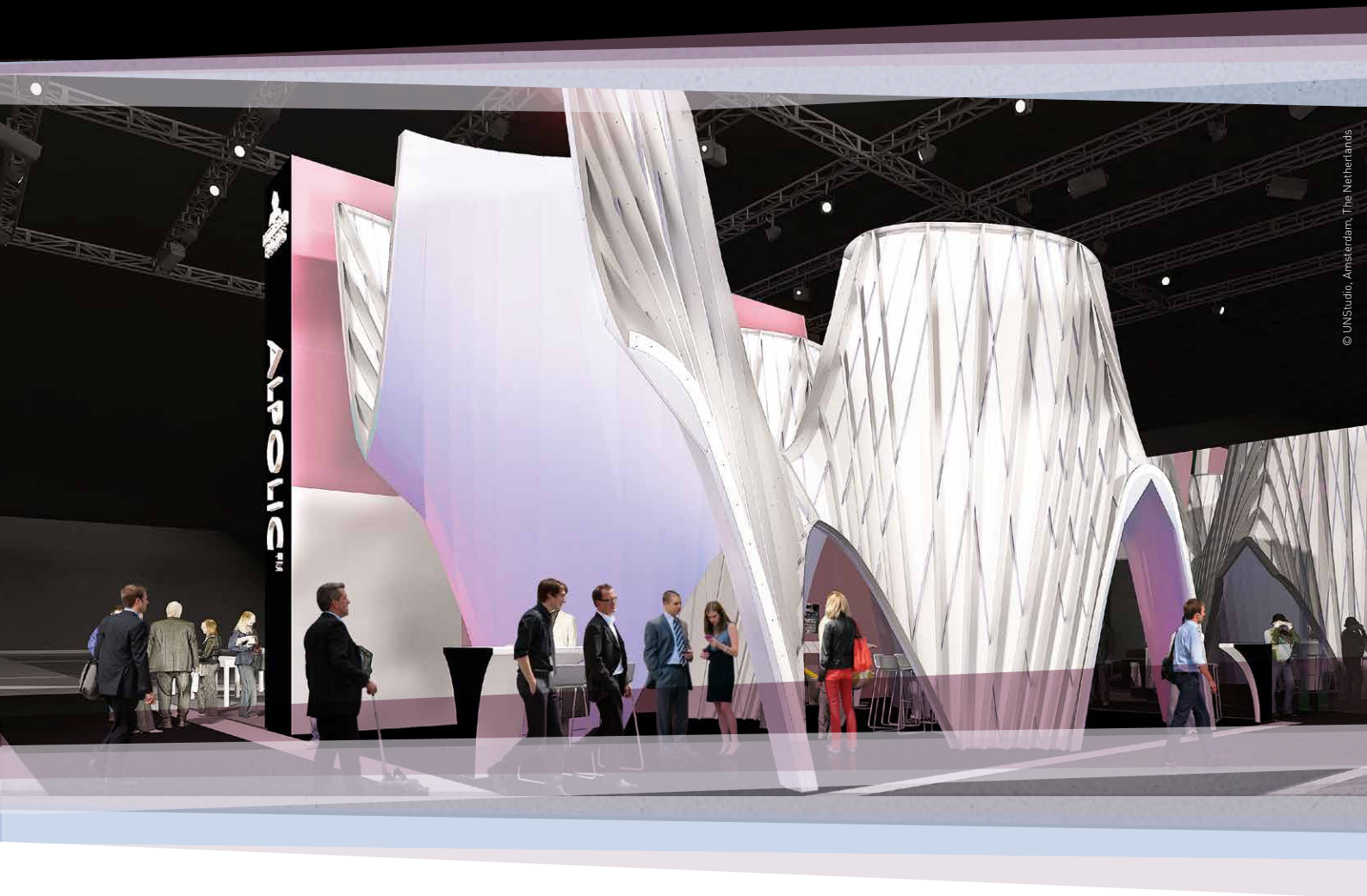



# ALPOLIC™



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## INNOVATIONS 2017

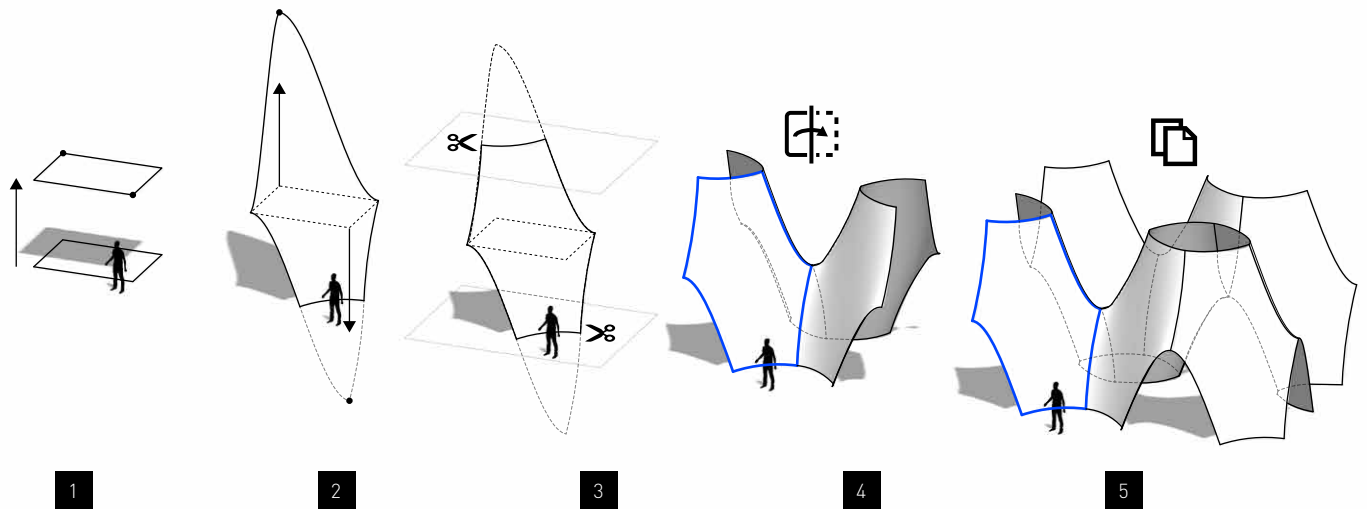
