

Written Specification for: **SmartTray Flatlock Panel Roofing and Cladding**

Profile: **Flatlock Panel**

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1. GENERAL

This specification covers the supply and fixing of *Architectural Metalformers SmartTray flatlock* roofing and cladding panels, 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. ABBREVIATIONS

The following abbreviations are used throughout this specification:

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

4. QUALIFICATIONS

Installers to be ARCHITECTURAL METALFORMERS approved installers.

5. 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

5.1. Euramax

3-Layer PVDF

Colours: Cyprus Oxide, Schist, Matte Dark Bronze, Middle Bronze, Ultra-matte Grey Black, Urban Grey

- Coastal (<1500m from coastline): 20 years
- Inland (>1500m from coastline): 30 years

2-Layer HDP

Colours: Mood Grey, Gotham Black

- Coastal (<1500m from coastline): 15 years
- Inland (<1500m from coastline): 20 years

2-Layer FEVE

Colours: Sumerian Bronze

- Coastal (<1500m from coastline): 15 years
- Inland (<1500m from coastline): 25 years

Further warranty information:

[Euramax Applicable Warranties - Ambro Metals](#)

5.2 Powder Coated Mill Finish Aluminium

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

Dulux, the primary powder coating provider, offers warranties on their range of products including but not limited to: Duralloy, Duratec, Mannex, and Electro. Warranties range from 10 to 20 years, subject to site location, exposure levels, and application type.

For project-specific guidance, consult with Architectural Metalformers.

Further warranty information:

[Dulux Powders - Warranties](#)

5.3 ColorCote (AlumiGard & MagnaFlow)

Mild ISO C1-2	NZ MRM Code of Practice A-B					
	Roofing		Wall Cladding		Accessories	
	AlumiGard	MagnaFlow	AlumiGard	MagnaFlow	AlumiGard	MagnaFlow
Paint	18 years	18 years	15 years	15 years	10 years	10 years
Perforation	50 years	50 years	30 years	30 years	15 years	15 years
Maintenance	Rain washing		Manual washing every 12 months		Manual washing every 6 months	

Moderate ISO C3	NZ MRM Code of Practice C					
	Roofing		Wall Cladding		Accessories	
	AlumiGard	MagnaFlow	AlumiGard	MagnaFlow	AlumiGard	MagnaFlow
Paint	18 years	18 years	15 years	15 years	10 years	10 years
Perforation	40 years	40 years	25 years	25 years	15 years	15 years
Maintenance	Rain washing		Manual washing every 12 months		Manual washing every 6 months	



Severe ISO C4	NZ MRM Code of Practice D					
	Roofing		Wall Cladding		Accessories	
	AlumiGard	MagnaFlow	AlumiGard	MagnaFlow	AlumiGard	MagnaFlow
Paint	15 years	15 years	15 years	15 years	10 years	10 years
Perforation	30 years	30 years	25 years	20 years	15 years	15 years
Maintenance	Rain washing		Manual washing every 6 months		Manual washing every 6 months	

Very Severe C5	NZ MRM Code of Practice E					
	Roofing		Wall Cladding		Accessories	
	AlumiGard	MagnaFlow	AlumiGard	MagnaFlow	AlumiGard	MagnaFlow
Paint	15 years	15 years	15 years	15 years	10 years	10 years
Perforation	30 years	20 years	25 years	20 years	15 years	15 years
Maintenance	Rain washing		Manual washing every 3 months		Manual washing every 3 months	

Extremely Severe ISO CX	NZ MRM Code of Practice F					
	Roofing		Wall Cladding		Accessories	
	AlumiGard	Magna Flow	AlumiGard	Magna Flow	AlumiGard	Magna Flow
Paint	15 years	n/a	15 years	n/a	10 years	n/a
Perforation	25 years	n/a	20 years	n/a	10 years	n/a
Maintenance	Rain washing	n/a	Manual washing every 3 months	n/a	Manual washing every 3 months	n/a

Further warranty information:

[AlumiGard - ColorCote](#)

[MagnaFlow - ColorCote](#)

5.4 Copper

Copper roofing and cladding installations are covered by a 20-year material warranty commencing from the date of practical completion.

