



PRIMARY AUTHORITY ASSURED ADVICE

EXAMPLE FIRE RISK ASSESSMENT SIGNIFICANT
FINDINGS IN FOOD PROCESSING AND COLD STORAGE

Example of possible significant findings following a fire risk assessment for food processing & cold storage premises

Conducting a risk assessment!

You should familiarise yourself with the guidance in "5 steps to risk assessment"

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/14899/fsra-5-step-checklist.pdf

The Regulatory Reform (Fire Safety) Order 2005 requires the responsible person to carry out a Fire Safety Risk Assessment which must focus on the safety in case of fire of all "relevant persons". It should pay particular attention to those at special risk, such as disabled people, those who are known to have special needs and young persons, and must include consideration of any dangerous substances liable to be on the premises. Your fire risk assessment will help you identify risks that can be removed or reduced and to decide the nature and extent of the general fire precautions you need to take.

The UK Government also provide free guides to carrying out fire safety risk assessments which can be downloaded from:

<https://www.gov.uk/workplace-fire-safety-your-responsibilities/fire-risk-assessments>

Conducting a fire safety risk assessment

Although fire risk assessments for non-domestic premises are required by law, unsuitable fire risk assessments are still common place. Many of these have led to serious or multiple fatalities and criminal prosecutions.

PAS 79 – Fire risk assessment guidance and a recommended methodology - is a well-respected document which has already made a positive contribution to enhancing fire safety and protecting and minimising risk to the occupants of buildings. The standard provides a structured approach to fire risk assessment and is an essential document for fire risk assessors.

Whilst you are not required to adopt PAS 79 as a risk assessment template, it is widely accepted as best practice, so at the very least ensure that your chosen template reflects the areas covered by PAS 79. The example significant findings in this document have numbers in brackets which relate to the relevant section of PAS 79.

Copies of PAS 79 can be purchased through the BSI at the following link:

<http://shop.bsigroup.com/ProductDetail/?pid=000000000030251919>

PAS 79 is recognised by many UK Fire & Rescue Services as being the minimum acceptable standard to demonstrate compliance with the Regulatory Reform (Fire Safety) Order 2005

Whichever template you decide to use for your risk assessment you should ensure that it is suitable and sufficient for the type and use of the premises and that any significant findings are recorded and acted upon in a timely manner. You should also ensure that the risk assessor has the necessary skills, knowledge and experience to undertake a fire safety risk assessment.

Important Reminder!

This example risk assessment shows some of the significant findings which may be found within a cold store or food processing environment. It is only a guide and may identify some of the hazards found in your premises and the steps needed to control some of the risks. You may need additional information, especially if you have large or complex premises. It should not be used on its own as it will not satisfy the requirements of the Regulatory Reform (Fire Safety) Order 2005



What are the hazards?	Who might be harmed and how?	Hazards	What are you already doing?	What further action is necessary?	Action by whom?	Action by when?	Date completed	Further action required?
Composite panels (16, 17, 18)	Employees / Contractors may be affected by fumes given off from sandwich panels involved in fire or become trapped within the building.	• Rapid structural collapse • Rapid fire spread • Undetected fire spread • Production of large volumes of black toxic smoke • Delamination of panels increasing fire spread • Molten / burning droplets	• Panel survey undertaken and all panels labelled in accordance with the International Association for Cold Storage Construction (IACSC) scheme • Weekly inspection regime for the condition and integrity of all panels • Panels which become damaged are replaced with panels certified as fire stable by the Loss Prevention Certification Board • Work involving panels to only be undertaken by approved contractors following safe systems of work • The integrity of panels is inspected following all works prior to sign off	• All refurbishments and new builds to incorporate panels certified as fire stable by the Loss Prevention Certification Board • Rolling programme of replacing all non-fire stable panels with panels approved by the Loss Prevention Certification Board • Daily inspection regime of all areas to ensure no ignition sources are placed in the vicinity of panels				



