Fire & Risk Solutions Ltd.
Chartered Engineers
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Report 3730

An Bord Pleanála Appeal regarding the attachment of Condition No. 3 by Dublin City Council to grant of Fire Safety Certificate for building of 7 storey residential building over a single basement at The Merrion Showroom, 129 R116, Dublin 2

Client: An Bord Pleanála,
64 Marlborough Street,
Dublin 1

FAO: The Secretary

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BUILDING CONTROL ACT, 1990 to 2014 – APPEAL

FIRE SAFETY CERTIFICATE APPLICATION
THE BUILDING OF A 7-STOREY RESIDENTIAL BUILDING
COMPRISING OF GROUND PLUS 5 AND A SINGLE STOREY OF BASEMENT
AT 129 R118, DUBLIN 2

APPEAL AGAINST THE ATTACHMENT OF CONDITION NO. 3
TO FIRE SAFETY CERTIFICATE (REG. REF. FSC 2107369DC_7DN ON 9th MARCH 2022

AN BORD PLEANÁLA APPEAL REFERENCE 313249-22

Local Authority:	Dublin City Council
Appellant:	Mr. John Maxwell c/o BB7 (Goldsmith Engineering DUB Ltd.)

RECOMMENDATION

In my opinion, the Board may rely on Article 40(2) of the Building Control Regulations to consider the subject appeal on the basis of Conditions only.

It is recommended that Condition No. 3 be retained but redrafted as follows:-

Condition No. 3

Stairways and lifts serving residential levels shall terminate at ground floor level and shall not extend down to the basement storey unless that basement storey is protected throughout by a suitable automatic sprinkler system to IS EN 12845:2015+A1:2019.

Reason:

To comply with Part B of the Second Schedule to the Building Regulations, 1997 to 2019.

The remaining 15 no. Conditions (Conditions No.'s 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16) attached to the granted Fire Safety Certificate are not subject of this appeal and should remain. The granted Fire Safety Certificate should therefore remain subject of 16 no. Conditions, including the redrafted Condition No. 3.

Reasons & Considerations

Having regard to the form, use and layout of the building and to the fire safety design measures proposed by the appellant, to the submissions lodged in connection with the Fire Safety Certificate application and the appeal and to the report and recommendation of the reporting Inspector, it is considered that the appeal may be determined under Section 40(2) of the Building Control Regulations 1997-2017 on the basis of Conditions only. The continuation of single escape stairways and lifts into the proposed basement level would require the presence of automatic sprinkler protection at basement level to ensure compliance with Part B1 of the Second Schedule of the Building Regulations, 1997-2017. For that reason, Condition No. 3 shall amended as follows:-

Condition No. 3

Stairways serving as single means of escape from residential levels shall terminate at ground floor level and shall not extend down to the basement storey unless that basement storey is protected throughout by a suitable automatic sprinkler system to IS EN 12845:2015+A1:2019.

Reason:

To comply with Part B of the Second Schedule to the Building Regulations, 1997 to 2019.

Dr. Raymond J Connolly

BE, PhD, CEng, MIEI, MIFireE, MSFPE

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1. RELEVANT INFORMATION

i. Application for a Fire Safety Certificate by Mr. John Maxwell to Dublin City Council dated 17th December 2021.

ii. Compliance Report (00186GE) by BB7 Fire Limited dated 17th December 2021including associated drawings.

iii. Fire Safety Certificate (Ref. SN3005466/FSC2107369DC/7DN) granted by Dublin City Council dated 9th March 2022 (subject of 16 no. Conditions).

iv. Letter of appeal from BB7 Fire Limited on behalf of Mr. John Maxwell to An Bord Pleanála dated 6th April 2022.

v. Letter from Dublin Fire Brigade to An Bord Pleanála dated 29th April 2022 commenting on the appeal.

vi. Letter to An Bord Pleanála dated 30th May 2022 from BB7 Fire Limited on behalf of Mr. John Maxwell responding to the Dublin City Council submission.

2. BACKGROUND

BB7 Fire Limited acting as agent for Mr. John Maxwell made an application to Dublin City Council for the construction of a 7-storey residential building (including basement) at 129 R118, Dublin 2. The Fire Safety Certificate was granted by Dublin City Council (under Reference SN3005466/FSC2107369DC/7DN) on 9th March 202 subject to 16 no. Conditions including *inter-alia*:-

Condition No. 3

A suitable automatic sprinkler system is to be installed throughout the development (within the flats and the common areas) and the basement car park. The sprinkler coverage to these spaces will need to be sufficient to protect against the fire hazards within both the residential and non-residential areas. In this regard it is considered appropriate to protect the residential parts of the building using BS 9251:2021 and the non-residential parts using IS EN 12845:2015+A1:2019, as advised by Clause 4 of BS 9251:2021.

