

Functional Standard: 2.1 and 2.3 Non-Domestic

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."

Standard 2.3 (Structural protection) states: "Every building must be designed and constructed in such a way that in the event of an outbreak of fire within the building, the load-bearing capacity of the building will continue to function until all occupants have escaped, or been assisted to escape, from the building and any fire containment measures have been initiated."

Verifier

Shetland Islands Council

Technical Context

The subject of the view relates to the construction of a multi-occupied steel framed building with single and two storey sections. The ground floor is occupied by Lerwick Port Authority and is used as a Storage Building (Class 2) having a floor area of around 2000 m². The first floor contains offices with a floor area around 900 m² occupied by LHD Ltd and the Shetland Fish Producers Organisation. Separating walls and floors are provided between the different occupiers. There is no automatic fire suppression system within the building.

The proposal is to provide medium fire resistance duration to the steel structure; in conjunction with reference to the Tables (2.1 & 2.2) within guidance Clause 2.1.1 Maximum compartment areas. In addition, the proposal is to provide a medium fire resistance duration for compartmentation between ground floor and first floor level of the building. The subject of the application for a view is whether a medium or long fire resistance duration is required for compartmentation and elements of structure.

In terms of compliance with the Mandatory Standards 2.1 and 2.3, the intention is to limit the severity of the fire by compartmentation (2.1) and to provide the appropriate structural fire protection (2.3) and prevent premature collapse following the outbreak of fire. Both standards combine to allow the occupants sufficient time to escape from the building and allow fire and rescue service personnel to implement their fire-fighting and rescue operations.

The automatic fire detection and alarm system proposal is for design, installation and maintenance in accordance with BS 5839 Part 1 (Category L2). The automatic fire detection and alarm system (including manual call points) is to cover all non-wet areas. There is no provision for automatic detection to the chilled/wet areas. Manual call points only, are provided to these areas (market halls and transport corridor). On actuation of the fire alarm, the entire building will be evacuated.

The building comprises the following:

- Topmost storey not more than 7.5 m above ground.
- The ground floor is a separate compartment of around 2000 m² with a medium duration compartment (and separating) floor between the ground and first floor.
- The first floor offices are subdivided by a medium duration compartment (and separating) wall providing office spaces of approximately 316 m² and 419 m².
- Other medium fire resistance duration compartmented areas comprise: two protected lobbies (lobby/corridor) and the two toilet areas, which Building Standards Division estimated as summing to 165 m² giving the total first floor area of around 900 m².

- Within the two office area compartments there is direct access to services rooms and archive rooms that also have a fire resistance of either short or medium duration.

Under guidance Clause 2.1.1 and Table 2.1 the proposed ground floor area could be extended from around 2000 m² to 14,000 m², before ground floor compartmentation would be triggered for the provision of a long fire resistance duration. In terms of the multi-storey part of the building, the guidance Clause 2.1.1, states in Table 2.1 Note 3:

A medium fire resistance duration compartment wall or compartment floor may be provided between the single-storey part and the multi-storey part provided the multi-storey part does not exceed the limitations for medium fire resistance duration in the following table covering multi-storey buildings (see also clause 2.1.4).

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 as follows.

- Medium fire resistance duration for all compartment and separating walls and floors is considered appropriate for the purposes of evacuating the building following the outbreak of fire and for assisting the Scottish Fire and Rescue Service (SFRS) carry out their statutory fire-fighting and rescue operations.
- No compartment exceeds 500m² on the first floor.
- The Category L2 automatic fire detection and alarm system is considered appropriate. On activation of the alarm, the entire building will be evacuated.
- Consideration should be given to transmitting a fire alarm signal automatically following an agreed grace period to an Alarm Receiving Centre (ARC) or other control arrangement as agreed with the Scottish Fire and Rescue Service. This will allow earlier intervention by the SFRS to carry out their statutory duties whilst managing any false alarms.

Subject to consideration of an ARC or other arrangement to call the SFRS early following the outbreak of fire, it is the view of Scottish Ministers that the proposals do meet the requirements of Standards 2.1 and 2.3.