An Bord Pleanála

FSC Report

ABP 308031-20

Appeal v Refusal or Appeal v Condition(s)	Appeal v Conditions 1 and 3
Development Description	Change of use of existing office building and extension and material alterations to construct minor craft distillery, brewery and visitors centre at Killalee, Fossa, Co Kerry V93 FA43.
An Bord Pleanála appeal ref number:	ABP-308031-20
Building Control Authority Fire Safety Certificate application number:	FSC/20/037/20/090
Appellant & Agent:	Appellant : Killarney Brewing Company Agent : Des Fortune & Associates Ltd
Building Control Authority:	Kerry County Council
Date of Site Inspection	NA
Inspector/ Board Consultant:	Maurice Johnson
Appendices	NA

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2.0 Introduction

2.1 Subject Matter of Appeal

This report sets out my findings and recommendations on the appeal submitted by Des Fortune & Associates Ltd [hereafter referenced as DFA] on behalf of their Client, Killarney Brewing Company, against Conditions No. 1 and 3 attached to the Fire Safety Certificate (Ref No. FSC/20/037/20/090) granted by Kerry County Council [hereafter referenced as KCC] in respect of Change of use of existing office building and extension and material alterations to construct minor craft distillery, brewery and visitors centre at Killalee, Fossa, Co Kerry V93 FA43.

It is noted that the building comprises a Whiskey and Gin distillery, craft microbrewery, maturation warehouses, visitor's centre and machine rooms.

It is noted that the fire strategy for the development, as set out in the DFA Compliance Reports, is based on Technical Guidance Document B 2006. It is further noted that Planning Permission for the development is identified by the Applicant as having been granted on 10.12.2019 (Planning Permission No 18/1064) and thus the Transitional Arrangement set out in TGDB 2020 state that TGD-B 2006 applies to this development.

In respect of compartmentation, the Applicant, in Table B3.2 of their Compliance Report, identifies the maturation warehouses to be Purpose Group 7(a) High Hazard and the brewing and distillery areas to be Purpose Group 6 (High Hazard).

The Applicant also includes a Risk Analysis Report by a specialist safety consultancy firm Ayrton Group in support of their Fire Safety Certificate application.

The Fire Safety Certificate was granted on 31st July 2020 with 5 conditions attached.

Conditions 1 and 3, which are the subject of the appeal, read as follows:

Condition 1

An automatic sprinkler system should be provided in any compartment of the building used for the production or storage of material which is classified as a high risk or a hazardous material (i.e. spirits).

The automatic sprinkler system should comply with the requirements of IS EN 12845: 2015 + A1:2019 Fixed fire-fighting system – automatic sprinkler systems – Design, installation and maintenance and should take account of the proposed contents and their stack height. The system should include a stored water capacity to ensure sprinkler operation for not less than 90 minutes

With the stated reason for the condition being*:*

Reason*: In the interests of fire safety.*

Condition 3

A ready and adequate supply of water for fire-fighting purposes is to be provided to comply with provision B5 of the Building Regulations, This provision can be satisfied by the provision of suitably located fire hydrant(s) on the property and/or hydrant(s) provided by the Sanitary Authority. The supply can also be provided by or augmented by static storage vessels with suitable fire brigade connections and by open sources of adequate year-round supply with suitable access.

In all instances the minimum supply should be arrived at scientifically considering the necessary relevant parameters e.g. maximum compartment size, quantity and combustibility of all items within each compartment, type of building construction etc. Also consider the capability and requirements of the predetermined attendance of the County Fire Service for a large-scale incident in the premises.

Where fire hydrants and fire-fighting water storage tanks are to be installed they should be positioned so they remain usable in the event of a fire occurring. They should be positioned in such a way that the parking, loading and unloading of vehicles is unlikely to obstruct them. (See also Diagram 30 - External Fire Mains & Hydrants TGD Part B)

Note: The minimum flow to be provided should be 35 litres per second for a duration of 120 minutes. A proportion of this supply may be provided by on-site storage at the approval of the Fire Authority.

Hydrants should be of the screw-down type in compliance with the requirements of BS 750. The depth of the hydrant outlet below finished ground level should not exceed 200mm.