Reason:

To comply with Part B of the Second Schedule to the Building Regulations, 1997 to 2019.

On 6th April 2022, BB7 Fire Limited, acting as agent for Mr. John Maxwell, appealed to An Bord Pleanála against the attachment of Condition No. 3 to the Fire Safety Certificate. The residual Conditions (Conditions No.'s 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16) are not subject of the current appeal.

3. REPRISE OF APPEAL (AS PRESENTED)

The subject works are stated to comprise the construction of 6 no. residential storeys (flats) from ground to fifth floors above a basement car park (with ancillary residential spaces, refuse storage etc.). The fire safety design proposed by BB7 Fire Limited includes the provision of automatic sprinkler protection (designed to accord with the relevant sections of BS 9251:2021 and Technical Guidance Document B, 2020) within individual open plan flats only. By attaching Condition No. 3, Dublin City Council is requiring that such automatic sprinkler protection be extended to the common areas within the residential storeys and more significantly be extended into the non-residential parts (basement car park) by way of a installation of a commercial grade sprinkler system (to IS EN 12845:2015+A1:2019).

In the letter of appeal dated 6th April 2022, BB7 Fire Limited outlined the basis of their appeal against the attachment of Condition No. 3 to include:-

(i) The provision of a sprinkler system within the basement car park is over and beyond the guidance in the Department of Housing, Planning and Local Government's *Technical Guidance Document B,* given that it is well established that compliance with the guidance contained in Technical Guidance Document B will "*prima facia* indicate compliance with Part B of the Second Schedule of the Building Regulations".

(ii) The provision of residential sprinklers within the common corridors does not contribute to addressing the specific risks that required the provision of sprinklers in the first instance, i.e. open plan design of flats.

(iii) Whilst acknowledging that BS 9251:2021 makes recommendations regarding the need for installation of sprinklers beyond individual open plan flats, the appellant contends that compliance with Technical Guidance Document B remains the basis for the fire safety design of the building in its entirety and accordingly only those relevant sections of BS 9251:2021 guidance need to be incorporated within the design. It is noted that apart from instances of the open plan design of flats and/or extended travel within residential corridors, Technical Guidance Document B only requires that sprinklers be installed within residential buildings that exceed 30 metres in height, which is not the case for the subject building.

(iv) The appellant contends that the application of the entirety of provisions contained in BS 9251:2021 would be in excess of the specific requirements of Technical Guidance Document B in this regard. In simple terms, BS 9251:2021 seeks to address potential risks that Technical Guidance Document B does not require to be addressed in order to comply with Part B to the Building Regulations.

(v) The appellant identifies several instances where BS 9251:2021 acknowledges that a building specific fire safety strategy is a more appropriate means of determining the scope of sprinkler protection rather than the blanket application of the standard's generic guidance.

(vi) Clause 3.5.2 of Technical Guidance Document B is clear that "*car parks are not normally expected to be fitted with sprinklers*". This guidance has remained unchanged for many years and is retained in the 2020 version of the document, despite new requirements being introduced in the new document requiring the inclusion of sprinklers in other situations, e.g. open plan flats.

(vii) The appellant highlights that had open plan flats been omitted from the proposed design and travel distances within the common corridors reduced to less than 7.5 metres, there would be no requirement for sprinklers to be installed in any capacity within the building.

(viii) The activation of sprinklers within sterile common corridors could potentially impact on smoke buoyancy and as a result reduce the effectiveness of corridor/stairway smoke ventilation systems.

(ix) The appellant acknowledges that the building is not a "small building" as defined in Section 14.4.2(a) of BS 5588:Part 1 and as a result the single escape stairs (and lifts) should not be extended down to serve the basement level. The appellant suggests that sufficient compensation for this "non-compliance" has been achieved through the installation of a sterile lobby and a sterile ventilated lobby (in series) at basement level between the car park and the stair/lift. The appellant contends that a similar approach to protection of single stairways extending to basement level has been accepted "*on countless apartment buildings within Dublin City*".

(x) BB7 has recently had a similar building approved by Dublin City Council without the attachment of a condition requiring the installation of sprinklers within the basement.

The letter from Dublin City Council to An Bord Pleanála dated 29th April 2022 (including the Fire Officer's Report) explains the background to its attachment of Condition No. 3 and the technical basis for underpinning the requirement as follows:-

(i) The Council has an overarching obligation to determine whether the design and construction of the building will comply with the requirements of Part B of the Second Schedule to the Building Regulations 2006 and specifically whether the guidance contained in Technical Guidance Document B has been interpreted and applied appropriately to deliver compliance.

