Appeal Against Condition attached to Revised Fire Safety Certificate (FRV2001263MH)

Project	Boann Distillery
Local Authority	Meath County Council
Date	1st December 2022

Contents

1.0 INTRODUCTION

This case concerns the appeal of one condition attached to the Fire Safety Certificate for the extension of basement level, material alterations at ground and 1st floors and additional floor areas at first and second floors to Boann Distillery Limited, Lagavooren, Platin Road, Drogheda, Co. Meath. A Fire Safety Certificate application for the works was granted by Meath County Council on the 17th May 2022 with conditions. The following conditions were attached: -

Condition 1
The following documentation submitted for this fire safety certificate shall be complied with in full:

all specifications, drawings and information submitted in the fire safety certificate technical report submitted on the 17th of September 2020 and 18th of September 2020, together with further information received on 20th November 2020 and 26th November 2020 and revised information received on the 16th December 2020, 20th may 2021, 7th January 2022 and 2nd February 2022, except as amended by conditions attached to the fire safety certificate.

Condition 2
The final layout of fixtures and fittings shall be such that the recommended travel distances in table 1.2 of the Technical Guidance Document B 2006 are not exceeded.

Reason: To comply with Part B1 of the Second Schedule to the Building Regulations, 1997 - 2019.

Condition 3
The protection of escape routes (i.e. the fire resistance of enclosures, fire resistance of doors, fire resistance of glazed elements and fire resistance of escape stairway enclosure) shall be in accordance with the recommendations of Section 1.4.2, Appendix A and Appendix B of Technical Guidance Document B.

Reason: To comply with Parts B1 of the Second Schedule to the Building Regulations, 1997 - 2019.

Condition 4
An appropriate automatic sprinkler system shall be designed, installed, commissioned and maintained throughout all areas in the building used for the storage of hazardous materials as defined in Appendix E of Technical Guidance Document B. The sprinkler system shall include a static stored water supply to ensure a minimum of 90 minutes operation.

Reason: To comply with Parts B1 and B3 of the Second Schedule to the Building Regulations, 1997 - 2019.

Condition 5
Hydrants shall be located and installed on a ring main system in accordance with Diagram 30 of Technical Guidance Document B 2006. Hydrants shall have a minimum flow rate of 20 litres per second at a minimum pressure of 2 Bar for a period of not less than 90 minutes.

OR

A static storage water tank for fire fighting of not less than 100,000 litres shall be provided on the site at a location agreed in advance with the fire authority. The design of the storage tank and the means by which the fire services shall extract water from the tank shall be agreed with the fire authority in advance of installation of the tank.

Reason: To comply with Part B5 of the Second Schedule to the Building Regulations, 1997 - 2019.

Condition 6
Permanent ventilation of a minimum of 2.5% off the floor area shall be provided to all areas where hazardous spirits are stored.

Reason: To ensure compliance with Parts B1 to B5 of the Second Schedule to the Building Regulations 1997 – 2019 And to mitigate against the possibility of the accumulation of hazardous vapours.

The appellant is appealing Condition 4.

2.0 INFORMATION REVIEWED

In assessing this appeal, the following information was considered: -

- Fire safety certificate application including report and drawings received.
- CFD Analysis of smoke ventilation system considering four different fire scenarios across the development.
- Atmosphere Risk Analysis Gas Plus (ATEX Report) for demonstrating the probability of the presence of explosive atmospheres.
- Emails from fire officer to FCC Fire Cert Ltd on 1 December 2020, 16 December 2020, 12 February 2021 and 27 August 2021 seeking additional information/clarification.
- Additional information from appellant in response to emails from fire officer. Received by the fire officer on 1 December 2020, 16 December 2020, 20 May 2021 and 5 January 2022.
- Fire safety certificate grant letter (Ref: FSC/445/20) dated 17th May 2022.
- Appeal submission from Boann Distilery Limited dated 16th June 2022.
- Further Information submission from Boann Distilery Limited dated 11th August 2022.
- Report on assessment of fire safety certificate application dated 31st August 2022.

3.0 DISCUSSION

Condition 4
An appropriate automatic sprinkler system shall be designed, installed, commissioned and maintained throughout all areas in the building used for the storage of hazardous materials as defined in Appendix E of Technical Guidance Document B. The sprinkler system shall include a static stored water supply to ensure a minimum of 90 minutes operation.

Reason: To comply with Parts B1 and B3 of the Second Schedule to the Building Regulations, 1997 - 2019.

