

Report to An Bord Pleanála

on

Appeal against Conditions No's 1, 2, 3, 4 & 6

Fire Safety Certificate (Reg Ref No. 16/4059/7D)

by

Fingal County Council

for

Single storey warehouse building, ancillary mezzanine level and two-storey office accommodation

at

Goddamendy, Mullhuddart, Dublin 15

CLIENT	:	AN BORD PLEANALA
AN BORD PLEANALA REF NO	:	FS06F.FS0548
BCC REF No.	:	16/4059/7D
OUR REF.	:	17001_ FS06F.FS0548
DATE	:	4 January 2017

1.0 Introduction

1.1 Subject Matter of Appeal

This report sets out my findings and recommendations on the appeal submitted by Pro-Fire & Design Ltd [hereafter referenced as PFDL] on behalf of their Client, Mc Ardle Skeath, against Conditions No's 1, 2, 3, 4, 6 attached to the Fire Safety Certificate (BCA Reg. Reference No. 16/4059/7D) granted by Fingal County Council [hereafter referenced as FCC] in respect of an application identified in the Grant of Certificate as follows:

“Construction of a new single storey warehouse building with an ancillary mezzanine level also with a two storey office accommodation joined on to it at Goddamendy, Mulhuddart, Dublin 15”

The facility is described by the Applicant as a 24,328m² warehouse with ancillary two storey office accommodation. The warehouse is stated to be for the storage of “*nutritional finished goods and dried milk products*” – quoting from the PFDL Compliance Report 15001-FCR-01. The fire design has been developed around the recommendations of BS9999:2008 *British Standard Code of Practice for fire safety in the design, management and use of buildings*.

The Risk Profile for the purposes of the application of BS9999:2008 has been agreed as A3 Risk between the Applicant and the BCA based on the nature of the goods stored.

The warehouse involves high-bay rack storage with roof height of circa 19-21m.

The conditions being appealed are as follows:

Condition 1

Hosereels are to be provided in the building in accordance with Section 10.4.6 (first aid fire-fighting) of BS9999 and BS5306:Part1:2006

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

Condition 2

Facilities for the prevention of smoke and heat for the purposes of assisting the fire service in the protection of life and property are to be provided in the building in accordance with Section 5.4.3.3 (Large undivided and windowless spaces) of Technical Guidance Document B, 2006.

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

Condition 3

It is management's responsibility to ensure that suitable and adequate fire fighting water is provided on the site this is to include static storage which is to be suitably sized and located to assist the fire service in their tasks

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

Condition 4

Access for High-reach appliances is to be provided to 100% of the perimeter of the building and is to comply with Section 22.3 (Access for high-reach appliances), Table 22 and figure 23 of BS9999:2008

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

Condition 6

Except as modified by the conditions above the proposed works are to be carried out in accordance with the revised particulars submitted under cover of letter dated 26th July 2016 from Messers: Pro-Fire & Design Ltd

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

Having reviewed the documents on the appeal file I am satisfied that the determination by the Board of this application as if it had been made the Board in the first instance would not be warranted. Accordingly I consider that it would be appropriate to use the provisions on Article 40(2) of the Building Control Regulations 1997-2015 in this instance.

1.2 Documents Reviewed

1.2.1 Fire Safety Certificate Application and Supporting Documentation submitted by PFDL on behalf of their Client including in particular revised documents (i.e. reports and drawings) submitted by cover of the PFDL letter dated 26.07.2016 in response to issues raised at their meeting with the BCA dated 06.07.2016.

1.2.2 Appeal submission to An Bord Pleanála by PFDL dated 10.10.2016.

2.0 Building Control Authority's case

It is noted that the BCA were invited by An Bord in their letter of notice dated 28.11.2016 to set out the reasoning behind the various conditions and to provide any comments they may have in relation to the appeal submission made by PFDL.

No response has been submitted by the BCA to this Notice.

Accordingly the reasoning behind the conditions is not expanded upon by the BCA beyond the Reasons as stated in the Grant of Certificate and as noted in 1.1 above.

