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# REGULATORY INFORMATION REPORT

Timber-framed floor/ceiling systems incorporating various timber and metal web floor trusses or engineered joists with an FRL of 120/120/120

Client: Forest and Wood Products Australia

Job number: FAS190034 Issuing consultant: Imran Ahamed

Date: 19 July 2019 Revision: RIR1.0

# Amendment schedule

| Version | Date | Information relating to report | | | |
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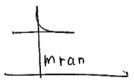
| RIR1.0 | Issue: 19/07/2019 | Reason for issue | Report issued to Forest and Wood Products Australia for review and comment. | | |
| | | Initial Issue | Prepared by | Reviewed by | Approved by |
| | Expiry: 31/07/2024 | Name | Imran Ahamed | Omar Saad | Kjetil Pedersen |
| | | Signature |  |  |  |
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| | Expiry: | Name | | | |
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| | Issue: | Reason for issue | | | |
| | | | Prepared by | Reviewed by | Approved by |
| | Expiry: | Name | | | |
| | | Signature | | | |

# Contact Information

Warringtonfire Australia Pty Ltd - ABN 81 050 241 524

**NATA Registered Laboratory**
Unit 2, 409-411 Hammond Road
Dandenong Victoria 3175
Australia
T: +61 (0)3 9767 1000

# General conditions of use

# Contents

# 1. Introduction

This report contains the minimum information sufficient for regulatory compliance in accordance with AS 1530.4:2014 Clause 2.16.3 and refers to the assessment report FAS190034-R1.0.

The referenced assessment report (FAS190034-R1.0) presents an assessment on the fire-resistance level (FRL) of timber-framed floor/ceiling systems incorporating various timber and metal web floor trusses or various engineered joists if tested in accordance with AS 1530.4:2014.

The tested prototypes described in section 2 of this report, when subjected to the proposed variations described in section 3 and tested in accordance with the relevant standards described in section 4, are assessed to achieve the performance as summarised in section 5.

The validity of this report is conditional on compliance with sections 6, 7, 8 and 9 of this report.

# 2. Tested prototypes

The referenced assessment report is based on the test report TST180021.2, being a test on a load bearing floor-ceiling system tested in accordance with AS 1530.4:2014. The tested floor-ceiling system consisted of various truss joists and I joist elements protected by a ceiling system with three layers of 16mm Knauf Fireshield fire rated plasterboard. The test was sponsored by Forest and Wood Products Australia and was conducted by Warringtonfire Australia Pty Ltd.

# 3. Variation to tested prototypes

The proposed horizontal element construction shall be as tested in TST180021.2, but optionally subject to any combination of the following variations;

1. The primary structural elements shall be varied to include one or a combination of the following elements in a floor/ceiling system;
    - Solid metal web beams - TecBeams
    - Metal Strut web beams - MiTek PosiTruss and Pryda Span Truss
    - Timber web I-joists - WesBeam “e-Joist”
    - Floor trusses with nail plate connections - Pryda Longreach floor truss
    - Roof/floor truss configurations (on edge) with nail plate connections
    - Solid timber joists
    - Glue laminated timber and Laminated Veneer Lumber (LVL) joists - Resorcinol adhesive
2. Depth and span of primary structural element may be increased provided it is designed in accordance with AS 1720.1:2010[1] by an accredited structural engineer as appropriate.
3. Width of the floor can be increased.
4. The Plasterboard shall be 3 × 16mm Knauf Fireshield or other proprietary fire-resistant plasterboard that has been tested or assessed with three 16mm layers for an FRL of 120/120/120 and Resistance to the Incipient Spread of Fire (RISF) of 120 minutes when protecting a solid timber floor system.
5. The minimum cavity depth shall be 288mm.
6. Flooring shall be varied from 15mm thick plywood tested to one of the following;
    - Particleboard with minimum thickness of 18mm
    - Engineered flooring with minimum thickness of 15mm
    - Cement sheet or calcium silicate sheet with minimum thickness of 15mm

[1] Timber structures Part 1: Design methods

- Plywood with minimum thickness of 15mm
- Tongue and groove timber flooring with minimum thickness of 15mm
- AAC panel with minimum thickness of 50mm.
- Concrete or sand / cement screed cast over plywood or particleboard with a minimum thickness of 50mm.

