



An
Bord
Pleanála

FSC Report

ABP 319538 24

**Appeal v Refusal or Appeal v
Condition(s)**

Appeal v Condition 02

Development Description

Extension to the existing warehouse at
Aughadrinagh, Ballinrobe Road,
Castlebar, County Mayo F23FT28

Building Control Authority Fire Safety

Mayo County Council

Certificate application number:

FRV2401264MO

Appellant

Kevin O'Grady KOG Logistics Ltd

Agent

John O'Shaughnessy Fire Engineering
Consultancy Ltd.

Building Control Authority:

Mayo County Council

Inspector

Luke Fegan

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1.0 Introduction

- 1.1. The report sets out my findings and recommendations on the appeal submitted by John O'Shaughnessy Fire Engineering Consultancy Ltd [hereafter referenced as [JO'S] on behalf of KOG Logistics regarding a proposed extension to the existing warehouse at Aughadrinagh, Ballinrobe Road, Castlebar, County Mayo F23FT28.
- 1.2. The proposed development relates to the proposed extension to the existing warehouse.
- 1.3. The appeal was submitted against Condition 02 of the Fire Safety Certificate (FRV2401264MO) granted by Mayo County Council [hereafter referenced as MCC] on 23rd November 2023.

Condition 02 reads as follows:

Condition 02:

"An automatic sprinkler system shall be provided throughout the subject area. the automatic sprinkler system shall comply with IS EN 12845 215 + A1 2019 - fixed firefighting systems- automatic sprinkler systems- design installation and maintenance. the system shall include a stored water capacity sufficient to ensure sprinkler operation for not less than 60 minutes.

With the stated reason for the condition being:

Reason: To ensure compliance with Part B of the Second Schedule to the Building Regulations, 1997 to 2022.

2.0 Information Considered

2.1. The information considered in this appeal comprised the following:

- JO'S ABP response 06.06.2024
- MCC ABP response to appeal 30.04.2024
- ABP letter to MCC notice of appeal – 18.04.2024
- Gaven Joyce / JO'S appeal to Fire Safety Certificate condition dated 17.04.24
- Grant of FSC – FRV2401264MO dated 22.03.24
- Gaven Joyce (Applicant) FSC AI submission 19.03.2024
- MCC revised information request 06.03.2024
- Gaven Joyce (Applicant) / JO'S (Appellant) FSC AI submission 03.03.2024
- MCC revised information request 29.02.24

3.0 Relevant Cases

Whilst the Inspector does not have the benefit of a record of all relevant cases, below are examples I am aware of in the course of my day-to-day duties that are considered of interest.

ABP -308221-20 is considered worthy reading in parallel with this appeal where the matter of racking and risk is considered. The design was however based on a different basis of reference and yielded a different outcome.

ABP-308367-20 briefly touches upon the discussion of high bay storage and alerts the reader to the unique challenges associated with high rack storage *“High bay storage warehouses pose a particular fire safety risk due to the fact that goods are stacked vertically rapid fire growth can occur. The reason for this is the smoke and hot gases from afar at the bottom of the racking preheats the fuel above and raises its temperature closer to the critical ignition temperature. As a result it takes a lot less to ignite the fuel above the seat of the fire resulting in a rapid fire growth rate in the event of a fire in a high bay warehouse, full involvement of the building in fire, or flash over is a very real possibility and this poses particular difficulties for fire fighters”*

4.0 Appellant's Case

4.1. The appellant set out the appeal against Condition 02 of the FSC on the basis of the following:

- The Appellant asserts the Condition has arisen as a result of the Local Authority's "*interpretation*" relying upon "*other publications*" as opposed to the submitted basis of reference. The Appellant asserts that the "*content of a reputable reference document should not be open to interpretation / comparison with other publications*".
- The Appellant contends that their proposed configuration is akin to Category 3 (fast) fire growth rate as opposed to the MCC Category 4 view. The basis of the JO'S is because of the "non hazardous materials" stored, the proposed robust steel racking and the top rack level of maximum 9.5m above floor level.
- JO'S highlights that high racked storage is not adequately defined in BS 9999 and alludes to national inconsistency on the matter.
- The Appellant claims that the BS 9999 risk profile relates only to the design of means of escape. JO'S highlights the strengths of the means of escape design for the building including low occupancy, compliant travel distances and the availability of automatic fire detection & alarm system.
- JO'S emphasises the availability of hose reels allowing for "*rapid extinguishment*" of localised fires.
- The Appellant concludes the imposition of a sprinkler system is "*unreasonable and unnecessary*".