It is noted that **Conditions 2, 3 and 4** all relate to Requirement B5 *Access and Facilities for the Fire Service* of the Second Schedule which states the following:

“A building shall be so designed and constructed that there is adequate provision for access for fire appliances and for such other facilities as may be reasonably required to assist the fire service in the protection of life and property”

It is noted that this requirement provides for facilities to assist in the protection of property as well as life.

The corresponding requirement in England and Wales prescribes the following:

The building shall be designed and constructed so as to provide reasonable facilities to assist firefighters in the protection of life.

It is noted, therefore, that the requirement in England and Wales is a lesser one in terms of facilities for the fire service: consequently the provisions in guidance documents or standards in the UK need to be viewed in this context which is considered relevant to a premises of the type under consideration i.e. high bay storage warehouse with very large compartment size and no automatic fire suppression.

Condition 1 is essentially a condition relating to Requirement B1 *Means of escape in case of fire* since first aid fire-fighting (i.e. fire extinguishers and hoses) is seen to be an aid to means of escape by providing the occupants with a facility to deal with a fire occurrence in its early stages of development.

Condition 6 is essentially a standard administrative type condition imposed by the BCAs in the Dublin City and County areas i.e. recording the submission of additional information by the Applicant and in this case acknowledging the fact that there are conditions to be complied with by the Applicant.

3.0 Appellant's Case and Consideration of same

In their appeal submission to An Bord dated 10.10.2016 the Appellant makes the following arguments in support of their case for removal of Conditions 1, 2, 3, 4 and 6:

Condition 1

Hosereels are to be provided in the building in accordance with Section 10.4.6 (first aid fire-fighting) of BS9999 and BS5306:Part1:2006

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

The Appellant makes the following points/arguments:

- I. PFDL make the case that water discharge onto the foodstuffs being stored would cause damage to the foodstuffs and for that reason hosereels should not be provided. It is difficult to understand the logic of this position however as the use of fire hosereels in a controlled environment such as this ought only to occur in the event of fire occurrence and in those circumstances the damage to the products would surely be greater if the fire is not extinguished in its early stages of development.
- II. PFDL state that hosereels deliver large quantities of water at high pressure and could deliver large quantities of water onto the product inadvertently. Presumably PFDL are referring to a situation where there is a substantial loss of integrity of the hosereel system due, for instance, to a burst pipe. This is considered a low risk in my opinion in a properly installed, commissioned and maintained hosereel installation. It is noted that PFDL do not provide and data or assessment of likely frequency/risk of such and occurrence taking place.
- III. PFDL make the valid point that hosereels when run out can potentially present a trip hazard to others who are escaping the building. It is considered however that the trip hazard is a very low risk in this type of facility where there are limited staff numbers. In this regard it is noted that PFDL identify in 4.6.1 of their Compliance Report 15001-FCR-01 that there will be maximum of 50 persons in the premises at any one time i.e. 1 person per 500m².
- IV. PFDL argue that first aid fire-fighting should be confined to fires which fall within the capacity of fire extinguishers and if hosereels are provided this could encourage occupants to fight larger fires and put themselves at risk by delaying evacuation
- V. PFDL note that hosereels are not safe to use on electrical fires and therefore could constitute a health and safety risk if they are provided. It is considered that this is a questionable argument for omission of hosereels in that staff can in the first instance be trained to only use CO₂ extinguishers on electrical fires and secondly having regard to the nature of the proposed facility (i.e. large storage warehouse) the risk of inadvertent discharge of hosereels on electrical equipment as might be the case in an office environment for instance is very low.

As noted in 2.0 above the BCA have not elaborated on their reasoning behind the imposition of condition requiring hosereels. It is likely however to have been informed by the specific recommendation in Technical Guidance Document B Section 1.4.16 that hosereels be provided in storage buildings which exceed 500m² in plan area.

In the Reason attached the condition on the Granted Certificate the BCA refer to Clause 10.4.6 of BS9999. This Clause states that fixed means fire-fighting (i.e. hosereels) should be installed where the fire risk assessment shows it to be appropriate or necessary. PFDL contend that hosereels are not appropriate or necessary in this instance for the reasons set out above.