BCA's Case

The BCA state that they have considered the application and determined that a fire sprinkler system should be provided in areas where hazardous materials (as defined in Appendix E of Technical Guidance Document B) are stored in the building. The rationale for this decision is summarised as follows:

- Several conditions of the previous Fire Safety Certificate application (Ref: FS15006) from 2016 were not complied with. The building operator chose to commence distilling on the premises without satisfying the Fire Authority who advised the building owner that the building was operating illegally.
- Upon inspection of the building on the 14th of August 2020, the Fire Authority noted serious fire safety defects, including a direct contravention of Condition 10 on the previous application. Further to this, it was noted that workmanship throughout the building was very poor with many elements of work unfinished. Among such elements, breeches to compartmentation and defects with the fire detection & alarm system were included.
- Additional floor areas were provided before the acquisition of a Revised Fire Safety Certificate and should have technically been subject to a Regularisation application. However it was agreed with the BCA that these could be regularised as part of the revised application (Ref: FRV2001263MH).
- Condition 9 of the previous application states that if the basement is to be used for the storage or processing of hazardous materials (as defined in Appendix E of TGD – B), a fire suppression system shall be provided to the satisfaction of the Fire Authority and the area shall be enclosed in a minimum of 60 minutes fire resistance. As part of the application, the appellant stated that the basements would not be used in such a way. However, the BCA have determined that this statement is contradicted by other statements provided in a revised information submission. This will be further explained below.
- The BCA have concerns about the travel distances in the upper basement also due to the overall layout and the presence of dividers within the area.
- The BCA contends that the area of the lower basement exceeds the compartment size limits for storage areas as set out in the TGD – B. The BCA found the area of the lower basement to be approximately 1033m^2 while the limit set out in the TGD – B is 1000m^2.
- The Dry Goods Store at Ground floor is confirmed to be used for the storage of casks and is classified as a high hazard area.
- The BCA requested clarification on another area at Ground floor, the Brewery Production area. It was verbally confirmed that the area had been shut down, with the equipment to be sold and removed from the building however it has been retained with the revised application. This will be further explained below.
- The CFD analysis was carried out for the purposes of demonstrating smoke ventilation in certain areas of the distillery and to demonstrate that acceptable means of escape will be provided to building occupants. In the CFD report, the analysis classifies the fire growth rate as "ultra-fast" flammable liquid's such as whisky or spirituous liquor, in accordance with BS 9999. Under that same guidance document from the UK this growth rate would be unacceptable without the provision of a sprinkler system.

The BCA also state that the floor to ceiling height in the upper basement is 2.075m with projections other than door frames below this height. based on this it is the BCA opinion that clause 1.4.5 'Height of escape routes' of TGD – B is not being complied with.

On the previous application, the BCA conditioned that if the basement is to be used for the storage or processing of hazardous materials, a fire suppression system shall be provided and the area shall be enclosed in a minimum of 60 minutes fire resistance. The compliance report for the revised application states that the upper basement will not be used for the storage/processing of hazardous materials. However in a further information submission in which the BCA requested clarification on the activities in the upper basement, the

activities describe pumping processes and storage of the distilled spirit. This appears to be a contradiction between the compliance report and the further information submission.

The BCA queried the status and use of the Brewery Production area at Ground floor level. It was verbally confirmed that the operation had been shut down in 2020. It was also stated that the equipment would be sold and removed from the building. However, the equipment is still shown on the revised application. According to a revised information submission, the equipment was for sale but was unsold. The appellant also confirmed that the area would be used for storage and office use. According to the BCA, it is not clear whether this area would be used for the storage of hazardous materials. In the event that hazardous materials are stored in this area, the BCA believe that a fire suppression system is warranted therein.

Other points raised by the BCA include:

- Travel distances within certain areas of the building appear to exceed the limits as set out in the TGD – B for high hazard areas.
- The quality of the workmanship and construction was mentioned several times as part of the response issued from the BCA. It made particular note of a lack of compartmentation, defects in fire safety systems, non-compliant ventilation and also included some images of the missing or damaged compartmentation and firestopping elements.

Appellant's Case

In making their initial appeal and responding to subsequent BCA submissions, the appellant made the following arguments:

- The largest compartment where it is proposed to store spirits has an area of less than 1000m^2 which is compliant with the limits for compartment sizes as determined in Table 3.1 of the TGD – B for a high hazard, single storey storage area.
- Sprinkler building standards of the Scottish Government in 'Whiskey Maturation Warehouses Storage Buildings (Class 1)' makes clear that automatic fire suppression systems are not required in warehouses of less than 1000m^2.
- Killarney Distillery received a condition for a fire suppression system in their Fire Safety Certificate grant which they appealed to An Bord Pleanála. An Bord Pleanála ruled that a fire suppression system was not required as the compartment size of the room was below 1000m^2 (Case Number: ABP-308031-20). This was a situation directly comparable to Boann Distillery.
- The appellant notes that Compartment 4 (formerly known as the Dry Goods Store) has a floor area of 687m^2 and a height to roof structure of 6m. The height of a pallet of whiskey in this room is 1.1m high which permits a stacking height of 4 pallets maximum.
- The width of the dry goods store is 18m and there are two personnel fire escapes directly to the outside provided along with two roller shutter doors that will be open during operating hours and all travel distances are within the regulatory requirements.
- Further to the points above there is an additional roller shutter fire door which leads to another compartment (Compartment 3) and another escape route via a protected lobby.
- The use of the room is for assembly of casks for onward shipment to external storage in a bonded warehouse and the storage of empty casks. It was clarified to the BCA in a further information submission dated 5th January 2022. The room is not to be used for long term maturation of whiskey.

