Report for An Bord Pleanala

on

Appeal against Condition 1 on Fire Safety Certificate FSC1149/22 (Submission Number SN3004550)

for

The Proposed Block D Residential Building

at

Sandford Road Development, Sandford, Dublin 6

Client:	An Bord Pleanala
An Bord Pleanala Ref:	313486-22
Our Ref:	ABP_R018_Issue 1

1.0 Introduction

This report sets out my findings and recommendations on the appeal submitted by Jensen Hughes, acting on behalf of Ardstone Homes Ltd., against Condition 2 on Fire Safety Certificate FSC1149/22 by Dublin City Council in respect of an application for works related to Proposed Block D Residential Development at Sandford Road Development, Sandford Road, Dublin 6

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 granted Fire Safety Certificate (FSC1149/22) by Dublin City Council is as follows: -

Condition 2:

Vehicle access for high-reach appliances is to be provided to 50% of the perimeter of the building and is to comply with Section 5.2.4 (Design of Access Routes and Hard standing), Table 5.2 (including turning area) and Diagram 32 of Technical Guidance Document B.

Reason:

To comply with Part B5 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 Jensen Hughes, on behalf of Ardstone Homes Ltd, on 9th November 2021.

2.2 Request for additional information from Dublin City Council dated 3rd December 2021.

2.3 Additional Information from Jensen Hughes to Dublin Fire Brigade dated 31st March 2022.

2.4 Granted Fire Safety Certificate No. FSC1145/22 from Dublin City Council dated 7th April 2022.

2.5 Letter of Appeal from Jensen Hughes, acting on behalf of Ardstone Homes Ltd., received by An Bord Pleanála on 4th May 2022.

2.6 Fire Officer's report on Fire Safety Certificate Appeal dated 2nd June 2022 to An Bord Pleanála.

2.7 Jensen Hughes response to Fire Officer's report dated 28th June 2022 to An Bord Pleanála.

3.0 Building Control Authority's Case

In response to the appeal of Condition 2 Dublin Fire Brigade offer the following rebuttal: -

Section 5.0.1 of Technical Guidance Document B states: -

> **5.0.1** While the fire safety objectives of Part B relate principally to the protection of life from fire (see 0.3.8), Section B5 relates to measures intended to assist the fire services in the protection of life and property from fire.
>
> Fire authorities have functions under the Fire Services Act, 1981 to provide fire brigades for the extinguishment of fires and for the protection and rescue of persons and property from injury by fire. Regulation B5 provides for the provision of access and other facilities to assist the fire service in the protection of life and property from fire.
>
> The guidance in this Section relates to the provision of facilities for the fire service within and around buildings for the purpose of protecting life and mitigating property damage due to fire.
>
> To assist the fire service some or all of the following facilities may be necessary, depending mainly on the size of the building:
>
> - vehicle access to the building for fire appliances;
> - access to and within the building for fire fighting personnel;
> - fire mains around and within buildings, including the provision of hydrants;
> - provisions for venting of heat and smoke from basement areas and other spaces;
> - other facilities such as foam inlets to basement boiler-houses and fuel storage and electrical isolation switches.

Section 5.0.2 of Technical Guidance Document B states: -

> **5.0.2** The main factor determining the facilities needed to assist the fire service is the size of the building.
>
> The facilities provided also depend on the expected method of fire fighting; whether this will be from outside or inside the building. The following considerations will determine the extent of the facilities required for any particular situation:
>
> (a) In many instances fire fighting is carried out within the building. In deep basements and tall buildings fire fighters will invariably work inside. They need special access facilities (see sub-section 5.3), equipped with fire mains, as described in sub-section 5.1. Fire appliances need access to entry points near the fire mains, as described in sub-section 5.2.
>
> (b) In other buildings the combination of personnel access facilities offered by the normal means of escape, and the ability to work from ladders and appliances on the perimeter is sufficient without special internal arrangements. Depending on the size of the building, vehicle access may be needed to some or all of the perimeter, as explained in sub-section 5.2.

