



TECHNICAL MANUAL

ULTRANAMEL Vitreous Enamel Panel

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1.1 About This Manual:

This manual has been developed to effectively assist fabricators and contractors to work with ULTRANAMEL. Due to the uncontrollable conditions onsite and different methods of job scope, as well as the variable skills and judgment of installers and the quality of equipment, tools, etc, the suggestions and recommendations contained in this manual are provided without warranty. The information and recommendations herein are believed to be correct at time of publishing.

BLUECHIP reserves the right to revise the contents of this manual without prior notice. Any construction or use of the product must be in accordance with all local zoning and/or building codes and in accordance with the current NCC at the time of use. Except as contained in a written warranty certificate, the supplier does not provide any other warranty, either express or implied, and shall not be liable for any damages, including consequential damages.

1.2 Company Background:

Founded in 2003 by five brothers, BLUECHIP has grown every year since to become one of Australia's leading suppliers of architectural building envelopes. BLUECHIP's product range covers the complete system from the structure out including all types of cladding materials, composite decking, sub-framing, insulation, waterproofing and fixings.

With offices in Sydney, Melbourne and Perth, BLUECHIP has supplied more than 3,000,000m² of materials to Australian projects since 2003. Our commitment to innovation and ongoing investment in R&D ensures BLUECHIP will continue to lead the market with BCA/NCC compliant facade solutions in the years ahead.

For architects and consultants, BLUECHIP's wide range of different materials and 'complete-system' approach enables the creation of inspiring high-performance facades. For builders and contractors, BLUECHIP's large local stock, well established supply chains and genuine appreciation for our clients means you can trust us to deliver as promised every time.

1.3 Company Details:

Company: Blue Chip Group Pty Ltd
ABN: 98 162 282 064
Head Office: 16 Ashby Close, Forrestfield WA 6058
Phone: 1300 945 123
Email: sales@bluechipgroup.net.au



1.4 Product Description:

Vitreous Enamel Panel

ULTRANAMEL vitreous enamel panel consists of a highly durable vitreous enamel coating applied to a decarbonised steel panel with an aluminium honeycomb or calcium silicate backing sheet. Vitreous enamelled architectural panels are routinely specified for commercial, institutional and infrastructure projects around the world; perfect for high impact, high traffic areas such as train stations, shopping malls and tunnels. ULTRANAMEL vitreous enamel panel has excellent anti-graffiti properties and is non-combustible providing unrivalled performance in public areas.

Unlimited Custom Colours

ULTRANAMEL vitreous enamel panel is available in an almost unlimited colour range. The original colour of the vitreous enamel panel is extremely durable and is expected to outlast a normal building life.

Graffiti Proof

ULTRANAMEL vitreous enamel panel is extremely durable. The vitreous enamel coating has excellent scratch, graffiti and impact resistance making it ideal for areas of heavy traffic or extreme wear.

UV Resistant

ULTRANAMEL vitreous enamel panel has a far superior colour consistency over time when compared to typical cladding panels. The colour and gloss level of these panels are unaffected by sunlight.

Fast Installation

ULTRANAMEL vitreous enamel panel is manufactured to order from provided shop drawings. The panels are formed into pre-made cassettes with fixing clips ready for fast and easy onsite installation.

Non-Combustible

ULTRANAMEL vitreous enamel panel is a completely deemed-to-satisfy non-combustible steel cladding system in accordance with NCC 2022, clause C2D10(6)(g) and C2D15(1), withstanding temperatures of over 400°C and are able to provide fire ratings of over 2 hours.

Low Maintenance

ULTRANAMEL vitreous enamel panel is very low maintenance. The surface is completely impervious to contaminants, extremely smooth and extremely low static, preventing dust adhesion and resulting in only minimal cleaning required.

Versatile Design

ULTRANAMEL vitreous enamel panel can be custom designed into a wide range of shapes and dimensions. This compiled with a vast colour range make ULTRANAMEL a versatile design choice.

Hygienic Surface

ULTRANAMEL vitreous enamel panel has a completely non-porous surface that does not absorb any bacteria. The non-stick surface allows intense cleaning with hospital grade cleaning agents.

1.5 More Information:

www.bluechipgroup.net.au/facade-cladding-perth/vitreous-enamel-panel-perth.html



2.1 Manufacturing Quality:

A dedication to the total fulfillment of our client'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 ISO9000 Quality Standards to verify the quality of our systems
- Ensures that our products and services are of the highest standards
- Creates continuous improvements to our product and processes through the application of the best quality practices.

