Ulltraclad© Weatherboard Cavity System

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1.0 General Information

1.1 Introduction

The Ulltraclad© Weatherboard Cavity System is a cavity-based, inter-locking powder coated aluminium weatherboard system. It is designed to be used as an external wall cladding system for residential and light commercial type buildings where domestic construction techniques are used.

The system includes horizontally fixed Ulltraclad© aluminium weatherboards, cavity battens, internal and external corner mouldings, starter strips, board jointers, board locators, joinery flashings and accessories.

Ulltraclad© aluminium weatherboards are produced in a rusticated weatherboard profile, with either a smooth (Standard), corrugated (Baby Corro) or grooved (Tee Board) face, in a bevelback weatherboard profile (Traditional), or a flat face with negative joint detail (Shadoline) and are powder coated on the exposed surfaces. When installed, the cladding is effectively 15 mm thick. Standard and Baby Corro weatherboards are available 190 mm wide, Tee Boards are available 150 mm wide, Traditional weatherboards are available 157 mm wide and Shadoline weatherboards are available 205 mm wide. The weatherboards are supplied in 5 m and 6 m lengths.

1.2 BRANZ Appraisal

The Ulltraclad© Weatherboard Cavity System has been appraised by BRANZ. Refer to Appraisal No. 487 (2012).

1.3 Ulltraclad© Weatherboards

Ulltraclad© aluminium weatherboards and accessories are extruded by Ullrich Aluminium Co Ltd using 6060 T5 grade aluminium alloy.

Ulltraclad© is available finished in a series of Dulux Durraloy standard powder coat colours. Other non-standard colours as well as anti-graffiti finishes are also available on request.
Powder coat warranty is dependent upon surface finish selected by client.

1.4 Accessories

Accessories supplied by Ullrich Aluminium Co Ltd for use with the Ulltraclad© Weatherboard Cavity System include:

- Cavity vent strip - a folded aluminium profile punched with 5 mm square holes in the bottom face to provide ventilation for the wall cavity and prevent the ingress of vermin. The cavity vent strip is available in 2.4 m lengths.

- Starter strip - an extruded aluminium profile used to locate and secure the bottom of the first course of weatherboards. The starter strip is powder coated and is available in 5 m lengths.
- External and internal corner moulding - extruded aluminium 90° two-piece internal corner mould and 90° two-piece external corner mould. The mouldings are powder coated and are available in 5 m lengths.
- Board jointer - extruded aluminium 'H' jointer for jointing lengths of Ulltraclad© weatherboard. The jointer is powder coated and is available in 5 m lengths.
- Board locator - an extruded aluminium locator used to locate the bottom edge and secure the top edge of individual weatherboard courses. The board locators are 50 mm long and are predrilled for fixing.
- Ulltraclad® head and jamb flashings - extruded aluminium to suit the window or door trim opening. The flashings are powder coated and are available in 5 m lengths.
- Inter-storey joint flashing - extruded aluminium. The flashing is powder coated and is available in 5 m lengths.
- Ulltraclad© weatherboard fixings - 50 x 3.3 mm AISI-302Cu stainless steel screws.

1.5 Handling and Storage

Ulltraclad© weatherboards and accessories must be stacked flat, off the ground and supported on a level platform. They must be kept dry either by storing under cover or providing waterproof covers to the stack. Care must be taken to avoid damage to powder coated surfaces. Weatherboards must always be carried on edge.

Cavity battens and other accessories must be stored so they are kept clean, dry and undamaged. All accessories must be used within the maximum storage period recommended by the manufacturer.

2.0 Design Information

2.1 Design Responsibility

The Specifier for the project must ensure that the details in this literature are suitable for the intended application and that additional detailing is provided for specific design or any areas that fall outside the scope and specifications of this literature.

2.2 Scope

This literature covers the use of the Ulltraclad© Weatherboard Cavity System as an external wall cladding for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- constructed with timber framing complying with the NZBC; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Wind Zones up to, and including 'Extra High'.

This literature also covers the use of the Ulltraclad© Weatherboard Cavity System as an external wall cladding for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- constructed with timber framing complying with the NZBC; and,
- situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5 kPa.

The Ulltraclad© Weatherboard Cavity System must only be installed horizontally on vertical, flat surfaces.

