



Fire & Risk Solutions Ltd.

Chartered Engineers

Professionals in Fire and Safety

Report 2985

**An Bord Pleanála Appeal regarding the attachment of Conditions by
Dublin City Council to grant of Fire Safety Certificate
for extension to mixed use building at 126 Pembroke Road, Dublin 4**

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BUILDING CONTROL ACT, 1990 – APPEAL

**FIRE SAFETY CERTIFICATE APPLICATION
FOR THE EXTENSION OF A MIXED USE BUILDING
AT 126 PEMBROKE ROAD, DUBLIN 4**

**APPEAL AGAINST THE ATTACHMENT OF CONDITIONS NO.s 2 and 3
TO FIRE SAFETY CERTIFICATE (REF. FSC1493/16/7D) ON 30th MARCH 2016**

AN BORD PLEANÁLA APPEAL REFERENCE FS29B.FS.0527

Local Authority: Dublin City Council

Appellant: Barry Comer c/o Jeremy Gardner Associates

RECOMMENDATION

It is recommended that this appeal be upheld. The subject Condition No. 2 attached to the Fire Safety Certificate granted by Dublin City Council (under Reference FSC 1493/16/7D) should be revised as follows:-

Condition No. 2

EITHER the proposed sprinkler system shall be extended to provide coverage throughout the basement levels -1 and -2 (including the car parking areas) and shall be designed and installed in accordance with BS EN 12845:2015, OR

Fire-fighting shafts shall be provided at Stairs No.'s 1, 6, 11 and 15 at both basement levels comprising fire-fighting stairs, dry falling main outlets and fire-fighting lobbies to Clause 5.3.4 of Technical Guidance Document B (but for avoidance of doubt excluding fire-fighting lifts) with each fire-fighting lobby being fitted with smoke ventilation comprising not less than 1.0 m² high level manually openable natural vents direct to open air or to a smoke shaft only serving that level, with smoke discharging at ground level not less than 1800 mm remote from escape routes.

Reason:

To comply with Part B5 of the Second Schedule to the Building Regulations, 1997 to 2014.

The subject Condition No. 3 should be removed in its entirety. The remaining 3 no. Conditions (Conditions No.'s 1, 4 and 5) attached to the granted Fire Safety Certificate are not subject of the subject appeal and shall remain. The granted Fire Safety Certificate should therefore be subject of 4 no. Conditions.

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1.0 RELEVANT INFORMATION

- (i) Application for Fire Safety Certificate by Barry Comer to Dublin City Council dated 6th March 2015, including Compliance Report XI/2841 R3 Issue 1 (dated 17th February 2015) and drawings by Jeremy Gardner Associates.
- (ii) Fire Safety Certificate (FSC 1493/16/7D) granted by Dublin City Council in respect of Application No. FA/15/1069/7D) issued on 30th March 2016 (subject of 5 no. Conditions).
- (iii) Letter of Additional Information from Jeremy Gardner Associates to Dublin City Council dated 18th August 2015, including drawings.
- (iv) Letter of Additional Information from Jeremy Gardner Associates to Dublin City Council dated 19th February 2016, including drawings.
- (v) Compliance Report XI/2841 R3 Issue 3 (dated 19th February 2016) and drawings by Jeremy Gardner Associates
- (vi) Letter of appeal from Jeremy Gardner Associates on behalf of Barry Comer to An Bord Pleanála dated 21st April 2016.
- (vii) Letter sent by Dublin City Council to An Bord Pleanála dated 20th May 2016 outlining observations/comments by Fire Prevention Officer.
- (viii) Letter from Jeremy Gardner Associates on behalf of Barry Comer to An Bord Pleanála, dated 3rd June 2016, responding to submission by Fire Authority.

2. BACKGROUND

Jeremy Gardner Associates on behalf of Barry Comer made an application to Dublin City Council for a Fire Safety Certificate for the extension of a new building (mixed use development) comprising two storeys of basement with car parking, storage, plant and a leisure centre at 126 Pembroke Road, Dublin 4 under reference FA/15/1069/7D. The Fire Safety Certificate was granted by Dublin City Council (under Reference FSC 1493/16/7D) on 30th March 2016 subject to 5 no. Conditions including *inter-alia*:-

Condition No. 2

The proposed sprinkler system shall be extended to provide coverage throughout the basement levels -1 and -2 (including the car parking areas) and shall be designed and installed in accordance with BS EN 12845:2015.

