

# ALICLAD MAX

## Design Guide

Aliclad Max V2r5 Mar. 2024

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## 1. GENERAL

The AliClad Max System is a pre-finished aluminium weatherboard cladding system, designed in New Zealand, specifically for New Zealand conditions. The AliClad Max System is designed with a full systems approach and includes a unique water management system which efficiently manages water to the exterior. Unlike many cladding materials, The AliClad Max

System is unaffected by dark colours and does not demand a minimum LRV.

AliClad Max contributes to the compliance of a properly designed building envelope system in accordance with the requirements of the New Zealand Building code as laid out in Section 5 of this document.

## 2. WHY ALICLAD MAX

- The AliClad Max System is pre-finished with either the standard colour range or ordered to suit from most colour charts, consequently offering almost endless colour options.
- The robust and durable nature of The AliClad Max System offers a finish which will not crack, bow, or deform, even when exposed to severe conditions. Colour change will remain minimal over its life.
- Apart from the usual wash-down The AliClad Max System requires very little maintenance over its life and will not require re-coating.
- The AliClad Max System is an easy-to-install system. While it must be installed by a licensed building practitioner, it does not require a specialist installer. The unique water management system around the windows and doors allow for fitting of windows either before or after the cladding is fixed.
- Since The AliClad Max System profiles can be used both vertically and horizontally, the AliClad Max System easily lends itself to mix and match vertical and horizontal options. A selection of multiple profile types allows freedom of design.
- Easy junctions to most other cladding types.

## 3. INTENDED USES

The AliClad Max System is intended for use as a cavity based cladding for residential and light commercial buildings. It is intended for use on drained and ventilated cavities.

described in NZS 3604 and for specific design applications up to ULS 2.5 kPa. Within the scope of testing, the AliClad Max System may be suitable for use in multi-story situations.

It is suitable for use in all wind zones up to and including extra high wind zones as

## 4. LIMITATIONS

Where the building has a building height greater than 10 m and the upper floors contain sleeping uses or other property, the specification of the external wall must be in accordance with the BS 8414 and BR 135 tested assembly. Refer to BRANZ FF13923-02-1 0- Test BS8414-2:2015+A1:2015 BR135 <https://www.branz.co.nz/appraisal-codemark-certificates/>

A drained and ventilated cavity is mandatory unless the building is unlined or Importance Level 1 (as defined in AS/NZS 1170). A flexible or rigid building underlay

and fixings must meet the performance characteristics in Table 23, E2/AS1.

Where the wind zone exceeds very high as defined in NZS 3604:2011 or 1.5kPa, a rigid underlay must be installed.

The building must have a risk score of less than or equal to 20 when evaluated against the E2/AS1 risk matrix. Where the risk score exceeds 20, specific design and detailing for structure and weather-tightness is required.

## 5. COMPLIANCE

When designed and installed in strict accordance with this Installation Guide and the AliClad Max Specification Guide. AliClad Max weatherboards will meet or exceed the requirement of the following clauses of the New Zealand Building Code (NZBC):

Clause B1 Structure  
B1.3.1, B1.3.2, B1.3.3 (a, f, h, j, q), B1.3.4

B2 Durability  
B2.3.1 (b), B2.3.2

Clause C3 Fire Affecting Areas Beyond the Fire Source C3.5, C3.6, C3.7

Clause E2 External Moisture  
E2.3.2, E2.3.5, E2.3.7

Clause F2 Hazardous Building Materials  
F3.2.1.

Refer to the website for a full set of compliance documents to [www.thebuildingagency.co.nz/product](http://www.thebuildingagency.co.nz/product).



## 6. DESIGN CONSIDERATIONS

It is the responsibility of the designer to ensure that the AliClad Max System is appropriate for the intended application.

It is the designers responsibility to ensure that any specific detailing is appropriate where other claddings are used in conjunction or where design demands different detailing not included in this guide.

The designer should ensure that wind zone and differential pressures are taken into consideration for each and every elevation. Consideration should be given to shrinkage of framing and thermal expansion at horizontal joints, particularly those at mid-floor junctions. Continuous cladding over the mid-floor should be avoided. Where total wall heights exceed either 7 metres or two floor levels, the drained cavity must drain at a continuous horizontal inter-storey joint.

While the AliClad Max System is highly versatile and will accommodate most situations, designers should always consider wall lengths, and window and door openings in relation to board width modules to ensure ease of installation and overall aesthetics. Ventilation to the cavity must be provided at the top and bottom of walls and where drained

horizontal joints occur.

Aluminium expansion and contraction will occur due to seasonal weather conditions (1mm per 1m) allowances are required i.e. joints, corners.

It is the responsibility of the specifier to identify moisture related risks associated with any particular building design. Wall construction design must effectively manage moisture, Exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration or that are artificially heated or cooled.