It is noted that there are pros and cons in the provision of hosereels versus fire extinguishers. The primary benefit of hosereels, however, is that they provide a continuous supply of firefighting water whereas a fire extinguisher will typically be discharged in 30-60 seconds following which additional extinguishers have to be brought to the scene. Furthermore, hosereels provide enhanced extinguishing capability compared to fire extinguishers i.e. hosereels have typically circa 3 times the water discharge rate of a water type fire extinguisher

Accordingly having regard to the foregoing and in the particular circumstances of the subject building it is considered that the condition as set out by the BCA is justified in this instance.

Condition 2

Facilities for the prevention of smoke and heat for the purposes of assisting the fire service in the protection of life and property are to be provided in the building in accordance with Section 5.4.3.3 (Large undivided and windowless spaces) of Technical Guidance Document B, 2006.

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

It is noted in the first instance that the term “*prevention*” appears to have been a typographical error on the BCA’s part and should have read “*ventilation*”.

PFDL argue that the design they have submitted is based in its entirety on BS9999 and correctly note that there is no requirement in BS9999 for venting of warehouses to assist the fire service. They also assert in Section 0.1 of their Compliance Report 15001-FCR-001 (July 2016) that BS9999 has been confirmed by the DOECLG in their communication dated 09.05.2011 as an approved guidance document – refer copy of DOECLG Circular letter in Appendix 1 of this report.

For their part the BCA appear to have imposed Condition 2 on the basis that fire/smoke venting, to assist the fire service, is recommended in Technical Guidance Document B Section 5.4.3.3 in the case of large storage/warehouse buildings which exceed 4000m² in plan area or 20000m³ in volume. It is noted that the size of the subject building far exceeds these thresholds.

PFDL assert that the BCA are cherry-picking an aspect of TGD-B which they ought not to be doing in light of the aforementioned communication from the DOECLG.

I have reviewed the communication from the DOECLG and note that the Circular advises that designs based on BS9999 may in general be regarded as acceptable subject to the over-arching proviso that the “*level of fire safety is adequate to satisfy the requirements of the Building Regulations*” – quoting from the 3rd last paragraph of the DOECLG letter.

It is noted that BS9999 specifically states in *Section 1 Scope* that the recommendations in BS9999 are concerned with the protection of occupants and firefighters and that the achievement of other fire safety objectives, such as protection of property, might require additional measures.

It is further noted, as set out in para. 2.0 above, that the Requirement of the Irish Building Regulations in relation to facilities for the fire service is higher than in the UK (England & Wales) in that the Irish Regulations prescribe that the provisions are to be such as to assist the fire service in the protection of property as well as life whereas the corresponding UK England and Wales Regulations are concerned only with the protection of life.

It can therefore be reasonably argued that, in the particular context of a large undivided and unsprinklered high bay storage facility such as this, the imposition by the BCA of a requirement to provide smoke and heat venting to assist the fire service in dealing with a fire occurrence in the building is justified notwithstanding the provisions of BS9999.

Accordingly I consider that the Condition ought to be upheld with slight amendment to the wording.

Condition 3

It is management's responsibility to ensure that suitable and adequate fire fighting water is provided on the site this is to include static storage which is to be suitably sized and located to assist the fire service in their tasks

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

PFDL assert that this condition should be removed on the basis that they propose to provide static storage to augment hydrant flows such as to provide fire-fighting capacity of 1500L/min for 4 hours. The proposed volume of static storage is 220m³ albeit the location of the proposed storage tank is not indicated. PFDL note that they made these proposals to the BCA following a meeting with the Fire Department in July 2016 at which a fire-fighting requirement of 1500L/min for 4 hours was agreed they say.

For their part the BCA have not elaborated on the reasoning behind their imposition of Condition 3 and therefore it can only be inferred that they are not acceptive of the proposals set down by PFDL.