Reason:

To comply with Part B of the Second Schedule to the Building Regulations, 1997 to 2014.

Condition No. 3

The lift at gridline D/18-19 at basement levels -1 and -2 shall be separated from the basement car parking areas in accordance with section 1.4.9.2 of Technical Guidance Document B or as proposed in section B1.6.12 of the Compliance Report (Re. XI/2841 R3 Issue 3) accompanying this application.

Reason:

To comply with Part B1 of the Second Schedule to the Building Regulations, 1997 to 2014.

On 21st April 2016, Jeremy Gardner Associates appealed on behalf of Barry Comer against the attachment of these 2 no. Conditions (Conditions No.'s 2 and 3) to the Fire Safety Certificate. The residual 3 no. Conditions (Conditions No.'s 1, 4 and 5) are not subject of the subject appeal.

3. REPRISE OF APPEAL (AS PRESENTED)

The subject works comprise the extension of a previously approved multi-storey mixed use development to comprise two storeys of basement at 126 Pembroke Road, Dublin 4. The basement includes a fitness centre with swimming pool, recreation areas, car parking, plant, office and storage areas. The applicant proposed the inclusion of an automatic sprinkler system to all areas of both basement levels with the exception of the car parking areas.

Condition No. 2

The proposed sprinkler system shall be extended to provide coverage throughout the basement levels -1 and -2 (including the car parking areas) and shall be designed and installed in accordance with BS EN 12845:2015.

Reason:

To comply with Part B of the Second Schedule to the Building Regulations, 1997 to 2014.

The appellant has appealed the attachment of this Condition on the grounds that basement car parks are not normally expected to be fitted with sprinklers. Section 3.5.2 of Technical Guidance Document B to the Building Regulations confirms same highlighting that in the context of compliance with Part B3 fire loads are well defined and not particularly high within car parks and where properly ventilated risk of fire spread between cars is low.

Section 5.4.3.1 of Technical Guidance Document B also addresses basement car parks in the context of compliance with Part B5 and re-iterates that "basement car parks are not normally expected to be fitted with sprinklers".

The Fire Authority acknowledges that there is no "mandatory requirement to sprinkler the car park levels -1 and -2". However, the Authority confirms that it is seeking to impose a design approach to reflect its view that the building presents a significantly higher life safety risk to fire-fighters due to its scale, complexity and limited fire brigade access.

The appellant subsequently addresses these concerns by emphasising that:-

- The basements are served by 3 no. fire-fighting staircores (enclosed in 120 minutes fire-resisting construction) and fitted with dry risers [sic] (actually dry falling mains).
- Every part of the basement's floor plate is within 60 metres from the protected lobby.
- Hosereels complying with IS EN 671:Part 1:1995 are to be installed.
- The elements of structure within the building are at least 60 minutes fire-resisting and therefore a fire will not lead to premature collapse of the building.

Condition No. 3

The lift at gridline D/18-19 at basement levels -1 and -2 shall be separated from the basement car parking areas in accordance with section 1.4.9.2 of Technical Guidance Document B or as proposed in section B1.6.12 of the Compliance Report (Re. XI/2841 R3 Issue 3) accompanying this application.

Reason:

To comply with Part B1 of the Second Schedule to the Building Regulations, 1997 to 2014.

It is not clear on what grounds the appellant has appealed the attachment of this Condition, which superficially is only requiring the applicant to deliver on those proposals outlined within his own Compliance Report. The subject lift opens directly into the car park space at Levels B-1 and B-2 without an intermediate lobby. The lift is proposed to be fitted with a 60 minutes fire-resisting automatic smoke curtain in accordance with BS EN 12010:Part 1:2005. This measure is proposed to compensate for the absence of a smoke containment rating to the lift landing door.

The Fire Authority confirms that Section 1.4.9.2 requires basement level lifts to be approached by way of a protected lobby - as indeed are all other lifts within the basement areas. The subject lifts are outliers in this regard and the inclusion of a smoke curtains alone does not in the opinion of the Fire Authority offer appropriate protection to the upper levels.

