relation to internal partitioning.

Faced with large amounts of combustible composite panelling in existing buildings, the only realistic option is to replace the combustible construction gradually over a period of time. The fire-spreading characteristics of combustible composite panels are so well understood that there can be no real argument about discontinuing their use in the future.

Therefore, when businesses decide to refurbish existing areas or extend existing premises, it is vital that any plans to do so are in line with the FPA Design Guides. In essence, all such refurbishments and extensions should use non-combustible building products and/or LPCB-approved composite panels. Individual companies should approach their insurers prior to any such work going ahead. As far as existing combustible composite panels are concerned, please see section 4.2.

#### 4.1.3 Temporary buildings

These are buildings intended for short-term occupation and the values contained therein should be kept to a minimum. Further points that must be addressed are:

- any temporary building should be separated from the main site buildings by at least 10m of clear, open space;
- wherever possible, the temporary building should be constructed of non-combustible material;
- where temporary fridges are located on site, if at all possible polystyrene insulation must be avoided; and
- the provision of automatic smoke detection and alarm equipment should also be considered if the values at risk within the temporary building warrant it, if the fire risk assessment concludes the building should be fitted with such detection or where the building is being used for anything other than office accommodation or as an archive store.

## 4.2 Composite panel management and replacement

### 4.2.1 Introduction

Composite panels are used extensively in the food and distribution industries as well as other industries and much has been written about them. The first thing to be said is that not all composite panels are combustible and non-combustible and fire-resistant panels will be acceptable to most insurers. The second point is that combustible composite panels have in past fires contributed to fire spread and, in many cases, assisted in the total destruction of some premises.

The different types of panels and their fire resistance capabilities in descending order can be summed up as follows:

- LPCB-approved mineral wool: non-combustible;
- mineral wool: non-combustible;
- foam glass: non-combustible;
- glass fibre: non-combustible;
- LPCB-approved modified phenolic: fire-resistant;
- LPCB-approved polyisocyanurate (PIR): may provide fire-resistance up to 1 hour;
- non-approved PIR: combustible;
- LPCB-approved polyurethane (PUR): combustible but superior to other PUR;
- non-approved PUR: combustible;
- fire retardant expanded polystyrene (EPS): combustible; and
- other EPS: highly combustible.

### 4.2.2 Panel testing

Both external and internal composite panels are tested and approved in the UK by the Loss Prevention Certification Board which certifies panels which pass its various tests. Although LPCB tests are relatively small in scale, panels which satisfy the requirements for both fire resistance (LPS1208) and reaction to fire (LPS 1181 Pt 1) will have gone through a series of additional BS

476 tests. It is by virtue of this process that LPCB-approved panels should be used in preference to non-approved panels.

In general, for the purposes of this guidance, all combustible core materials should be treated with caution and managed appropriately (see sections 4.2.3 to 4.2.5 below). As a result, where new panels are being installed, details of those currently approved can be found at [www.redbooklive.com](http://www.redbooklive.com).

### 4.2.3 Panel replacement

As a general principle, insulation materials in roofs or walls (internal and external) should not contribute to fire spread – that is, they should not be combustible. Only fire-resistant or non-combustible panels should be used for future refurbishments or extensions. Expanded polystyrene (EPS), polyurethane (PUR) and unapproved polyisocyanurate (PIR) should not be used.

Every opportunity should be taken to strip out existing combustible panels over a period of time and as soon as practicable prioritising high risk areas first. Approved panel suppliers and installers at the time of writing can be found in Appendix 7.3. For an updated listing in the future please consult [www.redbooklive.com](http://www.redbooklive.com).

### 4.2.4 Fire stopping – composite panels

To prevent the spread of fire through composite panels, and particularly combustible composite panels, it is necessary to ensure that adequate fire stopping is provided in any openings in partition walls, floors or ceilings with components or materials which ensure that the construction's fire resistance is not decreased. Such openings can be caused by ducting, pipework, electrical cabling or electrical conduits as examples. Actions required in such circumstances include:

### 4.2.5 Panel management and inspection

Because of the danger of fire spread associated by combustible composite panels, companies need to ensure that their panels are properly managed to minimise the risk of fire spread. Actions necessary include the following:

- all panels should be regularly inspected for damage and any exposure of core material;
- in addition to the formal inspection, which should occur monthly as a minimum, staff should be encouraged to report damage/exposure of core material;
- an informal panel management inspection by heads of department/ engineering/health and safety should be carried out every week to identify damage;
- best practice requires that a formal system should be put in place to prioritise repairs of damaged panels as follows:
  - Category 1 repairs (immediate) – to be repaired within 24 hours;

- Category 2 repairs (less critical) – to be repaired within two weeks;
- it follows that repairs will need to be risk assessed into the “Immediate” or “Less critical” categories depending upon the hazards surrounding an area of particular damage; and
- an effective audit system should be put in place to ensure that repairs are carried out in the timescales allotted;
- in any area where services are removed, leaving a hole in the panel, these holes should be sealed on both sides as part of the task in line with section 4.2.4;
- all panels must be fully capped/encapsulated where penetrated by services or otherwise, and it is essential that repairs are performed to leave no core material visible;
- silicone mastics and expanded foam sealants are not acceptable to fill in holes in panels;
- each site should identify the types of panels they have *in situ* and log this information in a site plan. This should also identify the nature of all construction so that the plan produced can be incorporated into the site emergency pack (see section 6.1) for use by the fire brigade. Panel marking schemes may also be of assistance in aiding the identification of panel core materials. The fire brigade should also be shown the current plan on their visits to site. Arrangements should also be made to update the plan at six-monthly intervals; and
- the site panel plan and dangers of composite panels should be incorporated into any contractor induction and/or training and site permit systems.

#### 4.3 Conveyor systems

There are three types of conveyor systems that cause concern, as follows:

- bulk belt conveyors used for transporting grain and other bulk raw materials;
- hydraulically operated conveyors used to feed deep fat fryers and other hazardous processes; and



Ductwork should be carefully designed and properly installed

- modular section conveyor units that can burn with no obvious indication of flame.

There is a considerable loss history associated with large conveyors that have collapsed as a result of fire. The following loss control measures should apply:

- use fire-resistant belt materials only;
- implement a preventative maintenance policy to monitor the condition of the belt and the drive motors;
- provide automatic sprinkler water mist protection, if appropriate, and after the relevant fire risk assessment has been carried out;
- provide damage limiting construction for conveyors where a build up of combustible dusts is expected;
- rigorously enforce the hot work permit system;
- investigate the need for magnetic tramp separators and action, if appropriate;
- investigate the need for slip/alignment monitoring and action, if appropriate;
- investigate the need to monitor bearing temperatures and action, if appropriate;
- note that the presence of hydraulically operated conveyors feeding ovens, fryers and so on significantly increases the combustible loading of the occupancy and requires separate review. Action as appropriate; and
- risk assess self-contained areas and those areas that are difficult to access.

#### 4.4 Deep-fat frying and cooking processes

Fryers are found mostly in convenience food manufacturing for flash frying. The fryers operate at approximately 200°C and generally contain in excess of 300 litres of oil. The primary exposures are ignition of the cooking oil, spontaneous combustion of crumb and sediment deposits and ductwork fires from a build up of fats and greases.

The following should be provided:

##### *Ductwork:*

- this should be constructed of seamless stainless steel, supported independently of the equipment.
- an automatic fire suppression system should be considered. In this instance, it may be that an existing sprinkler system or spot protection can be employed.
- clean in place (CIP) system should be considered.
- documented inspection and maintenance programme to be implemented in line with manufacturer’s instructions or more frequently should a risk assessment of the ductwork determine otherwise.

Where the duct penetrates combustible roofs and ceilings, the following should be considered:

- a non-combustible collar fitted around the pipe with a minimum thickness of 40mm;
- a proprietary sleeve system installed around the pipe with at least 60-minutes fire resistance in terms of insulation and integrity; or
- combustible material should be cut back leaving a space of at least 100mm around the flue pipe .

**Cooker:**

- high and low oil level shut offs;
- independent high temperature cut out;
- fail safe heater shut off;
- remote shut off facility to electric/gas supply, as necessary; and
- automatic protection to an approved standard such as LPS 1223 or equivalent, including associated extract ductwork.

**Sediment/crumb:**

- regular cleaning and emptying of catch boxes;
- catch boxes to be of metal construction with normally closed lids; and
- time switches interlocked with plant operation – ideal.

**Other:**

- all fryers should be enclosed in a non-combustible compartment with a minimum fire resistance of 60 minutes;
- all operators must receive a comprehensive training in the hazards associated with the fryer(s) and any hazardous process associated with the fryers;
- a spill response programme should be implemented;
- install and maintain fire extinguishers complying with BS EN 3: 1-6, suitable for tackling fat fires – for example, the presence of Class F wet chemical extinguishers, either hand held or automatic, should be considered; and
- BAFE- or LPCB-approved firms are strongly recommended to engineer fire suppression/safety systems (BAFE can be contacted on 020 8541 1950 or at [www.bafe.org.uk](http://www.bafe.org.uk); LPCB on 01923 664100 or at [www.brecertification.co.uk](http://www.brecertification.co.uk)).