Fire Compartmentation (breaches by services, doors, access hatches, vents etc.) (17, 18)	Employees / Contractors may become trapped by fire and smoke spreading into adjoining fire compartments.	• Undetected fire spread • Entrapment of employees • Smoke logging of other compartments	• Fire compartment survey undertaken to identify all areas where services pass through fire compartment barriers • All works involving any breach of fire Compartmentation to be undertaken using a permit system • All works to be inspected by a competent site representative prior to sign off • Monthly inspection programme of all access points (doors, hatches etc.) for integrity and operation • All work involving modifying insulating panels to be undertaken by approved contractors and the integrity of the panel reinstated at the conclusion of work	• Remedial works programme to rectify all identified breaches of fire Compartmentation				
Plant rooms (16,17,18)	Employees / Contractors may become trapped by fire and smoke.	• Large stored quantities of liquids / gasses • Toxic release within any fire / smoke plume • Cold burns	• Plant rooms identified as high risk areas • Plant rooms to be maintained as sterile areas • All flammable and	• Weekly checks to ensure that no combustible items are stored • Compartmentation survey to be carried out to determine any breaches requiring remedial action • Plan of location and operation of				



		caused by gas release • Pressurised pipework • Boilers • Electrics • Oils	hazardous chemicals stored safely (Risk assessments needed for all COSHH items) • Access to authorised persons only • Adequate means of escape • Adequate emergency lighting • Means of detecting and warning of fire • Suitable means of detecting and warning of leaks	isolation valves and switches made available for the local fire service				
Refrigerants (Ammonia, Carbon Dioxide, Liquid Nitrogen) (15,16)	Employees and others may suffer fatal respiratory irritation following exposure to ammonia. Exposure to even low concentrations can cause severe eye and throat irritation. Members of the public may be affected by ammonia leakage	• Asphyxiation • Large stored quantities of liquids / gasses • Toxic release within any fire / smoke plume • Cold burns caused by gas release • Pressurised pipework	• Extrication and ventilation plant installed • System designed as per industry practice • Written scheme of examination for all refrigerant plant, including vapour detectors • Only authorised persons allowed in plant room and room locked when not in use • High hazard maintenance jobs identified and undertaken only by competent trained specialists, following documented safe systems of work	• All work on the system to be undertaken by a minimum of two persons • Periodic testing of procedures • Periodic exercises involving local fire service • Monthly checks on vapour detectors and alarms • Weekly check on shower • Emergency plan to cover the surrounding area which may be affected by a leak • Identify local water sources and provide protection • Provide trained breathing apparatus teams and gas tight suits • Prepare and rehearse emergency plans				



			• Staff training in the risks of ammonia and its effect on health • Emergency plans for ammonia release agreed, including casualty rescue policy and policy for neighbouring premises and agreed with the local fire service • Staff trained in the emergency plan • Emergency plans regularly exercised • Vapour detectors near likely leakage points activate alarm and emergency extraction if workplace exposure limit (25 parts per million) is reached • Water shower nearby for those exposed to an ammonia spray • Windsock to show wind direction in the event of a release. Assembly point to be upwind					
Vehicles (forklifts, pallet trucks etc.) (15,16)	Employees / Contractors using incorrect operating methods may cause a spark igniting flammable	• Battery storage • Flammable fumes from gassing batteries	• Forklift charging area located away from sandwich panels • Provision of suitable extinguishing media • Adequate ventilation	• Assess ventilation requirements using the HSE formula located: http://www.hse.gov.uk/pubns/indgl39.pdf • Implement a periodic testing and maintenance regime for charging points				



	hydrogen gas resulting in an explosive fire	• Ignition risk from sparks • LPG storage	to disperse any battery gasses (Oxygen and Hydrogen) • Spill kit provided including Sulphuric Acid neutralising agents • PPE to be worn at all times when operating battery chargers • No sources of ignition within the charging area • No smoking within the charging area	• Ensure that all relevant staff are fully trained in operating charging equipment and training is revisited periodically				
Packaging materials (pallets, plastic wrapping etc.) (9,13)	Employees / Contractors may be affected by fumes given off from packaging materials involved in fire or become trapped within the building.	• Combustible materials • Large quantities • Toxic smoke produced • Rapid fire spread	• Prompt removal of packaging materials from the work area • Dedicated waste handling area • Waste material handling area secure against arson • Frequent periodic removal of waste packaging materials from site • Stored items located at least 300mm from lighting units or other electrical sources to prevent ignition of packaging • Separate storage areas for items contained in different packaging materials					



