



Fire assessment report

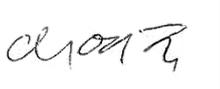
The bushfire resistance performance of WoodEvo
HomeAdvanced Composite Deck

Sponsor: WoodEvo Composite Decking

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Quality management

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Executive summary

This report documents the findings of the assessment undertaken to determine the bushfire attack level (BAL) of WoodEvo HomeAdvanced Composite Deck in accordance with AS 1530.8.1:2018.

The analysis in section 5 of this report found that the proposed system, together with the described variation, will achieve BAL-AA29 as shown in Table 1 – in accordance with AS 1530.1:2018.

The variations and outcome of this assessment are subject to the limitations and requirements described in sections 2, 3 and 6 of this report. The results of this report are valid until 31 July 2029.

Table 1 Overview of variations and assessment outcome

| Variation | Test standard | Reference test | Evidence of suitability | BAL rating |
|--|------------------|----------------|-------------------------|------------|
| WoodEvo™ HomeAdvanced Composite Deck system with the following fascia boards as a variation instead of WoodEvo™ HomeAdvanced Square Board: <ul style="list-style-type: none"> • 0.42 BMT COLORBOND® Roofing & Walling Corrugated Iron • 0.55 mm thick galvanised steel flat flashing sheet • Minimum 140 mm wide × 25 mm thick Merbau decking board | AS 1530.8.1:2018 | FRT230188 R1.0 | A5G3(1)(d) | AA29 |

Contents

| | | |
|------------|--|----|
| 1. | Introduction | 5 |
| 2. | Framework for the assessment..... | 5 |
| 2.1 | Assessment approach | 5 |
| 2.2 | Compliance with the National Construction Code..... | 6 |
| 2.3 | Declaration | 6 |
| 3. | Requirements and limitations of this assessment..... | 6 |
| 4. | Description of the specimen and variations | 7 |
| 4.1 | Description of assessed system | 7 |
| 4.2 | Referenced test data..... | 7 |
| 4.3 | Variations to the tested system | 7 |
| 4.4 | Test standard..... | 8 |
| 4.5 | Schedule of components | 8 |
| 5. | Assessment 1 – Variation of the fascia board..... | 11 |
| 5.1 | Description of variation | 11 |
| 5.2 | Methodology..... | 11 |
| 5.3 | Assessment..... | 11 |
| 5.4 | Assessment outcome..... | 12 |
| 6. | Validity | 12 |
| Appendix A | Summary of supporting test data | 13 |
| Appendix B | Direct field of application | 14 |

1. Introduction

This report documents the findings of the assessment undertaken to determine the bushfire attack level (BAL) of WoodEvo™ HomeAdvanced Composite Deck in accordance with AS 1530.8.1:2018¹

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 system.

This assessment was carried out at the request of WoodEvo Composite Decking. The sponsor details are included in Table 2.

Table 2 Sponsor details

| Sponsor | Address |
|---------------------------|--|
| WoodEvo Composite Decking | 3 Bass Court Keysborough VIC 3173 Australia |

2. 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 2021².

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 BAL rating of the elements in accordance with AS 1530.1:2018.

¹ Standards Australia, 2018, Methods for fire tests on building materials, components and structures – Part 8.1: Tests on elements of construction for buildings exposed to simulated bushfire attack – Radiant heat and small flaming sources, AS 1530.8.1:2018, Standards Australia, NSW.

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.

This assessment has been written in accordance with the general principles outlined in EN 15725:2023³ for extended application on the fire performance of construction products and building elements: Principle of EXAP standards and EXAP reports.

The performance of the system with the variations documented in this assessment report has been determined by assessing the performance of tested systems against the impact of the variation.

2.2 Compliance with the National Construction Code

The BAL performance of construction elements for buildings exposed to simulated bushfire attack is determined in accordance with AS 1530.8.1:2018 or AS 1530.8.2:2018. As of the issuance of this report, the NCC 2022⁴ does not outline bushfire specifications for products or construction elements, nor does it provide evidence of suitability requirements for bushfire performance, except as outlined in Specification 43. Therefore, we have adopted the approach under A5G3(1)(d).

This assessment report has been prepared to meet the evidence of suitability requirements of the NCC 2022⁵ under A5G3(1)(d). It references test evidence for meeting deemed-to-satisfy (DTS) provisions of the NCC under A5G5 for fire resistance level that apply to the assessed systems based on Specifications 1 and 2 for fire resistance for building elements.