#### 4.5 Dust collection systems

There are a number of different types of dust collection systems, and each needs to be risk assessed. Many dusts when dispersed in the air are easily ignitable, so all energy ignition sources need to be eliminated. The dust collection system should be arranged so that an explosion occurring in the equipment will vent directly outside.

- the type of collection system should match the type of process;
- over-temperature protection should be provided;
- dust collectors should be located outside the building housing the process;
- an automatic fire suppression system should be considered. In this instance, it may be that an existing sprinkler system or spot sprinkler protection can be employed;
- adequate explosion protection should be provided;
- return air systems should be avoided;
- areas where dust may be released should be zoned and suitably rated electrical equipment provided (in line with the risk assessment carried out under the Dangerous Substances and Explosive Atmospheres Regulations 2002);
- all ductwork and equipment should be grounded and bonded – that is, earthed;
- a maintenance programme should be in place to ensure integrity of grounding and bonding;
- manual firefighting equipment should be readily on hand; and
- particular attention should be paid to self-contained and/or difficult-to-access areas.

#### 4.6 Fuel-fired heating systems

There are a number of processes that require heat from a dedicated heating unit (single or dual-fired boilers). Fuel-fired heating equipment has two major hazards: fires, which must be controlled in intensity and for the quality of combustion, and fuel explosions. Control and prevention are an integral part of proper operational sequence which is established by the use of combustion controls, interlocks, and combustion safeguards. These devices monitor the following aspects of burner operation:

- fuel flow and pressure;
- air flow and pressure;
- fuel-air ratio;
- ignition;
- combustion;
- combustion chamber atmosphere; and
- effect of combustion heat.

The following loss control features should be provided:

- a documented training programme should be in place for operators from an approved training provider;
- safety controls should be inspected and tested as per manufacturers' recommendations;



- combustion safeguards and interlocks should be provided;
- an automatic fire suppression system should be considered. In this instance, it may be that an existing sprinkler system or other system can be employed;
- boilers should be located in separate non-combustible rooms with at least a 60-minute compartment wall separating them from adjoining operations;
- an automatic fuel shut-off safety valve should be provided, operated – for example, via a fusible link. Where the fuels supply is stored externally (for example, an oil tank) an additional automatic shut-off valve should be sited immediately adjacent to the tank, as well as that on the device itself; and
- a manual fuel shut-off safety valve should be provided and be safely and easily accessible.

#### 4.7 Grain storage and milling

Grain storage and milling presents a set of unique exposures. There is considerable loss experience primarily associated with the collapse of grain silos and dust explosions, causing the shut-down of manufacturing operations.

The following loss control features should be provided:

- construction should be such as to limit damage;
- reinforced concrete conveyor galleries should not be used;
- an extremely effective dust control system is required;
- high levels of good housekeeping are required;
- explosion venting to equipment should be routed directly outside;
- collection systems should be interlocked to dust-producing processes;
- special precautions are needed for below-grade areas where explosion venting cannot be provided;
- only suitably rated electrical equipment should be used in line with the risk assessment required under the Dangerous Substances and Explosive Atmospheres Regulations 2002;
- magnetic separators should be used;
- grounding and bonding should be provided;
- an automatic fire suppression system should be considered. In this instance, it may be that an existing sprinkler system or other system can be employed but the need for such should follow the relevant risk assessment; and
- risk assess the need for explosion suppression systems.

Further information can be found in the FPA publication RC12: *Recommendations for the prevention and control of dust explosions*.

#### 4.8 Thermal oil heating systems

These are used extensively to provide process heating where thermal oil is heated to, or near, its boiling point and pumped around a closed circuit. The systems are reliable if maintained and arranged correctly. There is considerable loss history associated with such systems, however, most incidents are catastrophic.

The following should be provided:

- an automatic fire suppression system should be considered. In this instance, it may be that an existing sprinkler system or spot protection can be employed;
- any building where thermal oil pipework passes through it should be considered to have been at above average risk of fire. Consideration should therefore be given to the installation of automatic sprinkler or water mist protection along such pipework;
- relief venting to a safe outside location should be provided;
- pipe joints should be welded rather than flanged;
- only non-absorbent and non-combustible insulation should be used;
- flanged joints should be provided with a cover;
- condition monitoring of the oil should be carried out at least annually;
- a remote shut-off for the oil systems should be provided;
- as far as possible, pipework should be routed outside buildings;
- the heater and expansion tank should be located outside and adequate fire separation of at least 60 minutes provided;
- if the heater and expansion tank are located inside the building, they should be located in a non-combustible compartment of at least 60-minutes' fire resistance;
- a full suite of shut-down interlocks should be provided;
- if appropriate, a fire suppression system should be provided for the heater box;
- a spill response programme should be in place; and
- a documented training programme and policy should be in place for all operatives.

#### 4.9 Ovens

Industrial ovens are used in a number of drying processes. There is limited exposure from the release of



Care has to be taken where ducts penetrate the roof

flammable vapours but of more significance are the combustible deposits that build up in the oven and the fume extraction ductwork.

The following should be provided:

**Cooker:**

- ovens should be located in a single-storey, non-combustible building;
- where ovens are located inside buildings, they should be compartmented in their own area, the compartmentation being for a minimum of 60-minutes' fire resistance;
- an inspection programme should be in place. The frequency of inspection should be at least fortnightly or in accordance with any risk assessment carried out;
- automatic temperature control should be in place;
- an independent temperature control should be provided to shut down the oven in the event of over-temperature in the exhaust stack;
- electrical heaters require special risk assessment;
- an electrical and mechanical maintenance programme should be in operation;
- an automatic fire suppression system should be provided within the oven, if warranted. In this instance, it may be that an existing sprinkler system or other system can be employed; and
- a regular programme of inspection and cleaning to prevent the build-up of combustible deposits must be carried out in line with manufacturers' instructions or more frequently should a risk assessment of the ductwork determine otherwise.

**Ductwork:**

- this should be constructed of seamless stainless steel, supported independently of the equipment.
- an automatic fire suppression system should be considered. In this instance, it may be that an existing sprinkler system or spot protection can be employed.
- clean in place (CIP) system should be considered.
- documented inspection and maintenance programme to be implemented in line with manufacturer's

instructions or more frequently should a risk assessment of the ductwork determine otherwise.

Where the duct penetrates combustible roofs and ceilings, the following should be considered:

- a non-combustible collar fitted around the pipe with a minimum thickness of 40mm;
- a proprietary sleeve system installed around the pipe with at least 60-minutes fire resistance in terms of insulation and integrity; or
- combustible material should be cut back leaving a space of at least 100mm around the flue pipe .

**Other:**

- a manual safe shutdown sequence should be developed and implemented;
- all operators should receive a comprehensive training in the hazards associated with the oven(s);
- systems should be interlocked to prevent operation if any fire protection system is impaired;
- remote shut-off outside the compartment should be provided; and
- an independent temperature probe should be provided to shut down operations in the event of over- temperature in the exhaust stack.

In respect of bakeries, further information can be found in the FPA publication RC36: *Recommendations for fire prevention measures in bakery ovens*.

**4.10 Smoke boxes**

A number of products require flavouring by "smoking". Wood chips are heated so that they smoulder in a generator and the fumes are then passed into the smoke box via a flue. The "smoke" generating process has a number of by-products that make the process hazardous. Tar is produced from the burning process that then is deposited inside the generator and the flue leading to the smoke box. Hot ash is also produced as a by-product and deposited in the bottom of the generator.

The following loss control features should be provided:

- regular inspection (at least monthly) and maintenance of all parts;
- extraction ductwork should be constructed of 3mm seamless stainless steel;
- where the duct penetrates combustible roofs and ceilings, the following should be considered:
  - a non-combustible collar fitted around the pipe with a minimum thickness of 40mm;
  - a proprietary sleeve system installed around the pipe with at least 60-minutes fire resistance in terms of insulation and integrity; or
  - combustible material should be cut back leaving a space of at least 100mm around the flue pipe;

- ducts should be vertical and changes in direction should be avoided wherever possible;
- ducts should be regularly cleaned and scrubbed, as required. The frequency of cleaning will depend upon the build-up of deposits which should be monitored to establish the precise frequency. In general, cleaning should be at least in line with manufacturers' instructions or more frequent should a risk assessment of the ductwork determine otherwise;
- extraction fans should be located such that they are easily accessible for cleaning;
- prompt removal of ash to a safe environment is to be undertaken as necessary but at least daily. All ash should be placed in metal-lidded boxes prior to removal from the premises;
- equipment should be in good order, doors should seal correctly and so on;
- an automatic fire suppression system should be provided to the smoke generator, transfer flues, exhaust flues and smoke box;
- the system should be interlocked so as to prevent operation if the fire protection system is impaired;
- fire-resistant compartmentation of at least 60-minutes resistance should surround the smoke box(es);
- all combustible panels should be removed from vicinity of the smoke box(es); and
- all operators should receive a comprehensive training in the hazards associated with the smoke box(es).

