

Scottish Government Building Standards Ministerial View Reference V2019/7

Functional Standard 2.1 Compartmentation

Standard 2.1 (Compartmentation) states: “Every building must be designed and constructed in such a way that in the event of an outbreak of fire within the building, fire and smoke are inhibited from spreading beyond the compartment of origin until any occupants have had the time to leave that compartment and any fire containment measures have been initiated.”

Verifier

Glasgow City Council

Technical Context

The building warrant application was submitted prior to changes to the technical handbooks which came into force on 1 October 2019. The subject of the view is the erection of a hotel comprising of a ground storey and nine upper levels. A restaurant, bar and reception space is located at level 00, meeting rooms, gym and staff facilities at level 01 and bedrooms on levels 02 to 09. The building is served by two escape stairs and the topmost storey height is 31m above ground level. A category L1 fire detection and alarm system and an automatic fire suppression system is installed in the building.

The bedrooms are ventilated by vertical shafts connecting up to eight bedrooms. Fire dampers are provided between each bedroom and the vertical shaft. The non-bedroom areas are served by a separate ventilation system. It is proposed that fire dampers be activated by fusible link.

The area of doubt is whether the fire dampers should be activated by fusible link or by smoke detection in order to satisfy mandatory standard 2.1.

The view of Scottish Ministers

On behalf of Scottish Ministers, the Building Standards Division has considered all the information submitted in this case and their view is set out below.

Clause 2.1.14 of the non-domestic technical handbook (2017) cites Section 6 of BS 5588: Part 9 which states that the fire/smoke dampers in the ventilation ductwork at compartment boundaries in hotels need not be actuated by smoke detection where:

- occupants can be expected to make an unaided escape;
- a category L1 fire detection and alarm system is installed in accordance with BS 5839-1; and
- smoke detection initiates the alarm and immediate evacuation of all occupants of the building.

The extent of fire and smoke spread via the vertical ventilation shaft will be dependent on the design of the ventilation system, the rate of fire growth and smoke production, the smoke temperature and pressure differentials including any chimney effects within the ducts. The period of time until potential exposure to smoke and available safe egress time will be longer for those occupants above or adjacent to the room of fire origin than those occupants in the room of origin. Whilst, fire containment measures (auto-suppression and fire dampers) will actuate as the temperature of the fire gases increase, early detection of smoke will initiate the fire alarm and evacuation of the building occupants will commence.

Having carefully considered all the information submitted in this case, it is the view of Scottish Ministers that the proposals do meet the requirements of Standard 2.1.