

REPORT TO AN BORD PLEANÁLA

ON

APPEAL AGAINST REFUSAL OF A FIRE SAFETY CERTIFICATE

ISSUED BY DUN LAOGHAIRE RATHDOWN COUNTY COUNCIL

FOR

**MATERIAL ALTERATION AND EXTENSION TO NURSING HOME AT ARDBRUGH ROAD,
DALKEY, CO. DUBLIN**

Client: An Bord Pleanála
An Bord Pleanála Ref: FS 0538
Our Ref: CTA1637
Date: SEP 2016

1.0 BACKGROUND

This Report sets out my findings and recommendations on the appeal submitted by Michael Slattery & Associates Fire Safety Consultants (MSA) against a refusal to grant a fire safety certificate (Register Ref. No: FA/16/8045, Decision Order No. FSC/DR/155/16) issued by Dun Laoghaire Rathdown County Council (DLR) in respect of an application for material alteration and extension to a nursing home at Ardbrough Road, Dalkey, Co. Dublin.

The reason stated for the refusal was:

“The proposed design fails to demonstrate compliance with the requirements of Part B1 and Part B5 of the Second Schedule to the Building Regulations“

Having considered the drawings, details and submissions on the file I am satisfied that the determination by the Board of this application as if it had been made to it in the first instance would not be warranted, as no significant matters have been noted other than the subject matter of the appeal. Accordingly, I consider that it would be appropriate to use the provisions of article 40(2) of the Building Control Regulations, 1997 in this case.

1.1 SUBJECT MATTER OF THE APPEAL

- The application for a Fire Safety Certificate was lodged by MSA on 30th March 2016.
- The Refusal to grant a Fire Safety Certificate was issued by DLR dated 27th May 2016, with 1 reason given for the Refusal.
- An appeal against the Refusal was submitted by MSA on 21st June 2016.

1.2 DOCUMENTS REVIEWED

- Application for Fire Safety Certificate lodged by MSA, with compliance report and drawings.
- Appeal submission by MSA to An Bord Pleanala, dated 21st June 2016
- Submission to An Bord Pleanala by DLR with fire officers report, dated 15th July 2016
- Appeal submission to An Bord Pleanala by MSA, dated 15th August 2016
- History files 03/8191, 15/8079 & FA15/8100

SITE VISIT:

As some of the issues raised relate to the topography of the site, and due to a lack of clarity regarding existing pathways around the building as depicted on the plans, I visited the site on 31st August 2016 to review those aspects of the site; the interior of the existing building was not examined.

2.0 FINDINGS

The case made by the building control authority is summarised as follows:

- The proposed extension will be approximately twice the area of the existing nursing home, located at the rear of the existing building, remote from the existing fire brigade vehicular access route.
- It is not proposed to provide any vehicular access to the extension.
- The new extension will be confined by a rocky/grassy bank which will hinder firefighters from carrying out their duties such as tackling a fire, carrying out rescues or withdrawing from a potential building collapse across difficult terrain.
- It is the opinion of officers with extensive operational experience in Dublin Fire Brigade that the proposed building in the proposed location presents particular challenges which can only be met by providing fire brigade vehicular access to the perimeter of the new extension in accordance with the requirements of section 5.2.2 of Technical Guidance Document B 2006 (TGDB).
- Should the escape route from stairs 1 or stairs 2 be compromised by a fire in the day room/living area or the bedroom wing at ground floor respectively, it will be necessary for staff and occupants of the nursing home to travel the entire length of the perimeter of the building (around 120m) in order to reach a place of safety.
- If the works are carried out as proposed in the application, they would not provide adequate access and facilities for firefighting personnel or adequate means of escape for staff, visitors or dependent residents.
- There are questions regarding the suitability of the proposed method of construction using structural insulated panels (SIPs); documentation submitted with the application certified the use of the product for domestic use only.

