

# ACP FR Core B1

## Fabrication & Installation Manual

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<b>FIRE CLASS</b>	B-s1,d0 · EN 13501-1 / B1 · GB 8624 / Class A · ASTM E84
<b>DOCUMENT</b>	ALCS-ACP-B1-FAB-001
<b>VERSION</b>	1.0 · 2026

SECTION 1

# Product Overview

ALUCOSUN ACP FR Core B1 is a flame-retardant aluminium composite panel built around a proprietary mineral-filled core compound. The mineral filler reduces ignitability, flame propagation, and heat release compared with standard polyethylene-core panels, enabling B1 fire performance across commercial and residential facade applications.



FR CORE B1 CROSS-SECTION SHOWING MINERAL-FILLED CORE AND ALUMINIUM SKINS.

<p style="font-size: 24px; font-weight: bold; margin: 0;">B1</p> <p style="font-size: 10px; margin: 5px 0 0 0;">B-s1, d0 EN 13501-1</p>	<p style="font-size: 24px; font-weight: bold; margin: 0;">CLASS A</p> <p style="font-size: 10px; margin: 5px 0 0 0;">ASTM E84 SURFACE BURNING</p>	<p style="font-size: 24px; font-weight: bold; margin: 0;">AAMA 2605</p> <p style="font-size: 10px; margin: 5px 0 0 0;">PVDF LIQUID COATING</p>
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<b>Panel Type</b>	Aluminium composite panel with mineral-filled FR core
<b>Primary Use</b>	Exterior facade cladding, soffits, canopy fascia, and project-specific architectural envelopes
<b>Coating Direction</b>	PVDF fluorocarbon coating for exterior weathering performance
<b>Fabrication Methods</b>	CNC routing, V-grooving, folding, punching, drilling, rivet or cassette-type fixing

## SECTION 2

# Storage & Handling

Correct storage and handling protects the coated surface, panel flatness, and bond integrity before fabrication. Apply these controls from the moment panels are received on site.

## 2.1 Receiving & Inspection

- Inspect all panels for transit damage before signing delivery documentation.
- Check quantity and dimensions against the packing list and project schedule.
- Report visible damage, coating defects, or dimensional discrepancies within 48 hours.
- Do not remove protective film until panels are ready for final installation.

## 2.2 Storage Requirements

- Store panels horizontally on a flat, level surface with full panel support.
- Stack panels face-to-face or back-to-back; never face-to-back.
- Store panels flat in original wooden pallet packaging with continuous support.
- Keep panels undercover and away from direct sunlight, standing water, and chemical exposure.

**CAUTION**

**Never store panels vertically without support. Unsupported vertical storage can cause panel bow and permanent deformation.**



## 2.3 Handling

- Always lift panels by the long edge; never by the corners alone.
- Use suction cups or soft-face lifting clamps for panels larger than 2 m<sup>2</sup>.
- Wear clean cotton gloves when handling coated surfaces to prevent fingerprint contamination.
- Carry large panels on edge with two or more handlers; do not carry flat with one handler.

The handling sequence should preserve the visible finish first, then support panel geometry. This is especially important on large flat facade modules and PVDF-coated surfaces.

## SECTION 3

# Fabrication

ACP FR Core B1 is compatible with standard aluminium panel fabrication methods, including CNC routing, V-grooving, folding, punching, and drilling. The mineral-filled core requires slightly increased feed pressure compared with standard PE-core ACP.



CNC ROUTER PERFORMING PRECISION V-GROOVE ROUTING ON ACP FR CORE B1 PANEL.

## 3.1 Cutting

- Use carbide-tipped circular saw blades or CNC router bits rated for ACP.
- Blade speed: 2,500-4,000 RPM for circular saw.
- CNC router speed: 18,000-24,000 RPM.
- Feed rate: 2-5 m/min depending on panel thickness and core density.

## Surface Protection

- Cut with the coated face upward to minimise surface scratch risk.
- Use a sacrificial backing board to prevent breakout on the exit face.
- Remove swarf and mineral dust before stacking fabricated panels.

