



Chiltern House Stocking Lane Hughenden Valley
High Wycombe Buckinghamshire HP14 4ND UK

t +44 (0) 1494 569800 f +44 (0) 1494 564895
e cif@chilternfire.co.uk w www.chilternfire.co.uk

Assessment of the FF130 luminaire cover

Report reference: Chilt/A04038 Revision A

Issue date: 6 July 2005
Valid until: 6 July 2010

Prepared for: Tenmat Ltd
Ashburton Road West
Trafford Park
Manchester
M17 1RU

This document is confidential and remains the property of Chiltern International Fire Ltd.

The legal validity of this document can be claimed only on presentation of the complete document.

Contents

	Page No
1 Introduction.....	3
2 Proposal	3
3 Test Evidence.....	3
3.1 Fire resistance test IF03076	3
3.2 Fire resistance test IF03060	3
3.3 Fire resistance test IF05045	4
3.4 Fire resistance test FG8962/208217.....	4
4 Analysis	4
5 Conclusion.....	5
6 Declaration by the Applicant	6
7 Limitations	7
8 Validity.....	7

The legal validity of this report can only be claimed on presentation of the complete report.

1 Introduction

This assessment has been commissioned by Tenmat Ltd to consider the use of an alternative luminaire cover to that previously tested within a full scale fire resistance test. The luminaire cover is required to insulate structural members above already proven suspended ceilings for 60 minutes, if tested to the current fire resistance test standard, BS476: Part 23: 1987.

2 Proposal

The proposal is to justify the substitution of the luminaire cover successfully tested in BRE test report FG8962/208217 with that which has been tested at small scale in IF03076. The product tested in IF03076 is described as an FF130 recessed luminaire cover and is required to insulate structural members above proven suspended ceilings for 60 minutes, if tested to the current fire resistance test standard, BS476: Part 23: 1987.

3 Test Evidence

The test evidence cited in support of this assessment is summarised below:

3.1 Fire resistance test IF03076

The tested specimen measured 1150mm wide x 1150mm long and comprised a steel 'I' beam, which was fixed to a medium density concrete block ceiling. Below the 'I' beam (nominally 230mm below) was fitted a suspended ceiling comprising mild steel 'L' and 'T' section angles to form apertures which were subsequently infilled with Armstrong World Industries 'Prima Fine Fissure' mineral fibre based panels. A single central aperture measuring 600mm x 600mm was left and infilled with a recessed luminaire and cover. The light was referenced as being a Preslite Ltd recessed light fitting and measured 610mm x 610mm x 85mm thick. Fitted over the luminaire was a Tenmat FF130 cover measuring 730mm x 670mm x 18mm thick (155mm high) which was manufactured from mineral fibre with organic binders and coated with a pigmented latex.

At 60 minutes the following temperatures were recorded, when tested in accordance with the principles of BS 476: Part 23: 1987:

Average 'I' beam temperature	-	301°C
Luminaire cover temperature	-	548°C

3.2 Fire resistance test IF03060

The tested specimen measured 1150mm wide x 1150mm long and comprised a steel 'I' beam, which was fixed to a medium density concrete block ceiling. Below the 'I' beam (nominally 230mm below) was fitted a suspended ceiling comprising mild steel 'L' and 'T' section angles to form apertures which were subsequently infilled with Armstrong World Industries 'Prima Fine Fissure' mineral fibre based panels. A single central aperture measuring 600mm x 600mm was left and infilled with a recessed luminaire and cover. The light was referenced as being a Preslite Ltd recessed light fitting and measured 610mm x 610mm x 85mm thick. Fitted over the luminaire was a Tenmat FF120 cover measuring 730mm x 670mm x 18mm thick (155mm high) which was manufactured from a mineral fibre with organic binders.

At 60 minutes the following temperatures were recorded, when tested in accordance with the principles of BS 476: Part 23: 1987:

Average 'I' beam temperature	-	350°C
Luminaire cover temperature	-	502°C

3.3 Fire resistance test IF05045

The tested specimen measured 1150mm wide x 1150mm long and comprised a steel 'I' beam, which was fixed to a medium density concrete block ceiling. Below the 'I' beam (nominally 230mm below) was fitted a suspended ceiling comprising mild steel 'L' and 'T' section angles to form apertures which were subsequently infilled with Armstrong World Industries 'Prima Fine Fissure' mineral fibre based panels. A single central aperture measuring 600mm x 600mm was left and infilled with a recessed luminaire and cover. The light was referenced as being a Preslite Ltd recessed light fitting and measured 610mm x 610mm x 85mm thick. Fitted over the luminaire was a Tenmat FF130 cover measuring 779mm x 719mm x 12mm thick which was manufactured from a mixture of exonerated mineral fibre and organic binders.

