

Report for An Bord Pleanála

on

**Appeal against Condition 2 on Fire Safety Certificate
FSC1430/22/7D**

for

**The Material Alterations and Extension of the Existing Queen of
Peace Nursing Home**

at

Garville Place, Rathgar, Dublin 6

Client:	An Bord Pleanála
An Bord Pleanála Ref:	314888-22
Our Ref:	ABP_R023_Issue 1
Date:	30 th May 2023

1.0 Introduction

This report sets out my findings and recommendations on the appeal submitted by Maze Fire Consulting, acting on behalf of Orwell Healthcare, against Condition 2 on Fire Safety Certificate FSC1430/22/7D by Dublin City Council in respect of an application for works related to Material Alterations and Extension of the Existing Queen of Peace Nursing Home at Garville Place, Rathgar, 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 (FSC1430/22/7D) by Dublin City Council is as follows: -

Condition 2:

One of the following provisions is to be incorporated into the building.

(a) Provide a sprinkler system in accordance with IS EN 12845: 2015 +A1: 2019 Fixed firefighting systems – Automatic sprinkler systems – Design, installation and maintenance including Annex F Additional Measures to improve system reliability and availability, incorporating at least one single superior water supply.

Or

(b) Provide a Category 3 sprinkler system in accordance with BS 9251: 2021 Fire sprinkler systems for domestic and residential occupancies – Codes of practice, including the design philosophy of Annex F of IS EN 12845, incorporating at least one single superior water supply. The minimum duration of supply for the stored water capacity for the system shall be 60-minutes.

Reason

To comply with the provisions of Part B of the Second Schedule to the Building Regulations 1997 to 2021.

2.0 Documentation Reviewed

- 2.1 Fire Safety Certificate Application (application form, compliance report and fire safety drawings) submitted by Warringtonfire Consulting Ireland LTd, on behalf of Orwell Queen of Peace, Rathgar on 20th July 2022.
- 2.2 Additional Information request from Dublin City Council on BCMS dated 25th July 2022.
- 2.3 Additional Information request from Dublin City Council on BCMS dated 9th August 2022.
- 2.4 Additional Information from warringtonfire to Dublin Fire Brigade dated 9th September 2022.
- 2.5 Granted Fire Safety Certificate No. FSC1430/22/7D from Dublin City Council dated 19th September 2022.
- 2.6 Letter of Appeal from Maze Fire Consulting, acting on behalf of Orwell Healthcare, received by An Bord Pleanála on 13th October 2022.
- 2.7 Fire Officer's report on Fire Safety Certificate Appeal dated 7th November 2022 to An Bord Pleanála.
- 2.8 MSA response to Fire Officer's report dated 8th December 2022 to An Bord Pleanála.

3.0 Building Control Authority's Case

Dublin Fire Brigade contend that the fire safety requirements for residential care homes as set out in TGD-B are not sufficient to effectively evacuate a nursing home, while maintaining the standards and responsibilities required of modern residential care homes. Furthermore, the building is an existing nursing home with a significant extension proposed which creates a unique set of compliance issues. The reason for Condition 2 is as follows: -

