

An  
Bord  
Pleanála

## FSC Report

**ABP-312641-22**

### Appeal v Refusal or Appeal v Condition(s)

Appeal v Condition 13

### Development Description

Construction of new 6 storey apartment building with commercial units on ground floor and associated works

At

25-27 Donnybrook Road, Dublin 2

### An Bord Pleanála appeal ref number:

ABP-312641-22

### Building Control Authority Managers Order No:

FSC1000/22/7D

### Appellant & Agent:

Applicant : M.B. Mc Namara  
Construction Ltd

Agent : Jensen Hughes

### Building Control Authority:

Dublin City Council

### Date of Site Inspection

NA

### Inspector/ Board Consultant:

Luke Fegan

### Appendices

NA

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## 2.0 Introduction

### 2.1 Subject Matter and Background to the Appeal

This report sets out my findings and recommendations on the appeal submitted by Jensen Hughes [hereafter referenced as JH] on behalf of their Client, M.B. McNamara Construction Ltd., against Condition No. 13 attached to the Fire Safety Certificate (Building Control Authority Fire Safety Certificate CE/Managers Order No: FSC/1000/7D ) granted by Dublin City Council [hereafter referenced as DCC] in respect of Construction of new 6 storey apartment building with commercial units on ground floor and associated works at 25-27 Donnybrook Road, Dublin 2

The Fire Safety Certificate was granted on 7<sup>th</sup> January 2022 with 15 conditions attached. The appeal to An Bord relates to Condition 13 – the other conditions are not being appealed.

Condition 13, which is the subject of the appeal, reads as follows:

*Condition 13:*

*External walls within 1m of the relevant boundary to be fire resisting from both sides (the only permitted exceptions is unprotected areas as described in Diagram 27 of Technical Guidance Document - B:2006). Fire resisting external walls located within 1m of the relevant boundary to be formed from passive in-situ fire rated construction and fire rated per item 5(a) of Table A1 of Technical Guidance Document - B:2006. External walls located more than 1m from the relevant boundary to be in accordance with Section 4.2.8 of Technical Guidance Document – B:2006, any parts of these walls requiring fire resistance to be formed from passive in-situ fire rated construction and fire rated as per item 5(b) of Table A1 of Technical Guidance Document – B: 2006.*

With the stated reason for the condition being:

**Reason:** *To comply with Part B of the Second Schedule to the Building Regulations, 1997-2019*

De novo consideration is not warranted and the Board can rely on the provisions of Article 40(2) of the Building Control Regulations and deal with the appeal on the basis of Conditions 2 and 6 only.

### 2.2 Documents Reviewed

- 2.2.1 Fire Safety Certificate Application and Supporting Documentation and Additional Information submitted by JH on behalf of their Client
- 2.2.2 Further Information requests, decision and grant by DCC on 7<sup>th</sup> January 2022 with 16 conditions attached.
- 2.2.3 Appeal submission to An Bord Pleanala by JH dated 03.02.2022 and 30.03.2022
- 2.2.4 Appeal submission to An Bord Pleanala by DCC - Fire Officers Report dated 15.02.2022

### 3.0 Consideration of Arguments by Appellant and BCA

#### *Condition 13:*

*External walls within 1m of the relevant boundary to be fire resisting from both sides (the only permitted exceptions is unprotected areas as described in Diagram 27 of Technical Guidance Document - B:2006). Fire resisting external walls located within 1m of the relevant boundary to be formed from passive in-situ fire rated construction and fire rated per item 5(a) of Table A1 of Technical Guidance Document - B:2006. External walls located more than 1m from the relevant boundary to be in accordance with Section 4.2.8 of Technical Guidance Document – B:2006, any parts of these walls requiring fire resistance to be formed from passive in-situ fire rated construction and fire rated as per item 5(b) of Table A1 of Technical Guidance Document – B: 2006.*

With the stated reason for the condition being:

**Reason:** *To comply with Part B of the Second Schedule to the Building Regulations, 1997-2019*

It is clear from the submission made by JH and DCC that this appeal concerns the proposal by JH to install externally mounted self-closing fire rated shutters to protect the window openings in the external wall of the apartments at gridlines 3/E-F.5 on Levels 1 to 5 inclusive i.e. 3 shutters on each of 5 floors.