5.5 Corrosion Category Definitions for AlumiGard and MagnaFlow Warranty

Mild ISO C1-2

(Nominally no salt deposits or smell of salt in the air. Distance from the coastline is dependent on prevailing weather patterns but typically this can be 5km or more from either the West or East Coast.)

Moderate ISO C3

As an indication, this area may have some salt deposits and the occasional smell of salt in the air. On the East Coast(s) this area may start from as close as 500m to the shoreline whereas on the West Coast(s) it can be as far inland as 1-5km from the shoreline. *

Severe ISO C4

This area is influenced by coastal salt and is likely in the immediate vicinity of relatively calm salt water, to be subject to light salt deposits and the frequent smell of salt in the air. On the East Coast(s) this area may be as close as 100m from the shore, whereas on the West Coast(s) it may be as far inland as 1km. *

Very Severe ISO C5

This area typically is very close to the shoreline and is subject to heavy salt deposits and the almost constant smell of salt in the air. Depending on prevailing weather patterns it may start as close as 500m on the West Coast(s) and within 25-100m on the East Coast(s). Some geothermal areas may be included. *

Extremely Severe ISO CX

This environment is typically immediately adjacent to breaking surf, and would include jetties, wharfs and offshore constructions and may include sites on offshore islands. Extremely severe areas may also include areas with geothermal activity*.

** These descriptions are general in nature and not intended to be definitive. Each geographic site needs to be assessed on its own merits.*

6. PERFORMANCE

6.1 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. Installation in accordance with the NZMRM Code of Practice for New Zealand Metal Roof and Wall Cladding, ensuring a weather-tight roofing and cladding system, including all penetrations.

6.2 Roof Pitch

Flatlock panel roofing is suitable for roof pitches down to 25°.

6.3 Co-ordinate

Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof/cladding.

7. PRODUCTS

7.1 Plywood Substrate

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.

7.1.1 Plywood Fixing – General

- 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

7.1.2 Plywood Fixing – Drip Edge

Allow a maximum of 50 mm overhang from the finished face of the fascia board to the external edge of the plywood. This allows for a sufficient drip edge to be formed. Plywood to be square edge finished.

7.1.3 Plywood Fixing – Vented Ridge

Allow a 20 mm gap between opposing plywood sheet edges at the ridge and hip line to allow for sufficient venting.

7.2 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.

7.3 Metal Selection

7.3.1 Aluminium

Euramax:

- Gauge: 0.8 mm
- Coating Options:
 - Euramax 3-layer 70% PVDF PROTEC
 - Colour options: Cyprus Oxide, Schist, Matte Dark Bronze, Middle Bronze, Ultra-matte Grey Black, Urban Grey
 - Alloy: Marine grade 5754 series aluminium alloy H42 temper



- Euramax 2-layer HDP PROTEC
 - Colour options: Mood Grey, Gotham Black
 - Alloy: Marine grade 3005 series aluminium alloy H44 temper
- Euramax 2-layer FEVE PROTEC
 - Colour options: Sumerian Bronze
 - Alloy: Marine grade 5005 series aluminium alloy H44 temper

Warranties dependent on the selected coating option, see warranty information outlined above in [Section 5.1](#).

ColorCote (AlumiGard):

- Gauge: 0.90 mm
- Substrate: Aluminium alloy type 5005 or 5052 marine grade, H34 or H36 temper
- Pre-treatment: Corrosion resistant chromate free conversion coating
- Primer: High build, flexible corrosion resistant polyester primer on both sides
- Finish Coat: Flexible exterior waterborne acrylic, or super polyester coating
- Colour Options: Titania, Grey Friars, Threadbow White, Pacific White, Black, Grey Flannel, Ironsand, Thunder Grey, Mudstone

Further technical details: [AlumiGard Technical Brochure PDF](#)

Powder-coated:

- Material: Mill finish 5005 series aluminium
- Available gauges: 1.2 mm and 1.6 mm
- Powder: Dulux (Alumi Shield)

7.3.2 Steel

ColorCote (MagnaFlow):

