THE GUILD OF ARCHITECTURAL IRONMONGERS

TECHNICAL update

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AT LAST, THE GUIDANCE WE REALLY NEED ON DOC "M" AND BS 8300

BACKGROUND

The publication, some 18 months ago, of the revised Approved Document "M" to the Building Regulations for England and Wales has presented a number of challenges for ironmongery professionals and manufacturers, their clients and building control officials.

The changes made between the 1999 and the 2004 editions, as they affect the selection of ironmongery on doors located on accessible routes, were considerable and in many cases differed from existing procedures and the guidance provided by BS 8300 published in 2001 and a number of other guides and documents.

During the past eighteen months task groups, which have included industry and client representatives, have met to consider the implications and a number of meetings have been held with ODPM personnel.

During the second half of 2004, the BSI committee responsible for the 5 year revision of BS 8300 agreed to produce a set of immediate amendments to the 2001 edition and these are expected to be published in April.

The ODPM agreed that the amendments being made to BS8300 would be incorporated into a Technical Memorandum about Doc "M" 2004 that they would issue and publish on their website.

By this route the two documents will be usefully aligned and provide non-conflicting advice. The ODPM committed to make this Technical Memorandum available as soon as the BS 8300 text had been agreed. It can now be viewed at www.gai.org.uk

This Update details these BS 8300 amendments and the Technical Memorandum relating to Doc "M" as they affect the correct specification, installation and maintenance of architectural ironmongery and associated products on accessible routes in non-domestic premises in England & Wales.

Picture courtesy of DORMA UK

INTRODUCTION

Doc "M" and the amendments to BS 8300 contain a number of recommendations in relation to ironmongery, which are straightforward and easy to understand, but there are three issues that have caused particular difficulties.

This document gives brief details of the straightforward items but concentrates on the matters that have given our clients the greatest difficulties.

PART 1
THE SIMPLE MATTERS

Locks and Lock Cases

All lock cases should have 72 mm centres or the cylinder should be fitted above the lever handle.

On bathroom and privacy functions, the turn to release the dead bolt should be large enough to operate easily.

All lock cases should have a minimum backset of 54 mm.

Lever Furniture

For lever handles, the diameter should be a minimum of 19mm but they do not need to be round. The lever should be operable without having to fully grip the

handle, have a minimum 95mm inside dimension and a minimum of 45mm clearance behind the lever grip to the door face, excluding roses or backing plate.

External lever handles should not be cold to the touch and a textured grip would assist people with special needs such as sensitive skin. Powder coatings, nylon and nylon coatings and other materials such as wood will all be acceptable.

The levers should not have sharp edges or sudden changes of direction.

Pull Handles

Pull handles should have a minimum 45 mm clearance from behind the pull grip to the door/backing plate face. They should be between 19mm & 35 mm diameter and be at least 400mm in length.

To aid wheelchair users a pull handle should be fitted horizontally on doors which do not have self closing devices.

Pull handles should be fitted with cover rose or trim to provide a larger surface area of support and allow easier recognition for people with impaired vision.

Like external levers, external pull handles on accessible routes should not be cold to the touch - i.e. not bare metal. Powder coatings, nylon and nylon coatings and other materials such as wood will all be acceptable.

Clear opening widths

The projection of the door furniture must to be taken into account when determining clear opening widths.

PART 2
DOOR OPERATING FORCES

The 2004 edition of Doc"M" quoted a figure of 20N maximum opening force for doors on accessible routes and this was approximately 50% lower than that which had been the commonly accepted "norm" up to now.

Therefore it was not possible to provide mechanical door closing devices that enabled the door to operate within this constraint and, at the same time, meet the requirements of CE Marking to BS EN 1154 which are required when the self closing doors are also fire resisting.


Picture courtesy of Hafele

The amendments to BS 8300 together with the Technical Memorandum to Doc "M" now quote a maximum figure of 30N opening force when measured at 0° (closed) and 22.5N when measured between 30° and 60° open. It is stated that it is preferable that backchecks should not operate before about 80° open and that the max closing force should occur between 0° and 15° of final closing.

Advice also notes that it can be difficult to measure the force at the door edge and that it can be measured in line with the handles, up to 65mm from the door edge. The figures can be increased by up to 2N in this situation. It is recommended that plunger type force gauges should be used but that they may only have an accuracy to within 2 or 3N.

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These numbers now mean that it will be possible for a power 3 closer (the minimum power required to allow CE marking of closing devices for use on fire doors) to satisfy the Part "B" requirements for door leaves wider than about 900mm but only if it has an efficiency better than 65% and then only if the other relevant considerations shown below are followed.

