SECTION 07 4213
EXTERIOR METAL PANELS

PART 1 - GENERAL

1.1 SCOPE

A. Section includes:

1. The extent of panel system work is indicated on the drawings and in these specifications.

2. Panel system requirements include the following components:

   a. Aluminum faced composite panels with mounting system. Panel mounting system including anchorages, shims, furring, fasteners, gaskets and sealants, related flashing adapters, and masking (as required) for a complete installation.

   b. Parapet coping, column covers, soffits, sills, border, and filler items indicated as integral components of the panel system or as designed.

   c. Interior panel system work that basically matches exterior panel system work.

B. Related documents:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 01 Specification Sections apply to this Section.

C. Related work specified elsewhere:

1. Section 05 1200: Structural steel framing

2. Section 07 2100: Insulation

3. Section 07 6200: Sheet metal flashing and trim

4. Section 07 9200: Joint sealants

5. Section 10 1400: Signage

1.2 QUALITY ASSURANCE

A. Composite Panel Manufacturer shall have a minimum of 5 years' experience in the manufacturing of this product.

B. Composite Panel Manufacturer shall be solely responsible for panel manufacture and application of the finish.

C. Fabricator/installer shall be acceptable to the composite panel manufacturer.

D. Fabricator/Installer shall have a minimum 5 years' experience of metal panel Work similar in

scope and size to this project.

E. Field measurements should be taken prior to the completion of shop fabrication whenever possible. However, coordinate fabrication schedule with construction progress as directed by the Contractor to avoid delay of work. Field fabrication may be allowed to ensure proper fit. However, field fabrication shall be kept to an absolute minimum with the majority of the fabrication being done under controlled shop conditions.

F. Maximum deviation from vertical and horizontal alignment of erected panels: 6mm (1/47) in 6m (20') non-accumulative.

G. Panel fabricator/installer shall assume undivided responsibility for all components of the exterior panel system including, but not limited to attachment to sub-construction, panel to panel joinery, panel to dissimilar material joinery, and joint seal associated with the panel system.

H. Composite panel manufacturer shall have established a Certification Program acceptable to the local Code Authorities. Fire rated composite panels shall be used where required.

1.3 REFERENCES

A. Aluminum Association:

1. AA-M12C22A41: Anodized - Clear Coating

B. American Society for Testing and Materials

1. E 330 Structural Performance of Exterior Windows, Curtain Walls, and Doors under the Influence of Wind Loads
2. E 283 Rate of Leakage through Exterior Windows, Curtain Walls, and Doors
3. D 1781 Climbing Drum Peel Test for Adhesives
4. E 84 Surface Burning Characteristics of Building Materials
5. E 162 Surface Flammability of Materials Using a Radiant Heat Energy Source
6. D 3363 Method for Film Hardness by Pencil Test
7. D 2794 Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
8. D 3359 Methods for Measuring Adhesion by Tape Test
9. D 2247 Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
10. B 117 Method of Salt Spray (Fog) Testing
11. D 2244 Calculation of Color Differences from Instrumentally Measured Color Coordinates

12. D 4214 Evaluating the Degree of Chalking of Exterior Paint Films

13. D 822 Practice for Operating Light and Water Exposure Apparatus (Carbon-Arc Type) for Testing Paint, Varnish, Lacquer, and Related Products

14. D 1308 Effect of Household Chemicals on Clear and Pigmented Organic Finishes

1.4 SUBMITTALS

A. Submittals shall be in conformance with specifications. Include section number of Division 01, which outlines administrative procedures for submittals. Refer to Division 01, Section 013 300 – Submittal Procedures.

B. Samples:

1. Panel System Assembly: Two samples of each type of assembly. 12" x 12" minimum.

2. Two samples of each finish selected, 3" x 4" minimum.

C. Shop Drawings:

1. Submit shop drawings showing project layout and elevations; fastening and anchoring methods; detail and location of joints, sealants, and gaskets, including joints necessary to accommodate thermal movement; trim; flashing; and accessories.

2. Shop drawings shall show the preferred joint details providing a structurally sound wall panel system that allows no uncontrolled water penetration on the inside face of the panel system as determined by ASTM E 331. Systems not utilizing a construction sealant at the panel joints (i.e. Rout and Return Dry and Rear Ventilated System) shall provide a means of concealed drainage with baffles and weeps for water which may accumulate in members of the system.

