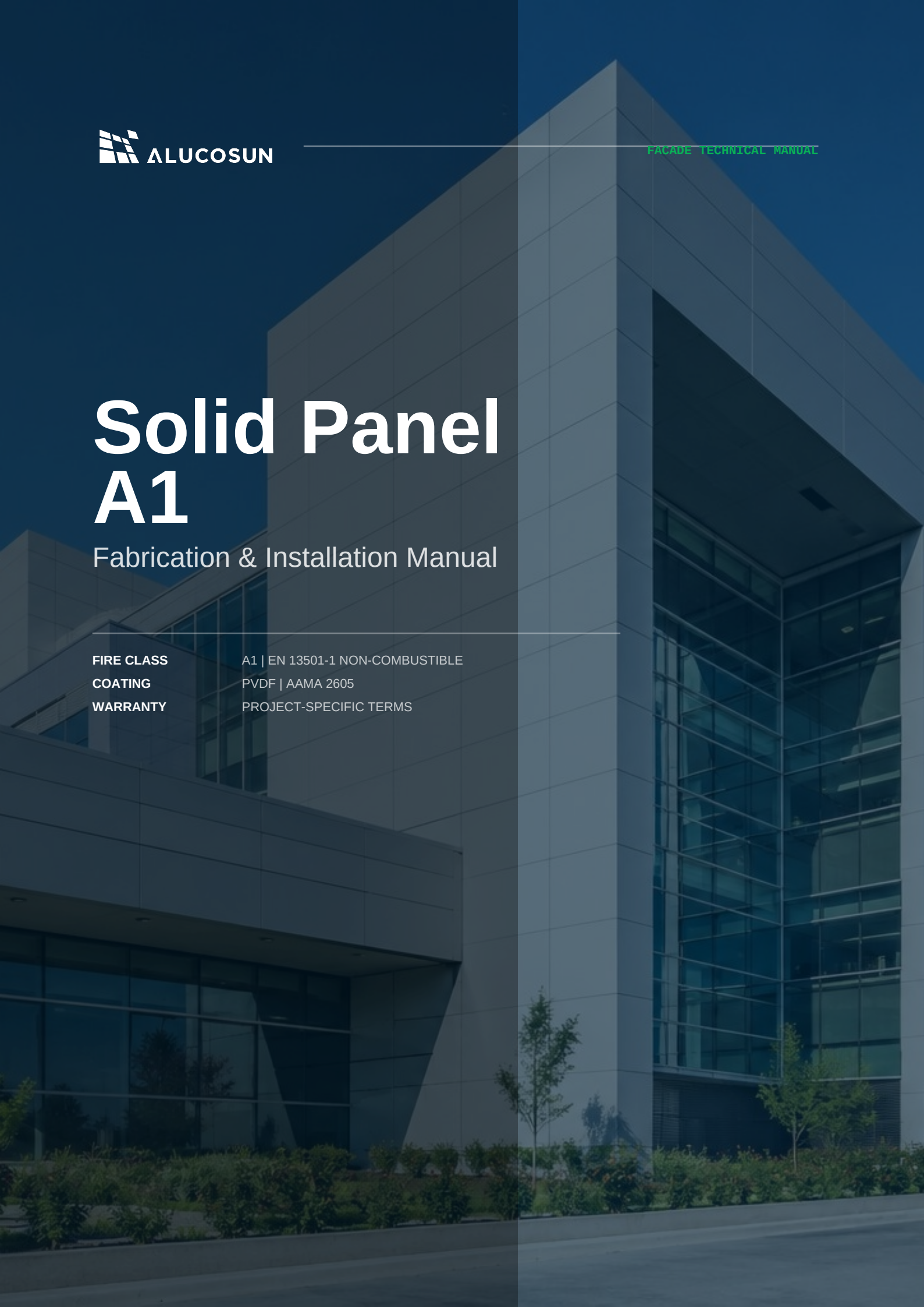
Solid Panel A1

Fabrication & Installation Manual

FIRE CLASS	A1 | EN 13501-1 NON-COMBUSTIBLE
COATING	PVDF | AAMA 2605
WARRANTY	PROJECT-SPECIFIC TERMS



SECTION 1

Product Overview

The ALUCOSUN Solid Panel A1 is a single-skin solid aluminium panel carrying full A1 non-combustible classification to EN 13501-1, the highest fire performance category under European building regulations.

Precision-fabricated from AA3003 or AA5052 aluminium alloy with no organic components in the panel body, the Solid Panel achieves A1 classification through its material composition alone.

SOLID ALUMINIUM PANEL EDGE DETAIL SHOWING HOMOGENEOUS MATERIAL CONSTRUCTION.

