FOREST AND WOOD PRODUCTS AUSTRALIA LIMITED

REGULATORY INFORMATION REPORT

Fire hazard properties of various timber, veneered MDF and plywood in accordance with AS 5637.1:2015

Prepared for

Forest and Wood Products Australia Limited

Project number: FAS180355
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Quality management

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Jensen Hughes Fire Testing Pty Ltd
ABN 81 050 241 524
Formerly Warringtonfire Australia Pty Ltd[1]

[1] *Warringtonfire Australia Pty Ltd was acquired by Jensen Hughes in December 2023. Jensen Hughes Fire Testing Pty Ltd is not affiliated, associated, authorised, or endorsed by Warringtonfire Australia Pty Ltd, Warringtonfire Testing and Certification Limited or its "Warringtonfire" or "Certifire" brands.*

Executive summary

This report contains the minimum information required for regulatory compliance and refers to the referenced assessment report FAS180355 RIR11.0.

This report documents the findings of the assessment undertaken to determine the fire hazard properties of various solid timber and timber veneers on MDF and plywood – in accordance with AS 5637.1:2015.

The analysis in sections 5.0 to 7.0 of FAS180355 R11.0 found that the proposed systems, together with the described variations, will achieve fire hazard properties as shown in Table 1 to – Table 3 in accordance with AS 5637.1:2015.

The variations and outcome of this assessment are subject to the limitations and requirements described in sections 2.0, 3.0 and 8.0 of FAS180355 R11.0. The results of this report are valid until 28 February 2031.

Table 1 Overview of assessment outcome for minimum 9 mm solid timber species with or without V-joint, ship lap, regency profile and other profiled lining nominally 9 mm or greater thickness.

No	Timber species	Test evidence	Group number	Average specific extinction area (m^2/kg)
1.	Ash, Alpine - Eucalyptus delegatensis	25-000245	3	< 250
2.	Ash, Mountain – Eucalyptus regnans	25-000246	3	< 250
3.	Ash, Silvertop - Eucalyptus sieberi	25-000247	3	< 250
4.	Beech Myrtle - Northofagus cunnighamii	25-000249	3	< 250
5.	Blackbutt - Eucalyptus pilularis	25-000927	3	< 250
6.	Blackbutt, New England - Eucalyptus andrewsii	499163l	3	< 250
7.	Blackbutt, WA - Eucalyptus patens	FNK13333	3	< 250
8.	Blackwood - Acacia melanoxylon	25-000251	3	< 250
9.	Box, Brush - Lopehostman confertus	FNK13338	3	< 250
10.	Box, Grey – Eucalyptus microcarpa	FNK13339	3	< 250
11.	Box, Grey, Coast – Eucalyptus bosistoana	499182n	3	< 250
12.	Brownbarrel - Eucalyptus fastigata	499240c	3	< 250
13.	Gum, Blue, Sydney - Eucalyptus saligna	FNK13340	3	< 250
14.	Gum, Blue, Southern (TAS) - Eucalyptus globulus	25-000252	3	< 250
15.	Gum, Blue, Southern (VIC) - Eucalyptus globulus	FNK13348	3	< 250
16.	Gum, Manna - Eucalyptus viminalis	25-000254	3	< 250
17.	Gum, Red, River - Eucalyptus camaldulensis	25-000255	3	< 250
18.	Gum, Rose – Eucalyptus grandis	FNK13341	3	< 250
19.	Gum, Shining – Eucalyptus nitens	25-000256	3	< 250
20.	Gum, Spotted - Corymbia maculata	25-000257	3	< 250
21.	Gum, Yellow - Eucalyptus leucoxylon	499182b	3	< 250
22.	Ironbark, Grey – Eucalyptus drepanophylla	FNK13342	3	< 250
23.	Ironbark, Red - Eucalyptus sideroxylon	25-000930	3	< 250
24.	Karri - Eucalyptus diversicolor	FNK13335	3	< 250

No	Timber species	Test evidence	Group number	Average specific extinction area (m^2/kg)
25.	Mahogany, Red - Eucalyptus resinifera	25-000931	3	< 250
26.	Marri - Corymbia calophylla	FNK13336	3	< 250
27.	Merbau - Instia bijuga	FNK13343	3	< 250
28.	Messmate - Eucalyptus oblique	25-000258	3	< 250
29.	Oak, American - Quercus abla	FH4394	3	< 250
30.	Pine, Baltic - Picea abies	FNK13344	3	< 250
31.	Pine, Hoop - Araucaria cunninghamii	19-001520	3	< 250
32.	Pine, Radiata – Pinus radiata	25-000244	3	< 250
33.	Pine, White Cypress - Callitris glaucophylla	FNK13347	3	< 250
34.	Rosewood, Papua New Guinea - Pterocarpus indicus	FH4391	3	< 250
35.	Sheoak, WA - Allocosuarina fraseriana	FNK13337	3	< 250
36.	Stringy Bark, Yellow - Eucalyptus muellerana	FNK13345	3	< 250
37.	Tallowwood - Eucalyptus microcorys	25-000932	3	< 250
38.	Turpentine – Syncarpa glomulifera	FNK13346	3	< 250
39.	Walnut, Black (American Wallnut) - Juglans nigra	FH4393	3	< 250
40.	Wattle, Silver – Acacia dealbata	499182f	3	< 250
41.	Western Red Cedar – Thuja plicata	FH4384	3	< 250

