



CERTIFICATE OF CONFORMITY

This is to certify that

**Kingspan Insulated Panels
Trapezoidal Roof and Wall Panels KS1000 RW**



Product description

Kingspan KS1000RW roof and wall panel product consist of Zinalume sheets that contain a PIR core.

The exterior weather sheet is 0.5mm thick Zinalume G300S AZ150/200 or AM100/150 coated steel. The core is polyisocyanurate (PIR). The internal liner sheet is 0.4mm Zinalume G300S AZ100 coated steel

Product purpose or use

An insulated roof and wall panel system for use on Residential, Communal Residential, Communal non-residential, Commercial, Industrial Buildings and Outbuildings

Certificate holder

Kingspan Ltd
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CodeMark certification body

SAI Global Certification Services Pty Limited
(ACN 108 716 669) Trading as "SAI Global"
JAS-ANZ Accreditation No. Z1440295AS
Address 680 George Street, Sydney, NSW 2000
Website: www.saiglobal.com

Complies with the New Zealand Building Code (NZBC):

if designed, used, installed and maintained in accordance with the scope of this Certificate, the above mentioned product will meet the following provisions of the NZBC:

- B1 Structure - B1.3.1; B1.3.2; B1.3.3(a, f, g, h, j); B1.3.4
- B2 Durability - B2.3.1(b)
- C3 Fire Affecting Areas Beyond the Fire Source – C3.4(a); C3.5; C3.7
- E2 External Moisture - E2.3.1; E2.3.2; E2.3.7
- E3 Internal Moisture – E3.3.5
- F2 Hazardous Building materials - F2.3.1
- H1 Energy Efficiency – H1.3.1

Subject to the following conditions and limitations:

1. Certificate holder will notify SAI Global in accordance with Regulation 15 of the Building (Product Certification) Regulations 2008.
2. The products must be installed in accordance with the Kingspan Trapezoidal RW Product Data Sheet - KS1000 RW (04/2019) and Kingspan KS1000RW Trapezoidal Panel Installation Guide (January 2016), and Roof and Wall Details set Q3 2015.
3. The products must be used for their intended purpose.

Heather Mahon
Global Head of Technical Services
SAI Global Assurance

05/06/2019

Date of issue

CM20104

Certificate Number



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CERTIFICATE OF CONFORMITY



4. Panel spans must not exceed the manufacturer's specification for design wind speeds, where the design wind speed is to be either as determined by NZS3604 Table 5.4 (for buildings within the scope of NZS3604:2011 para 1.1.2), or as specifically calculated in accordance with AS/NZS 1170 by a chartered professional engineer (CPENG).
5. Fixings to be used must be suitable for the wind terrain category that is relevant and they are to accommodate any other relevant project specific loads.
6. The product is suitable for use within 1 m of the boundary.
7. The product is suitable for use where the inner face of the panel is exposed as the internal lining, in:
 - o any building or use where protected by an automatic fire sprinkler system, or
 - o any un-sprinklered building except:
 - where care/protection is provided or
 - in exit ways or
 - in occupied spaces in Importance Level 4 buildings or
 - in crowd and sleeping uses (except household units)
8. The product is suitable for exposure zones B, C and D as defined by NZS3604:2011
9. Certification does not include accessories used with the product.

Components:

The components are detailed in the manufacturer's technical literature, and consist of;

- a. Fasteners
- b. Butyl sealant 6mm x 4mm
- c. Ridge filler
- d. Canister foam
- e. Gun-grade sealant

Manufacturers and Installation Information:

1. Kingspan Trapezoidal RW Product Data Sheet - KS1000 RW Trapezoidal Roof and Wall Panel (04/2019)
2. KS1000 RW Trapezoidal Roof Panel Installation Guide (January 2016)
3. Kingspan Insulation Panels Pty Ltd – Kingspan Panel Performance Durability (21st August 2015).
4. Kingspan KS1000 RW CodeMark Wall Details Version Q3 2015.