A1	8.1 kg/m²	25 YEARS
EN 13501-1 NON-COMBUSTIBLE	3.0 MM AA3003 PANEL WEIGHT	STRUCTURAL INTEGRITY

Fire Classification	A1 · EN 13501-1 Non-Combustible
Aluminium Alloy	AA3003 / AA5052
Standard Thickness	1.5 / 2.0 / 2.5 / 3.0 mm
Application Note	1.5 mm for interior, soffit and decorative applications only; 2.0-3.0 mm for exterior facade and curtain wall. Thickness subject to structural engineer review.
Elastic Modulus	68.9 GPa
Coating System	PVDF Fluorocarbon · AAMA 2605

SECTION 2

Storage & Handling

The Solid Panel A1 is a homogeneous aluminium product with no delamination risk. However, the PVDF-coated face requires protection throughout the supply chain to prevent scratching and coating contamination.

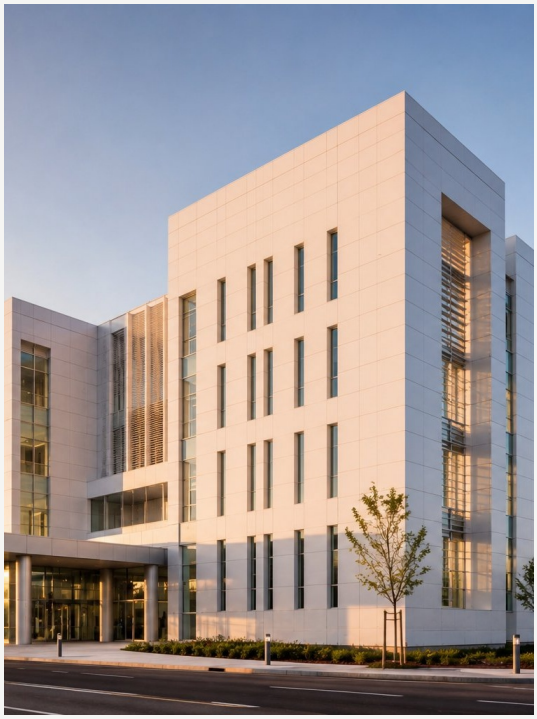
2.1 Receiving & Inspection

- Inspect all panels for transit damage and surface scratches before signing delivery documentation.
- Verify panel dimensions, alloy grade, thickness, and finish code against the project schedule.
- Report surface damage or coating defects within 48 hours.

2.2 Storage Requirements

- Store panels horizontally on a flat, level surface with full-length continuous support.
- Stack face-to-face or back-to-back only with clean interleaving material.
- Maximum recommended stack height: 30 panels; ensure support capacity.

CAUTION **Solid aluminium panels are considerably heavier than composite panels. A 3.0 mm AA3003 panel weighs approximately 8.1 kg/m². Plan lifting and handling equipment accordingly.**



2.3 On-Site Handling

- Use mechanical lifting aids for panels exceeding 25 kg total weight.
- Soft-face suction cups are preferred for coated face; ensure cups are clean.
- Wear clean cotton or leather gloves to avoid staining PVDF coatings.
- Protect panel corners and edges during transport; edge damage is permanent.

SECTION 3

Fabrication

The ALUCOSUN Solid Panel A1 is fabricated using standard sheet metal working equipment. All cutting, drilling, bending, and forming operations are performed on solid aluminium alloy using conventional metalworking techniques.

3.1 Cutting Parameters

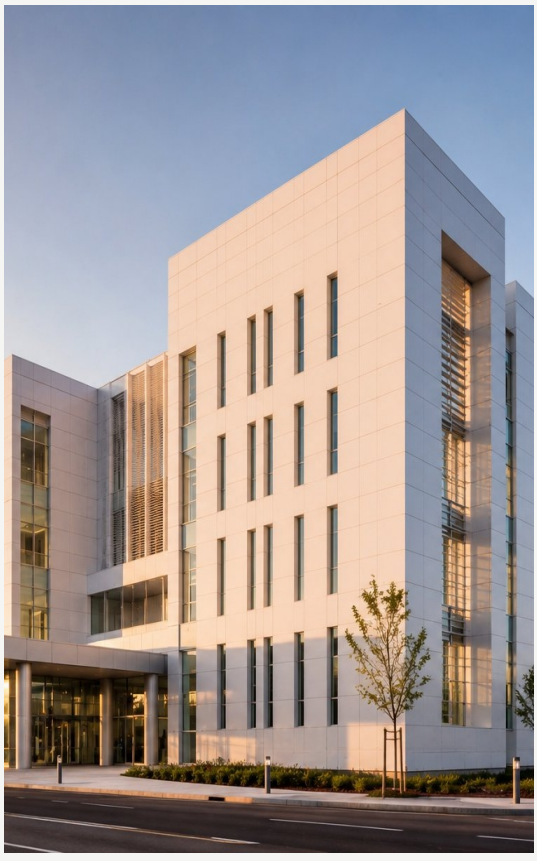
Blade / Tool Type	Carbide-tipped, aluminium-rated fine-pitch circular saw or CNC router
Circular Saw Speed	3,000-5,000 RPM
CNC Router Speed	18,000-24,000 RPM
Feed Rate	3-8 m/min depending on thickness and alloy grade
Coolant	Light coolant or air blast recommended for 2.5 mm+ thickness
Edge Finish	Deburr all cut edges before handling

CAUTION **Solid aluminium panels generate heat during cutting. Overheating causes surface discolouration near cut edges and may affect PVDF coating adhesion.**

SECTION 3.4

Cassette Profile Fabrication

Solid Panel A1 cassette profiles are formed by press brake bending. Bend sequence, tool radius, spring-back allowance, and coated-face protection must be verified before full production.



