

The Furnace, Ipswich

Initial Concept Review - Notes

10 May 2023

1 Advice

1.1 Introduction

- 1.1.1 Two options appear to be available to accommodate the combined open plan arrangement at ground and first floor levels, with the provision of loft accommodation while preserving the open plan ground floor and atrium arrangement. These are:
1. To provide an alternative escape route from the second floor accommodation via a new external escape stair.
 2. To provide a protected escape route from the second floor via an internal stair to the first floor, to enable the occupants of the second floor accommodation to access an escape window on the first floor, without needing to enter the open plan ground floor/atrium space.

1.2 General requirements

- 1.2.1 To accommodate the open plan arrangement at ground floor, and to accommodate the 1st floor arrangement, independent of which approach is considered for the 2nd floor:
1. No fire compartmentation is required, but all floors should be provided with 60 minutes of structural fire protection, measured from the underside.
 2. Sprinklers are required throughout the premises, to Category 1, BS9251: 2021.
 3. An automatic fire detection and alarm system is required throughout the premises to Category LD1, BS5839-6.
 4. The ground floor office should have a separate exit to avoid inner room situation. This can be an escape window or a full door.
 5. All construction separating the habitable rooms from the gallery/atrium at first floor should provide a minimum of 30 minutes of fire resistance. Doors should have a minimum specification of FD20.
 6. All habitable rooms on the 1st floor should have escape windows.

1.3 Option 1

- 1.3.1 Option 1 will also require the following additional measures:
- The head of the existing spiral stair should be enclosed in fire resisting construction (30 mins).
 - A new escape stair should be provided from the second floor accommodation, which is separated from the rest of the accommodation by fire resisting construction providing a minimum of 30 minutes of fire resistance. This stair may be a spiral/helical stair if desired.
 - If the new stair is to be constructed as an external stair, all construction within 1.8m horizontally from the stair, and between 1.1m above the highest walking surface, and 9m below any part of the stair, should be fire resisting to a minimum of 30 minutes. Such fire resistance should be measured from the inside of the construction.

- Windows within this area should be fitted with suitable fire resisting glazing and fixed shut.
- It is understood that the inner surface of the external wall adjacent to the most likely location of an external stair is formed from lathe and plaster. When in good condition, it is generally accepted that this will provide 20 minutes of fire resistance. The level of fire resistance may be increase by the application of a suitable intumescent coating, such as Envirograf P105, or similar product.

1.4 Option 2

1.4.1 Option 2 will require the following additional measures:

- The ground floor accommodation should be separated from the route from the second floor to the first floor by fire resisting construction, to give the option for occupants of the second floor to use an escape window on the first floor, without having to pass through the space open to the ground floor.
- A method of achieving this would be to remove the existing spiral stair between the first and second floors and to install a new stair from the first floor accommodation to serve the second floor accommodation.
 - The new stair should be accessed from the first floor gallery, but should also provide access to at least one of the first floor habitable rooms to allow the occupants of the second floor accommodation to access the escape window in the room as an alternative escape route, should the gallery/atrium area be compromised by smoke.
 - The new stair should be separated from the first floor gallery and the bedroom providing the alternative escape route by 30 minute fire resisting construction and doors.

2 Next steps

- 2.1.1 The above advice is intended to provide guidance on the fire safety concepts to be employed in the development of a suitable fire safety solution to the current issues and does not constitute a full fire strategy. Further development work will be required, following the development of a proposal based on these concepts, when the design will be considered in more detail. At this time, additional issues may be identified which may require additional fire precautions or analysis to be able to provide sufficient justification to the Building Control Body that the proposal will meet the functional requirements of the Building Regulations part B: Fire safety.
- 2.1.2 The current proposal should be amended to take into account the preferred option detailed above.
- 2.1.3 The amended proposal should then be scrutinised against the functional requirements of the Building Regulations part B to identify any further issues. Solutions should be agreed and the proposal amended accordingly.
- 2.1.4 The resulting fire strategy proposal should be recorded, to demonstrate the methods by which the functional requirements of the Building Regulations will be addressed.