

Written Specification for: **SmartFaçade Systems**

Profiles: Fascia and Cladding Systems, Integrated Fascia, and Gutter Systems

Table of Contents

1. GENERAL.....	3
2. MANUFACTURERS' DOCUMENTS.....	3
3. RELEVANT DOCUMENTS.....	3
4. ABBREVIATIONS	3
5. QUALIFICATIONS.....	3
6. WARRANTIES.....	4
7. PERFORMANCE	5
7.1 Fixings and Wind Loads	5
7.2 Co-ordinate.....	5
8. PRODUCTS.....	5
8.1 Plywood Substrate (If required).....	5
8.2 Underlay.....	5
8.3 Material.....	5
8.4 Profiles.....	7
8.5 Associated Flashings	7
9. COMPONENTS	8
9.1 Fasteners	8
9.2 Fixing Clips	8
9.3 Rivets.....	8
10. ACCESSORIES	8
10.1 Sealant	8
11. EXECUTION	8
11.1 Inspection.....	8



11.2 Handling.....	8
11.3 Separation.....	8
12. APPLICATION.....	9
12.1 Set-out.....	9
12.2 Forming.....	9
12.3 Thermal Movement.....	10
12.4 Fix Underlay.....	10
12.5 Marking and Cutting.....	10
12.6 Fixing Panels (Cladding, Cappings, Fascia, Soffit).....	10
12.7 Soldering.....	10
12.8 Flashings.....	10
12.9 Penetrations and Junctions.....	10
13. COMPLETION.....	11
13.1 Replacement.....	11
13.2 Site Clean-up.....	11

1. GENERAL

This specification covers the supply and fixing of *Architectural Metalformers SmartFaçade system* complete with accessories.

2. MANUFACTURERS' DOCUMENTS

All relevant manufacturers and suppliers' documentation for the work described in this specification shall be in accordance with Architectural Metalformers technical literature.

Reference documents and further information are available from:

- Website: <https://www.archform.co.nz/>
- Email: mike@archform.co.nz
- Telephone: 0800 501 996

3. RELEVANT DOCUMENTS

Documents referred to in this specification are:

- AS/NZS 1170.2: Structural design actions - Wind actions
- NZS 3604: Timber framed buildings
- NZS 4203: General structural design and design loadings for buildings
- AS 1397: Steel sheet and strip - hot dipped, zinc-coated or aluminium/zinc-coated
- AS 4040.0: Methods of Testing Sheet Roofing and Wall Cladding
- AS 4040.1: Resistance to Concentrated Loads
- AS 4040.2: Resistance to Wind Pressure for non-Cyclonic Regions
- EN988: Specification for zinc alloy sheet and strip
- NZMRM NZ Metal roof and wall cladding Code of practice

The documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

4. ABBREVIATIONS

The following abbreviations are used throughout this specification:

- NZMRM: New Zealand Metal Roofing Manufacturers Inc
- BMT: Base Metal Thickness
- AMF: Architectural Metalformers Ltd

5. QUALIFICATIONS

Installers to be ARCHITECTURAL METALFORMERS approved installers.

6. WARRANTIES

All warranties commence from the date of practical completion.

Warranty documentation:

- Warranties shall be provided on standard Architectural Metalformers warranty forms
- A project-specific PS3 document shall be issued upon completion of the project
- All jobs are complete with a 10-year workmanship warranty

Material: Aluminium Mill Finish 5005 H32. ASTM B209

The supplier is responsible for ensuring the product is made to the requested gauge, alloy, and temper. No guarantees are provided for materials outside these parameters.

Coatings:

Alumi Shield™ Warranty is in 2 parts:

- Colour Warranty
- Durability Warranty

The Alumi Shield™ Colour Warranty is your assurance that the colour integrity will be maintained. It is made up of two components: Fade and Chalk.

The Alumi Shield™ Durability Warranty is your assurance of film integrity. The powder coating will not peel, crack or flake for the warranty period from the date the product is applied to the metal.

Warranties range from 35 years to 10 years depending on the product, environment, and project type. Product types ranked high to low: Fluoraset, Electro, Duratec, Protecture, Duralloy+Plus and Duralloy.

The performance of powder-coated surface finishes is dependent on environmental exposure and site-specific conditions.

Our practice is to powder coat all surfaces of the aluminium products including faces that are not visible.

This ensures full edge and surface protection, providing coating integrity of the whole flashing.

For project-specific guidance, consult with Architectural Metalformers.

Further warranty information:

[Dulux Alumi Shield - Warranties](#)

[Dulux Powders - Warranties](#)

7. PERFORMANCE

7.1 Fixings and Wind Loads

Fixings designed and installed to suit the site-specific wind zone (R), topographical classification (T), and building height, in accordance with:

- NZS 3604 (Timber Framed Buildings)
- NZS 4203 or AS/NZS 1170.2 (Wind Actions on Structures)

Special attention to be given to loadings at roof corners and periphery, where localised pressure factors increase.

