ALUCOSUN

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Installation & Fixing Guide

For ALUCOSUN architectural cladding panel systems

ACP FR Core B1 · ACP A2 Core · 3D Lattice Core Panel · Aluminium Solid Panel A1

Contents

A readable technical edition aligned with ALUCOSUN product parameter standards.

BASIS

Installation dimensions are guidance only. Approved shop drawings, system supplier requirements, structural calculation, and local code govern each project.

FIRE CLASS

For ACP FR Core B1, use B-s1,d0 under EN 13501-1. B1 belongs to GB 8624 / DIN context; ASTM E84 uses Class A.

1. Scope & Applicable Products

This guide applies to ALUCOSUN cladding panel products installed as ventilated rainscreen facade systems by qualified facade contractors.

Applicable products

Product	Correct description	Key installation boundary
ACP FR Core B1	Mineral-filled FR core ACP	B-s1,d0 / GB B1 / ASTM E84 Class A context; not A2
ACP A2 Core	Non-combustible mineral core ACP	A2-s1,d0 material class; system compliance still project-specific
X Panel / 3D Panel	All-aluminium 3D core panel, not honeycomb	Best for large flat facade modules; not small-radius curved systems
Aluminium Solid Panel A1	Single solid aluminium panel, no core	Higher weight; support system must be calculated

ENGINEERING

Site-specific wind-load checks, anchor design, bracket spacing, shop drawings, and local code review must be completed before installation.

Site readiness

- Building structure must be complete, stable, and ready to receive the facade sub-frame.
- Anchor points must be surveyed and checked against approved shop drawings.
- Substrate movement and tolerance requirements must be reviewed before installation starts.
- Adjacent glazing, roofing, waterproofing, and sealant works should be coordinated before panel installation.

2. Pre-Installation & Storage

Material inspection

- Inspect each pallet immediately upon delivery and record any visible damage before signing delivery documents.
- Verify panel markings, panel numbers, colour codes, coating direction, and batch references against shop drawings.
- Keep protective film intact until final cleaning unless the project specification requires earlier removal.

Storage requirements aligned with ALUCOSUN parameter standard

- Store panels flat in original wooden pallet packaging with continuous support.
- Full pallets may be stacked two high when level, dry, and structurally sound; heavier pallets must remain at the bottom.
- Do not use loose-panel stack limits such as five panels per pile as the standard export-facing instruction.
- Keep materials dry, shaded, and away from direct sunlight, standing water, cement dust, welding sparks, and corrosive chemicals.
- Let panels adapt to a stable indoor or site environment before fabrication when temperature difference is significant.

WARNING

Never store loose panels vertically or drag panels across each other. Unsupported storage can deform edges, mark the coating, and compromise facade flatness.

Product	Storage focus	Special note
X Panel / 3D Panel	Continuous support for large flat modules	Protect flatness; do not describe as honeycomb
Solid Panel A1	Protect coated faces, returns, corners	Large thin panels can twist without support
ACP A2 / FR B1	Keep mineral-core panels dry and clean	Remove film promptly after installation

3. Sub-frame & Bracket System

The panel is not a structural member. Loads transfer through the sub-frame into the primary building structure.

Component	Recommended material	Typical minimum	Notes
Vertical / horizontal rails	EN AW-6063-T5 or 6061-T6 aluminium	2.5 mm wall	Project calculation governs final section
Brackets	Extruded aluminium or stainless steel	By calculation	Use EPDM / polyamide isolation where required
Fasteners	Stainless steel, aluminium, or isolated fasteners	By supplier	Avoid carbon steel in direct aluminium contact
Gaskets / isolation	EPDM, polyamide, approved isolation tape	Project-specific	Reduce corrosion and cold bridging

Thermal break

- Install EPDM or polyamide thermal isolation pads between brackets and concrete or steel structures.
- Minimum thermal break thickness may be 3 mm unless project specification requires otherwise.

Bracket spacing

- Wall bracket preliminary reference: 600 mm vertical and 1,200 mm horizontal maximum.
- Panel edge / folded return fixing: 300-350 mm centres as preliminary guidance.
- Final spacing must be verified by wind-load calculation, panel size, building height, exposure, and local code.

WARNING

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

4. Panel Fixing Methods

Concealed rivet / screw fixing

- Fastener type, size, pilot hole diameter, washer system, and torque must follow approved shop drawings and fixing supplier recommendations.
- Secure fasteners through the panel return where possible. 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.

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 approved system drawings.

MOVEMENT

Do not over-tighten. Fixing points must allow controlled expansion and contraction; rigidly locking all points may create panel distortion or fastener failure.

Method	Use condition	Technical direction
Visible screw fixing	Only where architecturally approved	Use supplier-confirmed washer, pilot hole, and torque
Concealed fixing	Preferred where clean facade appearance is required	Fix through returns; avoid visible face fasteners
Cassette / hook-on	Preferred for engineered facade systems	Allow drainage, adjustment, locking, and movement

5. Joints, Sealants & Movement

Joint design must allow installation tolerance, thermal movement, drainage, and long-term weather performance.

Joint type	Typical width	Depth / cavity	Sealant direction
Open drained joint	By project calculation	Drained cavity	No face sealant; EPDM gasket may be used at back
Sealed panel joint	8-12 mm typical	>= 6 mm sealant depth	Neutral-cure silicone with PE backing rod
Panel-to-window joint	10-15 mm typical	>= 8 mm depth	Weather silicone per system supplier
Expansion joint	20-25 mm typical	>= 12 mm depth	Movement-rated silicone with backing rod

Sealant practice

- Use closed-cell polyethylene backing rod to control sealant depth.
- Clean joint faces and apply primer where required by the sealant supplier.
- Allow sealant to cure as specified before water exposure.
- Do not mix open-drained and sealed joints without a clear drainage strategy.

Thermal movement

- Aluminium thermal expansion coefficient: approx. 23.5 x 10^-6 / deg C.
- Joint width to project calculation; 8-12 mm is typical for facade panels.
- Maintain a drained and ventilated cavity; 25 mm clear cavity is typical unless system design requires otherwise.

CAUTION

Each panel should normally have one fixed point. Other fixing points should use slotted holes or movement-tolerant details.

6-8. Quality Control, Cleaning & Maintenance

Check item	Acceptance criterion	Frequency
Sub-frame alignment	Within approved shop drawing tolerance	Before panel fixing
Joint width	Consistent and calculated for movement	Each elevation
Fastener torque	No over-tightening; movement retained	During fixing
Drainage path	Open, clean, and ventilated	Before handover

Final cleaning & film removal

- Remove protective film as soon as practical after installation and before prolonged UV exposure.
- Peel film at approximately 45 degrees from bottom upward to reduce surface scratching risk.
- Clean panel surfaces with mild neutral detergent, clean water, and soft cloth or sponge.
- Do not use acetone, MEK, toluene, strong acid, strong alkali, abrasive pads, steel wool, or hard brushes.

Maintenance item	Recommended frequency	Action
Visual inspection	Every 6 months	Panel surface, fixings, sealant, drainage path
Routine cleaning	Annually or as environment requires	Mild detergent and clean water
System inspection	Every 5 years	Sub-frame, anchors, fixings, sealants, movement points

PROJECT VERIFICATION

Information is provided in good faith and remains subject to project-specific engineering verification, approved shop drawings, system supplier instructions, and local regulations.