



vitradual™

NON-COMBUSTIBLE CASSETTE CLADDING / MANUFACTURED BY FAIRVIEW

TECHNICAL INFORMATION

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DOCUMENT TRACKING

VERSION #	DATE	CHANGES
1.0	10/3/20	Initial Issue

1. ABOUT THIS GUIDE

This guide has been developed to effectively assist fabricators and contractors to work with Fairview's aluminium panel: Vitradual.

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, March 2020.

Fairview reserves the right to revise the contents of this guide.

2. INTRODUCTION

2.1 ABOUT VITRADUAL

Vitradual is a 3mm non-combustible solid aluminium cassette cladding system that forms part of Fairview's range of BCA compliant, deemed non-combustible cladding solutions; perfectly suitable for Type A and B constructions where non-combustible products are required.

Vitradual is a high impact resistant, solid panel which can be fabricated, curved and rolled. The pre-finished large format cladding panels feature the same PVDF coating system as Fairview's leading aluminium panel Vitracore G2; well proven for its superior quality, extensive colour range and design integrity.

2.2 KEY FEATURES

Vitradual's versatility is achieved due to the combination of high-quality considerations and industry leading components. It is an ideal product for application in type A and B developments where non-combustible building materials are critical.

Vitradual is one of the few large format cladding panels that are deemed non-combustible when tested to AS1530.1 and AS1530.3.

PRODUCT DNA Pre-finished solid aluminium panel

FINISH Vitradual uses only the highly recognised PVDF Kynar 500® or FEVE paints known for their high durability, providing the optimum resistance to weather and industrial pollution.

FIXING SYSTEM A cassette style concealed fixing system which is the same to fabricate and install as traditional ACPs.

APPLICATION Type A and B constructions where non-combustible materials are required such as mixed-use developments, residential construction, and large-scale government infrastructure projects like hospitals.

WARRANTY 15-year warranty, subject to standard terms and conditions.

3. PRODUCT SPECIFICATIONS

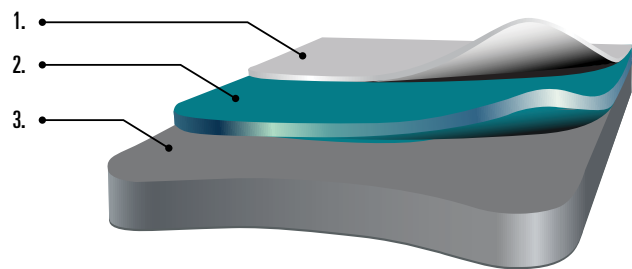
3.1 TYPICAL COMPOSITION

Vitradual is an 100% aluminium product. The 3mm thick panels weigh in at 8.1 kilograms per square metre, making the product ideal for large infrastructure developments such as schools and hospitals.

Vitradual is available in a variety of width and length combinations to suit almost any project and custom sizes are also available on request.

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

The material is rigid, resistant to blows, breakage and pressure and has high bending, buckling and breaking strengths.



DIMENSIONS

Thickness: 3mm

Weight: 8.1kg/m²

3.2 DIMENSIONS

WIDTH	LENGTH	THICKNESS
1250/1500	2500	3mm
	3200	
	4000	

CUSTOM SIZES ARE AVAILABLE, PLEASE SPEAK TO THE FAIRVIEW TEAM

*Note: may not be available in all finishes.

3.3 MATERIAL DATA

PHYSICAL PROPERTY	VALUE
Tensile Strength – ultimate, Ft _u * (MPa)	138
Tensile Strength – yield, Ft _y * (MPa)	117
Compressive strength, F _{cy} (MPa)	96
Shear strength – ultimate, F _{su} (MPa)	83
Shear strength – yield, F _{su} (MPa)	69
Bearing strength – ultimate, F _{bu} (MPa)	276
Bearing strength – yield, F _{by} (MPa)	172
Compressive MOE, E (MPa)	70,000
Thermal Expansion Coefficient	23
Fatigue strength (MPa)	60
Modulus of Resilience (Kj/M ³)	130
Embodied carbon (kg-CO ₂ /kg)	8.1

4. FINISH

4.1 COATING TECHNOLOGY

Vitradual uses only the highly recognised PVDF Kynar 500® or FEVE paints known for their high durability. These premium paints provide the ultimate resistance to weather and industrial pollution on commercial, industrial, infrastructure and residential developments.

More than 50 years of South Florida Exposure Testing is continuing to confirm the superior chemical and physical properties of fluoropolymer coatings.

Vitradual has virtually an unlimited colour range with the possibility of matching almost any panel colour, which provides a fully customisable option to achieve your dream design.

5. COATING SPECIFICATIONS

5.1 TYPICAL COATING TYPE

Vitradual uses only the highly recognised PVDF Kynar 500® or FEVE paints known for their high durability. These premium paints provide an optimum resistance to weather and industrial pollution on commercial, industrial, infrastructure and residential developments.

More than 50 years of South Florida Exposure Testing is continuing to confirm the superior chemical and physical properties of fluoropolymer coatings.

For a full list of standard Vitradual colours, refer to our Solid and Metallics Colour Charts.

