LONDON FIRE BRIGADE

Fire Safety Guidance Note: Catering Kitchen Extract Systems

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Contents

The London Fire Commissioner (the Commissioner) is the fire and rescue authority for London. The Commissioner is responsible for enforcing the Regulatory Reform (Fire Safety) Order 2005 (as amended), hereafter referenced as 'The Order', in London.

This Guidance Note provides fire safety advice in respect of Catering Kitchen Extract Systems

This Note is one of a series produced by the Commissioner to provide advice on various aspects of fire safety. If you require any further guidance on the advice given or require advice on another topic please visit your local Fire Safety Office, telephone 020 8555 1200 and ask for the nearest Fire Safety Office, or visit our web site at http://www.london-fire.gov.uk

1 Introduction

1.1 This document has been prepared by the Fire Safety Regulation Department, London Fire Brigade (LFB).

1.2 The term catering has a dictionary definition of 'the business of providing food service at a site such as a hotel, public house, restaurant or any other location where cooking facilities that utilise ductwork is carried out'. This may include or impact on some domestic premises.

1.3 Catering kitchen extract systems are designed to collect smoke, steam, grease, cooking odours and fumes from combustion appliances into a canopy, through filters, ductwork, and then be discharged to atmosphere. Therefore, where food is prepared for business purposes in a kitchen and that kitchen is a place of work it will be subject to The Order.

1.4 The LFB Fire Investigation Team (FIT) state that 'by far the most common problem and cause of ducting fires is the lack of proper cleaning and maintenance' . Therefore, any failure to observe a proper cleaning and maintenance regime could affect any subsequent insurance claim.

2 Matters for consideration

2.1 A kitchen extract system would typically consist of some of the following components:

- Canopy - This can be referred to as the hood or cooking hood, and is where the grease filters are housed
- Canopy grease filters – The purpose of these is to reduce the amount of grease passing into the ductwork
- Canopy/extract plenum – This is typically the area immediately behind the grease filter housing and below where the ducting commences;
- Flexible ductwork
- Sound attenuators – Internal sound deadening material to allow the fan noise to be absorbed;
- Turning vanes – These may be found at changes of direction within the ducting;
- Extract fan – To create extraction from the canopy an extract fan would be connected to the ductwork;
- Discharge duct – On the exhaust side of the fan a discharge duct would direct extract air out of the building via an outlet.

2.2 All the internal surfaces of the kitchen extract systems are affected by grease and oil deposits and no filter is 100% effective. Grease deposits can, in certain circumstances, ignite with the application of

flame, heat, sparks, embers etc. This can then cause rapid fire spread through the ductwork, and can cause ignition of surrounding materials at various points along the ductwork path, allowing fire spread into the fabric and voids of the building.

2.3 Kitchen extract ductwork travelling outside the kitchen compartment is either constructed from fire rated materials, or a protective material is applied to suitably constructed and supported conventional ductwork. Alternatively, the ductwork runs from the kitchen directly to the outside of the building through a protected shaft containing no other services and with no fire dampers fitted. Ductwork within the kitchen compartment does not have to be fire rated. Maintaining the fire integrity of fire-rated ductwork should be a consideration when installation takes place.

2.4 In accordance with British Standard 476 – 24 Fire tests on building materials and structures. Method for determination of the fire resistance of ventilation ducts , ductwork is tested to ensure that a fire outside the duct does not ignite flammable grease inside or, if the grease itself is already alight, that there is no spread of fire by radiant heat to any adjacent combustible material. The ductwork must also be rated for stability, integrity and insulation for the same period of time as the compartment through which it passes. The ductwork supporting hangers should be capable of supporting the ductwork for not less than the period of time as the compartment through which it passes. As part of the fire safety integrity of the premises, the building should be checked to ascertain if kitchen extract ducting systems pass through areas within the building, determining whether a ducting fire would affect the means of escape, and the ability of relevant persons to escape both safely and effectively.

2.5 Access is essential to all interior surfaces of the kitchen extract system and canopy/extract plenum for cleaning and inspection purposes. Access panels should be of sufficient number, quality and size to enable unrestricted access for regular cleaning and inspection of the interior surfaces and in-line components. All panels shall be in accordance with the requirements of the Building and Engineering Services Association DW172 Specification for Kitchen Ventilation Systems.

2.6 Access panels should be fitted at the side of the ductwork and incorporate quick release catches, sealing gaskets and thermal, acoustic and fire rated insulation properties equal to that of the duct to which they are fitted. Access holes should not be cut into the ductwork, sheet metal should not be fitted to the ductwork with screws and gaffer tape/duct tape.

