

**Report for An Bord Pleanála**

**on**

**Appeal against Condition 2 to Fire Safety Certificate (FSC4051/19)**

**for**

**Proposed Construction of a Mixed Use Development**

**at**

**60-65 Dawson Street and 34-43 Nassau Street, Dublin 2**

Client: An Bord Pleanála  
An Bord Pleanála Ref: 305955-19  
Our Ref: ABP\_R005\_Issue 1  
Date: 6<sup>th</sup> February 2020

## **1.0 Introduction**

This report sets out my findings and recommendations on the appeal submitted by Jeremy Gardner Associates, acting on behalf of Kells – Donn O’Shaughnessy, against Condition 2 to Fire Safety Certificate (FSC4051/19) by Dublin City Council in respect of an application for works related to the Proposed Construction of a Mixed Use Development at 60-65 Dawson Street and 34-43 Nassau Street, Dublin 2.

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.

## **1.1 Subject of Appeal**

Condition 2 of the Fire Safety Certificate (FSC4051/19) granted by Dublin City Council is as follows: -

***Condition 2:***

*Basement -2 to be provided with a sprinkler system in accordance with BS 12845: 2015 as per Section 5.4.3.1 of TGD-B 2006.*

***Reason:***

*To ensure compliance with Part B of the Second Schedule to the Building Regulations, 1997 to 2019.*

## **2.0 Documentation Reviewed**

- 2.1 Fire Safety Certificate Application (application form, compliance report and fire safety drawings) submitted by Jeremy Gardner Associates, on behalf of Kells ICAV, on 19<sup>th</sup> January 2018.
- 2.2 Further information requested by Dublin Fire Brigade on 20<sup>th</sup> April 2018.
- 2.3 Additional Information (letter, revised compliance report and revised drawings) submitted by Jeremy Gardner Associates on 12<sup>th</sup> November 2018.
- 2.4 Further information requested by Dublin Fire Brigade on 13<sup>th</sup> March 2019.
- 2.5 Additional Information (letter, revised compliance report and revised drawings) submitted by Jeremy Gardner Associates on 8<sup>th</sup> May 2019.
- 2.6 Further information requested by Dublin Fire Brigade on 6<sup>th</sup> August 2019.
- 2.7 Additional Information (letter, revised compliance report and revised drawings) submitted by Jeremy Gardner Associates on 10<sup>th</sup> September 2019.
- 2.8 Further information requested by Dublin Fire Brigade on 6<sup>th</sup> August 2019.
- 2.9 Additional Information (letter, revised compliance report and revised drawings) submitted by Jeremy Gardner Associates on 7<sup>th</sup> October 2019.
- 2.10 Report on Assessment of Fire Safety Certificate Application recommending that a Fire Safety Certificate is granted with 4 conditions attached dated 21<sup>st</sup> October 2019.
- 2.11 Granted Fire Safety Certificate No. FSC4051/19 from Dublin City Council dated 22<sup>nd</sup> October 2019.
- 2.12 Letter of Appeal from Jeremy Gardner Associates, acting on behalf of Kells – Donn O’Shaughnessy, received by An Bord Pleanála on 20<sup>th</sup> November 2019.
- 2.13 Fire Officer’s report on the Fire Safety Certificate Appeal dated 13<sup>th</sup> December 2019 to An Bord Pleanála giving comments in relation to appeal of Condition 2.

### **3.0 Building Control Authority's Case**

Clause 5.4.3.1 of Technical Guidance Document B (TGD- B 2006) which refers to Basements states that: -

*'As an alternative to outlet vents as described above, a system of mechanical extraction may be provided, where the basement is also protected by an appropriate sprinkler system complying with BS 5306: Part 2: 1990. The ventilation system should meet the criteria set out in 3.5.2.5 and should operate automatically on activation of the sprinkler system.'*

It is noted that BS 5306: Part 2: 1990 has been superseded by BS EN 12845: 2015. Clause 5.3 of BS 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 BS EN 12845: 2015).'*

Compliance Report AI/3477/R1 Issue 5 issued to Dublin Fire Brigade in section B5.6.2 'Basements' does not at any point demonstrate or indeed reference compliance with section 3.5.2.5 of TGD-B 2006. This contradicts the applicant's case for appeal which states that the 'mechanical ventilation system for the basement car park will comply with Section 3.5.2.5.

Furthermore, the applicant's case for appeal fails to demonstrate compliance with BS 7346: Part 2.

In addition to above whilst it acknowledged that TGD-B states that Basements are not normally expected to be fitted with sprinklers, recent fire fighting operational evidence has shown that the historic car fire based tests, which are more than 30 years old, are not an accurate representation of car fires today. Recent car fires in Ireland have shown that fire fighters face numerous challenges in fighting fires in Basements including the use of ethanol in modern cars, plastic fuel tanks and car fires that involve multiple cars.

### **4.0 Appellant's Case**

The Fire Safety Certificate (FSC) application was based on providing an automatic life safety sprinkler system covering all areas of the building, except the car park and the high ceiling area of the atria. Condition 2 of the granted FSC would require the car park (located on basement -2 to be provided with sprinkler coverage.

The FSC application was based on the building being designed in accordance with the Technical Guidance Document B (TGD- B 2006) and the relevant sections of BS 5588 Part 11. Due to the nature of the site it is not possible to provide sufficient natural smoke ventilation to the basement levels and therefore a system of mechanical smoke extraction will be used. This will comply with TGD-B 2006 as follows: -

- The system will be independent of any other ventilating system and be designed to operate at 6 air changes per hour for normal petrol vapor extraction and at 10 air changes per hour in a fire condition.