The Vitradual range also offers the following finishes:

- REPEL - a self-cleaning surface coating
- VitraArt - for personalised design and imagery

5.2 KYNAR 500® PVDF DATA

CLASSIFICATION	TEST STANDARD	RESULT	COMMENTS
Nominal Coating thickness	TP-ET-02	45.7 μm	$\pm 3.9\mu\text{m}$
Colour Uniformity	ASTM D2244-16	$\Delta E = 0.06$	Pass
Specular Gloss	ASTM D523-14	G 24.8	Pass
Dry Film Hardness	ASTM D3363-05 (R2011)e2	3H	Pass
Film Adhesion	ASTM D3359-17	Dry: 5B Wet: 5B Boiling Water: 5B	Pass
Impact Resistance	AAMA 2605 (8.5)	After impact, no removal	Pass
Abrasion Resistance	ASTM D968-17A	118.6	Pass
Muriatic Acid Resistance (15 min spot)	AAMA 2605 (8.7.1)	5B	Pass
Mortar Resistance (24hr pat test)	AAMA 2605 (8.7.2)	5B	Pass
Nitric Acid Resistance	AAMA 2605 (8.7.3)	$\Delta E = 0.31$	Pass
Detergent Resistance	AAMA 2605 (8.7.4)	5B	Pass
Window Cleaner Resistance	AAMA 2605 (8.7.5)	5B	Pass

6. PERFORMANCE

6.1 FIRE

In today's architecture, it is the technical details as well as the appearance that count; such as sustainability, thermal insulation and fire protection.

Visually, Vitradual is like 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 Vitradual, in addition to Vitracore G2, 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 Vitradual must be authorised by the regulatory body. The Fire Resistance standards achieved with standard Vitradual are as follows:

TEST STANDARD	RESULT		
AS1530.1	NON-COMBUSTIBLE		
AS1530.3	PASS	Ignitability Index	0
	PASS	Heat Evolved	0
	PASS	Spread of Flame	0
	PASS	Smoke Developed	1

6.2 THERMAL

THERMAL INSULATING PROPERTIES

THERMAL RESISTANCE FROM -50°C TO +80°C		
TEST STANDARD	THERMAL RESISTANCE 1A M2.K/W	HEAT TRANSMISSION COEFFICIENT W/(M2.K)
Panel Thickness (mm)	Thermal Resistance 1A m2.K/W	Heat Transmission Coefficient W/(m2.K)
3	0.0069	5.65

AVERAGE EXPANSION

MATERIAL	EXPANSION COEFFICIENT (X10 ⁻⁶ /°C)	ELONGATION PER 1000MMT=50°C
Vitradual	23.8	1.2mm
Aluminium	23.8	1.2mm
Zinc	26.7	1.3mm
Steel	12.2	0.6mm
Concrete	12	0.6mm

7. INSTALLATION DETAILS

7.1 INSTALLATION CONSIDERATIONS

- 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 isolation tape should be applied to insulate between dissimilar materials in order to avoid corrosive and electrolytic action.
- For Cassette Fix, the returns between panel joints should not be caulked before film is removed.
- Please ensure Vitradual is used as part of a compliant wall system, with all components complying with the Deemed-to-Satisfy provisions of the relevant NCC, or approved as part of a performance solution. Consult with a professional to get their expert opinion.

7.2 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 residue on panel surface due to weathering.
- Do not apply PVC tapes, polyurethane sealant or silicone sealant onto Vitradual 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.

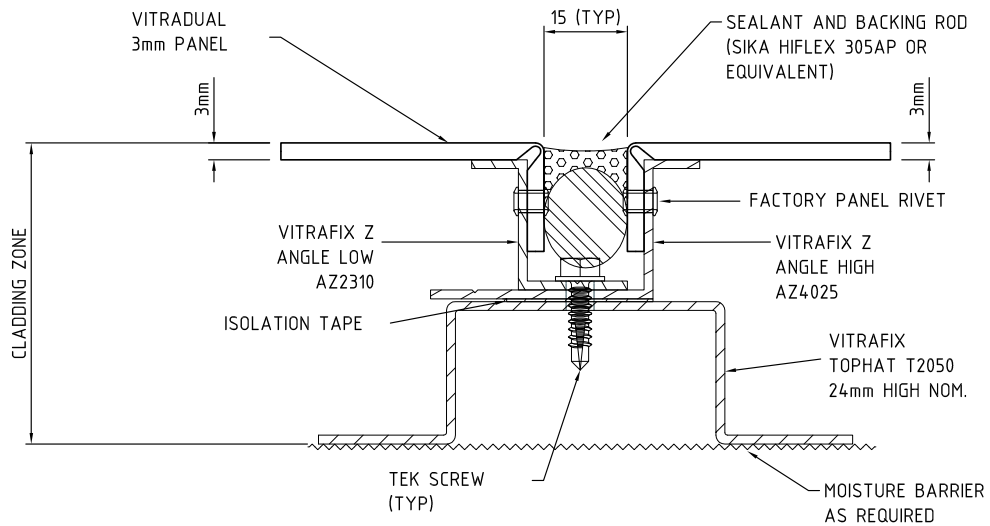
7.3 SEQUENCE

As a rule, the sequence of installation is as follows:

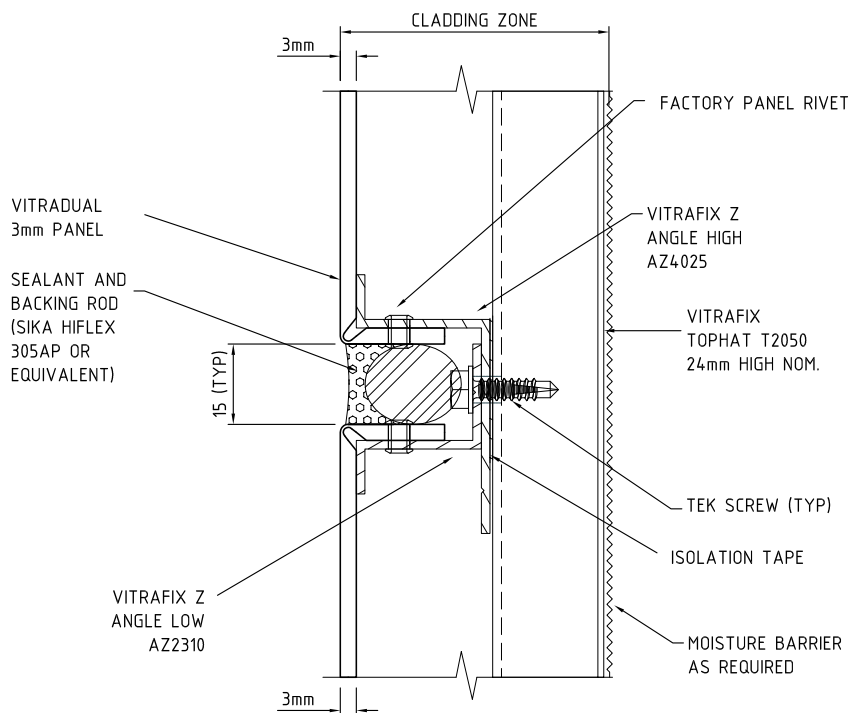
1. Installation of the water membrane as per manufacturers requirements.
2. Installation of top hats, levelled and fixed as per wind loading requirements.
3. Vitradual panels fabricated and prepared for installation.
4. Installation of fabricated Vitradual panels, fixing through Z angles to top hats as per wind loading requirements.
5. Caulking applied to panel joints as per manufacturers requirements.
6. Removal of protective film within 45 days of installation.