7. Flooring may have one of the following additional coverings;
    - Carpet
    - Tile
    - Stone
    - Various acoustic treatments
8. The ceiling suspension systems shall be designed to support the loads expected to be applied by the ceiling and any insulation and other fixtures. The framing and support system for the ceiling battens shall include any combination of the following when installed at the maximum 600mm centres;
    - 16mm and 28mm furring channels
    - Fixing systems may include,
        - Direct fixing clips
        - Resilient mounts
            - M237R Direct Fix Furring Channel resilient mount (Studco)
            - Furring Channel resilient mount (Rondo)
            - Furring Channel resilient mount (Gyprock)
        - Upgraded resilient mounts
            - Rondo WHI Rubber Hanger Isolator (Green)
            - Rondo WHI Rubber Hanger Isolator (Red)
            - Rondo WHI Rubber Hanger Isolator (White)
            - M50R-BLK Resilient Isolation Hanger (Studco)
        - Suspended ceiling systems with cross rails
9. The floor cavity shall include the following insulation options;
    - No insulation
    - Non-combustible mineral fibre or glass wool up to maximum cavity depth
10. The floor ceiling systems shall optionally include a non-fire rated decorative false ceiling system below provided
    - The fixing method and support system via the ceiling furring channels/battens and they have been designed to support the loads at ambient conditions.
    - The false ceiling system will be supported from the fire-resistant ceiling system and shall be attached as follows
        - Direct fixing clips secured through the fire-resistant board
        - Resilient mount secured through the fire-resistant board
        - Suspended ceiling systems secured through the fire-resistant board
    - Or the false ceiling system is supported by the timber trusses and floor panels via 6mm threaded rods, where the rods penetrate the fire-resistant plasterboard. The gaps between the rod and the boards shall be sealed by a fire-resistant sealant for systems required to achieve an FRL of 120/120/120 and RISF of 90 minutes. If an FRL of 120/120/120 and RISF of 120 minutes is required, one of the following modifications shall be done in addition to the sealant.

- A 25mm layer of non-combustible mineral or glass fibre layer is fitted over the ceiling or,
- Concentric steel sleeves of 25mm high with a nominal 25mm internal diameter are fitted around threaded rods where they penetrate the plasterboard ceiling

11. The floor panels shall optionally be Cross Laminated Timber (CLT) and Laminated Veneer Lumber (LVL) floor panel systems with minimum 38mm cavity depth.

# 4. Referenced test standard

The referenced assessment report is prepared with reference to the requirements of AS 1530.4:2014, AS 1170.0:2002[2], AS 1720.1:2010, AS 1720.4:2006[3] and AS 1720.5:2015[4].

# 5. Formal assessment summary

On the basis of the discussion presented in the referenced assessment report, it is the opinion of this testing authority that if the tested prototype described in section 2 had been varied as in section 3, it will achieve the fire-resistance performance as stated below if tested in accordance with the test method referenced in section 4 when subject to the requirements of section 7.

**FRL** **120/120/120**

**RISF** **120 minutes**

# 6. Direct field of application

The results of the referenced assessment report are applicable to the floor/ceiling systems exposed to fire from below.

# 7. Requirements

The referenced assessment report details the methods of construction, test conditions and assessed results that would have been expected had the specific elements of construction described herein been tested in accordance with AS 1530.4:2014.

All services shall be supported in the manner in which they are assessed as described in section 3. Any further variations with respect to size, constructional details, loads, stresses, edge or end conditions, other than those identified in the referenced assessment report, may invalidate the conclusions drawn in this report.

The data, methodologies, calculations and conclusions documented in the referenced assessment report specifically relate to the assessed system/s and must not be used for any other purpose.

The referenced assessment report has been prepared based on information provided by others. Warringtonfire has not verified the accuracy and/or completeness of that information and will not be responsible for any errors or omissions that may be incorporated into this report as a result.

[2] Structural design actions – Part 0: General principles
[3] Timber structures – Part 4: Fire resistance for structural adequacy of timber members
[4] Timber structures Part 5: Nailplated timber roof trusses

# 8. Validity

Warringtonfire Australia does not endorse the tested or assessed product in any way. 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.

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.

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 subject to constant review and improvement. It is therefore recommended the referenced assessment report be reviewed on or, before, the stated expiry date.

The referenced assessment report represents our opinion about the performance likely to be demonstrated on a test in accordance with AS 1530.4:2014, based on the evidence referred to in the referenced assessment report.

The referenced assessment report is provided to the Forest and Wood Products Australia for its own purposes and we cannot express an opinion on whether it will be accepted by building certifiers or any other third parties for any purpose.

# 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.
- 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.

## 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 Warringtonfire Australia Pty Ltd.

# 10. Framework for the assessment

An assessment is an opinion about the likely performance of a component or element of structure if it were subject to a standard fire test.

No specific framework, methodology, standard or guidance documents exists in Australia for doing these assessments. Therefore, we have followed the Guide to Undertaking Assessments In Lieu of Fire Tests prepared by the Passive Fire Protection Federation (PFPF) in the UK[5].

[5] Guide to Undertaking Assessments In Lieu of Fire Test - The Passive Fire Protection Federation (PFPF), June 2000, UK.

This guide provides a framework to undertake 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*
- *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 will 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.