The Ulltraclad© Weatherboard Cavity System is appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. The Ulltraclad© Weatherboard Cavity System relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone or design wind pressure.

For applications which are outside the scope of this literature and details which are not in this literature the specifier must ensure that the design meets the relevant performance requirements of the NZBC.

Ullrich Aluminium Co Ltd recommends that professional design advice is sought in these circumstances.

2.3 Building Regulations

The Ulltraclad© Weatherboard Cavity System if designed, used and installed in accordance with the statements and conditions of this literature and the supporting BRANZ Appraisal, will meet the following provisions of the New Zealand Building Code:

- Clause B1 Structure
- Clause B2 Durability
- Clause E2 External Moisture
- Clause F2 Hazardous Building Materials

2.4 Ground Clearances

The finished floor level must have a minimum clearance to paved or unprotected ground as required by NZS 3604:2011.

Ulltraclad© Aluminium Weatherboards must overhang the bottom plate on a concrete slab by a minimum of 50 mm as required by NZBC Acceptable Solution E2/AS1, Table 18.

The bottom edge of the Ulltraclad© Weatherboard Cavity System must finish a minimum of 100 mm above paved surfaces or 175 mm above unprotected ground.

At deck or low pitch roof/wall junctions, the bottom edge of the Ulltraclad© weatherboards must be kept clear of any adjacent surface, or above the top surface of any adjacent roof flashing by a minimum of 35 mm.

2.5 Structure & Framing

Timber wall framing behind the Ulltraclad© Weatherboard Cavity System must be treated as required by New Zealand Building Code Acceptable Solution B2/AS1.

Timber framing must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604. Use of timber framing must be in accordance with framing manufacturer's specifications.

In all cases studs must be at maximum 600 mm centres, with dwangs fitted flush between the studs at maximum 800 mm centres.

Cavity battens shall be minimum 45 mm wide x 18 mm thick timber, treated to Hazard Class H3.1, or Cavibat cavity battens.

2.6 Special Framing Requirements

The following are special framing requirements:

- Double studs at internal corners;
- Extra packers may be required at external corners;
- Extra studs (and cavity battens) for Ulltraclad© vertical jointers.

2.7 Framing Tolerances

In order to achieve an acceptable wall finish, it is imperative that framing is straight and true. Framing tolerances must comply with the requirements of NZS 3604:2011.

2.8 Cavity Vent Strip

The Ulltraclad© Weatherboard Cavity System incorporates an aluminium vent strip to close off the bottom of the cavity and provide resistance against the penetration of vermin. The vermin strip is punched with 5 mm square holes and provides a minimum ventilation opening area of 1000 mm^2 per lineal metre of wall in accordance with the requirements of NZBC Acceptable Solution E2/AS1.

2.9 Building Underlay

The Ulltraclad© Weatherboard Cavity System must be installed over building underlay complying with NZBC Acceptable Solution E2/AS1, Table 23, or other BRANZ Appraised breather-type membranes. *Note: There is no requirement for the building underlay to be absorbent as it is installed at the back of the cavity and is not in direct contact with the Ulltraclad© weatherboard.*

All external walls of buildings must have barriers to airflow in the form of interior linings with all joints stopped for wind zones up to and including Very High, and rigid underlays for buildings in the Extra High wind zone and specifically designed buildings up to 2.5 kPa design differential ULS wind pressure. Unlined gables and walls must incorporate a rigid sheathing or an air barrier which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23.

For attached garages, wall underlays must be selected in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. Where rigid underlays are used, the cavity batten fixing lengths must be increased by a minimum of the thickness of the underlay.

2.10 Separation of Timber Cavity Battens and Ulltraclad© Weatherboards

Strips of roof underlay must be fixed to the face of the timber cavity battens prior to the installation of the Ulltraclad© weatherboards and accessories. The underlay must be cut to

the same width as the cavity batten and is required to provide separation between the treated timber and aluminium.

Separation strips are not required when Cavibat cavity battens are used.

2.11 Inter-storey Junctions

Inter-storey drained joints must be provided to limit continuous cavities to the lesser of 2-storeys or 7 metres in height, in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.4(b).

3.0 Installation Information

3.1 Tools Required

The following tools should cover most situations:

- Chalk line
- Spirit level
- Hammer
- Battery drill with posi-drive bit
- Tin snips
- Hack saw
- Circular saw or hand saw
- Small circular saw with an aluminium cutting blade
- Jigsaw
- Mastic gun
- 'No More Nails' or similar
- Sealant.