The appellant confirms that application of Technical Guidance Document B's guidance is not mandatory and suggests that the proposed inclusion of a smoke containing curtain across the lift door opening achieves a standard of safety at least as good as that provided in a typical code compliant building.

4. CONSIDERATION

The appeal may be considered as presented and no new issues arise as would demand a *de novo* consideration.

Condition No. 2

The proposed sprinkler system shall be extended to provide coverage throughout the basement levels -1 and -2 (including the car parking areas) and shall be designed and installed in accordance with BS EN 12845:2015.

Reason:

To comply with Part B of the Second Schedule to the Building Regulations, 1997 to 2014.

The appellant is correct in his summary that Section 3.5.2 of Technical Guidance Document B to the Building Regulations confirms that car parks are not normally expected to be fitted with sprinklers. This guidance is given in the context of compliance with Regulation B3, i.e. prevention of undue fire spread or by corollary limitation of fire size. Section 5.4.3.1 of Technical Guidance Document B also addresses basement car parks in a different context, i.e. compliance with Regulation B5, i.e. access and facilities for the Fire Service. Again this guidance re-iterates that "basement car parks are not normally expected to be fitted with sprinklers" but this time the guidance is given in the context of management of heat and smoke as necessary to facilitate fire-fighting operations. The Fire Authority does not attach a specific Part B reference to its attachment of Condition No. 2, but based on its submission to the Board with regard to this appeal it is inferred that the Condition has been attached with respect to delivering compliance with Regulation B5.

The Fire Authority states its view that the building presents a significantly higher life safety risk to fire-fighters due to its scale, complexity and limited fire brigade access.

The appellant subsequently addresses these concerns by emphasising that the basements are served by 3 no. fire-fighting staircores (enclosed in 120 minutes fire-resisting construction) and fitted with dry risers [*sic*] (actually dry falling mains) with every part of the basement's floor plate within 60 metres from the protected lobby.

The appellant's reference to first aid fire-fighting hose-reels is not relevant in this context.

The stated rating for basement level elements of structure (being 60 minutes fire-resisting) should be clarified to confirm that elements supporting the building overhead are in fact required to be 120 minutes fire-resisting as indeed is the ground floor slab and any elements of construction that support same. It is reasonable to presuppose that a fire will not lead to premature collapse of the building and same is not a compensatory feature in regard to those issues at appeal.

The issue involved in this appeal is whether the Fire Authority's is correct in its view that the building is sufficiently different to the "normal" basement car park such as to require the installation of sprinklers to bring Fire Service facilities up to the minimum Part B5 standards. The inference is that without sprinklers in the car park areas, the Fire Service facilities would be deficient. The subject facilities include:-

- Fire-fighting stairs
- Fire mains (dry falling mains)
- Fire-fighting lobbies with appropriate fire-resisting enclosure and ventilation

The appellant has sent mixed messages with regard to the number of fire-fighting stairs proposed. He is clear in Section B5.5 of his Compliance Report that 4 no. fire-fighting shafts are included in the upper level buildings, i.e. associated with Stairs No.'s 1, 6, 11 and 15. He goes on to suggest that the stair cores will extend to basement levels "and will be provided as escape stairs", albeit lobbied and fitted with a fire main. The appellant states that the shafts [will be ventilated by the doors at ground floor level - presumably when he means that the stairs will be so ventilated]. He states that every part of each storey will be no more than 60 metres from the entrance to a protected lobby. In his appeal documentation, the appellant has reduced the number of stairs/shafts to 3 no. (presumably in error) and described them now as "fire-fighting stair cores". This is consistent with Section B5.4 of his Compliance Report where the appellant addresses vehicular access to the building's perimeter in terms of provision of access to within 18 metres of the fire main connection points to the "several' stairs to basement levels constructed as fire-fighting shafts including dry risers. In the normal course of events, provision of sufficient vehicular access to the perimeter of the building is sufficient to allow the need for fire-fighting shafts to be determined without the ambiguity presented in the current application. However, the dissociation of the design between basement and upper levels has not assisted in bringing clarity to the design philosophy.