8. INSTALLATION DETAILS

1. A TYPICAL PANEL JOINT DETAIL



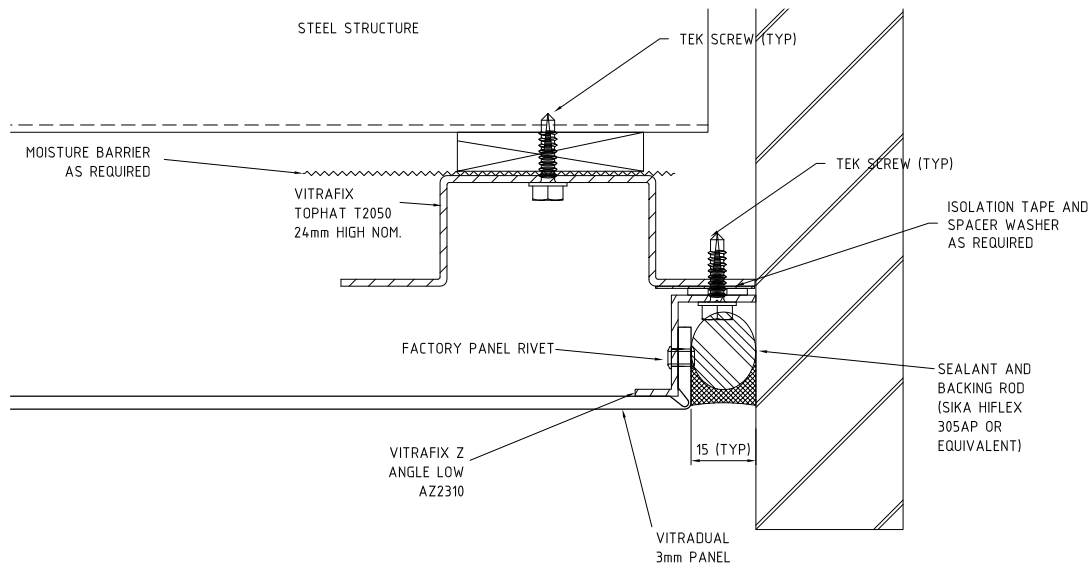
2. A HORIZONTAL JOINT DETAIL



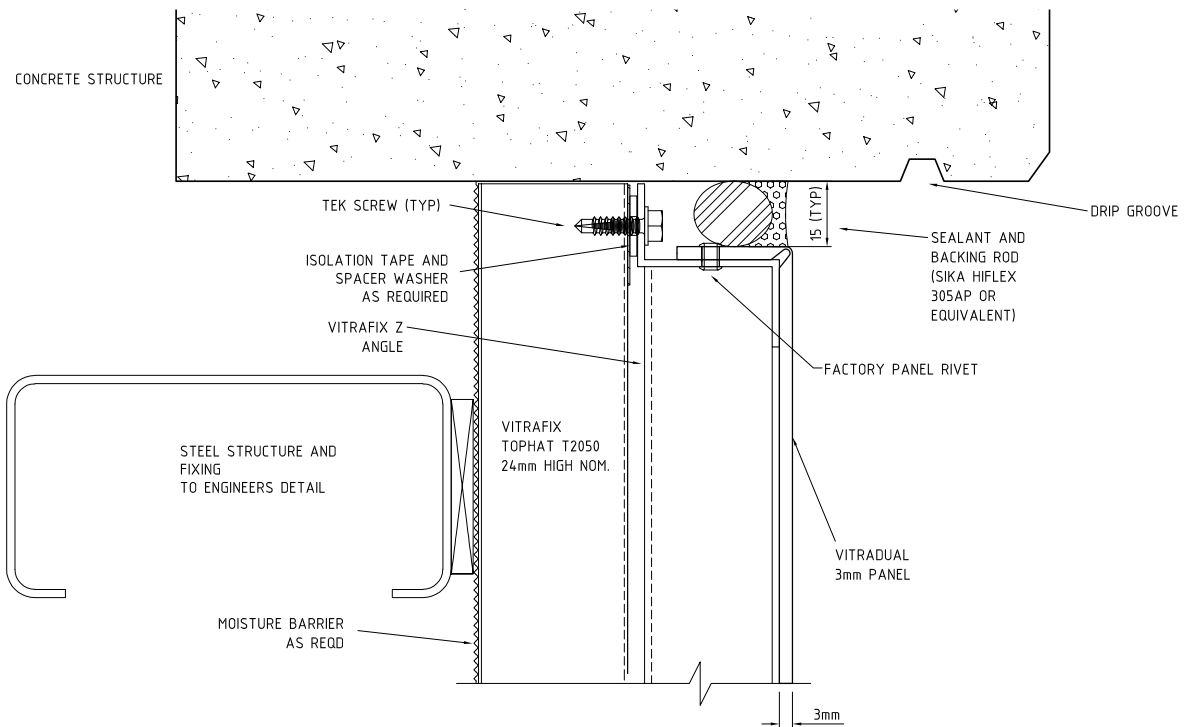
DISCLAIMER:

These details are limited to the generalized design specification for Vitradual, and are intended for use by a technically skilled person only. Use of the same is at their own discretion and risk.

