

ALPOLIC®

MATERIALS

1. Product Name

ALPOLIC® Aluminum Composite Panels

- ALPOLIC® fr/LT Fire Resistive Cored Panels
- ALPOLIC® pe/LT Polyethylene Cored Panels

2. Manufacturer

Mitsubishi Plastics Composites America, Inc.

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3. Product Description

BASIC USE

ALPOLIC® fr/LT and pe/LT Aluminum Composite Panels are lightweight and highly durable and are used for stylized interior cladding of walls, ceilings, columns, partitions and displays in commercial and high-traffic applications. They can also be used for light outdoor applications, including soffits, awnings, parapets and signs. They offer strength and rigidity, yet are easily formable using ordinary woodworking and metalworking tools, providing flexibility in design through a wide variety of fabrication techniques, including transforming flat panels into curves, angles and pan configurations.

COMPOSITION & MATERIALS

ALPOLIC fr/LT panels are composed of 0.078" (2 mm) thick, fire-retardant core material thermally bonded to face sheets fabricated of aluminum 1100-H14. ALPOLIC pe/LT panels are composed of a 0.078" (2 mm) polyethylene core bonded to face sheets fabricated of aluminum 5052 H32. Both panel styles are non-permeable, do not absorb moisture under humid atmospheric conditions, and meet performance characteristics specified when fabricated into a composite assembly.

TYPES

ALPOLIC fr/LT and pe/LT panels are available in both standard and custom finishes, colors and sizes.



Commercial Application

SIZES

Standard ALPOLIC fr/LT and pe/LT panels are 0.118" thick (3 mm), 48" (1219 mm) wide and 96" (2438 mm) long. A range of custom sizes is available:

- Width - 48" - 62" (1219 - 1575 mm). Matte finishes available in 48" and 50" (1219 and 1270 mm) only
- Length - 72" - 196" (1829 - 4978 mm). Minimum per length - 30 pieces

ALPOLIC pe/LT is also available in 0.078" (2 mm) and 0.157" (4 mm) panel thicknesses.

COLOR

ALPOLIC fr/LT is available in a range of standard and metallic colors, and also in stone and timber patterned finishes. The reversible series has a polyester finish coating on both the front and back, while the single, stone and wood series features a polyester finish coating on the front and a wash coating on the back.

Color options include:

- N1 - Pure White/Anodized Silver Reversible
- N2 - White/Champagne Metallic Reversible
- N3 - Light Beige/Silver Metallic
- N4 - Black/Grey Reversible
- N5 - Off White (Matte)
- N6 - Grey Metallic (Matte)
- S1 - Black Granite
- S2 - White Granite
- S3 - Red Granite
- S4 - Pink Granite

- S5 - White Marble
- S6 - Venetian Marble
- S7 - Sandstone (Matte)
- T1 - Maple (Matte)
- T2 - Walnut (Matte)

Custom colors are also available, subject to minimum quantity and color match.

FINISHES

- Polyester (standard) - Resistant to corrosion and moisture in interior applications
- Fluorocarbon coating (Lumiflon®-based FEVE) - Suitable for outdoor use
- High cross-link polyester coating with 4H hardness and 80% reflectivity - Suitable for lining tunnels

ALPOLIC pe/LT is available in a standard white polyester finish. Custom polyester and Lumiflon FEVE finishes are also available.

LIMITATIONS

Deflection of perimeter framing member should not exceed L/175 normal to plane of the wall; deflection of individual panels should not exceed L/60. At connection points of framing members to anchors, anchor deflection in any direction should not exceed 1/16" (1.6 mm). Allow for free horizontal and vertical thermal movement, due to expansion and contraction of components over a temperature range.

Fabrication, assembly and erection procedures should take into account the ambient temperature range at the time of the respec-

tive operation. Wall design should feature provisions to drain to the exterior face of the wall any leakage of water at joints and any condensation that can occur within the construction.

SHAPES & FABRICATION

ALPOLIC fr/LT and pe/LT can be curved, bent, routed, drilled, sawed, sheared, punched, trimmed and molded into complex shapes with conventional woodworking or metal-working tools. They are readily adaptable to many other standard systems that are available from a variety of vendors, including rout & return systems, glazed-in systems and creative custom systems. ALPOLIC fr/LT and pe/LT surfaces can be connected to ALPOLIC or other materials with rivets, bolts or screws.

4. Technical Data

APPLICABLE STANDARDS

American Architectural Manufacturers Association (AAMA) - AAMA 620-02 Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Aluminum Substrates

ASTM International

- ASTM C393 Standard Test Method for Flexural Properties of Sandwich Constructions
- ASTM D522 Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings
- ASTM D523 Standard Test Method for Specular Gloss
- ASTM D648 Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position
- ASTM D696 Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 Degrees C and 30 Degrees C With a Vitreous Silica Dilatometer
- ASTM D732 Standard Test Method for Shear Strength of Plastics by Punch Tool
- ASTM D2247 Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
- ASTM E8 Standard Test Methods for Tension Testing of Metallic Materials
- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials

International Organization for Standardization - ISO 5660-1 Heat Release Test for Non-Combustible Material and Toxicity Gas Test

Japanese Standards Association - JIS A1416 (ISO 140-3) Acoustics-Method for Laboratory

Measurement of Airborne Sound Insulation of Building Elements

Uniform Building Code (UBC) - UBC 26-3 Room Corner Test

PHYSICAL/CHEMICAL PROPERTIES

See Table 1.