The purpose of these shutters is to protect against the risk of fire spread to the adjacent site in the event of fire occurrence in any of the 10 apartments which abut these windows i.e. to address the obligations of Requirement B4 External Fire Spread of Schedule 2 of the Building Regulations 1997-2019 which states the following:

*“The external walls and roof shall be so designed and constructed that they afford adequate resistance to the spread of fire to and from neighbouring buildings.”*

Compliance with B4 is achieved by limiting the extent of non-fire rated section of external wall based on the distance of the external wall from the site boundary such that the fire spread risk is controlled.

### Case made by DCC in respect of imposition of Condition 13

In their submission to An Bord (i.e. Fire Officers Report dated 15.02.2022), DCC make the following key points in support of the imposition of Condition 13:

- i. DCC argue that the fire performance of the proposed fire shutters – which is stated in the JH supplementary submission to Dublin Fire Brigade dated 03.11.2022 to be “*tested in accordance with BS476-22 or BSEN13501-2 to achieve 60 minutes fire resistance for integrity and irradiance*” (quoting from para 8 of said submission) - does not achieve the fire performance requirement stipulated in Table A1 of TGDB 2020.
- ii. It is noted that Table A1 prescribes that external walls which are located within 1m of site boundaries are required to achieve 60 minutes rating in respect of loadbearing capacity (i.e. if loadbearing), 60 minutes integrity and 60 minutes insulation – labelled REI60 - when tested from each side separately and 60 minutes loadbearing capacity (i.e. if loadbearing), 60 minutes integrity and 15 minutes insulation if located more than 1m from the site boundary – labelled RE60I15.  
In this instance the proposed shutters are located within 1m of the site boundary and thus the requirement of Table A1 is 60 minutes integrity and insulation i.e. EI60.  
DCC note that the proposed shutters will not achieve the required 60 minutes insulation rating - which restricts the temperature increase on the non-fire side of the barrier to 140 degC average and 180 degC max - and on this basis does not meet the requirement of B4 of the Second Schedule

- iii. DCC also question the reliability of fire shutters in this application given the restriction on access to the shutters for routine testing and maintenance. In particular they note that the shutters will have to be maintained and tested from the outside and they therefore express reservations that this will happen given the proximity of the windows to the site boundary i.e. they note that the adjacent lands which are under separate ownership cannot be used for ladder pitching. Having regard to the access restrictions, DCC also question the practicality of the commitment stated by JH in their appeal submission to ABP that the shutters will be the subject of “*an onerous weekly inspection and maintenance regime which shall form part of the fire safety management obligations*”.
- iv. In relation to the proposal to fit sprinklers in the apartments - which JH reference in support of their appeal - DCC correctly note that there is no relaxation in Table A1 of TGD-B for the fire performance of external walls located within 1m of site boundaries as a consequence of sprinkler protection. DCC also query the reliability figures quoted by JH in relation to sprinkler protection which they say are based on US data/standards and which may not transpose to the Irish context where the sprinkler system is designed to British Standards.

### **Case made by JH in respect of Condition 13**

For their part, JH make the following key arguments in their submissions to ABP:

- I. JH argue that the requirements of Part F Ventilation of the Building Regulations requires that the windows be openable and on this basis they say they cannot resolve the B4 External Fire Spread issue by using a passive solution such as fire rated glazing.
- II. JH clarify in their submission to ABP dated 30.03.2022 that their proposal is to use fire shutters which achieve 60 minutes integrity rating and 60 minutes irradiance rating when tested and assessed to the relevant European standards EN1634-1. They note that the 60 minutes irradiance rating means that the radiation levels at a distance of 1m from the shutter will not exceed 15kW/sqm after 60 minutes fire exposure. JH argue that this is equivalent to achieving a 60 minute insulation rating as set out in Table A1 of TGD-B for external walls located within 1m of site boundaries.
- III. JH argue that fire doors are commonly accepted on external walls near site boundaries and assert that shutters are as reliable as doors. In this regard they note that doors are described as having 60% reliability in the text in BS Published Document 7974 Part 7 2003 and assert that shutters will be more reliable as they are not subject to obstruction or the wear and tear of daily use.
- IV. JH also refer to provide sprinkler protection in the apartments which it is noted is a requirement to enable the use of open plan apartment typologies. JH argue that the presence of sprinklers will result in most cases with the fire being extinguished and thus further mitigate the B4 External Fire Spread risk.
- V. JH also refer to proximity of Donnybrook fire station to the subject site and thus argue that speedy fire service intervention can be anticipated.