 MITSUBISHI POLYESTER FILM



MAKING-  
OF:  
FROM  
SURFACE  
TO SPACE

by UNStudio





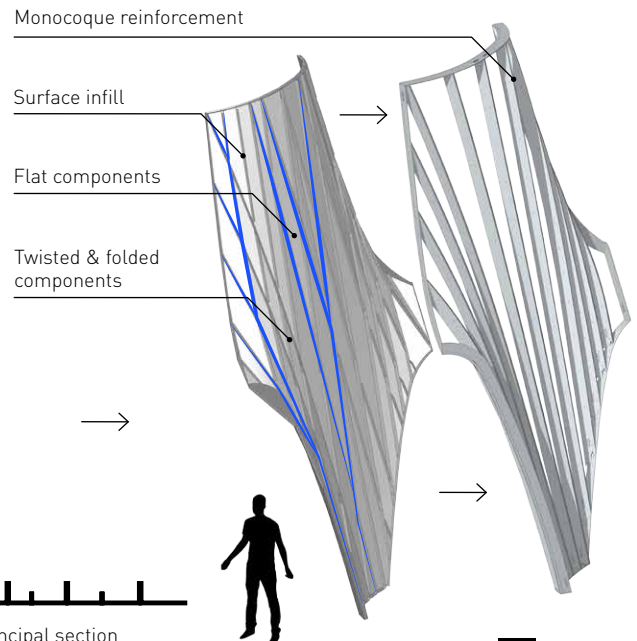
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Principal section