2.2 Acceptable Tolerances:

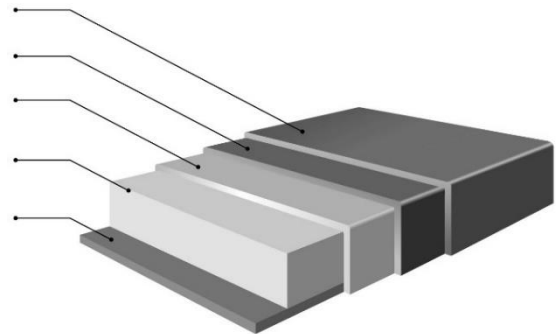
Panel Width:	+/- 3.0mm
Panel Length:	+/- 5.0mm
Thickness:	+/- 2.0%
Bow Allowed:	<0.5%
Squareness:	<5.0mm
Surface Defects:	In accordance with BS 1344

2.3 Product Warranty:

The standard product warranty is 10 years, with longer warranties available on a project specific basis. The supplier excludes all warranties in relation to the goods except for those provided in a Warranty Certificate provided to the Customer by the supplier in relation to the Goods.

3.1 Panel Composition:

1. Vitreous Enamel Top-coat
2. Vitreous Enamel Base-coat
3. Decarbonised Steel Panel
4. Aluminium Honeycomb Panel or Calcium Silica Backing
5. Steel Backing Sheet



3.2 Recommended Panel Sizes:

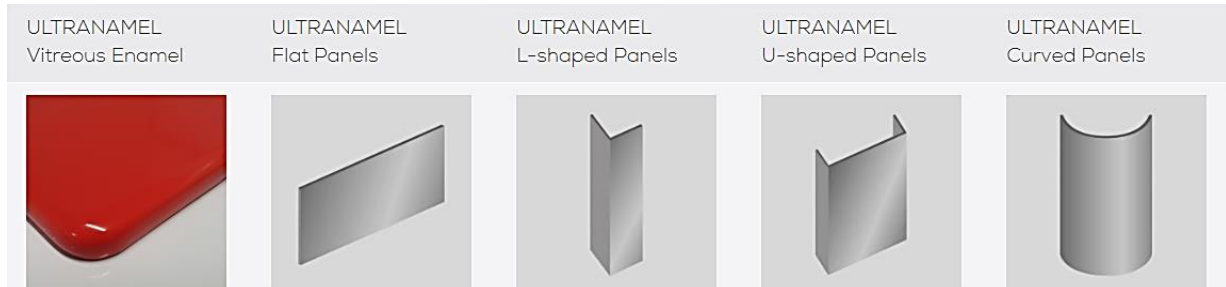
It is generally advisable to limit any vitreous enamel panel to a maximum of 2400 x 1150mm for flat panels. For maximum sizes of shaped panels please see the table on the following page. Panel sizes should be limited as required for any given application, considering the minimum & maximum temperatures the panel will be exposed to, the colour of the panel and the façade orientation to ensure the panels thermal movement will not exceed the systems capabilities and to ensure ongoing durability and weatherproofing.

Special consideration should be given to the following:

- Overall panel sizes to ensure thermal movement will not exceed joint sealant capabilities
- Distance to joints either side of corner and parapet panels to avoid stress on the corner



3.2 Recommended Panel Sizes Continued:



PANEL SHAPE	SIZE LIMITS	LEAD TIME	MOQ
ULTRANAMEL Flat Panel	Custom Sizes up to 2400 x 1150mm	10-12 Weeks	1 Panel
ULTRANAMEL L-shaped Panels	Custom Sizes up to 1600 x 1150mm (1150mm is the width + the return)	10-12 Weeks	1 Panel
ULTRANAMEL U-shaped Panels	Custom Sizes up to 1600 x 1150mm (1150mm is the width + both returns)	10-12 Weeks	1 Panel
ULTRANAMEL Curved Panels	Custom Sizes up to 1600 x 1150mm (1150mm is Min. 300mm radius)	10-12 Weeks	1 Panel