It is possible for closing devices having an efficiency of 55% to pass EN1154. Extra (65%+) efficient closers will need to be selected for all situations where fire doors are fitted on accessible routes. The industry will need to develop a terminology for these (extra performance) devices.

The amendments to BS 8300 together with the Technical Memorandum to Doc "M" now quote a maximum figure of 30N opening force when measured at 0° (closed) and 22.5N when measured between 30° and 60° open.

At the project specification stage consideration has to be given to ALL components of a door set which, when fitted, increase the force required to open and fully close a door. Hinge friction, latch bolt resistance and air pressure differentials - occasioned by both air conditioning and natural air flows - will, for example, affect both fire and non-fire doors. Door sets designated as fire/smoke resisting are subjected to the additional burden of hot / cold smoke seal resistances and, crucially, the spring 'resistance' of a mechanical door closing device.

Doors on accessible routes should be provided with:

HINGES that perform better than the lowest friction requirement of BS EN 1935:2002 - this is 4N per hinge maximum. High performance hinges are available which contribute less than 1N friction per hinge.

LATCHES that perform better than the lowest resistance class of BS EN 12209:2003 - this is 15N. Higher performance latches are available which contribute less than 5N resistance to closing.

DOOR SEALS, particularly for fire and smoke protection, should introduce the minimum resistance possible consistent with their effective operation.

Self-closing doors should, in addition to the above requirements, be provided with:

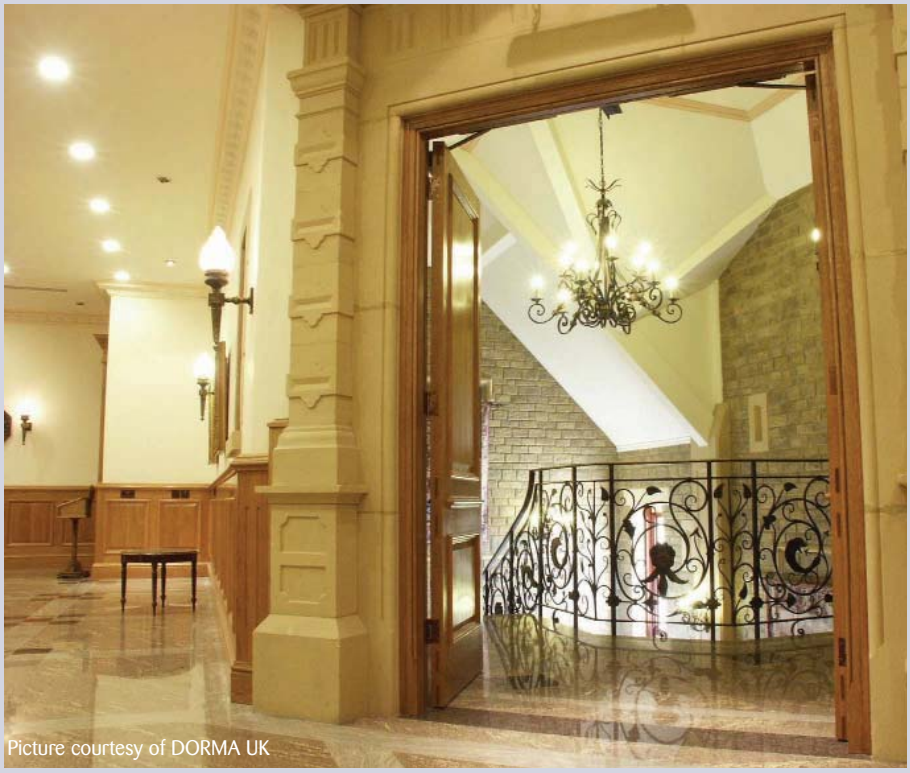
CE marked power 3, or adjustable power 2-4, door closing devices (either overhead or floor mounted) to BS EN 1154 which exhibit an efficiency of at least 65%.

Note: selectable power units (adjustment by template) are not recommended for this application.

Alternatively and preferably, if the building has the benefit of an automatic fire detection and alarm system (BS 5839 refers) these doors could be provided with one of these products which conform to BS EN 1155, namely:

a) a closing device which incorporates an electromagnetic hold-open/release function.

b) a closing device used in conjunction with a separate electromagnetic hold-open/release unit (less preferred option).


Picture courtesy of DORMA UK

c) an electromagnetic 'swing-free' door control device.