- The BRE 'Effectiveness of sprinklers in residential premises' concluded that an automatic sprinkler system is probably cost-effective for residential care homes. This research was acted upon by the Scottish Executive who made the provision of sprinklers in new residential care homes a mandatory requirement under Section 2.15 of the Building (Scotland) Regulations 2004.
- In 2012 BRE reviewed the effectiveness of sprinklers for the Welsh Government, the executive summary of this report is included as Appendix 1. It concluded that based on monetary data from 2010 'Sprinklers are cost effective in new care homes and halls/dormitories'. Based on this the Welsh Assembly signed into law Regulation 37A which requires all new residential care homes from 30/04/2014 to install an automatic fire suppression system.
- Residential care homes present challenges regarding evacuation of residents due to issues including age profile, mobility and cognisance and the fact that evacuating externally initially is not an option. In the event of a fire within a care home an evacuation of a compartment takes a considerable period of time with factors like the time of day also impacting. International research has shown that the majority of fire deaths in care homes occur in the evening and during the night when staff may have to deal with disoriented and mobility impaired residents who require assistance in evacuating. This leads to significant delays and prolonged evacuation times. Tests have shown that the provision of an automatic sprinkler system ensures that all escape routes remain tenable for a longer period of time, reducing the risks to residents.
- The existing stair widths are 1200mm wide with clear widths of approximately 2800mm. The clear landing depth is measured at 1200mm. These stair widths are in accordance with TGD-B but do not meet the minimum clear landing depths in Table 3 of HTM 05-02. Warringtonfire have confirmed that 'the existing (and proposed) evacuation strategy is by way of a Personal Emergency Evacuation Plan where evacuation via the staircore (if required) is completed using ski-pads/Albac Mats etc. This method has (and will be adopted) as mattress evacuation is too cumbersome and labour intensive and somewhat hinders the evacuation of patients, whereas the use of ski-pads/Albac Mats etc is a safer, less labour intensive and more efficient method to evacuate patients in the event of an incident.' Therefore it is confirmed that assisted vertical evacuation forms part of the fire safety strategy for the building. While ski-sheets may occupy less space than a mattress, the existing and proposed stair dimensions are not compliant with the minimum dimensions recommended in TGD-B or HTM 05-02. The restricted landing dimensions may lead to delayed evacuations of residents requiring assistance as part of their PEEP while also restricting the egress of more mobile patients or staff.

- The current guidance in Ireland relies totally on compartmentation and fire resisting door-sets to contain a fire within the room of origin while the evacuation of the compartment is completed. PD 7974 – Part 7: 2004 reviews the reliability of passive fire protection within all buildings in the UK and from the data available concludes that in a fire situation fire door-sets could fail to act as intended in over 40% of installations. Table A.17 within the document contains other reliability data for passive fire protection which indicates that no passive fire resisting system gives 100% reliability.
- Access for Fire Brigade vehicles to the existing nursing home is via Garville Place from Garville Avenue. Garville Place provides access to the front of the building and does not provide any means for a fire tender to turn around. There is also an alternative access to the rear of the site via Garville Lane, which is a cul-de-sac. The fire safety certificate (BCMS Sub No. 3007998) was granted with dry risers provided as an additional measure to the three protected stairways, as vehicle access to provided to the front of the building instead of 50% high reach access recommended by Table 5.1.

In addition to the above, Garville Place is an access route measuring approximately 83m. The distance from Garville Avenue along Garville Place to the closest point of the existing nursing homes is approximately 36m. No turning manoeuvre is possible once the fire tender enter Garville Place. This dead-end access route greatly exceeds the 20m dead-end distance recommended in section 5.2.4 of TGD-B.

The cul-del-sac to the rear of the site, Garville Lane, measures approximately 280m. Again, there is no space for a turning manoeuvre. There is an on-going issue with local residents who frequently park their cars on Garville Lane in such a manner that restricts access for emergency vehicles.

While additional measures have been taken to improve fire brigade access, the location of the existing nursing home may result in extended fire brigade response times compared to a TGD-B compliant location.

In conclusion, based upon the quantitative research carried out by an independent organisation, the challenges posed in managing an evacuation of a care home, the known issues with passive fire safety systems, the restricted escape stairway dimensions and restricted fire brigade access, it is recommended that all new residential care homes and existing care homes with substantial extensions are provided with an automatic sprinkler system.

4.0 Appellant's Case

The appellant submits the following argument: -

- The building has been designed to comply with Technical Guidance Document B (TGD-B 2020) which states 'where works are carried out in accordance with the guidance in this document, this will, prima facie, indicate compliance with Part B of the Second Schedule of the Building Regulations'.
- Therefore, where a building has been designed to comply with TGD-B, it is deemed to comply with Part B 'Fire Safety' of the Second Schedule of the Building Regulations.
- TGD-B 2020 only references sprinkler coverage in a building in two instances;
 - Where a building is in excess of 30m high; or
 - Where a residential building includes open plan apartments the design of which will comply with Section 1.6.3 of TGD-B
- The nursing home is being design to comply with TGD-B 2020, the building is 12.3m high and as such is substantially less than the 30m height above which sprinklers are required to comply with TGD-B 2020. The building does not include open plan apartments.
- Therefore, to comply with TGD-B 2020, there is no requirement to provide sprinklers within the nursing home and Condition 2 should be removed.

