

## FEATURES OF ALPOLIC®/fr

ALPOLIC®/fr has a number of unique features:

### Superior flatness:

The continuous laminating process results in excellent flatness in our panels.

### Excellent color uniformity:

The coil coating process ensures complete color consistency.

### Lightweight and high rigidity:

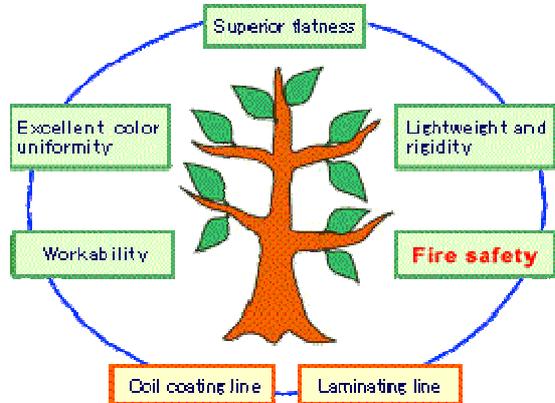
ALPOLIC®/fr is a light and strong sheet material with apparent gravity of 1.2 to 1.5, reducing weight by 40% compared to solid aluminum sheets whilst retaining equivalent rigidity.

### Workability:

ALPOLIC®/fr is easy to cut, bend, groove and shape with regular aluminum working and woodworking machines and tools.

### Fire safety:

With its non-combustible mineral-filled core, ALPOLIC®/fr meets fire code requirements in most countries and regions including North America and Japan without any restrictions.



## Composition detail of ALPOLIC®/fr

ALPOLIC®/fr is composed of multiple layers. With other composite panels corrosion normally takes place at the cut edge and tends to penetrate inside. This results in delamination between the aluminum skin and core material. To protect the cut edge from this type of corrosion, a rust-preventing paint is applied to ALPOLIC®/fr behind the aluminum skins.

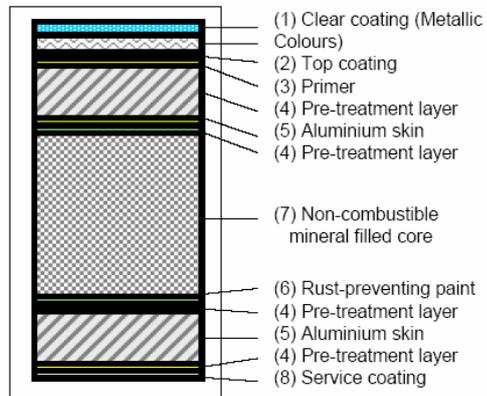
The backside of the panel is coated with a wash coat or service coat, protecting the backside aluminum from either alkali attack from cement or galvanic corrosion from steel.

### Rigidity

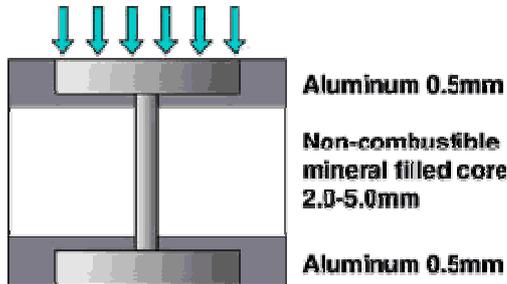
ALPOLIC®/fr is highly rigid, compared to solid aluminum sheet. Its parallel aluminum sheets behave like a small H-beam when pressure loads are uniformly distributed on the panel. Its flexural rigidity or bending strength is one of the characteristics of aluminum composite material.

Compared with solid aluminum panels, flexural rigidity or bending strength of ALPOLIC®/fr is high, yet it's lighter by approximately 15% than a solid aluminum panel of the equivalent rigidity.

Composition detail of ALPOLIC®/fr



Combined Effect of Aluminum Composite Material



Comparison of Flexural Rigidity of ALPOLIC®/fr

ALPOLIC®/fr		Solid aluminum		Weight ratio Solid aluminum =100
Thickness	Weight	Equivalent thickness	Weight	
(mm)	(kg/m <sup>2</sup> )	(mm)	(kg/m <sup>2</sup> )	
3	6.0	2.7	7.3	82%
4	7.6	3.3	8.9	85%
6	10.9	4.5	12.2	89%

**Paint Finish**

**1. Color variation**

The high performance Lumiflon-based fluorocarbon coating for ALPOLIC®/fr is highly resilient. Four finishes (Solid Colors, Metallic Colors, Sparkling Colors and Stone Series) are available in standard and pre-formulated colors; please refer to our Color Chart for more information. Custom colors are also available for all finish types upon request (subject to respective minimum quantities).