01

Design cassette or return flange profile. Minimum return flange: 25 mm.

02

Mark bend lines and verify die width/radius against material thickness.

03

Apply protective film strip or soft tooling insert on die contact face.

04

Bend in sequence. Account for spring-back: AA3003 2-3 degrees; AA5052 4-5 degrees.

05

Drill fixing holes or route clip slots after bending. Deburr both faces.

06

Inspect cassette dimensions, surface condition, and edge finish before dispatch.

TECHNICAL NOTE **AA5052 alloy has greater work hardening during bending and drilling. Reduce feed rates by 15-20% and use sharper tooling compared to AA3003 operations.**

SECTION 4

Installation

Solid Panel A1 is installed as a ventilated rainscreen facade using concealed cassette fixing or project-specific clip systems. The panel carries higher self-weight than composite alternatives, so dead load and temporary support must be considered during installation.

4.1 Subframe Requirements

- Use AA6063-T5 aluminium alloy subframe sections or hot-dip galvanised steel.
- Subframe span: max 400 mm c/c for 2.0 mm panels; max 600 mm c/c for 3.0 mm panels.
- Deflection limit: L/200 under design wind load.
- Minimum ventilated cavity: 25 mm. Specify cavity insulation separately.

4.3 Joint Design

- Shadow-gap joint: minimum 8 mm between panel faces.
- Recess depth minimum 20 mm to conceal clip system.
- Do not seal shadow-gap joints in ventilated rainscreen systems.
- Where sealed joints are required, use neutral-cure silicone only.

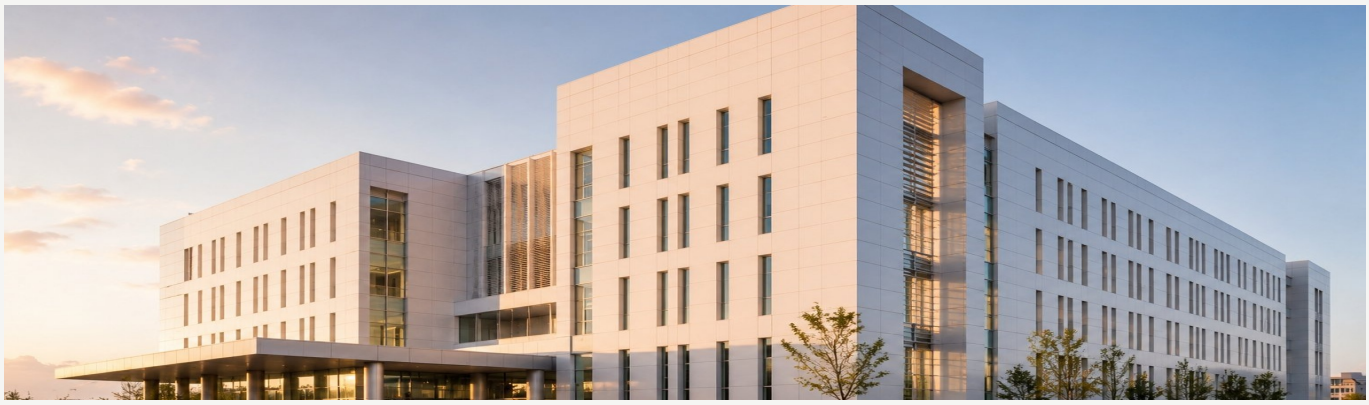
4.2 Fixing Methods

Parameter	Technical Direction
Clip Material	AA6063-T5 aluminium alloy or stainless steel 316
Clip Spacing	Maximum 400 mm c/c along vertical subframe rail
Engagement Depth	Minimum 15 mm clip engagement into panel return flange slot
Horizontal Movement	Clips must permit +/- 3 mm horizontal thermal movement

CAUTION **A 3.0 mm panel at 1,200 x 3,000 mm weighs approximately 29 kg. Provide temporary support during clip engagement and use minimum two operatives.**

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 **The A1 classification is a material property and is not affected by weathering or surface contamination. PVDF warranty terms are project-specific and subject to coating specification, location, maintenance programme and registration.**

Warranty & Technical Support

PVDF Coating	Project-specific warranty terms upon request
Panel Structure	Project-specific terms; no delamination risk for solid aluminium body
Fire Classification	Permanent A1 material property
Technical	spec@alucosun.com
Warranty Claims	warranty@alucosun.com
Website	www.alucosun.com