Electrical fault (7,10)	Fire from faulty electric equipment or installations may spread and trap employees / contractors	• Short circuit from electrical installations can ignite combustible materials • Overloading of electrical units causing heat build-up and possible fire • Mechanical damage to electric units	• Fixed wiring and installations periodically tested • Training staff on the correct use of electrical equipment • Isolation points recorded on plans in the grab pack / premises information box • Electric installations located away from flammable items	• Schematics available of all on site electrical installations • Implement a reporting and repair system for all damaged installations				
Lighting (7,10)	Employees / Contractors on site may become trapped or suffer the effects of fire and or smoke from a fire caused by radiated or direct heat ignition from lighting units.	• Radiated heat from traditional filament lamps igniting combustible items in the immediate vicinity • Burning out of fluorescent tube starter motors falling onto combustible items • Faulty / defective lighting units igniting combustible items	• Lighting units tested as part of the fixed wiring installations test • Periodic routine replacement of bulbs • Periodic routine replacement of fluorescent starter units • Routine maintenance and repair / replacement regime	• Mid to long term programme of replacing lighting units with LED equivalents (LED uses less energy and produces negligible heat output therefore reducing ignition risks)				



Hot works (14)	Employees / contractors on site may become trapped or suffer the effects of fire and or smoke from a fire caused by incorrect hot works.	Hot works can include the following: • Cutting and welding • Soldering and brazing • Blowlamps and blowtorches • Grinding and abrasive work • The use of bitumen boilers	• Routine work areas risk assessed for regular use of hot works • Permits to work are utilised for all non-routine hot works • Work areas are pre-inspected to ensure that all combustible materials are removed or protected, including the risk from conducting materials and radiant heat • Detectors are isolated in the work vicinity • Suitable protection measures are in place both during and after the work • Appropriate fire-fighting equipment is to be provided • Post work inspection period in place (minimum of 1 hour)	• Identify possible alternatives to replace hot works where possible • Register of all hot works to be maintained				
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Acetylene (15)	Employees and other relevant persons within a 200m radius of cylinders involved in fire are at risk from debris and blast effects	• Decomposing of the gas can become explosive even without the presence of Oxygen • Decomposition can be self-sustaining • Gas within cylinders can be exothermic (self-heating) • External fire or heat impacting on cylinders could cause catastrophic failure • Cylinder fire due to ignition of escaping gas • Fire from incorrect use of Oxyacetylene packages (incorrect regulator pressures, incorrect torch light up / shut down procedures) • Fire from incorrect or faulty	• Only competent trained persons to use Oxyacetylene equipment • Only authorised equipment to be used • "Hot works" permits system in use for non-routine work areas • Work site inspections carried out after the completion of "Hot Works" to ensure there are no residual hot spots • Flashback arrestors provided for all Oxyacetylene equipment • DSEAR risk assessment carried out • Workplace to be cleared of all oil or grease prior to commencing work. Oil or grease not to be used to lubricate cylinder threads • Cylinders to be stored on a proper cylinder trolley and unused cylinders to be stored in a suitable storage cage / area • Empty cylinders stored in a suitable	• Pre-use equipment checks to be carried out in accordance with HS(G) 139 pp 38-44 • Defective equipment reporting system to be implemented • Gas regulators to be replaced every 5 years • Identify suitable replacements for Acetylene (Plasma for cutting, TIG / MIG for welding, Oxypropane for heating) are all possibilities				
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		equipment • Accidental ignition of flammable materials during cutting or welding • Hose damage during cutting / welding operations or leaking due to ageing • Residual hot spots after cutting / welding • Fire caused by use of Oxyacetylene packs without flashback arrestors • Ignition caused by reaction with oil or grease	storage area separate from full cylinders					
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Smoke plumes (3.5, 5)	Employees and relevant persons external to the premises downwind suffer from the effects of toxic smoke inhalation - Short term effects can include irritation to eyes, nose and throat, carbon monoxide reduces the bloods Oxygen levels and fine particles can lead to respiratory irritation and worsen the effects of medical conditions such as Asthma and heart disease. Other smoke constituents may be toxic or poisonous even in relatively low doses	Dependent on the items involved in fire the smoke produced may contain some of the following: • Fine soot particles • Carbon Monoxide • Carbon Dioxide • Nitrous Oxides • Hydrogen Sulphide • Hydrogen Cyanide • Ammonia • Phosgene • Asbestos particles	• Pre prepared critical incident plans which include reference to smoke plumes and their effects • Liaison with the local fire service when writing / reviewing critical incident plans • Liaison with the Environment Agency and the HSE when writing / reviewing critical incident plans • Multiple fire assembly points to allow for differing wind directions / weather conditions	• Testing of critical incident plans using site personnel and periodically in conjunction with the local fire and rescue service • Liaise with the local authority emergency planning department when writing / reviewing critical incident plans • Critical incident plan to be developed to deal with post incident clean up both on and off site • Familiarisation with The Environmental Damage (Prevention & Remediation) Regulations 2009 and the Environmental Liability Directive 2004/35/EC which applies the "Polluter pays" principle				
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Water run off (3.5, 5)	Relevant persons within the geographic area may be affected by contaminated drinking water	Dependent on the items involved in fire the water run-off is likely to contain harmful substances which may contaminate aquifers supplying drinking water to the local population	• On site private hydrants • Liaison with the local fire service to identify hydrant supplies and marked on premises plans / critical incident plans • Open water supplies – ponds, reservoirs, water treatment facilities • On site interceptors	• Familiarisation with The Environmental Damage (Prevention & Remediation) Regulations 2009 and the Environmental Liability Directive 2004/35/EC which applies the “Polluter pays” principle • Periodic testing of on-site hydrants and determine the flow capacities • Mark and provide fire service access to interceptor lids for the fire service to allow recycling of fire water • Develop a fire water run off plan in conjunction with the Environment Agency and Fire Service				
Arson (9)	Employees are put at significant risk of death / injury from arson on the premises particularly where multiple seats of fire are lit	• Multiple seats of fire • Usually undertaken outside of normal hours when occupancy may be minimal • Multiple means of escape may be compromised	• Site security (24 hours) / access control • Security alarm linked to gatehouse / call monitoring centre • Waste storage / processing areas remote from buildings (10m suggested) • Waste storage at least 2m away from external fences • CCTV • Security fencing • Security lighting • Waste collected frequently to prevent excessive accumulation	• Employee awareness to be made part of annual training plan (challenge strangers, report suspicious activities etc.) • Liaise with local Police / Fire Service to identify arson reduction measures				