Section 5.2.1 of Technical Guidance Document B states: -

> **5.2.1** Fire brigade vehicle access to the exterior of a building is required to enable high reach appliances, such as turntable ladders and hydraulic platforms, to be deployed, and to enable pumping appliances to supply water and equipment for firefighting.
>
> Access requirements increase with building size and height and also depend on whether the building is fitted with internal fire mains (see 5.1).
>
> Access for fire appliances should be provided in accordance with the provisions outlined in 5.2.2 below.
>
> Vehicle access routes and hard-standings should meet the criteria described in 5.2.4 if they are to be used by fire service vehicles.

Section 5.2.2 of Technical Guidance Document B states: -

5.2.2 For effective firefighting operations, fire brigade appliances should be able to get within easy reach of a building. For small buildings it is generally only necessary to have access to one external elevation, but larger buildings will require access to all or a number of elevations.

Vehicle access should be provided in accordance with the criteria indicated in Table 5.1. Any elevation to which vehicle access is provided in accordance with Table 5.1 should contain a door giving access to the interior of the building.

In the case of a building fitted with a dry internal fire main, access for a pump appliance should be provided to within 18 m and within sight of the inlet connection point.

In the case of a building fitted with a wet internal fire main, access for a pump appliance should be provided to within 18 m and within sight of an entrance giving access to the main and within sight of the inlet connection to the suction tank for the main.

Table 5.1 of TGD-B 2006 states: -

Table 5.1 **Vehicle access to buildings**

Volume of building (m^3)	Height of top storey above ground (m)	Provide vehicle access	Type of appliance
up to 7,000	under 10	at rate of 2.4 m in length for every 90 m^2 of ground floor area	pump
	over 10	to 15% of perimeter	high reach
7,000-28,000	up to 10	to 15% of perimeter	pump
	over 10	to 50% of perimeter	high reach
28,500-56,000	up to 10	to 50% of perimeter	pump
	over 10	to 50% of perimeter	high reach
56,000-85,000	up to 10	to 75% of perimeter	pump
	over 10	to 75% of perimeter	high reach
over 85,000	up to 10	to 100% of perimeter	pump
	over 10	to 100% of perimeter	high reach

Note: See 5.0.4 and Diagram 31 for the definition of 'perimeter'.

Table 5.2 of TGD-B 2006 states: -

Table 5.2 **Vehicle access route specifications**

Appliance type	Minimum width of road between kerbs (m)	Minimum width of gateways between kerbs (m)	Minimum turning circle between kerbs (m)	Minimum turning circle between walls (m)	Minimum clearance height (m)	Minimum carrying capacity (tonnes)
Pump	3.7	3.1	16.8	19.2	3.7	12.5
High Reach	3.7	3.1	26	29	4	16.25

Note:
Use of these figures will cater for nearly all of the fire appliances in use at present. Some fire authorities use different sized appliances and it is therefore advisable that the relevant fire authority be consulted.

Section 5.2.4 of TGD-B 2006 states: -

> **5.2.4** A vehicle access route may be a public or private road, or other route, which, including any manhole or other covers, meets the standards in Table 5.2, Diagram 32 and the following paragraphs.
>
> Access routes to buildings with any storey at more than 10 m above ground level should meet the standards for high reach appliances. For lower buildings the access should be to the standards for pumping appliances.
>
> Where access is provided to an elevation in accordance with Table 5.2, overhead obstructions such as overhead cables that would interfere with the setting of ladders etc., should be avoided in the area shown on Diagram 32.
>
> Where access roadways are provided within the site of a building, turning facilities for appliances, in accordance with the requirements of Table 5.2 should be provided in any dead-end access route that is more than 20 m long.

Dublin Fire Brigade state it is clear from above that the requirements set out in Section B5 – Access and facilities for the Fire Service that high reach vehicle access is required for the proposed building.

