Loss Prevention Standards

Laundries

Introduction

This document is intended to provide property protection guidance in respect of commercial and industrial laundries.

Larger laundries are generally situated within industrial buildings, which are often located in industrial/commercial areas. Laundries handle an extensive range of garments often specialising in washing, drying and ironing contracts that include collections and deliveries of, for example; towels, bed linen, table cloths, etc. for hotels, sports kit for health/sports clubs or personal protective over coats, or overalls for electronic/pharmaceutical industries or for the printing and engineering trades.

Laundries regularly work to short time periods to return finished garments and the buildings are often designed as 'open plan', with little or no fire compartmentation provided. In some cases laundries have little available space between machinery and storage areas, whilst yard space is frequently used to stored metal cages/trolleys and incoming dirty garments.

They require large quantities of hot water for washing and steam for pressing/ironing, which is normally supplied from a steam boiler.

Spot cleaning of difficult stains is often completed using flammable solvent based cleaners.

Washing includes the use of soaps, detergents and oxidising agents.

Laundry items are typically collected in either metal mobile cages, trolleys or in open-topped plastic mobile containers. These are delivered to the laundry, off-loaded and left for sorting. Sorted garments are then placed in mesh bags, conveyed and dropped or placed into revolving washing machines that use a mix of soaps, detergents, oxidisers and water softeners. Garments are subsequently dried in large revolving tumble dryers for a set time period, often with a pre-set cooling cycle which allows the garments to cool before removal. Garments are then laid out and conveyed through an ironing machine, which also automatically folds them.

Large 'Calendering' machines using steam, heat and pressure rollers are used to finish large sheets and other laid-flat items, which are conveyed flat on rollers. The laundry is then conveyed and placed into folding machines. Some laundries use electrically operated tumble dryers, either vented or condenser type, or large drying tunnels where garments are placed onto wire hangers which pass slowly through a drying tunnel or chamber which is steam heated. Folded garments are conveyed to a collection point where they are sometimes packed and placed into trolleys. Finished laundry in trolleys is rolled onto the back of delivery vehicles ready for despatch to customers.

Hazards

There are many hazards associated with laundries, including but not limited to:

- Construction (combustible materials)
- Gas/oil Boilers
- Steam generators
- Flammable solvents/inks and oxidising agents
- Electrical systems/portable electrical appliances
- Electrical motors/machinery; conveyors, washers, dryers, ironers, folders
- Fire/self-ignition
- Extract ventilation ducts
- Dust/fly
- External combustible storage/arson
- Storage tanks
- Large movements of vehicles
- Smoking

Construction

Buildings should be constructed of non-combustible materials.

Drying tunnels or chambers also need to be constructed of non-combustible materials. Due to the heat produced in laundries any timber materials can dry out and be easily ignited.

Separate the storage of incoming and outgoing laundry, with each kept in fire resistant compartmented rooms/areas with openings protected by self-closing fire doors or automatically closing fire shutters, activated by the fire alarm/detection system. A 4-hour fire compartment is considered best practice if the area is not protected by automatic sprinklers.

Dedicated plant rooms, electrical switch rooms, boilers and steam generators, should be constructed to at least 2-hour fire resistance and fitted with self-closing fire doors of the same fire rating.

Where services such as ducting, etc. pass through fire compartment walls, floors or ceilings, any holes need to be fire stopped using non-combustible materials to the full thickness, and same fire rating. Ventilation and other ductwork travelling through the premises should be fitted with appropriate automatic fire dampers and positioned consistently with the fire compartmentation philosophy, i.e. in place at fire compartment walls/floors. Dampers need to be routinely tested and serviced. Site ventilation systems should also be interlocked to shut down upon automatic and/or manual fire alarm activation.

Laundry chutes should be constructed of non-combustible materials and, when they pass between fire compartments, fitted with self-closing fire doors or automatically closing fire shutters at the bottom, and the top of each chute, activated by the operation of the fire alarm/detection system.

Fire Protection/Detection Systems

Most fires within laundries occur when they are closed. Therefore, depending on the values at risk, fire loads and business dependency, an automatic sprinkler system and automatic fire alarm/detection system should be installed to all areas/compartments of the building. Both the detection and protection systems should have remote signalling to constantly occupied centres, which are insurance-company approved.

Note: Any detection or protection system should be designed and installed to an internationally recognised standard, or if applicable an Aviva Standard, whichever is the greater.

Conveyor systems need to be interlocked to automatically shut down on operation of the fire alarm/detection system. Drying tunnels or chambers should also be interlocked to automatically shut down but with a timed shut down to allow garments to exit the tunnel before the tunnel/chamber shuts down. These interlocks should also be designed to prohibit garments entering the tunnel/chamber once activated.

