Induraplate

SOLID ALUMINIUM PANELS

Technical Manual

Version 2.0
October 2025

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01 - INTRODUCTION

1.1 About this Manual.

This manual has been developed to effectively assist architects, builders, councils and installers to work with Paneltec's Solid Aluminium Panel; Induraplate.

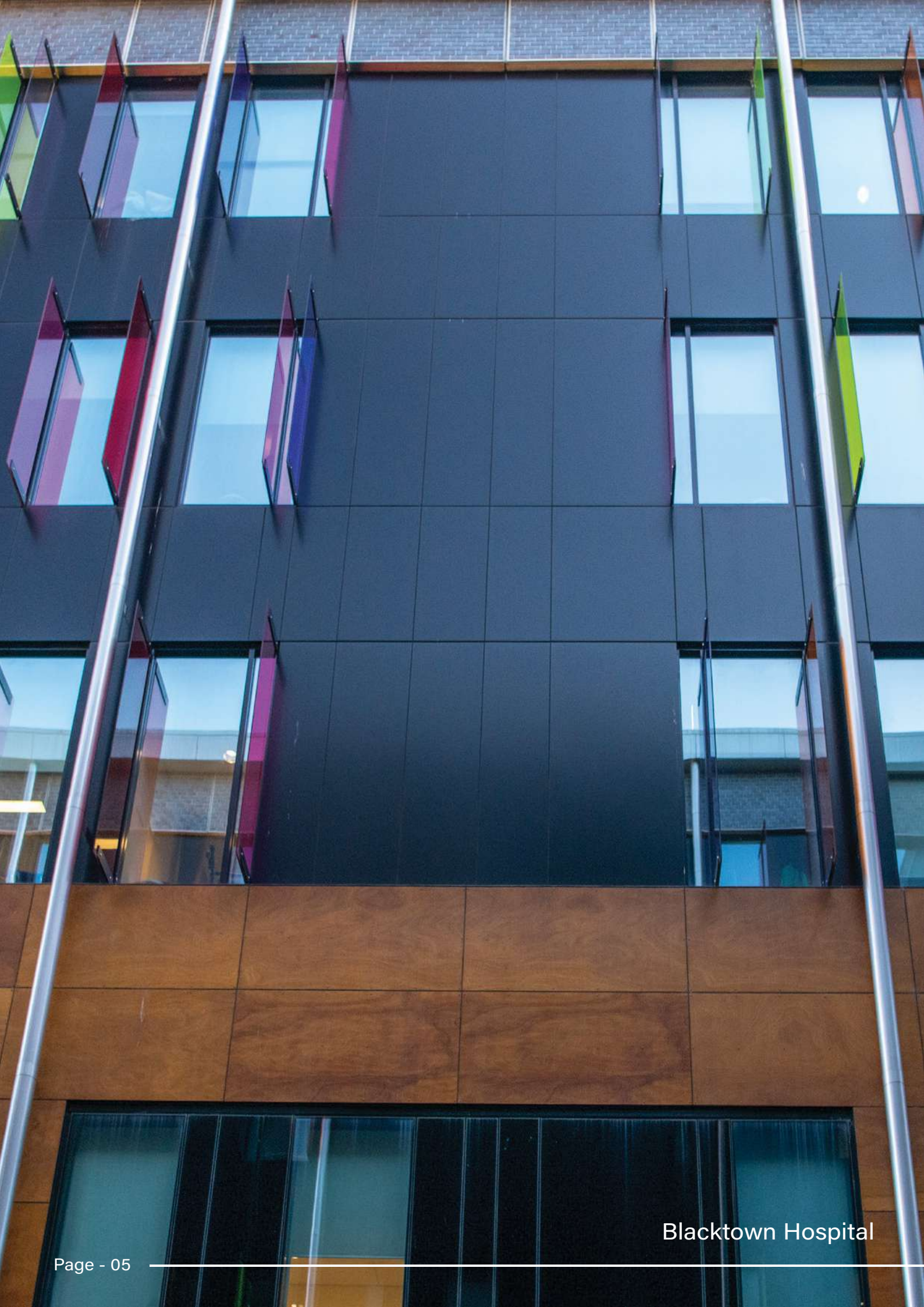
Due to the uncontrollable conditions and methods of job scope, as well as the variable skills and judgment of users/installers and the quality of equipment, tools, etc., the suggestions and recommendations contained in this manual are provided without warranty.

