

Firemac FM Fire Ducts Case Study: Muscat Airport, Oman



Muscat International Airport (MC13)
In Flight Catering
Muscat
Oman

The new terminal at Muscat International Airport will have the capacity to handle 12 million passengers annually. Further expansions will ultimately boost the airport's capacity to 48 million passengers when the demand is required.

Over 25,000 square metres of Firemac FM Fire Ducts will be used in the development of the in flight catering facility.

Muscat International Airport In Flight Catering Facility: Performance Specifications of Firemac FM Fire Ducts

- Kitchen Extract Ducts

Fire resistance period

- 2 hours Insulated

Kitchen extract systems

Fire compartmentation is a passive fire protection strategy which limits the spread of fire throughout a building, ensuring a safe means of escape for its occupants. Compartmentation is achieved through the installation of escape corridors and stairwells, using fire resisting ductwork, walls, floors, ceilings, and doors.

Kitchen ventilation extracts grease, cooking oil, and food residue. These combustible residues are deposited inside the duct, where their presence creates a fire hazard. A fire originating outside the kitchen may ignite the combustible oils inside the duct, resulting in a fire in the kitchen which, if part of an open-plan restaurant, could spread into the dining area.

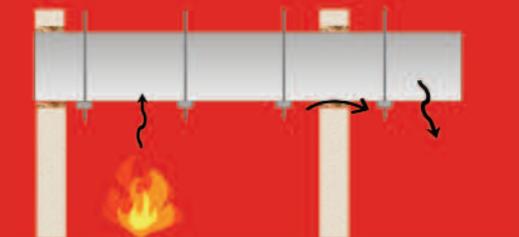
If compartmentation is part of the restaurant design and the kitchen is enclosed within fire-resisting doors and walls, then there is little concern from approval authorities, as such a fire would be contained. However, if the kitchen area is not a distinct fire compartment, additional performance criteria may be specified for insulation.

In the case of the Muscat Airport project the duct required insulation throughout the installation, and in addition extra hangers were fitted to protect from seismic shock.

The relevant test method for any ductwork system to be used in kitchen extract systems is BS476: Part 24: 1987 (ISO 6944:1985).

Duct Type A and Duct Type B

Duct Type A fire test is used to demonstrate a duct's ability to withstand fire from outside. The inside surface of Duct Type A must satisfy insulation criterion inside the test furnace, as a fire originating outside the kitchen may ignite grease and oil inside the duct which may then spread back into the kitchen. This may be a concern when the kitchen is not separated from the restaurant by fire walls and doors.



Duct Type B fire test is used to demonstrate a duct's ability to contain a fire. A kitchen in a compartment of its own, i.e separated from the restaurant by fire-resisting walls and floors, must meet the requirements of Duct Type B.

