

METALCRAFT ESPAN® 470

PURPOSE

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

EXPLANATION

Metalcraft espan® 470 (espan® 470) is a trough profiled sheet fabricated from steel manufactured by New Zealand Steel.

The sheets are offered as COLORSTEEL® Endura® and COLORSTEEL® Maxx® to withstand New Zealand's exposure zones and are available in the full range of COLORSTEEL® colours.

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

For roofing applications, espan® 470 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 roofing installed with Metalcraft Solaflex Laminates does not require swages.

The sheets are available in the following sizes:

- Thickness (mm): 0.55
- Width (mm): Cover – 470, Sheet – 484

SCOPE AND LIMITATIONS OF USE

Scope	Limitations
Location	
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"> ➤ For wind zones up to and including extra high the following profiles may be used: <ul style="list-style-type: none"> • espan® 470 - swages • espan® 470 - flat pan with Metalcraft's Solaflex Laminates in the pan. • espan® 470 - flat may be used in wind zones up to and including very high but only with prior approval from Metalcraft Roofing. ➤ Where the calculated design loads exceed 2.1 kPa the engineer must satisfy themselves that the product, pitch and fixings will meet the conditions and only espan® 470 - swages may be used without Solaflex laminates.
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"> ➤ For wind zones up to and including extra high espan® 470 - flat or espan® 470 - swages may be used. ➤ Where the calculated design loads exceed 2.1 kPa the engineer must satisfy themselves that the product, pitch and fixings will meet the conditions.
In all exposure zones as defined by NZS 3604:2011.	<ul style="list-style-type: none"> ➤ In exposure Zone D only Colorsteel® Endura® or Colorsteel® Maxx® may be used. ➤ For use in microclimatic considerations (as defined in paragraph 4.2.4) refer to Metalcraft Roofing for technical advice. ➤ For more information on the specific exposure zones refer to www.colorsteel.co.nz.
On buildings located any proximity to a relevant boundary.	<ul style="list-style-type: none"> ➤ Metalcraft espan® 470 is non-combustible. ➤ Coreflute adhesive tape, used in conjunction with the Espan clip must comprise < 5% of the wall area.
Building	
On timber or steel structural framing.	<ul style="list-style-type: none"> ➤ Where espan® 470 is used in an insulated building and in conjunction with steel framing, a thermal break is required.
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"> ➤ Building height is limited by the espan® 470 design load span tables (refer to: www.metalcraftgroup.co.nz) or specific engineering, where applicable.
As a wall cladding.	<ul style="list-style-type: none"> ➤ espan® 470 must always be installed over a drained and ventilated cavity. ➤ Flashings, flexible and rigid building underlays and fixings must be in accordance with E2/AS1 and the current NZMRM Code of Practice. ➤ Contact with other materials must be in accordance with E2/AS1 and the current NZMRM Code of Practice.
As a roof cladding.	<ul style="list-style-type: none"> ➤ espan® 470 lengths ≤40 m must be installed on a roof with a minimum pitch of 3°. ➤ espan® 470 lengths >40 m and <60 m must be installed on a roof with a minimum pitch of 4°. ➤ A potable water collection system may be installed. ➤ Flashings, flexible and rigid building underlays and fixings must be in accordance with E2/AS1 and the current NZMRM Code of Practice. ➤ Contact with other materials must be in accordance with E2/AS1 and the NZMRM Code of Practice.



Figure 1: Profile Dimensions (nominal)

espan® 470 – Flat



espan® 470 – Swages



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.