Note: a) & b) are suited to cross-corridor applications whereas c) is more appropriate for doors to 'individual spaces' i.e. off-corridor rooms and not be used in public circulation corridor areas.

However, if an automatic fire alarm system is not installed then a fully automated door system or 'low energy', power assisted operator would be the preferred option - depending on the flow rate of traffic expected.

If a non automatic system which uses mechanical door closing devices to BS EN 1154 is adopted it is essential that, after the doors have been installed and all the ironmongery has been fitted and commissioned, an opening force test be performed and necessary further adjustments made before project completion.

At the same time it will also be essential that, whichever system is adopted, all fire/smoke doors are also checked to ensure that they "fully close from any angle".

This check should be performed by releasing the door from the fully open position and again from just 5 degrees open.

Note that these tests will only be achieved with the use of controlled door closing devices rather than simple uncontrolled springs.

Finally, in all cases, the need for regular inspection and maintenance of these critical life safety systems is clearly defined. These inspections should address hinge friction, seals, latchbolts, air pressure, all of which can affect the satisfactory performance of the door system.

PART 3 LIGHT REFLECTANCE VALUES

Doc "M" has provisions for **visual contrast** between:

- Ironmongery and door faces
- Some door edges and door faces (where doors are not self closing or where they are held fully open)
- Door faces and/or frames and walls
- Handrails and walls
- Sanitary fittings and rails and walls
- Floors and walls

Picture courtesy of HOPPE UK

The definition of "contrast visually" in Doc "M" was given as a difference in Light Reflectance Value (LRV) between the two surfaces of greater than 30 points. The amendment to BS 8300 and the Doc "M" Technical Memorandum propose that research based evidence for the 30 point figure is limited and that anecdotal evidence suggests that 20 points difference in LRVs is an acceptable minimum for large areas.

It is emphasized that there is also little research based information covering the influence of different surface textures nor of the impact (good or bad) of the use of glossy finishes for items such as door handles.

More details regarding LRVs will be given in the amendment to BS 8300 and the alternative methods available to measure them.

Reference is made to the sphere type spectrophotometer equipment as being the most accurate and capable of accurately measuring non-flat, glossy and metallic surfaces. The alternative colorimeters are mentioned but with the proviso that they cannot measure glossy or curved items. Finally the use of samples swatches which have their LRVs defined by the manufacturers is mentioned for use in assessments on site.

The Guild of Architectural Ironmongers, with financial support from a broad selection of its membership, has commissioned The Research Group for Inclusive Environments (RGIE) to undertake research to assess the ability of people with a visual impairment to easily locate door hardware in order to validate the 20/30 point provision. It is understood that there is a valid need to be able to identify door openings and therefore the wall to door/frame provision can be understood.

When a person has located and approached the door he/she will only be viewing the door from as little as one metre distance and will know, from experience, that the ironmongery will only be in one of two positions.

They will examine the effects of differences between the door faces and the hardware in terms of Light Reflectance Values (LRVs) and in relation to gloss levels. The results of this research are expected to be available in June this year but until then it is recommended that practioners should exercise care to ensure that a reasonable contrast can be demonstrated.

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The Guild is indebted to a number of people who have been instrumental in securing from the ODPM the above clarifications to Doc "M". They include John Tebbitt from the CPA, and both Norman England and Graham Shirville from the Guild's Technical Committee. The industry owes them a significant debt of thanks for their time and effort on its behalf.

PART 4 HANDRAIL DIMENSIONS

The dimensional limitations contained in BS 8300 were changed in Doc "M" without the benefit of being founded on any relevant research based evidence. The amendments to BS 8300 will retain the existing 40-50 mm diameter (or oval approx 50x38 mm) but add some text that suggests that for some (undefined) disabled and elderly people a smaller diameter handrail is easier to grip. It gives no further details.

The amended BS 8300 details are also reflected in the Doc "M" Technical Memorandum.

Picture courtesy of DORMA UK

THE FUTURE

The Centre for Accessible Environments, in conjunction with RIBA Enterprises, is producing a Specifiers' Handbook for Inclusive Design which covers Architectural Ironmongery.

A copy will be sent to each GAI Member company immediately after its publication. The Guild has co-sponsored this Guide and provided much of the technical input.

The results of the research into LRV of door handles is due to be announced at the GAI Conference at the beginning of June. Until then, the ODPM Technical Memorandum and the amendments to BS 8300 should be used as the reference documents by Ironmongers and others involved in the specification of door hardware and other associated products.

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