



REGULATORY INFORMATION REPORT

Assessment of timber veneers on Medium Density Fibreboard (MDF), Pyrotech flame retardant MDF, FLAMEBLOCK™ FRMDF and particleboard substrates for use as wall and ceiling linings with respect to the requirements of the Building Code of Australia (2016) Specification C1.10

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RIR 45982.11

Report Sponsor:

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9/4/10	RIR 45982.3	Extension of application to any timber veneers and adhesives
4/5/10	RIR 45982.4	Typographical amendment
7/7/10	RIR 45982.5	Typographical amendment
19/5/2011	RIR 45982.6	Inclusion of Pyrotech flame retardant MDF as a substrate
12/8/2011	RIR 45982.7	Inclusion of FLAMEBLOCK™ FRMDF flame retardant MDF as a substrate
15/8/2011	RIR 45982.8	Typographical amendment
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21/12/2015	RIR 45982.10	Revised to change the details of report sponsor
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1 INTRODUCTION

This report contains the minimum information sufficient for regulatory compliance and refers to the Assessment report EWFA 45982.11.

The referenced assessment report was previously issued on 21/12/2015 with reference number 45982.10. Since the previous issue, a review of the technical basis of the assessment was undertaken and validity extended until 1/05/2019. Refer to Assessment Review EWFA 43010100 for confirmation of validity.

The referenced assessment report was prepared at the request of the Timber Development Association NSW Ltd (TDA) as an assessment of the Fire Hazard performance of timber veneers on Medium Density Fibreboard (MDF), Pyrotech flame retardant MDF (a fire retardant medium density fibreboard, FLAMEBLOCK™ FRMDF flame retardant MDF (details of which have been recorded and are kept on file), and particleboard substrates for use as wall and ceiling linings in accordance with the requirements of specification C1.10 of the Building Code of Australia (BCA).

Specification C1.10 requires testing to ISO 9705 “Fire tests – Full scale room test for surface products” or AS/NZS 3837:1998 “Method of test for heat and smoke release rates for material and products using an oxygen consumption calorimeter”. ISO 9705 is commonly referred to as the “ISO room fire test”.

The main outcome from AS/ISO 9705 is a time to flashover, which enables the determination of the material’s “Group Number” directly from Specification C1.10

As an alternative to an ISO 9705 test the BCA permits testing to AS/NZS 3837:1998 (better known as the “Cone calorimeter test) in conjunction with the prediction method outlined in Specification A2.4 of the BCA.

The materials Group Number is an indication of its ‘time to flashover’ in the ISO room fire test. The Group Number may be gained directly from testing a material in the above-mentioned ISO room fire test, or alternatively be predicted using data obtained from testing of the material in the cone calorimeter.

The tested systems referred to in this report are described in Section 2 and are subject to the proposed variations described in Section 3 if tested in accordance with the referenced test method described in Section 4. The conclusions of the report are summarised in Section 5.

The validity of the referenced assessment report is conditional on compliance with Sections 7, 8 and 9 of the referenced assessment report.

2 TESTED PROTOTYPES

The referenced assessment report is based on the reports summarised in Table 1 and 2 referring to tests in accordance with the requirements of Specification C1.10 of the BCA on various solid and plywood timber. The reports were sponsored by Timber Development Association NSW Ltd and undertaken by Warrington Fire Research Australia, CSIRO and BRANZ.

Table 1 – Referenced AS3837 Tests of Solid Timber

WFRA 499163j	WFRA 499163f	WFRA 499163t	WFRA 499140f
WFRA 499163b	WFRA 499163k	WFRA 499182l	WFRA 499163q
WFRA 499240d	WFRA 499140d	WFRA 499163r	WFRA 499182k
WFRA 499163i	WFRA 499163s	WFRA 499163d	WFRA 499182e
WFRA 499240b	WFRA 499182n	WFRA 499163p	WFRA 499163n
WFRA 499163h	WFRA 499163e	WFRA 499182j	WFRA 499182h
WFRA 499140a	WFRA 499240c	WFRA 499182b	WFRA 499240n
WFRA 499163l	WFRA 499163c	WFRA 499163u	WFRA 499240a
WFRA 499163v	WFRA 499163g	WFRA 499182m	WFRA 499182i
WFRA 499140e	WFRA 499182c	WFRA 499182d	FH4384
WFRA 499182f	WFRA 499140b	WFRA 499163a	FH4385
WFRA 499182g	WFRA 499163o	WFRA 499140c	FH4389
FH4391	FH4392	FH4393	FH4394
FH4390			

Each of the tests in Table 1 (prefixed WFRA) consisted of three specimens comprising two sections and included a tongue and groove joint with total specimen size nominally 100mm by 100mm. The specimen thicknesses were nominally 12mm or 19mm and the finish on the timber was smooth milled.