The fire fighting water storage tank(s) should be clearly identifiable for use by the Fire Service. Where fire-fighting water storage tank(s) are proposed they should be provided with a low water level alarm and be monitored and inspected regularly.

The fire fighting water storage tank(s) should be designed with suitable fire brigade connections so as to enable the County Fire Service to connect to the tanks.

The fire fighting water storage tank(s) should be designed and constructed with a suitable sump within the tank(s) to enable the full volume of the tank to be used by the Fire Service.

Reason: *In the interest of Fire Safety.*

The appeal is against the above 2 conditions.

De novo consideration is not warranted and the Board can rely on the provisions of Article 40(2) of the Building Control Regulations and deal with the appeal on the basis of Conditions 1 and 3 only.

2.2 Documents Reviewed

2.2.1 Fire Safety Certificate Application and Supporting Documentation submitted by DFA on behalf of their Client

2.2.2 Decision and grant by KCC on 31.07.2020 with 5 conditions attached

2.2.3 Appeal submissions to An Bord Pleanala by DFA dated 14.08.2020 and 26.10.2020

2.2.4 Appeal submission to An Bord Pleanala by KCC dated 14.10.2020

3.0 Consideration of Arguments by Appellant and BCA

3.1 Condition 1

Condition 1
An automatic sprinkler system should be provided in any compartment of the building used for the production or storage of material which is classified as a high risk or a hazardous material (i.e. spirits).

The automatic sprinkler system should comply with the requirements of IS EN 12845: 2015 + A1:2019 Fixed fire-fighting system – automatic sprinkler systems – Design, installation and maintenance and should take account of the proposed contents and their stack height. The system should include a stored water capacity to ensure sprinkler operation for not less than 90 minutes

With the stated reason for the condition being*:*

Reason*: In the interests of fire safety.*

Insofar as the reason stated in the Grant of Fire Certificate for the imposition of Condition 1 is generic in nature it is considered appropriate to set out, in the first instance, the reasoning of KCC as outlined in more specific detail in their appeal submission to ABP dated 14.10.2020

Case made by KCC in respect of Condition 1

The KCC case for the imposition of Condition 1 is set out in the submission to ABP dated 14.10.2020 and the key points are summarised as follows:

I. KCC state that the *"requirement for sprinkler protection"* was advised by KCC to DFA in a conversation which took place in relation to the FSC application being in support of a 7-Day Commencement Notice. It appears that the inference in the KCC statement is that that the Applicant was therefore obligated to comply with any conditions of the FSC application. This is not correct however. The Applicant has the right to appeal a condition of an FSC application notwithstanding the development being commenced under a 7 Day Notice and must comply with the measures which emerge from such an appeal. Accordingly the point made by KCC in relation to the said telephone conversation is not in my view relevant to this appeal.

II. KCC contend that the adjacency of the maturation warehouses to the distillery compartment results in an increased *"risk of fire spread"* to adjoining compartments and presumably on this basis they contend that the imposition of sprinkler protection is justified. However, KCC do not dispute that the compartments may be adjacent to each other by reference to TGD-B 2006.

III. KCC contend that the presence of alcohol (ethanol) is justification in itself for the imposition of sprinkler protection so as *"to minimize the risk of early structural collapse and fire spread to adjoining compartments".*

IV. KCC make reference to BS9999 in support of the imposition of sprinkler protection. It is noted however that the fire strategy in this instance is based on TGD-B 2006 as the prima facie basis for compliance and accordingly the provisions of BS9999 are not considered relevant.

V. KCC note that sprinkler protection increases fire safety. The issue however which arises in this instance is whether sprinkler protection is necessary to satisfy the requirements of Part B of the Second Schedule to the Irish Building Regulations.