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5. Kingspan KS1000 RW CodeMark Roof Details Version Q3 2015
6. Environmental Product Declaration Issued 3 May 2016

Evaluation Methods

1. **B1 Structure** – Resistance of fixings Buildex Engineering Test Lab – Test for pull through testing using Kingspan composite panels. Report No. ELTR 1537 (dated 23rd March 2011) and Buildex Engineering Test Lab – Test for pull through testing using Kingspan composite panels. Report No. ELTR 1579, Issue 2 (dated 3rd September 2012). And Buildex Engineering Test Lab – Test for pull through testing using Kingspan composite panels. Report No. ELTR 1590 (dated 1st February 2013). CostinRoe Consulting Structural Analysis Report (5 June 2015) - Structural analysis and derivation of load-span tables
2. **B2 Durability** – assessed by comparison of exposed material with materials accepted for metal wall cladding in E2/AS1.2012
3. **C3 Fire Affecting Areas Beyond the Fire Source** - Testing to ISO9705:2003 BRANZ – ISO 9705:2003 Fire Test on Kingspan PIR Cored Sandwich Panel System. Report No. F13824 (dated 27th August 2007). Testing to ISO 5660-1:2002 & ISO 5660-2:2002 Heat release rate (Cone Calorimeter Method) & Smoke Production Rate (Dynamic Measurement) Exova Warrington Report 319966 27th July 2012, testing to ISO 13784-1 Exova Warrington reports 2690002.1 and 2690002.1 (dated 1 March 2013); testing to AS2122.1-1993 AWTA Test Report 14-001849 (dated 1 January 2015).
4. **E2 External Moisture** - comparison with Verification Method E2/VM1 and referenced standard AS/NZS4284:2008 Testing of Building Facades; testing by Technology Centre, Taylor Woodrow Technology – Weathertightness testing of a sample of Kingspan KS1000RW Roof Panels. Report No. N950/07/13893 (dated 22 August 2007), opinion by Costin Roe Consulting (Kingspan KS1000RW & KS1000DLTR 1.6 Roof and Wall Panel Opinion on Weathertightness Report dated 13 February 2015) and testing by CSIRO (CSIRO Report No. DTF824 Determination of Dynamic Weather Resistance of Kingspan Insulated Metal Roofing Tile to AS4069.9-2002 June 2007)
5. **E3 Internal moisture** - Comparison with Acceptable Solution E3/AS1
6. **F2 Hazardous Building Materials** - Assessed from environmental product declaration May 2016
7. **H1 Energy Efficiency** - Material and system R-values (James M Fricker – Thermal Performance of Insulated Building System for Kingspan Panels Pty Ltd, Report No. i231a (dated February 2007) and University of Salford, Thermal Measurement Laboratory – Thermal Conductivity of HCFC free PIR Type A report. Reference No. TT04/166 (dated 29th October 2004), CSIRO report Reference No. XC3377/R1 – Thermal transmission properties of metal faced polyurethane (PE) foam board. (Dated 14th November 2016).



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Reports:

1. Costin Roe Consulting - Kingspan KS1000RW & KS1000DLTR 1.6 Roof and Wall Panel Opinion on Weathertightness Report (13 February 2015) *this report provides an opinion on the panel performance to the Australian National Construction Code (2014) performance requirement FP1.4 and draws upon testing to AS/NZS 4284:2008 Testing of Building Facades and EN14509:2013 Self-supporting double skin metal faced insulating panels.*
2. Technology Centre, Taylor Woodrow Technology – Weathertightness Testing of a sample of Kingspan KS1000RW Roof Panels. Report No. N950/07/13893 (dated 22 August 2007). *This report provides the results of weathertightness testing undertaken generally to the CWCT Standard Test methods for building envelopes 2005. The following properties were testing and all received a pass result: Air permeability, Watertightness – static, Watertightness – dynamic, Watertightness – hose, and Wind resistance – serviceability, Wind resistance – safety...*
3. CSIRO Report No. DTF824 Determination of Dynamic Weather Resistance of Kingspan Insulated Metal Roofing Tile to AS4069.9-2002 June 2007 *This report presents the results of dynamic weather resistance tests.*
4. James M Fricker – Thermal Performance of Insulated Building System for Kingspan Panels Pty Ltd. Report No. i231a (dated February 2007). *This report provides the R-Values of roofs and walls incorporating Kingspan KS1000RW panels as determined in accordance with AS/NZS 4829.1:2002.*
5. University of Salford, Thermal Measurement Laboratory – Thermal Conductivity of HCFC free PIR Type A. Reference No. TT04/166 (dated 29th October 2004). *This report provides the results of testing to ISO 8302:1991 and specifies the thermal resistance of the material.*
6. CSIRO – Thermal transmission properties of metal faced polyurethane (PE) foam board. Reference No. XC3377/R1 (dated 14th November 2016). *This report provides the measurements performed by CSIRO to determine the thermal properties of Kingspan KS1100RW panels.*
7. AWTA Test Report 14-001849 (1 January 2015) *This report provides the results of testing PIR foam to AS2122.1-1993 Determination of Flame Propagation – Surface Ignition of Vertically Oriented Specimens of Cellular Plastics and presents the results in compliance with AS 1366-1992.*
8. OPUS International Consultants Note 18 September 2013 *This note presents an opinion regarding the performance in regard to the fire safety requirements of the New Zealand Building Code. This opinion is based on an extensive review of available documentation and specifically the Exova Warrington test reports below.*
9. Exova Warrington Report 319966, Heat release rate (Cone Calorimeter Method) & Smoke Production Rate (Dynamic Measurement) (dated 27 July 2012) *This report presents the results of testing KS1000 CS to ISO 5660–1:2002 & ISO 5660–2:2002*
10. Exova Warrington Report 2690001.1, Fire test of a small room constructed from KS1000RW panels, tested in accordance with ISO 13784-1 2002(E) (dated 1 March 2013)
11. Exova Warrington Report 2690002.1, Fire test of a small room constructed from KS1000RW IPN panels, tested in accordance with ISO 13784-1 2002(E) (dated 1 March 2013)