The case made by the Appellant is summarised as follows:

- Alternative means of escape will be provided by means of progressive horizontal evacuation (PHE) between compartments and excessive dead-ends will be avoided.
- In the event of a fire, total evacuation of the building is not desirable.
- A high level of compartmentation/sub-compartmentation is proposed such that the maximum number of residents in any sub-compartment is 6.
- All new patient bedrooms will be enclosed in 30 minute fire resisting construction.
- Automatic sprinkler protection is being provided in the new extension, with an intention to also provide sprinkler protection for a future rebuild of the existing accommodation. Cut-off sprinklers are to be provided at the doors in the compartment walls separating the existing home from the extension.
- Further to previous refusal with regard to similar proposals, site boundaries have been altered to permit ladder access and site access has been altered to permit 'high reach' vehicle access.
- The Category L1 fire detection and alarm system will be enhanced by including the recommendations of HTM05-03 (for hospitals), with mimic panels at each nurses station.
- The evacuation strategy is based on 4 stages; from room of fire origin, from zone, from compartment, vertical evacuation.
- Given the level of compartmentation provided and the provision of sprinklers, the likelihood of a requirement to evacuate more than 6 residents from the sub-compartment involved in a fire is very low.
- The two new stairways are being constructed as firefighting stairways (with dry rising mains, and an evacuation lift in Stair 1, within a 120 minute fire rated enclosure), to provide effective fire service personnel access to the building.
- There is minimal change to the (existing) means of escape, with the provision of additional horizontal evacuation potential to the extension from the existing areas.
- Compliance with the B5 functional requirements is addressed by reference to the criteria in section 5 of TGDB and Chapter 7 of HTM05-02.

- The footprint area of the extension at ground level is approximately the same as the existing building footprint (600sqm+600sqm = total of 1200sqm).
- The overall floor area of the extended nursing home is around 3400sqm: from Table 9 of HTM05-02 (for top floor level of around 6m in this case), this would recommend a perimeter access of 15% of the building perimeter, where the building is not provided with internal fire mains (although they are provided in this case). This amount of access is available at the front of the building.
- As the building in this case will be provided with internal fire mains, the only access required is for pumping to the dry riser inlets.
- A second access to the site is being provided to allow for in-and-out movement of fire appliances.
- Comments on the extension being to the rear of the existing building are not considered relevant as the access to the overall building should be the basis for assessment of fire brigade access. On that basis, access is available to 60m out of 157m of external perimeter i.e. to 38%.
- There is no stipulation in HTM05-02 or in TGDB that the extent of perimeter access required should be adjacent to particular parts of the building. The claim that it would be necessary to access or withdraw from the extension over difficult terrain is considered to be without any basis in the guidance; access will be possible via the existing building in such eventuality.
- It is contended that the proposed access arrangements are in line with and even exceed the recommendations of TGDB and HTM05-02, and it is considered that the stance taken by the fire department is excessive and unreasonable.
- Regarding concerns on the impact of a fire in the day room/living room or the ground floor bedroom wings impacting on the escape from Stairs 1 or stairs 2, making it necessary to evacuate externally around the entire length of the building perimeter, given the proposal to provide sprinkler protection to the proposed extension this is not a likely scenario.
- In the case of Stair 1, the escape route does not need to pass the dining/living area but can go towards the parking area. The exit from Stair 2 has a dual route to the car park either past the existing building or around the proposed extension.

- In reality, occupants will always use the internal PHE potential available in the building. To this end, the construction of all internal corridors to the patient rooms are of 60 minute fire resisting construction with compartment/sub-compartment walls provided to limit the numbers to be evacuated at any stage to a maximum of 6 patients.
- If patients are brought down from above (due to a fire on an upper level), they will be moved into the ground floor accommodation within the existing nursing home or the new extension.
- Regarding the suitability of the SIPs method of construction, reference is made to Clause 5.15 of HTM05-02, (which provides that elements of structure need not be of limited combustibility where the whole building is sprinklered). The existing building will be compartmented from the new extension, with cut-off sprinkler heads on the existing side, with an intention to eventually demolish the existing side and replace with a new structure that will be sprinklered.
- Many of the relaxations permitted by Clause 5.85 and 5.86 of HTM05-02 when sprinklers are installed have not been availed of in the proposed extension.
- As regards the use of SIPs panels for an institutional type of building, this is a B3 and not a B1 means of escape issue. The comment that the SIPs panels are suitable for domestic scale buildings in the Agrément Certificate is in relation to Structure (Part A) functional requirements and not Part B (Fire) functional requirements. The institutional use loading is a domestic scale loading for these purposes.
- The British Agrément certificate for the SIPs system satisfies the requirements as set out under Part D of the building regulations (Materials and Workmanship) on the use of proper materials, under the terms of use of approvals within the Agreement on the European Economic Area.
- These systems have been used extensively in the UK and Ireland for nursing homes, care homes and similar types of buildings.