(ii) Where departures from the design guidance contained in Technical Guidance Document B occur (such as in this case the extension of single stairs into basements), the Council needs to consider whether the potential risks arising are sufficiently ameliorated. The consideration of such risks by

the Council has, in this particular case, relied upon global research and case-studies from real fire incidents.

(iii) The Council believes the research underpinning the current guidance in Technical Guidance Document B to be outdated and therefore has identified the findings of more recent and relevant research programmes that are more supportive of the need to include automatic sprinkler protection within car parks.

(iv) In a similar vein, the Council presents an extensive list of real-life case studies indicating the potential seriousness of car park fires and the propensity for involvement of multiple simultaneously burning vehicles (in the absence of sprinkler protection) leading to large, dangerous and in some instances fatal fires.

(v) The Council highlights that the sprinkler design standard chosen by the applicant (BS 9251:2021) makes many references to the need for the sprinkler system designer to liaise with and obtain agreement from the Authority Having Jurisdiction, i.e. Dublin City Council. *[Note: Whilst the Council are inferring that no such liaison/agreement was obtained, the case history of the application outlined by the appellant would suggest that no such opportunities were afforded.]*

(vi) The Council confirms that the proposed extension of single stairways to serve the basement does not comply with the guidance contained in Clause 14.4.2 of BS 5588:Part1:1990. The Council claims that the appellant's proposal to ameliorate the resulting risks to the stairways (by means of providing a pair of lobbies in series) has not been adequately justified. In this context, the Council suggests that relevant risk factors that should have been specifically considered include car park fire risks, burning vehicles and associated fire severities.

(vii) The Council rejects any relevance to the subject appeal of previously determined applications within its jurisdiction.

(viii) The Council's summary viewpoint based on research and first-hand experience is that the assumption contained in Technical Guidance *Document B that the "fire load is defined and not particularly high*" within car parks can no longer be relied upon and that it is incumbent on the Council to give due consideration to new and emerging information regarding fire hazards, when discharging their statutory obligation to determine compliance with the fundamental requirements of Part B to the Building Regulations.

The appellant in a further submission to the Board of 30th May 2022 responds to the issues raised in the Dublin City Council's Fire Officer's Report as follows:-

(i) Notwithstanding recent research referenced by Dublin City Council, guidance within Approved Document B (England and Wales) has not changed in respect of the need to provide sprinklers within car parks.

(ii) The appellants notes that England and Wales rely on a "stay-put" evacuation strategy as opposed to the "simultaneous evacuation" strategy employed in Ireland. This fact may explain the increased risk to occupants within the common parts of residential buildings within that jurisdiction.

(iii) The appellant highlights that the guidance in respect of car parks in Technical Guidance Document B is not predicated on the assumption that fires will not spread between cars but rather that fires will not spread between different levels of a multi-storey car park. Accordingly, the appellant argues that the case studies presented by Dublin City Council in respect of fires involving multiple cars should be distilled to 2 no. case studies, where fire spread between different storeys occurred.

(iv) The appellant points out that BS 7346:Part 7:2013 states that there is no requirement in various United Kingdom Building Regulations for sprinkler systems to be provided in car parks.

(v) The appellant characterises the subject car park as a "normal" car park, i.e. there are no combustible wall and ceiling linings nor cars stacked vertically.

(vi) The appellant points out that BS 9999:2017 does not require the provision of sprinklers in car parks.

(vii) The appellant offers the view that a product standard such as BS 9251:2021 should not dictate whether sprinklers be provided within the common residential corridors given that such a product standard is a secondary design document relative to the primary fire safety design standard for the building (i.e. Technical Guidance Document B) and in any event as a UK based product standard, BS 9251:2021 may not be appropriate for application to residential buildings in Ireland that are not reliant on the UK's "stay-put" evacuation model.

(viii) The appellant suggests that the ventilated basement car park would have to fill with smoke "*before building sufficient pressure to force open the fire doors located within the double lobby protection to each basement stair*". The appellant believes this to be empirically proven to be unlikely and argues that it has been accepted on many occasions previously by Dublin City Council.

4. CONSIDERATION

Condition No. 3

A suitable automatic sprinkler system is to be installed throughout the development (within the flats and the common areas) and the basement car park. The sprinkler coverage to these spaces will need to be sufficient to protect against the fire hazards within both the residential and non-residential areas. In this regard it is considered appropriate to protect the residential parts of the building using BS 9251:2021 and the non-residential parts using IS EN 12845:2015+A1:2019, as advised by Clause 4 of BS 9251:2021.

