# FSC Report

# ABP 303026-18.

| | |
|---|---|
| **Appeal v Refusal or Appeal v Condition(s)** | Appeal v Conditions |
| **Development Description** | The works falling within the scope of the application is a Revised FSC for the construction of an 8 storey office block over ground and mezzanine level reception and ancillary accommodation and car park accommodation |
| **An Bord Pleanála appeal ref number:** | ABP.303026-18 |
| **Building Control Authority Fire Safety Certificate application number:** | FA/17/1572/REV/7D |
| **Appellant & Agent:** | Appellant : TIO North Docks DAC<br>Agent : Jeremy Gardiner Associates |
| **Building Control Authority:** | Dublin City Council |
| **Date of Site Inspection** | NA |
| **Inspector/ Board Consultant:** | Rory McShane |
| **Appendices** | NA |

# 1.0 Contents

## 2.0 Introduction

2.1. The proposed development comprises the construction of an 8 storey office building over ground / mezzanine level reception and ancillary accommodation and car parking at a site at 91-94 North Wall Quay, Dublin 1. The site will also comprise a hotel development which was to be the subject of a separate FSC application, and therefore not relevant to the matter under consideration as part of this application.

2.2. The application relates to a new building.

2.3. The application was for a Revised FSC / 7Day Notice, and was granted by the Building Control Authority subject to 11 conditions. This appeal is an appeal v conditions 1, 3 and 7 attached to the Grant of FSC, with the conditions under appeal stating the following;

**Condition 1**

*The car park area to be covered by the proposed automatic sprinkler system. All sprinkler systems to comply with IS EN 12845 2015.*

With the stated reason for the condition being*:*

**Reason:**

*To comply with Part B of the Second Schedule to the Building Regulations 1997-2017.*

**Condition 3**

*Voice alarm to be incorporated into the proposed fire detection and alarm system.*

With the stated reason for the condition being*:*

**Reason:**

*To comply with B1 of the Second Schedule to the Building Regulations 1997-2017.*

**Condition 7**

*The external escape route on the 7th floor to have weather protection and a non slip floor.*

With the stated reason for the condition being*:*

**Reason:**

*To comply with B1 of the Second Schedule to the Building Regulations 1997-2017.*

## 3.0 Information Considered

3.1. The following list of all drawings and documents (as revised) which were received by the BCA in the first instance and forwarded with the appeal.

| **Drawing / Report No** | **Name** | **Rev (1)** |
|---|---|---|
| ZI3215/2/1 | Site Location Map | |
| ZI3215/2/2 | Site Plan | |
| ZI3215/2/3 | Ground Floor | C |
| ZI3215/2/4 | Mezzanine Floor | C |
| ZI3215/2/5 | First Floor | B |
| ZI3215/2/6 | Second Floor | B |
| ZI3215/2/7 | Third Floor | B |
| ZI3215/2/8 | Fourth Floor | B |
| ZI3215/2/9 | Fifth Floor | B |
| ZI3215/2/10 | Sixth Floor | C |
| ZI3215/2/11 | Seventh Floor | C |
| ZI3215/2/12 | Eighth Floor | B |
| ZI3215/2/13 | Roof Plan | |
| ZI3215/2/14 | Section AA & CC | A |
| ZI3215/2/15 | Section EE | A |
| ZI3215/2/16 | North & South Elevation | |
| ZI3215/2/17 | East & West Elevation | B |
| ZI/3215/R2 | Revised Fire Safety Certificate Application Report | Issue 05 |

Note (1) Summary of most recent issue / revision of documentation based on the original submission (dated 09 Oct 2017) and further information submission dated 13 Dec 2017, 16 Mar 2018, 03 July 2018, 09 Oct 2018 and 01 Nov 2018

The FSC documentation received also included drawings from a previously approved FSC (Reg Ref No FSC/1232/18 which were included with the above application for information purposes only

3.2. The following documents were received by the board in relation to the Appeal

- Appeal of Conditions correspondence dated 15th Nov 2018 from Jeremy Gardiner Associates (JGA) on behalf of TIO North Docks DAC setting out the case for appeal
- BCA response to appeal dated 04th Dec 2018.
- Further Infomration dated 22nd January 2019 from Jeremy Gardiner Associates