3.0 CONSIDERATIONS:

Regulation B1: Means of Escape:

DLR has expressed concerns regarding the route occupants may have to take to reach a place of safety, in the event of a fire at certain locations in the building. They are concerned that, in the event that occupants are evacuated via the exit to the outside from Stair 1, their route beyond that point, to a place of safety at the front driveway, may be compromised by a fire that might occur in the Day Room/Living Room located adjacent to Stair 1. They would then need to traverse the external escape route (in the opposite direction) around the entire perimeter of the building (past the new rear extension and past the existing rear bedroom wing) to reach a place of safety, a distance of around 110m.

Similarly, in the event of occupants being evacuated from the ground floor exit of Stair 2, due to a threat from a fire in the ground floor of the bedroom wing, it is contended that they would have to traverse the length of the perimeter of the new extension to reach a place of safety, a distance of around 90m.

The evacuation strategy for this type of premises is required to be based on PHE, rather than on immediate evacuation of the premises. In the event of a fire in a bedroom or other hazard room, the immediate sub-compartment will be evacuated of occupants. Each storey should have at least two compartments, with occupants progressively moved horizontally to a place of relative safety, and then vertically if necessary.

In the event of occupants from upper levels being evacuated to the ground floor, it is more likely, and more desirable, that they be moved further horizontally within the building rather than exiting to the outside.

In the case of the new extension, each bedroom and hazard room is enclosed so as to effectively form a fire rated compartment, with enclosure of 30 minute and/or 60 minute fire resistance. The new bedrooms are set out within sub-compartments, three on each floor, containing between one and 6 beds each. Five of the nine sub-compartments have 3 beds or less.

The requirement for fire resistance of elements of structure is stated as 30 minutes (with sprinklers) as per Table 5 of HTM05-02. The cross-section drawings show the floors generally being provided

with 60 minutes fire resistance. This will further contribute to the protection of compartments used as the basis of the PHE strategy.

Concerns have not been expressed regarding PHE at the upper levels, but only in respect of eventual evacuation from the two new stairways to the outside. However, given the layout of the rooms and the considerable additional level of safety provided by the proposed sprinkler system, it is considered unlikely that there will be a requirement to evacuate from the stairways in the manner giving rise to the concern.

In the event of a fire in the Day/Living Room, there should not be a need, under the fire strategy, for occupants of the upper floors to be evacuated to the outside via Stair 1, but they would be able to remain in situ on the upper floors initially. Within the second floor, further PHE is available followed by vertical movement to first floor or ground floor, from where further PHE is available, including into the existing building.

Based on the above scenarios, there are many evacuation options available that are more desirable and more likely than that of evacuating from Stair 1 to the outside at ground floor level. Notwithstanding the above, the presence of sprinklers in the Day/Living Room is likely to extinguish or control the growth of any fire in the room negating the need for evacuation from upper floors, via Stair 1 or otherwise to the outside. Furnishings and fittings in the room are likely to constitute a relatively low fire load, controlled by way of fire protection standards for the materials used and management control generally over the introduction of additional fire loads or fire hazards.

The automatic suppression in the room should also facilitate the use of the escape route from Stair 1 to the front of the building (should it ever need to be used in this scenario), passing by the Day/Living Room. In an extreme (but considered unlikely) scenario an escape route would still be available around the rear of the building, albeit over a considerable distance.

The escape route from Stair 2 to a place of safety is similarly less likely to be used to evacuate occupants, as the strategy is based on PHE within the building. In the event of a fire in the existing bedroom wing (single storey), occupants would be evacuated in the opposite direction through the new extension, from where many options for PHE are available, including into the existing front building.

In the unlikely event that the exit from Stair 2 to the outside was required, an escape route around the rear of the building would be available, albeit over a considerable distance.