D. Affidavit certifying material meets requirements specified.

E. Two copies of manufacturer's literature for panel material.

F. Code compliance: Documents showing product compliance with the national and local building code shall be submitted prior to the bid. These documents shall include, but not be limited to, appropriate Evaluation Reports and/or test reports supporting the use of the product.

G. Alternate materials must be approved by the architect prior to the bid date.

1.5 DELIVERY, STORAGE AND HANDLING

A. Protect finish and edges in accordance with panel manufacturer's recommendations.

B. Store material in accordance with panel manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 PANELS (ACM-1)

A. Metal siding panels with 4-inch trapezoidal corrugations, installed horizontally

B. Manufacturers:

1. Alcoa www.alcoa.com

C. Panel: Alcoa Reynobond

D. Finish: Silver Metallic

2.2 PANELS (ACM-2)

A. Metal siding panels with 4-inch trapezoidal corrugations, installed horizontally

B. Manufacturers:

1. Alcoa www.alcoa.com

C. Panel: Alcoa Reynobond

D. Finish: Toyota Red

2.3 PANELS (ACM-3)

A. Dry system with maximum ½-inch dry joint

B. Manufacturers:

1. Alcoa www.alcoa.com

C. Panel: Alcoa Renyobond

D. Finish: Graphite Gray (RAL7024) Used at Service Recption

2.3 PANEL FABRICATION

A. System Type

1. Rout and Return Wet: System must provide a wet seal (caulked) reveal joint as detailed on drawings. The sealant type shall be as specified in Section 07 9000 and with foamed type backer rod as indicated on architectural drawings.

2. Rout and Return Dry: System must provide a perimeter aluminum extrusion with integral

weather-stripping as detailed on drawings. No field sealant required in joints unless specifically noted on drawings.

3. Rear Ventilated Rain Screen: System must provide a reveal joint as detailed on drawings. Provide moisture barrier and sheathing as shown on drawings.

B. System Performance

1. Composite panels shall be capable of withstanding building movements and weather exposures based on the following test standards required by the Architect and/or the local building code.

2. Wind Load:

   a. Panels shall be designed to withstand the Design Wind Load based upon the local building code; but in no case less than 20 115/112 and 30 lb./ft^2 on parapet and corner panels. Wind load testing shall be conducted in accordance with ASTM E 330 to obtain the following results:

      1) Normal to the plane of the wall between supports, deflection of the secured perimeter-framing members shall not exceed 1/175 or 3/4", whichever is less.

      2) Normal to the plane of the wall, the maximum panel deflection shall not exceed 1/60 of the full span.

      3) Maximum anchor deflection shall not exceed 1/16".

      4) At 1-1/2 times design pressure, permanent deflections of framing members shall not exceed L/100 of span length and components shall not experience failure or gross permanent distortion. At connection points of framing members to anchors, permanent set shall not exceed 1/16".

3. Air/Water System Test

   a. If system tests are not available, mock-ups shall be constructed and tests performed under the direction of an independent third party laboratory, which show compliance to the following minimum standards:

      1) Air Infiltration - When tested in accordance with ASTM E 283, air infiltration at 1.57 lb. /ft^2 must not exceed 0.06 ft^2/min. per ft^2 of wall area.

      2) Water Infiltration - Water infiltration is defined as uncontrolled water leakage through the exterior face of the assembly. Systems not using a construction sealant at the panel joints (i.e. Rout and Return Dry and Rear Ventilated Systems) shall be designed to drain any water leakage occurring at the joints. No water infiltration shall occur in any system under a differential static pressure of 6.24 lb./ft^2 after 15 minutes of exposure in accordance with ASTM E 331.

3. Maintain panel flatness. Stiffener material and/or finish shall be compatible with the silicone.

4. Sealants and gaskets within the panel system shall be as per manufacturer's standards to meet performance requirements.

2.4 FLASHING

A. Fabricate flashing materials from 0.030" thickness aluminum sheet painted to match the adjacent curtain wall! Panel system where exposed. Provide a lap strap under the flashingat abutted conditions and seal lapped.

