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# Installation & Fixing Guide

For ALUCOSUN architectural cladding panel systems

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# 1. Scope & Applicable Products

This guide applies to ALUCOSUN cladding panel products when installed as ventilated rainscreen facade systems. It is intended as a general installation reference for qualified facade contractors.

Applicable products include ACP FR Core B1, ACP A2 Core, 3D Lattice Core Panel, and Aluminium Solid Panel A1. Site-specific engineering calculations, wind-load checks, anchor design, and shop drawings must be completed by the project engineer before installation.

## 2. Pre-Installation Requirements

### 2.1 Site Readiness

- The building structure must be complete, stable, and ready to receive the facade sub-frame.
- Substrate deflection and structural movement shall be reviewed against the project structural design and facade system tolerance requirements. L/360 is a commonly referenced benchmark; project-specific criteria shall govern.
- All anchor points must be surveyed and confirmed against approved shop drawings, with set-out tolerance controlled within  $\pm 2$  mm.
- Temporary weather protection should be provided when installation is carried out during rainy or high-humidity periods.
- Adjacent works, including glazing, roofing, waterproofing, and sealant works, must be coordinated before panel installation begins.

### 2.2 Material Inspection & Storage

- Inspect each pallet immediately upon delivery and record any damage before signing the delivery note.
- Verify panel markings, panel numbers, colour codes, coating direction, and batch references against approved shop drawings.
- Protective PE film should remain intact until final cleaning unless the project specification requires earlier removal.
- Store panels horizontally on level timber battens. Do not stack more than five large panels per pile unless approved by the manufacturer.
- Keep materials dry, shaded, and away from direct sunlight, water, cement dust, welding sparks, and corrosive chemicals.

**WARNING: Never store panels vertically without support. Unsupported vertical storage may deform panel edges and compromise flatness.**

## 3. Sub-Frame & Bracket System

Use extruded aluminium alloy EN AW-6063-T5 or 6061-T6 for horizontal rails and vertical mullions. Primary structural members should have a minimum wall thickness of 2.5 mm unless the project calculation requires a greater thickness.

All sub-frame components should be mill-finish, anodised, or powder-coated as required by the project environment. Where aluminium contacts dissimilar metals, suitable isolation must be provided to reduce galvanic corrosion risk.

Component	Recommended Material	Typical Minimum Thickness	Notes
Vertical mullion	AA6063-T5	3.0 mm	Primary vertical support member
Horizontal rail	AA6063-T5	2.5 mm	Panel support and fixing member
Aluminium L-bracket	AA6061-T6 or AA6063-T5	4.0 mm	Mill finish or anodised
Steel L-bracket, where used	Q235 / Q355	Project-specific	Hot-dip galvanised
Anchor plate / washer	SS304 / SS316 or hot-dip galvanised	Project-specific	Subject to project corrosion category
Fixing bolt grade	A2-70 / A4-70 / A4-80 or approved equivalent	Project-specific	Per structural calculation
Connector clip	AA6063-T5	3.0 mm	Use only where approved by shop drawings

Component	Recommended Material	Typical Minimum Thickness	Notes
Thermal isolation pad	EPDM / polyamide	3.0 mm	Install between bracket and substrate

### 3.1 Thermal Break

- Install EPDM or polyamide thermal isolation pads between brackets and concrete or steel structures to reduce cold bridging.
- Minimum thermal break thickness should be 3 mm at all bracket-to-structure interfaces unless project specifications require otherwise.

### 3.2 Bracket Spacing

- Sub-frame wall bracket, main bracket to structure: maximum 600 mm vertically and 1,200 mm horizontally as a preliminary reference.
- Panel edge corner bracket, fold return fixing: maximum 300-350 mm centres, per structural calculation.
- Final bracket spacing must be verified by wind-load calculation, panel size, substrate condition, building height, local code, and project exposure category.