Smoke extraction vents, when sprinklers are installed, should be manually operated (when the sprinkler system has performed as designed), when advised it is safe to do so by the fire brigade.

High level stratification fans should also automatically stop on activation of the fire alarm/detection system.

Inspections

Laundries need to ensure they are made aware of any flammable solvents, combustible oils, greases, etc. used by their customers.

Laundries must thoroughly inspect all incoming laundry, ensuring any items left in pockets are removed to avoid metal objects causing sparks or lighters/matches igniting etc., and that garments are not already over-heating and potentially reaching self-ignition stage.

Solvent, oil and grease impregnated garments are required to be sorted and washed separately from other garments, and inspected before drying. Any impregnated garments, if not properly cleaned, must be rewashed before drying.

Note: Rubber, foamed-rubber or garments/sheets with water resistant coatings that include wax or oils, should not be placed into dryers.

Hazard Risk Assessments

The premises Fire Safety risk assessment and Control of Substances Hazardous to Health (COSHH) risk assessment need to be completed, regularly reviewed and updated when necessary.

A Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) risk assessment also needs to be completed, regularly reviewed and updated when necessary.

In addition, regular documented self-inspections in respect of fire, security and housekeeping also require completing. Examples of areas to be incorporated in the inspections include, but are not limited to, are noted within the *Aviva Loss Prevention Standard: Fire Safety Inspections.*

Boilers/Steam Generators

Boilers and steam generators must be regularly serviced and maintained. They should be kept separate and located in dedicated plant rooms, each having at least 2-hour fire resistance enclosures using fire resistant materials and self-closing fire doors of the same fire rating.

Fitted typically with gas leak detection, automatic safety shut down interlock devices, flame failure, steam pressure relief valves, steam expansion tank, low and high water/pressure monitoring, etc.

Flammables

Removal of stubborn stains is often achieved using relatively small quantities of flammable based solvents, although many of these may have been replaced by non-hazardous alternatives.

Where flammable solvents are used they should be limited to small quantities, with any bulk supplies stored in an appropriate designated area preferably away from the building, minimum 10 metres, in a secure, well ventilated non-combustible building with suitable lighting, signage, electrical earth safe guards for use in potentially flammable atmospheres using appropriate retention bunds/contained areas.

The use of such flammables must include appropriate self-closing safety containers, used in areas that have been appropriately risk assessed, fitted with safe electrical systems appropriate for use in potentially flammable atmospheres, and equipment fitted with the appropriate anti-static straps/electrical earth safe guards. When not in use smaller quantities of flammable solvents must be stored separate from other materials, and kept in appropriate proprietary flammable liquid safety cabinets, which need to be kept locked.

Storage, decanting and use of solvents should be in accordance with the appropriate national safety codes such as the joint Fire Protection Association/RISCAuthority documents:- *RC55: Recommendations for fire safety in the storage, handling and use of flammable and highly flammable liquids* and *RC56: Recommendations for fire safety in the storage, handling and use of highly flammable liquids: storage in containers other than external fixed tanks*.

Oxidising agents need to be stored separately from combustibles, including all flammables, in a dedicated well-ventilated room stored with similar safeguards to flammables when kept inside buildings. Refer to the joint Fire Protection Association/RISCAuthority document:- *RC43: Recommendations for fire safety in the storage and use of oxidising materials*.

Machinery, such as drying presses, may use combustible/flammable hydraulic oils that could escape under pressure causing a fine mist of flammable oil, which is a severe fire hazard. Depending on the capacity of the machines oil reservoir, flexible rubber hydraulic connections should be replaced with metal connectors and be subject to regular inspection to asses their condition. Machinery should be fitted with safety shut down interlocks to automatically shut down on loss of pressure and/or on operation of the fire alarm/detection system. Consider the use of non-flammable hydraulic fluids.

Electrical Systems/Portable Electrical Appliances

Electrical faults remain one of the main causes of fire, therefore it is essential that systems are risk assessed, routinely inspected and tested as per national safety standards/codes. These should include documented thermal imaging inspections to check for hot spots and loose connections.

Control and distribution panels must be readily accessible with a minimum clearance of 1.5 metres from any combustible materials/storage.

As the laundry is likely to have a high reliance on the utility supplies such as gas, water, steam and electricity, contingency standby supplies should be provided.

Electrical Motors/Machinery (Conveyors/Washers/Dryers/Ironers/Folders)

As well as forming part of the routine electrical inspections and tests, motors and machinery need to be kept clean, routinely serviced and maintained. Static electricity can be a concern, particularly when dryers are unloaded and these should be fitted with appropriate anti-static straps.

Pilot lamps need to be fitted to indicate the machines, including individual irons used for delicates, are operational.

Employees require adequate training to ensure that machinery is turned off at the end of the days work. Alternatively, as a safe guard, timed automatic isolation can be provided to ensure all machinery and non-essential plant is shut down.