Note: CO<sub>2</sub> extinguishant protection is not considered adequate protection for this application for two reasons:

- there is the possibility of the tar deposits re-igniting.
- sealing of the smoke generator cannot be guaranteed and therefore gas concentration levels and times cannot be achieved.

#### 4.11 Spray dryers

These are used extensively throughout the food industry for converting liquids to powders and other dried products. A number of losses have been experienced as a result of ignition of powders and dusts within the dryer or through spontaneous combustion. The ensuing fire has either destroyed the spray dryer or the spray dryer and the building. It is therefore essential that precautions be taken to ensure that an explosion originating in the dryer is adequately vented or suppressed to protect either the equipment and the building or just the building.

The following features should be considered:

- explosion venting should operate from the equipment to outside the building;
- grounding and bonding should be provided;
- good housekeeping should be enforced and dust deposits kept to an absolute minimum;
- an automatic fire suppression system should be considered (full specialist review suggested);
- construction to building and equipment is to be damage limiting, if appropriate; and
- electrical equipment used in the vicinity of the dryers should be suitably rated (via a risk assessment as required by the Dangerous Substances and Explosive Atmospheres Regulations 2002).

#### 4.12 Ammonia

Ammonia is widely used in the food industry as a refrigerant. It is flammable in air in comparatively high concentrations and a major leak may result in an explosion. Ammonia also presents a particular health and safety exposure and requires careful installation and control.

The following loss control features should be considered:

- equipment rooms should be designed so as to be easily accessible. Doors to such rooms should open outwards, be self-closing and well fitting. An adequate number of doors for means of escape should be provided and kept free of obstruction;
- adequate signage should be provided;
- adequate ventilation should be provided for the system(s);
- refrigeration plant should be located in a dedicated, fire-compartmented room of at least 60-minutes' fire resistance. If possible, such rooms should be located against an outside wall or detached from other important buildings;
- no combustible materials such as oils or lubricants should be stored within ammonia plant or equipment rooms;
- ammonia lines should not run through roof voids if at all possible. Where they do, the following should be adhered to:
  - ammonia detection should be provided where the lines run;
  - valve sets should be clearly marked and should be accessible with automatically closing valves on ammonia or fire detection trigger;
  - supply lines should be provided with an accessible manual shut-off to void areas.
  - ventilation should be provided in roof voids; and
  - flameproof electrical equipment should be provided to BS 5345 (via the risk assessment required by the Dangerous Substances and Explosive Atmospheres Regulations 2002);
- all persons operating ammonia systems should receive a comprehensive training in the hazards associated with ammonia; and
- an Ammonia Emergency Response Plan should be developed.



## SECTION 5.

### FIRE PROTECTION AND DETECTION EQUIPMENT

#### 5.1 Automatic sprinkler systems

Automatic sprinkler systems provide the best means of defence against serious fire losses. Such systems (either full sprinkler protection or spot sprinkler protection) have an important role to play in the protection of premises used by the food and distribution industries.

Automatic sprinkler systems should therefore be considered in the protection of key storage and/or other high risk areas and/or production facilities deemed critical to individual company's operations. Companies which decide to sprinker their facilities should consult with their insurers at the design stage.

If it is decided to sprinker in different stages over a prolonged period of time, areas of maximum combustible loading should be used to engineer the complete system. By focussing upon the areas of a facility that represent the heaviest demand upon the sprinkler system, pumps and water tanks can be specified and engineered to enable the system to be extended to other areas without complication at a later date.

One important issue that must be addressed in conjunction with automatic sprinkler systems is their appropriateness in combustible composite panel environments (see sections 4.1 and 4.2). The food industry still retains large amounts of combustible panelling – primarily polystyrene but also polyurethane – which, should fire reach the combustible core of the panelling, may overcome an automatic sprinkler system. In an ideal world, all plants would be fully sprinklered and built in non-combustible materials. However, the food industry in the UK finds itself in a situation where:

- margins are generally very tight;
- production is normally extensive and very close to continuous giving very limited opportunities to install automatic sprinkler protection;
- innovation in new products and flexibility in production are key to continued success; and
- many factories have evolved over the years, making retrofitting with sprinkler protection extremely difficult.

In the event that a decision is taken to sprinker a plant, points to note include the following:

- automatic sprinkler installations must be installed to a given standard such as the LPC Rules for automatic sprinkler installations, incorporating BS EN 12845 or other equivalent internationally recognised standards but not a combination of both;
- any fixed fire protection should be fed from an adequate and reliable water supply and water

supplies should be installed in accordance with the standard applicable to the rules used;

- insurers should be involved before, during and after any installation; and
- post installation, a maintenance contract with an approved sprinkler contractor approved by a UKAS accredited third-party certification body must be entered into.

In the event that premises are to be sprinklered, electrical rooms, computer rooms and other similar type occupancy rooms should be included in all automatic sprinkler installations. The effect of fire damage in these rooms far exceeds potential water damage from discharge during a fire incident. If a decision is taken not to install automatic sprinklers, then alternative protection should be considered in line with section 5.3 below – Other fixed fire protection systems.

*Note: it cannot be stressed enough that insurers must be involved at all stages of any automatic sprinkler project from drawing board all the way through to final commissioning.*

#### 5.2 Fire detection equipment

To ensure that there is an effective response to a fire, it is necessary that the fire is detected and an alarm raised whilst it is still at its earliest stages. Few areas are manned at all times – 24 hours per day, 52 weeks per year – but an automatic fire detection and alarm system linked to an alarm receiving centre ensures monitoring at all times. Sprinkler systems may also be monitored in this way.

Points to note include the following:

- different types of detectors should be considered to prevent false alarms, the choice of detector depending upon occupancy and activity – for example, conventional smoke detectors in areas subject to wash down should be avoided as this will lead to false alarms;
- aspirating detection should be considered in all areas, not only where very early warning is essential. The BFPSA Code of Practice for Aspirating Smoke Detection Systems provides further advice and information;
- in terms of coverage, it is strongly suggested that detection should be provided in every compartmented area of the premises in accordance with BS 5839 Part 1, Type P1 systems for the protection of property;
- where an automatic fire detection system is being introduced for the first time, it can be done in stages but due care should be taken to ensure that the final

fully addressable system that needs to be installed has the capacity to cover the entire premises. Initial areas to be protected should include:

- all roof voids;
  - all plant and equipment rooms;
  - all packaging materials stores and assembly areas;
  - all finished product stores; and
  - all areas where “in use” volumes of packaging materials are stored;
- all alarm equipment and contractors must be approved by a UKAS accredited third-party certification body or similar internationally recognised body; and
  - all equipment and systems must be maintained by a UKAS accredited third-party certification body or similar internationally recognised body in accordance with manufacturers’ specifications and insurers’ requirements.

### 5.3 Other fixed fire protection equipment

As specified under specific guidance for specific processes (section 4), local fixed fire protection systems should be provided (often in addition to a premises-wide sprinkler system) for high hazard processes and critical equipment and processing rooms.

For example, computer rooms and rooms containing computerised production control are increasingly important to business but the equipment is becoming more compact, more easily replaced and generally of lower value. This, however, disguises the effect that the loss of such equipment can have in terms of interruption to production and consequent lost sales.

Where the potential loss (property damage and business interruption) of such a facility is substantial, standalone

automatic gas, water mist or sprinkler installations should be considered.

Notwithstanding the comment in 5.1 above, electrical rooms tend to be excluded from automatic sprinkler installations despite their criticality to the operation of the business. With oil-filled equipment present in many rooms, the possible loss could extend to several weeks’ production. If so, a risk assessment should be carried out and the potential loss quantified. Again, if this is substantial, standalone automatic gas, water mist or sprinkler installations should be considered and installed and maintained by a company approved by a UKAS accredited, third-party certification body or similar internationally recognised body.

In the event that a business decides to implement such a solution, the relevant insurers should be consulted and fully involved in any such project. Consideration should also be given to the Health and Safety risks associated with such local systems which may need to be “locked off” if people are present and manually activated if required.

Post installation, a maintenance contract with a competent contractor must be entered into.

Further information can be found in the FPA publication *RC3: Recommendations for loss prevention in electronic equipment installations, Part 1 – Fire prevention*.

### 5.4 Maintenance of fire protection/detection equipment

The reliability of installed passive and active fire protection systems is dependent upon their level of maintenance. Detailed below are recommended inspection/maintenance frequencies. Completed maintenance should be recorded and records kept for review.