3 Cleaning

3.1 There are various cleaning methods that cleaning contractors use, and any cleaning method must be capable of meeting the standard for post-clean verification as detailed in the Building and Engineering Services Association Guide TR19® Grease. It is the responsibility of the premises owner/occupier to facilitate access to any third party premises if any part of the kitchen extract ductwork is located in third party property.

3.2 The frequency of cleaning should be such that grease deposit limits are not exceeded. These limits are measured in microns by using testing methods that are explained in Building and Engineering Services Association Guide TR19® Grease.

3.3 Many extraction systems will need a higher frequency of cleaning based on hours in use and the type of usage. For example, kitchens that produce high levels of fried or chargrilled food will produce much higher grease levels than those using less intensive cooking methods such as baking and boiling.

3.4 The canopy and canopy/extract plenum is an area of higher fire risk and consideration should be given to more frequent cleaning in accordance with insurers' requirements. Periodic specialist cleaning should be accompanied by daily or weekly cleaning of canopies and filters and are typically carried out by the kitchen operator.

3.5 After cleaning the extraction systems, the cleaning contractor should provide the client with a Post-Clean Verification of Cleanliness report. This report shall include the following:

- The system(s) cleaned;
- Pre and post clean measurements;
- Pre and post clean photographic records;
- COSHH data on any chemicals used;
- Recommendations for future cleaning requirements;
- A certificate summarising the cleaning works completed;
- A sketch or schematic of the system indicating access panels and testing locations and clearly highlighting any un-cleaned/inaccessible areas with an explanation as to why the area could not be accessed/cleaned

4 Catering Kitchen Extract Systems and The Order

4.1 The General Fire Precautions Article 4 (1) (a) in relation to kitchen extract systems are 'measures to reduce the risk of fire on the premises and the risk of the spread of fire on the premises. Fire safety staff will assess the line of the kitchen extract ductwork through the building noting whether the entire ductwork has sufficient access panels for cleaning and inspection purposes, and that it is a separate and independent extract system.

4.2 A detailed assessment of catering kitchen extract systems should be contained in the fire risk assessment for the premises in accordance with Article 9. The Insurers' Fire Research Strategy document RC44, Recommendations for Fire Risk Assessment of Catering Extract Ventilation, is aimed principally at the person responsible for ensuring that such an assessment is performed. RC44 provides for a risk assessment of extract systems in catering kitchens. All catering kitchen extract systems systems will require annual cleaning as a minimum, unless the fire risk assessment recommends otherwise.

4.3 Any catering kitchen extract measures identified in the fire risk assessment, should be actioned for safety purposes.For example, a fire risk assessment may highlight that access panels are required in the kitchen extract ducting and the Responsible Person (RP) would be required to plan, organise and control the fitting of the access panels by a competent person.

4.4 Whilst conducting an audit, the fire saftey officer will ask to see post-clean verification of cleanliness records. No cleaning, or an ineffective cleaning regime of catering kitchen extract systems, is a risk of fire, and the risk of the spread of fire on the premises, and could also invalidate commercial liability/property insurance policies. When carrying out an audit following a fire, fire safety staff will determine if any highlighted uncleaned/inaccessible areas contained in the report were dealt with, as a failure to act on these highlighted issues could have increased the risk of fire and exacerbated the spread of fire.

4.5 Some kitchen extract systems will pass through areas of the building where there could be shared cleaning responsibilities e.g. in a shopping mall where the restaurant's extraction system travels into ductwork in an area that the building's landlord/owner/managing agent has responsibility for. It is important that when it comes to the cleaning of the ductwork, there is co-operation and co-ordination between the various Responsible Persons to ensure that all interior surfaces of the ductwork are cleaned at the same time, and not on different days/dates.

5 Bibliography

AVAILABLE FROM	TITLE
The Building and Engineering Services Association Address: Rotherwick House 3 Thomas More St St Katharine's & Wapping London E1W 1YZ Phone: 020 7313 4900 https://www.thebesa.com/	The Building and Engineering Services Association DW172 Specification for Kitchen Ventilation Systems The Building and Engineering Services Association DW144 Specification for Sheet Metal Ductwork The Building and Engineering Services Association guide to good practice Internal Cleanliness of Ventilation Systems TR19® The Building and Engineering Services Association Guide TR19® Grease The Insurers' Fire Research Strategy document RC44 Recommendations for fire risk assessment of catering extract ventilation
British Standards Institution (BSI) Address: 389 Chiswick High Rd, Chiswick, London W4 4AL Phone: 020 8996 9000 https://www.bsigroup.com/en-GB/	British Standard 476 Part 24

Additional information is available on the Fire Gateway (www.fire.gov.uk), a national website providing access to related information as well as links to all Fire & Rescue Services and the Communities and Local Government website (www.communities.gov.uk/fire/).

Appendix 1 - Diagram of a catering kitchen extract system