



THE
BUILDING
AGENCY

ALICLAD

Design Guide

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1. GENERAL

AliClad is a pre-finished aluminium weatherboard cladding system, designed in New Zealand, specifically for New Zealand conditions. AliClad 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, AliClad is

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

AliClad 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

- AliClad is pre-finished and is available in a range of either standard colours, flat matt or woodgrain, in powder coat available in New Zealand. Custom colours are available on special order to suit most colour charts, consequently offering an almost endless colour options.
- The robust and durable nature of the AliClad system offers a finish which will not crack, bow, or deform, even when exposed to severe conditions.
- Apart from the usual wash-down the AliClad system requires very little maintenance over it's life and will not require re-coating.
- AliClad is an easy-to-install, comprehensive system. While it must be installed by a licensed building practitioner, it does not require a specialist installer. The unique water management system around windows and doors can allow for fitting of windows either before or after the cladding is fixed.
- Since the AliClad profiles can be used both vertically and horizontally, the AliClad 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.
- The optimal system engineering and the unique design of the cavity batten, allows for increased performance over other weatherboard systems.

3. INTENDED USES

The AliClad cladding system is intended for use as a drained, ventilated & pressure equalised cavity based cladding for both residential and commercial buildings.

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

zones as described in NZS-3604 and for specific design applications over ULS 2.5 kPa. Within the scope of testing and with verified design, the AliClad system may be suitable for use in multi-storey situations.

4. LIMITATIONS

AliClad must be installed by a Licensed Building Practitioner (LBP) who is licensed to install claddings and fully conversant with drained, ventilated & pressure equalised cavity systems. The AliClad system must be installed in complete accordance with the most recent edition of the AliClad Installation Guide. Components of the system cannot be substituted. The AliClad system is suitable for buildings with a maximum score of 20 on the risk matrix as per E2/AS1.

Where components and materials are

not supplied by the manufacturer of the system, they must in all cases meet the requirements of the building code and be verified by that manufacturer as suitable and fit for purpose. Use of the system is limited to wind zones up to and including extra high. Where wind speeds exceed 55 m/s, extra high or \pm over ULS 2.5 kPa; a suitably qualified professional must be engaged for a specific design.

Building or elevations with a risk factor scoring over 20 should consider a re-design of the building or a specific design option.



5. COMPLIANCE

COMPLIANCE WITH NZBC			
NZBC SECTION	NZBC CLAUSE	BASIS OF COMPLIANCE	TEST
<i>B1 - STRUCTURE</i>	<ul style="list-style-type: none"> - B1.1 (a, b, c) - B1.2 - B1.3.1 - B1.3.2 	<i>Alternative Solution</i>	<i>NZS4284 Testing Pending</i>
<i>B2 - DURABILITY</i>	<ul style="list-style-type: none"> - B2.1 - B2.2 - B2.3.1 - B2.3.2 	<i>Alternative Solution</i>	<i>NZS4284 Testing Pending</i> <i>Please refer to Full Compliance Pathway Statement for details of fixings and supports.</i>
<i>C3 - FIRE PERFORMANCE</i>	<ul style="list-style-type: none"> - C1 (a, b) - C3.1 - C3.2 - C3.3 	<i>Acceptable Solution C/AS1</i>	<i>BS8414 Testing Pending</i>
<i>E2 - WEATHERING</i>	<ul style="list-style-type: none"> - E2.1 - E2.2 - E2.3.2 - E2.3.3 - E2.3.5 - E2.3.6 - E2.3.7 (a, b, c) 	<i>Verification Method</i>	<i>NZS4284 Testing Pending</i>

* Request a full set of compliance documents or refer to our website at www.buildingagency.co.nz.

6. DESIGN CONSIDERATIONS

It is the responsibility of the designer to ensure that the AliClad Cladding 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 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 at the top and bottom of walls of walls and where drained horizontal joints occur.

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>2.2mm</i>
<i>Total System Mass (approx)</i>	<i>4.2kg/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 top-hats and L/175 for the AliClad 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 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).

TABLE 1: AliClad vertically or horizontally aligned timber or plastic batten.