3.3 Technical Data – Physical Properties:

ITEM	TEST STANDARD	UNIT	RESULT
Steel Thickness	Actual	mm	1.5
Panel Thickness	Nominal	mm	25
Panel Weight	Nominal	Kg/m ²	35
Melting Point (Steel)	Actual	°C	>1200
Thermal Expansion (Steel)	Actual	mm/m/°C	0.013
Panel Flatness <ul style="list-style-type: none"> ▪ Panels <0.75m² ▪ Panels >0.75m² 	BS 3830 BS 3830	<5mm <5mm	Pass 0.2mm
Deflection Resistance (1.4KPa Load) <ul style="list-style-type: none"> ▪ Under Self Weight ▪ Simulated Wind Load ▪ Permanent Deflection 	BS EN 1794-1 BS EN 1794-1 BS EN 1794-1	mm mm mm	0.07 0.48 0.07
Acoustic Performance	ASTM C423	NRC	0.10

4.1 Deemed-to Satisfy Non-combustible:

ULTRANAMEL cassette-fixed panels are deemed-to-satisfy non-combustible as per the requirements of the NCC 2022, clause C2D10(6)(g) and C2D15(1) for use on any building of types A, B & C construction, classes 2-9.



4.2 Technical Data – Fire Performance:

ITEM	TEST STANDARD	UNIT	RESULT
DTS Non-combustible	AS 1530.1	-	Pass
Spread of Flame Index	AS 1530.3	-	0
Smoke Developed Index	AS 1530.3	-	1
DTS Non-combustible (NCC 2022)	NCC As Above	-	Pass
Non-combustible (Euro Class)	BS 476.4	-	Pass
Fire Propagation Index (Euro Class)	BS 476.6	-	0
Smoke Toxicity Testing	DIN 4102 Part 1	-	A2

5.1 Paint Systems:

The outstanding feature of ULTRANAMEL is the vitreous enamel finish which is applied using a special static powder enamelling process including baking at 800 degrees. This produces a virtually indestructible finish which is one of the most durable exterior coatings in the world, and is also highly resistant to graffiti, chemicals, abrasion and impact damage. ULTRANAMEL finish is applied in accordance with BS 1344, the internationally recognised coating standard for vitreous enamel panels.

5.2 Technical Data – Vitreous Enamel Coating:

ITEM	TEST STANDARD	UNIT	RESULT
Abrasion Resistance	BS EN ISO 28722	Grams	0.019
Adhesion Testing	BS EN 10209	-	Class 1
Ageing Testing	ASTM C481	No Change	Pass
Alkali Resistance	BS 1344 Part 6	No Defect	Pass
Chemical Corrosion Resistance			
▪ Citric Acid	BS EN 14483-1	Class	AA
▪ Sulphuric Acid	BS EN 14483-1	Class	AA
Citric Acid Resistance	BS 1344 Part 2	Class	AA
Colour Retention			
▪ Bright Red	ASTM C538-83	No Change	Pass
▪ Bright Orange	ASTM C538-83	No Change	Pass
▪ Bright Yellow	ASTM C538-83	No Change	Pass
Heat Resistance	BS 1344 Part 7	No Defect	Pass
Impact Resistance	BS EN ISO 28722	No Defect	Pass
Low Voltage Test	BS EN ISO 8289	No Defect	Pass
Low Voltage Test	BS 1344 Part 20	No Defect	Pass
Mohs Hardness Test	BS EN ISO 28722	Mineral No.	6 (Felspar)
Salt Spray Resistance	ASTM B117	No Change	Pass
Scratch Resistance	BS EN 14431	Min. 7N	Pass
Thermal Shock Test	BS 1344 Part 1	No Defect	Pass
Visual Inspection Test			
▪ Complete Cover (Front)	BS 3830	-	Pass
▪ Complete Cover (Rear)	BS 3830	-	Pass
▪ No Drain Lines	BS 3830	-	Pass
▪ No Heavy Beading	BS 3830	-	Pass
▪ No Blemishes / Openings	BS 3830	-	Pass
▪ No Blemishes at 1.5m	BS 3830	-	Pass