Table 2 Overview of assessment outcome for plywood

Timber species for plywood	Test evidence	Minimum plywood total thickness	Adhesives	Group number	Average specific extinction area (m^2/kg)
As detailed in Table 1	19-001520 19-001522 19-001523 FH4386 FH4388	6 mm	+ Polyvinyl acetate (PVA) + Resorcinol + Phenol formaldehyde (PF) + Melamine urea-formaldehyde (MUF) + Urea-formaldehyde (UF)	3	< 250

Table 3 Overview of assessment outcome for standard MDF substrate with or without 0.6 mm thick timber veneers

Timber species for Veneer and MDF	Test evidence	MDF dry density	Minimum substrate thickness	Adhesives	Group number	Average specific extinction area (m^2/kg)
As detailed in Table 1	FH4386 FH4388	560 kg/m^3 to 740 kg/m^3	6 mm	+ Polyvinyl acetate (PVA) + Resorcinol	3	< 250

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1.0 Introduction

This report documents the findings of the assessment undertaken to determine the fire hazard properties of various solid timber, plywood and timber veneers on MDF – in accordance with AS 5637.1:2015.

This report may be used as evidence of suitability in accordance with the requirements of the relevant National Construction Code (NCC) to support the use of the material, product, form of construction or design as given within the scope of this assessment report. It also references test evidence for meeting deemed-to-satisfy (DTS) provisions of the NCC that apply to the assessed systems.

This assessment was carried out at the request of Forest and Wood Products Australia Limited. The sponsor details are included in Table 4.

Table 4 Sponsor details

Sponsor	Address
Forest and Wood Products Australia	Suite 6.02, 36 Wellington Street Collingwood Vic, 3066 Australia

2.0 *Framework for the assessment*

2.1 Assessment approach

An assessment is a professional opinion about the expected performance of a component or element of structure subjected to a fire test.

No specific framework, methodology, standard or guidance documents exists in Australia for undertaking these assessments. We have therefore followed the 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence' prepared by the Passive Fire Protection Forum (PFPF) in the UK in 2021[2].

This guide provides a framework for undertaking assessments in the absence of specific fire test results. Some areas where assessments may be offered are:

- Where a modification is made to a construction which has already been tested
- The interpolation or extrapolation of results of a series of fire resistance tests, or utilisation of a series of fire test results to evaluate a range of variables in a construction design or a product
- Where, for various reasons – eg size or configuration – it is not possible to subject a construction or a product to a fire test.

Assessments can vary from relatively simple judgements on small changes to a product or construction through to detailed and often complex engineering assessments of large or sophisticated constructions.

This assessment uses established empirical methods and our experience of fire testing similar products to extend the scope of application by determining the limits for the design and performance based on the tested constructions and performances obtained. The assessment is an evaluation of the potential fire hazard properties of the elements in accordance with AS 5637.1:2015.

This assessment has been written in accordance with the general principles outlined in EN 15725:2023[3] for extended application on the fire performance of construction products and building elements: Principle of EXAP standards and EXAP reports.

This assessment has been written using appropriate test evidence generated at accredited laboratories to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturer's stated design.

2.2 Compliance with the National Construction Code

This assessment report has been prepared to meet the evidence of suitability requirements of the NCC 2025[4] under A5G3(1)(d). It references test evidence for meeting deemed-to-satisfy (DTS) provisions of the NCC under A5G6 for fire hazard properties that apply to the assessed systems.

This assessment report may also be used to demonstrate compliance with the requirements for evidence of suitability under the relevant sections of previous versions of the NCC.

[2] Passive Fire Protection Forum (PFPF), 2021, Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence, Passive Fire Protection Forum (PFPF), UK.
[3] European Committee for Standardization, 2023, Extended application on the fire performance of construction products and building elements: Principle of EXAP standards and EXAP reports, EN 15725:2023, European Committee for Standardization, Brussels, Belgium.
[4] National Construction Code Volumes One and Two - Building Code of Australia 2025, Australian Building Codes Board, Australia.