## 4.0 Relevant History/Cases

4.1. It was noted that reference is made within the JGA compliance report, and also reiterated within their appeal, to a previous FSC application (FS1232/18) for a similar development on the same site, to which application for a Revised FSC (Reg Ref No FA/17/1572/REV/7D) was submitted and approved with conditions. It is noted that the former application was for two office blocks on the site at 91-94 North Wall Quay over a common basement car park. The latter Revised FSC application to which this appeal refers effectively superseded the previous application, with a revised design for an 8 storey office block over ground floor and mezzanine level reception and ancillary accommodation, and car park (the latter at ground floor level), with a separate Revised FSC application being submitted for a hotel on the site in lieu of the second office block. The latter application to which this Appeal refers, comprised a redesign of the scheme, including most notably, a change in the basis for design of the scheme from TGD-B / BS 5588 Part 11 to BS 9999:2017.

4.2. Other relevant Board decisions on other sites which were referenced by the Appellant and thus may be of relevance and assistance in determining this case include

Appeal Ref FS0514– Kestrel House Office Development, Clanwilliam Place. Dublin 2

Appeal Ref FS0526 – Windmill Lane, Dublin 2

Appeal Ref 29B – FS.0539 Irish Life Centre, Lower Abbey Street, Dublin 1

Appeal Ref FS29B.FS0507 9-10 Eustace Street, Dublin 2

## 5.0 Appellant's Case

5.1. The Appellant has appealed Conditions 1, 3 and 7 of the Grant of FSC, and sets out a case for each, summarised as follows;

5.2. **Condition 1 "*The car park area to be covered by the proposed automatic sprinkler system. All sprinkler systems to comply with IS EN 12845 2015*".** The case made by the appellant in relation to Condition 1 is based on the following

- There is no requirement for a naturally ventilated enclosed car park such as North Wall Quay to be provided with sprinklers to comply with Clause 27.3 of BS 9999: 2017 (a clause which states that "A system of smoke and heat ventilation , designed in accordance with BS 7367-7, with the objective of clearance of smoke during the fire and after the fire has been suppressed, should be provided from every car park"
- Whilst noting that TGD-B 2006 is not the basis for design of this scheme, the design guidance therein does not require sprinkler protection in naturally or mechanically ventilated basement car parks complying with the requirements of Section 3 (specifically sub-section 3.5.2) and Section 5 (specifically sub-section 5.4.3.1)
- The previously approved FSC (Reg Ref No FS/1232/18) for the superseded development scheme on this site included a significantly larger and deeper basement car park which extended under both proposed office blocks on the site within that scheme proposal, without a condition requiring sprinkler protection to the car park. The Appellant notes that there has been no change in guidance in either TGD-B or BS 9999 in the intervening period.

The appellant also notes that the car park is now limited to a ground floor level car park, and that "a fire within the proposed car park will lose a significant amount of heat due to the amount of natural ventilation provided along the buildings elevations and therefore less heat will be transferred to the structure above"

**5.2 Condition 3 "*Voice alarm to be incorporated into the proposed fire detection and alarm system*".** The case made by the appellant in relation to Condition 3 is based on the following

- The basis for design is BS 9999: 2017, and the minimum requirement for the risk profile vies the provision of fire detection and alarm is a "manual" system of detection. The proposal to provide an L2/L3M system of fire detection and alarm therefore provides a clear benefit over the minimum provision, and therefore obtaining the benefit of enhanced travel distance and reduced exit width by 15% margins is justified
- The provision of sprinkler protection with quick response sprinkler heads will reduce the fire size and further extend the time available to occupants to escape when compared with an equivalent unsprinklered office building
- The provision of other enhancement such as voice alarm would not provide any significant benefit in an office building of relatively low risk where occupants are awake and familiar
- The Appellant makes reference to former decisions made by the Board in respect of similar circumstances where appeals against the imposition of voice alarm in an office building to obtain the 15% enhancement for AFD was upheld in favour of the Appellant

**5.3 Condition 7 "*The external escape route on the 7th floor to have weather protection and a non slip floor*".** The case made by the appellant in relation to Condition 7 is based on the following

- The design of the external escape route across a flat roof as proposed is in accordance with Clause 16.3.12 of BS 9999: 2017.
- The recommendation for weather protection to external escape routes only arises within Clause 17.7 of BS 9999: 2017 in respect of external escape stairs, and is therefore not applicable to the external escape route across the flat roof.

## 6.0 Building Control Authority Case

6.1. The following is a summary of the BCA case based on documents lodged.

6.2. **Condition No 1 "*The car park area to be covered by the proposed automatic sprinkler system. All sprinkler systems to comply with IS EN 12845 2015*".** The case made by the BCA is as follows

- Clause 30.2.2 of BS 9999: 2017 states that "buildings having an occupied storey over 30m above access level should be sprinkler protected **throughout** in accordance with BS EN 12845 (new systems) or BS 5306-2 (existing systems)"

- Clause 5.3 of IS EN 12845: 2015 states that "no part of an unsprinklered building, or section, should be located vertically below a sprinklered building, or section, except as indicated in 5.1.2 and 5.1.3 (of IS EN 12845: 2015). The BCA go on to list the permitted exceptions under 5.1.2 and 5.1.3 of the IS EN 12845 :2015 code, which do not include areas comparable with the car park in this instance

6.3. **Condition No 3 "*Voice alarm to be incorporated into the proposed fire detection and alarm system*".** The case made by the BCA is as follows

- As per Clause 18.2 of BS 9999: 2017 "where automatic fire detection is needed to achieve the minimum levels in Table 7, incorporating voice alarm

into the automatic fire detection and alarm system provides a clear benefit over non voice sounders. As extended travel distances are proposed, voice alarm should be incorporated to provide the clear benefit required.

- Office blocks of this nature in Ireland are provided with fire detection and alarm in accordance with IS 3218, and thus only the provision of voice alarm incorporated into the system would provide a clear additional benefit

6.4. **Condition No 7 "*The external escape route on the 7th floor to have weather protection and a non slip floor*".** The case made by the BCA is as follows

- Generally, it is undesirable to re-enter a building from external to effect escape, and this is what is proposed at 7th floor level
- Clause 16.1 of BS 9999: 2017 states that horizontal escape routes "should be free from any serious obstacle that could cause any undue delay, especially to disabled people". The BCA note that weather protection should be provided to ensure that the route across the roof, which is at 30m height, to ensure that it is not impeded by serious obstacles such as snow, ice or stormy conditions which might potentially render it unusable, especially by disabled. External stairs above 6m in height are weather protected for such reasons.
- Clause 14.1(a) of BS 9999: 2017 states that "flooring on all escape routes, including the treads of steps and surfaces of ramps and landings should have appropriate slip resistance", and hence the condition for a non slip floor

## 7.0 Assessment

### 7.1. Details lodged with application

7.1.1. The drawings and associated report (including all revisions thereto included in the additional information submissions during the course of the application) have been thoroughly reviewed and it is my view that they are sufficient to enable the Board to establish compliance with Part B in addition to the determination of the merits of the appeal with respect to Conditions 1, 3 and 7.

### 7.2. De Novo assessment/appeal v conditions

*7.2.1.* As the appeal is against specific conditions imposed, and *having considered the drawings, details and submissions on the file and having regard to the provisions of*

*Article 40 of the Building Control Regulations 1997-2015, I am satisfied that the determination by the Board of this application as if it had been made to it in the first instance would not be warranted. Accordingly, I consider that it would be appropriate to use the provisions of Article 40(2) of the Building Control Regulations, 1997-2015."*

7.3. **Content of Assessment**

7.3.1. Condition No 1 ***"The car park area to be covered by the proposed automatic sprinkler system. All sprinkler systems to comply with IS EN 12845 2015"***.

The basis for the appeal against the imposition of sprinklers within the car park area at ground floor level as set out by the Appellant is based on the following;

a) car parks provided with natural or mechanical ventilation systems in compliance with the requirements of BS 7346-7, normally does not necessitate the provision of sprinklers within the car park to meet the - requirements of Part B of the Building Regulations. Both BS 9999:2017 and TGD-B 2006 are consistent on this approach

b) The previously approved scheme for the same site, which included a larger and deeper basement level car park was granted without the imposition of sprinkler protection.

c) There is significant ventilation of the proposed ground floor level car park which will dissipate heat during the course of a fire, and 120min fire separation between the car park and the adjoining accommodation

The basis for the imposition of the condition of sprinklers within the car park in this instance by the BCA is based on the premise that as the building is over 30m in height, the requirements of 30.2.2 of BS 9999: 2017 apply.

**30.2.2 Buildings over 30 m high**

Buildings having an occupied storey over 30 m above access level should be sprinkler-protected throughout in accordance with BS EN 12845 (new systems) or BS 5306-2 (existing systems).

As the design of sprinkler systems in Ireland is to the national standard, IS EN 12845 : 2015, the BCA have noted that 5.3 states that

**5.3 Fire resistant separation**

The separation between a sprinkler protected area and a non-protected area shall have a fire resistance specified by the authority but in no case less than 60 min. Doors shall be self-closing or be closed automatically in the event of fire.

No part of an unsprinklered building or section should be located vertically below a sprinklered building or section except as indicated in 5.1.2 and 5.1.3.

The exemptions referred to in 5.1.2 and 5.1.3 are

**5.1.2 Permitted exceptions within a building**

Sprinkler protection shall be considered in the following cases, but might be omitted after due consideration of the fire load in each case:

a) washrooms and toilets (but not cloakrooms) of non-combustible materials and which are not used to store combustible materials;

b) enclosed staircases and enclosed vertical shafts (e.g. lifts or service shafts) containing no combustible material and constructed as a fire resistant separation (see 5.3).

c) rooms protected by other automatic extinguishing systems (e.g. gas, powder and water spray);

d) wet processes such as the wet end of paper making machines.

**5.1.3 Necessary exceptions**

Sprinkler protection shall not be provided in the following areas of a building or plant:

a) silos or bins containing substances which expand on contact with water;

b) in the vicinity of industrial furnaces or kilns, salt baths, smelting ladles or similar equipment if the hazard would be increased by the use of water in extinguishing a fire;

c) areas, rooms or places where water discharge might present a hazard.

In these cases, other automatic extinguishing systems should be considered (e.g. gas or powder).

In the case made by the Appellant, the primary basis of the appeal against Condition 1 is the asertion that naturally or mechancially ventilated car parks do not normally necessitate the provision of sprinkler protection in meeting the functional requirements of Part B of the Building Regulations. Whilst this is correct in relation to the ventilation strategy for the car park, this negates the scenario where the car park forms part of an office building which has a height to the top floor in excess of 30m, where sprinkler protection throughout the building is mandatory

Whilst the Appellant makes reference to the previously approved design (FS1232/18) for the office block development on the same site, which was approved by the BCA without a condition of sprinklers within the associated basement level car park, the previously approved scheme has no bearing in setting precedence for the

new scheme being considered under the application to which this appeal relates on the basis that the applicant has chosen to adopt an alternative design standard to BS 9999: 2017 as the basis for design. In this regard, the relevant merits or otherwise of FSC approval for scheme design approved under FS/1232/18 are not relevant to the considerations under this appeal.

In adopting BS 9999: 2017 as the design basis for the revised scheme, the applicant has sought to seek benefit from the use of BS 9999: 2017 in relation to;

a) Reduced exit widths and extended travel distances, and

b) Reduced fire resistance rating (for an office building over 30m height)

As such, it is appropriate that the revised scheme design to BS 9999: 2017 meets the requirements of that code in its entirety, and in particular to Clause 30.2.2 vies the provision of sprinkler protection ***throughout*** the building. The BS 9999 code does not offer any deviation from this requirement for open sided car parks.

The requirement to provide sprinkler protection within the car parking area directly beneath the footprint of the building is also an explicit requirement of IS EN 12845: 2015 in meeting the standard for a building sprinklered throughout to Clause 30.2.2 of BS 9999: 2017.

On the basis of the foregoing, it is my consideration that the appeal of Condition 1 should be refused.

7.3.2. Condition No 3 **"*Voice alarm to be incorporated into the proposed fire detection and alarm system*".**

The basis for the appeal by the Appellant against the imposition of voice alarm within the office development to adopt the enhanced 15% increase in travel distance and reduced exit width of 15% is summarised as

a) The basis for design is BS 9999: 2017, and the minimum requirement for the risk profile vies the provision of fire detection and alarm is a "manual" system of detection. The proposal to provide an L2/L3M system of fire detection and alarm therefore provides a clear benefit over the minimum provision

b) The additional benefit of sprinkler protection in reducing risk

c) Voice alarm provides no significant benefit in an office based environment

d) Precedence from other cases

The BCA consider voice alarm necessary to adopt the required enhancements on the basis that where automatic fire detection is needed to achieve the minimum levels in Table 7 of BS 9999: 2017, incorporating voice alarm into the automatic fire detection and alarm system provides a clear benefit over non voice sounders.

In considering both viewpoints, the following must be considered

- The Appellant states that the minimum standard of fire detection and alarm as being a manual system by reference to Table 7 of BS 9999:2017 for an A1 or A2 risk profile, an assertion that would be supported by the provision in Table A.1 of BS5839 Part 1 2013 (i.e. the British Standard for fire alarm systems) as opposed to the Irish Standard IS3218 2013 which in Annex I suggests that the minimum system classification should be Type L4. Both standards also state that the system type should be agreed with the relevant statutory authority, and it is in this context that the BCA have set their case.

- Whilst noting that Table 7 of BS 9999:2017 does make reference to manual systems within office blocks, it is noted that the proposed development also incorporates an atrium. Annex B.6 of BS 9999: 2017 makes a general recommendation that atria buildings should be provided with an L2 fire detection and alarm system where there is a risk of smoke spread via the atrium to other floor levels "unless otherwise stated elsewhere". In this instance, it is acknowledged that the enclosure to the atrium is enclosed in smoke retarding construction throughout its height, and it could be argued that this addresses the risk of smoke spread between floors. Equally, the "unless otherwise stated elsewhere" may be a reference to the scenarios where the exemplars in Annex C of the BS 9999: 2017 require L1 detection for the atrium building. It would generally be an accepted viewpoint that fire alarm system coverage within an atrium building ought to be higher than the non-atrium equivalent building to address additional risks associated with the incorporation of atria in buildings.

- In relation to the provision of voice alarm being incorporated into the fire detection and alarm system to demonstrate a clear benefit in reducing pre-movement times and avail of the associated extended travel distances and reduced exit width requirements, the following is noted

  I. Footnote (b) of Table 7 of BS 9999: 2017 which states that "***In some circumstances where people are in an unfamiliar building the provision of a voice and/or visual alarm system can help reduce evacuation time (see 18.2)***".

  ***II.*** Clause 18.2 of BS 9999:2017 notes that "***The provision of automatic fire detection systems can be of significant benefit in terms of providing early warning for the occupants by reducing the time to detection (see Clause 11, Figure 3). The installation of a fire warning system that provides information about a fire incident such as a voice alarm can also be of benefit where the occupants are unfamiliar with the building by reducing the pre-movement time (see Clause 11, Figure 3). The speed of response is likely to vary with different types of occupancy: for example, in an office***

***building where the occupants are familiar with the building layout and receive regular training, they are likely to respond relatively quickly to a fire alarm; whereas in a shop where the occupants are unfamiliar with the layout and focussed on their personal business, they respond much more slowly and might not begin evacuation until requested to do so by the staff. In occupancy characteristic B buildings where automatic fire detection is necessary to meet the minimum level given in Table 7, incorporating a voice alarm into the automatic fire detection and fire alarm system (see 15.3) provides a clear benefit over non-voice sounders".***

III. The JGA assertion that the provision of voice alarm offers little benefit in an office environment in terms of reduced evacuation times is supported by the relevant design guide i.e. PD7974-6:2004 The application of fire safety engineering principles to fire safety design of buildings Part 6: Human factors: Life Safety strategies – Occupant evacuation behaviour and conditions (Sub-system 6) This document is referenced in TGDB Section 0.2.4 as providing guidance in support of fire engineering design principles. The PD identifies in H1.7.4 that recorded voice alarms or PA systems have little impact on pre-movement times in office environments and accordingly offer little benefit in providing a trade-off in this category of building usage.