Note: Some custom colors might be very difficult to match due to the availability of paint pigments.

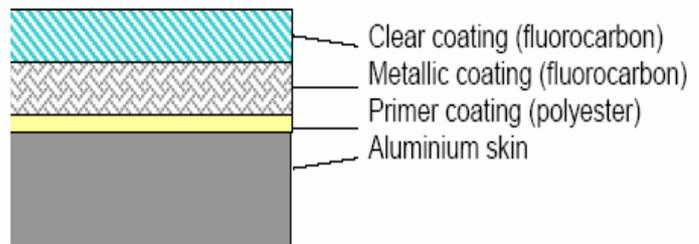
**2. Coating system**

**Solid Colors** are a two-coat, two-bake system. Total dry film thickness is a minimum of 25 microns.

**Metallic Colors and Sparkling Colors** are a three-coat, three-bake system. Total dry film thickness is a minimum of 35 microns.

**Stone Series** is coated with a unique image transfer process. Total dry film thickness is a minimum of 45 microns.

**3-coat, 3-bake system**



**3. Coating performance**

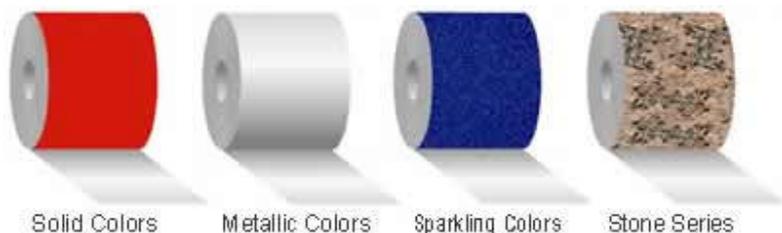
The Lumiflon-based fluorocarbon paint used on ALPOLIC®/fr is known for its high durability. The paint is applied in continuous coil coating lines for all finish types, and its paint performance complies with the all of the "specifications for coated coil for exterior building applications" issued by both the ECCA (European Coil Coating Association) and the AAMA (American Architectural Manufacturers Association).

**4. Comparison of paint performance**

The Lumiflon-based fluorocarbon coating is so durable that it will last much longer with less cleaning frequency under normal atmospheric conditions than such conventional paints as polyester, acrylic and polyurethane paints.

**Coating warranty:**

Lumiflon-based fluorocarbon coating has a coating warranty of 10 years.



### ALPOLIC®/fr - Fire Performance

Various types of fire tests are required to examine the fire performance and non-combustibility of building materials. ALPOLIC®/fr has passed the following fire tests around the world:

Category	Country	Test Standard	ALPOLIC/fr Specimen	Results & Classification
External Cladding	Australia	AS1530.3 Flame speed, Smoke developing, Ignitability & Heat evolved	4 mm & 4 mm perforated	Class 0
	United Kingdom	BS476 Part 7	4 mm & 6 mm	Class 0
		Part 6		Class 1
	Germany	DIN4102 Part 1	4 mm & 6mm	Class B1
	USA	British Thermal Unit (NFPA 259-93)	4 mm	Passed
		Climbing Drum Peel Test (ASTM D1781-76)	4 mm & 6mm	Passed
		Tunnel Test (ASTM E-84)	4 mm & 6mm	Class A / Class 1
		Modified ASTM E-108	4 mm	Passed
		UBC 26-9 & NFPA 285, ISMA Test (Intermediate Scale Multi-story Apparatus)	4 mm & 6mm	Passed
Canada	CAN/ULC-S 134-92, Full-scale Exterior Wall Fire Test	4 mm	Passed	
China	GB8625, GB8626 & GB8627	4 mm	Class B1	
Japan	Heat Release Test for Non-combustible Material (ISO 5660-1)	4 mm & 6 mm	Passed. Certificate No. NE-0001	
Roof	USA	Fire Test for Roof Covering (ASTM E108)	4 mm	Passed Class A
Fire Resistant Rating Wall	USA	1-hr Fire Rating and 2-hr Fire Rating (ASTM E119)	4 mm	Does not impair fire resistant rating wall
Interior	USA	Interior Room Corner Test (UBC 26-3)	4 mm	Passed
	USA	Combustion Toxicity Test, New York State Uniform Fire Prevention and Building Code	4 mm	Passed
	Japan	Heat Release Test for Non-combustible Material (ISO 5660-1 & Toxicity Gas Test)	3 - 6mm	Passed. Certificate No. NE-209