6

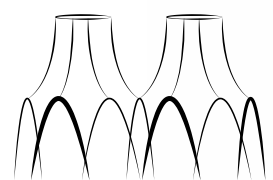
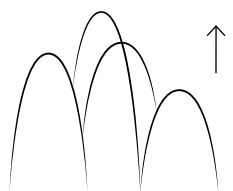
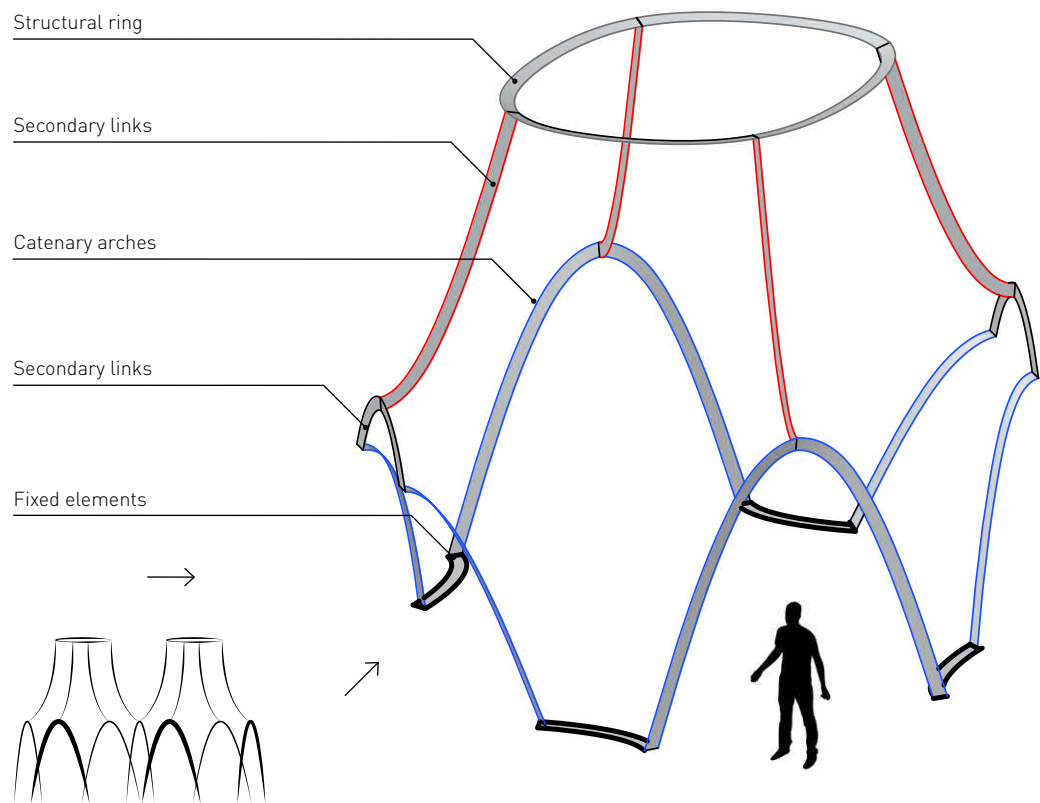
**From surface to space**

- 1 | Explore the potential of a flat ALPOLIC™ sheet; Elevate surface
- 2 | Pull the surface to introduce double curvature
- 3 | Remove parts with a high degree of curvature
- 4 | Provide structural stability by mirroring elements in 2 directions
- 5 | Create multitude of spaces and experiences; Create continuity between front and back face of the surface