Keep machinery at least 1.5 metres clear of any storage.

Adequate numbers of spares for critical equipment should be kept either on site or retained by the designated supplier.

Fire/Self-Ignition

Drying temperatures need careful monitoring and control to ensure the garments are not left too wet or over heated, which can then self-ignite. Garments in dryers, if not fitted with timed interlocked doors to prevent opening before the garments are allowed to sufficiently cool, can self-ignite.

Dryers should have automatic cooling cycles rather than rely on manually operated cooling.

Once the drying cycle has finished, the laundry should be unloaded as soon as possible and not left in the dryer. Dryers should be left open and empty when not in use. Garments, for example, industrial overalls, can be impregnated with solvents, such as turpentine or vegetable oil, e.g. linseed oil, which can self-ignite quite quickly, often within 24 hours of being discarded into containers and left waiting for collection and cleaning.

Dried garments need to be separated from each other to allow any heat to dissipate, and then folded as soon as possible after removal from the dryer. Laundries must allow dried garments that are over-hot, a sufficient amount of space and time to cool down before folding and packing. Towels, for example, once washed and dried can be piled in mobile open topped containers and if left over a period can self heat and ignite, particularly during busy periods.

Mobile laundry containers should be metal and not plastic.

Extract Ventilation Ducts

Extract hoods and ductwork require regular routine cleaning for the entire length of the duct, to maintain efficiency and to remove the build-up of combustible lint, fly and/or dust. The frequency of the cleaning regime should be determined by risk assessment and condition of the area following the previous clean. Inspection hatches need to be provided along the length of the ductwork to allow access for cleaning.

Dust/Fly

High and low dust levels must be routinely removed from structural steelwork and from the tops of cable trays, ducts, cabins and machinery. Motors need to be kept free of dust, fly or lint.

Calenders or dryers generate fly/lint, which if not extracted will overheat and catch fire. Fly/lint should be regularly removed from machinery and from the extraction bag collectors, to an outside waste container kept well away from the building at a minimum distance of 10 metres.

External Combustible Storage and Arson

Arson remains a serious risk and therefore external storage should be limited, and kept at least 10 metres from buildings or twice the storage height whichever is the greater distance, particularly if left overnight, at weekends or holiday periods.

Sites should have perimeter security fencing and gates that are kept locked. During normal working periods access to the site and building must be restricted to authorised persons only.

Buildings should have an intruder alarm system installed and maintained in accordance with national standards, having remote signalling to a constantly manned centre, which is insurance-company approved.

Storage Tanks

Storage tanks need to be kept separate, and secured from unauthorised use. Where the tanks contain flammable, toxic or corrosive substances, they should be double-skinned or provided with spillage containment to at least 110% of the total capacity.

Vehicle Movements and Smoking

Vehicles and pedestrians must be kept separate with dedicated, clearly signposted routes.

Ideally there should be separate entrances and exits, and car parking areas for staff and visitors which are separate from collection and delivery vehicles.

The sites/buildings must have a strict no smoking policy. Drivers and visitors must not be allowed to smoke in their cars or cabs.

Emergency Site Response Teams

The site should have an Emergency Response Team on duty covering all shifts, sickness and holiday periods. The team needs regular planned training and should cover the following:

- Fire awareness training
- Training on the practical use of fire extinguishing equipment
- A Crisis Duty Manager should be appointed with agreed designated reporting lines and responsibility for calling the Emergency Services
- Emergency Site Plan indicating: main isolation points (gas/electricity/water etc.); high hazard storage locations; position of fire hydrants; location of main fire alarm pane; sprinkler pumps and tank and installation alarm control valves
- Trained engineers on duty to assist the Fire & Rescue Service and to check sprinkler pumps are operating correctly, if safe to do so

Business Continuity Planning

The organisation should have a documented Business Continuity Plan, to aid the recovery of the business operation in the event of a loss. The plan should be reviewed, tested and updated at least annually. Copies of the plan should be readily available on site and protected in a fire safe with at least 2-hours fire resistance rating, with other copies kept offsite or outside the building in a secure location and in a different fire area.

Checklist

A generic Laundry Checklist is presented in Appendix 1 which can be tailored to your own organisation.

Further risk management information can be obtained from Aviva Risk Management Solutions

Please Note
This document contains general information and guidance and is not and should not be relied on as specific advice. The document may not cover every risk, exposure or hazard that may arise and Aviva recommend that you obtain specific advice relevant to the circumstances. AVIVA accepts no responsibility or liability towards any person who may rely upon this document.

