INTERNATIONAL FIRE CONSULTANTS LIMITED

PRIVATE & CONFIDENTIAL

Assessment of the effects of installing the Selectrite MK2 surface mounted selector co-ordinator system on previously proven fire resisting door assemblies

Fire Resistance Standards: BS476: Part 22: 1987 and BS EN 1634-1: 2014

IFC Report IFCA/00134 Revision D

Prepared on behalf of:

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NOTE: This report should not be manipulated, abridged or otherwise presented without the written consent of International Fire Consultants Ltd

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ISSUE AND AMENDMENT RECORD

Rev	Date	Author	Review	Amendments
IFCA/00134	May 2000	BM	MB	-
Revision A	January 2009	CM	MB	Review and revalidation. Various minor editorial changes and inclusion of BS EN1634-1: 2000 standard
Revision B	December 2010	CM	MB	Review and revalidation. Inclusion of metallic doorsets
Revision C	August 2014	CM	MB	Review and revalidation. Various minor editorial changes and updated to BS EN1634-1: 2014
Revision D	September 2017	WL/DC	CM	Review and revalidation.

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1. INTRODUCTION

This report has been prepared by International Fire Consultants Ltd on the instruction of Selectrite Hardware Ltd, for our assessment of the effect of including a Selectrite Surface Mounted Door Selector Co-ordinator System MK2 on previously proven fire resisting door assemblies.

Fire resisting assemblies are rarely supplied in an identical form to that which was tested. The specification will invariably require hardware to be supplied which is different from that tested. The result of a fire resistance test can apply to variations in configurations/ construction as long as they do not reduce the performance to one which is below that specified. The influence of those variations is covered by a judgement, normally made by the approving authority.

Where the approving authority does not feel able to make such judgements, an expert opinion is often sought. Such an opinion is often expressed in the form of an assessment of the performance, which may be supported by numerical/quantifiable methods or may be purely an expert judgement.

When establishing the variations in the construction that can achieve the required fire resistance performance, International Fire Consultants Ltd. follow the guidance given in BS.ISO/TR12470, *"Fire resistance tests - Guidance on the application and extension of results".*

The assessment is based upon the constructional information supplied to us (detailed in Section 2) and upon the fire resistance test evidence for parts of the constructions (detailed in Section 3). A full analysis of the fire resistance performance of these assemblies is presented in Section 4.

2. PROPOSAL

It is proposed that the Selectrite Surface Mounted Door Selector Co-ordinator System MK2, shown on **Figure 00134D/01** in Appendix A, may be incorporated into previously proven fire resisting door assemblies without adversely affecting their fire resistance performance, in terms of integrity, when tested to BS476: Part 22; 1987, or BS EN1634-1: 2014*, as applicable. The fire resisting door assemblies must have previously demonstrated the required fire resistance performance in the required configuration and all other aspects through test or assessment to BS476: Part 22; 1987, or BS EN1634-1: 2014*. The previously proven door assemblies considered herein are limited to door assemblies whose structure is of either timber, steel, stainless steel, aluminium or a combination thereof.

* *BS EN1634-1: 2014 is the latest version of the standard, however door assemblies previously tested successfully to the 2000 or 2008 versions would also be acceptable.*

This assessment does not impose or imply any limitations upon the door construction used, per se, but it must have fire test evidence and/or assessment for the appropriate fire resistance performance to support its use at the proposed leaf size and configuration. This assessment does not constitute an opinion of the mechanical function of the Selectrite system and only applies to single-swing, double leaf door assemblies.

The MK2 system comprises of a Door Selector unit (a selector body/arm and a selector striker, that are fixed to the door frame and passive leaf respectively), and the Co-ordinator unit (a rebate catch device and an associated plate fitted to the active and passive leaf respectively). All components are surface mounted, without any recesses or mortices.