## 4. Panel Fixing Methods

### 4.1 Concealed Rivet Fix

- Fastener type, size, pilot hole diameter and torque shall follow the approved shop drawings and fixing system supplier's recommendations for the specific project application.
- Secure fasteners through the panel return only. Do not place random fasteners on the visible panel face.
- Apply EPDM gasket or isolation tape where required to prevent direct metal-to-metal contact.
- Check panel alignment, joint width, and face flatness before fixing adjacent panels.

### 4.2 Visible Screw Fix

- Use visible screw fixing only where approved by the project specification or architectural design intent.
- Use fastener type, pilot hole diameter, washer system and torque values confirmed by approved shop drawings and the fixing supplier.
- Do not over-tighten, as this may restrict thermal movement or distort the panel face.
- Use colour-matched caps or sealant treatment where required by the project finish standard.

### 4.3 Cassette / Hook-On System

- Prefabricated cassette panels with folded returns may be installed by hooking or locking onto aluminium support profiles.
- The system must allow controlled adjustment, drainage, and thermal movement without fixing through the visible panel face.
- Panel engagement depth, anti-lift measures, and locking points must follow the approved system drawing.

**WARNING: Do not use carbon steel fasteners in direct contact with aluminium. Use stainless steel, aluminium, or properly isolated fasteners to avoid galvanic corrosion.**

## 5. Joints & Sealants

Joint design must allow installation tolerance, thermal movement, drainage, and long-term weather performance. Open-drained joints and sealed joints should not be mixed without a clear project drainage strategy.

Joint Type	Typical Width	Typical Depth	Sealant Requirement
Panel-to-panel open joint	10-15 mm	N/A	Open drained joint; no face sealant. Back of joint may ha

Joint Type	Typical Width	Typical Depth	Sealant Requirement
Panel-to-panel sealed joint	8-12 mm	≥ 6 mm	Neutral cure silicone, ISO 11600 F25LM or equivalent
Panel-to-window joint	10-15 mm	≥ 8 mm	Structural or weather silicone per system supplier
Expansion joint	20-25 mm	≥ 12 mm	Movement-rated silicone with backing rod

Use closed-cell polyethylene backing rod to control sealant depth. Clean joint faces with isopropyl alcohol before applying primer and sealant. Sealant must cure for at least 24 hours, or as specified by the sealant manufacturer, before exposure to water.

## 6. Expansion & Movement Allowance

Aluminium expands approximately 2.36 mm per metre for every 100°C temperature change. In tropical or high-temperature environments, thermal movement must be considered at panel joints, fixing holes, and bracket interfaces.

Each panel should normally have one fixed point. Other fixing points should use slotted holes or movement-tolerant details to allow controlled expansion and contraction.

Do not lock all fixing points rigidly. Restricting movement may cause panel distortion, oil-canning, noise, coating stress, or fastener failure.

## 7. Quality Control Checks

Check Item	Acceptance Criterion	Frequency
Panel vertical alignment	±2 mm per storey, or project specification	Every panel
Joint width uniformity	Design value ±1 mm	Random 10% minimum
Fastener torque	Specification value ±10%	Random 5% minimum
Protective film condition	Intact until final cleaning	Daily visual check
Sealant field adhesion	Comply with sealant manufacturer's recommended test method and project specification	Project specification
Surface finish	No visible scratches, dents, contamination, or colour mismatch	Every elevation before handover

## 8. Final Cleaning & Film Removal

### 8.1 Protective Film Removal

- Remove PE protective film within three months after installation, or earlier if the project environment involves strong UV exposure.
- Peel film at approximately 45° from bottom upward to reduce the risk of surface scratching.
- Do not leave protective film exposed to sunlight for extended periods, as adhesive residue may remain on the coating.

### 8.2 Cleaning Method

- Clean panel surfaces with mild neutral detergent, clean water, and soft microfibre cloth.
- For stubborn marks, use diluted isopropyl alcohol up to 25% concentration. Test on a concealed area before general use.
- Do not use strong solvents, abrasive pads, alkaline cleaners, bleach, metal scrapers, or high-pressure cleaning directly at joints.
- Rinse thoroughly with clean water and allow surfaces to dry naturally before final inspection.

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Information provided in good faith and subject to project-specific engineering verification.