- Gauge: 0.55 mm
- Substrate: Hot-dipped aluminium/magnesium/zinc alloy coated steel coil.
- Pre-treatment: Corrosion resistant chromate free conversion coating
- Primer: Flexible corrosion resistant polyester primer on both sides
- Finish Coat: Flexible exterior waterborne acrylic, or super polyester coating
- Colour Options: Black, Terracotta, Horoeke, Sandstone Grey, Ironsand

Further technical details: [MagnaFlow Technical Brochure PDF](#)

7.3.3 Copper

DHP Copper (Phosphorous De-oxidised Non-arsenical Copper):

- Purity: 99.9% Copper
- Temper: Half hard
- Available gauges: 0.55 mm, 0.60 mm, 0.70 mm, 0.90 mm

Further technical details: [Ambros DHP Copper Specification Sheet PDF](#)

7.4 Flatlock Profile

SmartTray flatlock panels by Architectural Metalformers

7.5 SmartTray Flashings

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

8. COMPONENTS

8.1 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.

8.2 Fixing Clips

SmartTray 316 or 304 stainless steel fixing clips, secured to ply with 25 mm x 2.5 annular grooved stainless steel flat head nails at maximum 400 – 500 mm centres, subject to pitch and wind loading.

Custom sliding clips to be used for all sheets over 4m in length or where there is a requirement for large amounts of thermal movement.

8.3 Rivets

Minimum diameter 4.0 mm sealed rivets.

9. ACCESSORIES

9.1 Sealant

Neutral curing mastic sealant or polymer sealant.

10. EXECUTION

10.1 Inspection

Inspect the roof/wall framing and supporting structure to ensure that it is complete and fully braced ready for plywood substrate and roofing/cladding.

10.2 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.

10.3 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.

11. APPLICATION

11.1 Set-out

Set out sheets with side laps oriented away from the prevailing wind.

- Ensure end sheet widths are symmetrical and square
- Maintain straight alignment with the drip-edge and over sail the drip edge true to line
- Use string lines during installation to control sheet creep and maintain straight fastening lines

11.2 Forming (Roofing)

Form stop-ends and downturns in accordance with the roofing manufacturer's details.

11.3 End Laps (Roofing)

End laps are only permitted where explicitly detailed and approved by Architectural Metalformers.

11.4 Thermal Movement

Design and fix roofing to Architectural Metalformers requirements for thermal movement:

- Use sliding clips for all panels over 4.0 metres in length
- Refer to NZBC E2/AS1 Section 8.4.10 for requirements where roof lengths exceed 18.0 metres

11.5 Fix Underlay

Fit and lap approved underlay over the plywood substrate with 12 mm stainless steel or nylon staples, including a minimum 20 mm over sail into the gutter. Underlay to be installed in accordance with manufacturer's guidelines and specifications.

11.6 Marking and Cutting

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

11.7 Fix Roof/Wall Panels

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 8.2](#).

11.8 Soldering

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

11.9 Flashings

Flash roof/cladding to parapets, walls, and penetrations in accordance with approved details and the NZMRM NZ Metal Roof and Wall Cladding Code of Practice recommendations, and to Architectural Metalformers' approved methodologies.

Install flashings to parapets, penetrations, and adjoining elements using:

- Hidden sealants and rivets
- Profiles and techniques approved by Architectural Metalformers
- Weatherproofing methods per NZMRM Code of Practice and E2/AS1
- Over-flash all penetrations to ensure full waterproofing integrity

11.10 Fixing, Ridges, Verges, and Cap Flashings

All flashings to be in accordance with NZMRM Code of Practice requirements and E2/AS1 requirements.

- Cut accurately and fix to plywood using primary fasteners
- Seal and join with approved sealant and rivets
- All laps to be a minimum of 150 mm

11.11 Penetrations and Junctions

Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof.

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

12. SELECTIONS

Product: Flatlock roofing panel and metal cladding

- Profile: Flatlock panels
- Seam profile: Flatlock seam
- Seam height: N/A
- Minimum roof pitch: 25 degrees

12.1 Plywood Substrate

- Type: H3 CCA-treated plywood, CD Grade, F11 structural grade or equivalent
- Thickness: Minimum 15 mm

12.2 Roofing/Cladding Underlay

- Brand: Thermakraft Covertex 403 or similar approved building underlay
- Type: Heavy-duty breathable roofing underlay