At 60 minutes the following temperatures were recorded, when tested in accordance with the principles of BS 476: Part 23: 1987:

Average 'I' beam temperature	-	293°C
Luminaire cover temperature	-	388°C

3.4 Fire resistance test FG8962/208217

The tested specimen measured 3500mm x 4150mm long and comprised three steel 'I' section beams spanning the length of the furnace from which a steel lattice was supported which in turn supporting the 595mm x 595mm x 15mm thick ceiling tiles and luminaires. Two recessed light fitting were incorporated into the suspended ceiling system, each of which were additionally fitted with a Tenmat FF120 luminaire cover. The largest luminaire cover tested measured nominally 1330mm x 700mm x 15mm thick (288mm high). Two other light fittings were also incorporated into the ceiling system.

At 73 minutes, the maximum temperature of the structural steel was 399°C.

By interpretation of the graphs supplied within the test report, the maximum temperature of the largest luminaire cover, at 60 minutes was approximately 480°C and of the structural steel was 355°C.

4 Analysis

In order to accept comparability in performance between the two luminaire covers tested (FF120 and the FF130), interpretation of the results is needed.

The FF120 system has been tested both at full scale and at small scale. The small scale test being of the same design and specification used in the small test performed on the FF130 luminaire cover.

Although the larger scale test indicated that the FF120 cover achieved the desired performance and protected the structural steel adequately, the results obtained could not be directly compared with the small scale test on the FF130 cover. Consequently a direct substitution could not be given. However, given that a control test has also been carried out (IF03060) using the FF120 cover in a comparable specimen to that of the FF130 test, and the results obtained are comparable, it is deemed acceptable to suggest that the FF120 and FF130 products perform in a similar manner.

A similar comparison test was performed on an alternative FF130 luminaire cover (IF05045) that utilised a non-latex coated design and was thinner in overall dimensions. The results obtained from this test also demonstrate that this version of the FF130 cover performs comparably to the FF120 cover that was tested at full scale.

It would therefore be our opinion that had the FF130 luminaire covers been tested over the largest luminaire cover (1300mm x 700mm) tested in FG8962/208217, the same results would have been achieved. Smaller luminaire covers are therefore also considered acceptable. All other fixing details must remain as tested.

5 Conclusion

It is our opinion that if the FF130 luminaire covers were to be tested in lieu of the FF120 luminaire cover as detailed in this assessment and subject to the provisos stated, in accordance with BS476: Part 23: 1987, it would contribute to the insulation structural steelwork for a minimum period of 60 minutes.

6 Declaration by the Applicant

- 1) We the undersigned confirm that we have read and comply with obligations placed on us by FTSG Resolution No 82: 2001.
- 2) We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a fire test to the Standard against which this assessment is being made.
- 3) We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.
- 4) We are not aware of any information that could adversely affect the conclusions of this assessment.
- 5) If we subsequently become aware of any such information we agree to ask the assessing authority to withdraw the assessment.

Signed

A handwritten signature in black ink, appearing to read "A. P. Moore".

Name:

A handwritten name in black ink, appearing to read "A. P. Moore".

For and on behalf of Tenmat Ltd

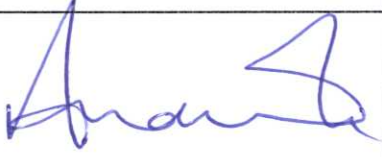

7 Limitations

The following limitations apply to this assessment:

- 1) This assessment addresses itself solely to the elements and subjects discussed and does not cover any other criteria. All other details not specifically referred to should remain as tested or assessed.
- 2) This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available, CIF reserves the right to withdraw the assessment unconditionally but not retrospectively.
- 3) This assessment has been carried out in accordance with Fire Test Study Group Resolution No 82: 2001.
- 4) Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
- 5) This assessment relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions. It does not purport to be a complete specification ensuring fitness for purpose and long-term serviceability. It is the responsibility of the client to ensure that the element conforms to recognised good practice in all other respects and that, with the incorporation of the guidance given in this assessment, the element is suitable for its intended purpose.

8 Validity

- 1) The assessment is valid initially for a period of five years, after which time it should be submitted to CIFL for reappraisal.
- 2) This assessment report is not valid unless it incorporates the declaration given in Section 6 duly signed by the applicant.

	Prepared by:	Checked by:
Signature:		
Name:	A J Forecast	C P A Houchen
Title:	Senior Consultant	Senior Consultant

Revision A – July 2005 – new test data added to justify an alternative version of the FF130 luminaire cover. Prepared under CIFL ref: Chilt/A05123