<b>System</b>	<b>Activity</b>	<b>Frequency</b>
<b><i>Sprinkler systems</i></b>		
Remote alarm connection (security or offsite)	Check	Daily
Water level and air pressure in pressure tank	Check	Daily
(unless automatically controlled)	Check	Weekly
Leakage of system	Check	Weekly
Gauge readings	Check	Weekly
Water levels in tanks, reservoirs and other water supplies	Check	Weekly
Correct position of main stop valve	Inspect	Weekly
Flushing investigation	Test	Weekly
Bell/Alarm function	Test	Weekly
Automatic pump start test, including fuel/oil levels and oil pressure in diesel pumps	Test	Weekly
30-minute run of diesel engine or recommended time by manufacturer, whichever is longer	Check	Weekly
Water level of cooling system	Check	Weekly
Lead acid Planté batteries – electrolyte level and density	Test	Weekly
Alarm connections	Check	Weekly
Trace heating systems	Check	Weekly
Water storage tank security	Check	Monthly
Water control valves physically	Maintenance	Annually
Water flow valves	Test	Quarterly
Review hazard to ensure system not compromised	Check	Quarterly
Damage, dust or contamination to heads	Check	Quarterly
Corrosion protection	Check	Quarterly
Electrical connections and supplies	Check	Quarterly
Water supply	Check	Quarterly
Flow switches	Check	Quarterly
Stop valves	Check	Quarterly
System inspection	Maintenance	Six monthly
Dry alarms, accelerators and exhausters	Exercise	Six monthly
Water flow	Test	Annually
Pumps	Test	Annually
Pressure gauge	Calibrate	Annually
Diesel engine – fail to start	Test	Annually
Pump manual start	Test	Annually
Float valves on water storage tanks	Test	Annually
Pre-action/deluge detection system	Test	Annually

<b>System</b>	<b>Activity</b>	<b>Frequency</b>
Pre-action/deluge system	Test	Annually
Antifreeze solution	Test	Annually
Suction gravity and pressure tanks	Drain clean and check corrosion	Three yearly
Stop valves, alarm and check valves	Inspect	Three yearly
Type A and D pump suction tanks	Drain and clean	Every 15 years
<b><i>Additional actions for dry/pre-action/deluge systems</i></b>		
Air and water pressure	Inspect	Weekly
Priming water level	Inspect	Weekly
Dry pipe valves	Trip test	Annually
Quick opening devices	Test	Six monthly
<b><i>Fire pumps</i></b>		
Automatic start – pressure drop	Test	Weekly
Priming devices	Inspect	Weekly
Temperature and tightness of glands	Inspect	Weekly
Suction pressure	Inspect	Weekly
Discharge pressure	Inspect	Weekly
Condition of suction supply	Inspect	Weekly
Water supply level	Check	Weekly
<b><i>Diesel engine driver</i></b>		
Fuel supply	Inspect	Weekly
Engine oil	Inspect	Weekly
Battery charger	Inspect	Weekly
Cooling water strainer	Check	Weekly
Speed governor	Test	Weekly
Water relief valve	Test	Weekly
Battery electrolyte	Test	Six monthly
Oil filter	Inspect	Six monthly
<b><i>Electric motor driver</i></b>		
Starting devices	Test	Weekly
Water relief valve	Test	Weekly
<b><i>Pump house</i></b>		
Temperature	Check	Weekly

<b>System</b>	<b>Activity</b>	<b>Frequency</b>
<b><i>Smoke/heat detectors</i></b>		
Heat detectors – restorable spot	Test	Six monthly
Heat detectors – non restorable	Test alarm circuit	Six monthly
Smoke detectors	Test	*See Note
<b><i>Divisions</i></b>		
Fire doors and shutters	Inspect	Daily
	Test	Six monthly
<b><i>Manual firefighting</i></b>		
Extinguishers	Service	Annually
Flow test hydrants	Test	Annually
Hose reels	Inspect	Monthly

*Note: The testing of smoke detectors is dependent upon a number of factors including the type of detector (spot, aspiration, ionisation, beam, carbon monoxide and so on) and the type of occupancy in which the head is installed. Manufacturers' guidelines for test frequency should be followed.*

## SECTION 6.

### EMERGENCY RESPONSE AND CONTINGENCY PLANNING

Research by a major insurer shows that 80% of companies which suffer a major disaster and have no form of planning go into liquidation within 18 months. A further 10% suffer the same fate within five years.

The key to minimising the extent and severity of a fire loss and maximising the chances of company survival is to have a:

- pre-emergency procedure;
- key staff crisis management team; and
- business continuity plan.

Assistance and guidance in the preparation of a tailored plan is available from various sources. For further information, see Business resilience. A guide to protecting your business and its people (details in section 8).

#### 6.1 Pre-emergency procedure

The pre-emergency plan will detail the actions needed to minimise the extent of a loss at a facility. Action plans should be developed to deal with the different types of emergency that could occur at the site, including but not limited to:

- fire;
- explosion;
- bomb threat;
- flood;
- denial of access;
- infectious diseases;
- ammonia leak; and
- flammable liquid spills.

They should include:

- evacuation drills to ensure that such drills are thoroughly understood by all staff;
- a specific procedure for alerting the fire brigade immediately; this should be a specific function's responsibility (usually security);
- a comprehensive emergency pack should be kept in the security gatehouse for use by the fire brigade on arrival at site. This must identify site construction and the location of all hazards, essential services, utilities and protections *in situ*; and
- regular invitations (at least once a year) to the fire brigade to familiarise themselves with the site and its hazards and dialogue with the fire brigade to discuss and agree the brigade's likely approach to tackling a fire or other emergency at the site.

#### 6.2 Key staff – crisis management team

The plan should address:

- each site should establish a Crisis Management Team, which is activated in the event of a loss;
- there should be a recovery planning team to comprise individuals from all key functions, as appropriate, and as follows:
  - production;
  - engineering;
  - maintenance;
  - finance;
  - IT;
  - risk and insurance;
  - health and safety;
  - human resources; and
  - environmental.

#### 6.3 Internal and external communication

The plan should address the following:

- a procedure should be established to inform and keep them informed of all developments;
- liaison with fire and rescue services, an assessment of their requirements regarding facilities and access and a mechanism established to provide them with up to date premises specific information including site layouts, location of hazardous materials etc;
- full details of customers, suppliers, enforcing authorities and other interested parties should be immediately available to the Crisis Management Team. Such details are to include relevant names, addresses, telephone numbers and other relevant information. Such details should be held/contained in the emergency procedures document held offsite by members of the crisis management team; and
- it is also necessary to have a mechanism in place to field queries from the local and national media.

#### 6.4 Business continuity plan

The business continuity plan (BCP) is a living document that details the actions necessary to expedite reinstatement of business critical processes or provide alternative means for continuing production during the reinstatement period.

The plan should address:

- project initiation by the crisis management team in conjunction with insurers and loss adjusters;

- the scope of the project; and
- remedial actions to be agreed, including:
  - demolition of property, if required;
  - reinstatement of buildings;
  - plant and machinery procurement;
  - possible temporary outsourcing, including temporary premises; and
  - customer and supplier management.
- man-made incidents – for example, terrorism, arson; and
- commercial considerations – for example, over-reliance on key suppliers who suffer a fire;

The process itself can be managed in the following ten recognised steps in relation to fire:

- 1) management commitment: the board or executive committee sign up to formalising the BCP;
- 2) risk assessments are carried out. Examples of fire risks are:
  - accidents – for example, fire, explosion;
- 3) carry out a business impact analysis;
- 4) develop the plan;
- 5) resource the plan;
- 6) test the plan;
- 7) provide staff awareness training;
- 8) maintain/review the plan;
- 9) formalise crisis communications; and
- 10) formalise co-ordination with all relevant external agencies – for example, local, national, emergency response, trade associations, press, specialist consultants and so on.



## SECTION 7.

### APPENDICES

7.1	Housekeeping fire checklist
7.2	Hot work permit
7.3	Approved suppliers and installers of approved composite panels

#### 7.1 Housekeeping fire checklist

Notes to be read in conjunction with the checklist

##### 7.1.1 General

The housekeeping fire checklist has been prepared as a blueprint to enable companies to set up a system to monitor their loss exposure on an ongoing basis. It takes the form of a checklist of the type of hazards that, if not properly controlled and managed, could lead to a major loss. It is recommended that companies obtain feedback on the checklist from their insurers.

The front of the sheet consists of the hazards to be checked with any appropriate actions to be logged. Where more detail is required as far as action is concerned the back of the checklist should be used. Here the item numbers specified should tie up with those on the front of the sheet.

Guidance is given in these notes as to the standards that should be maintained in the context of the self inspection report form.

##### 7.1.2 Personnel

For the process to be successful and in order to minimise the risk of loss, sites and companies must nominate a person or persons to carry out the physical check of the premises. There is no hard and fast rule as to who should

carry out the check or indeed how any site should organise it, as much will depend upon the circumstances of each site. For example, if the site is small, one person would probably suffice; if the site is large, it would be prudent to break the site down into areas and ensure that one person is responsible for each area.

The identity of the nominated persons will vary from site to site, however it should be someone who knows the physical area well and has some authority in that area. For example, a shift manager or foreman might be the best person to carry out the physical check.

