

assessment report

Title:

The Fire Resistance Performance
of 'C1130' Glazed Partitions

WF Assessment Report No:

180964 Issue 2

Prepared for:

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Date:

18th March 2009

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Executive Summary

Objective	This report considers the expected fire resistance performance of 'C1130' glazed partitions, based upon the rules for extended field of application given in EN 15254-4: 2008, if subjected to a test in accordance with BS EN 1364-1: 1999.
Report Sponsor	CGI International Ltd
Address	International House, Millfield Lane Haydock Merseyside WA11 9GA
Summary of Conclusions	Based upon the extended field of application rules given in Clause 6 of EN 15254-4: 2008, it can be concluded that 'C1130' glazed partitions as discussed in this report should be capable of providing 30 minutes integrity performance and depending upon specification radiation performance (less than 15kW/m ²), if subjected to a test in accordance with BS EN 1364-1: 1999.
Valid until	1 st April 2014

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Introduction

This report considers the expected fire resistance performance of 'C1130' glazed partitions, based upon the rules for extended field of application given in EN 15254-4: 2008, if subjected to a test in accordance with BS EN 1364-1: 1999.

The screens discussed are required to provide 30 minutes integrity performance and depending upon specification radiation performance (less than 15kW/m²), with respect to BS EN 1364-1: 1999.

FTSG

The data referred to in the supporting data section has been considered for the purpose of this appraisal which has been prepared in accordance with the Fire Test Study Group Resolution No. 82: 2001.

Assumptions

It is assumed that the construction to which the screen is fixed will be capable of providing adequate support for at least the required fire resistance period and will have been proven via separate test to have a fire resistance period of at least 30 minutes.

It is assumed that the screens will be fitted and glazed by competent installers in a similar manner to the tested construction.

It is assumed that the screens will be identical to those described in the test reports detailed in the Supporting Data section, unless specifically detailed otherwise within this report.

Proposals

It is proposed that glazed partitions, as previously tested under the references Efectis 07-V-032, Efectis 05-V-254, Efectis 07-V-252, Efectis 06-V-392, CTICM 06-V-260, TNO 2004-CVB-R0143E, should provide 30 minutes integrity performance and depending upon specification radiation performance (less than 15kW/m²), when including 'C1130' glass, if subjected to a test in accordance with BS EN 1364-1: 1999.

Basic Test Evidence

Pyroguard 7 mm

CTICM Report No. 06-V-260 The report referenced CTICM No. 06-V-260 and briefly described in the supporting data section of this report, describes a test conducted in accordance with NF EN 1364-1 on a specimen of steel framed, twin glazed partition wall.

The test demonstrated the ability of the wall to provide 28 minutes integrity performance. The report further concluded that subject to the exclusion of silicone sealant, the specimen would have provided 30 minutes integrity performance.

- efectis Report No. 06-V-392** The report referenced efectis No. 06-V-392 and briefly described in the supporting data section of this report, describes a test conducted in accordance with NF EN 1364-1 on a specimen of timber framed glazed partition wall.
- The test demonstrated the ability of the wall to provide 31 minutes integrity and radiation (less than 15kW/m²) performance.
- efectis Report No. 07-V-032** The report referenced efectis france No. 07-V-032 and briefly described in the supporting data section of this report, describes a test conducted in accordance with NF EN 1364-1 on a specimen of timber framed glazed partition wall.
- The test demonstrated the ability of the wall to provide 32 minutes integrity and radiation (less than 15kW/m²) performance.
- efectis Report No. 05-V-254** The report referenced efectis france No. 05-V-254 and briefly described in the supporting data section of this report, describes a test conducted in accordance with NF EN 1364-1 on a specimen of steel framed glazed partition wall.
- The test demonstrated the ability of the wall to provide 25 minutes integrity performance. The report further concluded that pane dimensions up to 1028 mm wide by 900 mm high would provide 30 minutes integrity and radiation (less than 15kW/m²) performance.
- TNO 2004-CVB-R0143E** The report referenced TNO 2004-CVB-R0143E and briefly described in the supporting data section of this report, describes a test conducted in accordance with NF EN 1364-1 on a specimen of steel framed, twin glazed partition wall.
- The test demonstrated the ability of the wall to provide 31 minutes integrity and radiation (less than 15kW/m²) performance.
- efectis Report No. 07-V-252** The report referenced efectis france No. 07-V-252 and briefly described in the supporting data section of this report, describes a test conducted in accordance with NF EN 1364-1 on a specimen of timber framed glazed partition wall.
- The test demonstrated the ability of the wall to provide 30 minutes integrity and radiation (less than 15kW/m²) performance.
- Extension de classment on 07-V-252** An extended field of application document in accordance with EN15254-4: 2008, regarding increased pane dimensions for the test referenced efectis france No. 07-V-252.