3. DETAIL SHOWING PANEL AT MASONRY WALL



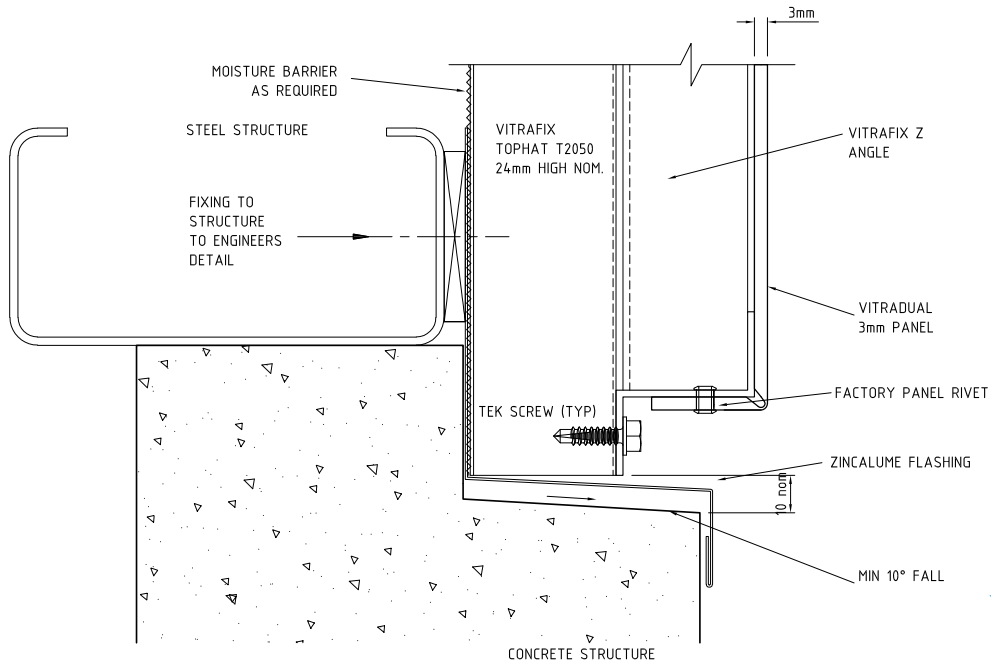
4. DETAIL AT SLAB JUNCTION - HEAD



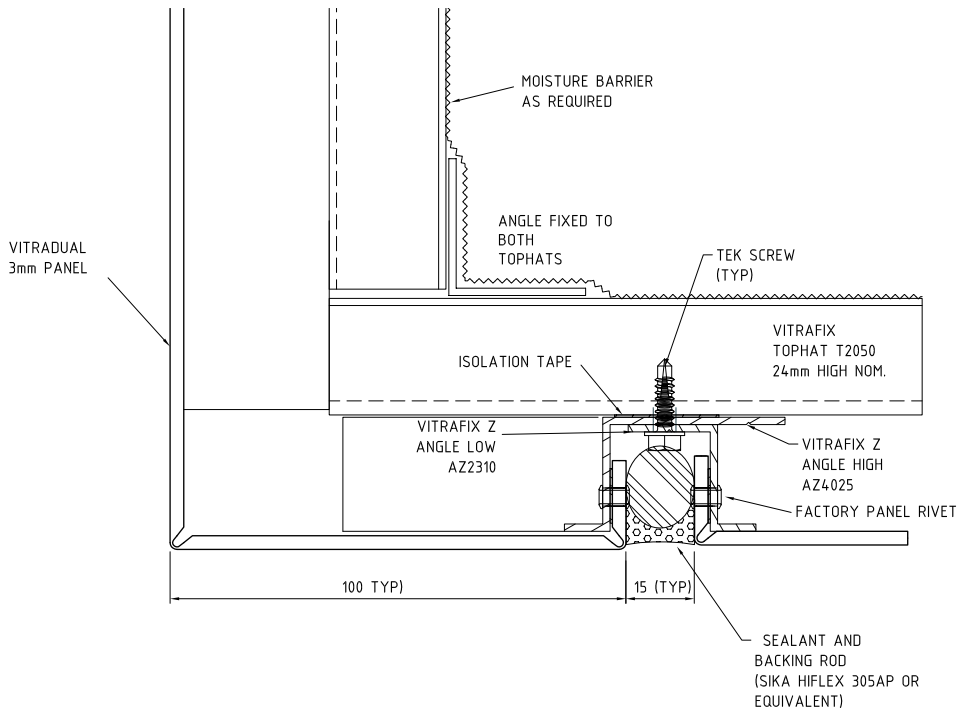
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5. DETAIL AT SLAB JUNCTION - BASE