The information and recommendations contained herein are believed to be correct at time of publishing October 2025.

Paneltec reserves the right to revise the contents of this manual

1.2 Document Tracking

VERSION #	DATE	CHANGES
1.0	January 2020	Initial Issue
2.0	October 2025	Installation Details Updated & update to windload table & Warranty added.



Blacktown Hospital

1.3 About Induraplate.

Induraplate is a 3mm non-combustible solid aluminium cassette cladding system that forms part of Paneltec's range of fully compliant, non-combustible cladding solutions.

Induraplate is a durable, high impact resistant, solid panel which can be curved and rolled. It is prefinished in the highly recognized Kynar 500 PVDF or FEVE coating, well proven for its superior quality, extensive colour range and durability. Unlike traditional 3mm powder-coated aluminium, it is more durable and resistant to New Zealand's strong UV rays, and less likely to fade.

Due to the flexibility of the PVDF coating it means that it does not require fabrication prior to coating unlike traditional powder coated cassettes, which minimises lead-times, damage and costs. It comes in a range of stocked colours, and is able to be colour matched to any colour or finish available. Induraplate is backed by a 15 year warranty.

1.4 Key Features.

NON-COMBUSTIBLE

Induraplate is AS1530.1 certified non- combustible.

INFRASTRUCTURE

Being full scale fire tested and offering simple and lightweight fabrication make Induraplate a suitable product for large infrastructure projects.

VERSATILE

Induraplate can be custom designed into a wide range of shapes and dimensions as well as able to be perforated or curved in some applications making it a versatile design choice.

HIGH DURABILITY

Induraplate panels are highly durable and impact resistant. They can be used effectively in high traffic areas.

PAINT SYSTEM

Induraplate only uses the highly recognised PVDF KYNAR 500 or FEVE paints known for their high durability, providing the optimum resistance to weather and industrial pollutants.

WEATHERPROOFED

Induraplate is weatherproofed to E2 standards when using Paneltec's NZS4284 tested system.

CONCEALED FIX SYSTEM

Induraplate is the same to fabricate and install as traditional ACP by CNC routing panels into the concealed fix z-angle cassette system.

WARRANTY

Induraplate has up to a 15 year warranty when correctly installed and maintained.

2.1 Manufacturing Quality.

A dedication to the total fulfillment of our client's and customer's expectations is reflected by a complete quality control system, beginning at the point of specification and continuing through to delivery of the guaranteed products.

All activities are carried out in a manner which:

- Uses the framework of ISO9001 Quality Standards to verify the quality of our systems.
- Ensures that our products and services are of the highest standards.
- Create continuous improvements to our product through the application of the best quality practices.
- Paneltec New Zealand has a full ISO 10005 Quality Management plan in place.
- Contact Paneltec for full quality control process.

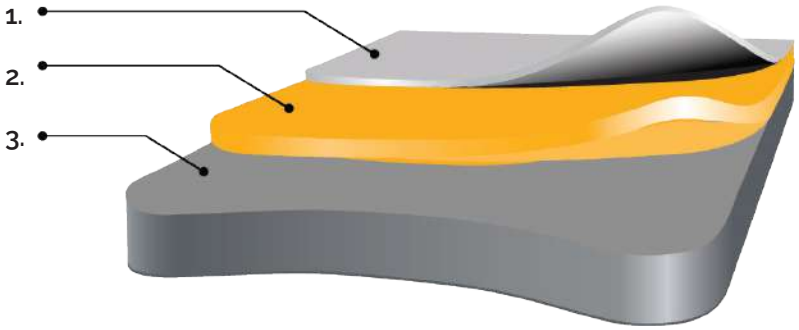
2.2 Acceptance Variation.

WIDTH	±2.0 mm
LENGTH	±4.0 mm
THICKNESS	± 2% for 3 mm
BOW MAXIMUM	Maximum 0.5% of the length and/or width
SQUARENESS MAXIMUM	Maximum 5.0mm
SURFACE DEFECTS	The surface shall not have any irregularities such as dents, scratches and other imperfections in accordance with our quality assurance standards.