The Selectrite Surface Mounted Door Selector Co-ordinator System MK2 considered herein, including fixings, is generally based upon details provided by Selectrite Hardware Ltd, copies of which are kept on file by IFC for reference. The construction and details of the Selectrite Surface Mounted Door Selector Co-ordinator System MK2 are summarised herein, but the manufacturers documentation should be read in conjunction with this report for full interpretation. Anyone using this report should verify that copies of documents in their possession match those copies which are kept on file by IFC. If variations occur between details described herein and those on the relevant documents, the former shall take precedence. Otherwise IFC should be contacted for clarification. Refer to Section 6 for recommendations with respect to audit and verification of the manufactured/installed assemblies.

Some hardware items are termed 'essential' in terms of their contribution to the successful fire resistance performance of door assemblies. These provide supporting, closing, or restraining functions in fire exposure conditions. The Selectrite Surface Mounted Door Selector Co-ordinator System MK2 is a 'non-essential' item of hardware, and whilst it does not contribute to fire resistance, it is crucial that its specification and/or installation does not adversely affect the overall fire resistance performance of a door assembly.

3. TEST EVIDENCE

Applicable fire resistance test evidence is not available to directly support the use of the proposed Selectrite Surface Mounted Door Selector Co-ordinator System MK2. Therefore, the device has been assessed from first principles using International Fire Consultants Ltd's knowledge of the behaviour of hardware at the elevated temperatures experienced under fire test conditions.

4. ANALYSIS

4.1 General

Fire resisting door assemblies generally need to be fitted with a mechanism to close the leaf and/or ensure that it remains in the closed position while not in use. Commonly, a surface mounted overhead closer is fitted for this purpose, either on the opening or closing side of the leaf and may be used in projecting arm, parallel arm or slide arm mode, (subject to appropriate fire resistance test evidence).

In the case of double leaf door assemblies, with rebated meeting stiles or square meeting stiles and a latch, or with an overlapping and/or astragal type detail, it is essential to ensure that the leaves close in the correct sequence. This can be achieved by the inclusion of door selector/co-ordinators. Door selectors fitted to tested or assessed door assemblies must not be recessed into the frame head or leaf head/edge, and they must not interrupt any intumescent strips, unless direct fire resistance test evidence is available.

Whilst they must ensure that the leaves close in the correct sequence, the selector/co-ordinator must not compromise the performance of a fire resisting door assembly by encouraging the conduction of heat to the unexposed door face via the fixings. In the case of cellulosic doors, this could lead to a loss of integrity as a result of continuous flaming. Like overhead closers, selector/co-ordinators are capable of making both a positive or negative contribution to the fire resistance of the door assembly to which they are fitted.

If a door leaf is unlatched then the closer provides the only means of maintaining closure of the leaf until such time as the door leaf is "locked" in position within the frame, whether this be through activation of an intumescent seal or restrained expansion of a metallic door leaf. If the leaf is fitted with a latch, then the closer must be capable of overcoming any latching resistance, together with any resistance from the selector, and must ensure that the door leaves return to the closed position.

In evaluating the fire resistance performance of a single acting double leaf door assembly fitted with an overhead face fixed selector/co-ordinator system, several factors must be considered, as follows;

1. The presence of a selector/co-ordinator device is required to ensure that, were a fire to occur, the door leaves would be closed in the correct sequence and would therefore be in the correct position to allow them to fulfil their function as a barrier to fire spread.

2. Whilst the selector mechanism remains in place it must not induce distortion, be of detriment to the door leaf at the head, or weaken the structure of the door in the latter stages of the fire test.

3. Once the selector has become detached from the leaf it can no longer contribute to the performance of the door assembly. Consequently, once the selector has demonstrated its ability to perform the selecting function of the leaves in the correct sequence it plays no further part in the retaining function. It would be acceptable to install it on tested or otherwise approved door assemblies up to 120 minutes fire resistance where the door assembly construction used has demonstrated itself capable of meeting the integrity criteria for the period of fire resistance in question.

4. Where any selector is to be fitted to door assemblies which incorporate a mineral core, it must be shown under test that the door leaf and/or frame in question can accommodate screw fixings without adversely affecting the fire resistance performance of the door core and/or frame material.