**6 | Understanding natural performance**

**7 | Applying natural behavior**

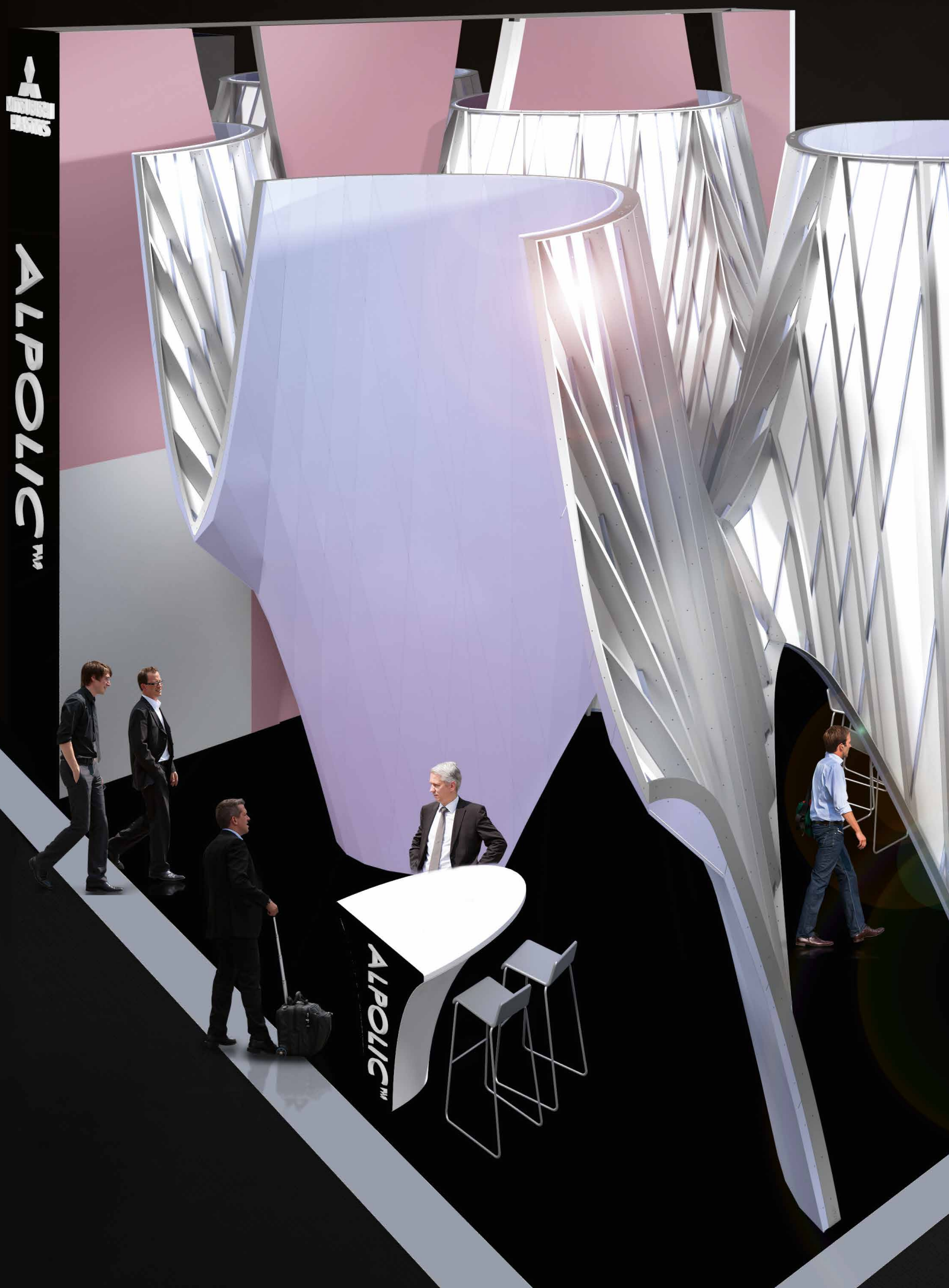
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ALPOLIC™

ALPOLIC™



# ALPOLIC™ IS ONE OF THE WORLD'S LEADING MANUFACTURERS OF ALUMINUM COMPOSITE PANELS FOR ARCHITECTURE



ALPOLIC™

## A STRONG BRAND FOR STRONG PARTNERS AND LARGE PROJECTS

ALPOLIC™ is a trademark of Mitsubishi Plastics, Inc.

For more than 45 years, architects worldwide have been relying on our high-quality products for building façades. In addition to our innovative strength, we offer the world's largest selection of finishes with products that are extremely environmentally friendly and of excellent quality.



We are

## TRENDSETTERS IN MANY AREAS

With numerous innovations ALPOLIC™ has influenced the market trends in recent years:

- First supplier of composite panels with decorative surfaces, natural metals and genuine anodized aluminum in the coil-coating process
- First supplier of A2 up to 2-meter width
- Maximum fire protection: All aluminum composite panels are available as standard in ALPOLIC™/fr (flame retardant) and ALPOLIC™ A2 (non-flammable) grades
- Largest selection of colors and finishes worldwide



We offer

## THE WIDEST VARIETY OF DESIGNS

The surface finish of ALPOLIC™ offers almost „limitless freedom“ for the design of the building envelope. Thanks to the variety of colors and shapes, as well as numerous processing advantages - low weight, high flatness, good formability and long-lasting coating quality - ALPOLIC™ is installed worldwide in numerous projects. When it comes to design, safety and efficiency, particularly in cases of large construction projects, the combination of design and the size of our composite panels (A2 up to 2 m width) play a decisive role.