Case made by DFA in respect of Condition 1

The key point made by DFA in support of their appeal, as set out in the various documents referenced in 2.2.1, and 2.2.3 is that their design complies with TGD-B 2006 without recourse to sprinkler protection. In particular they note that the compartment sizes of the maturation warehouses and the distillery areas fall well within the limits in Table 3.1 of TGD-B 2006 as follows:

Location	**Size Proposed**	**Compartment size limits in Table 3.1 of TGD-B**
Maturation warehouses	640m^2	1000m^2 (no limit on volume)
Distillery	671m^2/6710m^3	2800m^2/17000m^3

On that basis, DFA contend that there is no justification for the additional imposition of sprinkler protection to satisfy the requirements of Part B of the Second Schedule.
Indeed it is noted that Table 3.1 in Footnote 1 specifically allows for the limits on compartment size to be doubled from the figures quoted in the Table in the event that sprinklers are installed.

DFA also note that the compartment sizes being proposed conform with the High Hazard size limits in the *Scottish Technical Handbook – Non Domestic 2019* which specifically references *"spirit distilling"* and *"whiskey storage"* in the list of activities/materials to which these classes relate.

3.2 Condition 3

Condition 3:

A ready and adequate supply of water for fire-fighting purposes is to be provided to comply with provision B5 of the Building Regulations, This provision can be satisfied by the provision of suitably located fire hydrant(s) on the property and/or hydrant(s) provided by the Sanitary Authority. The supply can also be provided by or augmented by static storage vessels with

suitable fire brigade connections and by open sources of adequate year-round supply with suitable access.
In all instances the minimum supply should be arrived at scientifically considering the necessary relevant parameters e.g. maximum compartment size, quantity and combustibility of all items within each compartment, type of building construction etc. Also consider the capability and requirements of the predetermined attendance of the County Fire Service for a large-scale incident in the premises.
Where fire hydrants and fire-fighting water storage tanks are to be installed they should be positioned so they remain usable in the event of a fire occurring. They should be positioned in such a way that the parking, loading and unloading of vehicles is unlikely to obstruct them. (See also Diagram 30 - External Fire Mains & Hydrants TGD Part B)

> *Note: The minimum flow to be provided should be 35 litres per second for a duration of 120 minutes. A proportion of this supply may be provided by on-site storage at the approval of the Fire Authority.*

Hydrants should be of the screw-down type in compliance with the requirements of BS 750. The depth of the hydrant outlet below finished ground level should not exceed 200mm.
The fire fighting water storage tank(s) should be clearly identifiable for use by the Fire Service.
Where fire-fighting water storage tank(s) are proposed they should be provided with a low water level alarm and be monitored and inspected regularly.
The fire fighting water storage tank(s) should be designed with suitable fire brigade connections so as to enable the County Fire Service to connect to the tanks.
The fire fighting water storage tank(s) should be designed and constructed with a suitable sump within the tank(s) to enable the full volume of the tank to be used by the Fire Service.

Reason: *In the interest of Fire Safety.*

Case made by DFA in respect of Condition 3

The issue which the appeal by DFA relates to is the requirement in Condition 3 that the minimum fire flow rate should be 35 litres per second for a duration of 120 minutes, whereas DFA contend that this should be altered to a fireflow rate of 25 litres per second for a duration of 45 minutes.

DFA note that the existing fire main supply has been tested and found to be inadequate and that a fire water tank is proposed on site to supplement the fire main system i.e. static storage. The required capacity of this tank is directly affected by the fireflow/duration required.

In support of their case, DFA reference BS5306: Part 1:1976 which in the case of wet fire main systems (which are normally employed in high rise buildings) prescribes a fireflow of 25 litres per second for a duration of 45 minutes.

Case made by KCC in respect of Condition 3

For their part the points raised by KCC are summarised as follows:

I. KCC refer to British Standard Published Document PD7974-5:2014+A1:2020 *Application of fire safety engineering principles to the design of buildings – Part 5: Fire and rescue*

service intervention (Sub system 5) in support of the flow rates which they stipulate in Condition 3. PD7974-5 sets out various methodologies for the calculation of fireflow rates based on either (i) a growing fire and the likely size of same at Time of Fire Service Intervention or (ii) a fully involved compartment fire.

In this instance KCC consider that a fully involved compartment fire is appropriate given the likely fast or ultrafast fire growth rate which can be expected in this type of occupancy.