Each of the tests in Table 1 (prefixed FH) consisted of three specimens comprising one section with total specimen size nominally 100mm by 100mm. The specimen thicknesses were nominally 10mm and the finish on the timber was smooth milled.

CMIT 02/276) consisted of a series of tests on solid timber, MDF, Particleboard, and Plywood.

Table 2 – Referenced AS/NZS3837 Tests of Particleboard and MDF

Report	Species	Total Thickness
WFRA 499240g	Medium Density Fibreboard (MDF)	12mm
WFRA 499240k	Particleboard	12mm
WFRA 2146200E	Medium Density Fibreboard (MDF)	12mm
CMIT 02/276	Medium Density Fibreboard (MDF)	12mm
FH4386	Medium Density Fibreboard (MDF) faced with PVA adhesive	6.5mm
FH4388	Medium Density Fibreboard (MDF) faced with Resorcinol adhesive	6.5mm

Table 3 – Referenced AS/NZS3837 Tests of Veneered Particleboard and MDF

Report	Species	Total Thickness
WFRA 499240H.1	0.6mm Ash, Alpine (<i>Eucalyptus Sieberi</i>) veneer on each side of 12mm thick MDF	13.5mm
WFRA 499240J.1	0.6mm Box, Brush (<i>Lophostman confertus</i>) veneer on each side of 12mm thick MDF	13.5mm
WFRA 499240L.1	0.6mm Ash, Alpine (<i>Eucalyptus Sieberi</i>) veneer on each side 12mm thick Particleboard	13.5mm
WFRA 499240M.1	0.6mm Box, Brush (<i>Lophostman confertus</i>) veneer on each side of 12mm Particleboard	13.5mm
CMIT 02/276	Tasmanian Oak Veneer on 12mm thick Particleboard	12mm

Each of the tests in Table 2 and 3 consisted of three specimens comprising of nominal size 100mm by 100mm. The specimen finish on the timber was smooth milled and pressed.

Table 4 – Referenced AS/ISO 9705 Test of Veneered Pyrotech flame retardant MDF

Report	Lining	Total Thickness
2557600	0.5mm Western Red Cedar veneer on each side of 12mm thick Pyrotech flame retardant MDF	13mm

Report EWFA 2557600 was issued by Warrington Fire Research Pty Ltd or Exova Warringtonfire, and report CMIT 02/276 was issued by CSIRO Fire Science and Technology Laboratory. All reports were sponsored by Timber Development Association NSW Ltd, who has granted permission for reference of the test data in this report.

The results of the above mentioned reports are summarised in Appendix A.

Table 5 – Referenced AS/NZS3837 Tests of Veneered FLAMEBLOCK™ FRMDF

Report	Species	Total Thickness
EWA 23766-00b.1	FLAMEBLOCK™ FRMDF	12.2mm
EWA 23766-00d.1	0.6mm Grey Iron Bark timber veneer each side FLAMEBLOCK™ FRMDF	13.4mm
EWA 23766-00e.1	0.6mm <i>Radiata Pine</i> timber veneer each side of FLAMEBLOCK™ FRMDF	13.2mm
EWA 23766-00g.1	0.6mm Black Onyx timber veneer each side of FLAMEBLOCK™ FRMDF	13.4mm
EWA 23766-00i.1	0.6mm Anthracite timber veneer each side of FLAMEBLOCK™ FRMDF	13.2mm

3 VARIATION TO TESTED PROTOTYPES

3.1 TIMBER VENEERS ON MDF AND PARTICLE BOARD SUBSTRATES

It is proposed that timber veneers 0.5mm to 0.85mm thickness and density greater than 500kg/m³ may applied to each side of Particleboard substrates having a dry density of nominally 700kg/m³ and MDF having a dry density of 560kg/m³ to 740kg/m³ without detrimentally effecting the “group number” or “Average Specific Extinction Area” with respect to the referenced test procedures in Section 4.

Summary of Proposed Lining Construction

Substrate	
Material	Particleboard 6mm minimum thickness and a Dry Density nominally 700kg/m ³
	MDF 6mm minimum thickness and a Dry Density 560kg/m ³ to 740kg/m ³
	Pyrotech flame retardant MDF 12mm minimum thickness and a Dry Density 560kg/m ³
	FLAMEBLOCK™ FRMDF 12mm minimum thickness and a Dry Density 710kg/m ³
Veneers for all Substrates	
Material	Unmodified untreated timber or CCA treated Radiata pine
Thickness	0.6mm to 0.85mm (Nominal)
Dry Density	Veneer density > 500kg/m ³ for Particleboard and MDF substrates and > 350kg/m ³ for Pyrotech flame retardant MDF substrates > 350kg/m ³ for FLAMEBLOCK™ FRMDF substrates
Adhesive Material	PVA or Resorcinol
Position of Veneers	A timber veneer shall be applied to each face, though does not have to be of the same species on each side

4 REFERENCED TEST PROCEDURES

Reference was made to Specification C1.10, Clause 3 of Specification A2.4, AS/NZS 3837:1998 and AS/ISO 9705-2003.