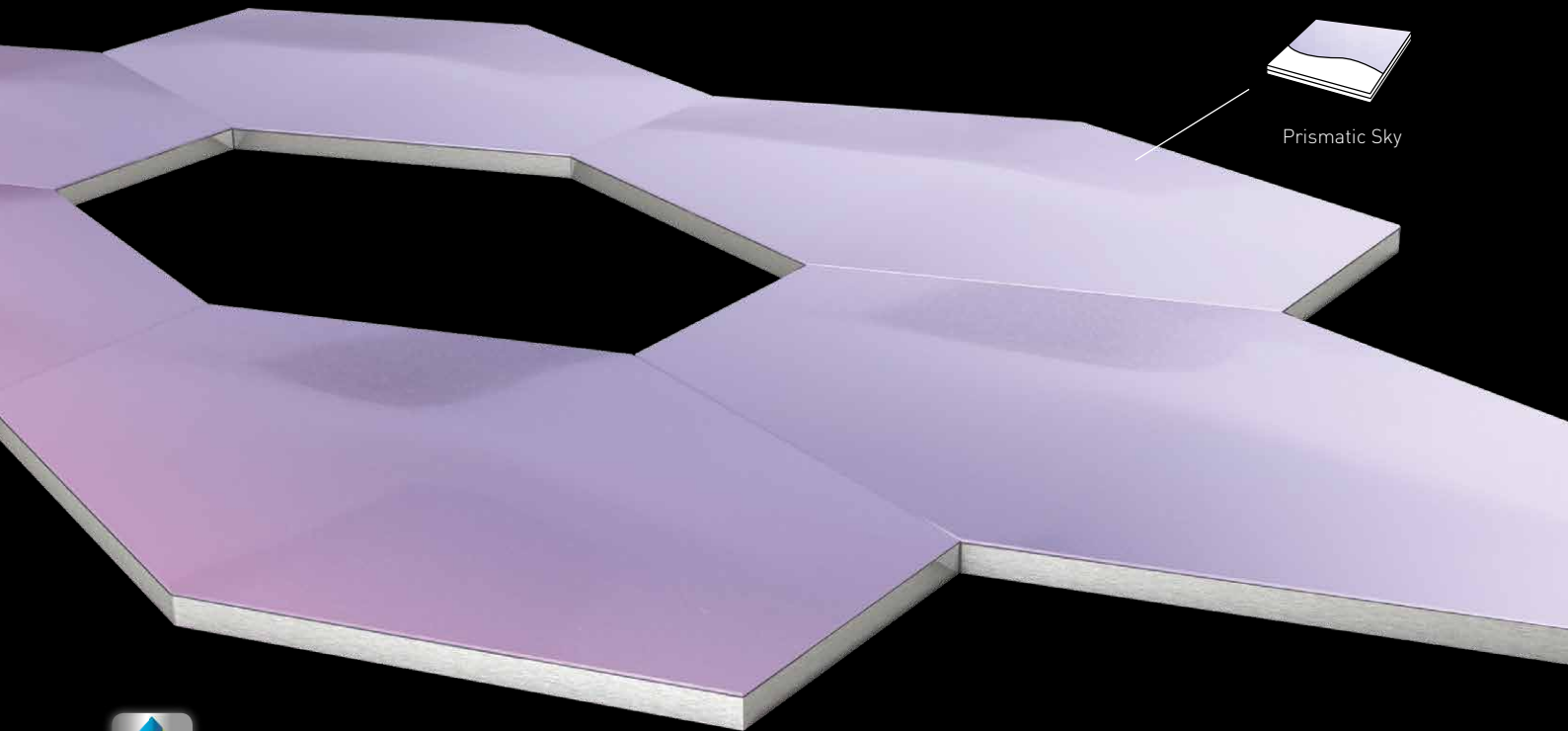
### Our promise

## UP TO 20 YEAR GUARANTEE THANKS TO LUMIFLON™

For its color coatings, ALPOLIC™ exclusively uses LUMIFLON™, based on a fluoropolymer coating (FEVE).

### Advantages:

- Good color stability and scratch resistance
- Outstanding UV, light and weather resistance as well as dirt resistance
- Protection against moisture, corrosion, oxidation and acid
- The only coating that is suitable both for coil-coating processes and spray painting, guaranteeing consistently high color stability for both processes
- No other technology allows so many shades and gloss levels – from matte to high gloss
- For finish repairs, LUMIFLON™ is also available in spray cans
- Up to 20 years' warranty



Prismatic Sky



### We breathe

## ENVIRONMENTAL PROTECTION AS A PROGRAM

All ALPOLIC™ aluminum composite panels are manufactured in our newly built plant in Wiesbaden using the most stringent safety and environmental requirements. Our aluminum composite panels are the only ones that are almost 100 % recyclable. The residues obtained in the production process are also collected and recycled. Above and beyond the legal requirements, Mitsubishi Plastics, Inc. is dedicated to continually improving its commitment to environmental protection. As one of the world's leading companies, we continually strive to be a leading player in this field.