03 - PANEL SPECIFICATIONS

3.1 Typical Composition.

1. Protective film
2. PVDF-Kynar 500 coating system
3. 3mm aluminium



Aluminium Skins.

Induraplate is manufactured from 3003 series grade aluminium. It is also available in marine grade 5052 series aluminium for best machinability exterior performance.

3.2 Dimensions & Weight.

Width	Length	Thickness	Weight [Kg/M²]
	2500		
1500	3200	3mm	8.1
	4000		

Custom sizes are available when a minimum order quantity is met. **Please speak to the Paneltec team.**

3.3 Technical Data.

Physical Property	Value
Density	2.63 g/cm^3
Melting Range	605-650 ˚C
Thermal Expansion	23.8 x10-6 /K
Modulus of Elasticity	70 GPa
Thermal Conductivity	138 W/m.K
Electrical Resistivity	0.0495 x10 .m
Tensile Strength	210 - 260 MPa
Proof Stress	130 Min MPa
Hardness Brinell	61 HB
Acoustic Insulation	Rw 27

04 - FINISHES

4.1 Coating Types

Stove Lacquering.

Induraplate only uses the highly recognised PVDF KYNAR 500, or FEVE coating systems known for their high durability. These premium paints provide an optimum resistance to weather and industrial pollution. More than 50 years of South Florida exposure testing is continuing to confirm the superior chemical and physical properties of fluoropolymer coatings.

We have a range of colours that are stocked in New Zealand for short lead times. Contact Paneltec for a list of colours.
We are able to match any other colour with special indent runs direct from the factory. Contact Paneltec for more information and minimum order requirements.

Other Coatings.

- Imitation anodise finish
- Imitation stone finish
- Imitation wood finish
- Imitation metal finish

Colour matching is available when minimum order quantities are meet. Send your request to Paneltec and we can confirm its viability.

4.2 PVDF Specifications

Classification	Test Standard	Result	Remarks
Substrate	ASTM D1005	Pass	Aluminium
Flexibility	ASTM D4145 ECCA T7 NCCA 11-19	Pass	1~2T - No Cracking
DFT	ASTM D1400 ASTM D1005 NCCA 11-13, 14, 15	Pass	
Colour Difference	ASTM 2244	△E<5	4000hrs
Gloss Meter	ASTM D523	Pass	
Gloss Retention	ASTM 2244	85%	4000hrs
Chalking Resistance	ASTM 2244	<8 units	4000hrs
Pencil Hardness	ASTM D3363		
Dry Film Adhesion Wet Adhesion Hot Adhesion		Pass Pass Pass	38˚C, 24hrs 100˚C, 24hrs
Reverse Impact Resistance	ASTM D2794	No Cracking	12.7mm x 0.5kg x 500mm
Bending/Gardner Impact	ASTM D3281	Pass	Normal
Solvent Resistance	ASTM 2794	Pass	MEK double rubs
Acid Resistance	ASTM 1308	Pass	7 days soaking in 10% H_2SO_4
Alkali Resistance	ASTM 1308	Pass	7 days soaking in 10% NaOH
Detergent Resistance	ASTM D2248	Pass	72 hrs soaking in 3% detergent
Salt Resistance	**ASTM B117**	**Includes the following:**	
Gloss Retention	ASTM D523	0.8% change	5000hrs
Colour Retention	ASTM 2244	E<0.68	5000hrs
Chalk Resistance	ASTM 4214	Rating: 10	Top rating - no chalk (5000hrs)
Humidity Resistance	**ASTM D714**	**Pass**	**2000hrs**
	ASTM B117	**Includes the following:**	
Gloss Retention	ASTM D523	No visible change	5000hrs
Colour Retention	ASTM 2244	E<0.52	5000hrs

Chalk Resistance	**ASTM 4214**	**Rating: 10**	**Top rating - no chalk (5000hrs)**
Weathering Resistance	**ASTM G53**	**Includes the following:**	
Gloss Retention	ASTM D523	6.2% Change	5000hrs
Colour Retention	ASTM 2244	E<0.27	5000hrs
Chalk Resistance	ASTM 4214	Rating: 10	Top rating - no chalk (5000hrs)
Chalk Resistance	**ASTM C207**	**Pass**	**Mortar, 24hrs**
		Pass	**10% Hcl, 15 min**
	ASTM D1308	**Pass**	**70% HN03 Vapours, 30 min**
		Includes the following:	
Gloss Retention	ASTM D523	6.2% Change	16hrs
Colour Retention	ASTM 2244	No Change	16hrs
Chalk Resistance	ASTM 4214	Rating: 10	Top rating - no chalk (5000hrs)

Westfield Newmarket, Auckland

05 - PERFORMANCE

5.1 Fire Resistance.

In today's architecture, not only is it the appearance that counts but equally important is the technical details, such as compliance, sustainability, moisture control, and fire protection. The use of intense full scale fire test on façade panels has now become an industry norm amongst architects and industry professionals. Induraplate is one of the few large format cladding panels that are non-combustible when tested to AS1530.1.

Visually, Induraplate is similar to traditional composite panel, however what makes it different is the fact that it is constructed from 100% aluminium, rather than combustible material such as polyethylene and fire rated mineral. This makes Induraplate, an ideal product for all applications where non-combustible panels are required; such as high-rise buildings, schools or hospitals. As with all building products, the use of Induraplate must be authorised by the regulatory body.

INDURAPLATE			
TEST STANDARD	**RESULT**		
AS1530.1		Non-Combustible	0
AS1530.3	PASS	Ignitability Index	0
	PASS	Heat Evolved	0
	PASS	Spread of Flame	1
	PASS	Smoke Developed	

5.2 Average Expansion.

Material	Expansion Coefficient (x10 -6/˚C)	Elongation per 1000mm T=50˚C
Induraplate	23.8	1.2mm
Aluminium	23.8	1.2mm
Zinc	26.7	1.3mm
Steel	12.2	0.6mm
Concrete	12	0.6mm

5.3 Thermal Insulating Properties.

Thermal Resistance		
From -50˚C to +80˚C		
Panel Thickness (mm)	Thermal Resistance 1A m2.K/W	Heat Transmission Coefficient W/(m2.K)
3	0.0069	5.65

5.4 Windloading.

Span and fixing table when installed as per the Induraplate Installation manual.

- Refer to the following tables for engineered spanning and windloading for Induraplate system. Contact Paneltec to get the full engineering judgment document.
- Where sufficient stiffeners are used, the dimensions below can be read as panel section sizes between stiffeners.
- Larger panel size is possible with suitable engineering.

Stiffener Span Tables

Table 1 - Panel Stiffener c/c Spacing (mm)

Panel Breadth (mm)	Panel Width (mm)	Maximum Allowable Ultimate Limit State (ULS) Wind Load (kPa or kN/m2)									
		0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
4000	200	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4000	400	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4000	600	NR	NR	NR	NR	NR	NR	NR	600	550	500
4000	800	NR	NR	750	700	650	600	600	550	550	500
4000	1000	NR	800	750	700	650	600	600	550	550	500
4000	1200	1000	800	700	650	660	600	550	550	500	450
4000	1400	950	800	700	650	600	550	500	400	350	350
4000	1600	950	750	650	600	500	450	350	300	300	250
Panel Breadth (mm)	Panel Width (mm)	Maximum Allowable Serviceability Limit State (SLS) Wind Load (kPa or kN/m2)									
		0.38	0.75	1.13	1.50	1.88	2.25	2.63	3.00	3.38	3.75
4000	200	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4000	400	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4000	600	NR	NR	NR	NR	NR	NR	NR	600	550	500
4000	800	NR	NR	750	700	650	600	600	550	550	500
4000	1000	NR	800	750	700	650	600	600	550	550	500
4000	1200	1000	800	700	650	600	600	550	550	500	450
4000	1400	950	800	700	650	600	550	500	400	350	350
4000	1600	950	750	650	600	500	450	350	300	300	250
Panel Breadth (mm)	Panel Width (mm)	Maximum Allowable Ultimate Limit State (ULS) Wind Load (kPa or kN/m2)									
		0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
1600	200	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1600	400	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1600	600	NR	NR	NR	NR	NR	550	550	500	500	500
1600	800	NR	NR	700	650	600	550	550	500	500	500
1600	1000	NR	800	700	600	600	550	500	500	450	450
1600	1200	800	750	650	600	550	500	500	450	450	400
1600	1400	800	750	650	550	500	450	450	400	350	350
1600	1600	800	700	550	500	450	400	350	300	300	250
Panel Breadth (mm)	Panel Width (mm)	Maximum Allowable Serviceability Limit State (SLS) Wind Load (kPa or kN/m2)									
		0.38	0.75	1.13	1.50	1.88	2.25	2.63	3.00	3.38	3.75
1600	200	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1600	400	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1600	600	NR	NR	NR	NR	NR	NR	550	500	500	500
1600	800	NR	NR	700	650	600	750	550	500	500	500
1600	1000	NR	800	700	600	600	700	500	500	450	450
1600	1200	800	750	650	600	550	650	500	450	450	400
1600	1400	800	750	650	550	500	600	450	400	350	350
1600	1600	800	700	550	500	450	450	350	300	300	250