2.3 Declaration

The ‘Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence’ prepared by the PFPF in the UK requires a declaration from the client. By accepting our fee proposal on 25 September 2024, Forest and Wood Products Australia Limited confirmed that:

- To their knowledge, the variations to 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.
- They agree to withdraw this assessment from circulation if the component or element of structure is 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.
- 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 – they agree to ask the assessing authority to withdraw the assessment.

3.0 Requirements and limitations of this assessment

- The scope of this report is limited to the variations to the tested systems described in section 4.3.
- This report details the methods of construction, test conditions and results in accordance with AS 5637.1:2015.
- This report relies on test evidence and applies only to the specific specimens tested. It does not verify ongoing compliance or the performance of future production batches.
- This assessment report has been prepared based on the fire hazard properties and condition of the products/systems at the time they were tested. Any deterioration of fire resistance performance due to external factors including but not limited to passage of time and exposure to elements – is not considered in this report.
- Jensen Hughes has provided this report on the fire performance of building elements in a controlled laboratory setting, strictly within the parameters allowed by the test standards and building regulations. The outcomes of this report are intended to assist in verifying the suitability of the product or system for practical use in specific applications.
- This report is only valid for the assessed systems and must not be used for any other purpose. Any changes with respect to size, construction details, loads, stresses, edge or end conditions – other than those identified in this report – may invalidate the findings of this assessment. If there are changes to the system, a reassessment will need to be done by an Accredited Testing Laboratory (ATL) that is accredited to the same nominated standards of this report.
- This report has been prepared using information provided by others. Jensen Hughes has not verified the accuracy and/or completeness of that information and will not be responsible for any errors or omissions that may have been incorporated into this report as a result.
- This assessment is based on the proposed systems being constructed under comprehensive quality control practices and following appropriate industry regulations and Australian Standards on quality of materials, design of structures, guidance on workmanship and expert handling, placing and finishing of the products on site. These variables are beyond the control and consideration of this report.

4.0 Description of the specimen and variations

4.1 Description of assessed systems

The assessed system consists of internal wall and ceiling lining assemblies with various solid timber species, plywood and timber veneers to standard MDF. The fire hazard performance of the assessed system was established with a baseline full scale room burn test in accordance with ISO 9705:2003 (R2016) with a comparison small scale cone calorimeter tests in accordance with AS/NZS 3837.

4.2 Referenced test data

The assessment of the variation to the tested systems and the determination of the performance are based on the results of the fire tests documented in the reports summarised in Table 5. Further details of the tested systems are included in Appendix A of the referenced report of the referenced report.

Table 5 Referenced test data

Report number	Timber species	Test sponsor	Testing authority
19-001520	Pine, Hoop - Araucaria cunninghamii (PF adhesive)	Forest and Wood Products Australia	AWTA product testing
19-001522	Pine, Hoop - Araucaria cunninghamii (MUF adhesive)		
19-001523	Pine, Hoop - Araucaria cunninghamii (UF adhesive)		
25-000244	Pine, Radiata - Pinus radiata		
25-000244	Pine, Radiata - Pinus radiata		
25-000245	ASH, Alpine - Eucalyptus delegatensis		
25-000246	Ash, Mountain - Eucalyptus regnans		
25-000246	Ash, Mountain - Eucalyptus regnans		
25-000247	Ash, Silvertop - Eucalyptus sieberi		
25-000247	Ash, Silvertop - Eucalyptus sieberi		
25-000249	Beech Myrtle - Northofagus cunnighamii		
25-000251	Blackwood - Acacia melanoxylon		
25-000252	Gum, Blue, Southern (TAS) - Eucalyptus globulus		
25-000254	Gum, Manna - Eucalyptus viminalis		
25-000255	Gum, Red, River - Eucalyptus camaldulensis		
25-000256	Gum, Shining - Eucalyptus nitens		
25-000257	Gum, Spotted - Corymbia maculata		
25-000258	Messmate - Eucalyptus oblique		
25-000927	Blackbutt-Eucalyptus pilularis		
25-000929	Merbau - hardwood		
25-000930	Ironbark, Red - Eucalyptus sideroxylon		
25-000931	Mahogany, Red - Eucalyptus ersinifera		
25-000932	Tallowwood - Eucalyptus microcorys		