In considering the PFDL proposals the following is noted:

- I. The Aquaflo hydrant flow test which they present indicates a residual pressure of only 0.15 Bar in the main when the hydrant is flowing at 786L/min. This residual pressure falls short of the recommended minimum set down by Irish Water which we understand to be 0.7Bar. Accordingly

the potential fireflow available without giving rise to a risk of contamination of the local authority main may well be considerably less than 786L/min

- II. The 1500L/min figure in the PFDL proposal is based on the minimum recommended figure in BS9990. Whilst PFDL indicate that this figure was agreed with the Fire Department at their meeting in July 2016 it is unclear, given that the BCA have not commented upon the PFDL appeal submission, if the BCA agree with this assertion. Indeed it is unlikely that a fireflow of 1500L/min will be adequate for a high bay warehouse of this type i.e. the fire size at fire service intervention will likely require fireflows greater than 1500L/min.
- III. There are no Irish National standards for fire-fighting water requirements and therefore it is a matter for consideration/assessment in the circumstances of the specific development (i.e. taking account of likely fire growth rates and fire service intervention times) in order to determine the volume/capacity and location of fire-fighting water supplies required.
- IV. It is considered inappropriate for the BCA, who are also the Fire Authority, to impose a condition stating that it is a responsibility of management to provide adequate fire-fighting water provision. The fire-fighting water requirement should be assessed by the Applicant taking account of the likely fire size at fire service intervention and should be agreed in writing with the BCA.

In light of the above and noting that the views of the BCA are not clear in the absence of a response from the BCA to the ABP Notice of 28.11.2016, it is considered appropriate to retain a condition but reworded to ensure that the provisions are approved by the BCA who are also responsible for fire-fighting in their functional area.

Condition 4

Access for High-reach appliances is to be provided to 100% of the perimeter of the building and is to comply with Section 22.3 (Access for high-reach appliances), Table 22 and figure 23 of BS9999:2008

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

PFDL argue that there is no need for high reach appliance access on the basis that they are, they say, compliant with Table 21 of BS9999 which they assert requires water tender (i.e. Pump) access only.

PFDL are not correct in this assertion however as Footnote 2 of Table 12 clearly identifies that the “height” in the case of a storage building should be measured to the “mean roof level” and not to the floor of the top storey.

In this instance the mean height of the roof is circa 20m (i.e. well in excess of 11m) and noting that the plan area of the building exceeds 24,000m³ the requirement in Table 21 is 100% access for Pump and High Reach appliances – see extract from BS9999:2008 below.

It is noted that Footnote 2 is included to enable the fire service to discharge water jets onto the roof of the premises.

Table 21 Fire and rescue service vehicle access to buildings (excluding blocks of flats) not fitted with fire mains

Total floor area of building ^{A)} m ²	Height to floor of top storey of building m	Type of appliance ^{B)}	Position of access % of perimeter ^{C)}
<2 000	<11	Pump	— ^{D)}
	>11	Pump and high-reach	15 ^{D)}
2 000 to 8 000	<11	Pump	15 ^{D)}
	>11	Pump and high-reach	50 ^{D)}
8 000 to 16 000	<11	Pump	50 ^{D)}
	>11	Pump and high-reach	50 ^{D)}
16 000 to 24 000	<11	Pump	75 ^{D)}
	>11	Pump and high-reach	75 ^{D)}
>24 000	<11	Pump	100 ^{D)}
	>11	Pump and high-reach	100 ^{D)}

NOTE 1 Consultation with the relevant approving authority is advised on all matters concerning fire access. For Scotland, access is dictated by hydrant position.

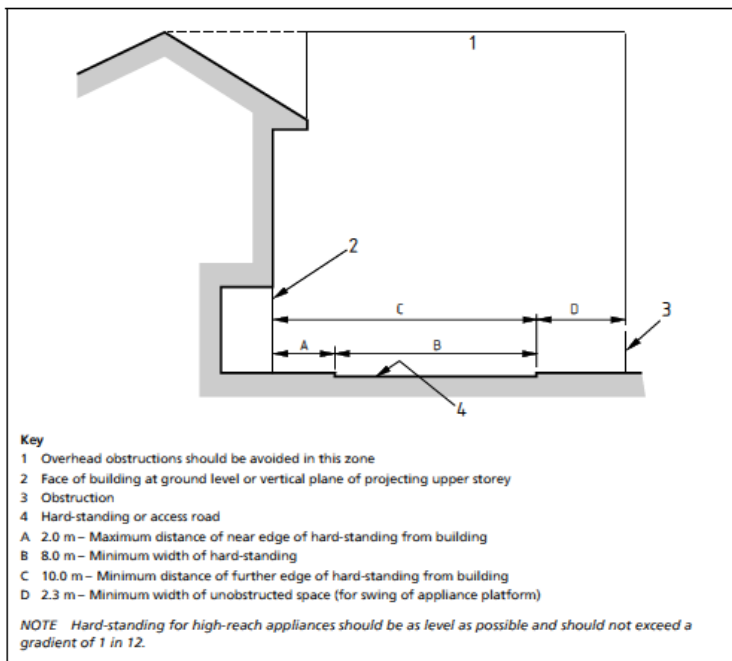
NOTE 2 In the case of storage buildings, height should be measured to mean roof level.