*NR = Not Required

Table 1 - Panel Stiffener c/c Spacing (mm)											
Panel Breadth (mm)	Panel Width (mm)	Maximum Allowable Ultimate Limit State (ULS) Wind Load (kPa or kN/m2)									
		0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
800	200	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
800	400	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
800	600	NR	NR	NR	NR	NR	NR	400	400	400	400
800	800	NR	NR	NR	400	400	400	400	400	400	400
800	1000	NR	500	500	500	500	500	500	450	450	450
800	1200	600	600	600	600	550	550	500	500	450	450
800	1400	700	700	700	650	600	550	500	500	500	450
800	1600	800	800	700	650	600	550	550	500	500	500
Panel Breadth (mm)	Panel Width (mm)	Maximum Allowable Serviceability Limit State (SLS) Wind Load (kPa or kN/m2)									
		0.38	0.75	1.13	1.50	1.88	2.25	2.63	3.00	3.38	3.75
800	200	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
800	400	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
800	600	NR	NR	NR	NR	NR	NR	400	400	400	400
800	800	NR	NR	NR	400	400	400	400	400	400	400
800	1000	NR	500	500	500	500	500	500	450	450	450
800	1200	600	600	600	600	550	550	500	500	450	450
800	1400	700	700	700	650	600	550	500	500	500	450
800	1600	800	800	700	650	600	550	550	500	500	500