The appellant has also referred to and provided a copy of another Fire Safety Certificate recently granted to a warehouse of approximately 450m^2 in Drogheda just two miles from the Boann Distillery but in Co. Louth where there is no provision for a fire suppression system. The warehouse is to be used for the storage and maturation of whiskey. The appellant notes the apparent contradiction that a warehouse of a similar size just two miles distant and located in an industrial estate, should not require a fire suppression system while the Boann Distillery which is located in the open country and is isolated from any nearby structures, does require a suppression system.

The appellant provides examples of several warehouses in Co. Louth & Co. Waterford that are used for the storage of whiskey and spirituous liquor, which are not provided with the fire suppression system are given as follows:

- PanPack Warehouse in Greenore.
- King Coal in Dunleer.

- Farmer Hoey in Tullyesker Drogheda.
- Staffords Bonded Warehouse in Waterford.

Discussion

The relevant guidance for the Boann Distillery is Technical Guidance Document B 2006.

Compartmentation – Section 3.2 of the TGD – B.
Under section 3.2 and Table 3.1 of the TGD – B (see figure below), the size of the compartments for various purpose groups is outlined.

Table 3.1 **Maximum area and cubic capacity of a building or compartment**

Use	Purpose Group	Building form	Maximum floor area (1) of any one storey in the building or compartment (m^2)	Maximum cubic capacity (1) of building or compartment (m^3)
Office	3	more than one storey	4600	28000
Industrial (2)	6	single storey		
		(a) normal hazard	93000	no limit
		(b) high hazard	33000	no limit
		more than one storey		
		(a) normal hazard	7500	no limit
		(b) high hazard	2800	17000
Storage (2)	7(a)	single storey		
		(a) normal hazard	14000	no limit
		(b) high hazard	1000	no limit
		more than one storey		
		(a) normal hazard	2800	21000
		(b) high hazard	500	4200

Figure 1. – Table 3.1 of Technical Guidance Document B 2006

The compartments within the development that appear to be used for high hazard storage of hazardous materials (as defined under Appendix E of the TGD – B) are the Upper Basement, Distillery Production area and the Dry Goods Store. The areas of these rooms are 824m^2, 320m^2 and 687m^2 respectively. It should be noted that the drawings received as part of this 3rd party review were not to scale and the size of the compartments could not be verified further, however they all appear to be below the 1000m^2 limit as set out by the table above.

It should be noted that the BCA raised concerns with the area of the Lower Basement exceeding 1000m^2, however this area was confirmed to only be used for the storage of empty casks, which are not considered hazardous. The area calculation carried out by the BCA found the space to be approximately 1033m^2 but did not acknowledge the floor space occupied by the access ramp for vehicles. This discrepancy could reasonably reduce the area below 1000m^2 also.

Fire Code Guidance on Requirements for Sprinklers
The distillery development is classified under Purpose Group 7(a) – storage, 6 – industrial and 3 – office. From Tables 3.1 and A2 of the TGD – B, sprinklers are not required for these purpose groups when considering the compartment size. Under the guidance as specified in the TGD – B document, the only instances in which sprinkler systems are required are as follows:-

- Buildings containing flats, where the requirement is determined by the travel distances in common areas and whether the apartments are designed as open plan.
- In certain circumstances where phased evacuation is adopted as part of the fire strategy.
- Buildings which have a top storey height exceeding 30m above ground level.
- In order to increase the permitted size of a compartment as listed in Table 3.1 of the TGD – B.

- As part of the design of a development with Purpose Group 4(b) – shopping centre.
- In certain circumstances where a building contains an atrium.
- For external fire spread purposes outlined in Section B4 of the TGD – B.
- Where mechanical ventilation is provided to a basement.
- In certain circumstances where a building contains a large undivided and windowless space.
- To comply with the guidance as set out in Table A2 of the TGD – B.

However, there is more recent guidance in the document 'Whiskey Maturation Warehouses Storage Buildings (Class 1)', which is more current (2015) and is a supplemental guidance document from the Building Standards Division of the Scottish Government. The following is an excerpt from that document.