- The system will be designed to run in two parts, each part capable of extracting 50% of the rates set out above and designed so that each part may operate simultaneously.
- Each part of the system will have an independent power supply which will operate in the event of failure of the main supply.
- Outlets for exhaust air will be arranged so that 50% of the outlets are at high level, and 50% at low level.
- The fans will be rated to run at 300oC for a minimum of 60 minutes and the ductwork/fixings will be constructed of materials having a melting point no less than 800°C.

TGD-B 2006 recommends other code guidance (such as BS 7346) which states that in order to comply with the Building Regulations, the smoke venting system required is only for smoke clearance. The alternative to mechanical smoke venting is natural vents with an area of 2.5% of the car park. These systems are not intended to maintain tenable conditions within a car park.

Further to this BS 7974 Part 7 states: -

*'Smoke clearance systems are intended to assist fire fighters by providing ventilation to allow speedier clearance of the smoke once the fire has been extinguished. The ventilation might also help reduce smoke density and temperature during the course of a fire. These systems are not specifically intended to maintain any area of a car park clear of smoke, to limit smoke density or temperature to within any limits or to assist means of escape'.*

The building is provided with 4 escape stairs, 2 of which are designed as fire fighting shafts and that extend to the basement level -2. All areas of the car park on basement level -2 will be within 45m hose coverage from a dry riser outlet as per section 7.1.2 of BS 5588 Part 5. TGD-B 2006 recommends 60m hose coverage for buildings which are provided with sprinkler coverage. These measures improve the standard of safety for fire fighters in lieu of sprinklers within the car park.

TGD-B 2006 explicitly states that basement car parks are not normally expected to be fitted with sprinklers. Section 3.5.2 of TGD-B 2006 states the following: -

- *The fire load is well defined and not particularly high*
- *Where the car park is well ventilated, there is a low probability of fire spread from one storey to another. Ventilation is the important factor, and as heat and smoke cannot be dissipated so readily from a car park that is not open-sided fewer concessions are made*

*Note: Because of the above, car parks are not normally expected to be fitted with sprinklers.*

Therefore, from the above it can be concluded that a normal basement car park, naturally or mechanically vented, does not require sprinklers to comply with Building Regulations. The example of a park that is not normal is a car park that includes automatic facilities, where cars are stacked vertically on top of one another.

## 5.0 Consideration

Section 5.4.3.1 of TGD-B states the following: -

As an alternative to outlet vents as described above, a system of mechanical extraction may be provided, where the basement is also protected by an appropriate sprinkler system complying with BS 5306: Part 2: 1990. The ventilation system should meet the criteria set out in 3.5.2.5 and should operate automatically on activation of the sprinkler system.

Basement car parks are not normally expected to be fitted with sprinklers.

It is noted that a design in accordance with the recommendations of TGD-B 2006 is prima facia in compliance with Part B of the Second Schedule of the Building Regulations. Therefore, a car park basement that is provided with a mechanical extract system does not normally require a sprinkler protection for compliance with Section 5.4.3.1 of TGD-B 2006.

Dublin Fire Brigades concerns about modern cars could have merit but then the Department of the Environment, Heritage and Local Government needs to amend TGD-B 2006 to reflect this or issue some other guidance with respect to this issue.

However, it is noted that separate to Section 5.4.3.1 of TGD-B 2006 a sprinkler system is provided to the rest of the building. This facilitates multiply compartment retail sizes and a Temperature Smoke Control system for the atrium to the office levels. The appellant has proposed that this automatic sprinkler system is designed in accordance with BS EN 12845: 2015.

Section 5.4 of EN 12845: 2015 states: -

### 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.

Section 5.1.2 and 5.1.3 of EN 12845: 2015 states: -

### **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 Appellant's co-mpliance report, they stated that the sprinkler system would provide coverage to all areas except the car park and the high ceiling areas of the atria. However, they have not addressed the fact that this will result in an unsprinklered building or section that is located vertically below the sprinklered building or section.

Therefore, in their application they have not properly addressed how they are achieving compliance with BS EN 12845: 2015.

It is noted that from the very first version of the compliance report it was stated by the Appellant that they were not proposing to provide sprinkler coverage to the car park. There were four requests for further information by Dublin Fire Brigade and this issue does not seem to have been raised. In other words, it does not appear that the Appellant was given the opportunity to address this issue before the Condition has added to the Fire Safety Certificate.

It is noted that this issue was raised in the Fire Officer's report on the Fire Safety Certificate Appeal dated 13<sup>th</sup> December 2019 and that this was circulated to the Appellant on the 9<sup>th</sup> January 2020. Therefore, the Appellant has been given the opportunity to address the issue but has chosen not to.

## 6.0 Recommendation

On the basis of my findings and conclusions I recommend that An Bord Pleanala alter Condition 2 to as follows: -

**Condition 2:**

*Basement -2 to be provided with a sprinkler system in accordance with BS 12845: 2015.*

**Reason:**

*To ensure compliance with Part B of the Second Schedule to the Building Regulations, 1997 to 2019.*

**Signed by:**

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**Des Fortune**

MSc(Fire Eng), BSc(Eng), CEng MIEI, MIFireE

**Date: 11<sup>th</sup> February 2020**