The appellant submits the following observations in response to Dublin Fire Brigades Fire Officer report: -

- In reference to UK BRE Report 'Cost Benefit Analysis of Residential Sprinklers' commissioned by the Environment and Sustainability Directorate, Welsh Government it shows that while sprinklers are probably cost effective in new care homes, it is noted that this is mainly due to the financial losses from damage to the building, its contents and business interruption rather than life safety.

From a review of the detailed findings and conclusions in this report it is evident that over the whole life of the residential sprinkler system if installed the present value cost in lives saved is actually less than the present value of total sprinkler costs. The present value total benefits (life safety and property / business protection) exceed the present value total sprinkler cost figure. It is evident therefore that in life safety terms alone the BRE Report does not justify or recommend the provision of sprinkler protection.

In addition, it is noted that with respect to recent developments in UK Guidance whilst Wales and Scotland have introduced a requirement for sprinklers in care homes, no such requirement has been introduced in England (Approved Document B 2020) or Northern Ireland (Technical Booklet 2012).

- The challenges regarding the evacuation of residents have been fully addressed in the building design and management strategy as clearly documented in the Fire Safety Certificate application.

- The stairway design is fully in accordance with Section 1.3.4 of Technical Guidance Document B in so far as 'evacuation of beds or mattresses by way of a stairway is not likely to be required in the building'.

The method of evacuation being implemented is based on the use of ski-pads / Alpac Mats etc which is a much more efficient and effective means of evacuation.

The submission by Dublin Fire Brigade is therefore misleading in stating that the existing and proposed stairway dimensions are not in accordance with the minimum recommendation in Technical Guidance Document B.

- Compartmentation and the provision of fire resisting door set is the key component of all fire safety guidance and while it is acknowledged that no passive fire resisting system gives 100% reliability in performance, this is offset in design by having redundancy: more than one protected stairs, avoidance of dead ends etc.

The horizontal compartmentation provided on each floor will require the failure of two door sets (room to corridor and corridor to next compartment) which greatly reduces the probability of failure.

It is further noted that failure rates referenced by Dublin Fire Brigade of 40% for fire door sets is totally misleading as it's a general statement based on findings across all building types. In a nursing home the probability of fire door failure will be substantially lower given the high level of management and that the fire door sets on normal circulation routes (i.e. between compartments) will be fitted with hold open devices linked to the fire alarm system to avoid any risk of obstruction of these doorsets.

It is also noted that sprinkler systems have a failure rate in terms of their effectiveness and operation which is not recognised by Dublin Fire Brigade.

- It is noted that the fire tender access provided via Garville Place to the front of the building is substantially in accordance with the recommendations in TGD-B in so far as fire tender access is available to approx. 50% of each compartment (1 to 4) with more limited access being available to compartment 5.

Dublin Fire Brigade have acknowledged that additional measures (dry risers) have been provided to improve fire brigade access. While they refer to the limitations of Garville Place as a fire tender access route this existing route is also the fire tender access route to approx. 9 private residences on Garville Place. While a turning facility fully in accordance with Technical Guidance Document B may not be available at the end of the route, it appears that it would be possible for a tender to execute a 3 point turn manoeuvre in the hammerhead at the end which is shown to be approx.. 13m x 6.5m in dimension on the site plan.

Therefore, in regard to the conclusions in the Dublin Fire Brigade submission, their reference to the quantitative research by BRE as supporting their position is incorrect in so far as the cost benefit analysis undertaken by BRE did not find sprinklers are cost effective from a life safety perspective. Furthermore, the reference in the Dublin Fire Brigade conclusion to the restricted escape stairway dimensions and restricted fire brigade access does not stand up as noted already and does not provide justification for the installation of sprinklers.

5.0 Consideration

Dublin Fire Brigade’s position is that the fire safety requirements for residential care homes set out in TGD-B are not sufficient to effectively evacuate a nursing home.