The existing pathways around the rear of the building have a width of at least 1200mm and, from the drawings submitted, it appears that proposed pathways around the rear perimeter will also have a width of at least 1200mm. Given that the width of exits from the extension will have a minimum width of 1150mm, the external pathways will have adequate width for use as escape routes. There is no commonly used guidance on the length of external escape routes, provided they are adequately protected from the effects of fire in the building, when likely to be used by occupants escaping (Table 1.2 of TGDB recommends a limit of 100m for open air escape routes from plant rooms, where alternative routes are available).

In the above scenarios, it could be argued that the occupants would no longer be in danger from a fire in the Day/Living room or rear bedroom wing respectively if they were to be moved along the external routes to a point, say, 20m away from the room of fire origin, which could technically be considered as a place of relative safety in the open air. Clearly it would be desirable to move them to the roadway area at the front of the building, but the closer point might be considered as meeting the functional requirement of Part B1.

As the reasons stated in the submission from DLR regarding the non-compliance with the requirements of Part B1 (Means of escape) of the building regulations relate only to the risks to the use of the external escape routes from the ground floor of Stairs 1 and 2, and on the basis of the alternative means of escape options available as described above, along with the levels of fire protection provided, including automatic sprinkler protection, it is considered that those grounds for refusal are not justified in this case.

Regulation B5: Access and facilities for the fire service:

The second area of concern expressed by DLR relates to access for fire appliances and potential difficulties for fire service personnel in carrying out general fire fighting operations. DLR contends that access for vehicles should be provided to the perimeter of the new extension, and not just to the main frontage of the existing building.

They state that the new extension will be confined by a rocky/grassy bank which will hinder firefighters from carrying out their duties such as tackling a fire, carrying out rescues or withdrawing

from a potential building collapse across difficult terrain and that it is the opinion of officers with extensive operational experience in Dublin Fire Brigade that the proposed building in the proposed location presents particular challenges which can only be met by providing fire brigade vehicular access to the perimeter of the new extension in accordance with the requirements of section 5.2.2 of Technical Guidance Document B 2006 (TGDB).

The performance requirements of Part B5 of the regulations may be met as set out in Section 5 of TGDB:

- (a) if there is a means of external access to enable fire appliances to be brought near to the building for effective use.*
- (b) If there is sufficient means of access into, and within, the building for fire fighting personnel to effect rescue and fight fire and*
- (c) If the building is provided with sufficient fire mains and other facilities to assist firefighters in their tasks.*

All to an extent dependent on the use and size of the building.

Under 5.0.2 of TGDB, the main factor determining the facilities needed is the size of the building and the expected method of fire fighting, whether this will be from outside or inside the building.

In terms of the provision of fire mains, section 5.1 of TGDB recommends internal fire mains only in tall buildings or in those with deep basements, far in excess of the size of the building in this case. Nonetheless, the applicants propose to provide two new stairway cores that contain internal dry riser mains.

As the building will have dry riser mains, external fire hydrants are required, and two will be provided in this case, connected to the public mains (the total ground floor area of the enlarged building will be around 1200sqm).

5.2.2 of TGDB recommends that, for effective fire fighting operations, vehicle access should be provided to a building in accordance with the guidance in Table 5.1. The volume of the building is less than 7000cum and top floor level less than 10m, so from Table 5.1 the recommended access for a pump appliance is 32m, whereas around 40m of vehicle access will be available at the front of the building.

DLR contends that the vehicular access should be provided separately to the new extension, rather than to the new enlarged building as a whole, to enable the fire service to meet the 'particular challenges presented by the terrain' (at the rear of the new extension). As pump appliance access only is required to the building (even when enlarged) it is not clear what additional benefits would accrue from having vehicle access to the rear.

Although not required under Table 5.1, vehicle access suitable for high reach appliances is proposed at the front of the building, which should facilitate directing firefighting water streams onto the rear of the building from the front area.

The guidance in TGDB takes account of the overall building size, rather than the size and location of individual parts of the same building, and the facilities provided should take account of what the fire service may reasonably be expected to do in the particular situation.