5. Bolt through fixings and rebated catches are not permitted because these will potentially conduct an unacceptable quantity of heat to the unexposed side. In the case of timber door assemblies this can cause flaming on the unexposed face. The Selectrite MK2 system is fully surface mounted.

6. Door selectors/co-ordinators are used on double doors with rebated meeting stiles, or with an overlapping astragal, and are intended to ensure that the door leaves close in the correct sequence. It should be noted that rebated meeting stiles and overlapping astragals are not necessarily proven for all fire doors and so they should only be included where supporting fire resistance documentation exists.

7. When used on timber doors with lipped edges, care must be taken to ensure that the fixing screws for the door selector are carefully fitted to prevent delamination or splitting of the lipping, during installation or in service.

8. When used on metal door assemblies, care must be taken to ensure that the design of the door assembly is such that fixing screws for the door selector will be positively engaged into the facing and/or internal structure, as applicable, but without causing damage to the door assembly during installation or in service. This report does not imply approval of any variations to the door design to gain suitable fixity, and such variations should be subject to an independent 'third-party' appraisal.

4.2 Fire behaviour

Once the door leaves have been closed in the correct sequence, the function of retaining the leaves in the closed position under fire test conditions is dependent on the closer, any latching, any intumescent strips, and the combined behaviour of the door leaf and frame under heating, as discussed in Section 4.1.

A surface mounted selector co-ordinator may compromise the fire resistance of the door assembly by encouraging conduction of heat to the unexposed face via its fixings. Alternatively, its weight may cause the leaf of the door to distort or delaminate, particularly during the latter part of a test on a timber door assembly when the timber has charred away, and/or when the leaf has become weakened.

The Selectrite Surface Mounted Co-ordinator MK2 is made from lightweight alloy, and, if installed on the unexposed face, will not be of sufficient weight to cause delamination, distortion or any other detriment to the head of the door. If installed on the face exposed to the furnace, being made of lightweight alloy, it will 'melt out' at approximately 650°C. This temperature is achieved within the furnace after approximately 10 minutes. It will then not compromise the integrity of an already tested or assessed door assembly.

5. CONCLUSION

It is the opinion of International Fire Consultants Ltd, based upon the analysis given in the preceding sections, that if the Selectrite Surface Mounted Door Selector Co-ordinator System MK2 were fitted to a tested and/or assessed door assembly, whose structure is of either timber, steel, stainless steel, aluminium or a combination thereof, with a fire resistance of 30, 60, 90 or 120 minutes as appropriate, and were tested in accordance with BS476: Part 22: 1987 or BS EN1634-1: 2014, the door device, if fitted strictly in accordance with the supporting documentation and recommendations herein, would not adversely affect the fire resistance, in terms of integrity, of such a door assembly.

6. LIMITATIONS

This assessment addresses itself solely to the effects of installing the Selectrite Surface Mounted Door Selector Co-ordinator System MK2 described upon door assemblies that have otherwise been tested or assessed capable of satisfying the criteria of the fire resistance test for the required period and does not imply any suitability for use with respect to other unspecified criteria.

Further, whilst the conclusions herein are accurate with regard to the performance that IFC believe the assemblies will achieve when tested in accordance with the referenced test standard, the conclusions have not been determined in accordance with any Extended Field of Application Standards. As such, this report is not suitable supporting documentation to form the basis of an application for assessment and verification of constancy of performance under the Construction Products Regulation (CPR).

The co-ordinator must be fitted and adjusted in accordance with the manufacturers recommendations appropriate to the configuration being employed in the particular application.

This assessment does not consider the performance of any closing device associated with the door leaf and assumes throughout that the door leaves are returned to the closed neutral position by the door closers once the co-ordinator has performed its function.

This assessment report does not constitute any assessment of any door assembly and is limited to the effect that the proposed Selectrite Surface Mounted Door Selector Co-ordinator System MK2 might have upon a door assembly subjected to the appropriate fire resistance test in accordance with BS476: Part 22: 1987 or BS EN1634-1: 2014. The findings of this report are limited to door assemblies which have previously been proven, in the required configuration and all other aspects, to provide the required fire resistance performance. Further, the findings of this report are limited to fire resisting door assemblies whose structure is of either timber, steel, stainless steel, aluminium or a combination thereof.