Appendix 1 – Laundry Checklist

Location	
Date	
Completed by (name and signature)	

	Laundry Checklist	Y/N	Comments
1.	Is the laundry building constructed from non-combustible materials?		
2.	Do the premises have fire segregation/compartmentation in respect of the following: • Incoming areas? • Outgoing areas? • Plant/storage rooms?		
3.	Are all fire exits/routes clear and unobstructed?		
4.	Is an automatic fire protection system installed?		
5.	Is an automatic fire alarm/detection system installed?		
6.	Do you have portable fire extinguishers to the following scale, which are regularly serviced and maintained: • At least 1 x 9 litre water extinguisher to every 200m² plus CO^2 for use on electrical equipment		
7.	Are automatic shut down safety interlocks fitted in respect of: • Fire shutters and conveyors? • Drying tunnels/chambers - with timed shut down to allow traveling garments to exit the tunnel/chamber and prohibit entry?		
8.	In respect of incoming inspections, do they ensure that: • A list of flammable solvents/combustible oils/greases which are used by customers is kept and is up to date? • Flammable solvent impregnated garments are inspected prior to washing and after washing (soiled garments rewashed)? • Flammable solvent/oil impregnated garments are washed separately and prioritised? • Pockets of garments are checked and cleared? • Rubber, foamed rubber or garments/sheets with water resistant coatings that include wax or oils are not placed into dryers?		

	Laundry Checklist Contd.	Y/N	Comments
9.	Are hazard risk assessments up to date in respect of: • Building fire safety? • COSHH? • DSEAR?		
10.	Are self-inspections regularly completed, e.g. housekeeping, fire and security?		
11.	Are boilers/steam generators: • Serviced and maintained? • In dedicated fire-resistant plant rooms? • Fitted with automatic shut down safety interlocks?		
12.	In respect of flammable liquids, is there: • Safe storage/decanting arrangements in place and are the liquids used in accordance with Loss Prevention Council (LPC) or other national standards? • Safe electrical systems for use in potentially flammable atmospheres? • Restrictions on the quantities of machinery hydraulic oils used? • Procedures to ensure that automatic shut down safety interlocks are working and tested, where appropriate?		
13.	Are electrical/thermal imaging inspections, testing regularly undertaken and any faults or deficiencies promptly rectified?		
14.	Are electrical motors/machinery, e.g. conveyors, washers, dryers, ironers, folders: • Clean, routinely serviced and maintained? • Fitted with static electricity straps which are undamaged and regularly inspected?		
15.	In respect of the risks posed by fire/self-ignition, are: • Drying temperatures monitored and controlled? • Dryers fitted with automatic timed interlocked doors to allow cooling? • Dried garments sufficiently cooled before folding and packing? • Items of laundry not left in dryers? • Dryers left open and empty when not in use? • Mobile laundry containers constructed from metal and not plastic?		

	Laundry Checklist Contd.	Y/N	Comments
16.	Are all extract hoods and ductwork: • Regularly cleaned along the entire length of the duct as part of a scheduled cleaning programme? • Fitted with inspection hatches along the length of the duct?		
17.	With regards to dust/fly: • Is high and low levels dust routinely removed from structural steelwork and from the tops of cable trays and machinery? • Are motors kept free of dust? • Are dryers which generate fly and lint regularly extracted and cleaned, with such items removed each day from the building?		
18.	Arson: in respect of the external storage of combustible materials is: • There a perimeter security fence with gates which are kept closed and are they all in a good state of repair? • There a system to control access to the site and buildings to authorised persons only? • Storage limited and kept 10 metres from buildings or two times the storage height whichever is the greater distance? • An intruder alarm fitted to in accordance with national standards to protect the premises?		
19.	Are storage tanks: • Kept separate and secured from unauthorised use? • Double-skinned or provided with spillage containment to at least 110% of the total capacity?		
20.	With regards to vehicle movements are: • Vehicles and pedestrians kept separate with dedicated routes, clearly signposted? • There separate entrances and exits and car parking areas for staff and visitors which are kept separate from collection or delivery vehicles?		
21.	In respect of smoking: • Is there a strict no smoking policy in place? • Is there evidence of any illicit smoking? • Are drivers and visitors informed not to smoke in their cars/cabs?		

	Laundry Checklist Contd.	Y/N	Comments
22.	Is there an Emergency Site Response Team: • Always on duty covering all shifts, sickness and holiday periods? • With training programmes adequate and up to date? • Which includes a Crisis Manager with agreed designated reporting lines and responsibility for calling the Emergency Services? • Which has produced an Emergency Site Plan? As part of the site response, is there a trained engineer on duty to assist the Fire & Rescue Service and to check sprinkler pumps are operating correctly?		
23.	Business Continuity Planning (BCP); has the site: • Produced a formal BCP, which is reviewed, tested and updated at least annually? • Ensured that copies of the BCP are on site in a protected fire safe with at least a 2-hours fire rating? • Confirmed that copies of the BCP are held off site and available at all times?		
24.	Additional comments: