

Report Prepared by Des Fortune to Assess the Responses Received by An Bord Pleanala to the MJP Report REF: 17082_29B.FS0550_Issue 2 dated 8th March 2017

on

Appeal against Conditions No's 1 and 2 on Fire Safety Certificate (FSC 2662/16)

for

New 7 Storey Office Building over Basement

at

4-5 Harcourt Road, Dublin 2

Client:	An Bord Pleanala
An Bord Pleanala Ref:	29B.FS0550
Our Ref:	2017-12 ABP
Date:	14 th June 2017

1.0 Introduction

It is noted that I, Des Fortune, no longer act on behalf of MJP and that I have prepared this report on instruction from An Bord Pleanála to address the response of the Appellant and Building Control to the MJP report 17082_29B.FS0550_Issue 2 dated 8th March 2017.

It is noted that having regard to the nature of the Conditions under appeal, it is considered that the appeal can be adjudicated upon without consideration of the entire of the application.

2.0 Recommendations of MJP report 17082_29B.FS0550_Issue 2

Condition 1

The appellant is asked to demonstrate that a location of the proposed AOV's on the vertical will not make them susceptible to adverse wind affects.

Condition 2

The appellant is asked to demonstrate using recognised fire engineering methods that the fire-fighting stair will not be adversely affected / exposed to the dangers of radiant heat from the adjacent face of the building.

Furthermore the appellant is asked to provide a full and detailed maintenance regime proposed for the fire curtains and confirm that all proposed components meet the recommendations of relevant IS / EN standards.

2.0 Appellants Additional Information

The appellant provided additional information by a letter dated 12th April 2017.

Condition 1

The appellant states that BS 9999 provides the most up to date guidance on smoke vent provisions within fire fighting stairs which are: -

- To provide 1m² manually openable vent at each storey of the stair.
- To provide 1.5m² remotely openable vent at the head of the stair.
- To provide a 1.5m² automatically openable vent at the head of the stair (a requirement when in conjunction with a smoke shaft in the lobby).

They state that there is no explicit guidance provided in relation to the position of the vents at the top of the stair. Independent of whether there are openable smoke vents / windows on the elevation on every level or just one at the top of the stair located on the building elevation the impact of window would have the same effect if blowing on the elevation where the vents are located.

While vents within the fire fighting stairs will have benefits for smoke clearance, these vents work in the conjunction with vents within firefighting lobbies for protection of the shaft. Various BRE studies in recent years have shown the ventilation system in the firefighting shaft works by the vent in the stair providing inlet air, and the smoke in the stair in vented through the lobby (either through openable vents to the external or a smoke shaft). Therefore as the primary purpose of the vent at the head of the stair is for providing inlet air, the location of it is negligible in relation to the impact of the wind.

They further state that in the proposed design the vents will open automatically which is in excess of what is required by code guidance, as a smoke shaft is not being provided. Upon detection in the firefighting shaft, the vents will open, allowing the shaft to be ventilated

In their proposed design two AOV's are proposed, therefore if one AOV was affected by strong wind conditions, the second AOV would be available to ventilate the stair regardless of the wind direction. They provided a Figure / Diagram to illustrate this.

Condition 2

The appellant states that fire shutters complying with the recommendations of TGD-B are commonly used to provide fire protection in buildings. It is common practice to provide them where solid construction is not practicable. In the proposed design it is proposed to use a fire curtain as opposed to a fire shutter. The proposed fire curtain is certified to PAS 121 which is the commonly accepted guidance for fire curtains and incorporates the testing of radiant heat in fire curtains.

The fire curtain that is proposed is FireSafe Plus – Insulated Zone Automatic Fire Curtain and has been certified to BS EN 1634 standard and to PAS 121 to achieve 150 minutes fire resistance (integrity and insulation zone).

They further state that BS 476 is the testing method for the fire resistance of any form of construction. During testing, the test specimen is exposed to a heat regime with temperatures of up to 1050°C, and if the average temperature of the test specimen does not exceed 180°C on the unexposed face it meets the criteria for 120 minutes fire for insulation. Fire curtains cannot be tested in the same way as other assemblies due to technical issues of connecting thermal couples. However, it is clear that the procedure for establishing protection against the spread of radiant heat is similar.

They further note that the measures given in code guidance for protecting the firefighting stairs from external elevations is generic and does not take into account of size of the compartment facing the stair. Compartment floors are provided in the proposed building, although this is not a requirement of TGD-B. If a fire was to occur it would be confined to a single floor, rather than spreading between multiple floors, reducing the amount of radiant heat potentially affecting the firefighting stair.

The appellant has provided a letter from the Building Owner (Green REIT plc) agreeing to providing a detailed maintenance regime for the fire curtains within the tenants handbook and the O&M manuals which will comply with BS 8524 Part 2 and: -

- Inspection, testing and maintenance procedures will be carried out by a competent person who is able to check and confirm that the barrier assemblies are operating and performing effectively when required. A log book detailing frequency and results of inspections will be kept.
- Inspection, testing and maintenance will be adhered to the manufacturer's instructions.
- Weekly basis testing will be undertaken at the same time each week.
- Any required alterations, additions, repairs or modifications discovered, will be carried out immediately or as soon as practicably possible.
- A daily inspection will be undertaken to check for any obstructions to operational areas, e.g. furniture etc.

- A weekly inspection will be carried out on the operation of each fire curtain.
- A monthly inspection will be carried out of the automatic release mechanism, sensory equipment, the fire curtain material and that the fire curtain is functioning correctly.
- Every six months an inspection will be carried out to ensure that the smoke seals are undamaged and that the fire curtain is not structurally damaged.

Finally, the appellant note that it should be noted that an additional precautionary measure has been provided, i.e. a permanent glass panel located between the fire curtain and the office, so it will be impossible for furniture to obstruct the fire curtain from within the office. This will ensure that the fire curtain channel will be kept free from obstructions and reduce the risk of the curtain not descending fully.

4.0 Building Authority's Response to Appellants Additional Information

The Building Control response was by the Fire Officer's report on Fire Safety Certificate appeal dated 26/04/2017 and it states the following: -

'The sole purpose of attaching condition 1 and 2 to the granted fire safety certificate is to ensure that the integrity of the only firefighting shaft provided within the building is never left in a situation where it could be compromised.

The additional information submitted by the consultant does not alter Dublin Fire Brigade's opinion in this regard and we ask An Bord Pleanala to up hold the decision of Dublin City Council and confirm the conditions attached to the granted fire safety certificate.'

5.0 Consideration

Condition 1

The Appellant was requested to demonstrate that a location of the proposed AOV's on the vertical will not make them susceptible to adverse wind affects. In their response, they queried the need for this and referred to BRE reports. It is noted however in their original submission they stated that two 1.5m² AOV's were being provided to ensure that there would be no adverse wind affects. They also have not given any references to the BRE reports or any further substantial information that supports this argument.

The issue is still then whether the two 1.5m² AOV on the vertical will provide an equivalent level of safety as one 1.5m² AOV on the horizontal. The sketch / illustration provided by the appellant does not demonstrate that both AOV's cannot be adversely impacted adverse wind affects.

If the AOV's had been placed on opposing elevations or if a wind analysis had been provided a case could have been made however as this has not been provided the Appellants contention that the proposed location of the AOV's is acceptable has not been demonstrated.

Condition 2

Rather than demonstrating using recognised fire engineering methods that the fire-fighting stair will not be adversely affected / exposed to the dangers of radiant heat from the adjacent face of the building the Appellant has provided documentation from Smoke & Fire Curtains Ltd on their FireSafe Plus – Insulated Zone Automatic Fire Curtain.

It states it is fully certified to BS EN 1634 and PAS 121 and achieves 150 minutes fire integrity and 150 minutes insulation zone. With the insulation zone meaning that people can pass close to the non-fire side, ½ metre away from the curtain itself.

It is noted that PAS 121 (withdrawn by BSI in July 2013) has been replaced with BS 8524 Part 2013. Section 5.4.2 of this standard states: -

Where radiated heat flux, as opposed to insulation, is to be used to assess whether conditions are tenable, one of the following approaches should be used:

- a) simplified approach for horizontal routes in dwellings (see 5.3.2.2);*
- b) fully fire engineered approach for horizontal escape routes;*
NOTE Annex B gives an example of a fire engineered approach for horizontal escape routes.
- c) fully fire engineered approach for all other applications.*

Without the requested fire engineering analysis, a case for a fire curtain that provides an 'insulation zone' rather than the recommended insulation rating cannot be substantiated.

6.0 Recommendation

Further to reviewing the above I recommend that the An Bord Pleanala do not accept the appeal but rather up hold the decision of Dublin City Council and confirm the conditions attached to the granted fire safety certificate.

Signed by:

DES FORTUNE
MSc(Fire Eng) BSc(Eng) CEng MIEI

Date: **14th June 2017**