##### 7.1.3 Frequency

Checks should be carried out at the frequency specified for each item as a minimum.

##### 7.1.4 Follow up

The report(s) should be completed and forwarded to the site manager for signature. This procedure will identify what remedial action is to be taken to rectify any problems encountered. Action points should then be progressed using the back of the form. All reports should be retained to enable management to spot trends on an ongoing basis.

##### 7.1.5 Housekeeping fire checklist

The following will give an indication of the type of hazards that should be identified in the course of the inspection. The list is not exhaustive but will give an idea of the relevant points to look for.

*Note: frequency codes as follows: D = Daily; W = Weekly; F = Fortnightly; M = Monthly; A = Annually*

Aspect	Details	Inspection frequency	Date last checked	Compliant? (Y or N)	Action taken
<b>1.</b>	<b>Fire equipment and fire protection measures</b>				
a) Fire doors (internal routes)	<ul style="list-style-type: none"> <li>• All connecting internal doors, whether fire rated or not, undamaged, and kept clear of obstructions.</li> <li>• Self-closing devices in full working order.</li> <li>• Fire doors kept shut and must not be wedged or held open.</li> </ul>	<b>D</b>			
b) Escape doors (external to open)	<ul style="list-style-type: none"> <li>• In good repair.</li> <li>• Free from obstruction.</li> </ul>	<b>M</b>			
c) Exit routes	<ul style="list-style-type: none"> <li>• All internal corridors used for personnel movement free from obstructions – for example, photocopiers, packaging.</li> <li>• Walls and ceilings in good repair.</li> </ul>	<b>D</b>			
d) Fire extinguishers	<ul style="list-style-type: none"> <li>• Extinguishers adequately distributed across all areas and different types allocated dependent upon the hazards present.</li> <li>• All fire points clearly identified and extinguishers in order/undamaged.</li> <li>• Proper servicing arrangements in place and up to date.</li> <li>• Appropriate replacement/refilling of extinguishers.</li> <li>• Free from obstruction and easily accessible.</li> </ul>	<b>M</b>			
e) Other internal firefighting equipment	<ul style="list-style-type: none"> <li>• Hose reels and fire blankets adequately distributed across all areas and available for use where appropriate.</li> <li>• All fire points clearly identified and equipment in order/undamaged.</li> </ul>	<b>M</b>			
		<b>A</b>			

Aspect	Details	Inspection frequency	Date last checked	Compliant? (Y or N)	Action taken
	<ul style="list-style-type: none"> <li>• Proper servicing arrangements in place and up to date.</li> </ul>	A			
	<ul style="list-style-type: none"> <li>• Free from obstruction and easily accessible.</li> </ul>	D			
	<ul style="list-style-type: none"> <li>• Hose reel maintenance contracts in place and maintenance up to date.</li> </ul>	A			
	<ul style="list-style-type: none"> <li>• Location details available and imparted to trained staff.</li> </ul>	A			
	<ul style="list-style-type: none"> <li>• Hose reels complete and undamaged.</li> </ul>	W			
f) Yard hydrants and equipment	<ul style="list-style-type: none"> <li>• Clearly marked.</li> <li>• Easily accessible.</li> <li>• Not obstructed by vehicles.</li> <li>• In full working order.</li> </ul>	M			
		D			
		D			
g) Fire alarm points	<ul style="list-style-type: none"> <li>• Undamaged.</li> <li>• In full working order (including signalling to alarm receiving centre or gatehouse) verified by testing.</li> <li>• Free from obstructions.</li> </ul>	A			
		D			
		W			
		D			
<b>2. Sprinkler systems (Note: For a fuller account of sprinkler maintenance regimes, please refer to the LPC Rules for automatic sprinkler installations).</b>					
	<ul style="list-style-type: none"> <li>• Main stop valves open.</li> </ul>	W			
	<ul style="list-style-type: none"> <li>• Stop valves in full working order, verified by testing.</li> </ul>	W			
	<ul style="list-style-type: none"> <li>• Valves strapped and padlocked.</li> </ul>	W			
	<ul style="list-style-type: none"> <li>• Pressure gauges, alarm valves, pumps and batteries in full working order.</li> </ul>	W			

Aspect	Details	Inspection frequency	Date last checked	Compliant? (Y or N)	Action taken
	<ul style="list-style-type: none"> <li>• Tank level and fire brigade connection in full working order.</li> </ul>	M			
	<ul style="list-style-type: none"> <li>• Heads and pipework in order and free from damage, heads painted and so on.</li> </ul>	M			
	<ul style="list-style-type: none"> <li>• Annual test card replacement.</li> </ul>	A			
	<ul style="list-style-type: none"> <li>• Goods at least 1m clear of any sprinkler head.</li> </ul>	M			
<b>3.</b>	<b>Control and use of flammable materials</b>				
	a) Flammable liquids (including in workshops and laboratories) <ul style="list-style-type: none"> <li>• Only working (minimum) quantities in circulation at any given time.</li> <li>• Returned to store at the end of the shift.</li> <li>• Stocks kept in approved containers in fire-resisting metal cabinets or safe designated areas.</li> <li>• Lidded metal bins provided for waste material storage.</li> </ul>	D			
	b) Flammable gases <ul style="list-style-type: none"> <li>• All cylinders properly secured and in a locked storage compound.</li> <li>• LPG cylinders stored separately from other cylinders.</li> <li>• Spark arrestors fitted on cutting equipment.</li> <li>• Hot work permits observed.</li> <li>• Ammonia detection provided and in full working order.</li> <li>• Ammonia alarms serviced.</li> </ul>	M			
		D			
		D			
		A			
		D			
		A			
		A			
<b>4.</b>	<b>General housekeeping</b>				
	a) Control of packaging materials <ul style="list-style-type: none"> <li>• Packaging materials confined to their proper location.</li> <li>• Working quantities in production/ packing areas kept to a minimum.</li> <li>• All waste cleared up regularly and promptly.</li> </ul>	W			
	b) Disposal of waste <ul style="list-style-type: none"> <li>• Waste and unwanted materials removed from buildings daily to external tamperproof containers/skips.</li> </ul>	D			

Aspect	Details	Inspection frequency	Date last checked	Compliant? (Y or N)	Action taken
	<ul style="list-style-type: none"> <li>Waste skips kept at least 10 metres away from buildings.</li> <li>Container removal/emptying carried out as necessary.</li> </ul>	M			
	<ul style="list-style-type: none"> <li>Where clocking points have been installed to assist security, check to ensure that they are used.</li> </ul>	W			
c) Clocking points	<ul style="list-style-type: none"> <li>Security contractors provide clocking point print outs on a regular basis.</li> </ul>	W			
d) Perimeter fencing, windows and general security	<ul style="list-style-type: none"> <li>Perimeter fencing including gates undamaged.</li> </ul>	M			
	<ul style="list-style-type: none"> <li>Gates locked or staffed out of hours.</li> </ul>	D			
	<ul style="list-style-type: none"> <li>Windows locked out of hours.</li> </ul>	D			
	<ul style="list-style-type: none"> <li>Intruder alarm switched on out of hours and verified as being in full working order.</li> </ul>	D			
	<ul style="list-style-type: none"> <li>Doors to storage areas, packaging stores and dry goods kept closed at all times.</li> </ul>	D			
<b>5. Building fabric</b>					
a) Composite panels	<ul style="list-style-type: none"> <li>Integrity and appearance normal (such as the absence of mould, penetrations properly sealed).</li> <li>Any damage repaired promptly.                      Cat 1: Major (within 24 hours)                      Cat 2: Minor (within 2 weeks)</li> </ul>	W			
b) Structural modifications	<ul style="list-style-type: none"> <li>Modifications made to structures that may affect fire safety integrity should be checked to verify that no increased risk has been introduced.</li> </ul>	W			
c) Roof Spaces	<ul style="list-style-type: none"> <li>Non-essential materials not present.</li> </ul>	A			
		M			

Aspect	Details	Inspection frequency	Date last checked	Compliant? (Y or N)	Action taken
<b>6. Electrical installations</b>	<ul style="list-style-type: none"> <li>Electricity at Work Regulations compliance verified.</li> </ul>	A			
	<ul style="list-style-type: none"> <li>Checks to identify loose or temporary wiring carried out.</li> </ul>	D			
	<ul style="list-style-type: none"> <li>Illegal portable electrical appliances tested – for example, aged radios brought in by staff.</li> </ul>	M			
	<ul style="list-style-type: none"> <li>Switch rooms secure, locked when not in use, and clear of all non-essential materials and stock.</li> </ul>	D			
	<ul style="list-style-type: none"> <li>Stock clear of electrical equipment.</li> </ul>	D			
	<ul style="list-style-type: none"> <li>Emergency escape lighting system tested and full working order verified.*</li> </ul>	M			
*Note: under BSI 5266 there is a formal requirement to test emergency escape lighting at six monthly intervals					
<b>7. Heating appliances – control and use</b>					
a) General	<ul style="list-style-type: none"> <li>Stock kept clear of heaters.</li> </ul>	D			
b) Boilers	<ul style="list-style-type: none"> <li>Fusible link cut-off devices in full working order.</li> </ul>	M			
c) Space heaters	<ul style="list-style-type: none"> <li>Stock and/or work in progress at least 1m from heaters.</li> </ul>	D			
	<ul style="list-style-type: none"> <li>Fusible link cut-off devices in full working order.</li> </ul>	M			
d) Portable heaters	<ul style="list-style-type: none"> <li>The use of portable heating appliances should be actively discouraged and allowed only in exceptional circumstances. If they are used, only those with enclosed elements are permitted.</li> </ul>	D			
<b>8. Ovens and fryers</b>					
a) Ovens	<ul style="list-style-type: none"> <li>Maintenance and duct and bed cleaning schedules observed.</li> </ul>	F			
	<ul style="list-style-type: none"> <li>Polystyrene or polyurethane wall or ceiling panels replaced by approved fire-resisting material or overlaid with such material if within 3m of ovens.</li> </ul>	F			