## 4.0 Assessment

### Condition 13:

External walls within 1m of the relevant boundary to be fire resisting from both sides (the only permitted exceptions is unprotected areas as described in Diagram 27 of Technical Guidance Document - B:2006). Fire resisting external walls located within 1m of the relevant boundary to be formed from passive in-situ fire rated construction and fire rated per item 5(a) of Table A1 of Technical Guidance Document - B:2006. External walls located more than 1m from the relevant boundary to be in accordance with Section 4.2.8 of Technical Guidance Document – B:2006, any parts of these walls requiring fire resistance to be formed from passive in-situ fire rated construction and fire rated as per item 5(b) of Table A1 of Technical Guidance Document – B: 2006.

With the stated reason for the condition being:

**Reason:** To comply with Part B of the Second Schedule to the Building Regulations, 1997-2019

Having considered the arguments made by both parties my assessment considerations are as follows:

- I. JH suggest that the use of shutters is essential to enable the windows to be openable to comply with Part F of the Building Regulations. Part F requires openable windows or openable doors to achieve purge ventilation in the amount  $1/20^{\text{th}}$  of the floor area of the habitable rooms – refer Table 3 extract below from TGDF 2019.

Accordingly, the bedrooms each require circa 0.6sqm of openable window and the living room requires circa 1.5sqm. The bedroom provision can be achieved without impacting on Requirement B4 as areas of openings not exceeding 1sqm are permissible on site boundaries and as the 2 bedroom windows are in sperate apartments with a distance between windows exceeding 1.5m they are not additive. It is possible therefore to achieve the purge ventilation in the bedrooms using a non-fire rated openable window of up to 1sqm – refer para (III) below. Any further section of window which is required for daylighting or aesthetic reasons could be achieved with fixed fire rated glazing. In the case of the living room the entire of the purge ventilation could be achieved in the screen/door opening onto the balcony and the window on Gridline 3 could therefore be entirely fixed and fire rated.

In conclusion therefore I do not concur with the JH assertion that Part F considerations dictate that shutters must be used to satisfy B4 considerations.

Room or Space	General Ventilation	Extract ventilation	Purge ventilation
	Minimum equivalent area of background ventilator <sup>a</sup> (mm <sup>2</sup> )	Extract fan <sup>b</sup> - Minimum intermittent extract rate (l/s) <sup>h</sup>	Opening window or external door - Minimum provision <sup>g</sup>
Habitable Room	7000 <sup>c,f</sup>	-	1/20th of room floor area
Kitchen	3500 <sup>c,d</sup>	60l/s generally 30l/s if immediately adjacent to cooker (e.g. cooker-hood not recirculating)	Window opening section (no size requirement) <sup>d</sup>
Utility Room	3500 <sup>c,d</sup>	30 l/s	Window opening section (no size requirement) <sup>d</sup>
Bathroom	3500 <sup>c,d</sup>	15 l/s	Window opening section (no size requirement) <sup>d</sup>
Sanitary Accommodation (no bath or shower)	3500 <sup>c,d</sup>	6 l/s <sup>e</sup>	Window opening section (no size requirement) <sup>d</sup>

Notes:

Ex TGDF 2019

- II. Regarding the performance requirement of an EW rated fire shutter versus an EI rated section of wall/screen it is not true to say that they are equivalent as suggested by JH. The EI rating requires that the average temperature on the unexposed face does not exceed a temperature rise of 140degC. This in turn can be equated to a radiation level using the formula below which yields an output radiation of 1.9kW/sqm. This is considerably lower than the radiation level required to achieve an W60 rating to the EN1634 standard i.e. 15kW/sqm. Accordingly it is not correct to say that EW is “equivalent” to EI. JH do not provide analysis to show if the 15kW/sqm radiation level at 1m from the shutters satisfies the B4 External Fire Spread risk

The intensity of radiation,  $I_s$ , from a heated surface can be calculated from:

$$I_s = \sigma \epsilon T^4 \text{ kW/m}^2 \quad (\text{Eqn A1})$$

Where:

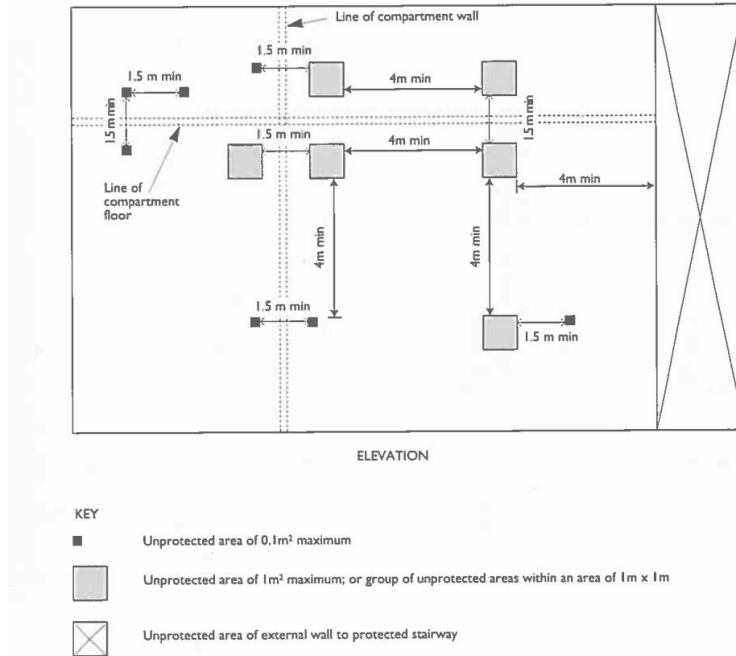
$\sigma$  Stefan Boltzmann constant ( $5.67 \times 10^{-11} \text{ kW/m}^2/\text{K}^4$ )

$\epsilon$  Emissivity of the radiating object

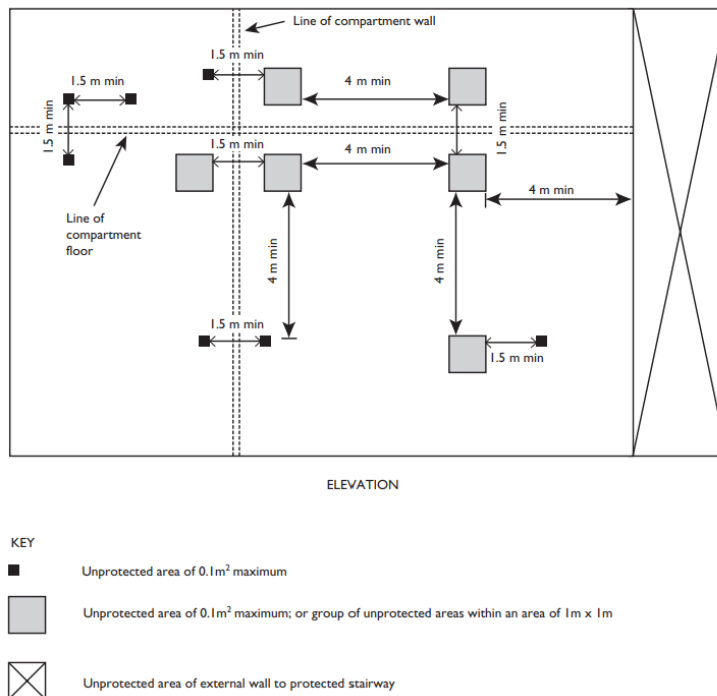
T Absolute temperature of the radiating object (K).

- III. JH state that the fire shutters will be activated by the fire detection and alarm system. They do not elaborate further on this point. However, it is noted that the apartments are fitted with a domestic type of fire alarm system (i.e. interlinked smoke heads) and also fitted with a heat detector inside the apartment entrance door as part of the common fire alarm system. It is assumed that JH are referring to the common alarm system to operate the shutters as a domestic system is not normally relied upon for such system interfaces as it is more prone to false alarms and is also less “reliable” in terms of standby power, fire rated cabling etc. However, JH have not addressed the issue of a fire occurrence in the bedrooms with the room door closed in which case the operation of the heat detector inside the apartment entrance door will be significantly delayed resulting in possible flames issuing from the bedroom windows ahead of the operation of the shutters.
- IV. In regard to the benefit of sprinklers on External Fire Spread I concur with JH that these are potentially beneficial. However I concur with DCC that the presence of sprinklers is not identified as a trade-off in TGDB 2020 against fire resistance of external walls adjacent to site boundaries.
- V. The reference by JH of the proximity of the local fire station to the site is also a potential benefit in terms of B4 External Fire Spread. However, it is noted that TGD-B 2020 does not identify fire-fighting capability as a trade-off against fire resistance requirements of external walls adjacent to site boundaries
- VI. In regard to the question of ongoing routine testing, inspection and perhaps repair of the fire shutters should they mal-function I agree with DCC that the location immediately adjacent to site boundaries and the reliance on abseiling to access the shutters is less than optimal and could result in testing and maintenance shortcomings.