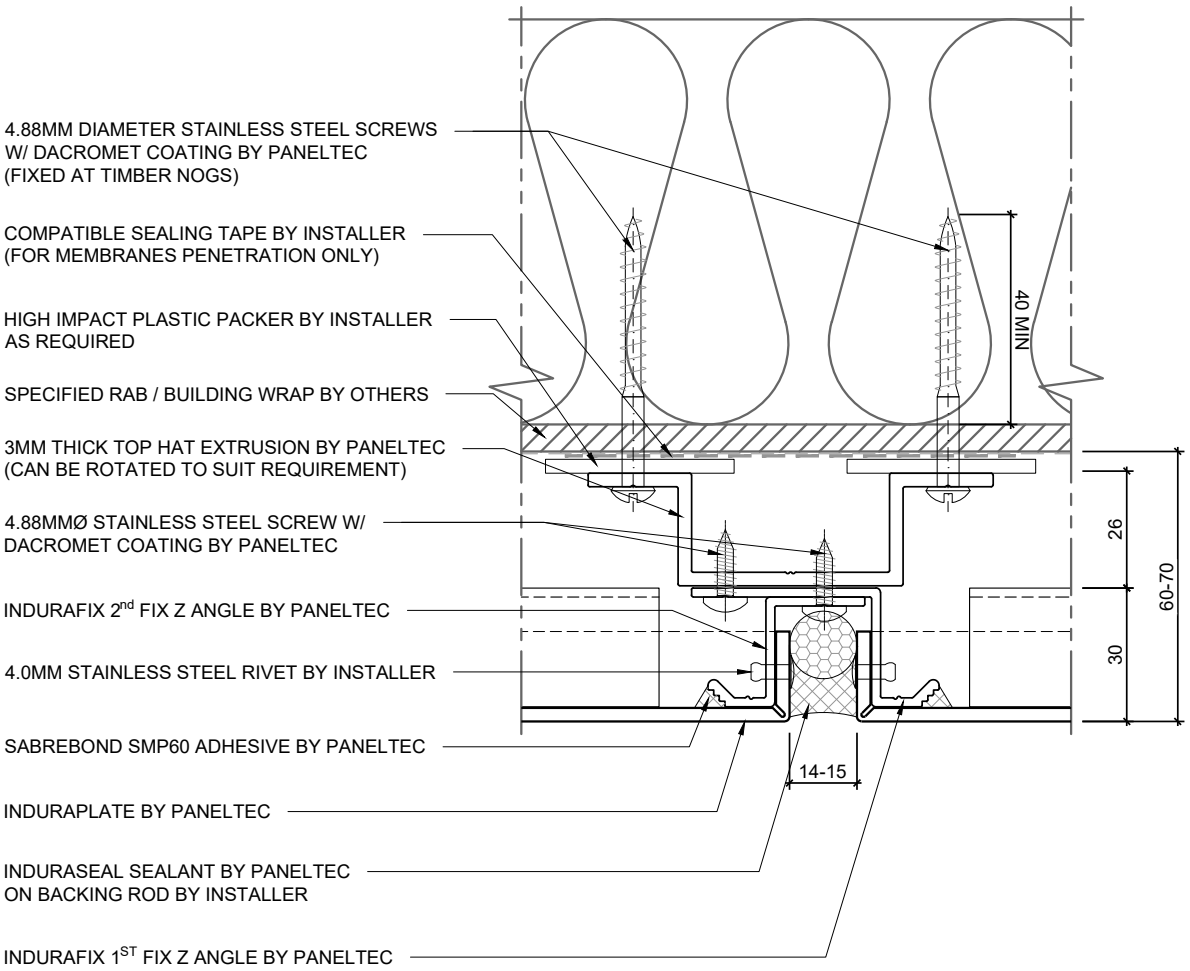
Table 2 - Panel to Indurafix 1st/2nd Z Fix Fastener c/c Spacing (mm)											
Panel Breadth (mm)	Panel Width (mm)	Maximum Allowable Ultimate & Serviceability Limit State (USLS) Wind Load (kPa or kN/m2)									
		0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
4000	200	500	500	500	500	500	500	500	500	500	500
4000	400	500	500	500	500	500	500	500	500	500	500
4000	600	500	500	500	500	500	500	500	500	500	500
4000	800	500	500	500	500	500	500	500	500	500	500
4000	1000	500	500	500	500	500	500	500	500	500	500
4000	1200	500	500	500	500	500	500	500	500	450	400
4000	1400	500	500	500	500	500	500	500	400	350	350
4000	1600	500	500	500	500	500	500	400	350	300	300

*NR = Not Required

6.1 Fixing System.

Below is our standard vertical panel joint detail, refer to our installation manual for all other details.

Vertical Panel Joint



6.2 Installation Guidelines.

- All sheets should be installed in the same direction as marked on the protective film to prevent possible finish variation.
- As minor colour variation can occur between production lots, it is recommended to place total requirement for a project in one order to ensure colour consistency.
- Where aluminium materials come in contact with dissimilar metals, a proper insulator or caulking tape should be applied to insulate between dissimilar materials in order to avoid corrosive and electrolytic action.
- The panel returns should not be caulked before protective film is removed.
- Stainless steel fixing is recommended for durability and longevity.
- Panel should allow minimum 1000mm2/LM of ventilation.
- When required, intumescent cavity barriers shall be installed in accordance with NZBC Acceptable Solution C/AS2, Amendment 3, 2 November 2023 Section 5.8.5.

NOTE: Please refer to the Paneltec Induraplate Installation Manual for full installation details. Paneltec design team is available for design support and completion of shop drawings, contact Paneltec for more information.