The guidance supporting Standard 2.1 limits the floor area of a storage building (Class 1) to 1,000m^2. This allowance may be doubled to 2,000m^2 where an automatic fire suppression system is installed in the building. Furthermore, the guidance supporting Standard 2.6 allows a reduction in the minimum distance between buildings when an automatic fire suppression system is installed in the building.

The table noted in TGD – B (Figure 1 above) also mentions where sprinkler coverage should be provided with the following text:

Other factors may also determine the provision of compartment walls and floors (see 3.2.4). For buildings of any purpose groups, other than 2(a) and 2(b), these figures may be doubled if the building is provided throughout with an appropriate automatic sprinkler system meeting the relevant recommendations of BS 5306: Part 2: 1990 Fire extinguishing installations and equipment on premises, Part 2 Specification for sprinkler systems, i.e. the relevant occupancy rating together with additional requirements for life safety.

From the above therefore, the following can be concluded:-

1. The size of compartments that can potentially store/process hazardous materials are all less than 1000m^2 in floor area.
2. The relevant guidance for a building of this type only recommends sprinklers in buildings where the compartments for storage of hazardous materials are greater than 1000m^2 in floor area.
3. Sprinklers are not required in the Boann Distillery to comply with current fire code guidance.

The BCA have cited the conditions on the previous Fire Safety Certificate where a fire suppression system was explicitly conditioned for areas used for storage or processing of hazardous materials. It is unclear whether this condition was appealed or not, or whether it was the appellants opinion that no areas in the 2016 application met the criteria of that condition. The appellant confirmed that the Upper Basement would not be used for storage or processing of hazardous materials however the materials submitted suggest that hazardous materials are pumped and stored (even if temporarily) within this area. It should be noted that this approach could be considered against the spirit of the previous condition.

The BCA have also raised concerns that the CFD analysis (carried out by a qualified party) determined that the fire growth rate would be ultra-fast and would therefore be unacceptable under the guidance of BS 9999 without the provision of a sprinkler system.

In addition to the items mentioned previously, the BCA make numerous references to poor workmanship and defects in fire safety on site, which has also been taken into consideration.

From the above therefore, the following can be concluded:-

1. The proposals as outlined in the revised Fire Safety Certificate for the Boann Distillery appears to be in contravention of the previously approved application and its conditions.
2. The analysis provided by the appellant state that the fire growth rate is enough of a risk to justify the provision of sprinkler coverage to relevant areas of the building, under the BS 9999 guidance document.
3. Given the workmanship and defects present on site, the BCA have determined that the provision of a sprinkler system to high risk areas would serve to only improve the standard of safety on site.

Based on the above therefore, I can only conclude ultimately that the building does not require a sprinkler installation throughout to comply with Building Regulations guidance that the development was designed to

(i.e. Technical Guidance Document B 2006). However, we share the BCA's concerns about the workmanship and fire safety deficiencies/defects present in the development. It should be noted that the evidence of these failings was presented only in the BCA's response with some images for clarity. In conclusion therefore, we are of the opinion that this condition should be amended.

4.0 REASONS AND CONSIDERATIONS

In arriving at its decision, the Board had regard to the Fire Safety Certificate application and details that formed part of the application, the subsequent submissions made in connection with the appeal and the reporting inspector's report and recommendation.

The Building Control Authority should be directed to amend Condition 4 as follows and attach the following additional Condition 7:

Condition 4

An appropriate automatic sprinkler system shall be designed, installed, commissioned and maintained throughout any compartment in the building where the floor area exceeds 1,000m² and is used for the storage of hazardous materials as defined in Appendix E of Technical Guidance Document B. The sprinkler system shall include a static stored water supply to ensure a minimum of 90 minutes operation.

Reason: To comply with Parts B1 and B3 of the Second Schedule to the Building Regulations, 1997 - 2019.

Condition 7

A Fire Safety Assessment is required to be carried out by a Technical Advisor, who shall be a suitably qualified and competent person and possesses the sufficient training, knowledge and experience to allow them to undertake the Assessment. Any and all remedial works identified in the Fire Safety Assessment should be documented and certified by the Technical Advisor on completion. The development is to undergo immediate remedial works to ensure that all elements of fire safety proposed in Fire Safety Certificate applications with references FS15006 and FRV2001263MH, including those identified by Meath County Fire Service, are addressed to the satisfaction of that same authority.

Reason: To comply with Parts B1-5 of the Second Schedule to the Building Regulations, 1997 to 2019.

Signed……
Martin Davidson
B.Eng MSc (Fire Eng) CEng MIEI

Date: 1st December, 2022


JENSEN HUGHES