WF No. 151243 The report referenced Wf No. 151243 and briefly described in the supporting data section of this report, describes a test conducted in accordance with NF EN 1364-1 on a specimen of steel framed glazed partition wall.

The test demonstrated the ability of the wall to provide 52 minutes integrity and 44 minutes radiation (less than 15kW/m²) performance.

BRE No. 211636 The report referenced BRE No. 211636 and briefly described in the supporting data section of this report, describes a test conducted in accordance with EN 1364-1 on a specimen of steel framed single pane glazing.

The test demonstrated the ability of the glazing to provide 45 minutes integrity performance.

BRE No. 211903A The report referenced BRE No. 211903A and briefly described in the supporting data section of this report, describes a test conducted in accordance with EN 1364-1 on a specimen of steel framed single pane glazing.

The test demonstrated the ability of the glazing to provide 35 minutes integrity performance.

C1130 (Pyroguard 11)

efectis Report No. 07-V-204 The report referenced efectis france No. 07-V-204 and briefly described in the supporting data section of this report, describes a test conducted in accordance with NF EN 1364-1 on a specimen of timber framed glazed partition wall.

The test demonstrated the ability of the wall to provide 31 minutes integrity and radiation (less than 15kW/m²) performance.

efectis Report No. 07-V-206 The report referenced efectis france No. 07-V-206 and briefly described in the supporting data section of this report, describes a test conducted in accordance with NF EN 1364-1 on a specimen of steel framed glazed partition wall.

The test demonstrated the ability of the wall to provide 38 minutes integrity and radiation (less than 15kW/m²) performance.

Extension de classment on 07-V-206 An extended field of application document in accordance with EN15254-4: 2008, regarding increased pane dimensions for the test referenced efectis france No. 07-V-206.

Assessed Performance

EN15254-4: 2008 EN15254-4: 2008 provides rules for the extended application of results from fire resistance tests, specifically in relation to non-loadbearing walls of a glazed construction.

Clause 6 of this standard states the following rules in relation to exchange of the fire resisting glass:

6.1 Exchange of the fire resistant glass

The exchange (replacement) of the glass, as tested in the reference test, for another fire resistant glass is allowed, provided that it can be demonstrated that both glasses are within the same glass product group (same manufacturer) and have at least the same or increased nominal thickness.

When the reference glass is being exchanged (replaced), the replacement glass (new glass) must have evidence that it achieves at least the same fire resistance classification (or equivalent fire resistance) as the reference glass (such as previously existing test data).

If the replacement glass was tested (previously existing test data) at a smaller or the same size/area as in the reference test (before extension) then the size/area of the replacement glass cannot be changed from its tested size/area.

If the replacement glass was tested at the same size/area as in the reference test (after extension) then this size/area of replacement glass can be used to replace the reference glass.

If the replacement glass was tested at a larger size/area as in the reference test (after extension) then the maximum size/area of the replacement glass can be no greater than the extended size/area of the glass as tested in the reference test.

When making an exchange of one glass for a thicker glass from the same glass product group (same manufacturer), the structural stability of the whole glazed element must be maintained.'

Reference glass The proposed reference glass in this case is Pyroguard 7 mm, which was included in both timber and steel frames, in both single and twin glazed systems for 30 minutes integrity performance or greater.

Replacement glass The proposed replacement glass is referenced 'C1130' (Pyroguard 11 mm in the test report) and this satisfies the requirement of Clause 6.1, being of the same product group, of increased thickness and in the test referenced efectis france No. 07-V-204, having achieved in excess of the required classification period of 30 minutes (integrity).

In accordance with Clause 6.1 of EN 15254-4: 2008, the 'C1130' may therefore be positively appraised for 30 minutes integrity performance in any of the screens tested under the references Efectis 07-V-032, Efectis 05-V-254, Efectis 07-V-252, Efectis 06-V-392, CTICM 06-V-260, TNO 2004-CVB-R0143E, Efectis 07-V-206, the maximum pane dimensions, however must be limited by either:

a) The maximum 'C1130' pane size tested (efectis france No. 07-V-204).