^{A)} The total floor area is the aggregate of the floor areas of all the storeys in the building.
^{B)} "Pump" = pumping appliance; "high-reach" = aerial appliance, e.g. turntable ladder or hydraulic platform.
^{C)} "Perimeter" refers to the face of the total length of all exposed perimeter walls.
^{D)} See 22.2.
^{E)} Any perimeter wall (elevation) to which vehicle access is provided should have a door, not less than 750 mm wide, giving access to the interior of the building.

Extract from BS9999 2008

A deviation from Figure 23 of BS9999 - which prescribes that the hardstanding be min 8m wide and a clear space between the building and boundary be min 12.3m (see extract below) - is however considered justified on the Southern side of the building i.e. where the available space is circa 5.8m per FSC drawing 15001-DR-02-R1.

It is noted that the deployment width (i.e. appliance + outriggers) of the Turntable Ladders in Tara Street, being the High-Reach appliances which DFB are likely to deploy, is only 5m and having regard the height of the subject building the ladder can be deployed in a non-orthogonal mode such as not to encroach beyond the site boundary fence



Extract from BS9999 2008

Condition 6

Except as modified by the conditions above the proposed works are to be carried out in accordance with the revised particulars submitted under cover of letter dated 26th July 2016 from Messers: Pro-Fire & Design Ltd

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

Having regard to the considerations above and noting also that this type of condition is a standard one in the Dublin City and County areas where supplementary submissions have been made by the Applicant, it is considered appropriate that this condition be retained.

4.0 Recommendations

Having considered the submissions made by the Appellant I consider that the Conditions 1, 2, 3, 4 and 6 should be retained but should be modified as follows:

Condition 1

Hosereels shall be provided throughout the building - other than the office area - in accordance with BS5306:Part1:2006

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

Condition 2

Facilities for the ventilation of smoke and heat for the purposes of assisting the fire service in the protection of life and property shall be provided in the building in accordance with Section 5.4.3.3 (Large undivided and windowless spaces) of Technical Guidance Document B, 2006. Details of the venting provisions are to be agreed in writing with the Building Control Authority prior to the occupation of the building in full or in part.

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

Condition 3

Fire-fighting water provisions, including on-site supplementary static storage as necessary, are to be provided and suitably sized to take account of the likely fire size at fire service intervention. Details of these provisions are to be agreed in writing with the Building Control Authority prior to occupation of the building in whole or in part.

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

Condition 4

Access for High-reach appliances shall be provided to 100% of the perimeter of the building. Details of the proposed provisions to satisfy this requirement are to be submitted to and agreed in writing with the Building Control Authority prior to occupation of the building in whole or in part. In the case of the southern elevation account is to be taken of operating parameters of the Dublin Fire Brigade Turntable ladders in the sizing of hardstanding.

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

Condition 6

Except as modified by the conditions above the proposed works are to be carried out in accordance with the revised particulars submitted under cover of letter dated 26th July 2016 from Messers: Pro-Fire & Design Ltd

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

MAURICE JOHNSON

Managing Director | Chartered Engineer | BE(Hons), CEng., MStructE, MIEI, MSFPE

Date : _____

Appendix 1 DOECLG Circular Letter BC5/2011 dated 09.05.2011



Comhshaoil, Pobal agus Rialtas Áitiúil
Environment, Community and Local Government



Circular Letter BC 5/2011

9 May, 2011.

Re: Building Control Regulations 1997 to 2009, and British Standard BS9999:2008

Dear Manager,

I refer to the provisions in the Building Control Regulations 1997 to 2009 and in particular to applications to building control authorities for fire safety certificates. Since the publication of the British Standard, BS9999:2008, which supersedes a number of parts of BS5588, queries have been raised as to the position of BS5588 as called up in TGD B and also the role, if any, for BS9999 in the design and approval process in Ireland.