Reason:

To comply with Part B of the Second Schedule to the Building Regulations, 1997 to 2019.

The appellant has designed the building on the basis of adopting the guidance contained in Technical Guidance Document B (2020), which is generally accepted by stakeholders to deliver *de facto* compliance with Part B to the Building Regulations. Technical Guidance Document B guidance (Clauses 3.5.2 and 5.4.3.1) is explicit in that "*basement car parks are not normally expected to be fitted with sprinklers*". This Inspector's impression is that the Board takes the view that these Clauses in effect infer a blanket exemption to "car parks" from any requirements to provide sprinklers within buildings that are designed to Technical Guidance Document B (as is attempted by the appellant to be the case for the subject residential development).

Dublin City Council has gone to some lengths explaining (on the basis of technical research, real-world fire experiences and first-hand experience) why the guidance contained in Technical Guidance Document B is out-dated and ill-founded. However, the fact remains that the revisions to the guidance by the Department of Housing, Local Government and Planning published in 2020 did not alter any of the relevant provisions regarding the need for sprinklers in car parks. This Inspector's opinion is that the Department's failure to update national guidance to recognise emerging car park fire hazards, including the well-known difficulties associated with extinguishing fires involving electrical vehicles, will likely cause future problems for designers and Building Control Authorities alike. Recent national and international experience would suggest that where catastrophic failures occur within buildings, both civil and criminal courts are unimpressed by a defence that basic conformance with generic guidance documents was achieved. Dublin City Council's attempt to exercise risk based professional judgement in a bespoke manner is likely to prove prescient and is more attuned to the evolving fire safety design regimes in other jurisdictions, which have historically offered the templates followed in Ireland.

In a general sense and to facilitate societal progress in the delivery of the built environment, it is reasonable for designers to expect to be able to rely on the provisions contained in national Technical Guidance Document B. When designing normal residential buildings, designers should have a reasonable expectation that Approving Authorities will not impose additional requirements (such as the installation of sprinklers to the residential corridors and basement car park) over and beyond Technical Guidance Document B's provisions – as is the case here. Whilst fully accepting the legitimate and suitably evidenced concerns underpinning Dublin City Council's requirement for installation of sprinkler protection within the basement car park (in excess of the provisions of Technical Guidance B), there is a clear argument that the blanket exemption for car parks inferred in Technical Guidance Document B needs to prevail so as to preserve the integrity of Technical Guidance Document as the commonly employed national basis for fire safety design.

Technical Guidance Document B does not make any requirement for the provision of sprinklers within residential buildings not exceeding 30 metres in height other than for the specific cases of open plan flats and/or flats opening into vented corridors requiring travel in excess of 7.5 metres (but not more than 15 metres). In both instances, the clear inference of the Technical Guidance Document is that what it refers to as "domestic" sprinklers be installed with the relevant flats. Such a design approach is not as onerous as the requirements in BS 9251 for provision of residential sprinklers. Furthermore, BS 9251 acknowledges the potential for partial coverage within buildings based on a robust fire safety strategy agreed amongst stake-holders including the Authority Having Jurisdiction. Whilst strictly speaking Dublin City Council fulfils that role, the guidance in Technical Guidance Document B is sufficiently unambiguous as to allow a designer to assume that provision of partial coverage is sufficient, i.e. within flats only.

In the above context, the appeal to remove the requirement for provision of sprinklers to the common residential corridors should be upheld.

The appeal to similarly remove sprinklers from the basement car park could be upheld for reasons of underpinning the historic blanket exemption from sprinklers that Technical Guidance Document B infers to car parks. This is a determination to be made by the Board, which clearly has a broader remit than any individual building. All rational and recent evidence suggests that the construction of 6 no. storeys of single stair residential development above an unsprinklered basement car park is an extremely hazardous proposition – notwithstanding the impression Technical Guidance B gives to the contrary.

Whilst the subject of this appeal relates to the provision of sprinklers, the fact remains that the proposed building does not comply with the design guidance contained in Technical Guidance

Document B in that both single residential escape stairways and lifts extend down into the basement. This clearly and directly conflicts with the guidance contained in Sections 1.3.7.1 and 1.4.9.2 of Technical Guidance Document B. The other code referenced by the appellant is BS 5588:Part 1 and that code also precludes the extension of the residential stairs into the basement in the current scenario. It is highlighted that in any event BS 5588:Part 1 has no relevance to this aspect of the building's design, because the basement stair issue is explicitly addressed by the chosen design document, i.e. Technical Guidance Document B.