5 FORMAL ASSESSMENT SUMMARY

On the basis of the discussion presented in the referenced assessment report it is the considered opinion of this test authority that if the tested specimens described in Section 2 had been configured as described in Section 3 they would achieve the performance stated below if tested in accordance with the test method referenced in Section 4, subject to the requirements in section 7

Lining Construction		Performance		
		Group Number	Average Specific Extinction Area (m ² /kg)	SMOGRA (m ² /s)
Substrate				
Material	Particleboard 6mm minimum thickness and Dry Density nominally 700kg/m ³	3	<250	-
	MDF 6mm minimum thickness and Dry Density 560kg/m ³ to 740kg/m ³			
	Pyrotech flame retardant MDF 12mm minimum thickness and Dry Density 560kg/m ³	2	-	<100
FLAMEBLOCK™ FRMDF 12mm minimum thickness and Dry Density 710kg/m ³	<250		-	
Veneers for all Substrates				
Material	Unmodified untreated timber or CCA treated Radiata pine			
Thickness	0.6mm to 0.85mm (Nominal)			
Dry Density	Veneer density > 500kg/m ³ for Particleboard and MDF substrates and > 350kg/m ³ for Pyrotech flame retardant MDF substrates and > 350kg/m ³ for FLAMEBLOCK™ FRMDF substrates			
Adhesive Material	PVA and Resorcinol			
Position of Veneers	A timber veneer shall be applied to each face, though does not have to be of the same species on each side			

6 DIRECT FIELD OF APPLICATION

The referenced assessment report applies to wall and ceiling linings of buildings that are required to have Fire Hazard Properties in accordance with BCA Specification C1.10.

7 REQUIREMENTS

The referenced assessment report details the methods of construction, test conditions and assessed results that would be expected had the specific elements of construction described herein been tested in accordance with AS/NZS 3837:1998 or AS/ISO 9705:2003 as appropriate.

Any further variations with respect to size, constructional details, edge or end conditions, other than those identified in the referenced assessment report, may invalidate the conclusions drawn in the referenced assessment report.

8 VALIDITY

The referenced assessment report does not provide an endorsement by Exova Warringtonfire Aus Pty Ltd of the actual products supplied.

The conclusions of the referenced assessment report may be used to directly assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.

Because of the nature of fire testing, and the consequent difficulty in quantifying the uncertainty of measurement, it is not possible to provide a stated degree of accuracy. The inherent variability in test procedures, materials and methods of construction, and installation may lead to variations in performance between elements of similar construction.

The assessment can therefore only relate to the actual prototype test specimens, testing conditions, and methodology described in the supporting data, and does not imply any performance abilities of constructions of subsequent manufacture.

The referenced assessment report is based on information and experience available at the time of preparation. The published procedures for the conduct of tests and the assessment of test results are the subject of constant review and improvement and it is recommended that the referenced assessment report be reviewed on or, before, the stated expiry date.

The information contained in the referenced assessment report shall not be used for the assessment of variations other than those stated in the conclusions above. The assessment is valid provided no modifications are made to the systems detailed in the referenced assessment report. All details of construction should be consistent with the requirements stated in the relevant test reports and all referenced documents.

9 AUTHORITY

9.1 APPLICANT UNDERTAKINGS AND CONDITIONS OF USE

By using this report as evidence of compliance or performance the applicant(s) confirms that:

- to their knowledge the component or element of structure, which is the subject of this assessment, has not been subjected to a fire test to the Standard against which this assessment is being made, and
- they agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test by a test authority in accordance with the Standard against which this assessment is being made and the results are not in agreement with this assessment, and
- they are not aware of any information that could adversely affect the conclusions of this assessment and if they subsequently become aware of any such information, agree to ask the assessing authority to withdraw the assessment.

9.2 GENERAL CONDITIONS OF USE

This report may only be reproduced in full without modifications by the report sponsor. Copies, extracts or abridgments of this report in any form shall not be published by other organisations or individuals without the permission of Exova Warringtonfire Aus Pty Ltd.

9.3 AUTHORISATION ON BEHALF OF EXOVA WARRINGTONFIRE AUS PTY LTD

Prepared by:

Reviewed by:



D. Nicholson



C. McLean

9.4 DATE OF ISSUE

23rd September 2016

9.5 EXPIRY DATE

1st May 2019