



**Global Fire Resistance Assessment  
of the:**

**FF130 luminaire cover**

**Report No: Chilt/A04038 Revision B**

**Valid From: 1<sup>st</sup> November 2010**

**Valid Until: 1<sup>st</sup> November 2015**



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**Prepared for:**

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## 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 assessment is to discuss the performance of the alternative luminaire cover in terms of the current fire resistance test standard for determining the contribution of components to the fire resistance of a structure, BS476: Part 23: 1987.

## 2 Proposal

It is proposed to justify the substitution of the luminaire cover successfully tested in BRE test report FG8962/208217 with that tested at small scale in test IF03076. It is further proposed to assess the alternative FF130 cover tested in IF5045. The products tested are described as FF130 recessed luminaire covers and are required to maintain the insulation performance of a proven suspended ceiling system intended to protect structural steel members for 60 minutes, if tested to BS476: Part 23: 1987.

## 3 Test Evidence

The test evidence cited in support of this assessment is summarised in appendix B.

## 4 Analysis

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

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

The larger scale test indicated that the FF120 cover achieved the desired performance and protected the structural steel adequately; however the results obtained could not be directly compared with the small scale tests on the FF130 covers. Consequently a direct substitution could not be assessed based solely on these tests. However, given that a control test has also been carried out (IF03060) using the FF120 cover in an analogous specimen to that of the FF130 tests, and the results obtained are comparable, it is deemed acceptable to conclude that the FF120 and FF130 products perform to a similar level.

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

It would therefore be our opinion that had either of the FF130 luminaire cover designs been tested over the largest luminaire installed (cover dimensions - 1330mm x 700mm) in lieu of the FF120 covers tested in FG8962/208217, the minimum required insulation performance would have been achieved.

Smaller FF130 luminaire covers of the same design are therefore also considered acceptable.


All other fixing details must remain as tested.

## 5 Conclusion

It is our opinion that if the FF130 luminaire cover was 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 of 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 

Name: RUPERT COOGAN

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 initially valid for five years after which time it is recommended to be submitted to CIFL for re-appraisal.
- 2) This assessment report is not valid unless it incorporates the declaration given in Section 6 duly signed by the applicant.

<b>Signature:</b>		
<b>Name:</b>	<b>A M Winning</b>	<b>P N Barker</b>
<b>Title:</b>	Product Assessor	Senior Consultant

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## Appendix A

### Revisions and Amendments

Revision	CIFL Reference	Date	Description
A	Chilt/A05123	06.07.05	New test data added to justify an alternative version of the FF130 Luminaire cover
B	Chilt/A10214	29.10.10	5 year revalidation and update of format.

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## Appendix B

### Performance Data

#### 1. Test Report IF03076 – FF130.

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

#### 2. Test Report IF03060 – FF120.

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

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### 3. Test Report IF05045 – FF130.

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 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

### 4. Test Report FG8962/208217 – FF120, full scale.

The specimen tested at BRE 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 luminaire covers. Two recessed light fittings were incorporated into the suspended ceiling system, each of which was 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.