Or

b) The maximum Pyroguard 7 mm pane size tested (or increased by extended field of application).

Whichever is smaller.

A brief overview of the frame type and maximum 'C1130' pane size which is positively appraised, is therefore as follows:

- | | | |
|-----------|---------------|--|
| 1. | Report: | 06-V-260 |
| | Type: | Steel Frame |
| | Reference: | Fire & Sound |
| | Manufacturer: | Tenon Partitions |
| | Glass: | Twin glazed 'C1130' and 6 mm tempered glass |
| | Maximum Pane: | 2100 mm high x 1200 mm wide (2.52 m ²) |
| | Performance: | Integrity only |
| 2. | Report: | 2004-CVB-R143E |
| | Type: | Steel Frame |
| | Reference: | Maars Metaline 82 mm |
| | Manufacturer: | Maars Holding b.v. |
| | Glass: | Twin glazed 'C1130' and 6 mm toughened glass |
| | Maximum Pane: | 2100 mm high x 872 mm wide (1.83 m ²) |
| | Performance: | Integrity and Radiation (less than 15kW/m ²) |
| 3. | Report: | 05-V-254 |
| | Type: | Steel Frame |
| | Reference: | Presto 50 |
| | Manufacturer: | Forster |
| | Glass: | 'C1130' glass |
| | Maximum Pane: | 900 mm high x 1028 mm wide (0.92 m ²) |
| | Performance: | Integrity and Radiation (less than 15kW/m ²) |
| 4. | Report: | 07-V-206 |
| | Type: | Steel Frame |
| | Reference: | Standard Series 50 |
| | Manufacturer: | RP Technik |
| | Glass: | 'C1130' glass |
| | Maximum Pane: | 2400 mm high x 1440 mm wide (2.904 m ²) |
| | Performance: | Integrity and Radiation (less than 15kW/m ²) |
| 5. | Report: | 07-V-252 |
| | Type: | Softwood frame min. 450 kg/m ³ density |
| | Dimensions: | 92 mm x 45 mm (min.) |
| | Glass: | 'C1130' glass |
| | Maximum Pane: | 2100 mm high or 1575 mm wide (1.3 m ²) |
| | Performance: | Integrity and Radiation (less than 15kW/m ²) |
| 6. | Report: | 07-V-204 |
| | Type: | Hardwood frame min. 650 kg/m ³ density |

Dimensions: 92 mm x 45 mm (min.)
Glass: 'C1130' glass
Maximum Pane: 2100 mm high x 1575 mm wide (3.3 m²)
Performance: Integrity and Radiation (less than 15kW/m²)

IGU's of 'C1130' may also be increased in height or width by 20% or area by 21% based upon overrun in test performance and Clause 6.3 of EN 15254-4: 2008, to give dimensions as detailed in 7 below:

- 7.** Report: WF No. 151243
Type: Steel Frame
Reference: 01.570
Manufacturer: Forster Presto Steel Profiles
Glass: 'C1130' IGU with 4 mm 'Silverstar' toughened glass (Argon filled)
Maximum Pane: 2160 mm high x 979 mm wide (1.77 m²)
Performance: Integrity and Radiation (less than 15kW/m²)
- 8.** Report: 07-V-032
Type: Hardwood frame min. 640 kg/m³ density
Dimensions: 75 mm x 45 mm (min.)
Glass: 'C1130' glass
Maximum Pane: 2000 mm high x 1000 mm wide (2.0 m²)
Performance: Integrity and Radiation (less than 15kW/m²)
- 9.** Report: 06-V-392
Type: Hardwood frame min. 640 kg/m³ density
Dimensions: 92 mm x 45 mm (min.)
Glass: 'C1130' IGU with 4 mm climaguard annealed glass (Argon filled)
Maximum Pane: 2000 mm high x 1200 mm wide (2.4 m²)
Performance: Integrity only
- 10.** Report: BRE No. 211636
Type: Steel Frame
Reference: 01.570
Manufacturer: Jansen/Forster
Glass: 'C1130' glass
Maximum Pane: 1210 mm high x 900 mm wide (1.09 m²)
Performance: Integrity
- 11.** Report: BRE No. 211903A
Type: Steel Frame
Reference: 01.570
Manufacturer: Jansen/Forster
Glass: 'C1130' glass
Maximum Pane: 1690 mm high x 840 mm wide (1.42 m²)
Performance: Integrity

Conclusions

Based upon the extended field of application rules given in Clause 6 of EN 15254-4: 2008, it can be concluded that 'C1130' glazed partitions as discussed in this report should be capable of providing 30 minutes integrity performance and depending upon specification radiation performance (less than 15kW/m²), if subjected to a test in accordance with BS EN 1364-1: 1999.