WIND ZONE	V136	V200	S200	BB200
	ALLOWABLE SPAN			
Low	2200	2200	2200	2200
Medium	2000	2000	2000	2000
High	1800	1800	1800	1800
Very High	1600	1600	1600	1600
Extra High	1400	1400	1400	1400

1. SS304 10g x 75mm HexTek Screw 10mm Hex (35mm minimum embedment), screw fixing at every AliClad 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	BB200
	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 on OMEGA Zincalume Top-hat

WIND ZONE	V136	V200	S200	BB200
	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	BB200
	ALLOWABLE SPAN			
<i>Low</i>	1200	1200	1200	1200
<i>Medium</i>	900	800	800	800
<i>High</i>	600	600	600	600
<i>Very High</i>	500	400	400	400
<i>Extra High</i>	400	400	400	400

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

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

WIND ZONE	V136	V200	S200	BB200
	ALLOWABLE SPAN			
<i>Low</i>	1800	1800	1800	1800
<i>Medium</i>	1400	1400	1400	1400
<i>High</i>	1000	1000	1000	1000
<i>Very High</i>	800	800	800	800
<i>Extra High</i>	600	600	600	600

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

8. COATINGS

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 AliClad components are free of VOC's.

Coating Durability

Coatings have an expected life of 50 years without requiring re-coating, with minimal fade or colour change. Three coating types are used on AliClad, depending on chosen colour and finish, and carry the following warranties.

Duratec	25 years
Interpon	25 years
Metwood	25 years

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

To 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

Fixings of sub-structure 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 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 Zone D and Micro-climates by consultation with The Building Agency.

13. STORAGE AND HANDLING

AliClad components are supplied as a pre-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 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 this AliClad Installation Guide and within the provisions of the full AliClad warranty statement, the AliClad cladding weatherboards and AlphaRail support structure carries a warranty of 120 years.

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

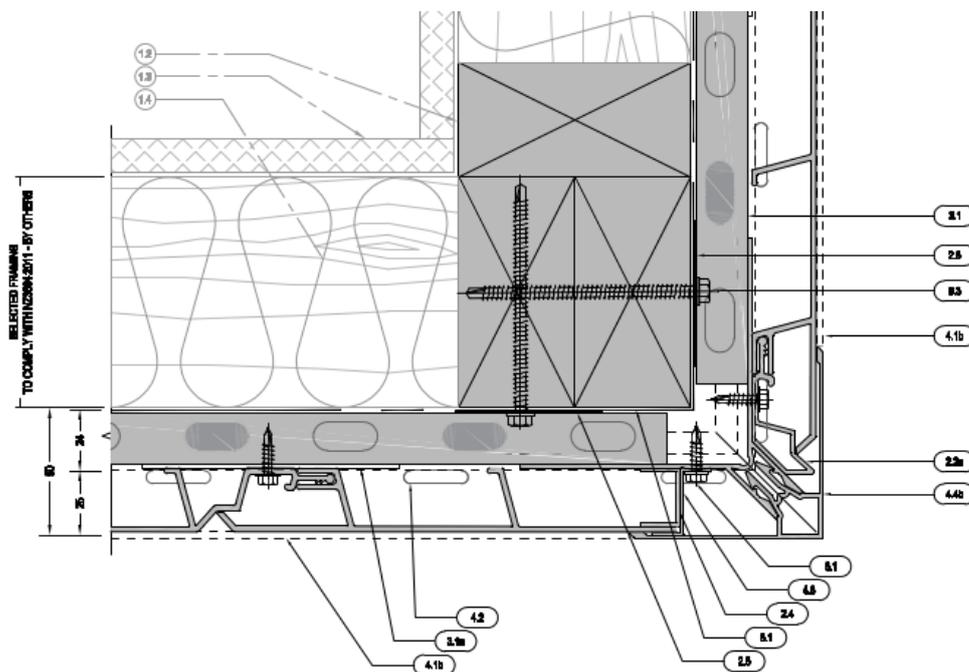
The full AliClad Warranty statement is available on the Building Agency web site or by contacting The Building Agency.

16. PROFILES

AliClad is available in two stylish profiles with five options to mix and match aesthetic or size. All of which can be used in either vertical or horizontal orientation. Profiles are available in 5.8 metres.

17. TYPICAL DETAILS

* Request a full set of typical details or refer to our website at www.buildingagency.co.nz.





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