7.2 Co-ordinate

Co-ordinate to ensure preparatory work is complete and other work programmed in the order required for access and completion of the façade system.

8. PRODUCTS

8.1 Plywood Substrate (If required)

Selected plywood substrate to be H3-treated, minimum 15 mm thickness. Tongue and groove or square edged grade C (faced-sanded). Allow a 3 mm expansion gap between sheets if using non-T&G sheets.

- Install all plywood in accordance with the manufacturer's specifications
- Fixings to be recessed stainless-steel screws, positioned 10–15 mm from sheet edges @ 150 mm centres along the perimeter
- All screw heads must be fully recessed below the surface of the plywood

8.2 Underlay

Approved heavy weight roofing underlay with a minimum 300 mm overlap at all joints, applied to a clean plywood substrate in accordance with manufacturer's specifications.

8.3 Material

Mill finish 5005 series aluminium (substrate)

5005 Aluminium is a medium-strength aluminium-magnesium alloy. It is fine-grained, not susceptible to stress corrosion, and suitable for folding, pressing, and welding.

Listed below is a guide outlining the various gauges of aluminium we work with and what the recommended use is:

- 1.2 mm Aluminium 5005 H32: Generally used for soakers and under flashings. Not recommended for cladding works
- 1.6 mm Aluminium 5005 H32: Suitable for most cladding applications. Folds are sharp with minimal radius on bends. Faces greater than 300 mm can exhibit a degree of “oil canning.” Maximum sheet length, subject to availability: 6000 mm. Preferred module length is 3-4 metres due to handling, installation, and thermal expansion
- 2.0 mm Aluminium 5005 H32: Suitable for most cladding applications. Folds are relatively sharp with some radius on bends. Faces greater than 500 mm can exhibit a degree of “oil canning.” Maximum sheet length, subject to availability: 6000 mm. Preferred module length is 3-4 metres due to handling, installation, and thermal expansion
- 3.0 mm Aluminium 5005 H32: Suitable for most cladding applications. Folds are relatively sharp and more radiused bends. Faces greater than 600 mm can exhibit a degree of “oil canning.” Maximum sheet length available: 2400 mm
- 4.0 mm Aluminium 5005 H32: Suitable for bespoke or large face cladding applications. Folds have radiused bends. Faces greater than 800 mm can exhibit a degree of “oil canning.” Maximum sheet length available: 2400 mm
- 5.0 mm Aluminium 5005 H32: Suitable for bespoke or large face cladding applications. Folds have radiused bends. Faces greater than 1000 mm can exhibit a degree of “oil canning.” Maximum sheet length available: 2400 mm

Oil canning: A visible, wavy distortion that affects cold-rolled metal products. It's seen in the flat areas of metal panels and can be characterized as a moderate aesthetic issue. Typically, the rippling, waviness, or buckling is especially seen in the broad area of a metal roof or wall. Flashing design (face size, use of folds, ribs, and clips), installation methodology, management of thermal movement and the material gauge can all be used to minimise this distortion.

At Architectural Metalformers we do everything possible to minimise oil canning but due to the nature of metals and their inherent properties we cannot guarantee elimination.

Contact Architectural Metalformers regarding your project as we can provide design support to achieve the look you want.

Other materials for which we have design solutions for fascia, cappings, cladding, and rainwater systems:

- 0.55 mm ColorCote MagnaFlow
- 0.90 mm ColorCote Alumigard
- 0.80 mm Euramax
- 0.60 mm – 0.90 mm copper
- 0.80 mm – 1.2 mm stainless steel

8.4 Profiles

Applications and Profiles available:

- Cappings
- Aprons
- Fascia
- Integrated Fascia and Gutter systems
- Box Windows
- Canopies and Eyebrows
- Chimney Features
- Louvres and Blades
- Soffit Linings
- Column and Feature Cladding

Architectural Metalformers operates a comprehensive workshop equipped with a combination of advanced CNC machinery and specialised traditional forming tools. This enables the precise folding, bending, cutting, clinching, dressing, and welding of a wide range of profiles and custom-fabricated bespoke designs.

Our CNC equipment includes single and twin benders, a guillotine, a 7-axis press brake, and a laser cutter. With our software and in-house CAD technician, we can provide shop drawings on request. We are continually updating our library of drawings.

8.5 Associated Flashings

Formable-grade flashings, material to match selected cladding to the same standards as the profiled sheets.

9. COMPONENTS

9.1 Fasteners

The durability of all fasteners to be no less than the roofing/cladding material being fixed. Fasteners must be compatible with the base material to prevent bi-metallic corrosion and ensure long-term performance. All mechanical fixings to be in accordance with the MRM NZ Code of Practice Section 11.

9.2 Fixing Clips

Fixing clips are incorporated into our design for the profiles and systems we provide. Clips over single point fixings have multiple benefits including superior holding power, distributed load spread opposed to point loading, and their ability to deal with thermal expansion. Clips are to be made in equal or better material as the panels they will support. Clips can be 200-300 mm wide at 500 mm to 1000 mm centres or a continuous fixing strip, again the design of these are part of the overall design of the panels and fixing maximum 400 – 600 mm centres (depending on pitch and wind loading).