B. Surfaces with a full bed of non-hardening sealant. Accessories

1. Extrusion, formed members, sheet, and plate shall conform to ASTM B 209 and the recommendations of the manufacturer.

2. Panel stiffeners, if required, shall be structurally fastened or restrained at the ends and shall be secured to the rear face of the composite panel with silicone of sufficient size and strength.

3. Fasteners (concealed/exposed/non-corrosive): Fasteners as recommended by panel manufacturer. Do not expose fasteners except where unavoidable and then match finish of adjoining metal.

PART 3 - EXECUTION

3.1 INSPECTION

A. Surfaces to receive panels shall be even, smooth, sound, clean, dry and free from defects detrimental to work. Notify contractor in writing of conditions detrimental to proper and timely completion of the work. Do not proceed with erection until unsatisfactory conditions have been corrected:

B. Surfaces to receive panels shall be structurally sound as determined by a registered Architect/Engineer.

3.2 INSTALLATION

A. Erect panels plumb, level, and true.

B. Attachment system shall allow for the free and noiseless vertical and horizontal thermal movement due to expansion and contraction for a material temperature range of -20°F to +180°F. Buckling of panels, opening of joints, undue stress on fasteners, failure of sealants or any other detrimental effects due to thermal movement will not be permitted. Fabrication, assembly, and erection procedure shall account for the ambient temperature at the time of the respective operation.

C. Panels shall be erected in accordance with an approved set of shop drawings.

D. Anchor panels securely per engineering recommendations and in accordance with approved shop drawings to allow for necessary thermal movement and structural support.

E. Conform to panel fabricator's instructions for installation of concealed fasteners.

F. Do not install component parts that are observed to be defective, including warped, bowed, dented, abraised, and broken members.

G. Do not cut, trim, weld, or braze component parts during erection in a manner which would damage the finish, decrease strength, or result in visual imperfection or a failure in performance. Return component parts which require alteration to shop for refabrication, if possible, or for replacement with new parts.

H. Separate dissimilar metals and use gasketed fasteners where needed to eliminate the possibility of corrosive or electrolytic action between metals.

3.3 ADJUSTING AND CLEANING

A. Remove and replace panels damaged beyond repair as a direct result of the panel installation. After installation, panel repair and replacement shall become the responsibility of the General Contractor.

B. Repair panels with minor damage.

C. Remove masking (if used) as soon as possible after installation. Masking intentionally left in place after panel installation on an elevation, shall become the responsibility of the General Contractor.