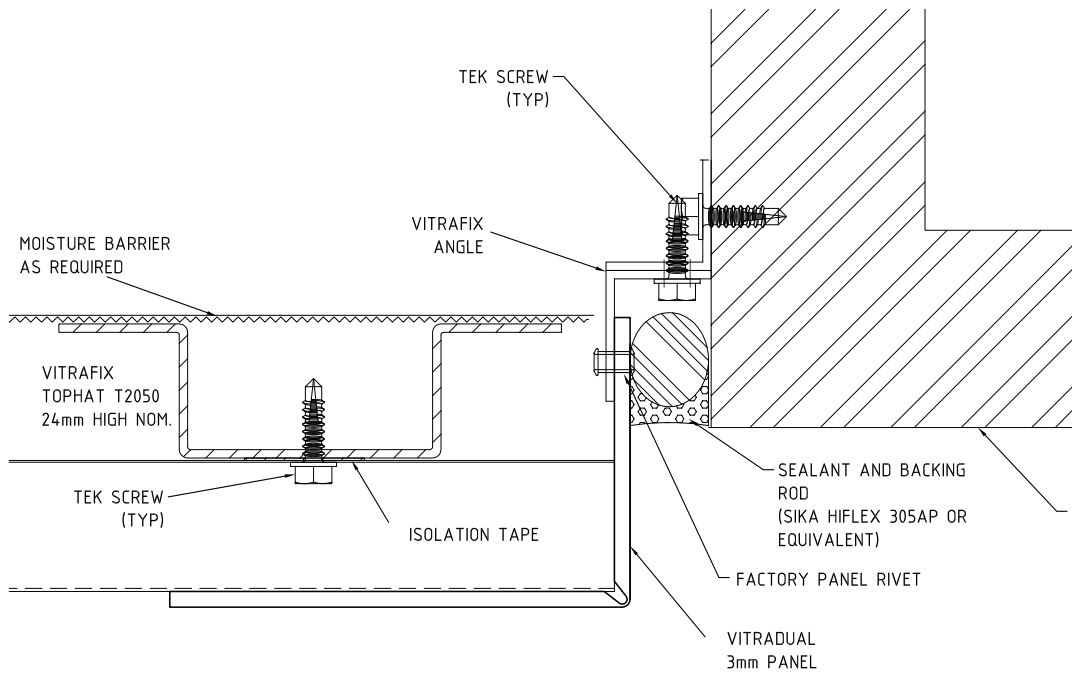
6. DETAIL AT SOFFIT JUNCTION



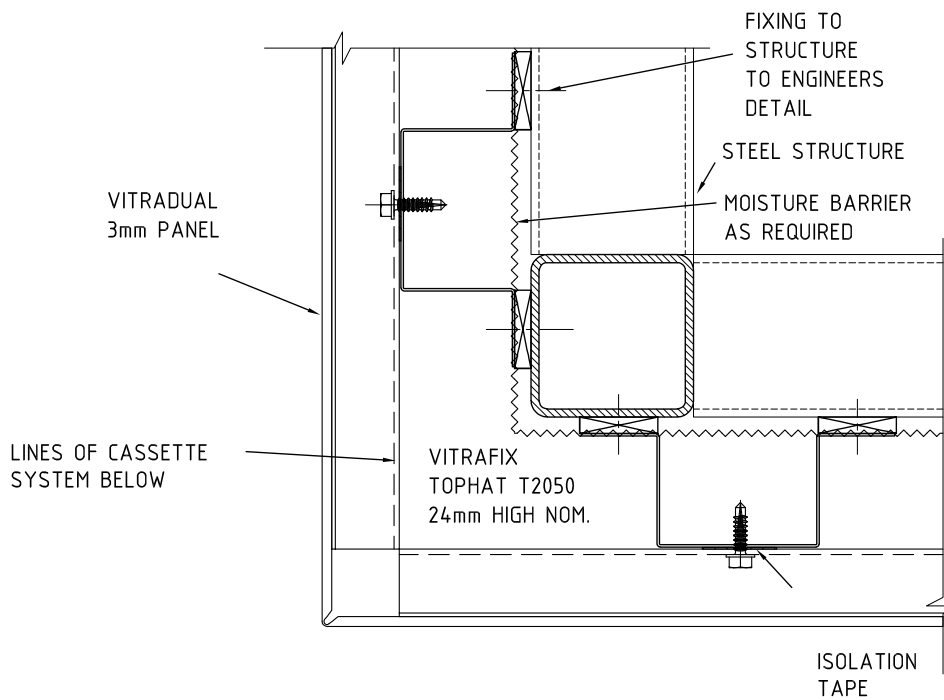
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7. WALL ABUTMENT DETAIL



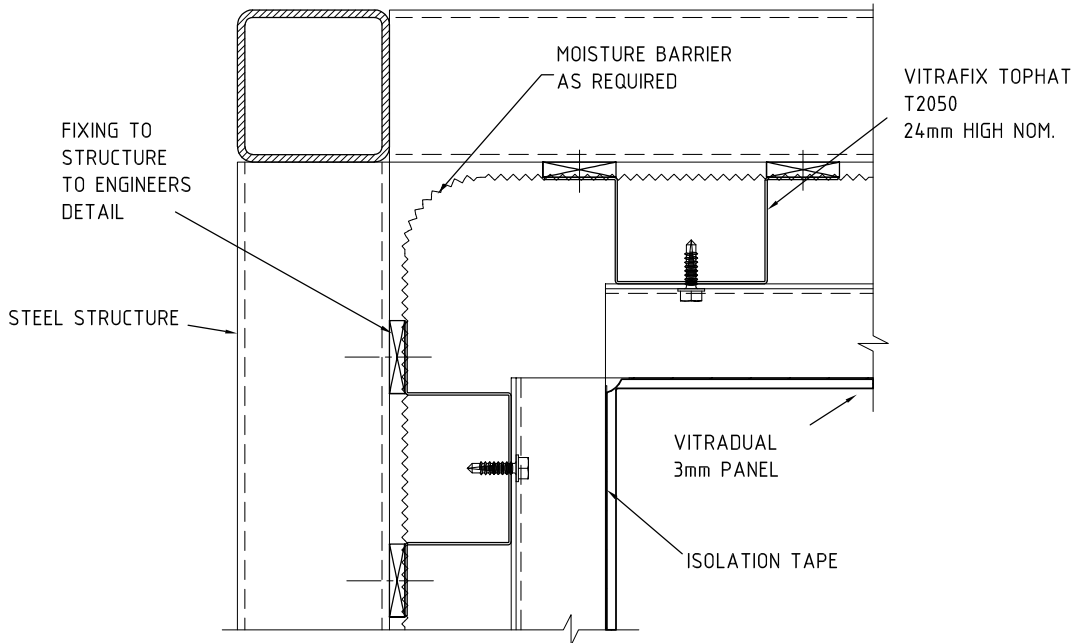
8. EXTERNAL CORNER DETAIL



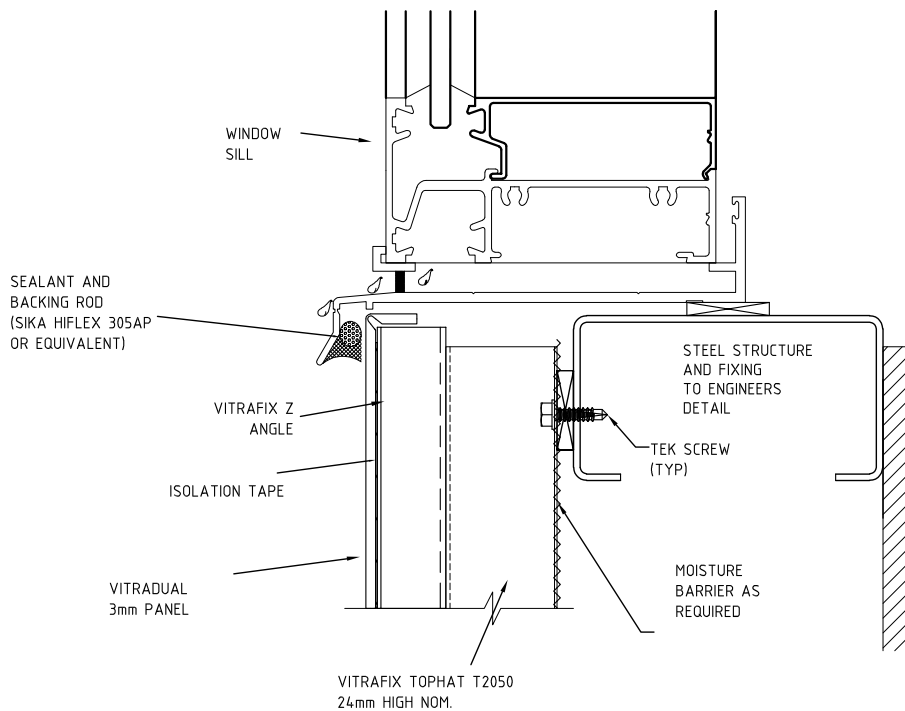
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9. INTERNAL CORNER DETAIL



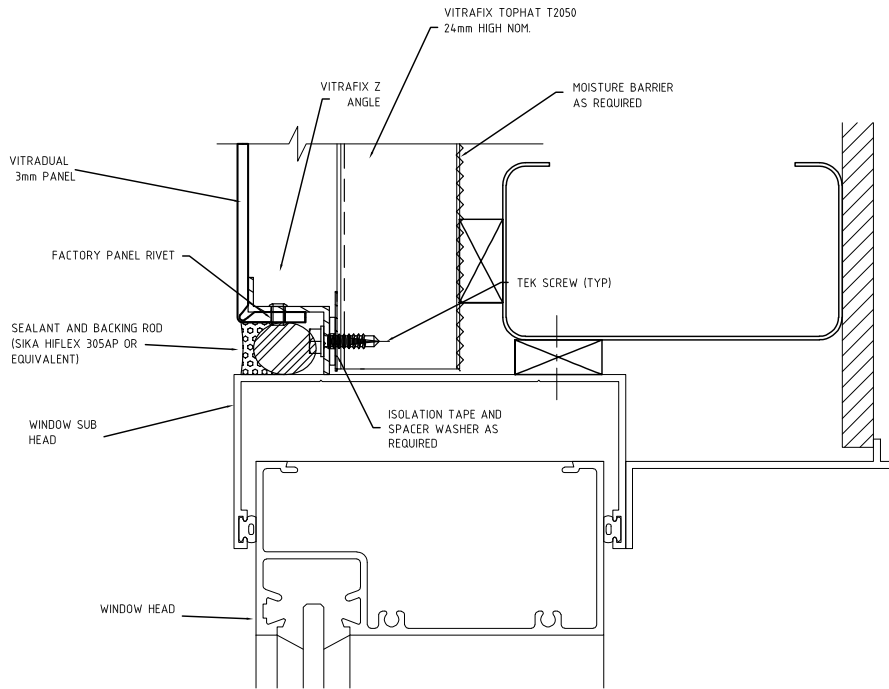
10. WINDOW SILL DETAIL



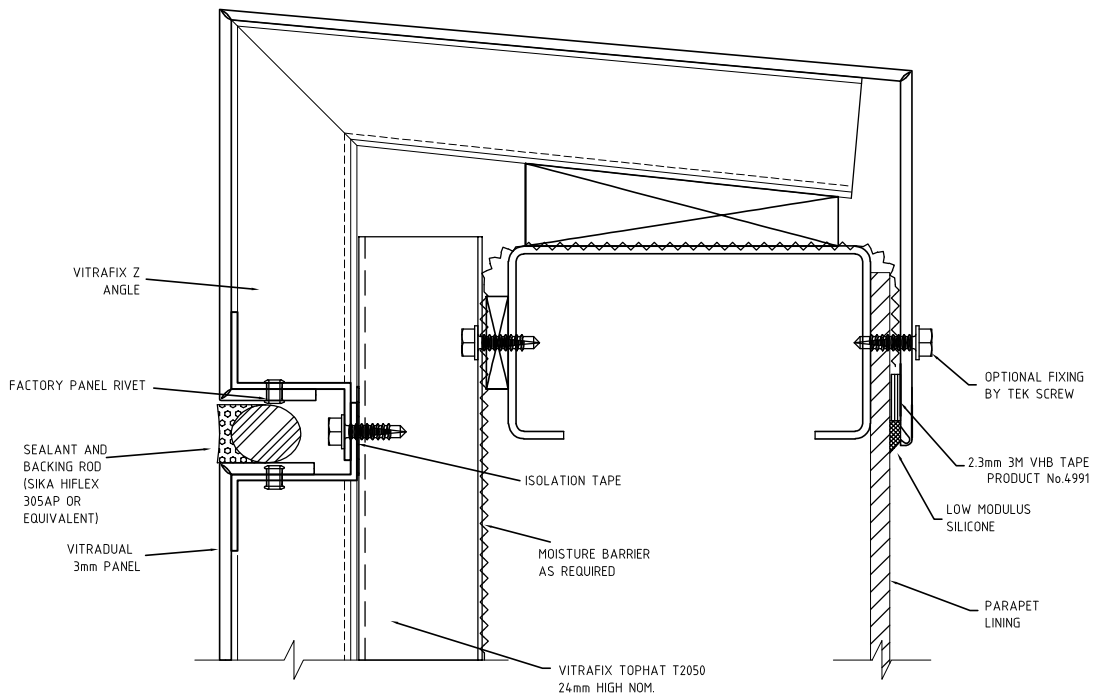
DISCLAIMER:

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11. WINDOW HEAD DETAIL/DOOR FRAME DETAIL



12. PARAPET CAPPING DETAIL

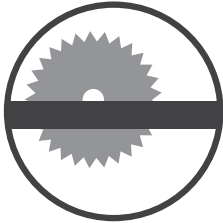


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9. FABRICATION DETAILS

9.1 FABRICATION CONSIDERATIONS

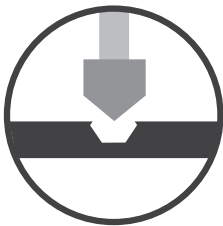


CUTTING

Vitradual 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.

TOOL	(CNC) 4.76mm Single flute upspiral cutter
FEED	1500mm/minute
SPINDLE	21,000mm/minute

Note: 3D ramp into the cut. Cutting fluid required.



GROOVING

Grooving Vitradual is a simple and easy process, very similar to grooving traditional ACP such as Vitrabond.

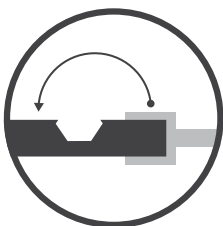
TOOL	(CNC) 4.76mm Single flute upspiral cutter
FEED	1500mm/minute
SPINDLE	21,000mm/minute

Note: 3D ramp into the cut. Cutting fluid required. Leave approx. 0.7mm in the base of the groove.



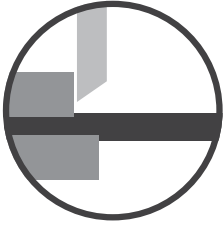
CONTOUR CUTTING

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



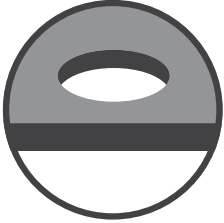
FOLDING

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.



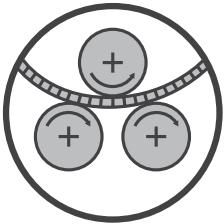
SHEARING

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.



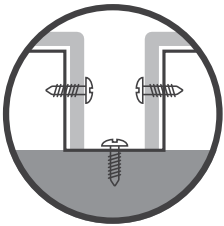
PUNCHING

The punching of flat formed parts from Vitradual 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

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



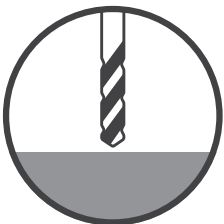
SCREWING

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



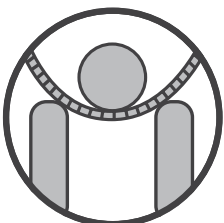
RIVETING

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



DRILLING

Vitradual 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 Vitradual panel thickness. Use protective foils. For serial production, tests should be made on sample panels.

10. TYPICAL WARRANTY DETAILS

10.1 WARRANTY CONSIDERATIONS

Vitradual is an incredibly durable material when used in the right application. When assessing an installation for warranty defects, unless given express written authorization from Fairview, check for the following:

- Less than a 5° pitch (risk of water pooling)
- Panels installed with directional arrows consistent (unless intentional)
- Maintenance schedule is documented and undertaken

Please contact your Fairview representative for full terms and conditions.

10.2 KEEP YOUR WARRANTY FRESH

Maintaining your Vitradual finish is an important component to maintaining your warranty. Document each time you clean your Vitradual panels. Cleaning frequencies are based on project location and are provided in the warranty.

RECOMMENDED CLEANING AGENTS

- Mineral spirits
- Organic cleaners
- PH-Neutral solvents

11. MISCELLANEOUS

11.1 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 ISO 9000 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.

ACCEPTABLE VARIATION

Width	± 2.0mm
Length	± 4.0mm
Thickness	± 2%
Bow	Maximum 0.5% of the length and/or width
Squareness	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.

11.2 HANDLING AND STORAGE

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

11.3 SUSTAINABILITY

Vitradual has been designed with an expected performance life of over 50 years. All Fairview products have been developed with the health of the environment, and the community, in mind.

As part of our commitment to use recyclable or reusable materials wherever possible, all Vitradual is 100% recyclable.

11.4 REPORT REGISTER

BCA 2019 VOL1 SECTION	DESCRIPTION	TEST/ASSESSMENT	REPORT/REFERENCE NUMBER
C – Fire Resistance	Combustibility	AS 1530.1	FNC11690
	Early Fire Hazard Properties	AS 1530.3	FNE12495
F – Health and Amenity	Weatherproofing	FP.14	BG&E FAÇADE LETTER DATED 27/08/18
G – Ancillary Provisions	BAL Ratings	IGNIS Assessment	IGNS-5289 Issue 01 Rev00
Additional/ Supporting	Assessment	RED FIRE REPORT NCC2019	190603_JV19-00103_Fairview NCC2019_Vitradual_v1
	Coating Standard	AAMA2605-17	180710004SHF-BP-8
	Codemark	CMA BCA 2016a1	CM40108 Rev2

DISCLAIMER

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