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.

2.3 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 3 June 2024, WoodEvo Composite Decking confirmed that:

- To their knowledge, the variations to the component or element of structure, which is the subject of this assessment, have 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. Requirements and limitations of this assessment

- The scope of this report is limited to an assessment of the variations to the tested systems described in section 4.3.
- This report details the methods of construction, test conditions and assessed results in accordance with AS 1530.1:2018.
- This assessment report has been prepared based on the BAL rating and condition of the systems at the time they were tested. Any deterioration of BAL rating due to external

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 2022, Australian Building Codes Board, Australia

⁵ National Construction Code Volumes One and Two - Building Code of Australia 2022, Australian Building Codes Board, Australia

factors including but not limited to passage of time and exposure to elements – is not considered in this report.

- This report is only valid for the assessed system 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. Warringtonfire 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. Description of the specimen and variations

4.1 Description of assessed system

The proposed deck system – WoodEvo™ HomeAdvanced Composite Deck – consists of 140 mm wide × 25 mm thick WoodEvo™ HomeAdvanced Grooved Decking Board. The decking boards are installed on top of an enclosed subfloor with a maximum spacing of 6 mm. The fascia board is installed on the front face of the deck, in line with the top surface, using decking screws through mid-height of the fascia board at nominal 400 mm centres.

4.2 Referenced test data

The assessment of the variation to the tested system and the determination of the BAL rating are based on the results of the fire test documented in the reports summarised in Table 3. Further details of the tested system are included in Appendix A.

Table 3 Referenced test data

| Report number | Test sponsor | Test date | Testing authority |
|----------------|---------------------------|--------------|-------------------|
| FRT230188 R1.0 | WoodEvo Composite Decking | 2 April 2024 | Warringtonfire |

4.3 Variations to the tested system

The tested systems and variations to those tested system – together with the referenced standard fire tests – are described in Table 4.

Table 4 Variations to tested system

| Item | Reference test | Description | Variations |
|------|----------------|--|---|
| 1. | FRT230188 R1.0 | The tested system consisted of WoodEvo™ HomeAdvanced Grooved Decking Board and WoodEvo™ HomeAdvanced Square Board as fascia board. | <p>Assess the WoodEvo™ HomeAdvanced Composite Deck system using the following fascia boards as a variation instead of WoodEvo™ HomeAdvanced Square Board:</p> <ul style="list-style-type: none"> • 0.42 BMT COLORBOND® Roofing & Walling Corrugated Iron • 0.55 mm thickness galvanised steel flat flashing sheet • Minimum 140 mm wide × 25 mm thick Merbau decking board |

4.4 Test standard

AS 1530.8.1:2018 provides methods for determining the performance of external construction elements when exposed to radiant heat, burning embers and burning debris. In particular, section 21 of AS 1530.8.1:2018 sets out specific procedures for determining the BALs of combustible decks.

4.5 Schedule of components

Table 5 outlines the schedule of components for the assessed system. We have based this schedule of component from the reference test/assessment report shown in Table 3.

Table 5 Schedule of components of assessed system

| Item | Description | |
|-------------|----------------|---|
| Deck | | |
| 1. | Item name | Decking board |
| | Product name | WoodEvo™ HomeAdvanced Grooved Decking Board |
| | Manufacturer | WoodEvo™ |
| | Material | PVC |
| | Uncut size | 140 mm wide × 25 mm thick (nominal) |
| | Linear density | 2.38 kg/m |
| 2. | Item name | Fascia board |
| | Product name | COLORBOND® Roofing & Walling Corrugated Iron 0.42 BMT |
| | Manufacturer | COLORBOND® |
| | Material | Steel |
| | Uncut size | Minimum 140 mm wide × 0.42 mm thick (nominal) NOTE: The corrugated sheeting must be installed in accordance with clause 3.6 of AS 3959:2018 ⁶ - the corrugated sheet must not have gaps larger than 2 mm at the joints where it meets the decking board or the subfloor. |
| | OR | |
| | Product name | Steel Flat Sheet Galvanised |
| | Material | Steel |

⁶ Standards Australia, 2018, Construction of buildings in bushfire-prone areas, AS 3959:2018, Standards Australia, NSW.