VII. DCC refer to Diagram 27 of TGD B 2006 in Condition 13. Diagram 27 identifies those sections of external wall which can be disregarded for space separation purposes and thus can be installed as non-fire rated walls/windows. There is however an error in Diagram 27 whereby the grey zones are identified as having a maximum area of 0.1sqm. This ought to have read 1.0sqm as per the text in Diagram 27 of TGD-B 1997 which is also the text in the current UK Approved Document B – refer extracts below.



Extract - TGDB 1997 Diagram 27



Extract - TGDB 2006 (2020 Revision)



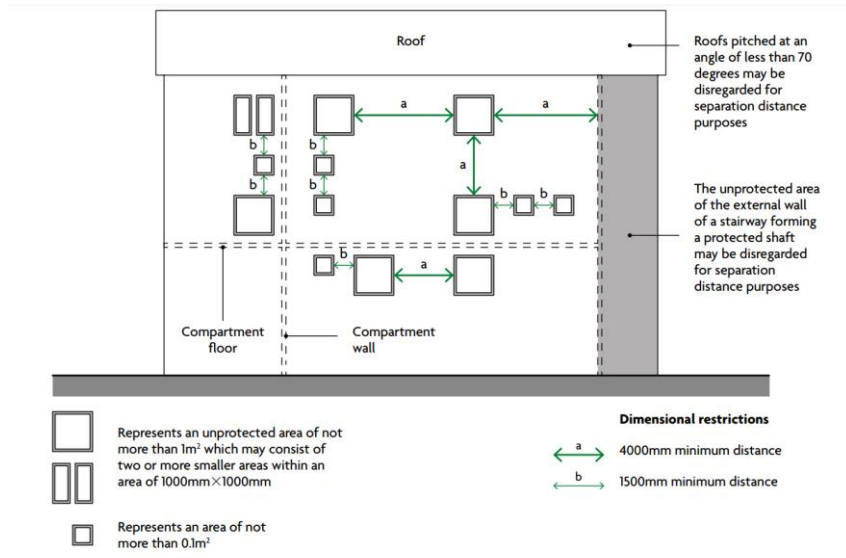


Diagram 13.5 Small unprotected areas that may be disregarded in assessing the separation distance from the boundary

Extract - UK Approved Document B 2019

VIII. Whilst noting that automatic fire shutters have been accepted in the past as a means of satisfying External Fire Spread risks this has generally been by means of internally sited shutters and has generally arisen in commercial buildings with ready access for testing maintenance.

On the basis of the foregoing considerations, I conclude that DCC are justified in imposing Condition 13 although the Condition should have referred to Diagram 27 in TGD-B:1997 and not Diagram 27 in TGD-B:2006.

## **5.0 Conclusions/Recommendation**

On the basis of my assessment in 4.0 above I consider that the imposition of Conditions 13 is justified and I consider that An Bord Pleanala should disallow the appeal but direct the Building Control Authority to alter the condition to reference Diagram 27 of TGD-B:1997 in respect of permitted exceptions for the reasons outlined above. Thereby satisfying the requirements of Part B whilst allowing unprotected openings to facilitate ventilation.

## 6.0 Reasons and Considerations

On the basis of the assessment in 4.0 above I conclude that the appeal should be rejected and the condition upheld as amended below.

## 7.0 Conditions

Direct the Building Control Authority to amend Condition 13 to read as follows:

*Condition 13:*

*External walls within 1m of the relevant boundary to be fire resisting from both sides (the only permitted exceptions is unprotected areas as described in Diagram 27 of Technical Guidance Document - B:1997). Fire resisting external walls located within 1m of the relevant boundary to be formed from passive in-situ fire rated construction and fire rated per item 5(a) of Table A1 of Technical Guidance Document - B:2006. External walls located more than 1m from the relevant boundary to be in accordance with Section 4.2.8 of Technical Guidance Document – B:2006, any parts of these walls requiring fire resistance to be formed from passive in-situ fire rated construction and fire rated as per item 5(b) of Table A1 of Technical Guidance Document – B: 2006.*

**Reason:** *To comply with B4 of the Second Schedule to the Building Regulations, 1997-2019*



**Mr. Luke Fegan**

**Chartered Engineer** BA BAI HDIP FSP MA MSc FIRE ENG CENG FIEI

*Consultant / Inspector*

Date : 5<sup>th</sup> April 2023