Validity

This assessment is issued on the basis of test data and information available at the time of issue. If contradictory evidence becomes available to Bodycote **warringtonfire** the assessment will be unconditionally withdrawn and CGI International Ltd will be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested because actual test data is deemed to take precedence over an expressed opinion. The assessment is valid initially for a period of five years i.e. until 1st April 2014, after which time it is recommended that it be returned for re-appraisal.

The appraisal is only valid provided that no other modifications are made to the tested construction other than those described in this report.

Summary of Primary Supporting Data

CTICM Report No. 06-V-260 A test conducted in accordance with NF EN 1364-1 on a specimen of glazed partition wall.

The wall had overall dimensions of 3000 mm high by 3000 mm wide and incorporated 3 panes of 'Pyroguard' glass double-glazed units, with steel stud/gypsum board side and base sections. The glazed units had overall dimensions of 2700 mm high by 700 and 1200 mm wide and comprised 7.2 mm Pyroguard Clear glass and 6 mm thick tempered clear glass. The test results were as follows:

Integrity	Cotton pad	Not applicable
	Sustained flames	28 minutes
	Gap gauge	35 minutes
Insulation		0 minutes

Test Date : 20th July 2006

Sponsor : CGI International Ltd

efectis Report No. 07-V-204 A test conducted in accordance with NF EN 1364-1 on a specimen of glazed partition wall.

The wall had overall dimensions of 2950 mm high by 2950 mm wide and incorporated 6 panes of 'Pyroguard 11 mm' glass (also known as 'C1130'), within a hardwood frame. The largest pane had dimensions of 2100 mm high by 1575 wide. The test results were as follows:

Integrity	Cotton pad	Not applicable
	Sustained flames	31 minutes
	Gap gauge	31 minutes
Insulation		0 minutes

Test Date : 12th July 2007

Sponsor : CGI International Ltd

TNO 2004-CVB-R143E A test conducted in accordance with NEN EN 1364-1 on a specimen of glazed partition wall.

The wall had overall dimensions of 2800 mm high by 3500 mm wide and incorporated 3 panes of 'Pyroguard' glass double-glazed units, with steel stud/gypsum board side and base sections. The glazed units had overall dimensions of 2100 mm high by 872 mm wide and comprised 7.2 mm Pyroguard Clear glass and 6 mm thick toughened clear glass . The test results were as follows:

Integrity	Cotton pad	Not applicable
	Sustained flames	31 minutes
	Gap gauge	31 minutes
Insulation		0 minutes

Test Date : 9th April 2004

Sponsor : CGI International Ltd

efectis Report No. 05-V-254 A test conducted in accordance with NF EN 1364-1 on a specimen of glazed partition wall.

The wall had overall dimensions of 2960 mm high by 2950 mm wide and incorporated 6 panes of 'Pyroguard 7.2 mm' glass, within a steel frame. The largest pane had dimensions of 1800 mm high by 840 wide. The test results were as follows:

Integrity	Cotton pad	Not applicable
	Sustained flames	25 minutes
	Gap gauge	29 minutes
Insulation		0 minutes

Test Date : 7th September 2005

Sponsor : CGI International Ltd

efectis Report No. 07-V-206 A test conducted in accordance with NF EN 1364-1 on a specimen of glazed vision panel (single pane).

The specimen had overall dimensions of 2110 mm high by 1310 mm wide and incorporated a single pane of 'Pyroguard 11 mm' glass, within a steel frame. The pane had dimensions of 2000 mm high by 1200 wide. The test results were as follows:

Integrity	Cotton pad	Not applicable
	Sustained flames	39 minutes
	Gap gauge	38 minutes
Insulation		0 minutes

Test Date : 17th July 2007

Sponsor : CGI International Ltd

efectis Report No. 07-V-252 A test conducted in accordance with NF EN 1364-1 on two specimens of timber framed glazed vision panels (single pane).