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Reports:

12. BRANZ – ISO 9705 Fire Test on Kingspan PIR Cored Sandwich Panel System. Report No. FI3824 (dated 27th August 2007). *This report provides the results of testing to AS/ISO 9705:2003 and concludes that 50mm to 200mm thick Kingspan PIR cored sandwich panels achieve at least a classification of Material Group 2. The smoke growth rate index for the tested sample was 21.4(m²/s² x 1000).*
13. Aurecon – Kingspan Panels Advice on Panel Performance during Fire. Report No. 222879.001 Rev 0 (dated 22nd August 2011). *This report compares various test result of the Kingspan panels to the requirements of the BCA. The report concludes for Kingspan panels used as non-loadbearing wall and non-loadbearing ceiling systems, BS 476 Parts 20 and 22:1987 is of equivalent severity to that of AS 1530.4:2005. Consequently, it is considered that the resultant fire performance of the test should be equivalent.*
14. Buildex Engineering Test Lab – Test for pull through testing using Kingspan composite panels. Report No. ELTR 1537 (dated 3rd March 2011). *This report provides the results of mechanical testing to QCM-020 of 14-20 x 65 TEK Screw with and without 25mm aluminium washers.*
15. Buildex Engineering Test Lab – Test for pull through testing using Kingspan composite panels. Report No. ELTR 1579, Issue 2 (dated 3rd September 2012). *This report provides the results of mechanical testing to Bx QCM-020 of 14-14 and 14-10 Hex Washer TEK Screws into purlins F100, F150 and F200 sections.*
16. Buildex Engineering Test Lab – Test for pull through testing using Kingspan composite panels. Report No. ELTR 1590 (dated 1st February 2013). *This report provides the results of mechanical testing to Bx QCM-020 of 14-14 x 110 Hex Washer TEKs from G450 studs and purlins.*
17. CostinRoe Consulting – Kingspan Insulated Wall/Roof Panels – KS1000RW Load-Span Tables for Non-Cyclonic Areas Structural Analysis Report (5 June 2015). *The load-span tables have been prepared for 40mm, 60mm and 100mm core thickness panels for both single and double span conditions. The Assessment was carried out using the method of analysis recommended in the European Standards EN14509: 2006 “Self-Supporting Double Skin Metal Faced Insulating Panels – Factory made Products – Specifications”.*
18. Costin Roe Consulting – Kingspan Insulated Roof Panels – KS1000RW Panel Compliance with AS1562.1-1992 (Non-cyclonic Areas) 30 June 2015 November 2015) *this report reviews the structural performance of KS1000RW roof panels.*
19. Letter 25 January 2019 from Dr M G Tatam, Building Technology Director, Kingspan Insulated Panels Pty Ltd *confirming chemical core composition of specimens and ISO5660 testing.*



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