**CAUTION**

**Do not use standard wood-cutting blades. Incorrect tooling causes burring, aluminium skin delamination, and premature blade wear.**

## SECTION 3.2

# V-Groove Routing & Folding

V-grooving followed by hand or press-brake folding is the standard method for forming return edges and corner profiles for cassette-type installation.

**01**

Mark the fold line on the back face using a non-marking pencil or chalk line.

**02**

Route to a depth leaving 0.3-0.5 mm of core material below the groove.

**03**

Use a 90 degree V-groove bit for standard right-angle folds.

**04**

Remove swarf and mineral dust from the groove using compressed air.

**05**

Fold by hand or press brake. Apply even pressure along the full fold line.

**06**

Seal exposed core edges with neutral-cure silicone or compatible edge sealant.

**TECHNICAL NOTE** For tight radius bends below R10 mm, lightly pre-crease the fold line with a blunt roller before routing to reduce skin cracking risk on PVDF-coated panels.

## SECTION 4

# Installation

ALUCOSUN ACP FR Core B1 is designed for installation on aluminium or galvanised steel subframe systems. The panel must not be used as a structural element. All structural loading is transferred through the subframe to the primary building structure.

## 4.1 Subframe Requirements

- Use aluminium alloy AA6063-T5 or equivalent, or hot-dip galvanised steel T-sections or Z-sections.
- Subframe span must be verified by wind-load calculation, panel size, substrate condition and local code.
- Deflection limit to project structural design.
- Maintain a minimum 25 mm clear cavity for ventilation.

## 4.3 Joint & Gap Requirements

- Joint width to project calculation; 8-12 mm is typical for facade panels.
- Thermal expansion coefficient:  $23.5 \times 10^{-6}$  / degree C.
- Open drained joint: no face sealant applied; back of joint may use EPDM gasket.
- Sealed joint: neutral-cure silicone plus PE backer rod.

## 4.2 Fixing Methods

Method	Technical Direction
Rivet / Screw Fixing	Fastener type, size, pilot hole diameter and torque shall follow approved shop drawings and fixing system supplier recommendations.
Cassette System	Panel routed and folded to cassette profile; clips engage subframe. Preferred for high-wind zones.
Adhesive Fixing	Structural silicone only; not suitable as primary fixing for external facade panels.

**CAUTION**

Never install panels without expansion gaps. Panels fixed with no expansion allowance may buckle under thermal load, causing permanent deformation and warranty void.

## SECTIONS 5-6

# Completion & Maintenance

## 5.1 Post-Installation Inspection

- Remove all protective film before project handover.
- Clean panel surfaces with clean water and mild non-abrasive detergent.
- Inspect all sealant joints for continuity and adhesion.
- Check all fixings are fully seated.

## 5.3 Cleaning Guidelines

- Use soft cloth or sponge; never abrasive pads, steel wool, or hard brushes.
- Approved agents: mild soap solution, diluted isopropyl alcohol, Ariel / Persil liquid diluted 1:20.
- Prohibited: acetone, MEK, toluene, acid-based cleaners, alkaline cleaners above pH 10.

## 5.2 Routine Maintenance Schedule

Frequency	Maintenance Action
Every 6 months	Visual inspection of panel surface, fixings, and sealant joints.
Annually	Full clean with mild detergent and water. Inspect and re-apply sealant where required.
Every 5 years	Professional inspection of subframe fixings and anchor points. Replace degraded sealant.
As required	Remove droppings, industrial fallout, and graffiti promptly.

**TECHNICAL NOTE** Up to 30 years based on AAMA 2605-certified PVDF fluorocarbon coating systems. Warranty period subject to coating specification, project location, maintenance programme, and warranty registration. Contact ALUCOSUN for project-specific warranty terms.

# Warranty & Technical Support

PVDF Coating Warranty	Project-specific warranty terms upon request
Structural Warranty	Project-specific terms under normal use conditions
Technical Enquiries	spec@alucosun.com
Warranty Claims	spec@alucosun.com
Website	www.alucosun.com