6.3 Installation Sequence.

It is recommended that installation sequence is as follows:

1. Installation of the RAB (Rigid Air Barrier) as per manufacturers requirements.
2. Installation of the water membrane as per manufacturers requirements.
3. Installation of tophats, levelled and fixed as per wind loading requirements.
4. When required, intumescent cavity barriers shall be installed in accordance with NZBC Acceptable Solution C/AS2, Amendment 3, 2 November 2023 Section 5.8.5.
5. Induraplate panels fabricated and prepared for installation.
6. Installation of fabricated Induraplate panels, fixing through Z angles to tophats as per wind loading requirements.
7. Caulking applied to panel joints as per manufacturers requirements.
8. Removal of protective film, within 45 days of installation.

7.1 General Methods

Cutting.

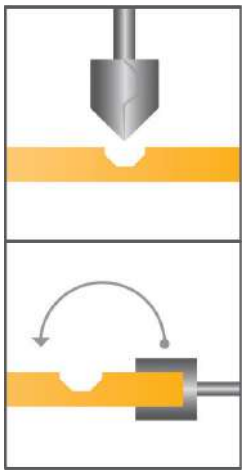
Induraplate can be cut with a wall-saw, circular saw, bandsaw or jigsaw. The requirements for a circular saw are identical to that for cutting solid aluminium.

Specific details below.

The Cutting tool material to be carbide tipped 2-4mm	
Tooth geometry:	Trapeze/flat
Tooth pitch:	10-12mm
Rake Angle:	-5˚ (negative)
Clearance Angle:	15˚
Max cutting speed:	20m/mm

Contour Cutting.

Induraplate panel can be contour cut with water jets, CNC routers, copy routers and jigsaws. Coolant is recommended for router processing



Routing / Folding.

Induraplate panel can be cold shaped, enabling it to form various shapes and sizes. A rectangular or V-shaped groove can be routered on the back of the panel, following potential fold lines. The panel can then be hand folded along this groove, creating a precise and even fold. The outer radius of the fold can be determined by the shape and width of the routered groove.

There must be between 0.7mm and 1mm of aluminium left at the base of the routed groove. Too much material can cause stress and result in a larger radius fold than desired.It will also make folding the panel more difficult and prevent the required fold angle from being obtained.

Shearing.

Shearing can be done with a guillotine. Ensure the blanking tools are padded. Shearing causes a slight roll down along the cut edge of the panel.

Punching.

The punching of flat formed parts from Induraplate is performed in the same way as a solid aluminium sheeting, using sharp tools and dies with minimal cutting clearance. Varying shapes may easily be punched with normal aluminium punching machinery. As with shearing, a slight roll down may occur.

Roll Bending.

Induraplate panel can be bent with a roll-bending machine. Use polished rollers free of imperfections only. Minimum radius of 200mm.

Screwing.

Induraplate can be screwed with conventional stainless steel or galvanised screws for metal. For outdoor use allow for thermal expansion.

Riveting.

Riveting is possible with the usual equipment and solid rivets or blind rivets. For outdoor use allow for thermal expansion.

Drilling.

Induraplate panel can be drilled with centre point twist drills normally used for aluminium or machines common for metals. Drill material: High-Speed Steel (HSS).

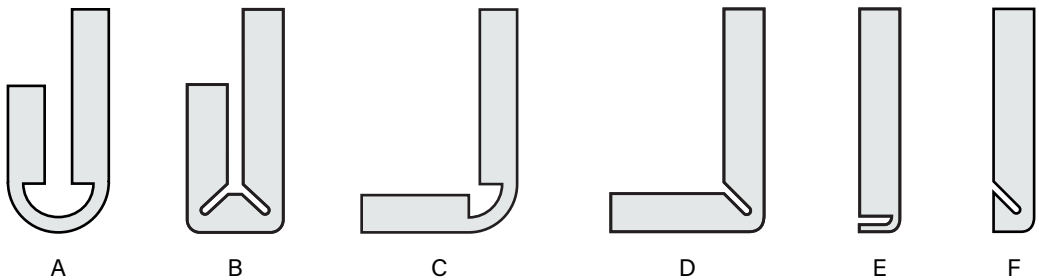
Bending.