3.2 Installation Sequence

Prior to installation of the window and door joinery:

- Building underlay to exterior walls and flexible flashing tape system to window and door joinery openings.
- Cavity vent strip.
- Cavity battens.
- Inner section of internal or external corner flashings.
- Vertical board jointer (if wall longer than 6.0 m).
- Wall starter between internal or external corner flashings or vertical board jointer.
- Inner soffit clip (if being used).
- Corner soakers at window openings.
- Ulltraclad© weatherboards up to the bottom of the windows.
- Ulltraclad© jamb flashing.
- Ulltraclad© weatherboards up to the top of the windows and doors.

Following installation of window and door joinery:

- Aluminium head flashing.
- Ulltraclad© head flashing.
- Remaining Ulltraclad© weatherboards.
- Outer soffit clip (if being used).
- Outer section of internal and external corner flashings.

3.3 System Installation

This section of the literature should be read in conjunction with the installation details. For each section of wall to be clad, repeat the following steps.

The selected building underlay and flexible sill and jamb tape system must be installed by the building contractor in accordance with the underlay and tape manufacturer's instructions prior to the installation of the cavity battens and the rest of the Ulltraclad© Weatherboard Cavity System. Flexible building underlay must be installed horizontally and be continuous around corners. Underlay must be lapped 75mm minimum at horizontal joints and 150mm minimum over studs at vertical joints. Generic rigid sheathing materials must be installed in accordance with NZBC Acceptable Solution E2/AS1 and be overlaid with a flexible wall underlay. Proprietary systems shall be installed in accordance with the manufacturer's instructions. Particular attention must be paid to the installation of the building underlay and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed wall framing in the opening is protected.

The Ulltraclad© Cavity Vent Strip is installed with the bottom of the vent strip flush with the underside of the bottom plate (or flush with the underside of the cavity battens). *Note: A minimum 15 mm drip edge to the bottom of the Ulltraclad© weatherboard must be maintained at all times.*

Cavity battens must be installed over the building underlay to the wall framing at maximum 600 mm centres where the studs are at maximum 600 mm centres or at 400 mm centres where the studs are at 400 mm centres. The battens must be fixed in place with 40 x 2.5 mm hot-dipped galvanised flat head nails at maximum 800 mm centres. Strips of roof underlay must be stapled to the face of the battens after they have been installed. Refer to Paragraph 2.8.

Where studs are at greater than 450 mm centres and a flexible wall underlay is being used, a building underlay support must be installed over the underlay at maximum 300 mm centres horizontally to prevent the wrap bulging into the cavity space when bulk insulation is installed in the wall frame cavity.

At the bottom corner of window openings, fix 100 mm long aluminium soakers flush with the top of the sill trimmer. The soaker must be folded to divert incidental water that may enter the system at this point through the window joinery to the back of the cladding. Refer to Detail 16 for further guidance. For window openings wider than 600 mm, window support bars in accordance with NZBC Acceptable Solution E2/AS1 Paragraph 9.1.10.5 v) shall be installed.

Installation of Ulltraclad© Weatherboards

To start installation of the weatherboard system, use a chalk line to set a reference line on the cavity battens 45 mm up from the underside of the bottom plate, making sure the line is level and continuous around the building. This line will be used for the installation of the wall starter which will overhang the underside of the bottom plate by 45 mm.

If there is more than one starting level on the building, work from the lowest point up to the next level and try to get the joint in the boards to coincide with the higher starter. Some adjustment of the starter positions may be required to achieve this.

Measure the height from the underside of the bottom plate to the underside of the soffit. Cut the inner section of the internal or external corner flashing (depending on building layout) and fix through the cavity battens with 30 x 2.5 mm hot-dipped galvanised clouts. If the wall to be clad is longer than 6.0 m, cut a vertical board jointer to the height of the wall plus 50 mm and fix to the wall framing at the selected location with 30 x 2.5 mm hot-dipped galvanised clouts, ensuring the jointer is plumb.

If the wall has a door opening in it, cut a section of jamb flashing to the height of the joinery unit and fix through the cavity battens with 30 x 2.5 mm hot-dipped galvanised clouts.