- The appellant has also made reference to four specific cases where the provision of voice alarm was not imposed by the board under appeal. The following is noted in relation to same;

**Appeal Ref FS0514– Kestrel House Office Development, Clanwilliam Place. Dublin 2.** A condition for L1 / Voice alarm was attached to the Grant of FSC, subsequent to a proposal by the applicant to provide L2 /L3 fire detection and alarm during the FSC process. It was noted within the Inspectors Report (JGA) that there were no extended travel distance or inadequate exit capacity issues arising within the proposed scheme which

would warrant the imposition of such a high level of fire detection and alarm incorporating voice alarm, and therefore the imposition of L1 / Voice Alarm was over ruled on appeal, and the original proposal of L2/L3 alarm was approved in meeting the requirements of Part B Fire Safety.

**Appeal Ref FS0526 – Windmill Lane, Dublin 2.** The imposition of L1 / Voice alarm in this mixed use building was over ruled on appeal, with the details of the appeal within the Inspectors Report confirming that extended travel or exit capacity enhancement was not arising by necessity, and therefore an L2/L3 level of coverage to cater for the risks associated with the mixed use development was sufficient in meeting the requirements of Part B Fire Safety

**Appeal Ref 29B-FS.0539 Irish Life Centre, Lower Abbey Street, Dublin 1.** This case referred to alterations and extension of the Irish Life Centre with a key consideration of the Bord being the issue of the extent of the alterations to the mall and retail areas and whether this is such as to justify bringing the fire detection and alarm system (to include public address voice alarm) up to current standards currently applicable to a shopping mall, or whether it is sufficient to rely on the argument that it is sufficient to demonstrate that there is no new or greater contravention of Part B arising as a result of the proposed works. Whilst the L1 / Voice Alarm was not imposed, this case has little relevance to the appeal under consideration

**Appeal Ref FS29B.FS0507 9-10 Eustace Street, Dublin 2.** It is noted that the imposition of voice alarm in this case was considered onerous, and was not imposed. However, the fire alarm system designation was an L1 system to IS 3218: 2013

Having regard to the above, it is my opinion that the imposition of voice alarm would be onerous having regard to the guidance set out in BS 9999: 2017. However, in order to ensure that no ambiguity arises as to the attainment of a clearly defined benefit from the provision of enhanced fire detection and alarm in meeting the enhancements offered under Clause 18 of BS 9999: 2017, Condition 3 should be modified to impose L1 fire detection and alarm to IS 3218: 2013 is provided throughout the development.

7.3.3. Condition No 7 ***"The external escape route on the 7th floor to have weather protection and a non slip floor"***

In summary, the Appellant argues that the design of the external escape route across a flat roof as proposed is in accordance with Clause 16.3.12 of BS 9999: 2017 and that that he recommendation for weather protection to external escape routes only arises within Clause 17.7 of BS 9999: 2017 in respect of external escape stairs. The BCA argue that Clause 16.1 of BS 9999: 2017 states that horizontal escape routes "should be free from any serious obstacle that could cause any undue delay, especially to disabled people" and that a route across the flat roof subject to inclement weather could render that route unusable. They also note that Clause 14.1(a) of BS 9999: 2017 states that "flooring on all escape routes, including the treads of steps and surfaces of ramps and landings should have appropriate slip resistance", and hence the condition for a non slip floor

In relation to the above arguments, the following considerations apply

(i) The design as proposed vies horizontal escape route across a flat roof, as an alternative escape route, meets the requirements of Clause 16.3.12 of BS 9999: 2017, which does not include the provision of weather protection to the route.

(ii) The Appellant is correct in noting that the provision of weather protection is limited to the scenarios covered by Clause 17.7 of BS 9999:2017, in respect of external escape stairs extending more than 6m in vertical extent.

The weather protection of vertical escape stairs more than 6m in height is clearly to address the increased risk during a descent, and therefore specific to vertical escape only.

In relation to the provision of flooring on escape routes having the appropriate slip resistance, it is considered that the recommendations of Clause 14.1 (a) equally apply to internal escape routes as well as external escape routes and therefore are applicable to the escape route the flat roof. The slip resistance should be

appropriate to exposure conditions, including slip resistance on wet external surfaces.