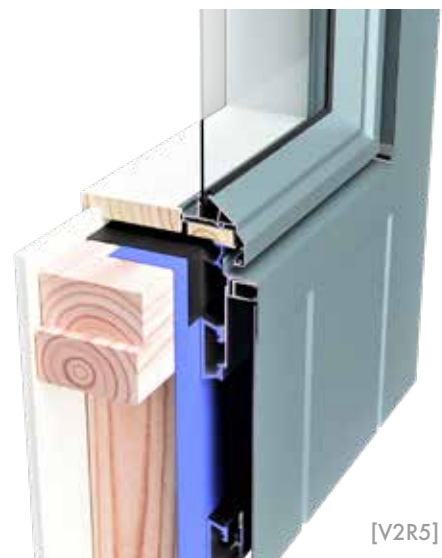
Walls must include those provisions as required by the NZBC Acceptable Solution E2/AS1 'External Moisture'.

In addition all wall openings, penetrations, junctions, connections, windowsills, heads and jambs must incorporate appropriate flashings for waterproofing. The other materials, components and installation methods used to manage moisture in external walls, must comply with the requirements of relevant standards and the NZBC.

## 7. PHYSICAL PROPERTIES

### Material Properties

<i>Aluminium Grade</i>	<i>6063T5</i>
<i>Weatherboard Metal Thickness</i>	<i>2mm</i>
<i>Total System Mass (approx)</i>	<i>13-15kg/M2</i>



## Maximum Spans (Span Tables - Timber Structure 20mm Cavities)

### \* Design Assumptions:

1. The wind pressures are for external wind only. Internal pressures will not be applied to the cladding and assumed to be resisted by the internal lining.
2. Load on each panel is uniformly distributed.
3. The span/deflection limit for SLS wind load is 250mm for aluminium battens/zincalume tophats and L/175 for the AliClad Max boards, with the serviceability wind load equal to 68% of the ULS wind load.
4. SS304 10g x 20mm HexTek SD Screw 10mm Hex (AliClad Max board to AlphaRail 20/Zincalume top-hat).
5. Timber studs at 600mm o/c, timber noggs at 800mm o/c, Timber is assumed Radiata Pine (Group J4 for withdrawal, group 5 in shear).

<b>TABLE 1: AliClad Max vertically or horizontally aligned timber or plastic batten.</b>				
<b>WIND ZONE</b>	<b>V136</b>	<b>V200</b>	<b>S200</b>	<b>B200</b>
	<b>ALLOWABLE SPAN</b>			
<b>Low</b>	2200	2200	2200	2200
<b>Medium</b>	2000	2000	2000	2000
<b>High</b>	1800	1800	1800	1800
<b>Very High</b>	1600	1600	1600	1600
<b>Extra High</b>	1400	1400	1400	1400

1. SS304 10g x 75mm HexTek Screw 10mm Hex (35mm minimum embedment), screw fixing at every AliClad Max board.

2. Table is applicable for non-structural H3.1 Timber and extruded plastic cavity packer battens either of which form a nominal 20mm cavity.

**TABLE 2: Vertically Aligned AlphaRail20**

WIND ZONE	V136	V200	S200	B200
	ALLOWABLE SPAN			
Low	2200	2200	2200	2200
Medium	1600	1600	1600	1600
High	1200	1200	1200	1200
Very High	1000	1000	1000	1000
Extra High	800	800	800	800

1. SS304 12g x 60mm HexTek Screw 10mm Hex (35mm minimum embedment)
2. AlphaRail20 - 20mm Aluminium cavity battens, fixed at every stud at 600mm o/c

**TABLE 3: Vertically Aligned AliClad Max on OMEGA Zincalume Top-hat**

WIND ZONE	V136	V200	S200	B200
	ALLOWABLE SPAN			
Low	2200	2200	2200	2200
Medium	1600	1600	1600	1600
High	1200	1200	1200	1200
Very High	1000	1000	1000	1000
Extra High	800	800	800	800

1. SS304 2-10g x 60mm HexTek Screw 10mm Hex (35mm minimum embedment)
2. Zincalume tophat fixed at every stud, at 600mm o/c

**TABLE 4: Horizontally Aligned on AlphaRail20**

WIND ZONE	V136	V200	S200	B200
	ALLOWABLE SPAN			
Low	1200	1200	1200	1200
Medium	900	800	800	800
High	600	600	600	600
Very High	500	400	400	400
Extra High	400	400	400	400

- SS304 10g x 60mm HexTek Screw 10mm Hex (35mm minimum embedment)
- AlphaRail20 - 20mm Aluminium cavity battens, fixed at every nog, at 800mm o/c

**TABLE 5: Horizontally Aligned AliClad Max on OMEGA Zincalume Top-hat**

WIND ZONE	V136	V200	S200	B200
	ALLOWABLE SPAN			
Low	1800	1800	1800	1800
Medium	1400	1400	1400	1400
High	1000	1000	1000	1000
Very High	800	800	800	800
Extra High	600	600	600	600

- SS304 2-10g x 60mm HexTek Screw 10mm Hex (35mm minimum embedment)
- Zincalume tophat fixed at every stud, at 800mm o/c



## 8. POWDER COATING

All exposed surfaces of components are powder coated with a durable and colour fast polyester/epoxy coating to a minimum film thickness of 70 microns.