**NEW**

Up to 2 m  
width!

## ALPOLIC™ A2 UP TO 2 M WIDTH – NEW DIMENSIONS IN FAÇADE DESIGN

ALPOLIC™ A2 is the only non-combustible aluminium composite panel available up to 2 m width. It can be used in both exterior and interior linings, roofs and coverings for new buildings and building renovations. Additionally ALPOLIC™ A2 offers numerous processing advantages: low weight, high flatness, good formability and long lasting coating quality.

# A2 up to 2m





## Composition of ALPOLIC™ A2

(Thickness: 4 mm)

LUMIFLON™-based FEVE paint (ACM), Anodic oxid layer (ACM reAL anodised)

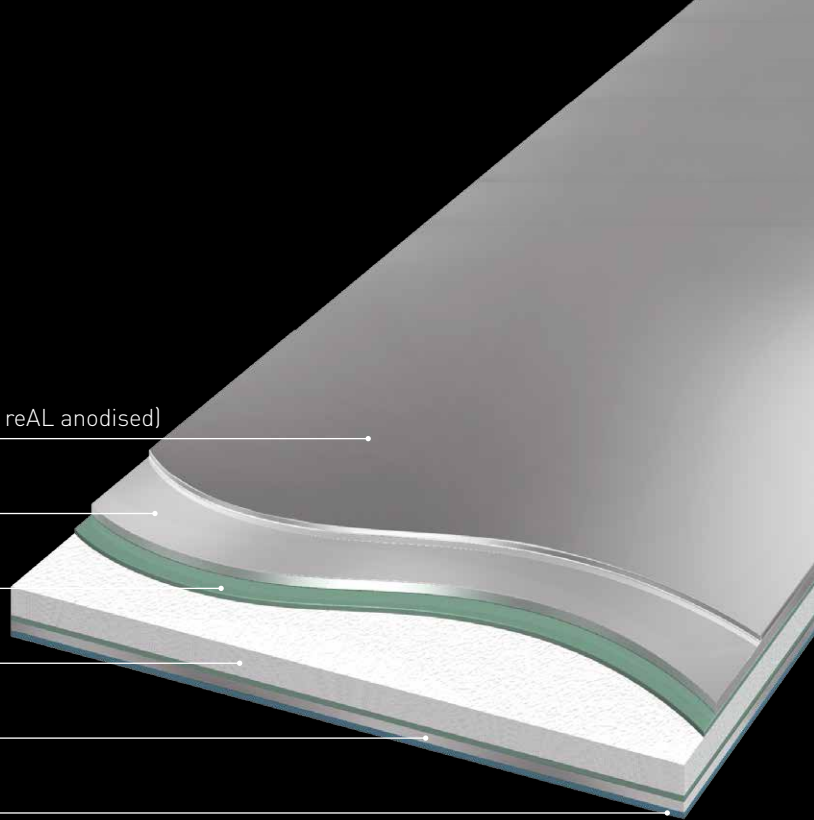
Aluminium (ACM), stainless steel (SCM), Titanium (TCM)

Rust preventing paint

High mineral filled core (A2)

Aluminium (ACM), stainless steel (SCM), Titanium (TCM)

Service coating (ACM)



90 %

The core material of ALPOLIC™ A2 consists of approx. 90 % of non-combustible materials

### Characteristics (4 mm thick)

(4 mm)	Method	Unit	ALPOLIC™ A2 ACM
Physical properties			
Thickness	-	-	4 mm
Specific gravity	-	-	2.03
Weight	-	kg/m <sup>2</sup>	8.4
Thermal expansion	ASTM D696	x 10 <sup>-6</sup> /°C	19
Thermal conductivity	Calculated value	W/(m.K)	0.45
Deflection temperature	ISO 75-2	°C	110
Mechanical properties of composite material			
Tensile strength	ASTM E8	MPa, N/mm <sup>2</sup>	43
0.2 % proof stress	ASTM E8	MPa, N/mm <sup>2</sup>	41
Elongation	ASTM E8	%	3.8
Flexural elasticity, E	ASTM C393	GPa, kN/mm <sup>2</sup>	38.5
Sound transmission loss			
-	ASTM E413	STC	27
Metal thickness with equivalent rigidity			
-	-	-	Aluminium 3.3 mm