Report number	Timber species	Test sponsor	Testing authority
499182b	Yellow Gum - hardwood		Jensen Hughes Fire testing (Formerly Warringtonfire Australia Pty Ltd)
499182f	Timber blocks - Silver Wattle - hardwood		
499240E	Plywood		
499240f	Pine, radiata - pinus radiata		
499240g	Medium Desnity Fibrebaord (MDF)		
499240h.1	Ash Silvertop veneer on MDF		
499240j.1	Box brush Veneer on MDF		
499240l.1	Ash Silvertop veneer on MDF		
FH4384	Western Red Cedar - hardwood		BRANZ
FH4385	Mountain Ash - hardwood		
FH4386	MDF with PVA adhesive		
FH4387	MDF with PU adhesive		
FH4388	MDF with Resorcinol Adhesive		
FH4389	"Western Red Cedar with joint - hardwood		
FH4390	CCA - Treated Radiata Pine - hardwood		
FH4391	PNG Rosewood - hardwood		
FH4392	Burmese Teak - hardwood		
FH4393	American Walnut - hardwood		
FH4394	American Oak - hardwood		
FNK13159	Marri - Eucalyptus callophylla		Infrastructure Technologies
FNK13334	Jarrah - Eucalyptus marginata		
FNK13335	Karri - Eucalyptus diversicolor		
FNK13338	Box, Brush - Lopehostman confertus		
FNK13339	Box, Grey - Eucalyptus microcarpa		
FNK13340	Gum, Blue, Sydney - Eucalyptus saligna		
FNK13341	Gum, Rose - Eucalytpus grandis		
FNK13342	Ironbark, Grey - Eucalyptus drepanophylla		
FNK13345	Stringy Bark, Yellow - Eucalyptus muellerana		
FNK13346	Turpentine – Syncarpa glomulifera		
FNK13347	Pine, White Cypress - callitris glaucophylla		
FNK13348	Gum, Blue, Southern (VIC) - Eucalyptus globulus		

4.3 Variations to the tested systems

The tested systems and variations to those tested systems – together with the referenced standard fire tests – are described in Table 6.

Table 6 Variations to tested systems

Item	Reference test	Description	Variations
Specimen thickness	As referenced in Table 5	The thickness of the tested timber species varies between 6 mm and 12 mm.	The thickness of solid, plywood and substrate are to be a minimum of 9 mm for solids and 6 mm for plywood and timber veneer instead of the tested system for various timber species.
Joints		The tested timber species had various joints tested in accordance with AS 3837:1998	It is proposed for the assessment of joints in various solid timber species.
Timber species and adhesives for plywood		The tested specimens had various adhesives and timber species tested in accordance with AS 3837:1998	It is proposed for the assessment of various adhesives to be applied to other timber species and other timber species to be used as plywood.
Timber species for timber veneer and substrate.		The tested specimen had various timber species used as timber veneer and as part of MDF in accordance with AS 3837:1998	It is proposed for the assessment of various timber species for timber veneer and applied to other timber species as MDF.

4.4 Referenced standard

AS 5637.1:2015 sets out procedures for assessing internal wall and ceiling linings according to their tendency to ignite, release heat, cause flashover, release smoke and contribute to fire growth.

4.5 Test standard

AS ISO 9705:2003 (R2016) stipulates full scale room burn test procedure for surface products.

AS/NZS 3837:1998[5] outlines method of testing for heat and smoke release rates for materials and products using an oxygen consumption calorimeter.

[5] Standards Australia 1998, Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter, AS/NZS 3837:1998 (R2016), Standards Australia, NSW

5.0 Assessment outcome

Details of the assessment and discussion are only available in the referenced main assessment report. It has been concluded that based on the discussion in FAS180355 R11,0, the fire hazard performance of the solid timber species tested in Table 5 of FAS180355 R11.0 at a minimum nominal thickness of 9 mm including the V joint, ship lap and regency profile joint profiles, would achieve a group number of 3 when assessed in accordance with the requirements of AS 5637.1:2015.

6.0 Validity

Jensen Hughes does not endorse the tested or assessed products and systems in any way. The conclusions of this assessment 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.

Due to 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.

This assessment is based on test data, information and experience available at the time of preparation. If contradictory evidence becomes available to the assessing authority, the assessment will be unconditionally withdrawn and the report sponsor will be notified in writing. Similarly, the assessment should be re-evaluated, if the assessed construction is subsequently tested since actual test data is deemed to take precedence.

The sponsor is responsible for formally notifying Jensen Hughes of any additional testing performed on their product/system. This obligation applies regardless of where the test was conducted, the results of the test, or whether it was initially considered part of Jensen Hughes' ongoing assessment. The primary goal of this notification is to allow Jensen Hughes to review the changes and determine whether they require re-evaluation or re-testing to determine whether the changes have affected the product's performance. It is important that the client promptly notify Jensen Hughes if any such changes are implemented.

The procedures for the conduct of tests and the assessment of test results are subject to constant review and improvement. The sponsor is therefore recommended that this report be reviewed on, or before, the stated expiry date.

This assessment represents our opinion about the performance of the proposed systems that is expected to be demonstrated when subjected to test conditions in accordance with AS 5637.1:2015, based on the evidence referred to in this report.

This assessment is provided to Forest and Wood Products Australia Limited for their own specific purposes. This report may be used as evidence of suitability in accordance with the requirements of the relevant National Construction Code. Building certifiers and other third parties must determine the suitability of the systems described in this report for a specific installation.