Technical Guidance Document 2016 Amd 2020 (TGD-B) states the following: -

The Guidance

The materials, methods of construction, standards and other specifications (including technical specifications) which are referred to in this document are those which are likely to be suitable for the purposes of the Regulations. Where works are carried out in accordance with the guidance in this document, this will, prima facie, indicate compliance with Part B of the Second Schedule of the Building Regulations. However, the adoption of an approach other than that outlined in the guidance is not precluded provided that the relevant requirements of the Regulations are complied with. Those involved in the design and construction of a building may be required by the relevant building control authority to provide such evidence as is necessary to establish that the requirements of the Building Regulations have been complied with. In the case of an application for a fire safety certificate under the Building Control Regulations, it is necessary to demonstrate compliance with Part B of the Second Schedule to the Building Regulations.

In addition, Table 0.1 of TGD-B specifically refers to nursing homes

Use	Group	Purpose for which a building or compartment of a building is used
Residential (Dwellings)	1(a)(i)	Dwelling house with no storey with a floor level which is more than 4.5m above ground level.
	1(b)(i)	Dwelling house with a storey with a floor which is more than 4.5 m above ground level.
	1(c)	Flat or maisonette.
Residential (Institutional)	2(a)	Hospital, nursing home, home for old people or for children, school or other similar establishment used as living accommodation or for the treatment, care or maintenance of people suffering from illness or mental or physical disability or handicap, where such people sleep on the premises.

Therefore, if a nursing home is designed in accordance with the recommendations of TGD-B this will prima facie indicate compliance with Part B of the Second Schedule of the Building Regulations.

If Dublin Fire Brigade have an issue with the recommendations contained in TGD-B and perceived inadequacies, they should advise the relevant government departments and seek for amendments to be made. However, in the meantime, the guidance in TGD-B is prima facie compliance with Part B of the Second Schedule of the Building Regulations.

It is noted that there is currently no recommendation with TGD-B for a nursing home that is under 30m in height to be provided with sprinkler protection.

From reviewing the Cost Benefit Analysis it is clear that the conclusion that sprinklers are cost effective in new care homes is on basis of the reduction in financial losses from damage to the building, its contents and business interruption. It is not on the basis of life safety.

Dublin Fire Brigade have raised concern regarding the stair widths provided. However, they have not explained sufficiently why sprinkler protection would be needed. The appellant however has addressed this issue by confirming that the stairway design is fully in accordance with Section 1.3.4 of Technical Guidance Document B and that the method of evacuation being implemented is based on the use of ski-pads / Albac Mats etc which is a much more efficient and effective means of evacuation than mattress evacuation.

Section 1.3.4 of Technical Guidance Document B states: -

In buildings of Purpose Group 2(a) Residential (Institutional), any landing associated with a stairway forming part of an escape route should be adequate for the purposes of evacuation. Where evacuation of beds or mattresses by way of a stairway is likely to be required, any landing associated with such a stairway should have a width not less than 2800 mm and a depth clear of obstructions not less than 1950 mm.

As bed or mattress evacuation is not proposed, rather ski-pads / Albac Mats, then the proposed stairway design is compliant with the recommendations of TGD-B.

Dublin Fire Brigade have questioned the reliability of compartmentation given the recommendations of PD 7974 Part 7: 2003 with respect to the reliability of passive fire protection. In this regard I agree with the appellant in that compartmentation and the provision of fire resisting door sets are the key component of all fire safety guidance. Neither passive fire protection or sprinkler protection are 100% reliable however both have their appropriate uses as recommended in TGD-B and other fire guidance documents.

Dublin Fire Brigade have raised concern regarding the fire brigade access provided. However, again they have not explained sufficiently why sprinkler protection would be needed. The appellant however has addressed this issue by confirming fire brigade access is substantially in accordance with the recommendations in TGD-B and that dry risers have been provided to each stair core (with pump appliance access to within 18m of the dry riser inlet valves).

6.0 Reasons and Considerations

If a nursing home is designed in accordance with the recommendations of TGD-B this will prima facie indicate compliance with Part B of the Second Schedule of the Building Regulations.

It is noted that there is currently no recommendation with TGD-B for a nursing home that is under 30m in height to be provided with sprinkler protection.

Therefore, sprinkler protection is not required for compliance with Part B of the Second Schedule of the Building Regulations.

7.0 Conclusions and 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.

Signed by:

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

Date: **8th June 2023**