They note the following: -

- On 3rd December 2021 Jensen Hughes were informed that there was an issue with vehicle access for the fire service and that Dublin Fire Brigade required the building to comply in full with B5 of Technical Guidance Document B.

- The proposed building is to be constructed on a green field site and is fully capable of complying with Technical Guidance Document B.

- The building volume is 13,145m^3 and the height of the top floor is 11.95m high. Therefore, access is to be provided to 50% of the perimeter for high reach appliance in accordance with Table 5.1 of Technical Guidance Document B.

- Technical Guidance Document B does not state 'if dry internal fire mains are installed in the building, then the requirements for vehicle access are not required'.

- Jensen Hughes state 'in the case of a building fitted with a dry internal fire main, access for a pump appliance should be provided to within 18m and within sight of the inlet connection point', this doesn't apply to high reach appliances.

3.1 Appellant's Case

Block D is a proposed new apartment building consisting of a single residential block consisting of 5 storeys. The basis of compliance for the Fire Safety Certificate application is TGD-B 2006 +A1: 2020 (henceforth referred to as TGD-B 2006) and BS 5588: 1990 Part 1.

Dublin Fire Brigade have conditioned that, vehicle access for high reach appliances should be provided to 50% of the perimeter of the building and comply with Section 5.2.4 of TGD-B 2006 citing the reason as compliance with Part B5 of the Second Schedule to the Building Regulations, 1997 to 2019.

The appellant proposed that Block D will be provided with vehicle access via a road within the entire development that will meet the recommendations as set out in Table 5.2 of TGD-B 2006 (as demonstrated with a Swept Path Analysis). Turning facilities are provided for appliances to allow for them to reverse direction and turn around. The turning facilities are provided at the end of a dead end access route, North of Block D.

The access route to the building will meet the standards for high reach appliances with the exception of providing 50% perimeter access in accordance with Diagram 32 of TGD-B 2006.

As an alternative to providing 50% perimeter access the building will instead be provided with internal fire mains and vehicle access to within 18m and within sight of a fire main inlet connection point. This arrangement is permitted under Section 5.2.2 of TGD-B 2006 as follows: -

'In the case of a building fitted with a dry internal main, access for a pump appliance should be provided to within 18m and within sight of the inlet connection point.'

Section 5.2.1 of TGD-B 2006 states '*Access requirements increase with building size and height and also depend on whether the building is fitted with internal mains*'. It is clear that the fire mains are an important consideration when assessing fire brigade access.

The intent of TGD-B 2006 is made clearer by the following extract from TGD-B 2006 *'Vehicle access should be provided in accordance with the criteria indicated in Table 5.1. Any elevation to which access is provided in accordance with 5.1 should contain a door giving access to the interior of the building. In the case of a building fitted with a dry internal fire main (i.e. dry riser), access for a pump appliance should be provided to within 18m and within sight of the inlet connection point'.*

Therefore, based on the above, it is clear that buildings fitted with dry risers do not have to comply with Table 5.1 of TGD-B 2006 in terms of vehicle access to the perimeter of the building but only need to ensure that the fire appliance (high reach appliance in this case) can park within 18m and in sight of the dry riser inlet. The proposed building design achieves this and therefore fire tender access is currently in compliance with the recommendations of TGD-B 2006 and Part B5 of the Second Schedule to the Building Regulations, 1997 to 2019.

In addition, the following is noted: -

- The purpose group of the building is 1(c) residential (flats & maisonettes). As such, the building is provided with a significant amount of compartmentation as every

apartment is compartmented, which will contain any fire within a 60 minute fire rated enclosure (rated for loadbearing capacity, integrity and insulation). This will prevent the fire from spreading vertically or horizontally, in addition to limiting the overall size of the fire.