D. Any additional protection, after installation, shall be the responsibility of the General Contractor.

E. Make sure weep holes and drainage channels are unobstructed and free of dirt and sealants.

F. Final cleaning shall not be part of the work of this section.

END OF SECTION 07 4213

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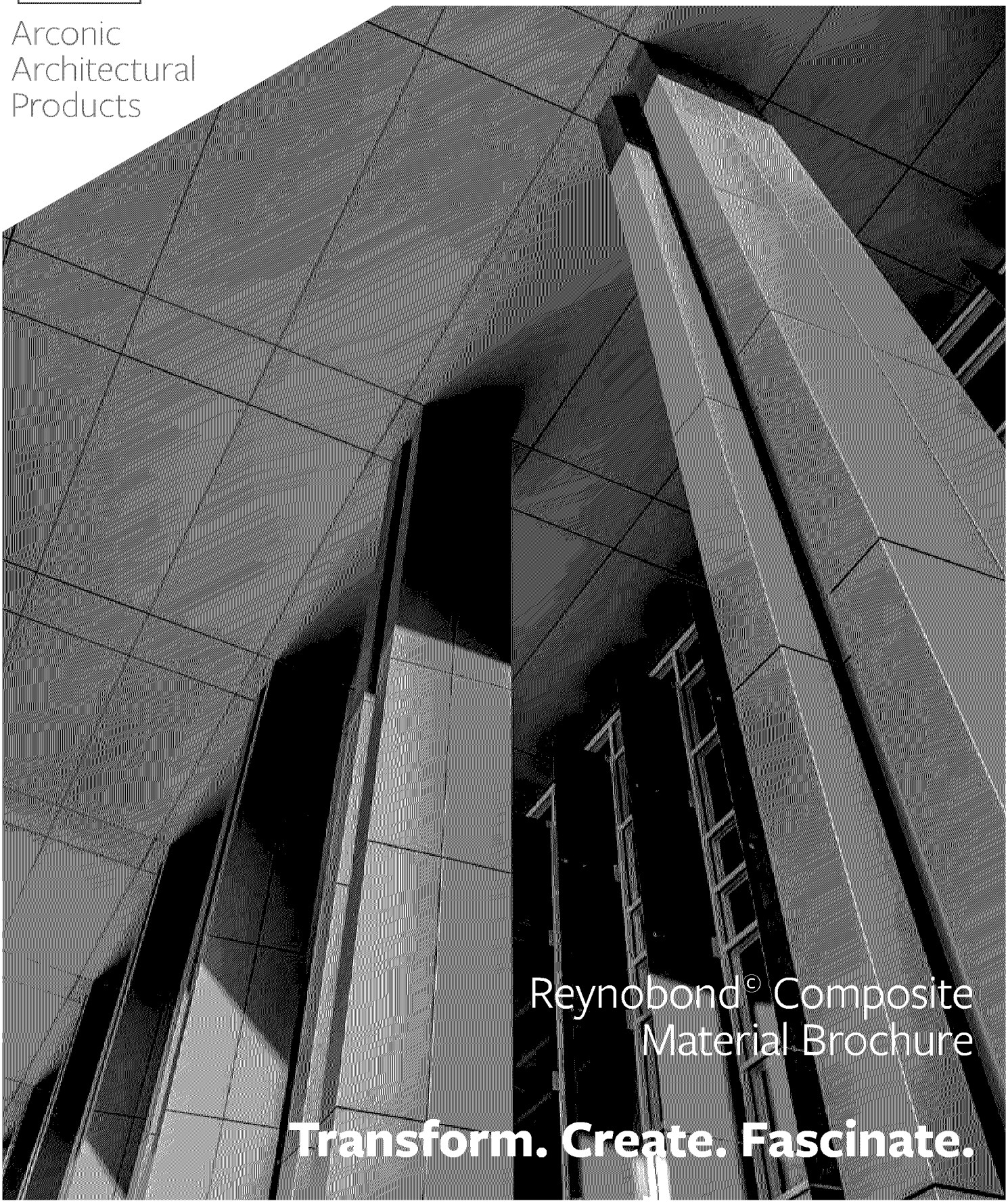
Arconic
Architectural
Products



Reynobond© Composite Material Brochure

Transform. Create. Fascinate.

ARCONIC

Complete Versatility in Exterior Applications – with Reynobond® Composite Material.

Reynobond® composite panels consist of two coated aluminium sheets that are laminated to both sides of a fire-resistant (FR) core. Flatness, lightweight, minimal expansion, high corrosion and weather resistance are some of the advantages that make it an outstanding product. Please ask for the product datasheet for more information.

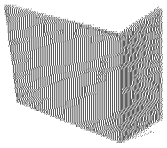
Versatile and Easy to Fabricate.

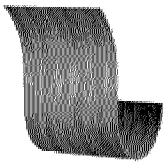
Reynobond® composite panels enable flexibility in fabrication allowing freedom in design for unusual shapes.

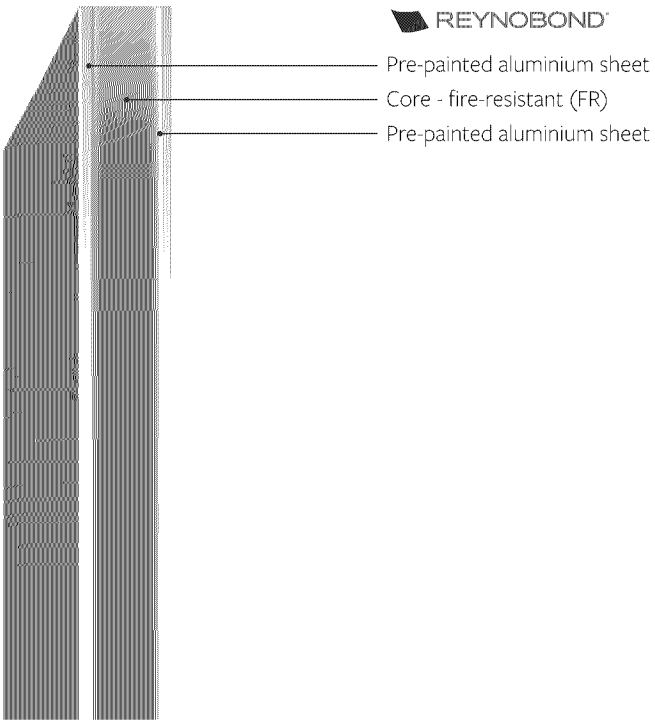
Reynobond© Composite Material

FABRICATION

- Bending
- Rolling







Advantages:

