

DESIGN, ENGINEERING & ARCHITECTURAL SPECIFICATION

Commercial Kitchen Fire Suppression System

1. Scope

This specification defines the minimum performance, design and installation requirements for an automatic commercial kitchen fire suppression system protecting cooking appliances beneath commercial kitchen extraction canopies. The system shall provide automatic detection, manual operation and automatic wet chemical fire suppression for fires involving cooking oils, fats and grease-producing appliances.

2. System Description

The fire suppression system shall be installed within the kitchen extraction canopy directly above all cooking appliances presenting a fire risk from grease-laden vapours.

- Automatic fire detection
- Manual emergency actuation
- Stainless steel agent distribution pipework
- Fixed discharge nozzles
- Potassium acetate-based wet chemical extinguishing agent
- Interfaces to associated building services

3. Standards and Compliance

- UL 300 – Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking Equipment
- BS EN 16282-7 – Equipment for Commercial Kitchens – Fire Protection Requirements
- EN 17446 – European Standard
- DW/172 – Specification for Kitchen Ventilation Systems
- Relevant UK Building Regulations
- Local Fire Authority requirements
- Manufacturer's installation requirements

4. Fire Suppression System Requirements

4.1 Fire Suppression Agent

- Potassium acetate-based wet chemical
- Listed for commercial cooking hazards
- Suitable for Class F / Class K cooking oil fires

4.2 Control System

The system shall utilize the AMEREX KP MRM, PRM or Strike (ECS) Electronic Control System.

- Automatic detection monitoring (Strike)
- Manual release capability
- Fault monitoring
- Audible and visual status indication
- Outputs for plant shutdown
- Fire alarm interface
- Single panel capable of protecting two adjacent canopies where compliant with the manufacturer's guidance (Strike)

4.3 Automatic Detection

- Electric spot thermal detectors
- Linear heat detection cable
- Mechanical Fusible Links

4.4 Manual Operation

- Manual pull stations at exits and escape routes
- Clearly identified and readily accessible

4.5 Pipework

- Polished stainless steel threaded pipework
- Stainless steel threaded fittings
- Minimal exposed pipework using hood penetration seals

4.6 Nozzles

- Listed discharge nozzles
- Metal blow-off caps
- Installed in accordance with approved design

5. Protection Philosophy

The preferred method of protection shall be zoned protection in accordance with DW/172, BS EN 16282-7 and EN 17446. Where required, appliance-specific protection shall be provided using dedicated discharge nozzles.

6. Portable Fire Extinguishers

- Class F (or Class K where applicable) portable fire extinguishers shall be installed in addition to the fixed suppression system.

7. System Interfaces

The suppression system shall interface with the following services, connected by others unless otherwise specified:

- Automatic gas shut-off
- Electrical isolation of cooking equipment
- Automatic shutdown of supply air systems
- Connection to the building fire alarm system
- Automatic isolation of cooking energy sources upon system operation

8. Installation

Installation, commissioning and testing shall be carried out by competent engineers trained and authorised by the system manufacturer.

9. Documentation

- System drawings
- Commissioning certificate
- Operating instructions
- Maintenance manual
- User training
- Asset register

10. Maintenance

The system shall be maintained in accordance with the manufacturer's recommendations, UL 300, BS EN 16282, EN 17446 and relevant insurance requirements including installer accredited to BAFE SP206.

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