All coatings used on the AliClad Max System and components are free of VOC's.

### **Powder Coating Durability**

Coating types that are generally used on the AliClad Max System are Dulux, Interpon and Metwood. Warranties for these finishes can be located on their websites.

- [www.duluxpowders.co.nz](http://www.duluxpowders.co.nz)
- [www.specifyinterpon.co.nz](http://www.specifyinterpon.co.nz)
- [www.powdercoating.co.nz/metwood](http://www.powdercoating.co.nz/metwood)

## 9. SUPPORTING STRUCTURES

**Timber Framing:** Must comply with relevant New Zealand Building Code requirements and NZ Standards.

Timber supporting structures must meet the requirements of NZS 3604 or be specifically engineered by a suitably qualified professional. Stud spacings are a maximum of 600mm centres and nogs/dwangs at 800mm centres.

**Steel Framing:** Must conform with:

- Nash Standard -Part 1 2016 - Design Criteria - Alternative Solution.
- Nash Standard - Part 2 2019 - Light Steel Framed Buildings
- Nash Building Envelope Solution 2019
- Steel framing must include a suitable thermal break between the framing and the batten.

## 10. RIGID AIR BARRIER AND WALL UNDERLAY

### **Rigid Air Barriers**

Rigid air barriers are required for wind zones over Very High (50 M/sec. including situations that require Specific Engineered Design (SED) Rigid air barriers are commonly used in all wind zones to achieve best performance and quicker close-in.

It is recommended that KALSI Rigid Backer, is used to complete the full "system" approach to the external envelope.

Other rigid air barriers must meet the requirements of the NZBC Acceptable solutions E2/AS1 Table 23 and be tested to the appropriate wind pressure zones.

### **Flexible Wall Underlay**

Wall Underlay must comply with the NZBC Acceptable Solutions E2/AS1 Table 23 for breathable wall underlays. The Underlay must be fixed in accordance with the underlay manufacturers specific fixing instructions and any special guidance noted in this publication.

## 11. FASTENINGS

**Fastenings are as listed in the accessories schedule on page 4, 6.1 - 6.4.**

Fixings of battens and cladding must adhere to E2/AS2 Tables 20, 21, and/or BRANZ

BU519 for material compatibility and regional durability selections.

The minimum fastener durability requirement for fasteners is for CL4 HDG.

## 12. EXPOSURE ZONES

The AliClad Max System is suitable for all exposure zones as per NZS 3604 and NZBC Clause Zones B and C in accordance

with the specifications contained within this publication and Zone D and Micro-climates by consultation with The Building Agency.

## 13. STORAGE AND HANDLING

AliClad Max System components are supplied as a finished product and must be treated as such to avoid damage both prior to installation and during installation.

The product must be inspected on delivery and any damage noted and reported immediately.

Components should be stored in a dry environment and clear of high foot and vehicle traffic or where construction work may damage the product.

The components should be stored off the floor or ground on level supports spaced at no more than 600mm apart.

All exposed surfaces are covered in a protective plastic film to assist in protecting the finished product. The film should be left on for as long as practical during construction. Ideally when all on site works are complete. In the case two or more stories the film should be removed as the scaffold is dismantled.

## 14. CARE

The coated surfaces of the AliClad Max System components are hard-wearing and durable but for best looks and durability the system needs a regular maintenance plan.

Surfaces should be washed at least once a year using a soft brush with water and mild detergent.

Solvents or scouring cleaners should not be used.

## 15. WARRANTY

Provided that the structure has been designed by an appropriately qualified professional and installed by a Licensed Building Practitioner in accordance with the AliClad Max System Installation Guide and within the provisions of the full AliClad Max Warranty Statement. The AliClad Max System (aluminium) should have expected service life of 60 years.

The coating, under the same provisions, is guaranteed as stated in the coatings section for Coating Durability.

The full AliClad Max Warranty Statement is available on the Building Agency web site or by contacting The Building Agency.

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## 16. PROFILES

The AliClad Max System is available in three stylish profiles, with seven options to mix and match aesthetic or size. V and S Groove

can be used both horizontal and vertical. B profiles are vertical only.

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## 17. TYPICAL DETAILS

\* For a full set of typical details refer to our website here or call one of our friendly team. [www.thebuildingagency.co.nz](http://www.thebuildingagency.co.nz).



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