Section 5.3.1 of Technical Guidance Document B clarifies the relevant terminology which may be summarised as follows:- fire-fighting lifts, fire-fighting stairways and fire-fighting lobbies are combined in a protected shaft known as the fire-fighting shaft. It is reasonable to omit fire-fighting lifts in basements less than 10 metres deep, but in such a context the fire-fighting shaft would then comprise only a fire-fighting stair and fire-fighting lobby, notwithstanding the fact that basements less than 10 metres deep do not require such facilities in any event.

After reviewing all of the subject documentation, it is not clear what the design intention of the appellant is in this regard. The reference to a fire-fighting stair is meaningless without inclusion of a fire-fighting lobby. Whilst appropriate fire-resisting construction is employed, there is not an appropriate degree of smoke ventilation to allow the lobby to be considered as a fire-fighting lobby. Equally, it would be reasonable to allow for inclusion of dry main outlets within escape stairways (or their lobbies) as is allowed for by Section 5.1.3 of Technical Guidance Document B. However, this approach falls short of the robust fire-fighting infra-structure associated with fire-fighting shafts and presumably is contributing to the underlying cause for concern with the Fire Authority. The fact that the basement is not 10 metres deep, albeit it remains a relatively large and complicated space, allows the appellant to justifiably base his design on an approach devoid of fire-fighting shafts in their entirety - particularly being satisfied that his proposals for ventilation of smoke and heat are robust and in compliance with Section 5.4.3 of Technical Guidance Document B.

The appellant's proposals for mechanical smoke ventilation of the car park including the computational fluid dynamics modelling of the consequences of a car fire on basement levels -2 and -1 and also an articulated truck fire on basement level -1 have been reviewed. The design was accepted by the Fire Authority without comment (other than Condition No. 5 requiring smoke ventilation from individual spaces) and no reference was made to any relationship between the Condition seeking installation of sprinklers and the assurance of any given design fire scenario associated with the mechanical ventilation system.

It is concluded that the Fire Authority's is seeking to assuage its concern about fire-fighting access to large and complicated basements, that are not of themselves deep enough (> 10 metres below ground level) to justify an immediate requirement for inclusion of fire-fighting shafts (including fire-fighting stairs, ventilated lobbies and lifts), by requiring installation of sprinklers throughout, i.e. to reduce the extent and severity of fires as might reduce fire-fighting demands.

Notwithstanding, the "normal" expectation that car parks do not require sprinklers, the Authority seems to be arguing that the current proposal is sufficiently unusual as to attract special and more onerous design. The appellant references similar projects in the Dublin area that have been accepted without inclusion of sprinklers, with the inference that the current design is not out of the "normal". It can be presumed with some degree of certainty that the Fire Authority is aware of local precedents and is best placed to make judgements regarding the potential fire-fighting complications as might arise in what may be superficially similar scenarios. The appellant's proposal to include sprinkler protection in all basement areas except car parking areas significantly reduces the risks associated with access to and fire-fighting within the more remote and/or complicated spaces. In such a context, the appellant has reasonably focussed on the dynamics of fires involving burning cars and the likely effectiveness of sprinklers in reducing the complications and hazards potentially faced by fire-fighters. These arguments by the appellant carry weight and suggest that the concerns of the Fire Authority may be better mitigated through improved access facilities. On balance, given their origin in Regulation B5, the concerns of the Fire Authority need to be mitigated as opposed to being set aside.

To this end, it is recommended that the subject Condition be allowed to stand. However, the designer should be afforded an alternative design solution as follows:-

Fire-fighting shafts shall be provided at Stairs No.'s 1, 6, 11 and 15 at both basement levels comprising fire-fighting stairs, dry falling main outlets and fire-fighting lobbies to Clause 5.3.4 of Technical Guidance Document B (but for avoidance of doubt excluding fire-fighting lifts) with each fire-fighting lobby being fitted with smoke ventilation comprising not less than 1.0 m² high level manually openable natural vents direct to open air or to a smoke shaft only serving that level, with smoke discharging at ground level not less than 1800 mm remote from escape routes.

Condition No. 3

The lift at gridline D/18-19 at basement levels -1 and -2 shall be separated from the basement car parking areas in accordance with section 1.4.9.2 of Technical Guidance Document B or as proposed in section B1.6.12 of the Compliance Report (Re. XI/2841 R3 Issue 3) accompanying this application.