| Item | Description | |
|--------------------|------------------------|--|
| | Uncut size | Minimum 140 mm wide × 0.55 mm thick (nominal) |
| | OR | |
| | Product name | Bushfire resisting hardwood decking board |
| | Material | Merbau decking board |
| | Uncut size | Minimum 140 mm wide × 25 mm thick Merbau decking board |
| Sub-floor | | |
| 3. | Subfloor configuration | Enclosed subfloor |
| | Description | The subfloor to which this decking systems sits on must be an enclosed subfloor system in accordance with clause 7.2 of AS 3959:2018. NOTE: The subfloor system must be enclosed. |
| 4. | Item name | Subfloor enclosure material |
| | Description | The enclosure material must be an enclosed subfloor system that is identical to the tested system – foil faced woven mesh or construction material in accordance with clause 7.2 of AS 3959:2018. NOTE: The subfloor system must be enclosed. |
| Fixings | | |
| 5. | Item name | Decking screw |
| | Product name | WoodEvo™ Color Matching decking screws |
| | Description | 12 g × 65 mm long Dacromet® type 17 torx decking screws |
| | Supplier | WoodEvo™ |
| 6. | Item name | Nylon hidden spacer |
| | Product name | WoodEvo™ EvoClip T Clip system |
| | Overall size | 45 mm wide × 19 mm deep × 12 mm tall |
| | Material | Nylon |
| | Supplier | WoodEvo™ |
| 7. | Item name | Hidden spacer screws |
| | Product name | EvoClip T Clip Screws |
| | Description | 8 g × 45 mm long black stainless steel, type 17 trim head torx screws |
| | Supplier | WoodEvo™ |
| Deck | Installation | <p>Nylon hidden spacers (item 6) must be slotted into the groove of the decking board (item 1) above each joist (item 3). The spacers (item 6) must be fixed down to the joists (item 3) using spacer screws (item 7). The decking boards (item 1) must be installed with spacers (item 6) between them. The gap between decking boards must be maintained at maximum 6 mm as tested.</p> <p>The fascia board (item 2) must be installed on the front face of the deck, in line with the top surface, using decking screws (item 5) through mid-height of the fascia board at nominal 400 mm centres.</p> <p>NOTE: For fascia planks wider than 140 mm – multiple screws are required at ‘mid-height’. The vertical spacing along the width between the screws must be less than 140 mm as per the tested system and less than 70 mm from the top and bottom of the fascia board.</p> |
| Wall system | | |

| Item | Description | |
|------|-------------|--|
| 8. | Item name | Adjacent wall system |
| | Description | The wall to which this decking systems abuts must be a wall that has been tested or assessed to achieve the performance level of BAL-29 in accordance with AS 1530.8.1:2018, or any BAL 29 compliant system meeting the minimum construction requirements of AS 3959:2018. |

5. Assessment 1 – Variation of the fascia board

5.1 Description of variation

FRT230188 R1.0 details testing of WoodEvo™ HomeAdvanced Composite Deck in accordance with AS 1530.8.1:2018. The test specimen consists of the WoodEvo™ HomeAdvanced Grooved Decking Boards installed perpendicularly over the top of the joists. The decking boards were secured to the joists using screws and nylon spacers. There was a 6 mm nominal gap between each deck board.

WoodEvo™ HomeAdvanced Square Board was screw fixed to the exposed face of the specimen as a fascia board. The tested system failed to achieve a BAL rating due to failure of fascia board at 1 minute.

It is proposed to assess the WoodEvo™ HomeAdvanced Composite Deck system using the following fascia boards as a variation instead of WoodEvo™ HomeAdvanced Square Board:

- 0.42 BMT COLORBOND® Roofing & Walling Corrugated Iron.
- 0.55 mm thick Galvanised steel flat flashing sheet.
- Minimum 140 mm wide × 25 mm thick Merbau decking board.

5.2 Methodology

The method of assessment used is summarised in Table 6.

Table 6 Method of assessment

| Assessment method | |
|---------------------|-----------------------------|
| Level of complexity | Basic assessment |
| Type of assessment | Qualitative and comparative |

5.3 Assessment

In the reference FRT230188 R1.0, the test specimen featured a WoodEvo™ HomeAdvanced Square Board screw fixed to the exposed face as a fascia board. During testing, it failed to meet the performance criteria, with flaming of the deck assembly extending more than 500 mm in any direction from the rear and side walls at 1 minute. The flaming occurred on the fascia board, causing some discoloration on the front edge of the decking board. It should be noted that other areas of the decking board remained unaffected, and no other flame spread was observed.