### Fire performance of ACM series

Core Material	PE	ALPOLIC™ /fr	ALPOLIC™ A2
Approx. portion of combustible ingredients within the core material	100 %	< 30 %	< 10 %
Heat potential of the core material	> 45 MJ/kg	< 15 MJ/kg	< 3 MJ/kg
Reference fire classification	Euroclass C-D (EN 13501-01:2007)	Euroclass B (EN 13501-01:2007)	Euroclass A2 (EN 13501-01:2007)

### Dimension (Standard)

Thickness (tolerance ± 0.2 mm)	Standard width (tolerance ± 2 mm)	Bow tolerance
4 mm	1,250, 1,500 mm	± 0.5 % of the length and/or width
Skin thickness	Length (tolerance ± 4,0 mm)	Squareness tolerance
0.5 mm	1,800, 7,300 mm	Max. 5.0 mm

**NEW**

Reflective  
finish!

## ALPOLIC™/fr reAL ANODISED – ELEGANT, MODERN LOOKS THANKS TO GENUINE ANODISING

ALPOLIC™/fr reAL anodised the trend towards natural surface finishes in the architecture. The surface is finished with an anodic oxide layer by continuous process on an aluminium coil. Continuous anodising builds and enhances the surface oxidation using an electro-chemical process under precisely controlled conditions. Anodised finish has a long history and a quite normal finish in the architectural application. Generally, the thickness of anodised layer from 18 to 25 µm is required for the exterior application when the batch anodising process is applied. ALPOLIC™/fr reAL anodised is applied with very unique continuous anodising process for thinner aluminum web, and only 8 micron anodised layer can achieve the good quality for the exterior application. This method improved the color consistency against batch process.

108 N. State Street, Shopping Center,  
Chicago, Illinois, United States of America

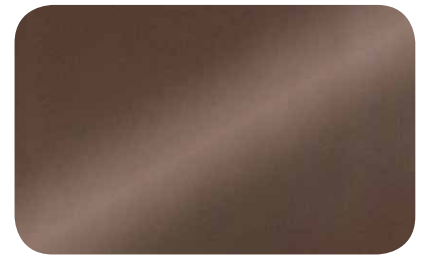
# reAL ANODISED COLORS



DE-AR0101  
Reflective Natural



DE-AR0220  
Reflective Gold 20



DE-AR0320  
Reflective Copper 20



DE-AM0102  
Mill Natural



DE-AM0240  
Mill Gold 40



DE-AM0350  
Mill Copper 50



DE-AB0103  
Brushed Natural



DE-AB0410  
Brushed Bronze 10



DE-AB0480  
Brushed Bronze 80

## Key benefits continuous anodised layer of 8 µm\*

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>✓ Enhanced anodic layer for ALPOLIC™ panels</li> <li>✓ No filiform corrosion</li> <li>✓ No peeling/blistering</li> <li>✓ No chalking</li> <li>✓ Long-term guarantee</li> </ul> | <ul style="list-style-type: none"> <li>✓ Wide range of colors</li> <li>✓ Excellent adhesion properties</li> <li>✓ Flexible anodic layer for sharp bending</li> <li>✓ Excellent corrosion resistance</li> <li>✓ Color and gloss stability</li> </ul> |
|---|---|

\* ALPOLIC™ A2 reAL anodised will also be available upon request

## Comparison continuous 8 µm vs. batch 25 µm

Continuous anodised 8 µm for ALPOLIC™ /fr reAL anodised	Batch anodised 25 µm
Special sealing quality: < 15 mg/dm <sup>2</sup>	Sealing quality: ≤ 30 mg/dm <sup>2</sup>
Enhanced anodic layer with special sealing	Standard anodic layer 25µm
Excellent color and gloss stability	Color and gloss uniformity more difficult to manage
Open porous cell structure -> easier to color	Dense porous cell structure
Flexible and hard anodic layer	Hard anodic layer with soft top layer
Easy to bend, fold, perforate	Cracking of anodic layer with bending, folding
No reduction of anodic layer	Fading of anodic layer within time (1 µm/year)

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www.alpolic.eu



Quality  
made in  
Germany



### Recycling

Our materials are almost 100% recyclable. Even waste from ALPOLIC™ plants is collected and recycled.



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