The Regulations provide that the building control authority shall, having considered a valid application and having sought, where necessary, further information from the applicant, grant the certificate with or without conditions or refuse the certificate. Article 14 of the Regulations provides that an authority may require further plans, calculations, specifications or particulars, to enable the authority to assess the application. Article 15 of the Regulations provides that an authority, in considering an application, shall be restricted to considering only the extent to which the design or works complies with the requirements of Part B of the Second Schedule to the Building Regulations and shall have due regard to any dispensation or relaxation in respect of, or which is relevant to, the works or the building to which the application relates.

Technical Guidance Document B – Fire Safety (2006) (TGD B), published under Article 7 of the Building Regulations, 1997, provides guidance in relation to achieving compliance with Part B of the Second Schedule to the Building Regulations, as amended. The Document provides that, where works are carried out in accordance with the guidance in TDG B this will, *prima facie*, indicate compliance with Part B of the Second Schedule to the Regulations. TGD B also provides that the adoption of an approach other than that outlined in the guidance is not precluded provided that the relevant requirements of the Regulations are complied with.

Section 0.1.4 of TGD B indicates that the detailed provisions set out in the Document are intended to provide guidance for some of the more common building situations. In other situations, alternative ways of achieving compliance with the requirements of the Regulations may be appropriate. The use of alternative design solutions, standards, systems or methods of fire protection to those outlined in the Document are acceptable, provided the level of fire safety achieved is adequate to satisfy the requirements of the Regulations.

British Standard, BS9999:2008 *Code of practice for fire safety in the design, management and use of buildings*, published by the British Standards Institution (BSI), came into effect on 6th October, 2008. It covers four main areas:

- Fire safety management;
- Means of escape;
- Structural protection;
- Access and facilities for fire fighting.

The foreword to the Code indicates the context in which BSI expects the Code to be used and identifies three levels of guidance in respect of fire safety:

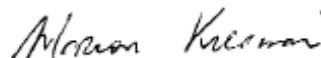
- **General approach.** This level is applicable to a majority of building work undertaken in the UK. In this case, the fire precautions designed into the building usually follow the guidance contained in the documents published by the relevant government departments in the UK to support their legislative requirements.
- **Advanced approach.** This is the level for which BS9999 is provided. Guidance provided in the Code gives a more transparent and flexible approach to fire safety design through use of a structured approach to risk-based design where designers can take account of varying physical and human factors. Much of the guidance in BS9999 is based on fire engineering principles, although it is not intended as a guide to fire safety engineering.
- **Fire safety engineering.** This level provides an alternative approach to fire safety and can be the only practical way to achieve a satisfactory standard of fire safety in some large and complex buildings, and in buildings containing different uses.

Having given careful consideration to the implications arising from the publication of BS9999 and taking account of the views of various stakeholders, the Department is satisfied that Building Control Authorities may consider designs based on BS9999:2008 as *alternative solutions*, as provided for in sections 0.1.4 of TGD B, and designs based on this Code may in general be regarded as acceptable, provided the level of fire safety achieved is adequate to satisfy the requirements of the Building Regulations.

BS 9999:2008 supersedes some of the parts of the BS 5588 series (Fire precautions in the design, construction and use of buildings); however, the British Standards Institution has indicated that the superseded parts will continue to be available. The parts referred to in TGD B continue to provide guidance on meeting the relevant requirements of the Building Regulations.

Further enquires about this circular should be addressed by email to buildingstandards@environ.ie or by telephone to John Barry, 01-8862546.

Mise, le meas



Marion Kiernan
Assistant Principal
Building Standards Section.

To: all City/County Managers, Chief Fire Officers, Building Control Officers