- The building will employ a simultaneous evacuation strategy. Given the automatic fire detection and alarm system which is present throughout the building, occupants will be immediately alerted if a fire occurs anywhere. This will allow them to evacuate in the early stages of fire development. By the time the Fire Brigade arrive on the scene, most if not all of the occupants will have successfully evacuated and those who are not will be within the stair enclosure (i.e. waiting in a disable refuge). They will remain safe until firefighting personnel can enter the building and evacuate them.

- Within the multiple districts and councils which comprise County Dublin, there have been residential buildings (many of which are taller than Block D) where high reach appliance access to 50% of the building perimeter was not required by the code guidance or requested by Dublin Fire Brigade based on the provision of dry risers.

  Examples include: -

  - Block A, Shanganagh Castle, Dun Laoghaire Rathdown – FSC/DR/232/21
  - Block 1, Griffith Wood Development, Dublin City – FSC3460/21/7D
  - Blocks H, J, M & Q, The Grange, Dun Laoghaire Rathdown – FSC/DR/141/21

In addition, in response to the Fire Officer's Report they have commented as follows: -

- They confirm that they were made aware of Dublin Fire Brigades concerns with respect to vehicle access and responded to those concerns.

- The Swept Pass Analysis submitted demonstrates that a high reach appliance would be able to get within 18m and within clear sight of the dry riser inlet connection to the building. However, given the current landscaping and site features (such as amenities, green spaces, design details etc) it is not feasible for a high reach appliance to get within 2m for 50% of the buildings perimeter without alterations that would have a significant impact on the planning application for the site as the amount of green & amenity space and trees would have to be reduced for the overall SHD development in order to accommodate this condition.

- The requirements for high reach appliances set out in Table 5.1 of TGD-B 2006 does not take into account the benefit of providing dry risers within the buildings. It is worthwhile referencing other widely accepted, international residential code guidance documents such as BS 9991: 2015 as it offers recommendations specially related to fire tender access in residential buildings rather than the guidance offered in TGD-B that applies to all buildings.

  Section 5.1 of BS 9991 states:

  'The provisions made for vehicular access should be determined according to whether or not a fire main is provided (see 50.1.2, 50.1.3 and 51.1).'

It further elaborates in Section 50.1.3 that for buildings fitted with fire mains:

'Fire main enables fire-fighters within a building to connect their hoses to a water supply. In buildings fitted with fire mains, pumping appliances should have access to the perimeter at points near the mains, so that firefighters can enter the building to make a hose connection from the fire appliance to pump water into the main…'

…buildings fitted with dry fire mains should have access for a fire appliance to within 18m of each fire main inlet connection point, typically on the face of the building close to the entrance point leading to the firefighting shaft, with the inlet visible form the fire appliance…'

Therefore, it is considered acceptable in BS 9991 to have access for a fire appliance to within clear sight and 18m of a dry riser inlet close to the building without also having to provide 50% perimeter access to with 2m of the building elevation.

There are a large number of granted and built residential projects that have been designed and approved by Dublin Fire Brigade in accordance with this guidance documentation.

It is also noted that section B5.2 of the TGD-B 2006 has not received an update since 2006 (the 2020 reprint did not include any update to the vehicle access requirements and does not take into account the widespread application of sprinklers and additional protective measures that have been implemented for residential buildings that have become industry standard in the meantime.

- TGD-B 2006 does not state *'if dry internal fire mains are installed in the building, then the requirements for vehicle access are not required'* but it does in Section 5.2.1 state that 'access requirements increase with building size and height and also depend on whether the building is fitted with internal mains'. The aforementioned statement would imply the level of access requirements for vehicle perimeter access would have a direct correlation to whether a dry riser system was provided or not.

- The statement in TGD-B 2006 'in case of a building fitted with a dry internal fire main, access for a pump appliance should be provided to within 18m and within sight of the inlet connection point' is because buildings fitted with a dry riser should not need high reach access to the perimeter as the fire would be fought within the building from the dry riser outlet on each floor. However, in the event that Dublin Fire Brigade send out a high reach appliance, the provisions on site for vehicle routes allow a high reach appliance to get within 18m of dry riser outlet.