KCC calculate the required fireflow from PD7974-5 to be in the range 39L/sec to 49L/sec. Whilst KCC do not include their actual calculations it is assumed they have employed Equation 9 from PD7974-5 as follows:

$$F_{>500} = 641(A_{\text{fire}})^{-0.8} \qquad (9)$$

For the maturation warehouses the max floor area is 640sqm which in turns yields a fireflow requirement of 39L/sec based on the above formula i.e. in line with the figure quoted by KCC.

II. KCC also refer to Water UK *National Guidance Document for the Provision of Water for Firefighting* which provides guidance in Appendix 5 sets out guidance on fireflow rates. In the case of industrial developments and commercial developments the guidance prescribes rates in the range 20 to 75 L/sec

III. KCC also note that their normal brigade attendance is 2 appliances which they say gives them a combined pumping capacity of 35L/sec.

IV. KCC also note that by prescribing a duration of 120 minutes they have capacity to employ higher fireflow rates for a shorter period if so required.

4.0 Assessment

Condition 1 – Sprinkler Protection

I concur with the case made by the Applicant in this instance that sprinkler protection is not warranted as the compartment sizes being proposed are well within the size limits set out in TGD-B for unsprinklered High Hazard factory/warehouse activities of the type proposed. It is noted that the additional provision of sprinkler protection is recognised in TGD-B by allowing a doubling of the said compartment size limits but in this instance the lower unsprinklered compartment size limits are being met.

Condition 3 – Fire-fighting water flowrates and duration

It is noted that TGD-B offers little guidance in relation to the fireflow rates required or duration of fire-fighting water other than a reference in 5.1.8 to "*fire mains should be designed to be capable of providing satisfactory flows and pressures*". It goes onto refer to BS5306: Part 1:1976 in relation to guidance for the design of hydrant systems. This code has been subsequently superseded by BS9990 and more recently Irish Standard IS 391:2020 *Fire Mains for Buildings* has issued. All of these standards stipulate a *"minimum"* fireflow rate of 25L/sec for hydrant systems. It is noted however that this is identified as a minimum requirement irrespective of buildings size or use and not as a general requirement.

DFA refer in their appeal submission to the requirements in BS5306 Part 1 for wet rising main systems in support of their contention that the fireflow requirement be reduced to 25L/sec x 45 minutes i.e. in line with the requirement for wet mains. It is noted however that wet fire mains are generally only employed in high rise buildings of more than 50m in height which are generally buildings fitted with sprinkler protection. Furthermore the requirements of BS5306 Part 1 provide for a replenishment facility such that the fire service can pump additional water to the wet main storage tank thus enabling the duration of supply to be extended.

In the absence of an Irish Guidance document for fireflows it is common to refer to the UK Water Guidance document or PD7974-5 in determining an appropriate supply requirement for a particular occupancy. In this instance, having regard in particular to the high risk nature of the activity in the proposed premises, it is considered that the KCC approach in arriving at a fireflow rate of 35L/sec is reasonable and appropriate.

In regard to the duration there is less guidance available. However given the potential for fire spread due to a flowing liquid fire and thus the potential for simultaneous or sequential fires in adjacent compartments it is considered that the KCC requirement for 120 minutes duration at a fireflow rate of 35L/sec is reasonable and appropriate.

5.0 Conclusion/Recommendation

In light of the foregoing I recommend that the appeal be upheld in relation to Condition 1 and refused in relation to Condition 3

6.0 Reasons and Considerations

In relation to Condition 1, I conclude that the appeal be upheld having regard to the compartment sizes being proposed which fall well within the limits in Technical Guidance Document B for unsprinklered compartments in this category of usage.

In relation to Condition 3, I conclude that the appeal should be refused and Condition 3 as set out in Fire Safety Certificate remain unaltered on the basis that the firewater requirement set out by KCC is in my opinion reasonable having regard to the nature and use of the proposed premises.

7.0 Conditions

Remove Condition 1 and retain Condition 3 unchanged.

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MAURICE JOHNSON
Chartered Engineer I BE, CEng, FIEI, MIStructE, MSFPE
Consultant/Inspector

Date : _____