9.3 Rivets

Minimum diameter 4.0 mm stainless steel or aluminium rivets depending on fixing purpose.

10. ACCESSORIES

10.1 Sealant

Neutral curing mastic sealant or polymer sealant.

11. EXECUTION

11.1 Inspection

Inspect the framing and supporting structure to ensure that it is complete and fully braced ready for cladding systems.

11.2 Handling

Avoid distortion and contact with damaging substances, including cement. Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage. Use soft, flat sole shoes for all work on the roof. Wear gloves where required. Heavy panels may require specialist lifting equipment and procedures to ensure safe and secure handling.

11.3 Separation

Isolate dissimilar materials in proximity as necessary by painting the surfaces or fitting separator strips of compatible materials. Place isolators between metals and treated timber

or cement-based materials. Do not use lead sheets in contact with or allow water run-off onto galvanized or aluminium/zinc coated steel.

12. APPLICATION

12.1 Set-out

Most of our systems are designed and formed as multiple pieces that are joined or terminated by:

- Lap joints (Gutters with 150 mm laps. Cappings and fascia traditionally use lap joints; however, we prefer to use soakers and butt straps where possible)
- Interlocking panels (usually roll formed profiles, examples are standing seam, lock seam and flat lock)
- Soakers or butt straps are under flashings that are used for waterproofing and as an expansion joint. Usually expressed with a negative detail. Nominally 6 mm - 8 mm
- Cleats are the reverse of a soaker and that it's a "positive" detail, a flashing to join panels
- Mitres, wall terminations (saddle flashings are usually required here) and stop ends

Panel sizing is usually dictated by multiple factors including: the profile shape and girth, sheet size available, method of forming and cutting and of course any design considerations around a specific site layout e.g., line up with joints with mullions.

For most aluminium works we like to work up to a maximum panel size of 3000 mm as this is the upper limit of the materials ability to deal with thermal expansion. This is also an optimum size for handling, powder coating and thermal expansion. We can form 1.6 mm and 2.0 mm up to 6000 mm in length if conditions dictate this is the best option.

This leads to the site set-out where each lineal run (on elevations) around the building is divided into equal lengths. Depending on the type of mitre junction employed e.g., a fully pre-formed welded junction has a return dimension back from the mitre that contributes to the panel set out.

With the correct use of these elements, we can provide a system that meets most site requirements.

12.2 Forming

Forming of bends, folds, seams, hems, pig-lugs, crimps, dressed edges and other methods of manipulating metal are often carried out on site. Our installers have a comprehensive kit of hand tools including seaming tools and when required a 1000 mm site folder for forming complex flashings.

All these site tools are supported by the tools and machinery in our plant as mentioned in [Section 8.4](#).

12.3 Thermal Movement

Panel fixing and jointing to conform with Architectural Metalformers Ltd requirements for thermal movement. NZBC E2/AS1: 8.4.10 Allowance for expansion rates for the specified material.

12.4 Fix Underlay

Fit and lap approved underlay over the plywood substrate with 12 mm stainless steel or nylon staples. Underlay to be installed in accordance with manufacturer's guidelines and specifications.

12.5 Marking and Cutting

- Cut only with shearing tools
- Do not use black lead pencils for marking aluminium products

12.6 Fixing Panels (Cladding, Cappings, Fascia, Soffit)

Install and fix in accordance with the NZMRM Code of Practice and Architectural Metalformers' installation requirements:

- Use only approved fixings
- Secure with fasteners as detailed in [Section 9.1](#).

We have a growing range of profiles and systems available, including the Smart-Lok bracket system. These brackets are used with our SmartFascia systems, particularly the integrated gutter system.

12.7 Soldering

Where required, soldering of joints is permitted in accordance with best trade practice. Use approved soldering flux and 60/40 lead-tin solder.

12.8 Flashings

Where relevant, flashings are to conform with NZMRM NZ Metal roof and wall cladding - Code of Practice recommendations and the roofing manufacturer's requirements. All flashings to conform to E2 AS1 requirements.

12.9 Penetrations and Junctions

- All flashings to comply with E2/AS1 requirements
- Flash and over-flash all penetrations through the roofing or cladding

13. COMPLETION

Ensure all required components are installed and systems are fully weathertight as construction progresses. The finished cappings, fascias, cladding panels, and internal gutter system which must be fully weathertight.

For systems incorporating internal gutters, verify the following elements are watertight:

- Gutter fall
- Lap joints
- Scuppers
- Overflows
- Droppers

Where feasible, conduct a water test to confirm the system is free from leaks.

13.1 Replacement

Replace any damaged or visibly marked components with new elements of the same specification to ensure the integrity and appearance of the installation.

13.2 Site Clean-up

Remove all construction debris and surplus materials from the site and surrounding areas on a daily or weekly basis during the installation period, as appropriate. Clean internal gutters of any debris to prevent obstruction or contamination of the stormwater system.