

X Panel 3D A2

Fabrication & Installation Manual

FIRE CLASS	A2-s1,d0 EN 13501-1
COATING	PVDF AAMA 2605
WARRANTY	PROJECT-SPECIFIC TERMS

SECTION 1

Product Overview

The ALUCOSUN X Panel is a structurally innovative aluminium sandwich panel built around a proprietary three-dimensional corrugated aluminium lattice core. Unlike conventional flat-core composite panels, the lattice geometry distributes structural load in multiple directions simultaneously.

The system delivers exceptional panel rigidity, superior flatness under thermal load, and outstanding wind-driven deflection resistance at large panel formats.



EXPLODED VIEW OF 3D LATTICE CORE PANEL WITH CORRUGATED ALUMINIUM LATTICE CORE.

<h2>A2-s1,d0</h2> <p>EN 13501-1 FIRE CLASS</p>	<h2>AAMA 2605</h2> <p>PVDF LIQUID COATING</p>	<h2>8,000 mm</h2> <p>MAX PANEL LENGTH</p>
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Fire Classification	A2-s1,d0 · EN 13501-1
Panel Thickness	4 mm standard · 3 mm / 6 mm available
Skin Thickness	Front skin: 0.7 mm standard · 0.6 / 0.5 mm optional; back skin: 0.5 mm
Panel Weight	3.9 kg/m ² (3 mm) · 4.2 kg/m ² (4 mm) · 4.6kg/m ² (6mm)
Coating System	PVDF / FEVE liquid coating: certified to AAMA 2605
Panel Size	Max 1570 x 8000mm

SECTION 2

Storage & Handling

The X Panel's PVDF-coated aluminium skin surfaces require careful handling throughout the supply chain. Protective film must remain in place during storage, transport, and fabrication.

2.1 Receiving & Inspection

- Inspect all panels for transit damage before signing delivery documentation.
- Verify panel dimensions, quantity, and finish code against the project packing list.
- Report surface damage, coating defects, or dimensional discrepancies within 48 hours.
- Retain all packaging until panels are confirmed acceptable on site.

2.2 Storage Requirements

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

CAUTION

Never store panels vertically without full-length lateral support. Unsupported vertical bow and permanent deformation are not covered under warranty.



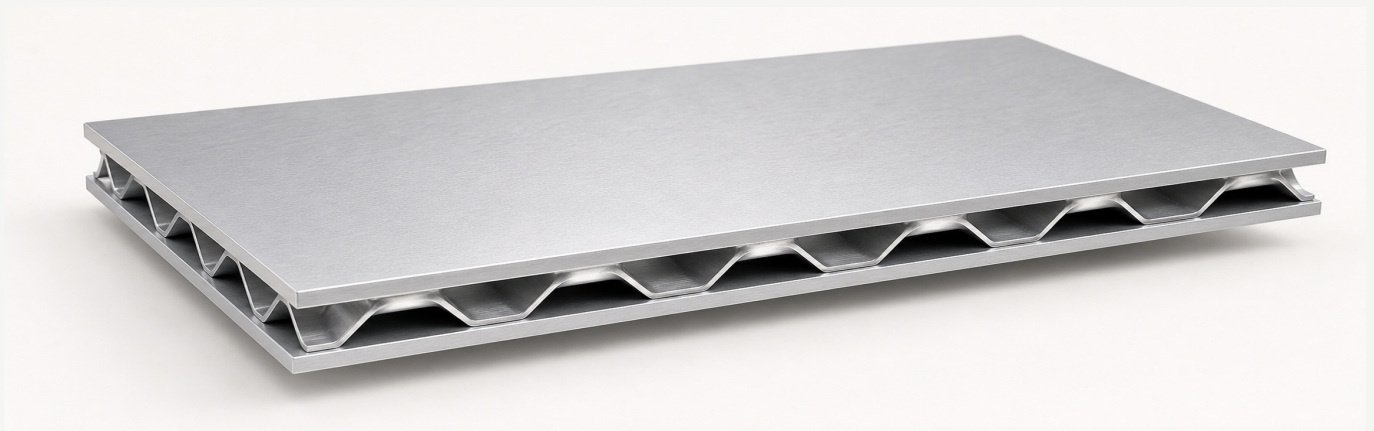
2.3 On-Site Handling

- Always lift panels by the long edge; never by corners alone.
- Use vacuum suction cups or soft-face clamps for panels exceeding 2 m².
- Wear clean cotton or nitrile gloves to avoid marking PVDF coatings.
- For large-format panels, use a spreader bar to distribute lifting load evenly.
- Never drag panels across any surface, including other panels.