FIRE PERFORMANCE

- ALPOLIC fr/LT, pe/LT - Surface burning characteristics, ASTM E84 - Class A/Class 1
- ALPOLIC fr/LT - Passed Uniform Building Code (UBC) - UBC 26-3 Room Corner Test - 15 min
- ALPOLIC fr/LT, pe/LT - UL Flame Classification V-O

SOUND PERFORMANCE

Contact manufacturer for technical data.

5. Installation

PREPARATORY WORK

The manufacturer recommends field measurement prior to fabrication. Verify alignment of surfaces to receive panels.

Field Measurements

Verify actual dimensions and openings by field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays. Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors and textures. Include details showing thickness and dimensions of various system parts, fastening and anchoring methods, locations of joints and gaskets and location and configuration of joints necessary to accommodate thermal movement. Submit selection and verification samples for finishes, colors and textures.

Delivery & Storage

Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Finish of panels is protected by heavy duty removable plastic film during production. Panels are packaged for protection against transportation damage. Exercise care in unloading, storing and installing panels to prevent bending, warping, twisting and surface damage.

Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by ALPOLIC. Store panels in well-ventilated space out of direct sunlight. Do not store panels in any

enclosed space where ambient temperature can exceed 120 degrees F (49 degrees C).

Avoid contact with any other materials that might cause staining, denting or other surface damage.

METHODS

Shop-fabricate to sizes and joint configurations indicated on the drawings. Where final dimensions cannot be established by field measurement, provide allowance for field adjustment as recommended by the fabricator. Form panel lines, breaks and angles to be sharp and true, with surfaces that are free from warp or buckle. Fabricate with sharply cut edges, with no displacement of aluminum sheet or protrusion of core.

Production Tolerances

- Width ± 2 mm
- Length ± 4 mm
- Thickness ± 0.008" (0.2 mm)
- Bow - Maximum 0.5% length or width
- Squareness - Maximum 0.2" (5 mm)
- Edges of sheets shall be square and trimmed with no displacement of aluminum sheets or protrusion of core material

Install panels plumb, level and true, in compliance with manufacturer's recommendations. Anchor panels securely in place, in accordance with fabricator's approved shop drawings. Comply with fabricator's instructions for installation of concealed fasteners and with provisions of specifications for installation of joint sealers.

Installation Tolerances

Maximum deviation from horizontal and vertical alignment of installed panels is 0.25" in 20' (6.4 mm in 6 m), noncumulative. Complete installation recommendations are available from the manufacturer.

Application

ALPOLIC fr/LT and pe/LT surfaces can be attached to ALPOLIC or other materials with rivets, bolts or screws. For interior installation, flat surfaces of ALPOLIC can be attached to substrates such as gypsum board using double-faced tape or nonhardening adhesive.

PRECAUTIONS

ALPOLIC panels are prefinished architectural products requiring care in handling to avoid damage to the finish. Handle, store, install and clean panels following the manufacturer's instructions. Comply with manufacturer's recommendations regarding expansion and contraction in detailing and installing ALPOLIC. Repair

TABLE 1 PHYSICAL PROPERTIES

Model	fr/LT		pe/LT	
Coefficient of expansion, ASTM D696	24 × 10 ⁻⁶ (1/°C) 13 × 10 ⁻⁶ (1/°F)		24 × 10 ⁻⁶ (1/°C) 13 × 10 ⁻⁶ (1/°F)	
Deflection temperature, ASTM D648, °F (°C)	230 (110)		230 (110)	
Heat transmission	0.25 (Rt (m ² × K/W))		-	
Panel thickness, in (mm)	0.12 (3)	0.08 (2)	0.12 (3)	0.16 (4)
Weight, psf (kg/m ²)	1.13 (5.5)	0.56 (2.7)	0.75 (3.7)	0.93 (4.5)
Specific gravity	1.84	0.56	0.75	0.93
Tensile strength, ASTM E8	4352 psi	7487 psi	5761 psi	4480 psi

panels with minor damage so that repairs are not discernible at a distance of 10' (3 m). Remove and replace panels damaged beyond repair. Remove protective film immediately after installation of joint sealers and immediately prior to completion of composite metal panel work.

BUILDING CODES

Current data on building code requirements and product compliance can be obtained from ALPOLIC technical support specialists. Installation must comply with requirements of all applicable local, state and national code jurisdictions.

6. Availability & Cost

AVAILABILITY

ALPOLIC fr/LT and pe/LT panels are available worldwide through the regional offices of Mitsubishi Plastics Composites America. Contact Mitsubishi for the location of an area ALPOLIC representative.

COST

Contact the area representative or the Mitsubishi Plastics Composite America, Inc., home office for ALPOLIC fr/LT and pe/LT pricing. Costs vary due to project size, finish selection and panel sizes.

7. Warranty

Contact Mitsubishi for information on warranty conditions, exclusions, duration and remedies.

8. Maintenance

These panels, when properly installed, require no specific maintenance. An occasional pressure washing can be required depending on local environmental conditions. Periodic inspection for sealant integrity is advised to ensure long-term system performance.

9. Technical Services

A staff of trained personnel offers design assistance and technical support. For technical assistance, contact Mitsubishi Plastics Composites America, Inc., ALPOLIC.

10. Filing Systems

- MANU-SPEC®
- Additional product information is available from the manufacturer upon request.