As such, it is my opinion that the imposition of weather protection to the escape route across the flat roof should be set aside, however, the route should have the appropriate slip resistance based on the recommendations of BS 8300-1: 2018. Condition No 7 should be amended accordingly.

## 8.0 Conclusion / Recommendation

8.1. On the basis of the commentary and consideration in Section 7.3.1 of this Report, it is my opinion that the car parking area at ground floor level, vertically below the footprint o the building overhead forms part of the building and in the context of Clause 30.2.2 of BS 9999:2017 read in conjunction with Clause 5.3 of IS EN 12845: 2015, should be provided with sprinkler protection to IS EN 12845: 2015

8.2. On the basis of the commentary and considerations in Section 7.3.2 of this Report, it is my opinion that current guidance supports the assertion by the Appellant that voice alarm in office use buildings does not provide any significant benefit in reducing the pre-movement time on the basis that the occupants are familiar with the building, and this assertion is further supported by the guidance in BS 9999: 2017 and PD 7974-6: 2004. There is a requirement to ensure that the enhanced level of fire detection and alarm provided provides a clear benefit to the building users in providing early warning, however, the assumption that a manual system is sufficient as the baseline data on which to assess the level of benefit is subject to interpretation. In this instance, additional considerations apply, including and not limited to the provisions in Appendix I of IS 3218: 2013 which recommends a minimum L4 detection, and the provision of L2 detection (to BS 5839 Part 1) in buildings incorporating atria. As such, it is my opinion that in order to ensure that the clearly defined benefit from enhanced detection, having regard to the above, the condition should be amended to a requirement for L1 Fire Detection and Alarm System to IS 3218: 2013

8.3. On the basis of the commentary and consideration in Section 7.3.3 of this Report, the provision of weather protection to roof top escape routes is not a mandatory requirement of Clause 16.3.12 of BS 9999: 2017, and therefore the imposition of this requirement should be set aside. However, the external escape route across the flat roof should meet the requirements of Clause 14.1(a) in respect of the appropriate slip resistance of the surface of this route.

## 9.0 Reasons and Considerations

9.1. For the reasons and considerations in Section 7 and 8 above, it is considered that Condition 1 should be retained, and the appeal against same over ruled, as the imposition of sprinklers in this instance is by necessity a requirement throughout the building, based on the height of the building to the top floor level, with the design standard for sprinklers, i.e. IS EN 12845: 2015 setting a mandatory standard that no part of a sprinklered building should be vertically above a non sprinklered part of the same building.

9.2. For the reasons and consideration in Section 7 and 8 above, it is recommended that the requirement for voice alarm be omitted in favour of the provision of automatic fire detection and alarm to a standard which definitively provides the clear benefit in providing early detection over and above that the might reasonably be anticipated in an equivalent building not necessitating extended travel or reduced exit widths deviations from the standard fire protection measures in BS 9999: 2017. Refer to Section 10 below for the proposed modified wording of Condition 3

9.3. For the reasons and considerations in Section 7 and 8 above, it is recommended that the requirement for weather protection of the external escape route at roof level be omitted, on the basis that such routes do not necessitate protection against inclement weather in accordance with Clause 16.3.12 of BS 9999: 2017, however, the condition should be amended and reworded to retain a requirement that the surface of the escape have the appropriate slip resistance as per 14.1(a) of BS 9999: 2017. Relevant guidance on the slip resistance of floors on escape routes are provided in BS 8300-1: 2018. Refer to Section 10 below for the proposed modified wording of Condition 7

## 10.0 **Conditions**

Condition 1 is to be retained, with Conditions 3 and 7 modified as follows;

| | |
|---|---|
| 3 | A Category L1 fire detection and alarm system to IS 3218: 2013 is to be provided throughout the proposed development<br><br>**Reason:** *To comply with B1 of the Second Schedule to the Building Regulations 1997-2017.* |
| 7 | The surface of the designated roof top external escape route is to have the appropriate slip resistance in accordance with the recommendations of BS 8300-1 : 2018<br><br>**Reason:** *To comply with B1 of the Second Schedule to the Building Regulations 1997-2017.* |

Rory McShane BScEng DipEng MSc (Fire Eng) CEng MIEI
Consultant / Inspector
31.10.2019