

# METALCRAFT ESPAN® 470 (ALUMINIUM)

## PURPOSE

Metalcraft Roofing supplies the Metalcraft espan® 470 (Aluminium) profile for use as a vertical wall and roof cladding.

## EXPLANATION

Metalcraft espan® 470 (Aluminium) [espan® 470 (Al)] is a trough profiled sheet fabricated from tempered aluminium alloy 5005 H34 or 5052 H36 supplied by NZ Steel.

The aluminium is supplied coated on both sides with the Colorsteel® system.

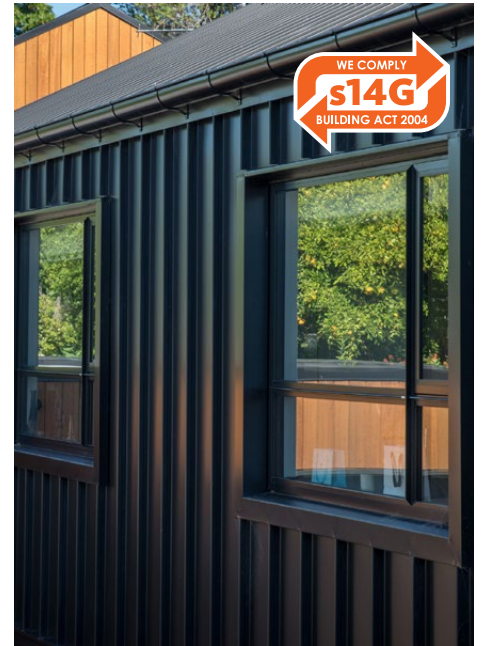
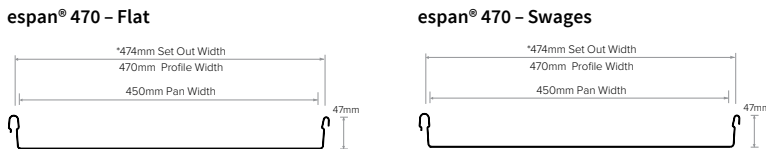
Clip-on solar panels and Metalcraft's Solaflex Laminates can be installed into the flat pan of espan® 470 (Al).

For roofing applications, espan® 470 (Al) is manufactured as standard with two swages in the pan. These provide extra rigidity, strength and reduce wind-driven roof noise. The swages also assist with making oil canning less evident. espan® 470 (Al) roofing installed with Metalcraft Solaflex Laminates does not require swages.

The sheets are available in the following sizes:

- Thickness (mm): 0.9 (aluminium)
- Width (mm): Cover – 470, Sheet – 484

**Figure 1:**  
Profile Dimensions  
(nominal)



## SCOPE AND LIMITATIONS OF USE

Scope	Limitations
<b>Location</b>	
As a roof cladding in all wind zones as defined in NZS 3604:2011 and in all calculated design loads.	<ul style="list-style-type: none"> <li>➤ For wind zones up to and including extra high the following profiles may be used: <ul style="list-style-type: none"> <li>• espan® 470 (Al) - swages</li> <li>• espan® 470 (Al) - flat pan with Metalcraft's Solaflex Laminates in the pan.</li> <li>• espan® 470 (Al) - flat may be used in wind zones up to and including very high but only with prior approval from Metalcraft Roofing.</li> </ul> </li> <li>➤ Where the calculated design loads exceed 2.1 kPa (extra high wind zone) the engineer must satisfy themselves that the product, pitch and fixings will meet the conditions. In these conditions, espan® 470 (Al) – swages may be used, or espan® 470 (Al) flat with Solaflex laminates may also be used.</li> </ul>
As a vertical wall cladding in all wind zones as defined in NZS 3604:2011 and in all calculated design loads.	<ul style="list-style-type: none"> <li>➤ For wind zones up to and including extra high espan® 470 (Al) - flat or espan® 470 (Al) - swages may be used.</li> <li>➤ Where the calculated design loads exceed 2.1 kPa the engineer must satisfy themselves that the product, pitch and fixings will meet the conditions.</li> </ul>
In all exposure zones as defined by NZS 3604:2011.	<ul style="list-style-type: none"> <li>➤ espan® 470 (Al) may be used on all exposure zones.</li> <li>➤ For more information on the specific exposure zones refer to <a href="http://www.colorsteel.co.nz">www.colorsteel.co.nz</a>.</li> </ul>
On buildings located any proximity to a relevant boundary.	<ul style="list-style-type: none"> <li>➤ espan® 470 (Al) is non-combustible.</li> <li>➤ Coreflute adhesive tape, used in conjunction with the Espan clip must comprise &lt; 5% of the wall area.</li> </ul>
<b>Building</b>	
On timber or steel structural framing.	<ul style="list-style-type: none"> <li>➤ Where espan® 470 (Al) is used in an insulated building and in conjunction with steel framing, a thermal break is required.</li> </ul>
In conjunction with a primary structure that complies with the NZ Building Code or where the designer has established that the existing structure is suitable for the intended building work.	<ul style="list-style-type: none"> <li>➤ Building height is limited by the espan® 470 (Al) design load span tables (refer to: <a href="http://www.metalcraftgroup.co.nz">www.metalcraftgroup.co.nz</a>) or specific engineering, where applicable.</li> </ul>
As a wall cladding.	<ul style="list-style-type: none"> <li>➤ espan® 470 (Al) must always be installed over a drained and ventilated cavity.</li> <li>➤ Flashings, flexible and rigid building underlays and fixings must be in accordance with E2/AS1 and the current NZMRM Code of Practice.</li> <li>➤ Contact with other materials must be in accordance with E2/AS1 and the current NZMRM Code of Practice.</li> </ul>
As a roof cladding.	<ul style="list-style-type: none"> <li>➤ espan® 470 (Al) lengths ≤40 m must be installed on a roof with a minimum pitch of 3°.</li> <li>➤ espan® 470 (Al) lengths &gt;40 m and &lt;60 m must be installed on a roof with a minimum pitch of 4°.</li> <li>➤ A potable water collection system may be installed.</li> <li>➤ Flashings, flexible and rigid building underlays and fixings must be in accordance with E2/AS1 and the current NZMRM Code of Practice.</li> <li>➤ Contact with other materials must be in accordance with E2/AS1 and the NZMRM Code of Practice.</li> </ul>

## NZ STEEL ASSURANCE

➤ Australasian registered Environmental Protection Declaration (EPD); compliant with EN 15804.

➤ ISO 9001:2015. Telarc No.82.

➤ ISO 14001:2015. Telarc No. 63.

**VERSION:** 5.2

## PERFORMANCE CLAIMS

If designed, installed and maintained in accordance with all Metalcraft Roofing requirements, espan® 470 (Al) will comply with or contribute to compliance with the following performance claims:

NZ Building Code clauses	BASIS OF COMPLIANCE	
	Compliance pathway	Demonstrated by
<b>B1 Structure</b> B1.3.1, B1.3.2, B1.3.3 (a, b, c, d, g, i)	ALTERNATIVE SOLUTION	<ul style="list-style-type: none"> <li>Aluminium alloy 5005 and 5052, 0.9 mm thickness [NZ Steel; 06/2021].</li> <li>MRM. [2017] Report no. 02/2017/MC.</li> </ul>
	ACCEPTABLE SOLUTION B1/AS1	<ul style="list-style-type: none"> <li>Metalcraft span tables in accordance with AS/NZS 1170.</li> </ul>
<b>B2 Durability</b> B2.3.1 (b), B2.3.2 (b)	VERIFICATION METHOD	<ul style="list-style-type: none"> <li>MRM Pre-Painted Coil Standard (cited in E2/AS1).</li> </ul>
<b>C3 Fire Affecting Areas Beyond the Fire Source</b> C3.4 (a), C3.7 (a)	ACCEPTABLE SOLUTION C/AS1 C/AS2	<ul style="list-style-type: none"> <li>Aluminium is defined in C/AS1 and C/AS2 as non-combustible. Non-combustible products achieve a material group number 1.</li> </ul>
<b>E2 External Moisture</b> E2.3.1, E2.3.2, E2.3.7 (a, b, c)	ALTERNATIVE SOLUTION	<ul style="list-style-type: none"> <li>E2 comparison (TBB, 2022).</li> <li>Largely in accordance with E2/AS1.</li> </ul>
<b>F2 Hazardous Building Materials</b> F2.3.1	ALTERNATIVE SOLUTION	<ul style="list-style-type: none"> <li>Colorsteel® Altimate® safety data sheet.</li> </ul>