Whilst the conclusions herein are accurate with regard to the influence that IFC believe installation of the proposed products will have upon the fire resistance performance of the stated door assemblies, consideration should be given to the influence that installation of the products may have on existing approvals, such as third party product certification of the door assemblies.

Where the constructional information in this report is taken from details provided to International Fire Consultants Ltd (IFC) and/or from fire resistance test reports referenced herein, it is, therefore, limited to the information given in those documents. It is necessarily dependent upon the accuracy and completeness of that information. Where constructional or manufacturing details are not specified, or discussed, herein, it should not, therefore, be taken to infer approval of variation in such details from those tested or otherwise approved.

Where the assessed constructions have not been subject to an on-site audit by International Fire Consultants Ltd, it is the responsibility of anyone using this report to confirm that all aspects of the assemblies fully comply with the descriptions and limitations, herein.

Any materials specified in this report have been selected and judged primarily on their fire performance. IFC do not claim expertise in areas other than fire safety. Whilst observing all possible care in the specification of solutions, we would draw the reader's attention to the fact that during the construction and procurement process, the materials used should be subjected to more general examination regarding the wider Health and Safety, and CoSHH Regulations. Designers, manufacturers and installers are reminded of their responsibilities under the CDM Regulations; but particularly with regard to installation and maintenance of heavy or inaccessible items.

This assessment considers the fire resistance performance of the door assemblies when tested with the leaves in the closed position, within the frame reveal; either retained by the latch, or self-closing device, or locked shut, as applicable. The door assemblies will only provide the assessed fire performance when in a similar configuration; and it is the responsibility of the building occupants/owner to ensure that this is the case.

This Report is provided to the sponsor on the basis that it is a professional independent engineering opinion as to what the fire performance of the construction/system would be should it to be tested to the named standard. It is IFC's experience that such an opinion is normally acceptable in support of an application for building approvals, certainly throughout the UK and in many parts of Europe and the rest of the world.

However, unless IFC have been commissioned to liaise with the Authorities that have jurisdiction for the building in question for the purpose of obtaining the necessary approvals, IFC cannot assure that the document will satisfy the requirements of the particular building regulations for any building being constructed.

It is, therefore, the responsibility of the sponsor to establish whether this evidence is appropriate for the application for which it is being supplied and IFC cannot take responsibility for any costs incurred as a result of any rejection of the document for reasons outside of our control. Early submittal of the Report to the Authorities will minimise any risks in this respect.

The analysis and conclusions within this report are based upon the likely fire resisting performance of a complete door assembly that is manufactured and installed in accordance with this document, and offered for fire resistance testing in 'perfect' condition. In practice, management procedures must be in place in any building where the door assemblies are installed, to ensure that no parts of the assembly are damaged or faulty. Further, the doors must open and close without the use of undue force. The edge gaps/alignment of door leaves must be in accordance with the tolerances defined, herein, when the doors are closed. Any such shortfalls in respect to the condition of the assemblies will invalidate the approval by IFC, and may seriously affect the ability of the assemblies to provide the required level of fire resistance performance. Determination of what constitutes wear or damage, and any corrective actions in order to return assemblies to the required condition, should only be carried out following consultation with the manufacturer and IFC.

7. VALIDITY

This assessment has been prepared based on International Fire Consultants' present knowledge of the products described, the stated testing regime. For this reason anyone using this document after September 2022 should confirm its ongoing validity.

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APPENDIX A

Figure 00134D/01

The figure in this Appendix is not included in the sequential page numbering of this report.

Description

The Door Selector/Co-ordinator System MK2 is designed to enable a pair of doors with self closing devices to close in the correct sequence.