Smoking (8)	Employees / contractors may become trapped by fire caused by careless discarding of a lit cigarette	Careless discarding of a cigarette could ignite combustible materials on site. Careless discarding of cigarettes is one of the main causes of accidental fires in the workplace.	• Smoking is not permitted in buildings in compliance with the 2007 smoke free legislation • Comprehensive fire detection system likely to deter persons from smoking in buildings • Smoking areas provided • Smoking only permitted during designated breaks • Designated smoking areas free from combustible material and long undergrowth • Smoking areas away from hazard areas – refuse / combustible material storage, storage areas for flammable or dangerous substances, areas where compressed gas is present etc.	• Frequent periodic emptying of cigarette bins to be implemented • Specific policy on smoking in the workplace to be written and communicated to all employees • Provide smoking shelters to encourage smokers to only use designated smoking areas • Consider a no smoking on site policy				
E-cigarettes (7,8)	Employees / contractors may become trapped by fire caused by charging of e-cigarettes using non CE marked charging equipment	Non CE marked charging equipment does not always have cut out devices to prevent overcharging		• Organisation smoking policy regarding e-cigarettes • Organisation policy on charging of e-cigarettes • Incorporate e-cigarettes into the smoking policy • Consider a no smoking on site policy				



Solar Panels (7,16)	Employees / Contractors on site may become trapped or suffer the effects of fire and or smoke from a fire caused by collector units	• Ignition caused by overheating collector units • High voltage live electrics (Photovoltaic systems) • Scalds from hot water (Solar thermal systems) • All systems will continue to operate in very low light conditions (moonlight etc.) • Flammable materials • Accelerated fire spread • Implied loading leading to structural collapse • Falling debris • Toxic substances (Heavy metals such as Cadmium)	• Structural survey undertaken prior to installation • Approved contractors • Specified design standards • Routine maintenance and repair / replacement regime • Well specified appropriate type isolators	• Liaison with local fire and rescue service • On site exercises of emergency plans and consider joint exercises with local fire and rescue • Marking and identification of isolating systems				
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Assembly points (25)	Employees / Contractors becoming trapped or injured due to assembly point becoming involved in a fire incident	• Toxic smoke / gasses being blown across the assembly point • Employees / contractors struck by responding emergency vehicles • Employees / contractors unable to exit the site due to incident location • contaminated water run-off reaching the assembly point	• Assembly point located away from the building • Not directly adjacent to the main entrance • Secondary assembly point identified • Located uphill of buildings	• Identify prevailing weather conditions • Responsible person to be identified to control the assembly point • Long term contingency plan for the dispersal of employees when the building cannot be re-occupied or re-entered to collect keys etc.				
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