- **Products:**
  - ✓ Cost-effective: easy and quick installation and maintenance
  - ✓ Highly UV and weather resistant
  - ✓ Warranty up to 30 years
  - ✓ Easy to fabricate and bend: freedom in design for unusual shapes
- **Service:**
  - ✓ In widths up to 62 in and lengths up to 360 in
  - ✓ Flexible and short lead times for standard stocking items

Paint Qualities & Technical Coatings

Good resistance to corrosion, UV and weathering, flexibility required for fabrication, and a wide range of colors are some of the advantages offered by our paint qualities. They come with a 20 or 30 year warranty.

- **Colorweld® 500/500XL:**
  High-performing, coil-coated finishes that allow color matching at the highest uniformity and quality. They feature 70% Kynar 500®/ Hylar 5000® polyvinylidene fluoride (PVDF) resins with fluoropolymer technology, providing excellent flexibility and film adhesion for forming, with superior resistance to humidity, impact, salt spray, pollution and abrasion. Colorweld® 500/500XL paint is specifically developed for outdoor applications such as facades and roofing, both in the area of new buildings as well as refurbishment.

- **Duragloss® DL/PFX:**
  A high-tech coating especially developed for architectural applications such as facades and roofs, both in the area of new buildings as well as refurbishment. These advanced polymer coatings provide a high resistance to aging, UV and corrosion making them an attractive option for large outdoor applications, which place exceptionally high demands on evenness in colors.

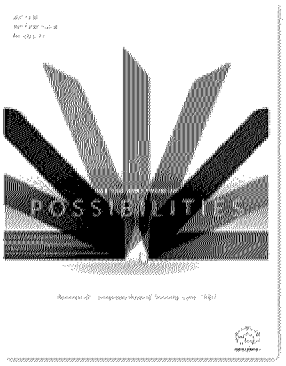
Ask for the paint datasheet for more information.

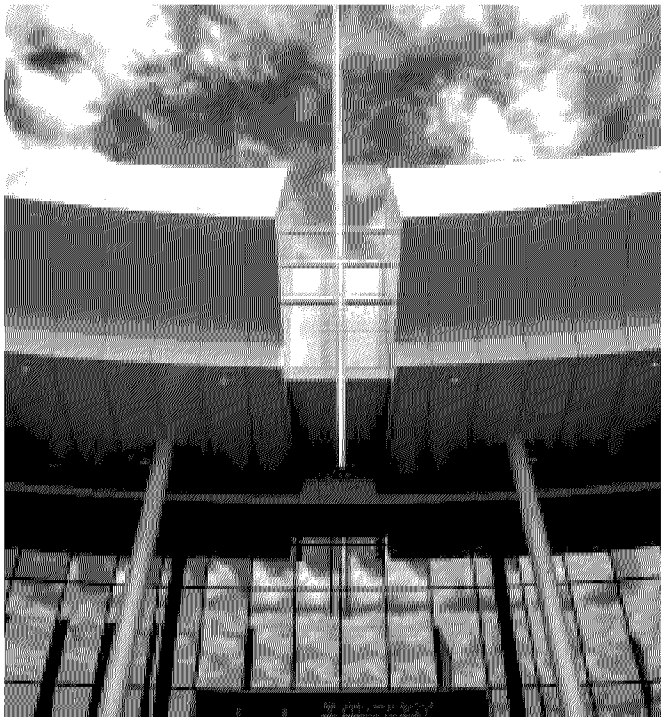
Wide Range of Colors.