Bending is possible with a folding table or brake press. The inside bending radius is roughly 5 times the Induraplate panel thickness. Use protective foils. For serial production, tests should be made on sample panels.

Gluing.

Flexible metal adhesives or double sided VHB tape should be used.

7.2 Edge close-out & Treatment details.



08 - WARRANTY

8.1 Overview

What is covered in our warranty: We warrant that Induraplate, as described in this manual as the product manufactured, sold and delivered by us shall be free from any material defects, conform to our applicable specifications, and will perform in accordance with our product documentation under normal conditions for a period of 15 years.

What we will do to fix the product: In the event of a breach of this warranty, we shall, at our sole option and expense, promptly repair or replace the defective products or refund the purchase price to the extent any individual products or panels require replacement. Such remedy will be the sole and exclusive remedy for any breach of warranty.

Warranty exclusions: Our warranty does not cover:

1. Damage caused by accident, abuse, misuse, fire, earthquake, volcanic activity or other external cause.
2. Damage caused by installation or modification of the products outside of our published specifications.
3. Defects caused by normal wear and tear or otherwise due to the normal aging of the product.
4. A failure to follow the required washing requirements.

Washing requirements: The property's environmental category is a classification of the harshness or severity of the environment it is in. We categorise this, by describing the surrounding environment as:

1. Moderate
2. Severe

A number of factors can contribute to the environmental category, but the most significant consideration is how close the property is to the coast.

View our warranty document for full details on classification of moderate and severe conditions.

For anything within 500 metres of a salt water body, please contact us for confirmation of your warranty. This environment may be extended inland by prevailing winds & local conditions.

8.2 Cleaning and Maintenance

The following washing regime is an essential requirement in ensuring a valid warranty:

MODERATE	SEVERE
Maintenance: Rain washing plus manual washing every 6 Months	Rain washing plus manual washing every 3 months

When cleaning surfaces, proceed as follows:

1. Carefully remove any loose deposits with a wet sponge.
2. Use a soft, non-abrasive brush and a mild soapy solution to remove dust, salt and other deposits. It is important to first test soap on a small surface to ensure no damage will be caused by the soap.
3. Rinse off with clean water or use a power washer with no more than 3000 PSI and used no closer than 25-30cm.

Other recommended cleaning agents for manual washing are:

- Mineral spirits
- Organic cleaners
- PH-Neutral Solvents

Claim Procedure: We must be notified in writing within 20 days of the discovery of any claimed defects, specifying the nature of the defects. You will allow us and/or our agents unfettered access to inspect the alleged defective products at all reasonable times as we may require.

Refer to our warranty document for full terms and conditions.

Mt Albert Apartments

09 - MICELLANEOUS

9.1 Protective Film.

- Make sure no damage will occur to the panel following removal of protective film
- Remove protective film within 45 days of installation to avoid glue residuals on panel surface due to weathering
- Do not apply PVC tapes, polyurethane sealant or Silicone sealant onto Induraplate protective film. The plasticiser contained in these materials can penetrate the protective film and cause a gloss change in the coating.
- Do not apply spray paint or permanent marker to the film as the colour may penetrate the film and affect the panel.

9.2 Handling & Storage.

- Considerable care should be taken in the handling of Induraplate
- Induraplate panels are sensitive to impact, particularly shocks from small, hard objects, which can dent the aluminium cover sheet
- A minimum of two people should be used when moving large sheets to avoid scratching
- To prevent surface damage when stacking Induraplate, there should be nothing between the panels
- Induraplate should be stored in a cool and dry area where temperature is relatively stable
- Pallets of Induraplate should be stored horizontally with adequate support to prevent sagging
- Stacked pallets should be identically sized and not more than four (4) pallets high

9.3 Sustainability.

Induraplate has been designed with an expected performance life of over 50 years.
All Paneltec products have been developed with the health of the environment and community in mind. As part of our commitment to using recyclable or reusable materials wherever possible; all of Induraplate is 100% recyclable.

Induraplate has been extensively tested and reviewed, and has achieved Environmental Product Declaration (EPD) certification.

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Induraplate
SOLID ALUMINIUM PANELS