If the main access points into the building and access to internal fire mains were available only at the rear, then a requirement for rear vehicle access would be understandable. However, two of the main entry points to the building (and the main fire fighting stairway) are located at or near the front of the building, where the fire appliance access is provided.

There is not a requirement for vehicle access to convey equipment such as hoses or ladders all around the building. Indeed, many buildings can be found that have access for personnel and vehicles on one side of the building and no access at all (either for vehicles or personnel) to the other sides.

Under Table 9 of HTM05-02, pump appliance access is recommended for 15% of the perimeter, which in this case would be around 24m; however, this applies only where there are no internal fire mains, which are provided in this case.

In terms of egress from areas at the rear of the building by firefighters due to danger from a collapsing building or trying to effect rescue, there is adequate width of pathway (at least 1200mm wide) all around the building, with additional width of more than 1m of flat grass area at the rear of the existing block. There is no requirement under Part B to provide general 'safe' working areas all around a building, and setting a requirement for additional vehicle access to the rear of the extension as a means of achieving this is not warranted.

In terms generally of access for firefighters and what they might be expected to do within the building, the provision of sprinklers significantly increases the likelihood that the fire will be extinguished, or at least controlled and confined to the room of origin, by the time they arrive on scene. The likelihood is that minimal and short duration firefighting operations will need to be carried out (within the extension), and minimal, if any, rescue operations, due to the PHE strategy and facilities provided. As the PHE strategy is set out in the statutory guidance, there must be a reasonable prospect that it will be effected in practice in this type of premises.

With the addition of the high degree of sub-compartmentation, fire spread beyond the room of origin is likely to be further reduced.

The provision of firefighting stairways, with 120 minute fire resisting enclosure and FD60S doors, will provide significant additional safe access into and within the building for firefighters, including providing a new 'bridgehead' into the existing building at upper floors. The evacuation/firefighting lift will also assist with moving equipment to upper levels.

The fire appliance access area will be generally on the same side and within sight of the entrance to Stair 1, but not in relation to Stair 2, so the dry riser inlet of Stair 2 will not be visible from the vehicle standing point.

On the basis of the vehicle access being provided to the overall building, the high degree of subcompartmentation of the extension, the provision of firefighting stairways with dry rising mains and the provision of sprinklers in the extension (to EN 12845 rather than residential type), it is considered that the proposed extension would be in compliance with the functional requirements of Part B5 of the Second Schedule to the Building Regulations, subject to the condition as set out below.

Regulation B5: Internal fire spread (Structure):

DLR has commented on the suitability of the use of the SIPs system as a method of construction in this case. The applicant has addressed the issue by way of noting that it is subject to an acceptable Agrément Certificate and (using combustible materials) is permitted under HTM05-02 with the use of sprinklers.

However, as non-compliance with the requirements of Part B3 of the building regulations was not stated as a reason for refusal by DLR, this issue has not been considered in the above deliberations or recommendations below.

4.0 REASONS and CONSIDERATIONS:

Having regard to the submissions made in connection with the Fire Safety Certificate application and the appeal, the type of use and layout of the building with regard to the strategy of progressive horizontal evacuation (with significant levels of fire resisting sub-compartmentation in the extension), the provision of a sprinkler system to EN 12845 in the extension, the provision of two firefighting shafts with dry rising mains and the extent of fire appliance vehicle access provided, it is considered that the functional requirements of Parts B1 and B5 of the Second Schedule of the Building Regulations 1997-2014 are being satisfied and that the appeal should be allowed, subject to the following condition:

Condition 1:

- a) The dry riser inlets for Stair 1 and Stair 2 to be located together at or in the vicinity of the external wall of Stair 1, in a location that is visible from the fire service vehicle access roadway.
- b) Suitable signage to be provided clearly indicating each dry riser inlet relevant to its corresponding stair.
- c) Stair 1 and Stair 2 each to be provided with suitable external signs indicating the relevant stair number.
- d) Suitable as-constructed details of the fire service vehicle access routes, firefighting stairways, dry riser inlets and outlets to be submitted to the Dublin Fire Brigade Chief Fire Officer on completion of the works.

Reason:

To make adequate provision for fire service facilities.

Signed by:

COLM TRAYNOR BE FIEI Chartered Engineer

Date: 2nd August 2016