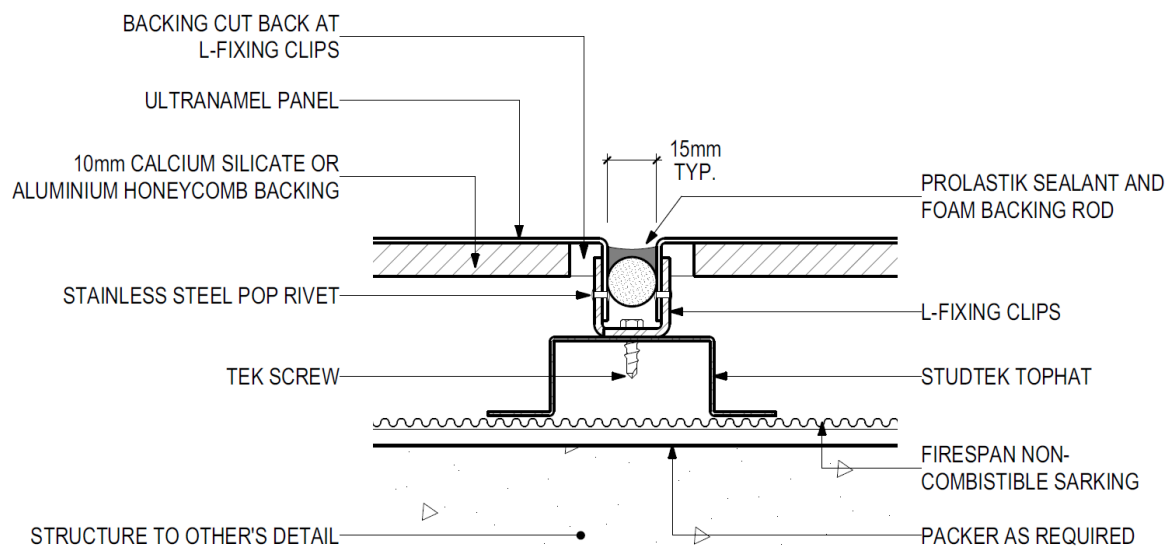


6.1 Installation:

Mechanical cassette-fix installation is the recommended installation system for ULTRANAMEL cladding in accordance with C2D15(1) using the well-proven offset aluminium clips method.

Installation Details:

The panels shall be fabricated and installed in accordance with the most recent version of the ULTRANAMEL Installation Details which are available online at www.bluechipgroup.net.au or by emailing sales@bluechipgroup.net.au or by calling **1300 945 123**. (Only PDF installation details are available online. For CAD/DWG installation details email or call as above).



6.2 Acceptable System Components:

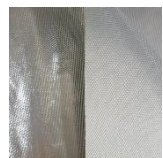
Insulated Façade System - OPTIONAL:

For an optional insulated façade system use BICEP façade brackets and support profiles with IROCK non-combustible insulation to achieve an engineered exterior insulation zone.



Sarking:

In climate zones 1-3, sarking shall be FIRESPAN DTS non-combustible vapour barrier and in climate zones 4-8, sarking shall be FIRESPAN Class 4 vapour permeable membrane, as per the requirements of NCC 2022 clause F8D3. Install and tape sarking in accordance with AS 4200.2 behind all cladding areas for DTS weatherproofing compliance as per NCC 2022 clause F3D3.





Sub-framing System:

The sub-framing system shall be STUDTEK steel top-hats attached to the main structure (or BICEP Façade System) in a manner to ensure all applied loadings to the cladding is transferred back to the main structure. Size and spacing of top hat members shall be determined according to applied loads and deflection limitations for any given project. Top-hat centres shall be maximum 600mm or installed in a matrix layout to provide full perimeter support to each panel as required to adequately support the cladding system.



Panel Joint Sealant:

Panel joints to be sealed with PROLASTIK matt NC silicone sealant supplied by Blue Chip Group Pty Ltd and installed over closed cell foam backing rod to manufacturer's specifications.



7.1 General Installation Guidelines:

- As minor colour variation can occur between production lots, it is recommended to place total requirements for a project in one order to ensure colour consistency.
- Touch-ups, as required, shall be applied using a suitable product and methodology as approved by the panel supplier, colour-matched to the selected panel colour.
- Where steel materials come into contact with dissimilar metals, a proper insulator, protective coating or caulking tape should be applied to insulate between dissimilar materials in order to avoid bimetallic corrosion and/or electrolytic action.

7.2 Storage & Handling:

- Considerable care should be taken in the handling of ULTRANAMEL as the panels are sensitive to impact particularly from small hard objects such as stones which can dent the vitreous enamel finish
- A minimum of two people should be used when moving and stacking large sheets to avoid surface damage. Sliding panels should be avoided unless they are back-to-back.
- Pallets of ULTRANAMEL should be stored horizontally in a cool and dry area where temperature is stable with adequate support to prevent sagging.

7.3 Cleaning & Maintenance:

- The cladding shall be cleaned and maintained in accordance with AAMA 609 & 610-09 as required to avoid any accumulation of surface contaminants and to maintain the desired performance and appearance.