

Loss Prevention Standards – Asset Classes

Smoke Contamination

Version: 1.4

Date: 29th October 2024

Issues to consider in minimising the effects of
smoke contamination within a building



Introduction

Have you ever considered the threat of a fire at your premises? We are sure the answer to this question is yes. However, have you considered the impact that smoke alone could have, even in low concentrations? Consider:

- A small internal smoky fire distributed by a recirculating ventilation system
- An external fire where smoke is drawn into the building through air intakes
- Smoke passing through a building due to natural air movements



The repercussions for a business can be significant.

This exposure applies to all occupancies from offices, high-rise buildings and hotels, through to the more obviously sensitive businesses such as food processing, pharmaceutical production and electronics manufacturing facilities.

Even small fires can be very smoky and this can have a significant effect on:

- Fixtures, floor coverings, wall coverings, ceiling tiles, etc.
- Floor and ceiling voids and associated data and power systems
- Electrical fittings, electrical contacts, switchgear, etc.
- IT equipment
- Any products or packing materials in your supply chain, finished goods, raw materials, in-process stock, etc. Consider what the impact to your reputation could be from products associated with a smoke contaminated facility?

Because smoke is transmitted so easily and is detectable as an odour at low concentrations, the area covered by the damage of such an incident can be significantly higher than expected, and the affected business can be compromised for much longer.

Common issues around smoke contamination include:

- Lack of understanding in routing and networking of ventilation systems including plenums and manifolds
- Inadequate coverage or lack of appropriate automatic fire detection within the building
- No or inadequate automatic fire detection within the ventilation system
- No or inadequate interlocks between the automatic fire detection and ventilation systems
- Lack of understanding of the fire compartmentation within a building
- Lack of, or inappropriate fire and smoke doors, shutters and dampers in compartment walls, floors and within ventilation ductwork
- Lack of appropriate sealing for penetrations in fire compartment walls or floors
- Inadequate salvage, cleaning and recovery plans for smoke contamination

Checklist

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

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Additional Information

Relevant Loss Prevention Standards include:

- Contamination Following a Fire
- Fire Compartmentation
- Fire Doors, Fire Shutters and Fire Dampers
- Heat and Smoke Venting Systems
- Managing Change - Property

To find out more, please visit [Aviva Risk Management Solutions](#) or speak to one of our advisors.

Email us at riskadvice@aviva.com or call 0345 366 6666.*

*Calls may be recorded and/or monitored for our joint protection.

Appendix 1 – Smoke Contamination Checklist



Location	
Date	
Completed by (name and signature)	

	Smoke Contamination Checklist	Y/N	Comments
1.	Has a quantified property damage and business impact study been completed for smoke contamination at your site?		
2.	Are there any floor or ceiling voids? If 'yes', consider these within the following: (a) As an exposure that could be contaminated? (b) As a source of a smoky fire (cable insulation fire) which could cause contamination?		
3.	Are there accurate drawings showing the ventilation layout for the site?		
4.	Is there the potential to contaminate one area of the site with smoke transported from another area?		
5.	Are there networked or manifolded ventilation systems?		
6.	Is the type and coverage of automatic fire detection on site appropriate for the risk and exposure of smoke contamination?		
7.	Is automatic fire detection provided within the ventilation system? Downstream of any filter media or air moving equipment; across or within any air returns?		
8.	Are the site ventilation systems interlocked to shut down upon automatic and/or manual fire alarm activation?		

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	Smoke Contamination Checklist Contd.	Y/N	Comments
9.	Do you isolate the interlock between the ventilation system and the fire alarm system for testing, maintenance, etc.? How do you assure yourself that this is reinstated?		
10.	Are there accurate fire compartmentation drawings for the site?		
11.	Are any fire doors, shutters, dampers, etc. appropriate for smoke containment?		
12.	Are appropriate fire/smoke dampers provided within the ventilation systems positioned consistently with the fire compartmentation philosophy, i.e., in place at fire compartment walls/floors?		
13.	Are the actuation mechanisms for any fire doors, shutters, dampers, etc. appropriate for smoke containment, i.e., do they close automatically on a fire alarm/smoke signature rather than on a fusible or frangible element/heat signature?		
14.	Are all penetrations through fire compartments sealed with appropriately approved/listed fire stopping materials?		
15.	Do you complete regular, e.g., quarterly, recorded fire compartment wall/floor visual inspections?		
16.	Do you complete a formal annual fire compartment wall/floor audit?		
17.	Are you exposed to any owned or third party yard storage; external fire loads; nearby exposing buildings that if they caught fire could result in the smoke produced being be entrained into your building or building ventilation system? How do you manage this exposure to your business?		
18.	Is smoke decontamination and clean-up considered as part of the Business Recovery Plan, including within the ventilation systems?		

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	Smoke Contamination Checklist Contd.	Y/N	Comments
19.	Do you have a formal relationship with a salvage/recovery company?		
20.	Are the above threats to your business specifically considered in your Management of Change processes?		
21.	Additional comments:		

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29th October 2024

Version 1.3

ARMSGI1482015

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