Other performance statement	BASIS OF STATEMENT	
	Performance statement	Demonstrated by
espan® 470 (Al) will not contaminate potable water.	AS/NZS 4020:2005	<ul style="list-style-type: none"> <li>Claimed by manufacturer NZ Steel.</li> <li>Refer to the BRANZ statement that metal roof is suitable: <a href="http://www.level.org.nz/water/water-supply/mains-or-rainwater/">http://www.level.org.nz/water/water-supply/mains-or-rainwater/</a></li> </ul>

## SOURCES OF INFORMATION

- BRANZ. [05/2020] Retrieved from <http://www.level.org.nz/water/water-supply/mains-or-rainwater/harvesting-rainwater/>. [Accessed 04/02/2021].
- NZ Metal Roof Manufacturers Association (NZMRM). Code of Practice v3.0. Retrieved from <https://www.metalroofing.org.nz/cop>. [Accessed 04/02/2021].
- NZ Metal Roofing Manufacturing Inc (MRM). [2017] Summary of previous testing of Espan 470. Report No. 02/2017/MC.
- NZ Steel. (10/2018). *Maintenance recommendations brochure V4.0*. Refer <https://www.colorsteel.co.nz/resources/downloads-and-brochures/>. [Accessed 27/02/2022].
- Telarc (14/08/2019). *ISO 9001:2015 The design, manufacture and supply of hot and cold rolled steel plate, sheet and strip, and coated, steel coil and flat sheet. No 82*. Refer <https://www.nzsteel.co.nz/new-zealand-steel/responsibilities/certificates-and-memberships/> [Accessed 28/02/2022].
- Telarc (24/07/2003). *ISO 14001:2015 The management of environmental aspects associated with the operation of: the Glenbrook Mill Site; the Waikato North Head Iron Sand Quarry; Pacific Steel NZ Ltd – Wire Mill; Pacific Steel NZ Ltd – Rolling Mill*. No. 63. Refer <https://www.nzsteel.co.nz/new-zealand-steel/responsibilities/certificates-and-memberships/> [Accessed 28/02/2022].
- TBB (02/2022). *E2 comparison V1.0*.

- Where a standard is referenced it is to be read as amended by the acceptable solution or verification method as applicable.
- Sources of information also include the Building Act 2004 and its regulations, including the Building Code (Schedule 1 of the Building Regulations 1992), Acceptable Solutions and Verification Methods, and relevant cited standards.
- The quality and assurance that the supplied products meet the performance claims stated in this pass™ are the responsibility of the company that is the holder of this pass™
- Where E2/AS1 is referenced it is to be read as including E2/AS4.

Scan or click this QR code for a full download of Compliance Documentation for this pass™.

[www.metalcraftgroup.co.nz](http://www.metalcraftgroup.co.nz)



Metalcraft Roofing confirms that if Metalcraft espan® 470 (Al) is used in accordance with the requirements of this pass™ the product will comply with the NZ Building Code and other performance claims set out in this pass™ and the company has met all of its obligations under s14 G of the Building Act.

**Date of first issue:** 29/11/2019

**Date of current issue:** 08/02/2023

**NZBN:** 9429032461152

*Kevin Brunton*

Kevin Brunton, Technical Director, TBB confirms that this pass has been prepared on behalf of Metalcraft Roofing and in accordance with MBIE PTS guidelines and in accordance with the TBB pass™ process which is within the scope of TBB's ISO 9001 certification.

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For more information visit [www.metalcraftgroup.co.nz](http://www.metalcraftgroup.co.nz).

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