The use of 0.42 BMT COLORBOND® Roofing & Walling Corrugated Iron or galvanised steel flat flashing sheet with a thickness of 0.55 mm as a fascia board is expected to provide better bushfire performance compared to the WoodEvo™ HomeAdvanced Square Board. The metal sheeting is expected to shield direct radiant heat exposure and is not expected to ignite due to its non-combustibility.

Appendix F of AS 3959:2018 provides a list of bushfire-resisting timbers. These timbers, whether in solid, laminated or reconstituted form, have been tested in accordance with AS/NZS 3837 and deemed to be acceptable to withstand exposure up to a BAL 29 condition as defined in AS 3959:2018. Merbau timber boards have been tested and meet the requirements for bushfire-resisting timber in accordance with AS 3959:2018. The Merbau timber board is expected to shield decking boards from direct radiant heat exposure and is expected to provide better performance than WoodEvo™ HomeAdvanced Square Board in BAL 29 conditions.

Based on the above, it is considered that the performance of the proposed construction is positively assessed for BAL-AA29 in accordance with AS 1530.8.1:2018.

5.4 Assessment outcome

This assessment demonstrates that if the WoodEvo™ HomeAdvanced Composite Deck system is modified by the proposed variations, it is capable of achieving a BAL rating of AA29 in accordance with AS 1530.1:2018.

6. Validity

Warringtonfire does not endorse the tested or assessed products and systems in any way. The conclusions of this assessment may be used to directly assess BAL rating, but it should be recognised that a single test method will not provide a full assessment of BAL rating 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 Warringtonfire 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 Warringtonfire's ongoing assessment. The primary goal of this notification is to allow Warringtonfire 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 Warringtonfire 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 system that is expected to be demonstrated when subjected to test conditions in accordance with AS 1530.1:2018, based on the evidence referred to in this report.

This assessment is provided to WoodEvo Composite Decking 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.

Appendix A Summary of supporting test data

A.1 Test report – FRT230188 R1.0

Table 7 Information about test report

| Item | Information about test report |
|--|---|
| Report sponsor | WoodEvo™ Composite Decking, 3 Bass Court, Keysborough VIC 3173, Australia |
| Test laboratory | Warringtonfire Australia, 409-411 Hammond Road, Dandenong, Victoria 3175, Australia. |
| Test date | The simulated bushfire test was done on 2 April 2024. |
| Test standards | The test was done in accordance with AS 1530.8.1:2018 |
| Variation to test standards | None |
| General description of tested specimen | <ul style="list-style-type: none"> Two glue laminated merbau timber bearers were cut to a length of 1800 mm long. Five glue laminated merbau timber joists were spaced at nominal 450 mm centres. The WoodEvo™ HomeAdvanced Grooved Decking Boards were installed perpendicularly over the top of the joists. The decking boards were secured to the joists using screws and nylon spacers. There was a 6 mm nominal gap between each deck board. A WoodEvo™ HomeAdvanced Square Board was screw fixed to the exposed face of the specimen as a fascia board. |
| Instrumentation | The test report states that the instrumentation was in accordance with AS 1530.8.1:2018 |

The test specimen achieved the following results – see Table 8.

Table 8 Results summary for this test report

| Performance criteria | Time to failure (min.) | Position of failure |
|---|------------------------|-----------------------|
| Formation of through-gaps greater than 3 mm | No failure | - |
| Sustained flaming for 10 s on the non-fire side | No failure | - |
| Extent of flaming exceeding 500 mm limits on decking boards | Failure at 1 minute | Fascia board |
| Flaming on the fire-exposed side at the end of the 60 minute test period | No failure | - |
| Radiant heat flux 365 mm from the non-fire side exceeding 15 kW/m ² | Not applicable | - |
| Maximum temperature rises greater than 180 K | No failure | - |
| Radiant heat flux 250 mm from the specimen, greater than 3 kW/m ² between 20 min and 60 min | No failure | - |
| Maximum temperature of internal faces exceeding 300 °C between 20 min and 60 min after commencement of test | No failure | - |
| Crib class | Type AA | Peak heat flux |
| | | 29 kW/m ² |
| Test result | BAL: NIL | |

Appendix B Direct field of application

Note: The text in this appendix has been taken from AS 1530.8.1:2018.

The results of the fire test contained in this assessment report are directly applicable, without reference to the testing authority for a technical opinion, to similar constructions where one or more of the following changes have been made provided no individual component is removed or reduced:

- Increase in thickness of solid decking material.
- Increase in cross-section of bearers and joists.
- Increase in the size of the deck.