Measure between the flashings and cut the wall starter 40 mm less than this measurement. Fix the starter to the bottom plate using the reference line as the set-out point for the top of the starter. Leave a 20 mm gap between the wall starter and the flashing at each end. This gap is important as it acts as a drain point for any moisture that may enter the wall.

At the top of the wall, fix the inner soffit clip through the cavity battens with 30 x 2.5 mm hot-dipped galvanised clouts.

Measure between the flashings and cut the first weatherboard to this dimension less 8 mm. Fit the weatherboard over the wall starter so it securely clips in place. Leave a 4 mm gap at each end and secure the top of the weatherboard to each stud at maximum 600 mm centres with locator clips fixed with 50 x 3.3 mm stainless steel screws (Ulltraclad© screws). At the centre of the board (approximately), put a bead of 'No More Nails' adhesive on the bottom of the locator clip before fitting it to the board. This acts as a hold for expansion. Carry on installing the weatherboards up to the underside of a window opening, securely locating the bottom of each board over the locator clip and fixing the top of the board to each stud as detailed. If a section of the weatherboard overhangs the window opening, cut away this section of board and fix the weatherboard in place. *Note: Do not install a locator clip at the window opening at this stage.*

Measure from 20 mm below the line of the opening to the top of the window frame and cut a jamb flashing to that length. Cut out the side of the jamb flashing so it sits over the board. Bend the bottom of the back face of the jamb flashing forward to divert any moisture into the back of the weatherboard. Refer to Detail 16. Repeat for both sides of the window. Once the jamb flashing has been installed, the weatherboard locator clip can be installed.

Complete the weatherboard installation up to the top of the window or door opening following instructions previously given.

The aluminium window and door joinery and associated head flashings must be installed in accordance with the joinery manufacturer's instructions. A 7.5 - 10 mm nominal gap must be left between the joinery reveal and the wall framing so a PEF rod and air seal can be installed in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.6 after the joinery has been secured in place.

At the top of the window or door, measure and cut a length of aluminium head flashing 40 mm longer than the face dimension of the window or door frame. Cut the head flashing around the cavity batten and jamb flashing and install with the flashing upstand hard against the building underlay. Cover the flashing upstand with a second layer of building underlay or proprietary flashing tape. Seal the junction between the head flashing, cavity batten and jamb flashing. Refer to Detail 15 for further guidance.

After installation of the Ulltraclad© Cavity Vent Strip above the aluminium head flashing, cut a length of Ulltraclad© head flashing 160 mm longer than the width of the window or door frame. Cut the bottom of the channel in 70 mm from both sides. Fold the channel floor down 90° and trim to 20 mm in length. Install the head flashing with the fold fitting into the jamb flashing channel, ensuring a 5 mm gap is maintained between the two head flashings. Refer to Details 12 and 15.

Cut the next weatherboard to fit inside the head flashing channel. Apply a continuous bead of sealant along the cut edge and fit the board in place. Install the remaining weatherboards to complete the installation.

Once all weatherboards have been installed, cut the outer section of the internal and external corner flashings to allow a 50 mm overhang past the bottom plate, and secure in place. Measure and cut the outer soffit clip to finish tight between the internal and external corner flashings and secure in place.

3.4 Cutting Ulltraclad© Aluminium Weatherboards

When cutting Ulltraclad© Aluminium Weatherboards with a circular saw, apply a strip of masking tape to each side of the cut to prevent the paint surface from being damaged.

4.0 Maintenance

Building owners are responsible for the maintenance of the Ulltraclad© Weatherboard Cavity System. Annual inspections must be made to ensure that all aspects of the cladding system, including flashings remain in a weatherproof condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress, must be repaired immediately. Sealant and the like must be repaired in accordance with the sealant manufacturer's instructions.

Regular cleaning (at least 6 monthly) of the powder coating with water and a mild detergent is required to remove grime, dirt and organic growth, to maximise the life and appearance of the cladding. When cleaning powder coated surfaces, proceed as follows:

1. Carefully remove any loose deposits with a wet sponge.
2. Use a soft, non-abrasive brush and a mild detergent solution to remove dirt, salt and other deposits.
3. Rinse off with clean water.

5.0 Health & Safety

Hearing and eye protection must be worn while cutting Ulltraclad© Aluminium Weatherboard.