5.0 Building Control Authority Case

The BCA responded to the appellants submission with a response summarised below :

- The Local Authority contends that the appellant is misinterpreting Table 3 of BS9999. The local authority highlights that the description of fire growth rate category given in Table 3 specifically excludes high rack storage “*stacked combustibles (on or off racking and shelving **but excluding high rack storage**), some small quantity of materials other than materials of limited combustibility D) (or where large quantities are stored in separate fire – resisting enclosures), process manufacturing storage off combustible materials*”
- The Local Authority notes that the Appellant’s assumed 10m racking height threshold is made without basis and it is on this basis in the absence of guidance it has sought to benchmark internationally rather than cherry pick as inferred.
- MCC are of the opinion that the highlighted strengths of the design vis a vis means of escape and the availability of hose reels reflect minimum standards only and as such are not additional measures.

6.0 Assessment

Having considered the drawings, details and submissions on the file and having regard to the provisions of Article 40 of the Building Control Regulations 1997, as amended, I am satisfied that the determination by the Board of this application as if it had been made to it in the first instance would not be warranted.

Accordingly, I consider that it would be appropriate to use the provisions of Article 40(2) of the Building Control Regulations, 1997, as amended.

Below is a high-level overview of the attributes of the proposed extension.

- The basis of reference of the submitted design for the proposed extension is BS 9999.
- 9 No. exits are available.
- There is no proposed deviation from the recommended BS 9999 travel distances.
- The area of the proposed extension is 4,263 m².
- The volume of the proposed extension is 53,000m³.
- The proposed fire detection and alarm system is an L2/L3 IS 3218 grade system.
- The material stored is classified as “non-hazardous” by the Appellant.
- The racking system is identified as robust by the Appellant.
- The Applicant’s compliance report highlights the availability of an over provision of fire brigade access whereby full access is available instead of the minimum 50%.
- There is no proposed provision in respect of ventilation of heat and smoke.
- The Applicant’s proposed section does not include the proposed racking shown on plan. The warehouse has a top apex height of c17.14m and an eave height of c14m. The Applicant’s proposed top level height of racking is 10m.

Having considered the arguments advanced by MCC and JO'S, the key issue that prevails in this appeal is what BS 9999 risk profile suitably describes the proposed design.

BS 9999 Section 2 *“sets out the principles behind the recommendations and introduces the concept of the risk profile. **The recommendations for the provision of means of escape and on construction have been developed to reflect the nature of the occupants and the use of the buildings as well as the likely fire growth and resulting risks associated with that use – the risk profile**”*. This hypothesis is graphically reflected in Figure 01 of BS 9999.

BS 9999 Section 6 “Risk profiles” defines the background and purpose of a risk profile. The classification forms the basis of the strategy. *“There is a minimum package of fire protection measures and management levels associated with each of the risk profiles..... A risk profile should be established for each building in order to determine the appropriate means of escape (Section 5) and the appropriate design features of the building for life safety (Section 7). The risk profile should reflect the occupancy characteristic (6.2 and Table 2) and fire growth rate (6.3 and Table 3) for a building, and should be expressed as a value combining these two elements (6.4 and Table 4).”*

The Applicant's FSC compliance report addresses risk profile and assigns an A3 risk profile referring to Table 3&4 of BS 9999. The relevant sections of Table 3 are highlighted below:

BRITISH STANDARD

BS 9999:2017

Table 3 Fire growth rates

Category	Fire growth rate ^{A)}	Fire growth parameter ^{B)} kJ/s ³	Description	Typical examples ^{C)}
1	Slow	0.003	Evenly distributed low level fire load, small discrete packets of fuel or material of limited combustibility ^{D)}	Reception areas, concourses (without concession outlets) and halls with limited fire load such as sports stadia and foyers
2	Medium	0.012	Evenly distributed low to mid-level fire load comprising a mix of combustible materials	Offices, lounges, classrooms, auditoria, seating areas, galleries and car parks ^{E)}
3	Fast	0.047	Stacked combustibles (on or off racking and shelving but excluding high rack storage), some small quantities of materials other than materials of limited combustibility ^{D)} (or where larger quantities are stored in separate fire-resisting enclosures), process, manufacturing or storage of combustible materials	Shop sales areas ^{F)} , workshops, factories and small storage buildings
4 ^{G)}	Ultra-fast	0.188	Medium to large quantities of materials other than materials of limited combustibility ^{D)} , high racked storage, flammable liquids and gases or where rapid uncontrolled fire growth could occur	Warehousing ^{H)} , processing plants and car parks ^{E)} utilizing a car stacker or similar method where there is no fire separation between stacked cars

^{A)} These categories are related to the fire growth rate and not the ultimate potential fire size.

^{B)} This is discussed in PD 7974-1.

^{C)} These are examples only and may be varied according to the specifics of the building/room contents.

^{D)} Limited combustibility is defined in 3.77 and includes for this purpose materials also defined in 3.85 as non-combustible.

^{E)} Includes both open and non-open sided car parks.

^{F)} Includes covered shopping complexes and department stores as well as high street shops and premises for personal services, delivery and collection of goods for cleaning/repair/treatment either carried out by staff or by members of the public themselves. Combustibility, quantity and how goods are displayed should also be taken into account and the risk category amended accordingly.

^{G)} See Table 4. This category is unacceptable unless a sprinkler system is installed.

^{H)} This is a worst case assumption. Combustibility, quantity and the way in which goods (including packaging) are stored should be taken into account and the risk category amended accordingly.

TABLE 3 BS 9999 2017

The Applicant's proposed 10m racking threshold limit is the basis of justification of the assumption of a Category 3 fire growth rate.

Beyond reference to previous experience in other schemes, the basis of the 10m is not explored any further.

Notwithstanding that BS9999 does not fully define high rack storage, the onus of demonstration of compliance with Part B of the Building Regulations rests with the Designer.

Where a design seeks to depart from a prescriptive design route, the basis of such a departure is justified by way of an engineering assessment. An engineering assessment typically takes the form of applying an alternative design guidance or a fire engineering comparative or deterministic assessment. No such assessment has been proffered by the Appellant.

In the absence of a suitable justification, there is no basis to demonstrate compliance with Part B of the Building Regulations. The Applicant was afforded a number of opportunities by the Local Authority to address and justify the matter at hand.

7.0 Recommendation

Based on the above I would recommend that An Bord Pleanála direct the Building Control Authority to uphold Condition 02.

8.0 Reasons and considerations

The Appellant or Applicant provides no engineering assessment or technical interpretation of the matter at hand.

Table 3 BS 9999 Category 3 “fast – fire growth rate” fire specifically excludes “high rack storage”.

Table 3 BS 9999 Category 4 “ultra fast – fire growth rate” fire specifically includes “high rack storage”.

Table 4 BS 9999 categorically states that a Category 4 Ultra fast – “fire growth rate” “category is unacceptable unless a sprinkler system is installed”.

9.0 Reasons and considerations

Direct the Building Control Authority to uphold Condition 02.

10.0 Sign off

I confirm that this report represents my professional assessment, judgement and opinion on the matter assigned to me and that no person has influenced or sought to influence, directly or indirectly, the exercise of my professional judgement in an improper or inappropriate way.

Luke Fegan

06/05/2015