

10 MAJOR CAUSES OF PROPERTY LOSS THROUGH FIRE

RISK MANAGEMENT ADVICE NOTE

Introduction

The comments under each heading highlight some of the reasons why property loss can occur and at the same time features that can be put in place to minimise or possibly eliminate the cause.

1. Housekeeping

("Housekeeping" applies to both inside and outside the premises.)

Problem areas

- Fair – poor standard of internal / external upkeep.
- Congestion / overcrowding.
- General untidiness.
- Spilt oils / chemicals (workshops).
- Badly controlled waste.
- Poor storage standards.

Controls

- Regular inspections.
- Daily clean up.
- Specific chemical / oil storage areas.
- Staff and management involvement.
- Health and safety focus.

2. Hot Work (Welding, Cutting, Grinding, Brazing)

Problem areas

- Commonsense fire safety not observed.
- Area not cleaned down prior to hot work.
- Area not checked after hot work completed.
- Fire extinguishers not available during hot work.

Controls

- Only trained staff to use hot work equipment.
- Formal authorisation / permit system for all work outside designated workshops.
- Area checked before and upon completion of the job.

3. Smoking

- Clearly and understood, designated "No Smoking" areas – outside the building only.
- Butt disposal bins (sand / water) at smoking areas.
- Staff awareness of penalties for non-compliance (induction programme).
- On-going monitoring / surveillance.

4. Electrical

Electrical faults are the No. 1 cause of fires, internationally.

Controls

- Wiring and switchboards checked by competent technician annually, for full safety compliance.
- Motors and electrical equipment and main / sub boards checked by methods such as "Thermal Imaging" (Camera images of hot spots etc).
- Electrical and heat generating equipment (all types) clear of combustibles or well ventilated.
- Monitor doubling or tripling up of plugs, power points, multi boxes.
- Eliminate leads / cords and plugs running across floors unless fully protected.
- Check leads, cords and plugs regularly for "wear and tear" - "tag or test" regime by electrical contractor.
- Light bulbs to be clear of stock and combustible materials (at least 0.5m).
- Fork hoist battery charging unit (especially in warehouses) 1m clear all round (allow to "breathe") – ideally located in an isolated situation.

5. Hazardous Substances (Flammables, Corrosives, Acids, Toxics)

Controls

- Know and understand the danger of each substance.
- Staff should be adequately trained in the handling of each substance (HSNO Act may require "Approved Handlers" depending on type and quantity).
- Material Safety Data Sheets (MSDS) should be held for each substance (including chemicals).
- Where appropriate a Location Test Certificate (current) should be held under the Hazardous Substances and New Organisms Act.
- Bulk quantities of substances should be kept in a secure, separate, strongly-constructed building / room. The doorway entry should have a bund to prevent spilt liquid escaping out of the building / room. The facility should have top and bottom ventilation, and openings / flues fitted to minimise vapour accumulation in the store.

- Quantities only for a day's use should be in the main plant, with unused quantities being returned to the storage facility at the end of the work day. Working stock to be in a purpose built metal storage cabinet (eg "Justrite" or similar from New Zealand safety).
- Naked flames, gas torches and the like should NOT be used around manufacturing areas or in areas involving flammable substances unless protected.
- Any liquid or chemical spill should be cleaned up IMMEDIATELY – this includes diesel and / or lube oils. Spill kits should be on hand where hazardous substances are regularly used.
- Gas cylinders / bottles should be restrained / secured with bulk stock stored in a well ventilated area outside the main premises. (Bulk storage, particularly of LPG may trigger specific licensing requirements, under HSNO).

6. Natural Hazards

- Lightning – arrestors / conductors should be installed on buildings, where lightning is a feature of weather conditions.
- Floods, storms, cyclones and earthquakes can cause reactions / damage that consequently can result in fire, e.g. unsecured heating/naked flame appliances that tip over and cause fire.

Consider seismic restraint on IT equipment, PLC's etc, storage of goods on pallets above floor level, contingency planning.

- In higher seismic risk areas, install "Seismic Valves" on incoming gas supplies which will isolate the supply in an earthquake and reduce the risk of fire or explosion.

7. Neighbouring Premises

Problem areas

- Fire, particularly if in a neighbouring building (say under 10m distance), can spread to other nearby buildings, particularly in the buildings of combustible construction (e.g. sandwich panel).

Controls

- Clear space should exist between buildings. Stock, plant, wooden pallets, combustible waste and vegetation can assist in fire spread from one building to another.
- Windows or door openings that face onto door / window openings or other than solid concrete walls of neighbouring buildings should be ideally protected against fire spread from one building to the other by fire resistant doors. Georgian wired or fire resistant glass (and frames).

8. Arson and Building Materials

Arson

Problem areas

- Idle pallets, rubbish, recycling bins are a prime source of ignition.

Controls

- Remove combustible materials on site and particularly within 10m of any building.
- "Close of Day" checking of all doors and windows.
- Reduce vegetation from buildings (trees, shrubs, etc).
- Rubbish bins locked and well clear of buildings.
- Flammable liquids (internally) secured against illegal use.
- Intruder alarm (monitored) installed throughout and integrated smoke detector system. Security fences (if practical) and security gates in place.
- Good level of lighting.
- CCTV surveillance.
- Guard patrols outside business hours.

Building Materials

Problem areas

- Materials used in construction that can cause fire spread, e.g. polystyrene, plywood, "sandwich" panels.
- Lightweight steel framing – twists, bends and distorts (total loss generally).

Controls

- Manage the site through cold and hot work permit systems.

9. Heat Sources

See also point 4. 'Electrical'

Controls

- Any source of heat, such as electrical (switchboards), utility units (compressors, boilers, generators, battery chargers) should always be at least 1m clear of combustibles.
- Production equipment generating heat should have a clear space from raw materials, packing materials and finished goods (equipment should have "breathing space").
- External burning of waste, etc. should only be in an incinerator with spark guards and other devices that prevent burning waste or sparks spreading around. (The incinerator unit should be well removed from buildings/external storage areas by at least 20m).

10. Production Hazards

Problem areas

- Storage (raw materials/finished goods) poorly organised and congested.
- Plant layout congested with machinery and equipment in excess in production area (facilitates fire spread and prevents effective fire fighting operations).
- Production area also used as a storage area.

- Lack of distinctive separation between raw materials, production and finished goods/despatch areas.
- Lack of floor painted guidelines (congestion can be encouraged!).
- Production waste, e.g. sawdust, shavings and off-cuts to be regularly and thoroughly cleared and disposed.

Controls

- Good housekeeping.
- Fire walls (with doors) between production and storage areas.
- Regular waste removal (fixed system on relevant machines).



Figure 1 - Excessive internal storage of combustibles – increased building fire load.



Figure 2 – Switch room clear of combustibles and well organised – good risk mitigation.



Figure 3 – Combustibles at rear of a commercial building – a serious arson risk.

Disclaimer

The purpose of this Risk Management Advice Note is to assist you in minimising potential loss from exposures which need prompt consideration.

The Advice Note does not imply that all other exposures were under control at the time of inspection.

The options contained in this Advice Note are not intended to be a substitute for appropriate professional advice in relation to any matter. In achieving compliance with these items, fire protection equipment and systems should be installed to comply with the requirements of the relevant local, and/or Government authority. Any equipment installed should also comply with the requirements of the relevant New Zealand Standards and Codes.

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