Aspect	Details	Inspection frequency	Date last checked	Compliant? (Y or N)	Action taken
b) Fryers	<ul style="list-style-type: none"> <li>Maintenance and duct and filter cleaning schedules observed.</li> </ul>	F			
	<ul style="list-style-type: none"> <li>Overheat warning systems in full working order.</li> </ul>	F			
	<ul style="list-style-type: none"> <li>Fixed fire protection maintenance contract up to date.</li> </ul>	F			
	<ul style="list-style-type: none"> <li>Fixed fire protection in full working order and indicating satisfactory conditions.</li> </ul>	F			
	<ul style="list-style-type: none"> <li>Polystyrene or polyurethane wall or ceiling panels replaced by approved fire-resisting material or overlaid with such material if within 3m of fryers.</li> </ul>	F			
<b>9. Smoking control</b>					
	<ul style="list-style-type: none"> <li>Continual enforcement of smoking controls.</li> </ul>	D			
	<ul style="list-style-type: none"> <li>Smoking confined to designated smoking areas equipped with metal ashtrays or other fire-resistant receptacles.</li> </ul>	D			
<b>10. Pallet and containerised storage in yard areas</b>					
	<ul style="list-style-type: none"> <li>All storage in yard areas kept as far away from buildings as is practicable, and a minimum of 10m.</li> </ul>	W			
	<ul style="list-style-type: none"> <li>Pallets stored at least 10m from external buildings.</li> </ul>	W			
<b>11. Battery charging areas</b>					
	<ul style="list-style-type: none"> <li>All battery charging areas kept clear for a distance of 2m on all open sides.</li> </ul>	D			
	<ul style="list-style-type: none"> <li>Where practical, chargers installed are raised above floor level (for example, 60-90 cm).</li> </ul>	M			
	<ul style="list-style-type: none"> <li>Guardrails present and in good repair.</li> </ul>	M			



Aspect	Details	Inspection frequency	Date last checked	Compliant? (Y or N)	Action taken
	<ul style="list-style-type: none"> <li>All battery charging areas well ventilated sufficiently to remove hydrogen – for example, force ventilated.</li> <li>Carbon dioxide extinguishers available nearby.</li> <li>Stock clear of battery chargers.</li> </ul>	D			
		W			
		D			
<b>12. Bulk powder</b>	<ul style="list-style-type: none"> <li>Anti-static measures in place and functioning.</li> </ul>	D or as frequently as delivery is made			
<b>13. Fuel tanks</b>	<ul style="list-style-type: none"> <li>All oil and other fuel tanks banded (catchpitt).</li> <li>Bunds clear of debris.</li> <li>Drain valves fitted off the ground to enable the removal of waste liquids.</li> <li>Drain valves locked off to prevent tampering.</li> <li>LPG and fuel tanks fenced off.</li> <li>LPG and fuel tanks earthed using earthing clips.</li> </ul>	A			
		M			
		A			
		A			
		A			
		A			
<b>14. Fire drills</b>	<ul style="list-style-type: none"> <li>Regular fire drills carried out and records kept, including of evacuations planned and false alarms.</li> </ul>	Six-monthly			
<b>15. Miscellaneous</b>	[Additional site-specific points – for example, critical effluent handling and control system, handling of cooking oils.]				

**Inspected by:**

**Signed:**

**Date:**



7.2 Hot work permit

## HOT WORK PERMIT

A copy of the completed permit should be retained/saved for auditing purposes.

ISSUING COMPANY \_\_\_\_\_ PERMIT NO. \_\_\_\_\_

**A PROPOSAL** *(To be completed by the person responsible for carrying out the work)*

BUILDING \_\_\_\_\_

EXACT LOCATION OF PROPOSED WORK \_\_\_\_\_

NATURE OF WORK TO BE UNDERTAKEN \_\_\_\_\_

**I understand the scope of work and precautions to be undertaken.**

SIGNED \_\_\_\_\_ BLOCK CAPITALS \_\_\_\_\_

DATE \_\_\_\_\_ POSITION \_\_\_\_\_

CONTRACTOR COMPANY (WHERE APPLICABLE) \_\_\_\_\_

**B AGREEMENT** *(To be completed by the Company Safety Officer or other nominated person (the 'Issuer of the Permit'))*

**This Hot Work Permit is issued subject to the following conditions:**

ISSUE OF PERMIT: DATE \_\_\_\_\_ TIME \_\_\_\_\_

EXPIRY OF PERMIT\*: DATE \_\_\_\_\_ TIME \_\_\_\_\_

\*It is not desirable to issue permits for protracted periods. Fresh permits should be issued where, for example, work extends from morning to afternoon.

A FINAL CHECK OF THE WORK AREA SHALL BE MADE, NOT BEFORE (TIME) \_\_\_\_\_

ADDITIONAL CONDITIONS REQUIRED: \_\_\_\_\_

\_\_\_\_\_

The above location has been examined and the precautions listed on the attached checklist have been complied with. I have carried out a risk assessment and consider that there is no reasonably practical alternative to doing the job using Hot Work. I have been provided with evidence of appropriate Public Liability Insurance.

SIGNED \_\_\_\_\_ BLOCK CAPITALS \_\_\_\_\_

DATE \_\_\_\_\_ POSITION \_\_\_\_\_

**C FOLLOWING COMPLETION OF WORK** *(To be completed by member of staff or contractor responsible for the work. The permit should then be returned to the Issuer)*

The work area and all adjacent areas to which sparks and heat might have spread (such as floors below and above, and areas on other sides of walls) have been inspected and found to be free of smouldering materials and flames.

Paint strippings, stub ends of welding rods and other hot waste materials have been removed and disposed of safely.

All equipment, including gas cylinders, has been removed to a safe area.

TIME INSPECTION COMPLETED \_\_\_\_\_ *(This must be at least 60 minutes after work was completed)*

SIGNED  \_\_\_\_\_ NAME OF SIGNATORY \_\_\_\_\_

DATE \_\_\_\_\_ POSITION \_\_\_\_\_

CONTRACTOR (WHERE APPLICABLE) \_\_\_\_\_

**D SIGN OFF BY ISSUER OF PERMIT**

The Hot Work has been completed. Any zone of the fire alarm system that was isolated has been fully reinstated.

SIGNED  \_\_\_\_\_ NAME OF SIGNATORY \_\_\_\_\_

DATE \_\_\_\_\_

## HOT WORK PERMIT CHECKLIST

The following checks should be carried out prior to commencing Hot Work.  
The person carrying out these checks should consider each of the following statements. The box alongside each statement needs to contain a Y (Yes) or be left blank (if the matter is not relevant) if a Hot Work Permit is to be issued. An N (No) may result in refusal of a permit.

THIS CHECKLIST RELATES TO PERMIT NO. \_\_\_\_\_

### GENERAL

Wherever practicable the use of Hot Work should be avoided and a safer way employed.

If you cannot comply with the following points, do not go ahead with the hot work.

### FIRE PROTECTION

Where sprinklers are installed they are operative.

Where an automatic fire detection system has been installed, it will be kept operative. Only the zone where the Hot Work is being carried out will be isolated for the period whilst the Hot Work is in progress.

A trained person not directly involved with the work will provide a continuous fire watch during the period of Hot Work. Following completion of each period of the work, the fire watch will continue for at least 30 minutes, with further checks at regular intervals, up to 60 minutes after completion, to ensure that the working area and all adjacent areas, including the floors below and above, and areas on the other sides of walls, screens and partitions and above false ceilings are free of smouldering materials and flames.

At least two suitable extinguishers or a hose reel are immediately available. The personnel undertaking the work and providing the fire watch are trained in their use.

Personnel involved with the work and providing the fire watch are familiar with the means of escape and method of raising the alarm/calling the fire brigade.

### PRECAUTIONS WITHIN 10 METRES (MINIMUM) OF THE WORK

Combustible materials have been cleared from the area. Where materials cannot be removed, protection has been provided by non-combustible or purpose-made blankets, drapes or screens.

Flammable liquids have been removed from the area.

Floors have been swept clean.

Combustible floors have been covered with overlapping sheets of non-combustible material or wetted and liberally covered with sand. All openings and gaps (combustible floors or otherwise) are adequately covered.

Protection (non-combustible or purpose-made blankets, drapes or screens) has been provided for:

- walls, partitions and ceilings of combustible construction or surface finish

- all holes and other openings in walls, partitions and ceilings through which sparks could pass.

Where work is being carried out on building panels, an assessment has been made of insulating or other materials behind or forming the core of the panels.

Combustible materials have been moved away from the far side of walls or partitions where heat could be conducted, especially where these incorporate metal.

Enclosed equipment (tanks, containers, dust collectors etc.) has been emptied and tested, or is known to be free of flammable concentrations of vapour or dust.

### EQUIPMENT

Equipment for Hot Work has been checked and found to be in good repair.

Gas cylinders have been properly secured.

### 7.3 Approved suppliers and installers of approved composite panels

This list is correct as at 1st October 2006. For the most up to date lists and details please visit [www.redbooklive.com](http://www.redbooklive.com)

#### 7.3.1 Supplier of LPS 1181-approved lining materials

##### **Celotex Limited**

Lady Lane Industrial Estate, Lady Lane, Hadleigh, Suffolk IP7 6BA, UK

*Tel:* +44 (0)1473 822093 • *Fax:* +44 (0)1473 820880  
*Email:* [technical@celotex.co.uk](mailto:technical@celotex.co.uk)  
*Website:* [www.celotex.co.uk](http://www.celotex.co.uk)

#### 7.3.2 Suppliers of LPS 1181-1-approved cladding products used for the external envelope of buildings

##### **A Steadman & Son Limited**

Warnell, Welton, Carlisle, Cumbria CA5 7HH, UK

*Tel:* +44 (0)16974 78277 • *Fax:* +44 (0)16974 78530  
*Email:* [info@steadmans.co.uk](mailto:info@steadmans.co.uk)  
*Website:* [www.steadmans.co.uk](http://www.steadmans.co.uk)

##### **CA Group Limited**

Evenwood Industrial Estate, Copeland Road, Evenwood, Co. Durham DL14 9SF, UK

*Tel:* +44 (0)1388 834242 • *Fax:* +44(0)1388 834881

##### **Corus Panels and Profiles**

Head Office and Works, Llandybie, Ammanford, Carmarthenshire SA18 3JG, UK

*Tel:* +44 (0)1269 850691 • *Fax:* +44 (0)1269 851081  
*Email:* [sales@coruspanelsandprofiles.co.uk](mailto:sales@coruspanelsandprofiles.co.uk)  
*Website:* [www.coruspanelsandprofiles.co.uk](http://www.coruspanelsandprofiles.co.uk)

##### *Sales Office:*

Seven Drive, Tewkesbury Business Park, Tewkesbury, Gloucestershire GL20 8TX, UK

*Tel:* +44 (0)1684 856600 • *Fax:* +44 (0)1684 856601

##### **EDM Spanwall Limited**

Unit 1, Carryduff Business Park, Carryduff, Belfast BT8 8AN, UK

*Tel:* +44 (0)2890 815303 • *Fax:* +44 (0)2890 815449  
*Email:* [info@edmspanwall.com](mailto:info@edmspanwall.com)  
*Website:* [www.edmspanwall.com](http://www.edmspanwall.com)

##### **Eurobond Laminates Limited**

Wentloog Corporate Park, Cardiff CF3 2ER, UK

*Tel:* +44 (0)29 2077 6677 • *Fax:* +44 (0)29 2036 9161  
*Email:* [sales@eurobond.co.uk](mailto:sales@eurobond.co.uk)  
*Website:* [www.eurobond.co.uk](http://www.eurobond.co.uk)

##### **Haironville TAC Limited**

Abbotsfield Road, Abbotsfield Industrial Estate, St Helens, Merseyside WA9 4HU, UK

*Tel:* +44 (0)1744 818181 • *Fax:* +44 (0)1744 851555  
*Email:* [sales@haironvilletac.co.uk](mailto:sales@haironvilletac.co.uk)  
*Website:* [www.haironvilletac.co.uk](http://www.haironvilletac.co.uk)

##### **Hunter Douglas**

Industriepark 17, Post Box 128, 9350AC Leek, The Netherlands

*Tel:* +31 (0) 5945 15333 • *Fax:* +31 (0) 5945 17851  
*Email:* [info@hdce.nl](mailto:info@hdce.nl) • *Website:* [www.luxalon.com](http://www.luxalon.com)

##### **ISOCAB France SA**

Avenue de la Gironde, Z.I. Petite Synthe, 59640 Dunkerque, France

*Tel:* +33 328 29 26 30 • *Fax:* +33 328 60 11 93  
*Email:* [isocab@isocab.be](mailto:isocab@isocab.be)

##### **Kingspan Insulation Limited (Leominster)**

Pembridge, Leominster, Herefordshire HR6 9LA, UK

*Tel:* +44 (0)1544 388601 • *Fax:* +44 (0)1544 388888  
*Email:* [info.uk@insulation.kingspan.com](mailto:info.uk@insulation.kingspan.com)  
*Website:* [www.insulation.kingspan.com](http://www.insulation.kingspan.com)

##### **Kingspan Limited**

Carrickmacross Road, Kingscourt, Co Cavan, Ireland

*Tel:* +353 42 969 8572 • *Fax:* +353 42 969 8576/77  
*Email:* [info.irl@kingspanpanels.com](mailto:info.irl@kingspanpanels.com)  
*Website:* [www.kingspanpanels.com](http://www.kingspanpanels.com)

##### **Kingspan Limited**

Greenfield Business Park No. 2, Greenfield, Holywell, Clwyd CH8 7HU, UK

*Tel:* +44 (0)1352 716100 • *Fax:* +44 (0)1352 716161  
*Email:* [info@kingspanpanels.com](mailto:info@kingspanpanels.com)  
*Website:* [www.kingspanpanels.com](http://www.kingspanpanels.com)

##### **Metecno Bausysteme GmbH**

Am Amselberg 1, D-99444 Blankenhain, Germany

*Tel:* +49 (0)36454 560 • *Fax:* +49 (0)36454 56200  
*Email:* [vertrieb@metecno.de](mailto:vertrieb@metecno.de) • *Website:* [www.metecno.com](http://www.metecno.com)

##### **Metecno Industrie SPA**

Via N. Sauro, 82, I-33090 Travesio (PN), Italy

*Tel:* +39 0427 908061 • *Fax:* +39 0427 90168  
*Email:* [comm-estero@metecno.it](mailto:comm-estero@metecno.it)  
*Website:* [www.metecno.com](http://www.metecno.com)

##### **Modular Panel Systems Limited**

Mohill, Co Leitrim, Ireland

*Tel:* +353 719631162 • *Fax:* +353 719651979  
*Email:* [info@modular.ie](mailto:info@modular.ie) • *Website:* [www.modular.ie](http://www.modular.ie)

##### **NV Joris IDE**

Hille 174, B-8750, Zwevezele, Belgium

*Tel:* +44 (0)1928 571444 • *Fax:* +44 (0)1928 571888  
*Email:* [sales@joriside.co.uk](mailto:sales@joriside.co.uk) • *Website:* [www.joriside.co.uk](http://www.joriside.co.uk)

##### **Roll Formed Fabrication Limited**

108-114 Moneymore Road, Magherafelt, Co. Londonderry, Northern Ireland BT45 6HJ, UK

*Tel:* +44 (0)28796 31631 • *Fax:* +44 (0)28796 31800  
*Email:* [info@rollformedfabrications.co.uk](mailto:info@rollformedfabrications.co.uk)

##### **Ruukki Construction Polska Sp Zoo**

64-600 Oborniki, UL Lukowska 7/9, Poland

*Tel:* +48 61 296 8510 • *Fax:* +48 61 296 8545  
*Email:* [claddingsalesuk@ruukki.com](mailto:claddingsalesuk@ruukki.com)  
*Website:* [www.ruukki.com/uk](http://www.ruukki.com/uk)



**SpeedDeck Building Systems Limited**

Oaksmere Business Park, Yaxley, Eye,  
Suffolk IP23 8BW, UK

Tel: +44 (0)1379 788166 • Fax: +44 (0)1379 788161  
Email: [speeddeck@eleco.com](mailto:speeddeck@eleco.com)  
Website: [www.eleco.co/speeddeck](http://www.eleco.co/speeddeck)

**ThyssenKrupp Hoesch Bausysteme GmbH**

Hammerstrasse 11, D-57223 Kreuztal, Germany

Tel: +49 (0)2723 599 1221  
Fax: +49 (0)2723 599 1219  
Email: [export@tk-bau.thyssenkrupp.com](mailto:export@tk-bau.thyssenkrupp.com)  
Website: [www.tks-bau.com](http://www.tks-bau.com)

**Trimo dd**

Prijateljjeva 12, 8120 Trebnje, Slovenija

Tel: 0870 351 2022 • Fax: 0870 351 2303  
Email: [trimo@trimo.org.uk](mailto:trimo@trimo.org.uk) • Website: [www.trimo.org.uk](http://www.trimo.org.uk)

**Ward Insulated Panels Limited**

Sherburn, Malton, North Yorkshire YO17 8PQ, UK

Tel: +44 (0)1944 710591 • Fax: +44 (0)1944 710777  
Email: [wbc@wards.co.uk](mailto:wbc@wards.co.uk) • Website: [www.wards.co.uk](http://www.wards.co.uk)

**7.3.3 Suppliers of LPS 1181-2-approved sandwich panels used internally in a building**

**Eurobond Laminates Limited**

Wentloog Corporate Park, Cardiff CF3 2ER, UK

Tel: +44 (0)29 2077 6677  
Fax: +44 (0)29 2036 9161  
Email: [sales@eurobond.co.uk](mailto:sales@eurobond.co.uk)  
Website: [www.eurobond.co.uk](http://www.eurobond.co.uk)

**Excel Industries Limited**

Maerdy Industrial Estate (South), Rhymney,  
Gwent NP22 5PY, UK

Tel: +44 (0)1685 845200 • Fax: +44 (0)1685 844106  
Email: [info@excelfibre.com](mailto:info@excelfibre.com)  
Website: [www.excelfibre.com](http://www.excelfibre.com)

**Kingspan Limited**

Greenfield Business Park No. 2, Greenfield, Holywell,  
Clwyd CH8 7HU, UK

Tel: +44 (0)1352 716100 • Fax: +44 (0)1352 716161  
Email: [info@kingspanpanels.com](mailto:info@kingspanpanels.com)  
Website: [www.kingspanpanels.com](http://www.kingspanpanels.com)

**NV Joris IDE**

Hille 174, B-8750, Zwevezele, Belgium

Tel: +32 51 61 07 80 • Fax: +32 51 61 07 51  
Email: [division.export@joriside.co.uk](mailto:division.export@joriside.co.uk)  
Website: [www.joriside.be](http://www.joriside.be)

**7.3.4 Suppliers of LPS 1181-3 (draft)-approved sandwich panels used in pod construction**

**Modular Panel Systems Limited**

Mohill, Co.Leitrim, Ireland

Tel: +353 719631162 • Fax: +353 719651979  
Email: [info@modular.ie](mailto:info@modular.ie) • Website: [www.modular.ie](http://www.modular.ie)

**Yorkon Limited**

New Lane, Huntington, York YO32 9PT, UK

Tel: +44 (0)1904 610990 • Fax: +44 (0)1904 610880  
Email: [contact@yorkon.com](mailto:contact@yorkon.com) • Website: [www.yorkon.com](http://www.yorkon.com)

**7.3.5 Suppliers of LPS 1181-4-approved external thermal insulation cladding or rain screen cladding systems**

**Sotech Limited**

4 Mill Hill, North West Industrial Estate, Peterlee,  
County Durham SR8 2HR, UK

Tel: +44 (0)191 5872287 • Fax: +44 (0)191 5180703  
Email: [mail@sotech-optima.co.uk](mailto:mail@sotech-optima.co.uk)  
Website: [www.sotech-optima.co.uk](http://www.sotech-optima.co.uk)

**7.3.6 Suppliers of LPS 1208-approved composite construction elements**

**Advanced Thermal Composites Limited**

Hangar 1A, Wrights Lane, Burtonwood,  
Cheshire WA5 4DB, UK

Tel: +44 (0) 1925 711157  
Fax: +44 (0) 1925 711158  
Email: [sales@thermal-composites.co.uk](mailto:sales@thermal-composites.co.uk)  
Website: [www.thermal-composites.co.uk](http://www.thermal-composites.co.uk)

**Eurobond Laminates Limited**

Wentloog Corporate Park, Cardiff CF3 2ER, UK

Tel: +44 (0)29 2077 6677  
Fax: +44 (0)29 2036 9161  
Email: [sales@eurobond.co.uk](mailto:sales@eurobond.co.uk)  
Website: [www.eurobond.co.uk](http://www.eurobond.co.uk)

**Haironville TAC Limited**

Abbotsfield Road, Abbotsfield Industrial Estate,  
St Helens, Merseyside WA9 4HU, UK

Tel: +44 (0)1744 818181 • Fax: +44 (0)1744 851555  
Email: [sales@haironvilletac.co.uk](mailto:sales@haironvilletac.co.uk)  
Website: [www.haironvilletac.co.uk](http://www.haironvilletac.co.uk)

**Hemsec Manufacturing Limited**

Stoney Lane, Rainhill, Prescot, Merseyside L35 9LL, UK

Tel: +44 (0)151 426 7171 • Fax: +44 (0)151 493 1331  
Email: [sales@hemsec.com](mailto:sales@hemsec.com) • Website: [www.hemsec.com](http://www.hemsec.com)

**Insulation Industries Limited**

Bolam Business Park, Bassington Industrial Estate,  
Bassington Drive, Cramlington, Northumberland  
NE23 8AD, UK

Tel: +44 (0)1670 739116 • Fax: +44 (0)1670 739118  
Email: [isowall@isowall.com](mailto:isowall@isowall.com) • Website: [www.isowall.com](http://www.isowall.com)

**ISOCAB France SA**

Avenue de la Gironde, Z.I. Petite Synthe, 59640  
Dunkerque, France

Tel: +33 328 29 26 30 • Fax: +33 328 60 11 93  
Email: [isocab@isocab.be](mailto:isocab@isocab.be)

**Isoclad Limited**

10 Alder Road, West Chirton North Industrial Estate,  
North Shields, Tyne & Wear NE29 8SD, UK

Tel: +44 (0) 191 2585052

Fax: +44 (0) 191 2595742

Email: [isoclad@aol.com](mailto:isoclad@aol.com) • Website: [www.isoclad.com](http://www.isoclad.com)

**Kingspan Controlled Environments Limited**

Hanger 1A, Wrights Lane, Burtonwood,  
Cheshire WA5 4DB, UK

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Website: [www.rockwool.co.uk](http://www.rockwool.co.uk)

**Trimo dd**

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## SECTION 8.

### FURTHER READING AND INFORMATION

*Fire Prevention on Construction Sites, 6th Edition*, Fire Protection Association, [www.thefpa.co.uk](http://www.thefpa.co.uk)

FPA Hot Work Permit Scheme, Gale, M, and Passey, H, Fire Protection Association, 2002.

RC3: *Recommendations for loss prevention in electronic equipment installations*, FPA.

RC7: *Recommendations for Hot Work*, FPA.

RC11: *Recommendations for the use of fork lift trucks*, FPA.

RC12: *Recommendations for the prevention and control of dust explosions*, FPA.

RC36: *Recommendations for fire prevention measures in bakery ovens*, FPA.

RC37: *Recommendations for the control of fire hazards arising from electrical lighting in commercial and industrial premises*, FPA.

*Fire Safety and Waste materials*, FPA.

HSG 107: *Maintaining portable and transportable electrical equipment*, HSE.

*FPA Design Guide for the Fire Protection of Buildings*.

*LPC Rules for Automatic Sprinkler Installations incorporating BS EN 12845*.

Tolleys: *Health & Safety Handbook 2001* ISBN No 0-75450-741-6.

Tolleys: *Fire Safety Management 2000* ISBN No 0-7545-1065-4.

*Management and Control of Fire Risks in Temperature Controlled Structures in the Refrigerated Food Industry*, c/o CSDF, [www.csdf.org.uk](http://www.csdf.org.uk) or contact [ukaffp@ukaffp.org.uk](mailto:ukaffp@ukaffp.org.uk).

*Guidance on the Assessment of Fire Risk – A Practical Guide*, c/o [www.csdf.org.uk](http://www.csdf.org.uk) or contact [ukaffp@ukaffp.org.uk](mailto:ukaffp@ukaffp.org.uk).

*Permit to work systems*, HSE, ISBN 0 7176 1331 3, [www.hsebooks.co.uk](http://www.hsebooks.co.uk)

*Code of Practice for Fire Protection in the Food and Drink Industry*, Loss Prevention Council, [www.lpc.co.uk](http://www.lpc.co.uk)

*Business resilience. A guide to protecting your business and its people*; InFiReS Guidance note, Fire Protection Association; 2005.

*Fire safety risk assessment. Factories and warehouses*, Department for communities and local government, 2006.

**Useful websites**

[www.thefpa.co.uk](http://www.thefpa.co.uk)

[www.hsebooks.gov.uk](http://www.hsebooks.gov.uk)

[www.redbooklive.com](http://www.redbooklive.com)

[www.bafe.org.uk](http://www.bafe.org.uk)

[www.hse.gov.uk](http://www.hse.gov.uk)

[www.the-sia.org.uk](http://www.the-sia.org.uk)

[www.brecertification.co.uk](http://www.brecertification.co.uk)

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