



FIRE ASSESSMENT REPORT

FC15559-01 ISSUE 1

BUSHFIRE ASSESSMENT OF ECO-BLOCK SYSTEMS IN ACCORDANCE WITH AS 3595:2018 (Amdt. 1 and 2)

CLIENT

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ASSESSMENT OBJECTIVE

To assess ECO-Block wall systems for compliance with the BAL 12.5 to BAL FZ rating of AS 3959-2018 (Amdt 1 and 2).

CONCLUSION

It is considered that an ECO-Block wall system with a core thickness of at least 100 mm, complies with the BAL 12.5 to BAL FZ rating of AS 3959-2018 (Amdt. 1 and 2) in that the wall system achieves an FRL of at least -/30/30.

In accordance with Clause 9.1 of AS 3959:2018 (Amdt. 1 and 2) the BAL-FZ rating applies to buildings with a setback from classified vegetation of at least 10 metres.

It is also considered that, where applicable, an ECO-Block wall system with a core thickness of at least 100 mm can be used to satisfy clause 3.2.1 of AS 3959-2018 (Amdt. 1 and 2) in that the wall system achieves an FRL of at least 60/60/60 or -/60/60 for loadbearing and non-loadbearing walls respectively.

The wall must otherwise comply with the construction requirements of AS 3600:2018.

LIMITATION

This report is subject to the accuracy and completeness of the information supplied.

BRANZ reserves the right to amend or withdraw this assessment if information becomes available which indicates the stated fire performance may not be achieved.

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1. INTRODUCTION

This report gives BRANZ's assessment of ECO-Block wall systems for compliance with the BAL 12.5 to BAL-FZ rating of AS 3959:2018 (Amdt 1 and 2).

The wall system comprises insulating formwork manufactured from flame retarded expanded polystyrene with plastic webs. The core is filled with concrete of minimum nominal thickness 100 mm. The wall is essentially concrete with the polystyrene on the outer faces and otherwise complies with the construction requirements of AS 3600:2018. The external cladding may be materials such as cement modified polymer renders, steel (corrugated or similar 0.42 BMT thick), or at least 6 mm thick fibre cement board.

2. BACKGROUND

In BRANZ assessment report FAR 2251 Issue 3 it was considered that a concrete wall manufactured using the ECO-Block form system would provide at least the fire resistance in accordance with AS 1530.4:2014 as given in AS 3600:2018, the concrete code, for the appropriate concrete core thickness as shown in Table 1.

Table 1: Eco Block Fire Resistance Levels

ECO-Block core thickness (mm)	Fire Resistance Level (FRL)
100	90/90/90
120	120/120/120
150	180/180/180
170	240/240/240

3. DISCUSSION

3.1 BAL-FZ to AS 3959:2018 (Amdt. 1 and 2)

The BAL-FZ specification of AS 3959:2018 (Amdt. 1 and 2), clauses 9.4 (c) for BAL-FZ requires that to comply with a BAL-FZ rating the wall must achieve an FRL of at least 30/30/30. BRANZ assessment report FAR 2251 Issue 3 considered that, as given in Table 1, an ECO-Block wall system with a nominal core thickness of 100 mm would achieve an FRL of at least 90/90/90.

Consequently, an ECO-Block wall with a core thickness of 100 mm complies with the BAL-FZ rating, in that the wall was considered to achieve an FRL of at least 30/30/30.

In accordance with Clause 9.1 of AS 3959:2018 (Amdt. 1 and 2) this applies to buildings with a setback from classified vegetation of at least 10 metres.

3.2 BAL-12.5 to BAL-40 of AS 3959:2018 (Amdt. 1 and 2)

In accordance with Clause 3.4 of AS 3959:2018 (Amdt. 1 and 2) construction requirements for a particular BAL shall be acceptable for a lower BAL rating. As the wall systems are



considered in section 3.1 above to meet the requirements for a BAL-FZ rating, the wall also complies with BAL-12.5 to BAL-40.

The FRL of the ECO Block wall system is derived exclusively from the concrete core and any wall linings are not considered in determining their FRL. The BAL-FZ is achieved through the wall system having an FRL of at least 30/30/30, as discussed in Section 3.1 above. For a BAL-FZ there are no other specifications which the wall must meet. In BAL-12.5 to BAL-40 there are other requirements but the FRL of 30/30/30 is not specified.

In accordance with Clause 3.4 of AS 3959:2018 (Amdt. 1 and 2) the highest BAL rating takes precedence and therefore the wall complies with BAL-12.5 to BAL-40, with no additional requirements specified for each level.

3.3 External wall cladding

For compliance with a BAL-FZ rating, there are no specific requirements for the external wall cladding. It is proposed to use materials such as cement modified polymer renders, steel (corrugated or similar 0.42 BMT thick), or at least 6 mm thick fibre cement board. These materials are either non-combustible or are unlikely to contribute to fire spread over the wall.

3.4 Clause 3.2.1 of AS 3959:2018 (Amdt. 1 and 2)

Clause 3.2.1 of AS 3959:2018 (Amdt. 1 and 2) applies to “Attached structures and structures sharing a common roof space”. Where the attached structure such as a garage, carport, veranda or similar roofed structure is unable to meet the required BAL rating or construction requirements of AS 3959:2018 (Amdt. 1 and 2), it shall be separated from the subject building by a wall extending to the underside of a non-combustible roof covering. That wall will have an FRL of at least 60/60/60 or -/60/60 as appropriate for loadbearing and non-loadbearing walls.

BRANZ assessment report FAR 2251 Issue 3 considered that, as given in Table 1, an ECO-Block wall system with a nominal concrete core thickness of 100 mm would achieve an FRL of at least 90/90/90.

Consequently, an ECO-Block wall with a nominal concrete core thickness of 100 mm can be used for compliance with Clause 3.2.1 of AS 3959:2018 (Amdt. 1 and 2) in that the wall was considered to achieve an FRL of at least 60/60/60. A wall achieving an FRL of 60/60/60 for a loadbearing wall and, by default, will also achieve an FRL of -/60/60 for non-loadbearing wall.

4. CONCLUSION

It is considered that an ECO-Block wall system with a nominal concrete core thickness of at least 100 mm, complies with the BAL 12.5 to BAL FZ rating of AS 3959-2018 (Amdt. 1 and 2) in that the wall system achieves an FRL of at least -/30/30.

In accordance with Clause 9.1 of AS 3959:2018 (Amdt. 1 and 2) the BAL-FZ rating applies to buildings with a setback from classified vegetation of at least 10 metres.



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It is also considered that, where applicable, an ECO-Block wall system with a nominal core thickness of at least 100 mm can be used to satisfy clause 3.2.1 of AS 3959-2018 (Amdt. 1 and 2) in that the wall system achieves an FRL of at least 60/60/60 or -/60/60 for loadbearing and non-loadbearing walls respectively.

The wall must otherwise comply with the construction requirements of AS 3600:2018.



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