Reason:

To comply with Part B1 of the Second Schedule to the Building Regulations, 1997 to 2014.

Section 1.4.9.2 of Technical Guidance Document B requires basement level lifts to be approached by way of a protected lobby. Furthermore Section 1.3.8.4(iii) requires the protected lobby to be fitted with permanent openings to the open air having an area of not less than 0.4 m². Equally Table B1 of Technical Guidance Document B does not require lift landing doors to have any smoke containment capacity.

It is not clear why the appellant is including smoke curtains in front of lifts throughout the scheme. His explanation that installation of 60 minutes fire-resisting automatic smoke curtains in accordance with BS EN 12010:Part 1:2005 in front of all lift doors is proposed to compensate for the absence of smoke containment ratings to these lift landing doors - a rating which in any event is not required where the proposed lift lobbies are appropriately ventilated and fully code compliant. Where lifts open into lobbies that are not ventilated, the provision of smoke curtains does offer a compensatory measure. Against such a background, it is more difficult for the appellant to sustain the argument that the same smoke curtain provision will compensate for the absence of both a lobby with 30 minutes fire-resisting/smoke-containing hinged doorset and the absence of fixed ventilation (0.4 m²) from such a lobby. There is no analysis of these issues within the case history documentation.

The appellant confirms that application of Technical Guidance Document B guidance is not mandatory and suggests that the proposed inclusion of a smoke-containing curtain across the lift door opening achieves a standard of safety at least as good as that provided by a typical code compliant building. However, there is little basis to presume that a smoke curtain would be any more effective than a fire-resisting smoke-containing door and provision of such a door alone would not satisfy the guidance in Technical Guidance Document B - a ventilation path is also required.

In this case, the basement car park benefits from the provision of a mechanical smoke ventilation system, which should mitigate against movement of smoke into the lift lobby. The beneficial effects of the mechanical system have been examined using computational fluid dynamics modelling software for the specific scenario of a 20 MW truck fire local to the subject lift (Systemair Report MPR-CFD-116A-14/15 Rev 01 dated 11/08/2015 refers). This CFD modelling has confirmed the effectiveness of the smoke ventilation system in maintaining the air temperatures in the car park to levels well below those values necessary to lead to full fire development and also to return the car park to tenable conditions within a short interval after the fire's demise. In such circumstances, the absence of fixed natural ventilation from the intermediate lobby between the car park and the lift may not in this instance give rise to any increased risk of smoke spread into the lift shaft relative to a code compliant design. The proposed smoke curtain offers sufficient compensation for omission of the lobby and the proposed mechanical ventilation system offers sufficient compensation for the absence of a ventilation path. It is noted that the lift in question does not serve a single stair residential block.

The subject Condition should be set aside.

5. CONCLUSION

It is recommended that this appeal be upheld.

The subject Condition No. 2 attached to the Fire Safety Certificate granted by Dublin City Council (under Reference FSC 1493/16/7D) should be revised as follows:-

Condition No. 2

EITHER

The proposed sprinkler system shall be extended to provide coverage throughout the basement levels -1 and -2 (including the car parking areas) and shall be designed and installed in accordance with BS EN 12845:2015

OR

Fire-fighting shafts shall be provided at Stairs No.'s 1, 6, 11 and 15 at both basement levels comprising fire-fighting stairs, dry falling main outlets and fire-fighting lobbies to Clause 5.3.4 of Technical Guidance Document B (but for avoidance of doubt excluding fire-fighting lifts) with each fire-fighting lobby being fitted with smoke ventilation comprising not less than 1.0 m² high level manually openable natural vents direct to open air or to a smoke shaft only serving that level, with smoke discharging at ground level not less than 1800 mm remote from escape routes.

Reason:

To comply with Part B5 of the Second Schedule to the Building Regulations, 1997 to 2014.

The subject Condition No. 3 should be removed in its entirety.

The remaining 3 no. Conditions (Conditions 1, 4 and 5) attached to the granted Fire Safety Certificate are not subject of the subject appeal and shall remain. The granted Fire Safety Certificate should therefore be subject of 4 no. Conditions.

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