4.0 Consideration

In Dublin Fire Brigade's response to the appeal, they set out the recommendations of TGD-B 2006 with respect to Fire Brigade Access. They state that for compliance with Section 5.2 of TGD-B 2006 Block D would require 50% high reach access.

The appellant in their application and later letter of appeal maintains that for compliance with Section 5.2 of TGD-B 2006 the provision of dry risers negates that recommendation for high reach access to 50% of the perimeter and make the argument this approach has been accepted in previous Fire Safety Certificate applications. In their response to the Dublin Fire Brigades submission (letter dated 28th June 2022) they appear to soften this claim but still maintain that given previous approved developments and the guidance in BS 9991: 2017 that the provision of dry risers in lieu of high reach access should be acceptable.

It is noted that in my over 25 years as a Fire Safety Consultant this issue with regard dry risers and the perimeter access has come up numerous times. It is commonly known within the industry that this is a badly written section of TGD-B 2006. It is unfortunate that in 2006 and 2020 that the opportunity wasn't taken to clarify / amend this section and we can only hope that in the up coming new TGD-B that this area will be properly addressed.

The Dublin Fire Brigade's interpretation of this section is the correct one. TGD-B 2006 as it is written does not currently allow for the provision of dry risers in lieu of perimeter access to a building. However, the issue is not that simple. The mention of dry risers in this section has made the recommendation somewhat unclear. Especially when we consider the guidance in BS 9991: 2015 and the UK Approved Document B. The UK Approved Document B is a particularly good example given its close similarities with TGD-B 2006.

UK Approved Document B 2019 (with 2020 amendments) states the following: --

Buildings not fitted with fire mains

15.1 For small buildings (up to 2000m², with a top occupied storey that is a maximum of 11m above ground level), vehicle access for a pump appliance should be provided to whichever is the less onerous of the following.

a. 15% of the perimeter.

b. Within 45m of every point of the footprint of the building (see Diagram 15.1).

15.2 For all other buildings, provide vehicle access in accordance with Table 15.1.

15.3 Every elevation to which vehicle access is provided should have a door, a minimum of 750mm wide, to give access into the building. The maximum distance between doors, or between a door and the end of the elevation, is 60m (e.g. a 150m elevation would need a minimum of two doors).

Table 15.1 Fire and rescue service vehicle access to buildings not fitted with fire mains

Total floor area[1] of building (m²)	Height of floor of top storey above ground (m)[2]	Provide vehicle access to:	Type of appliance
Up to 2000	Up to 11 Over 11	See paragraph 15.1 15% of perimeter	Pump High reach
2000–8000	Up to 11 Over 11	15% of perimeter 50% of perimeter	Pump High reach
8000–16,000	Up to 11 Over 11	50% of perimeter 50% of perimeter	Pump High reach
16,000–24,000	Up to 11 Over 11	75% of perimeter 75% of perimeter	Pump High reach
Over 24,000	Up to 11 Over 11	100% of perimeter 100% of perimeter	Pump High reach

NOTES:

1. The sum of the area of all storeys in the building (excluding basements).
2. For storage buildings (purpose group 7(a)), measure height to mean roof level (see Appendix D).

Buildings fitted with fire mains

15.4 For buildings fitted with dry fire mains, both of the following apply.

a. Access should be provided for a pumping appliance to within 18m of each fire main inlet connection point. Inlets should be on the face of the building.

b. The fire main inlet connection point should be visible from the parking position of the appliance, and satisfy paragraph 16.10.

15.5 For buildings fitted with wet fire mains, access for a pumping appliance should comply with both of the following.

a. Within 18m, and within sight of, an entrance giving access to the fire main.

b. Within sight of the inlet to replenish the suction tank for the fire main in an emergency.

15.6 Where fire mains are provided in buildings for which Sections 16 and 17 make no provision, vehicle access may be as described in paragraphs 15.4 and 15.5, rather than Table 15.1.