The appellant has suggested that the provision of 2 no. fire-resisting lobbies in series including 1 no. 0.4 m^2 vented lobby provides sufficient justification to ignore the prohibition of extension of single escape stairs and lifts down to basement level. The appellant uses a combination of precedent from previous schemes and ill-conceived empirical evidence to justify his proposed alternative approach. It is highlighted that the requirement to provide a vented lobby to protect the stairs and lifts at basement level would arise for any stair/lift serving both the upper levels of a building and a basement car park. As such the extra fire precaution being proposed in the current design is simply the introduction of a single additional FD30S fire door between the standard vented lobby and the unvented lift lobby. In the absence of further quantitative justification, this is an insufficient additional measure to compensate for the additional risk exposure of the 6 no. residential storeys overhead – more so mindful of the fact that lift landing doors do not have any appreciable resistance to smoke transfer.

The conclusion that the addition of a single FD30S door (within the basement level lobby) is of itself insufficient is informed by the fact that relevant design codes, e.g. BS 9991:2015, suggest that a similar FD30S should in any event be included at ground level to separate the basement and upper levels. The reason that the separation door between upper residential levels and basements is provided at ground level is to disrupt the flow of escaping occupants at the exit level and to reduce the risk of them continuing escape down to the natural end of the stairs at basement level. Note that such a continuous stair connection is in any event only permissible for small buildings.

In the absence of any quantitative alternative, the appellant's proposed compensatory "double lobby" including 0.4 m^2 fixed ventilation can be contextualised by comparison with equivalent guidance from BS 9991:2015, which guides a minimum ventilation requirement of 1.0 m^2 in the more favourable case of a "small building". The subject building is not a "small building" that could avail of this lesser standard of protection rather it is required to be designed to a higher standard due to its height. In summary, the basement lobby within a small building would require more than twice as much ventilation than is being currently proposed within the subject taller building.

During the course of the appeal, Dublin City Council has queried how the applicant has determined the adequacy of his alternative design, but the fact remains that the Council granted a Fire Safety Certificate for a building design that includes single residential stairs extending into the basement. Presumably this was predicated on the Council's expectation that the basement level would be protected with a sprinkler system – greatly reducing the risk to the stairways/lifts. The fact that the Board could uphold an appeal to remove the sprinkler system from the design should have been anticipated by the Council in their consideration of the single stair basement issue. In my opinion, a design that omits basement sprinklers but retains basement stairways/lifts connecting from upper levels single exit residential levels would be fundamentally flawed.

The continuation of the residential stairways and lifts into an unsprinklered basement is explicitly contrary to the guidance contained in Technical Guidance Document B. There is little and unambiguously insufficient justification provided by the appellant that the design meets the fundamental requirements of Part B1 to the Building Regulations. Accordingly, it is concluded that the design does not comply with Part B1 to the Building Regulations unless modified by the attachment of a Condition as follows:-

Condition
Stairways and lifts serving residential levels shall terminate at ground floor level and shall not extend into the unsprinklered basement.

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

Note to appellant regarding the omission of smoke ventilation at ground floor level

The common corridors in front of Flats No.'s A01/A02 and A05/A05/A09 are correctly shown on the application drawings to require ventilation. No further details are offered as to how this is to be achieved. Mindful of the smoke shafts' locations on first floor overhead, this issue should be carefully monitored by the appellant going forward.

5. CONCLUSION

The appeal regarding the subject Condition No. 3 should be partially upheld. The common residential corridors clearly do not require sprinkler protection in order to meet the requirements of Part B1 to the Building Regulations.

With regard to the remaining part of the Condition (relating to the requirement for provision of sprinklers to the basement car park), this inspector remains unwilling to support Technical Guidance Document B's now clearly flawed "blanket exemption" to requiring provision of sprinklers in car parks.

A decision by the Board to uphold the appeal and support removal of the sprinkler condition would significantly undermine the package of measures in place to justify the extension of the single stairways and lifts from residential levels into the basement level. Recognising the likely direction of travel by the Board, my recommendation is that Condition No. 3 be retained but redrafted as follows:-

Condition No. 3

Stairways and lifts serving residential levels shall terminate at ground floor level and shall not extend down to the basement storey unless that basement storey is protected throughout by a suitable automatic sprinkler system to IS EN 12845:2015+A1:2019.

Reason:

To comply with Part B of the Second Schedule to the Building Regulations, 1997 to 2019.

The remaining 15 no. Conditions (Conditions No.'s 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16) attached to the granted Fire Safety Certificate are not subject of this appeal and should remain. The granted Fire Safety Certificate should therefore remain subject of 16 no. Conditions, including the redrafted Condition No. 3.

Dr. Raymond J Connolly

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