SECTION 3

Fabrication

The X Panel is compatible with standard aluminium panel fabrication methods including CNC routing, V-grooving, folding, punching, and drilling. The aluminium lattice core is harder than mineral-filled FR cores; use sharp carbide tooling and reduce feed rates by 10-15% compared to standard ACP.



3.1 Cutting Parameters

Blade Type	Carbide-tipped, aluminium-rated, fine tooth
Circular Saw Speed	2,800-4,500 RPM
CNC Router Speed	20,000-24,000 RPM
Feed Rate	1.5-4 m/min; reduce 10-15% vs standard ACP
Backing Board	Required; 9 mm MDF minimum to prevent exit breakout
Coolant	Dry cut preferred; light air blast acceptable

CAUTION

The aluminium lattice core generates significantly more swarf than mineral-core panels. Clear swarf from the groove before folding.

SECTION 3.3

V-Groove Routing & Folding

V-groove routing and folding must preserve the outer aluminium skin while maintaining enough lattice core to support the fold. Work with reduced feed rate and clean the routed groove immediately.

**01**

Mark fold line on back face and verify dimension from panel edge.

02

Confirm groove depth by trial sample according to panel thickness, skin thickness, core structure, and fold radius.

03

Route in single pass at reduced feed rate and vacuum aluminium swarf.

04

Fold by hand with even pressure along the full fold line; verify folding method by project sample.

05

Seal exposed lattice core edges with neutral-cure silicone sealant.

06

Inspect fold angle, skin continuity, and edge seal coverage.

TECHNICAL NOTE For anodised or metallic PVDF finishes, apply a protective film strip along the fold line before press-brake folding to prevent tool contact marks.

SECTION 4

Installation

Large-format X Panels are installed on engineered aluminium or galvanised steel subframes. The panel is a facade cladding element; all structural loading must transfer through the subframe to the primary building structure.

4.1 Subframe Requirements

- Use AA6063-T5 aluminium alloy or hot-dip galvanised steel sections.
- Subframe span, deflection limit, fixing layout, and joint width must be verified by project wind-load calculation, panel size, substrate condition, system design, and local code.
- Minimum ventilated cavity: 25 mm between panel back face and wall substrate.

4.3 Joint Design

- Joint width to project calculation; 8-12 mm is typical for facade panels.
- Thermal expansion coefficient: 23.5×10^{-6} per 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	Routed panel cassette clips engage subframe rail. Preferred for high-wind and cyclone-rated zones.
Concealed Fixing	Available; consult ALUCOSUN Technical Department for project-specific design and load calculations.

CAUTION

Large-format panels require larger expansion gaps than standard-size panels. Insufficient gap allowance will cause panel buckling and voids the warranty.

SECTIONS 5-6

Maintenance & Warranty



5.1 Maintenance Schedule

Frequency	Maintenance Action
Every 6 Months	Visual inspection of panel surface, fixings, sealant joints, and drainage channels.
Annually	Full clean with approved mild detergent and water. Inspect and re-apply sealant where required.
Every 5 Years	Professional inspection of subframe anchor points. Full sealant replacement recommended.
As Required	Immediate removal of fouling, industrial fallout, and graffiti.

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	Project-specific warranty terms upon request
Anodised Finish	Project-specific terms
Panel Structure	Project-specific terms under normal facade use
Technical	spec@alucosun.com
Warranty Claims	spec@alucosun.com
Website	www.alucosun.com