It is noted that versions of this document have been in circulation as long as TGD-B and all of them have taken the above approach. Perimeter Access is not considered with buildings fitted with fire mains, only access to within 18m of the dry riser inlet valves.

BS 9991: 2015 has the following approach: -

50.1.2 Buildings not fitted with fire mains

Houses not fitted with fire mains should allow access for a fire appliance to within 45 m of all points within the house, measured on a route suitable for laying hose.

Blocks of flats not fitted with fire mains should have vehicle access for a fire appliance not more than 45 m from all points within each dwelling, measured on a route suitable for laying hose.

NOTE If the internal layout of partitions, fittings, etc. is not known when plans are deposited, direct distances may be used for assessment. The direct distance is taken as two thirds of the travel hose laying distance.

Where sprinklers in accordance with BS 9251:2014 or BS EN 12845 (see **11.2**, Table 2) are fitted throughout a house or block of flats:

a) the distance between the fire appliance and any point within the house (in houses having no floor more than 4.5 m above ground level) may be up to 90 m;

b) the distance between the fire and rescue service pumping appliance and any point within the house or flat may be up to 75 m (in houses or flats having one floor more than 4.5 m above ground level).

50.1.3 Buildings fitted with fire mains

Fire mains enable fire-fighters within a building to connect their hoses to a water supply. In buildings fitted with fire mains, pumping appliances should have access to the perimeter at points near the mains, so that fire-fighters can enter the building to make a hose connection from the fire appliance to pump water into the main. Fire mains should be provided in accordance with **51.1**.

Buildings fitted with dry fire mains should have access for a fire appliance to within 18 m of each fire main inlet connection point, typically on the face of the building close to the entrance point leading to the fire-fighting shaft, with the inlet visible from the fire appliance.

Multi-storey buildings fitted with wet fire mains should have fire appliance access:

a) within 18 m of, and within sight of, a suitable entrance giving access to the wet fire main; and;

b) within sight of the inlet for the emergency replenishment of the suction tank for the wet fire main.

Again, it is noted that provision of access to within 18m of dry risers negates the need for further perimeter / fire brigade access.

In addition, it is noted that the appellant is correct when they say numerous developments have used this approach successfully and Dublin Fire Brigade have granted Fire Safety Certificates on this basis. It is noted that I personally have used this approach numerous times and recently within Dublin City had a large ten storey apartment block granted on the basis of the provision of access to within 18m of dry risers rather than the perimeter access recommendations of Table 5.1. However, in any development where I have seen this approach successfully used, it has been acknowledged that it is an alternative approach rather than a TGD-B 2006 compliant approach. The appellants insistence that their approach was in accordance with the recommendations of Section 5.2 of TGD-B 2006 may have gone against them in this instance. It is unfortunate that Dublin Fire Brigade did not give a response to the Appellants letter dated 28th June 2022 as this may have clarified their exact position on this issue.

Irrespective of this it is noted that following established precedence and the guidance found in the UK Approved Document B and BS 9991 the provision of dry risers in lieu of perimeter access provision in accordance with section 5.2 of TGD-B 2006 is an acceptable approach to take.

6.0 Conclusions

For compliance with the recommendations of Section 5.2 of TGD-B 2006 Block D would require 50% high reach access. The appellant has not made a very good case for the removal of Condition 2 from the granted Fire Safety Certificate given his over reliance on the opinion that Section 5.2 of TGD-B 2006 would allow dry riser in lieu of 50% perimeter access. However, following established precedence and the guidance found in the UK Approved Document B and BS 9991 the provision of dry risers in lieu of perimeter access provision in accordance with section 5.2 of TGD-B 2006 should be considered acceptable.

7.0 Recommendation

On the basis of my findings and conclusions I recommend that An Bord Pleanála grant the appeal and instruct that Condition 2 is removed from the Fire Safety Certificate.

Signed by:

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

Date: **31st October 2022**