PERFORMANCE CLAIMS

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

NZ Building Code clauses		BASIS OF COMPLIANCE
Code clauses	Compliance pathway	Demonstrated by
B1 Structure B1.3.1, B1.3.2, B1.3.3 (a, b, c, d, g, i)	ALTERNATIVE SOLUTION	<ul style="list-style-type: none"> Steel in accordance with AS 1397:2021, which is equivalent to AS 1397:2011 for the NZ Steel steel. AS 1397 is cited in NASH Standard Part 1:2016 and NASH Standard Part 2:2019 (BlueScope, 2016). Metalcraft span tables in accordance with AS/NZS 1170. AS/NZS 1170:2002 (for span tables).
	ACCEPTABLE SOLUTION B1/AS1	
B2 Durability B2.3.1 (b), B2.3.2 (b)	VERIFICATION METHOD B2/VM1	<ul style="list-style-type: none"> Steel in accordance with AS 1397:2021, which is equivalent to AS 1397:2011 for the NZ Steel steel. AS 1397 is cited in NASH Standard Part 1:2016 and NASH Standard Part 2:2019 (BlueScope, 2016). Coating to AS 2728, which is cited in E2/AS1. (BlueScope, 2013) NZ Steel and their parent company BlueScope provides assurance that when correctly installed and maintained, their products will meet or exceed NZ Building Code B2: Durability.
C3 Fire Affecting Areas Beyond the Fire Source C3.4 (a), C3.7 (a)	ACCEPTABLE SOLUTION C/AS1 C/AS2 2019, amendment 5, November 2020	<ul style="list-style-type: none"> Steel is defined in C/AS1 and C/AS2 as non-combustible. Non-combustible products achieve a material group number 1.
E2 External Moisture E2.3.1, E2.3.2, E2.3.7 (a, b, c)	ALTERNATIVE SOLUTION	<ul style="list-style-type: none"> E2 comparison (TBB, 2022). Largely in accordance with E2/AS1.
F2 Hazardous Building Materials F2.3.1	ALTERNATIVE SOLUTION	<ul style="list-style-type: none"> Steel in accordance with AS 1397:2021, which is equivalent to AS 1397:2011 for the NZ Steel steel. (BlueScope, 2016). Use in accordance with manufacturer's safety requirements.
Other performance statement		BASIS OF STATEMENT
Performance statement	Performance statement	Demonstrated by
espan® 470 will not contaminate potable water.	AS/NZS 4020:2005	<ul style="list-style-type: none"> Claimed by manufacturer: New Zealand Steel. Refer to the BRANZ statement that metal roof is suitable: http://www.level.org.nz/water/water-supply/mains-or-rainwater/

SOURCES OF INFORMATION

- BlueScope (2016). *Specification clauses for steel to ensure compliance with relevant Australian standards/regulations*. Refer <http://www.steel.com.au/library>. [Accessed 27/02/2022].
- BlueScope (2013). *New Colorbond® steel*. Refer <http://www.steel.com.au/articles/article-44--new-colorbond-steel>. [Accessed 27/02/2022].
- BRANZ. (20/05/2020). *Harvesting rainwater*. Refer <https://www.level.org.nz/water/water-supply/mains-or-rainwater/harvesting-rainwater/>. [Accessed 27/02/2022].
- EPD Australasia. (23/10/2018). *Colorsteel®, Endure®, Colorsteel Maxx® Environmental Product Declaration*. Refer <https://epd-australasia.com/epd/colorsteel-endura-and-colorsteel-maxx/>. [Accessed 27/02/2022].
- NZ Steel. (10/2018). *Maintenance recommendations brochure V4.0*. Refer <https://www.colorsteel.co.nz/resources/downloads-and-brochures/>. [Accessed 27/02/2022].
- NZ Steel. (2022). *Zincalume® steel features*. Refer <https://www.nzsteel.co.nz/products/zincalume/features/>. [Accessed 27/02/2022].
- NZ Metal Roof Manufacturer's (NZMRM) (06/2018, Amend 12/2021). *Code of Practice V3.0*. Refer <https://www.metalroofing.org.nz/codeonline>. [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*.
- TBB (27/05/2021). *Impact of Coreflute on compliance with C3 Fire Affecting Areas Beyond the Fire Source*.

- 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



Metalcraft Roofing confirms that if Metalcraft espan 470 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.

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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.

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