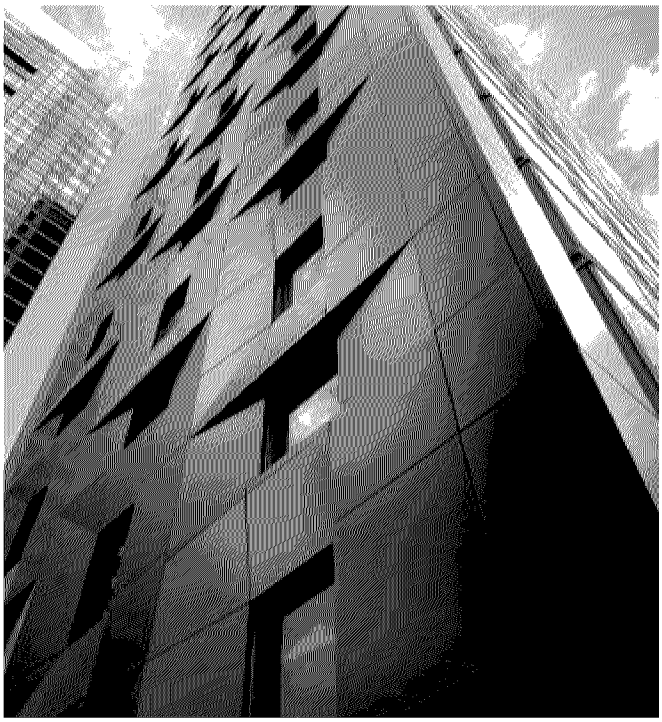
You can find all standard finishes in our color chart:

- **Colorweld® 500:** Solid, Mica, Metallic
- **DesignLine™:** Wood, Mineral, Patina, Stone, Concrete
- **PrismFX™:** Color Shifting
- **Colorweld® LF:** Brushed Aluminum
- **Colorweld® Brite:** Brite Mirror
- **Anodized:** Clear

Custom color matching also available.







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Technical Data Reynobond® Composite Material

Products composition		Reynobond® FR
Thickness composite panel		0.157 in 4mm
Thickness pre-painted aluminium sheet		0.020 in (± 0.002 in) 0.5 mm (± 0.2 mm)
Alloy & temper		Series 3000
Core		FR
Front side finish		Anti-corrosive treatment plus: COLORWELD® 500/500XL or DURAGLOSS® DL/PFX
Reverse side finish		Washcoat - Other on request
Products characteristics		
Width		62 in 1575 mm
Length		243 in 6172 mm
Weight		1.58 lb/ft² 7.7 kg/m²
Tolerance in squareness		<0.118 in < 3 mm
Tolerance in bow		≤ 2 mm/500 mm over lengths and widths
Products performance		
Tensile strength (R_m)	lb/in² Mpa	6.3 ksi 43.90 Mpa
Flexural Modulus (Core Yield Shear stress)		176 psi 1.21 Mpa
Stiffness (EI)	lb-in²/in kN-m²/m	0.035 lbf/in² 0.242 kN.m²/m
Thermal expansion		0.0288 in/ft OR 2.4 mm/m for a temperature variation of 100°C (212°F)
Temperature resistance		-40°F/+180°F -40°C/+80°C
Maximum allowable deflection		L/30
Fire classification		
Flame Spread Index Smoke Developed Index	ASTM E84	<25 <450
Self Ignition Temperature	ASTM D1929	824°F 440°C

Check model building code for acceptable deflection limits.

Our paint datasheets are also available, please ask for the dedicated datasheet.

The technical data refers to currently available products. Please note that the specific characteristics of each project have to be taken into account (country, delivery time, size of transport containers, etc.).

Disclaimer

Laws and building and safety codes governing the design and use of AAP's products, and specifically aluminum composite materials, vary widely. It is the responsibility of the owner, the architect, the general contractor, the installer and the fabricator/transformer, consistent with their roles, to determine the appropriate materials for a project in strict conformity to all applicable national, regional and local building codes and regulations. REYNOBOND IS COMBUSTIBLE; IT COULD CATCH FIRE AND BURN. SEE AAP WEBSITE FOR PRODUCT WARNINGS. ANY LABORATORY TESTING INFORMATION PROVIDED BY AAP APPLIES ONLY TO THE PARTICULAR PRODUCT OR ASSEMBLY TESTED AND DOES NOT NECESSARILY REPRESENT HOW PRODUCTS WILL ACTUALLY PERFORM IN USE.

ARCONIC

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