The specimens had overall dimensions of 2706 mm high by 600 mm wide and 500 mm high by 2106 mm wide and each incorporated a single pane of 'Pyroguard 7.2 mm' glass, within a softwood frame. The panes had dimensions of 2600 mm high by 500 wide and 400 mm high by 2000 mm wide respectively. The test results were as follows:

		Glazing A	Glazing B
Integrity	Cotton pad	Not applicable	Not applicable
	Sustained flames	37 minutes	36 minutes
	Gap gauge	30 minutes	37 minutes
Insulation		0 minutes	0 minutes

Test Date : 6th September 2007

Sponsor : CGI International Ltd

WF No. 151243 A test conducted in accordance with BS EN 1364-1 on a specimen of steel framed glazed partition wall.

The specimen had overall dimensions of 3000 mm high by 3000 mm wide and included six nominally 25 mm thick double glazed units, which were formed from 11 mm thick 'Pyroguard clear' glass and 4 mm thick 'Silverstar' toughened glass, separated by a steel spacer. The specimen also incorporated a steel faced panel, which comprised 1.5 mm thick steel skins and a 9 mm thick gypsum based board core.

The specimen was orientated such that the double glazed units were installed with the 'Pyroguard clear' side being positioned on the exposed face of the specimen. The results of the test where as follows:

Integrity	Cotton pad	31 minutes
	Sustained flames	53 minutes
	Gap gauge	52 minutes
Insulation		9 minutes

Test Date : 6th September 2007

Sponsor : CGI International Ltd

efectis Report No. 07-V-032 A test conducted in accordance with NF EN 1364-1 on a specimen of glazed single pane screen.

The screen had overall dimensions of 2100 mm high by 1100 mm wide and incorporated 1 pane of 'Pyroguard 7 mm' glass, within a hardwood frame. The pane had dimensions of 2000 mm high by 1000 wide. The test results were as follows:

Integrity	Cotton pad	Not applicable
	Sustained flames	34 minutes
	Gap gauge	32 minutes
Insulation		0 minutes

Test Date : 7th February 2007

Sponsor : CGI International Ltd

efectis Report No. 07-V-392 A test conducted in accordance with NF EN 1364-1 on a specimen of glazed single pane screen.

The screen had overall dimensions of 2100 mm high by 1300 mm wide and incorporated 1 pane of 'Pyroguard 7 mm' IGU, within a hardwood frame. The pane had dimensions of 2000 mm high by 1200 wide. The test results were as follows:

Integrity	Cotton pad	Not applicable
	Sustained flames	31 minutes
	Gap gauge	32 minutes
Insulation		0 minutes

Test Date : 7th December 2006

Sponsor : CGI International Ltd

BRE No. 211636 A test conducted in accordance with BS EN 1364-1 on a specimen of steel framed single pane glazing.

The specimen had overall dimensions of 1320 mm high by 1010 mm wide and included a single pane of 7 mm thick 'Pyroguard clear' glass in a Jansen/Forster steel profile frame. The glass had overall dimensions of 1210 mm high by 900 mm wide.

The results of the test where as follows:

Integrity	Cotton pad	45 minutes
	Sustained flames	45 minutes
	Gap gauge	45 minutes
Insulation		3 minutes

Test Date : 18th March 2003

Sponsor : CGI International Ltd

BRE No. 211903A A test conducted in accordance with BS EN 1364-1 on a specimen of steel framed single pane glazing.

The specimen had overall dimensions of 1800 mm high by 950 mm wide and included a single pane of 7 mm thick 'Pyroguard clear' glass in a Jansen/Forster steel profile frame. The glass had overall dimensions of 1690 mm high by 840 mm wide.

The results of the test where as follows:

Integrity	Cotton pad	28 minutes
	Sustained flames	37 minutes
	Gap gauge	35 minutes
Insulation		4 minutes

Test Date : 3rd April 2003

Sponsor : CGI International Ltd

Declaration by CGI International Ltd.

We the undersigned confirm that we have read and complied with the obligations placed on us by the UK Fire Test Study Group Resolution No. 82: 2001.

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 the assessment is being made.

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.


We are not aware of any information that could adversely affect the conclusions of this assessment.


If we subsequently become aware of any such information we agree to cease using the assessment and ask Bodycote **warringtonfire** to withdraw the assessment.

Signed:

For and on behalf of:

Signatories


Responsible Officer
C. Johnson* - Senior Certification Engineer


Approved
A Kearns* - Technical Manager

* For and on behalf of Bodycote **warringtonfire**.

Report Issued: 18th March 2009

Issue 2 – Additional evidence added (2nd April 2009)

The assessment report is not valid unless it incorporates the declaration duly signed by the applicant.

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