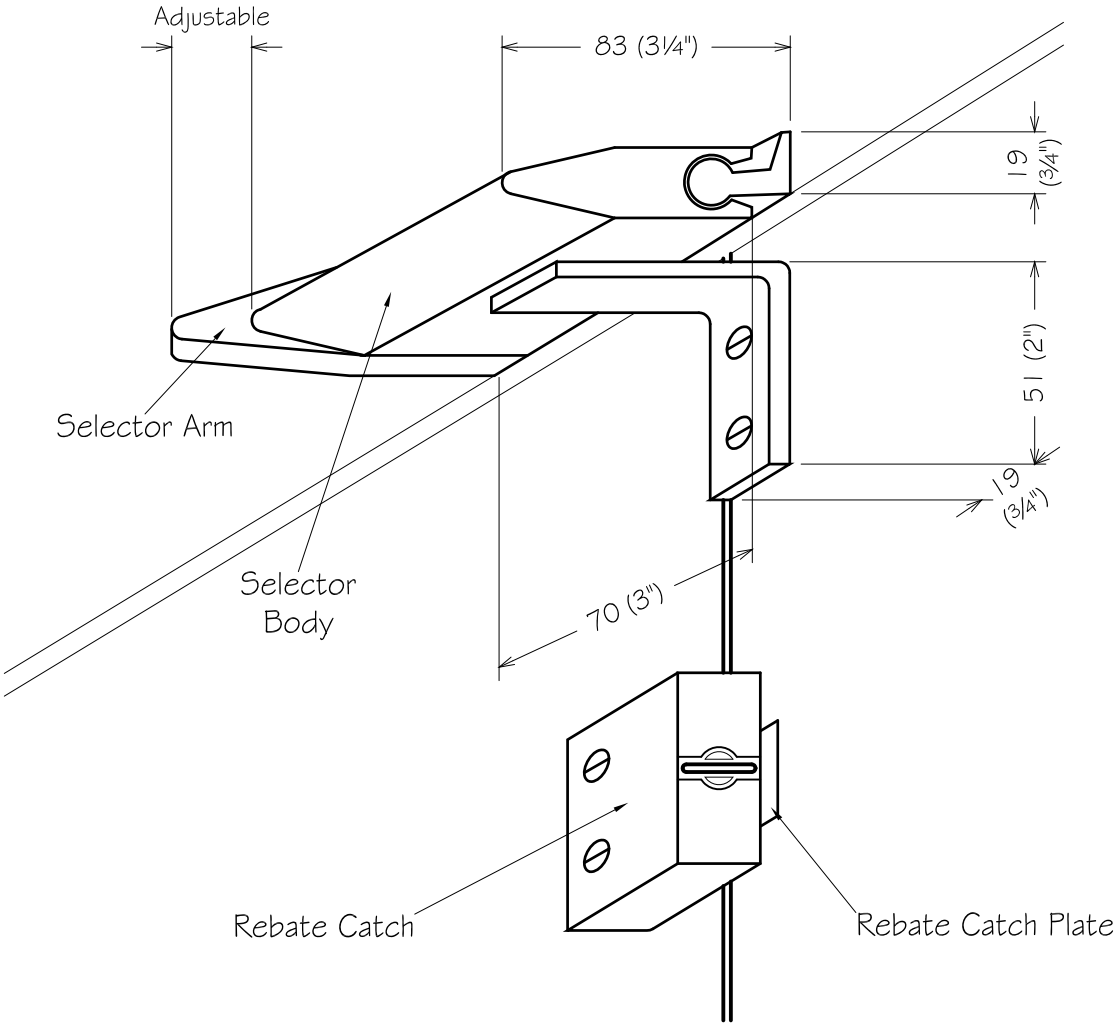
Fixing

Mounted at the head, on the face of the doorset, at the meeting stile junction. Detailed fixing instructions are supplied with each Door Selector.

Finish

Satin Anodised Plated

Patent Applied.



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Assessment Report
IFCA/00134 Revision D
Selectrite Hardware

Selectrite Door
Selector/Co-ordinator
System MK2

Job number: 17440	
Drawn by: CSP	Checked by: WL
Not To Scale	Drawn: Sep 2017
00134D/01	